

**INSTRUCTION BOOK**  
**AND**  
**ILLUSTRATED PARTS LIST**

*For Model D*  
**GRAVELY TRACTOR**  
**AND**  
**GRAVELY MOWER ATTACHMENTS**

**GRAVELY MOTOR PLOW & CULTIVATOR CO.**  
**DUNBAR, WEST VIRGINIA, U. S. A.**

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## Foreword

**W**E are mighty glad that you have purchased a GRAVELY TRACTOR, and feel sure that you will be well pleased with this machine. The very best materials obtainable were used in the construction of this GRAVELY and it was assembled and tested with the greatest of care. It left our factory in good condition.

We are confident that it will give you good service. However, this will depend to a great extent upon you. If you will give it the proper care you can secure much better results. This is true of any motor driven implement. The operation of the GRAVELY is quite simple. We are going to show you step by step the way in which we recommend the machine to be used. Let us emphasize the importance of following these instructions. Remember, the men who designed and built this machine know how to cultivate crops. They further know how to use the GRAVELY to the best advantage in doing this work.

Please read this booklet carefully and follow suggestions and instructions contained therein.

Whenever you find it necessary to write us with reference to the engine, or to order parts, always give the model letter and serial number. These will be found on the crankcase.

### GUARANTEE

The GRAVELY is guaranteed to be free from defective material and workmanship. If any part is found defective it should be returned to us, carrier charges prepaid, and, it will be examined by our experts. If it does show defect, and has not been damaged through neglect of operation, it will be replaced without charge. Our guarantee is limited to the replacement of parts and does not include any labor charge.

Never return material to us without writing a letter explaining what parts are being returned, the engine number and the reason for return. Tag each piece with your name, address, and engine number. Transportation charges must be prepaid on all shipments.

# OPERATION AND CARE

## *of the* "GRAVELY"

### MOTOR CULTIVATOR

**EXPLANATION:** After calling each part by its name, we are going to follow this by figures. For instance: Tank Shell (192), etc. The figures refer to the photo number of the part as illustrated in the back pages of this book. If you are not quite certain as to what part we are referring to, look at the photo and make sure.

#### UNPACKING AND SETTING UP

After the entire machine has been taken from the crate, open the small wooden box. In this you will find wrenches, (270), etc., screw driver (275), etc.

On each side of the rear tank you will find two small wooden boards which are used in shipping. Take these off by simply removing the nuts (178) from the Handle Securing Bolt (180), and allow the Rear Braces (260) to fall down.

You can assemble the Handles (174 & 5). Insert the Handle Round (176). The holes are already in the handles and you simply drive the wooden round in. Insert the Handle Tie Bolt (177). Fasten with the Nuts (178) and Washers (179).

Attach the Handles to the machine proper by removing the Handle Clamp Washers (180), and inserting the end of the handles there. Retighten these Washers with the nuts already on the machine. Also attach the Handles with the Securing Bolt which originally held the boards.

Connect the Throttle Wire (186), on Left Handle and to the Carburetor (225). Notice the small hole and screw on the Carburetor Lever. The wire goes directly into this hole. The Lever (183) on the left Handle should be pushed down as low as it will go. The Carburetor Lever should also be pushed to the right as far as it will go. Then the wire should be pushed through until it is entirely straight with the levers mentioned. Tighten with the screw. On the right of handle is the Clutch Control Wire (187). Allow Clutch Hand Lever (180) to slip from the leather Binding Strap (278), and to fall as low as it will. Connect this wire to the Adjusting Clips (120). Make it straight and fasten by bending. If you later find that your clutch needs adjusting, you can do this by adjusting the small nut (121) which is on the Spring Rod (118).

Take the tool holder proper (296) off the machine by removing nut on bottom of Side Plates (167-8). Put the Stand (265) back on by re-tightening these nuts.

Turn the machine over on its right side. Don't turn on the side the Spark Plug (5) is on. Now put on the remaining Drive Wheel

Cleats (127) using Lock Washer (129) and Bolts (128) already on the wheel.

Attach the Tool Holder (269) in front. You needn't re-adjust it any from the way it comes on the machine, although the photo shows it differently. Later on we'll tell you how to attach the cultivating tools. Use the Front Braces (261) for attaching in front. They are already on the machine. Keep the Rear Braces so they can be used for special tools, etc.

But before you attempt to do any work with the machine we believe that it would be a good idea for you to familiarize yourself with the engine and its operations. So, with the machine this far assembled, without tools attached, you can start the engine.

### **STARTING THE MOTOR**

Fill the rear tank with gas; and the front one with oil. Be sure and use a GOOD GRADE OF OIL. We recommend Gargoyle Mobiloil "BB" (S. A. E. No. 50) or other high grade oil of similar body and character. The tank will hold about three quarts, and you should never let the supply get below one quart. Being familiar with gasoline engines, you no doubt realize the importance of lubrication and the damage caused if the oil supply is allowed to become too low. Be careful and watch your oil supply.

Now would be a good time to go over the entire machine and see if any parts are missing. It sometimes happens that parts are removed while the machine is in transit. If everything is O. K. you can now get the leather starting strap (277) and wind this around the fly wheel pulley (92), clockwise, or in a right hand direction. Before attempting to pull this strap be sure that the clutch lever on the right handle is fastened, and be sure to read the Carburetor Instructions. See that the air cleaner is fastened on tight and that the air filter is clean. Especially is this true when the machine is used in dirt and dust. Remember if you put your nose down in the dirt and dust and breathe 1,000 times per minute, like this little engine does, you would not last very long. Neither will it, if you let the dirt get in.

Take good care of your machine and it will pay you big dividends. Don't leave it out in the weather. Keep all bolts and nuts tight. Don't let them get rusty.

You can now give the strap a good steady pull with your right hand, much in the same manner a boy will spin a top. Figure "A" will give you a good idea as to the proper way.



**Fig. A**

The engine should start on the first pull if everything is properly adjusted. The lever on the left handle controls the gas and regulates the speed. Detailed instructions what to do if the engine refuses to start will be found at the end of this book.

We will now assume that the engine has started and runs properly.

**TO GO FORWARD** release the clutch on the right handle and let it down.

**TO STOP**, simply pull this clutch up and latch it.

### ATTACHING THE TOOLS

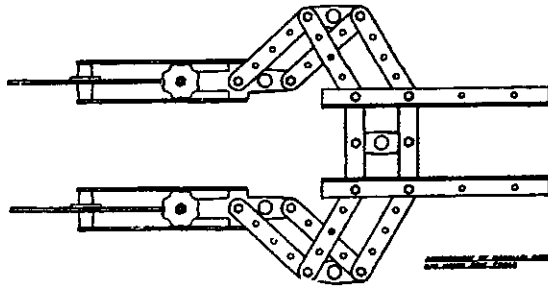


Photo No. 1



Photo No. 1A

Photo No. 1 will show the principle used in attaching all tools to the GRAVELY. Notice the flexibility of this outfit. We have it this way so you can adjust the machine to suit whatever kind of crops you may have, according to the width of rows, etc. While there are a great many tools used with the GRAVELY, you will find that they are all attached upon the same principle.

We are going to list the tools you will likely use most and show you how to attach them. It isn't practical to name every one. From the list that we will give, pick out the tools you want to use first. We will tell you exactly how to attach them. If you want to use your machine for something that we haven't mentioned, sit down and figure it out for yourself. Use Photo No. 1 for a guide. Or, if you have time, write us or your dealer and see what we can offer.

Too much cannot be said about the importance of getting the tools attached and adjusted right. Even though your engine runs perfectly, if the tools aren't right, you'll still fail to get the excellent results you should with the GRAVELY.

**USE ALL TOOLS IN FRONT UNLESS SPECIFICALLY ADVISED BY US TO DO OTHERWISE.** This is a decided advantage and one that you'll realize after you have worked the machine for a few days. It may seem awkward at first, but we have tested this out for years. Take our word that much better results can be secured and use the tools our way.

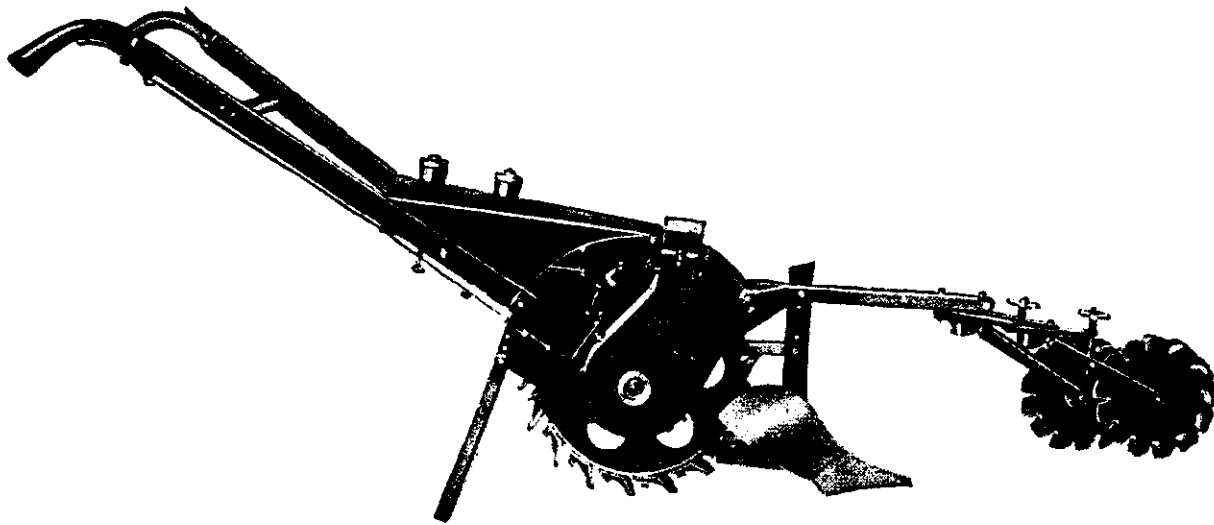


Photo No. 2

**SET-UP NO. 2—TURN PLOW****(For Light Turning)**

The above picture shows how the hitch bolts onto the tractor frame in the same manner as the regular tool holder using the same bolts. You will also notice the slots and holes for adjusting the pitch or the point of the plow. The Depth Adjusting Wheels (234) are used in front, and which serve as a further depth adjustment.

This is a very popular outfit for light turning. It will plow from 4 to 6 inches deep. This, of course, depending on the condition of the soil. We don't say that it should be used for turning sod or breaking new ground.

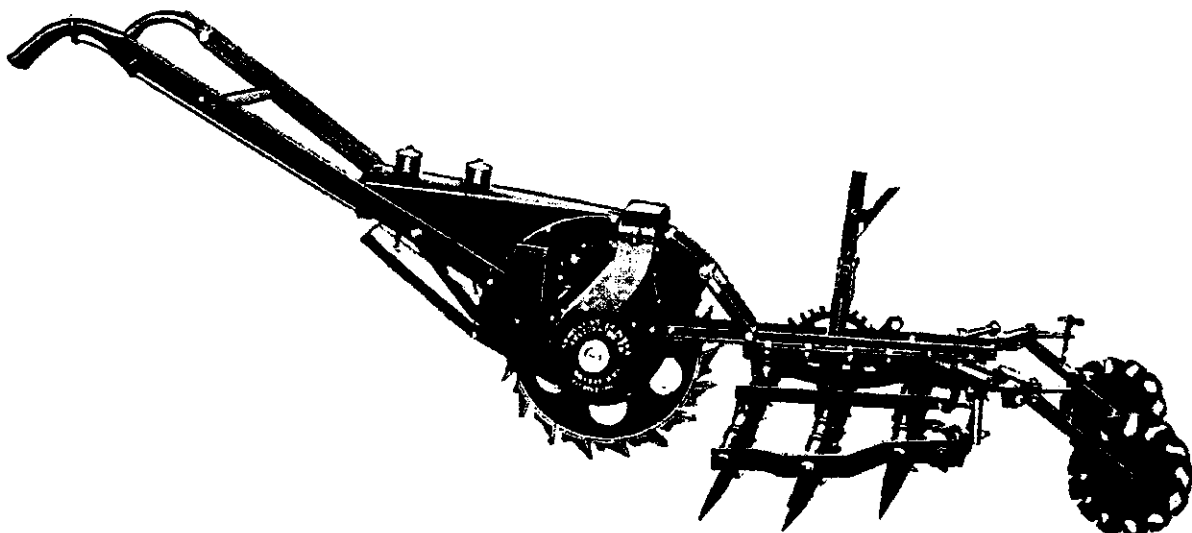


Photo No. 3

**SET-UP NO. 3—HARROW WITH HITCH**

Photo 3 explains itself. We might add that the necessary screws, bolts, are furnished with each Harrow for attaching. Use part of your regular tool holder. You will recognize these parts from the photo. This is an 18 tooth Steel Harrow, weighing but 65 pounds. A very competent outfit for preparing your soil after it has been turned, etc.

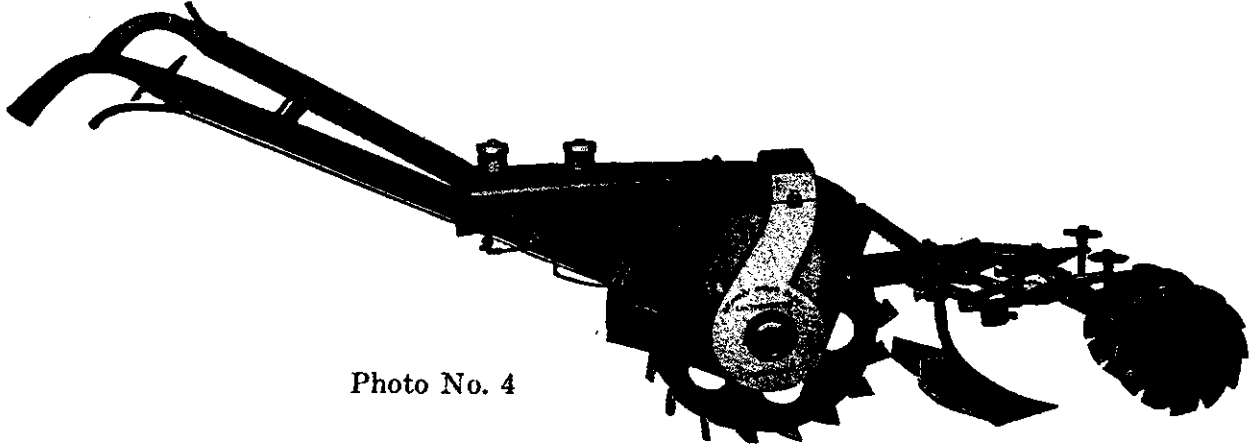


Photo No. 4

**SET-UP NO. 4—FURROWER**

As the name applies, this is used for making your furrows. Use it in front and as illustrated. Notice that it goes in the center tool holder casing (236). This allows your traction wheel to run in the bottom of the furrow. Use 2 bolts on the Furrower and a shank (256) drilled with 2 holes.

You can secure any size Furrower you desire. All of them are attached like the one shown. For instance, bulb growers, etc., sometimes like to use a small 7" Furrower sometimes called Shovel Steel. You can get it in a 10, 12, 15, or 20 inch size.

**SET-UP NO. 5—FURROWER USED WITH TURNING SHOVELS (Not Illustrated)**

**(For covering and hilling)**

This outfit is used for covering bulbs, etc., after they are planted. The Furrower is in the center, the right and left turning shovels on either side and ALWAYS IN FRONT OF THE FURROWER. You can at once see how this works. The shovels slide the dirt back over the bulbs and level the row. The Furrower follows this up by leveling the middle of the row.

This same outfit is used for "hilling" such crops as potatoes, cauliflower, cabbage, or whatever you desire. It works exactly as explained for covering, except that when the plants get larger the dirt is thrown up around them.

If, when working in hard ground, the tractor should have a tendency to jump instead of running smoothly, it may be caused by the Furrower running too much on its nose. Remedy this by attaching the tool holder properly in the bottom holes of the side plates.



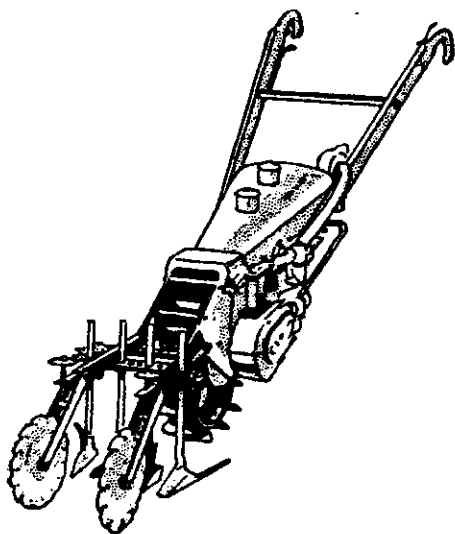


Photo No. 6

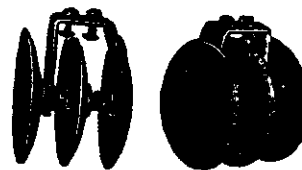


Photo No. 6-A

To attach Discs, remove the two (236) Plain Shank Holders, one on each side of the regular tool holder. This at the same time removes the Depth Adjusting Wheels (234). To the Parallel Bars (252) only now extending attach the Discs, using the bolts furnished with them. Always be sure that both Disc Gangs are set at the same angle.

### SET-UP NO. 6—CULTIVATOR HOES

(For 2-row cultivating)

This outfit is used for 2-row work and where a 2-row seeder has been used. It will straddle two rows at a time, using the same set-up on your frame as shown in Photo 1, with possibly a change of the position of the parallel bars (252). Do this by loosening the hex cap screws and push the bars into any desired position. The hoes are not intended for deep cultivating, but to more or less take the place of the wheel hoes. You can use the same arrangement for 1-row work by simply removing one pair of the hoes. The remaining pair can be set to work between rows, or to straddle if you like. This is used for the cultivating of narrow row crops, such as carrots, beets, lettuce, onions, etc.

### SET-UP NO. 7—SMALL CULTIVATOR TEETH

(For light cultivating)

This is used on the same crops as the hoes and you can work out either one or three centers at a time. The cultivator teeth, fasten on the Auxiliary Tool Plate (258), three teeth to each plate. For this set-up you will have to change the position of the parallel bars. Instead of bringing them back to the center, extend them straight out from the end, using one of the Depth Adjusting Wheels (234) on each side. Fasten one tool plate in the shank holder of the depth wheel and one in the center tool holder casting. Swing the parallel bars to whatever position is needed to get the desired distance. This will work up to 15" rows without longer parallel bars. This set-up also makes a very good job for leveling down a small piece of ground and is preferred by many users to the hoes, especially where the ground is dry and hard.

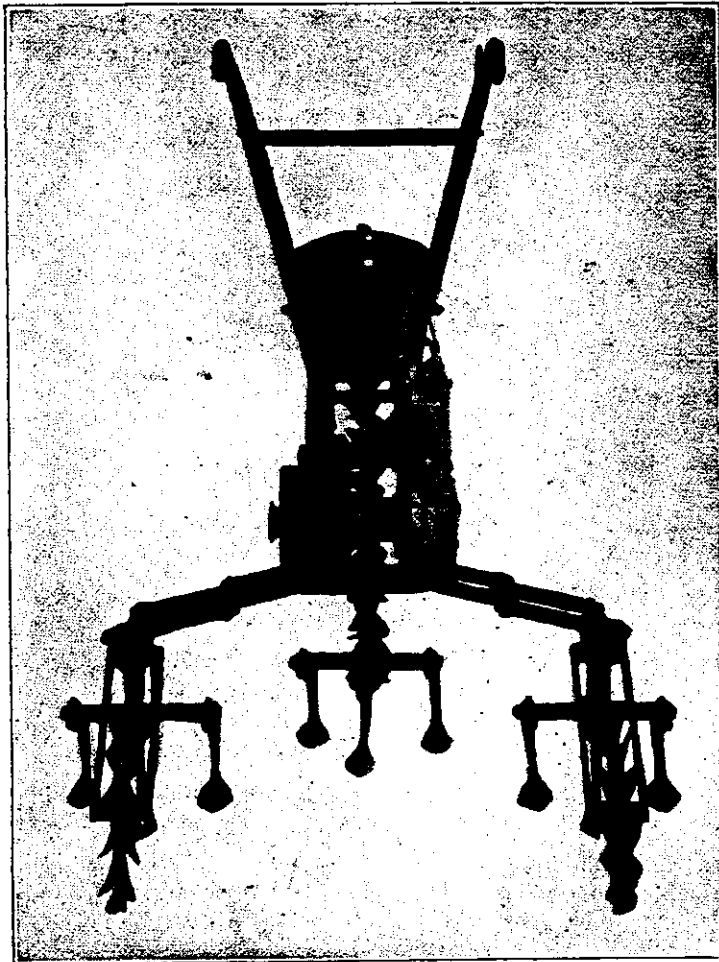


Photo No. 7

### SHALLOW CULTIVATION IN WIDE ROWS

By using a 12" Sweep in the center tool holder casting and a pair of 6" hoes in the outside tool holder castings you can do an excellent job of weeding. This is only used where shallow cultivation and a mulch is desired. It is not recommended for deep cultivation. You can also use a wider sweep in the center, depending on the width of your rows, if you want to.

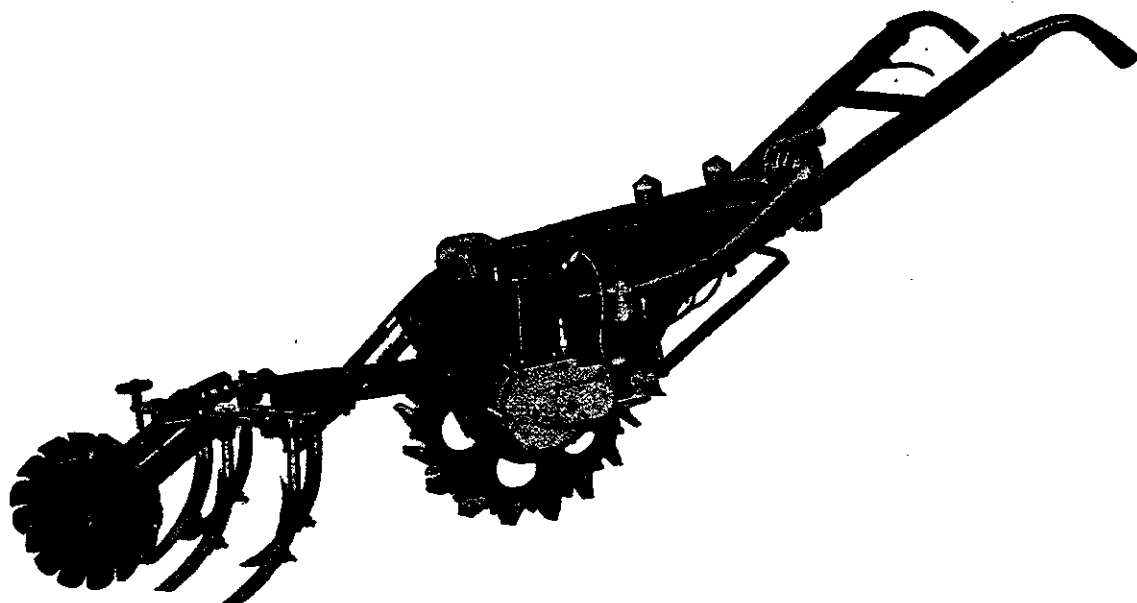


Photo No. 8

**SET-UP NO. 8—CULTIVATING STEELS****(For General Cultivating—Most Widely Used Set-Up)**

The five Cultivator Steels can be used in any size from 1" to 3" in width. Attach these to the five curved shanks and place in the tool holder set-up as in the foregoing cut. This set-up is used for cultivating the larger crops like cabbage, cauliflower, potatoes, nursery stock, and all wide row crops. Set the steels so they will not track but will be spaced at an equal distance. For doing close work with this set-up you may use four steels, and one of the special hoes. Use the special hoe next to the plant. This will eliminate a lot of hand weeding as you can hold the hoe within an inch of your plants. Set the shallow hoe so that you do not destroy the roots. This is a mighty good tool arrangement for cultivation of small nursery stock, cabbage, celery, etc., where close shallow cultivation is desired next to the plants. Your cultivator steels can be lowered to give you deeper cultivation in the center of the row. You adjust the slant or pitch of the tools by the two holes in the side plate. Ordinarily, you will find for the cultivating steels that the upper hole will give you about the right pitch for all soil conditions.

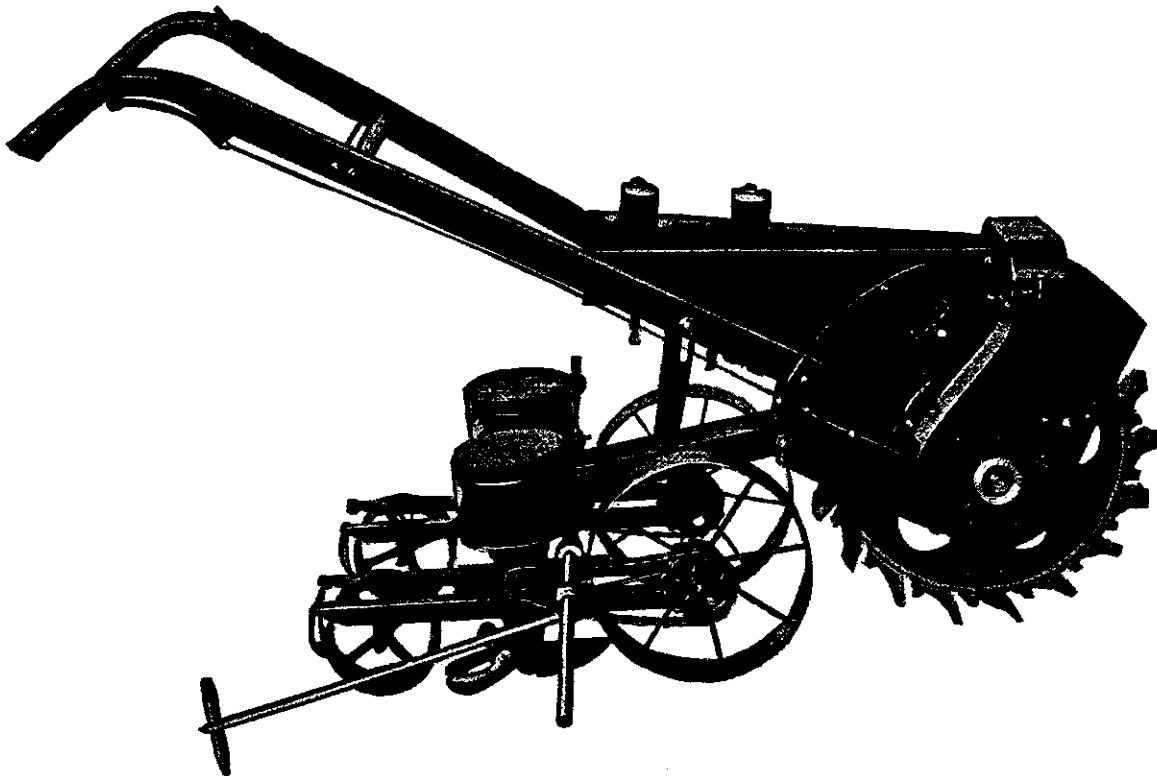


Photo No. 9

**SET-UP NO. 9—SEEDER**

The Planet Junior Line of Seeders may be used with the GRAVELY. You can see from the photo how this is attached. We always use the Seeder in the rear instead of ahead as the other tools are used. This is used for all kind of small seeds, and is very easy to handle, and operate. With the seeder you can make uniform rows for two-row cultivation.

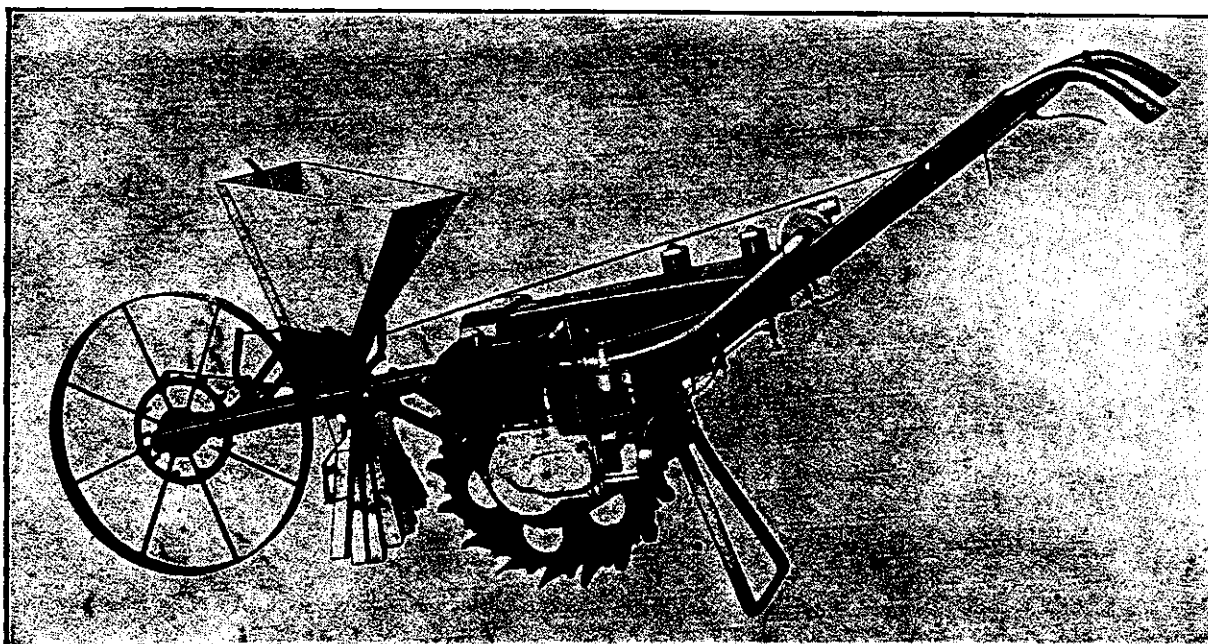


Photo No. 10

### **SET-UP NO. 10—FERTILIZER DISTRIBUTOR**

Photo 10 shows the GRAVELY pushing a Planet Junior Fertilizer Distributor. This is, as you will notice, attached in front by means of only three bolts. This makes a very easy and quick change from your tool holder to the fertilizer distributor which, if done by hand, requires quite a lot of hard work. The GRAVELY will turn this job into pleasure as it is very easy to operate and control.

### **SET-UP NO. 11—GRAVELY SICKLE TYPE MOWER**

The GRAVELY Sickle Mower comes to you just as nearly assembled as it is practical for shipping purposes. Let us briefly list the necessary steps to complete the job.

The Mower comes to you in two main parts. The large, completely assembled, aluminum-colored castings are called the Drive Mechanism. The other part is the Cutter Bar complete. Bolt the Drive Mechanism into the holes on the assembled Cutter Bar. Use the two  $\frac{1}{2}$ " Bolts as furnished. They screw directly into the Bar. Get them good and tight.

Now, you are ready to attach to the tractor proper. You will notice from the photo how this goes in front and is attached to the Frame Plates of the tractor. Use the bolts that are furnished with the tool holder.

The Sprocket on the Drive Mechanism comes assembled. If your Mower is ordered after the purchase of the tractor you will have to put on the smaller Sprocket. First, remove the tractor Starter Pulley. Put on the spacer, then the small Sprocket. Put the Pulley back on again.

You are now ready to attach the Chain. Put it on the Mower Sprocket first. Remove the small cotter pin from the chain and slip on the tractor Sprocket. Replace the pin. The chain can be tightened or loosened by lowering or raising the handles. Then, set the front Braces of the tractor for the desired position of the handles.

**DON'T FORGET BEFORE USING TO OIL THE MOWER. REMOVE THE TWO OIL PLUGS FOUND ON TOP OF THE GEAR HOUSING OF THE DRIVING MECHANISM. FILL EACH WITH A ½ PINT OF GARGOYLE MOBIL OIL "C" (S. A. E. 160 GEAR OIL) OR ITS EQUIVALENT. ALWAYS KEEP WELL LUBRICATED. NEVER USE HEAVY GREASE. IF GEAR OIL IS NOT OBTAINABLE USE MOTOR OIL.**

Upon request four Skids are sent with each Mower. For most of your work you will not find it necessary to use these. With them you can further regulate the cut. If four are used put directly under the first and fifth guards from either end. The Guard Bolts are removed and the Skid Bolts put in the vacant holes, using the same Guard Nuts. Two small Adjusting Spacers are furnished with each Skid. One or both of these can be used, and which further regulates the depth or height of the cut.

A clutch is used on the GRAVELY Mower. Notice the short Clutch Pull Rod at the top of the Drive Mechanism. Put the Mower in gear by pushing this rod forward as far as it goes, and release it by simply pulling it back to the original position. You will want the Mower to be out of gear when starting the motor, or when the unit is being taken to the field, etc.

A patented and highly important feature found on the GRAVELY Mower is the SWIVEL ACTION OF THE CUTTER BAR. On the upper part of the two Crank Housings castings you will find four nuts and bolts. The first two on either side, and closer to the tractor proper, effect the swivel. With these nuts tight the bar is held rigid. But, loosen them and you will have the SWIVEL ACTION. For mowing level ground the bar swivel can be tight. But for hillsides it should be loosened to allow the bar to follow the slope of the ground while the tractor remains upright. **DON'T HAVE THE SWIVEL LOOSE ENOUGH TO TURN WITHOUT SOME PRESSURE.** It should be just tight enough to hold its position until lowered, when its own weight should cause it to tilt according to the slope of the ground.

Best results are secured by running at an easy walking speed. **DON'T RACE YOUR MOTOR.** If you get into grass that you cannot cut without racing the motor, **SHARPEN THE KNIVES.** Racing

is hard on the machine and make you more likely to break something in case you hang in wire or anything that the knives won't cut. At a moderate speed you can cut from three to four acres per day, and if your motor does stall you will not do any damage beyond a nick in the knife.

#### SUGGESTIONS FOR SECURING THE BEST MOWING RESULTS.

**A SHARP SICKLE.** Any kind of a dull, gapped sickle-bar will cut coarse weeds and bushes, but when you get into fine grass you will have trouble if your knives are dull. Keep them sharp. To remove the cutting knife complete to sharpen for instance, remove the Knife Bracket Screws and slip the blade out on either side. **ALWAYS KEEP THESE SCREWS REAL TIGHT.** If they are even a little loose there is danger of stripping the threads. Sharpen the knives often. They will hold an edge longer, will not nick so easily and will cut equally as well if ground at an angle of 45 degrees, or about the same as scissors are ground. (A small Hand Sickle Grinder with a proper curved wheel, will pay for itself time and again in better mowing results.)

See that the knife bar is straight and the points of the knives are in line so that the sickle-bar will lay flat on the guards.

Keep the guards in alignment. If one guard gets knocked up and the other down it will not cut fine grass. Use a light hammer and knock the guards up or down until the knives on the sickle-bar lay flat in contact with the shearing edges of the guards. Make sure that all the guard bolts are drawn tight. Adjust the clips that hold the sickle-bar closely, but do not allow them to bind. The knife should slide back and forth easily with the pressure of finger and thumb. It is not necessary to lubricate the knife as the grass will furnish lubrication, but a few drops of machine oil on the sections will help to prevent rust and sometimes make for easier running.

See that the drive chain is not too tight, but do not have enough slack to allow it to whip.

If the sprocket gets out of adjustment loosen the Clutch Adjusting Lock Nut (25). Then, turn the Clutch Spring Adjusting Nut (24) in either direction to loosen or tighten. Hold the Clutch Spring Adjusting Nut while the Lock Nut is tightened.

If these few directions are followed your Mower will last almost indefinitely. Keep out of wire, iron, rocks, tin cans, and so on. If the GRAVELY Mower is kept properly adjusted and sharpened it does its work so easily that mowing becomes a pleasure instead of one of the dreaded jobs. It will mow anything from wire grass to locust sprouts, and will do it cleaner, better and easier than any mowing machine built.

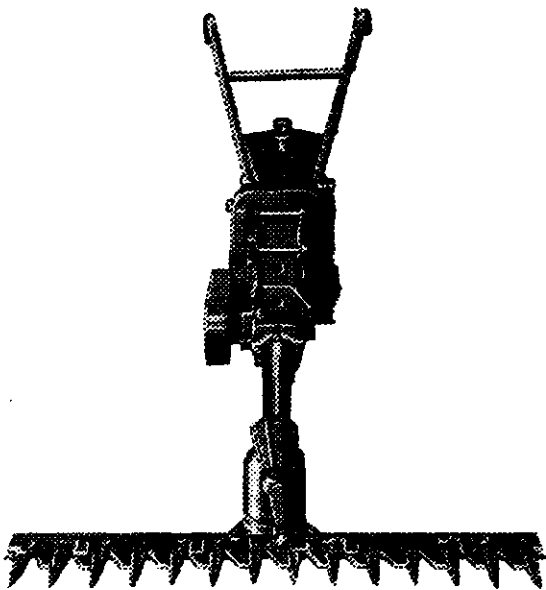


Photo No. 11

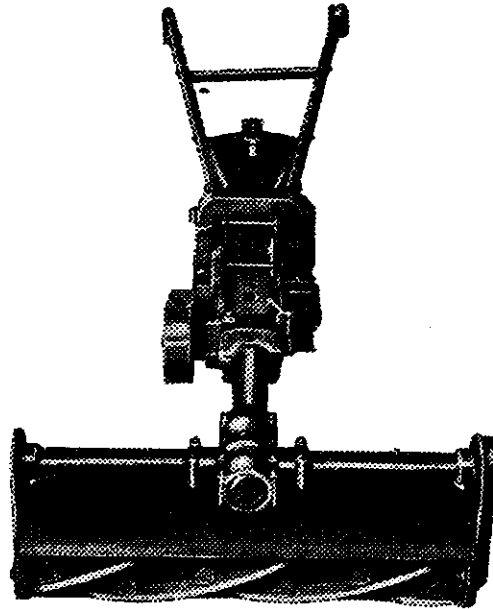


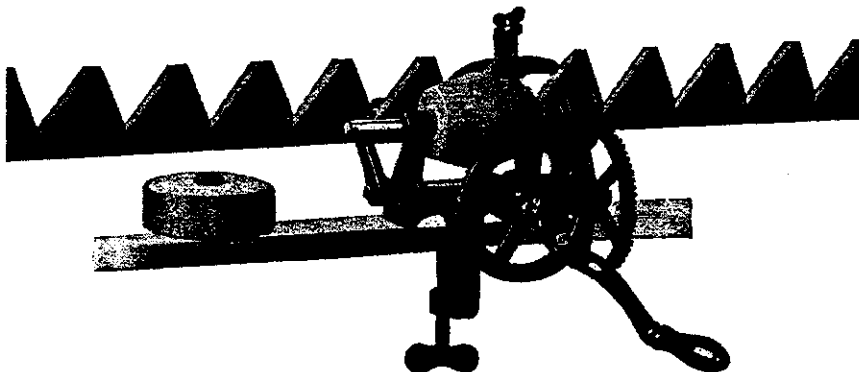
Photo No. 12

### SET-UP NO. 12—GRAVELY ROTARY TYPE MOWERS

For attaching the GRAVELY Rotary Mower you follow the same instructions as given for the Sickle type. You will find the Mower packed completely assembled excepting the attaching to the tractor. FOLLOW OUT THE SAME OILING INSTRUCTIONS AND THE ADJUSTING OF THE SWIVEL.

To regulate the height of the cut: Loosen the four  $\frac{3}{8}$ " Cap Screws found on each right and left End Plates. There are two screws on each plate. By rocking the Reel Assembly back and forth you can raise or lower the Bed Knife. When you get it at the desired height tighten these screws. The Roller also serves to regulate the cut.

Notice the Bed Knife can be removed by taking out the three screws found on each end.



A hand sickle grinder like the one illustrated is a great help in keeping the knives sharp. This means better cutting and less cost for replacing.

### GENERAL ENGINE INSTRUCTIONS

This engine has been carefully inspected and tested in our factory, after having been run for a considerable period to insure it reaching you in first-class condition. Unless something has happened since leaving the factory it should be ready to run when you get it.

Even though the engine has been run in, it may be slightly stiff to start with, and it is advisable to start it the first time without any load, or with as light a load as possible. If it seems a trifle stiff, a few hours running under light load will loosen it up.

It is important to keep the engine clean, both inside and outside. Keep it clean inside by seeing that no dirt enters when filling with either gas or oil. Always wipe off the filler cap before removing to replenish the oil supply. Take care that no dirt enters your oil or gas can. Always keep your oil and gas in closed containers.

Never allow gasoline to stand in uncovered vessels or leave the cap off the gasoline tank, as water or dirt entering the carburetor may stop the engine. One drop of water in the carburetor jet will usually prevent the flow of gasoline.

Do not use the engine without the air cleaner. Keep the connections tight. Most dust is of a very abrasive nature, and will cause more damage to the cylinders, pistons, and bearings than any amount of running without the presence of grit in the engine.

### DESCRIPTION

The Gravely Model "D" is a single cylinder, four-cycle, air-cooled engine. Bore  $2\frac{1}{2}$ , stroke 3 inches. Careful workmanship and good materials make this engine a dependable unit. With proper care it should give long and satisfactory service.

### CARBURETOR INSTRUCTIONS

This carburetor was designed especially for the "Gravely Engine" to overcome the dusty conditions it has to work under, and has but a few simple parts.

**STARTING:** If, in attempting to start the engine for the first time, it does not run perfectly, first see that it has proper ignition, as per ignition instructions. If the difficulty seems to lie in the carburetor, proceed as follows:

Push lever forward to closed position. Turn adjusting needle to right until closed. Do not use force as this may damage gasoline nozzle. Turn left one full turn. You will find this adjustment about right to start. After starting engine, and as it warms up, turn needle to right, until it runs smoothly.

**TO CHOKE CARBURETOR:** When first cranking the motor it often will make for easier starting to choke the carburetor. Notice a small lever or handle on the side of the carburetor. Push this to a vertical position. Just as soon as the motor starts, push it back to its original position. If the motor doesn't start the first two times, push the lever back anyway as if left up it may cause flooding.



**HIGH SPEED ADJUSTMENT:** The small screw in edge of rotor is the cam adjusting screw. This cam regulates the lift of rotor and gasoline adjusting needle in proportion to throttle opening. This adjustment is made at the factory, and seldom needs changing. But in case it does, start the engine and adjust by moving ( $\frac{1}{8}$ ) one-eighth turn at a time. Each time you move the cam adjusting screw, re-adjust needle at idle speed and then open throttle wide, trying your adjustment. Turn right-hand for more, or left-hand for less gas.

**END PLAY:** It is important that you keep all end play of rotor taken up as this has a detrimental effect on the gasoline needle valve. Try your rotor occasionally. If there is end movement, loosen lock nut on side of carburetor, and turn screw in until the rotor will just rotate freely with all end play taken up. The rotor can be removed from carburetor body by backing out this screw.

**REMEDY FOR FLOODING:** Great care should be taken to see that there are no particles of dirt or foreign substance in the tank or line, as any foreign matter impedes the regular flow of gasoline and causes the carburetor to miss or back-fire. Sometimes particles of dirt or sediment from the gasoline will lodge under the float valve, preventing same from seating properly and cause flooding.

In order to clean the float valve seat, remove the bowl cap and raise float valve, allowing the carburetor to be flushed thoroughly. To clean out the bowl of the carburetor remove the bowl by disconnecting the gasoline line and removing the bowl lock nut at the bottom.

### **AIR CLEANER**

Owing to the abrasive effect of dust on all moving parts of the engine, and its effect on carbon deposits in the cylinder, it is of the utmost importance that you keep your Air Cleaner in place and see that all connections are tight. Due to the excessive wear and tear on an engine used without an Air Cleaner, we cannot make our guaranty valid unless you adhere strictly to these instructions.

To clean, pull the rubber hose out of the cleaner. Wash this cage in either kerosene or gasoline. Now dip it in any light grade of lubricating oil, allowing it to drain thoroughly before replacing.

### **LUBRICATION**

It is an accepted fact in the automotive industry that over 50% of all repair bills are directly traceable to damage resulting from incorrect lubrication.

The dangers of incorrect lubrication are many. It results in overheating, spark plug fouling, damage to bearings, scoring of pistons and cylinders. It means loss of both time and money, delays, tie-ups, and repairs.

Correct lubrication avoids all these troubles and annoyances. Therefore, use a quality oil of the correct grade as recommended on page 3 for the GRAVELY engine; use it properly and you will obtain satisfactory results.

Don't forget about turning the oil off and on.

## LUBRICATING SYSTEM

Lubrication of the engine is accomplished by means of the dry sump, splash circulating system. The oil flows by gravity on an upper portion of a positive action plunger pump which forces it onto the rim of the fly wheel. The fly wheel in turn atomizes the oil which, by the crank case air currents, are thoroughly distributed to the piston, cylinder wall, and other bearing surfaces.

The surplus oil is thrown into a trough located under the cam shaft where it enters lower portion of pump and is forced back into oil tank through a filter. Always keep tank at least half full. This keeps a clean, cool supply of oil circulating through engine.

## DESCRIPTION OF OIL PUMP

The oil pump is located in a vertical position on back side of crank case, immediately over end of cam shaft, next to traction wheel. The plunger is of the double end type, actuated by a slot cut across its central portion, and fitted with a slide block which works on a crank integral with cam shaft.

The upper portion feeds oil into crank case, has no valves, is positive in action and will not fail unless damaged or worn beyond repair. The lower portion returns the surplus oil to the tank and owing to the pressure required to force it through the filter, is fitted with a large ball check valve.

## IGNITION

The GRAVELY engine uses a Bosch Magneto as standard equipment. Once installed, these magnetos require very little care and need no lubrication in service.

**INTERRUPTER:** About once in every 50 hours of service, remove the interrupter cap and inspect the condition and adjustment of the contact points. Roll the engine until the contacts are fully separated. The maximum gap between contacts when open should not exceed (.015) fifteen thousandths of an inch. Check this with the gauge on Bosch wrench, and adjust if necessary by means of the contact screw.

Clean the contacts when necessary with a clean soft brush dipped in gasoline. They are made accessible by removing the interrupter housing and can be opened by depressing the interrupter lever. Flatten uneven contacts with a small file, but do not use emery paper for this purpose.

**DO NOT PERMIT OIL TO GET ON THE INTERRUPTER CONTACTS. THIS WILL CAUSE IMPROPER CONTACT, FAULTY OPERATION AND RAPID CONTACT WEAR.**

The interrupter can be removed from the magneto for replacement of parts by unscrewing the contact breaker fastening screw. When replacing, care must be taken to put the interrupter in its proper position as indicated by key and keyway. Be sure to engage the interrupter housing stop pin in the groove marked with a red arrow to show the direction of magneto rotation.

**SPARK PLUG:** If the engine misses explosions, inspect the ignition wiring for possible short circuits. Be sure that the terminals are clean and tight and that the insulation is in good condition. If a spark plug is suspected of giving trouble, remove it for examination. If the insulator is badly sooted, this may short circuit the electrodes and prevent the spark from jumping. Sooting may be caused by too rich a mixture, by too much lubricating oil in the cylinder or by too small a gap between the electrodes. Wash off the carbon with gasoline, and adjust the gap by bending the outer electrode. The gap should be (.015-.020) fifteen to twenty thousandths of an inch. Too large a gap will cause hard starting of the engine. Use the gauge on Bosch wrench for checking.

**COLLECTOR SPOOL AND BRUSH:** If the wiring and spark plug is in good condition, but the magneto still fails to operate, examine the collector spool and brush. Remove the brush holder, attached to lower end of spark plug cable, from the magneto. If the brush is gummed or shows the effect of oil having entered the magneto, it will be necessary to clean the collector spool. Take a pencil or similar instrument, placing a rag over the end, wipe off collector spool while rotating, by rolling engine. Wash brush with gasoline, see that it works freely in holder and replace.

**TIMING MAGNETO TO ENGINE:** If, after having cleaned the collector spool and brush, the magneto still fails to operate, check the timing of magneto to engine. Remove the interrupter cap from the magneto. Remove the timing gear cover from the side of the engine. Roll the engine until all the marked teeth of the timing gear train come into a straight line. The idler gear has an odd tooth known as the hunting tooth, and for this reason it may take several turns to get the marks in line. To make the operation easier, you may pull the idler gear out and reset the marks in line. With the gears in this position, the interrupter (breaker) contacts should have just separated. To be sure of this roll the engine back and forth slightly at the same time observing the contacts. As the marked teeth are primarily used for timing the valves, it is advisable to remove the cylinder head to accurately reset an old, or install a new magneto. After having set the marks in line, see that the top of the piston, and the top of the cylinder with head gasket removed, are flush to a straight edge.

The magneto gear is drawn on a taper seat with the securing nut, and has no key. This allows the gear to be turned on the shaft and adjusted to a fraction of a tooth. Great care should be exercised in loosening the gear so as not to bend or damage the shaft.

If the magneto is timed too late, with interrupter contacts separating when the piston is past top dead center, the exhaust will be strong and the engine will not have the ability to speed up as it should on opening the throttle.

If the magneto is timed too early, with interrupter contacts separating when the piston is too far ahead of top dead center, the exhaust will be very silent and there will be a decided clicking in the top of the cylinder when the engine is working under a heavy load.

When timed correctly, the piston should be within five-sixty-fourths ( $5/64$ ) inch of top of compression stroke, when interrupter contacts start to separate.

### ADJUSTING VALVES

To get the very best from your engine, it is essential that the valves be correctly adjusted. Owing to the fact that the valve operating mechanism becomes worn from continued use, it is necessary to check the tappets occasionally, and keep them adjusted properly.

Remove interrupter cap from magneto. Roll the engine, as in starting, until the contacts start to separate. At this point both valves will be in a closed position. Lift up dust sleeve, and check the gap between tappet screw and valve stem. This gap should be (.006-.008) six to eight thousandths of an inch, or so you can just slip two thicknesses of newspaper between them. When the gap is too wide, some of the exhaust gas is trapped in the cylinder and cuts the incoming charge short resulting in great power loss. It is just as important not to get the gap too small as it will hold the valves open when hot and expanded, cause loss of compression, burned valves and an even greater power loss than the previous adjustment.

### CARE OF TRANSMISSION

Because of the very dusty conditions the machine has to work under, generally, it is important that you pay close attention to the transmission. Lubricate the gears regularly. Wash out the dirt and old lubricant occasionally. Keep the clutch clean, and working properly. Don't allow fan housing and air manifold to become clogged.

**LUBRICATING GEARS:** When the machine is in steady use, you should check up on the gear lubricant weekly. Set machine level. Remove level plug from front edge of inner gear housing. If oil runs from this opening, replace plug. If not, remove large plug in outer gear housing, inject one gun of oil and replace both plugs. We recommend Gargoyle Mobiloil "C" (S. A. E. No. 160 Gear Oil) or other high grade gear oil of similar body and character.

Never use grease or a non-fluid lubricant. An oil gun furnished with the machine holds a sufficient quantity of lubricant for one filling. To fill gun put the nozzle well into the oil so it will not get air and withdraw the handle.

**CLEANING GEARS:** To clean gears, remove both filler plug and level plug. Lift handles of machine up to such an angle as to allow gear housing to drain through level plug opening. Inject two guns of either kerosene or gasoline through filler opening. Again lift handles and allow to drain. Repeat this operation until all sediment is removed from gear housing.

**CARE OF CLUTCH:** The "GRAVELY" is equipped with a cone clutch and lined with a high-grade of asbestos lining. Once the clutch is properly adjusted, it seldom needs changing. If the gears are over lubricated, the oil will work out into the clutch and cause it to clog up with dust. This causes clutch to drag when released and also to slip

under heavy load. To remedy these troubles it will be necessary to remove clutch and wash with gasoline. To remove clutch first remove fan housing, loosen fan securing nut, take a light pry behind fan which is also the clutch cup, and tap nut with hammer. When replacing fan, be sure the securing nut is on tight. If left loose, it will cause damage to the key seat in both the fan, and the shaft.

It sometimes happens that the clutch doesn't completely release and the drive wheel keeps on turning. This can generally be remedied by putting a small amount of motor oil in with the transmission gears. To do this remove the large plug in outer gear housing, and inject about one grease gun full of oil. (Use Mobiloil S. A. E. 50 or equivalent.) This does not in any way effect the regular use of oil recommended for the transmission.

**AIR MANIFOLD:** If gear lubricant is used in excessive quantities, it will not only get into clutch, but will be thrown into fan housing, and blown through air manifold onto the cylinder. Dust passing through will clog up the air passages and cause overheating of the engine. When working under extremely dusty conditions and especially with the Rotary Mower it is advisable to remove the fan housing and the air manifold frequently and clean them.

The fan forces the air and any loose grass and dirt around the cylinder fins out through the air manifold. At the first sign of motor overheating remove this manifold and cylinder housing and clean out any debris stuck around the cylinder fins. **THIS IS VERY IMPORTANT,**

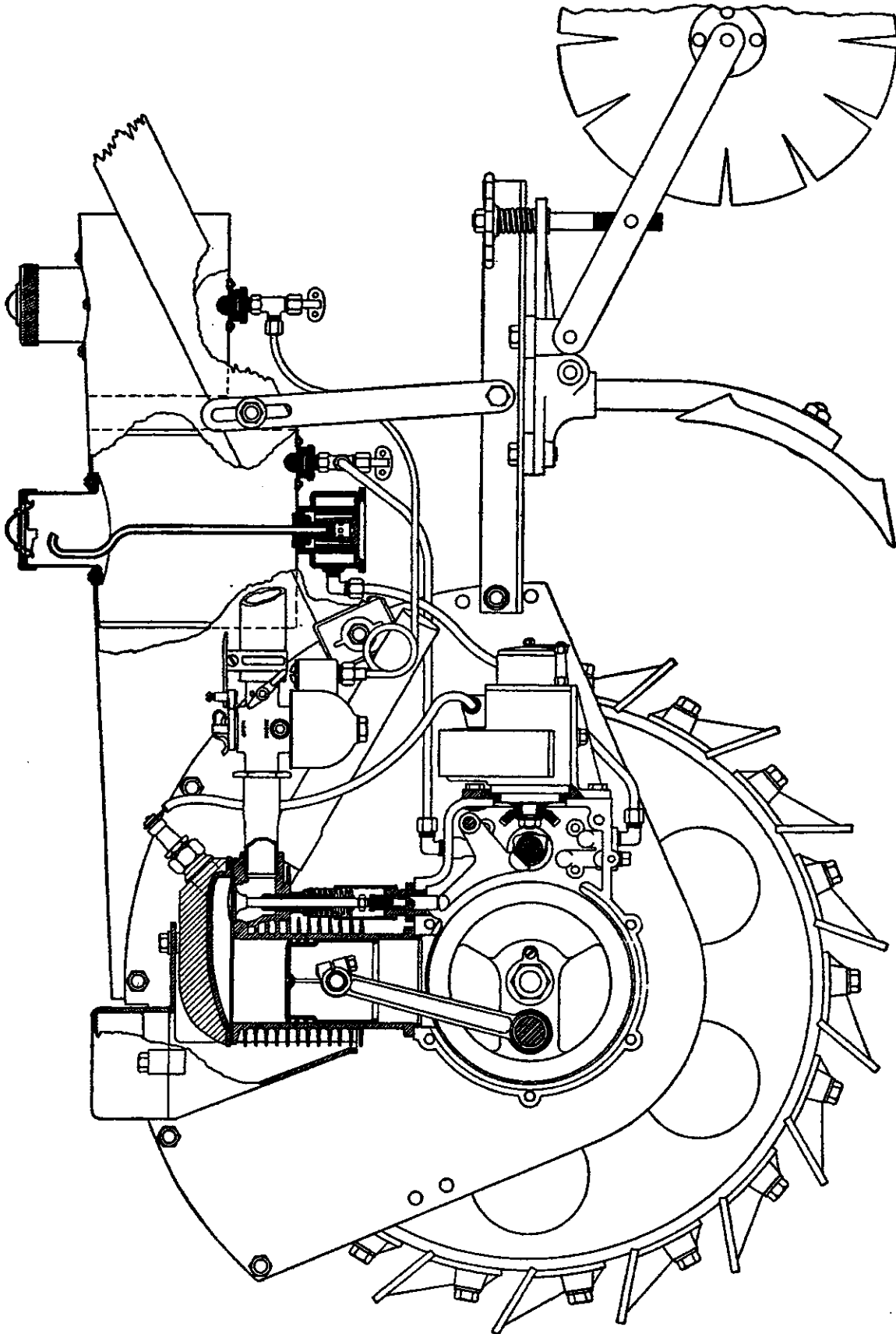
### **TROUBLE HINTS**

**ENGINE HARD TO START:** This may be due to any of the following: Improper carburetor adjustment; faulty ignition; interrupter contacts too wide; spark plug dirty; or points improperly spaced; collector spool and brush dirty. Read paragraphs on carburetor adjustment and ignition. Store the machine in warm place in winter. If engine is hard to start when cold remove the spark plug, and inject a small quantity of gasoline into cylinder.

**ENGINE FLOODED:** If when cranking engine you notice a vapor coming from the exhaust, more particularly when it is hot, it is due to excess gasoline and it will not start until this excess fuel is eliminated from the cylinder. To do this, turn carburetor adjusting needle right-hand until completely closed. With throttle in starting position, crank engine a few times and it should start.

When engine starts, open needle to running position. In some cases it will be necessary to clean spark plug also.

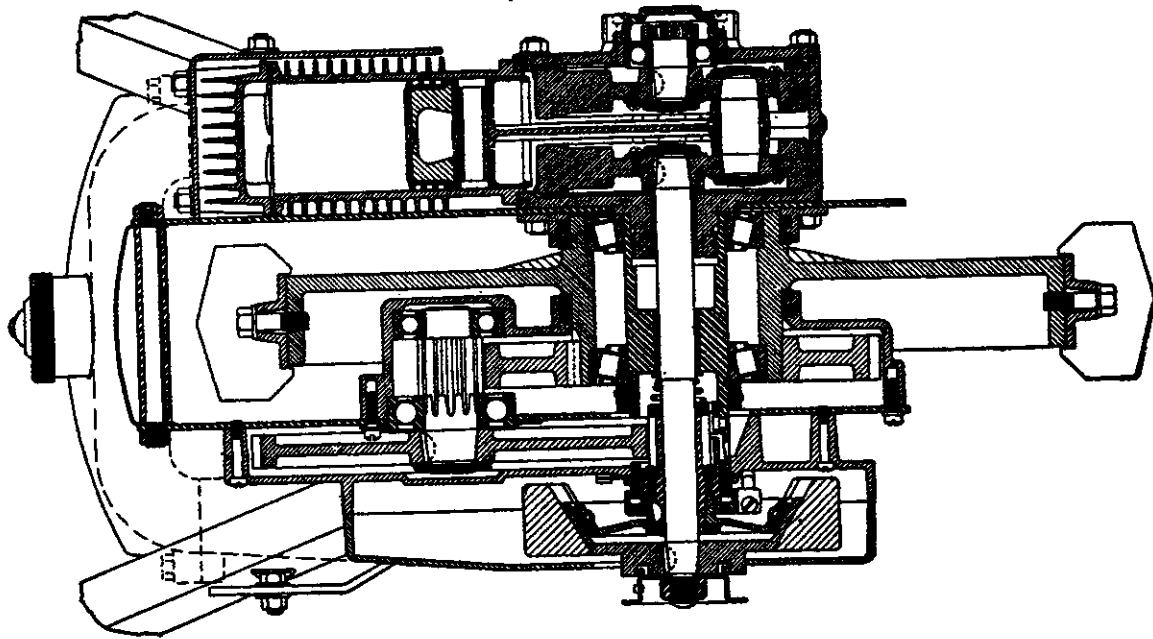
**ENGINE OVERHEATS:** This may be due to insufficient oil supply; improper carburetor adjustment; magneto timing to engine too late; air manifold and fan housing clogged with oil and dust; excessive carbon in cylinder. See that you have sufficient oil in the tank. Adjust carburetor. Read paragraphs on ignition and check timing of magneto to engine. Remove air manifold and fan housing and clean. Remove carbon from cylinder head.



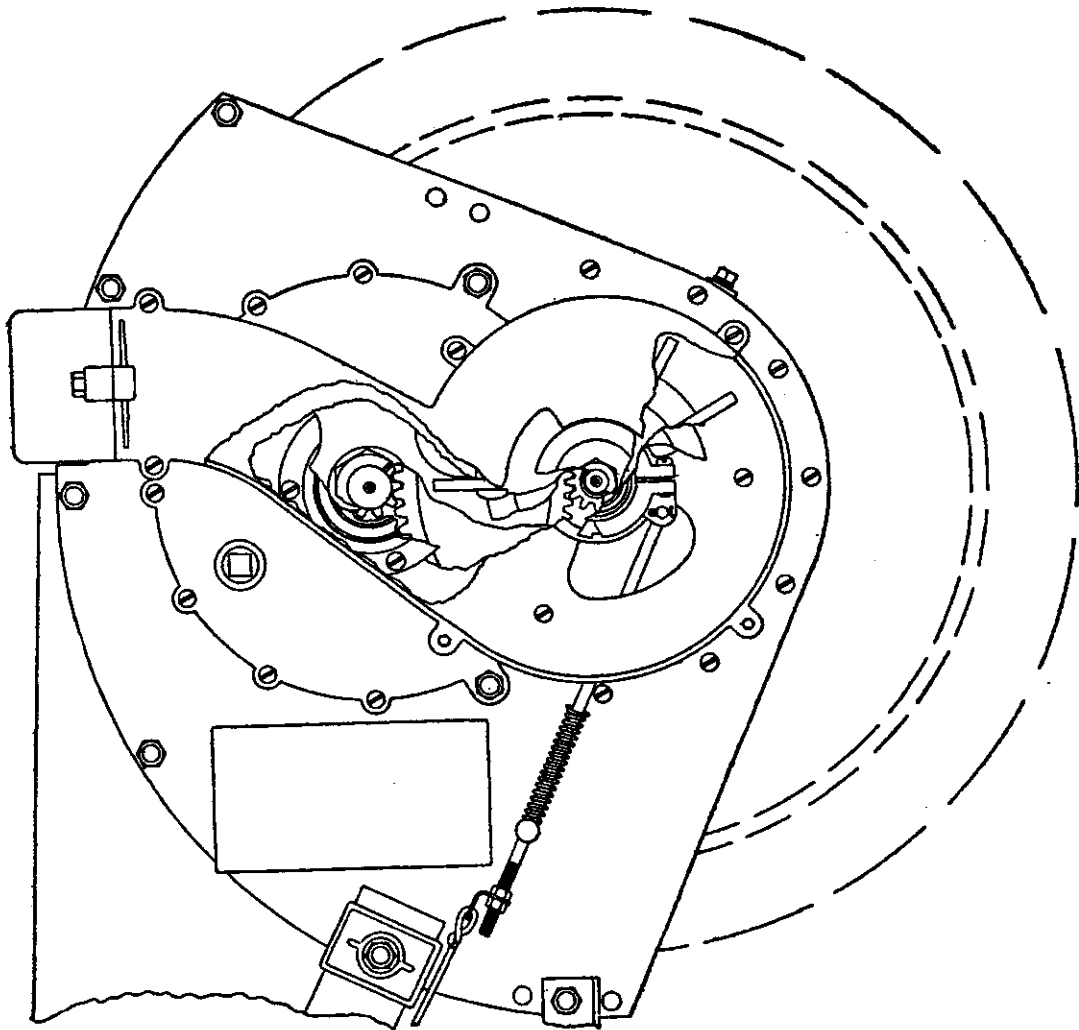
REVERSE MOTOR FLOW & CALIBRATION

Diagram C-13

Diagram C-13



GRAVELLY MOTOR CULTIVATOR & CULTIVATOR Co.



GRAVELLY MOTOR CULTIVATOR & CULTIVATOR Co.

GRAVELLY MOTOR CULTIVATOR & CULTIVATOR Co.

**ENGINE LOSES POWER:** If the compression is poor, with a resultant loss of power, it may be remedied by the following: Reseat valves if leaking. Check valve Tappets and adjust if necessary. Be sure that the Piston Rings are not stuck in the grooves. If the compression loss is due to worn piston and rings, it will be necessary to replace these with new ones. If the cylinder is badly worn, it will be advisable to send it back to the factory to have it rebored and fitted with new piston and rings.

**ENGINE STOPS SUDDENLY:** If engine has been running nicely and stops suddenly, first see that you have gasoline in the tank. Remove spark plug and lay it on top of cylinder with cable connected. Crank the engine in the usual way and see if there is a good spark. If you have a good spark, disconnect gasoline line from carburetor and see that gas flows freely. It may be possible there is dirt in the carburetor spray nozzle. Back up adjusting needle several times and crank engine, being careful not to flood cylinder.

### **INSUFFICIENT LUBRICATION**

If the engine shows symptoms of insufficient lubrication, remove cap from oil tank and see if there is any oil coming from sight tube. Only the surplus oil fed into engine, over and above the amount required to lubricate, is returned to tank. So long as there is a few scattered drops returning, the lubrication is sufficient. If there is no oil returning, stop engine immediately. Be sure there is oil in the tank. See that oil stop cock is open. If so, trouble is more than likely in the feed line. Disconnect feed line at top of crank case and see if oil will flow through. If the trouble is not found here, do not try to remove plug from the upper end of oil pump, there is nothing that can be done here. Remove plug, spring and ball from lower end, crank engine by hand and see if there is a movement of the plunger. In case there is no failure of drive and still the pump will not work, it will be necessary to replace it with another.

### **EXCESSIVE LUBRICATION**

Excessive lubrication is caused by failure of lower portion of oil pump to return the surplus oil to tank. It accumulates in crank case to a point where it is wasted away through the breather as fast as it enters. This condition does not immediately interfere with the operation of engine but is liable to cause the spark plug to foul and build up excessive carbon. It will also enter magneto, and cause ignition trouble.

If you notice an unusual amount of bluish smoke from the exhaust with loss of power, or the consumption of an unusual amount of oil, you should check up on your oil pump.

Remove filler cap from oil tank with engine running; if there is no oil coming from sight tube you can be sure the lower pump is not working.



The trouble is caused by dirt becoming lodged in valve seat or a clogged strainer on pump intake. To remedy remove brass plug from lower end of pump, being careful not to lose valve spring or ball. Be sure the dirt is dislodged from the ball seat. Clean ball and replace, followed by spring and plug. Remove large brass plug from bottom of crank case, see that strainer is clean and replace. In extreme cases it may happen that the passage from strainer to pump will become clogged. Remove brass strainer plug and small pipe plug and clean with a wire.

After cleaning and replacing all parts, start the engine. After about ten minutes operation you can remove the filler cap from the oil tank to see if your pump is working properly.

### **ORDERING PARTS**

This Parts List is issued for your convenience in ordering parts. All parts are illustrated in the various plates and also listed in the list of parts. In order to save delay and correspondence, instructions given below must be carefully observed in ordering.

### **HOW TO ORDER**

Be sure that you write plainly and legibly. Do not write on any other subject in the same letter. Select the parts numbers by referring to both the plates and parts list, comparing parts with illustrations. **ALWAYS ORDER BY PART NUMBER AND GIVE ENGINE NUMBER.** This will be found stamped on the crank case. Do not depend on part numbers as being correct, consult list.

### **SHIPPING INSTRUCTIONS**

Always state on order whether shipment is to be made by express, freight or parcel post.

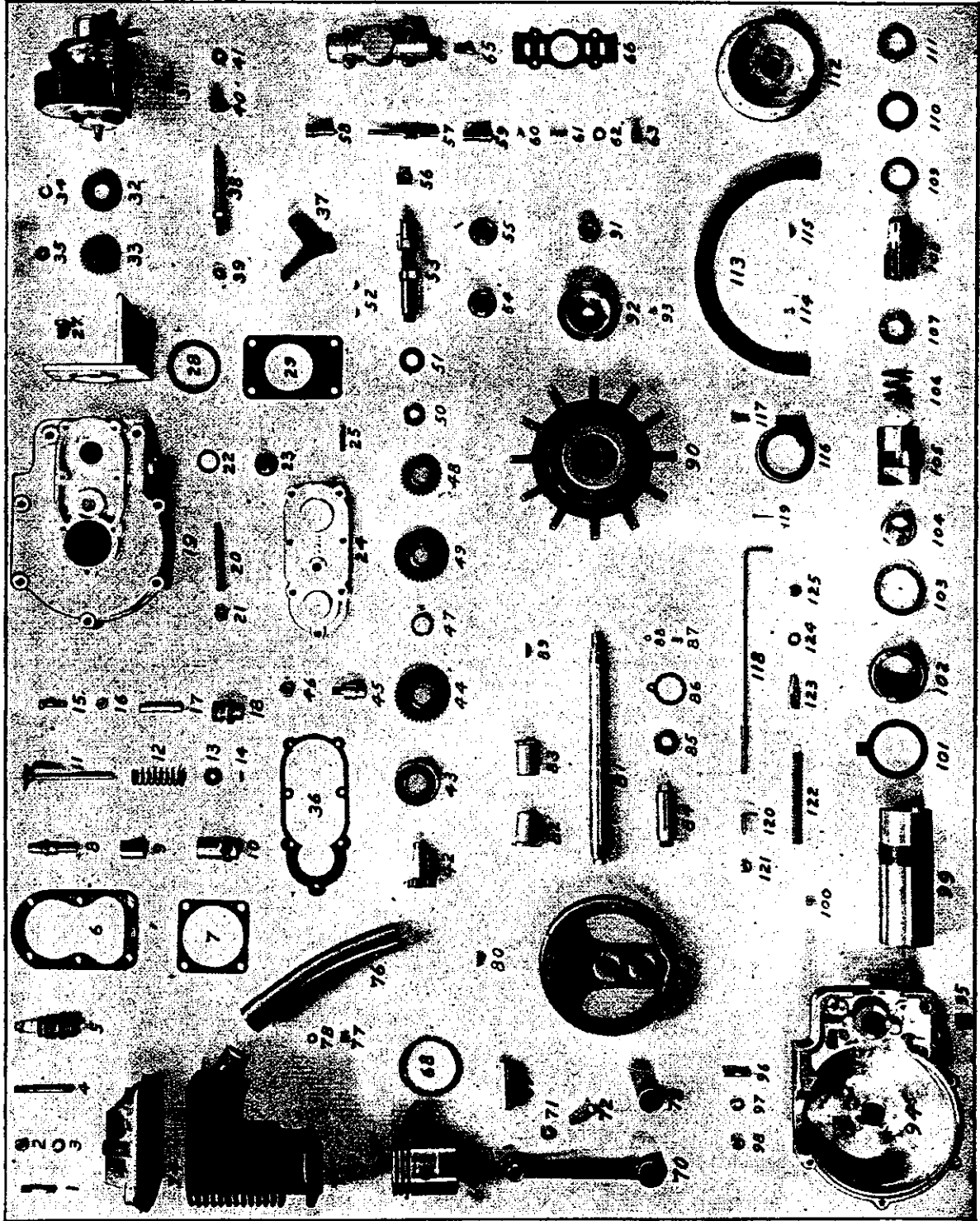
### **REMITTANCE**

Remit by post office or express money order. Stamps will be accepted for orders less than One Dollar (\$1.00) only. Remittance must include postage charges if to be shipped by mail, and also include ten cents (\$0.10) to cover insurance. Any excess remittance will be returned. **MINIMUM CHARGE FOR ANY ORDER IS 25 CENTS. UNLESS REMITTANCE IS SENT WITH ORDER SHIPMENT WILL BE MADE C. O. D. FOR THE FULL AMOUNT.**

### **PRICES**

Prices quoted herein are subject to change without notice. In case of change, orders will be filled at current prices. All parts sold F. O. B. factory.

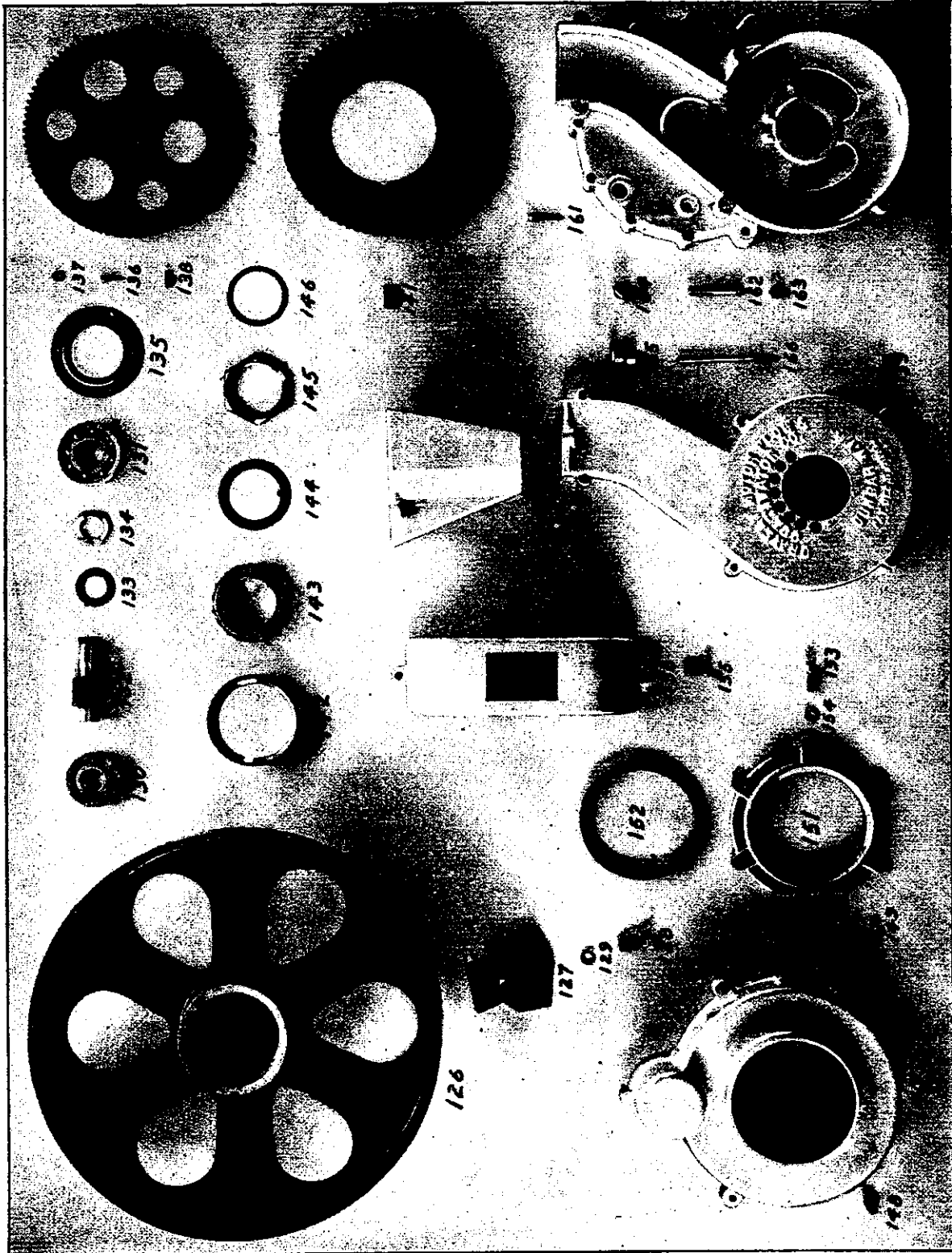
Plate No. 1



**PLATE 1**

Photo Part No.	Name	Price Each	Photo Part No.	Name	Price Each
1	Short Cylinder Head Stud.....	.05	41	Valve Lift Lever Thrust Collar.....	.04
2	Cylinder Head Stud Nut.....	.02	42	Crank Shaft Pinion.....	2.45
3	Head Stud Nut Lock Washer.....	.01	43	Crank Shaft Thrust Bearing.....	5.00
4	Long Cylinder Head Stud.....	.10	44	Idle Gear Complete with Bearing.....	1.45
5	¾ Standard Spark Plug.....	.75	45	Idle Gear Stud.....	.60
6	Head Gasket.....	.30	46	Idle Gear Nut Stud.....	.04
7	Cylinder Flange Gasket.....	.05	47	Idle Gear Bearing.....	.25
8	Valve Guide.....	.36	48	Cam Shaft Mitre Gear.....	1.47
9	Upper Spring Sleeve.....	.15	49	Cam Shaft Drive Gear.....	1.47
10	Lower Spring Sleeve.....	.23	50	Cam Shaft Drive Gear Nut.....	.13
11	Valve, Intake or Exhaust.....	.68	51	Drive Gear Nut Lock Washer.....	.03
12	Valve Spring.....	.16	52	Cam Shift Gear Key.....	.02
13	Valve Spring Cap.....	.05	53	Cam Shaft.....	5.00
14	Valve Spring Cap Key.....	.02	54	Cam Shaft Outer Bearing.....	.30
15	Valve Tappet Screw.....	.10	55	Cam Shaft Inner Bearing.....	.30
16	Tappet Screw Lock Nut.....	.03	56	Oil Pump Crank Brass.....	.20
17	Valve Plunger.....	.32	57	Oil Pump Piston.....	.80
18	Valve Plunger Guide.....	.25	58	Oil Pump Upper Cylinder.....	.30
19	Outer Half Crank Case.....	10.50	59	Oil Pump Lower Cylinder.....	.30
20	Crank Case Bolts.....	.08	60	Oil Pump Ball Valve.....	.02
21	Crank Case Bolt Nut.....	.02	61	Oil Pump Valve Spring.....	.05
22	Crank Case Drain Plug Gasket.....	.01	62	Oil Pump Cylinder Plug Gasket.....	.02
23	Crank Case Drain Plug.....	.36	63	Oil Pump Cylinder Plug.....	.10
24	Timing Gear Cover.....	1.82	64	Oil Pump Housing.....	.90
25	Timing Gear Cover Screw.....	.02	65	Pump Housing Securing Screw.....	.02
26	Magneto Bracket.....	2.00	66	Pump Housing Gasket.....	.10
27	Magneto Bracket Screws.....	.04	67	Piston.....	2.30
28	Magneto Gasket.....	.06	68	Piston Ring.....	.25
29	Magneto Bracket Gasket.....	.06	69	Piston Wrist Pin.....	.50
30	Magneto (State whether German or American).....	30.00	70	Connecting Rod.....	2.00
31	Magneto Securing Screws.....	.03	71	Clamp Bolt Lock Washer.....	.01
32	Magneto Oil Washer.....	.10	72	Connecting Rod Clamp Bolt.....	.10
33	Magneto Gear.....	1.50	73	Crank Bearing.....	.30
34	Magneto Gear Nut Lock Washer.....	.01	74	Cylinder Head.....	3.00
35	Magneto Gear Nut.....	.04	75	Cylinder.....	11.00
36	Timing Gear Cover Gasket.....	.06	76	Exhaust Pipe.....	.25
37	Valve Lift Lever.....	1.25	77	Exhaust Pipe Securing Screw.....	.02
38	Valve Lift Lever Stud.....	.80	78	Securing Screw Lock Washer.....	.01
39	Valve Lift Lever Stud Nut.....	.02	79	Fly Wheel.....	2.60
40	Valve Lift Lever Spacer.....	.05	80	Fly Wheel Key.....	.02

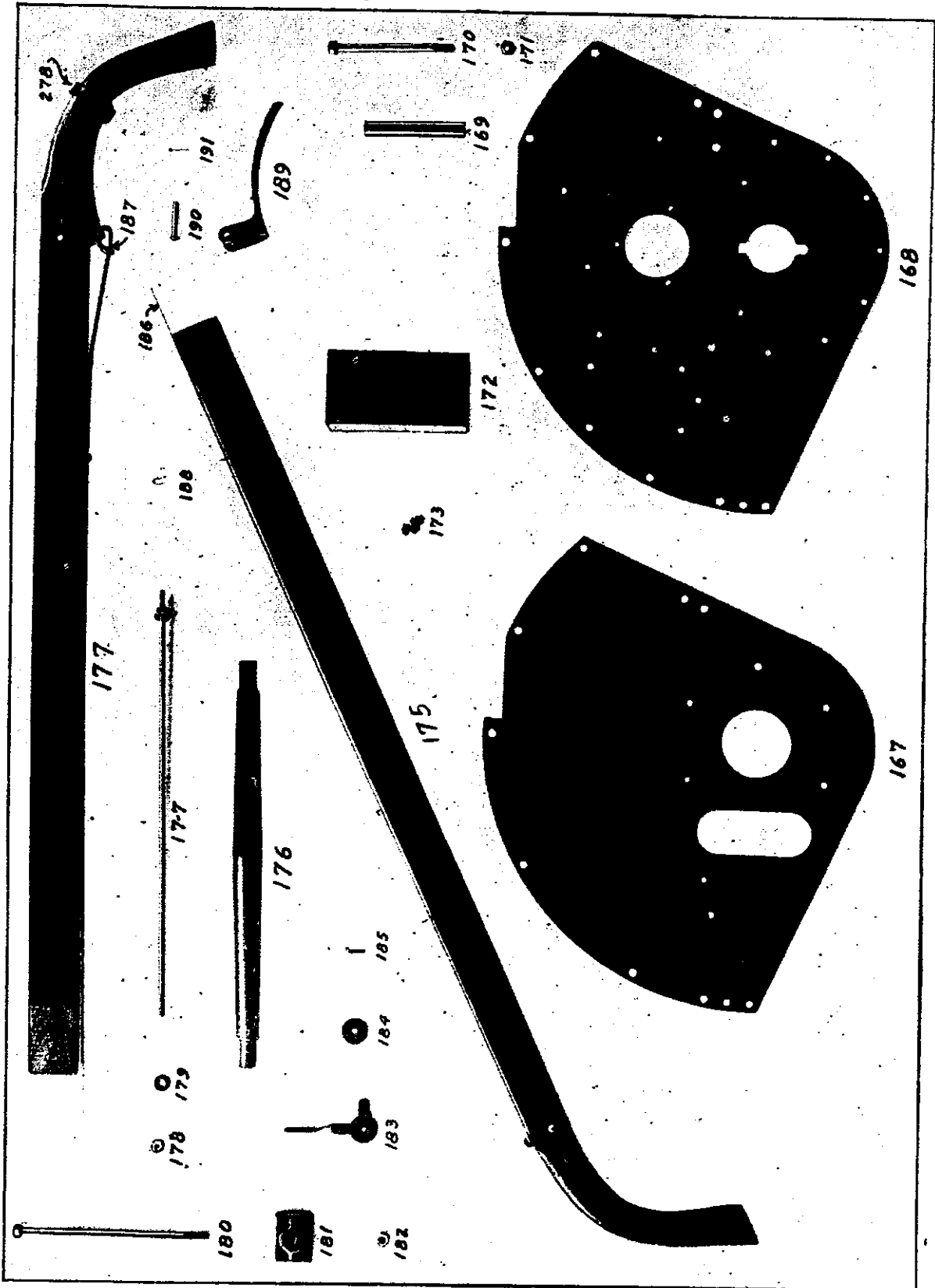
Plate No. 2



**PLATE 1 (Continued)**

Photo Part No.	Name	Price Each	Photo Part No.	Name	Price Each	
81	Drive Shaft	\$ 3.50	121	Clutch Control Adjusting Nuts	.02	
82	Drive Shaft Bearing	.32	122	Clutch Actuating Spring	.10	
83	Spindle Bearing Bushing	.32	123	Spring Rod Guide Stud	.20	
84	Crank Shaft	2.00	124	Guide Stud Nut	.02	
85	Fly Wheel Nuts	.10	125	Guide Stud Nut Lock Washer	.01	
86	Fly Wheel Nut Locking Collar	.05	<b>PLATE 2</b>			
87	Locking Collar Securing Screw	.02	2205	Drive Wheel	10.00	
88	Securing Screw Lock Washer	.01	2206	Drive Wheel Cleats	.25	
89	Fan Key	.02	112-S	Cleat Securing Screw	.05	
90	Fan	2.25	305-W	Cleat Securing Screw Lock Washer	.01	
91	Starter Pulley Nut	.05	130	Small Counter Shaft Bearing	5.00	
92	Starter Pulley	.44	2212	Large Counter Shaft Bearing	6.00	
93	Starter Pulley Stud	.04	2213	Counter Shaft Pinion	3.20	
94	Inner Half Crank Case	11.00	2203	Counter Shaft Gear Nut Lock Washer	.05	
95	Oil Port Plug	.10	2217	Counter Shaft Gear Nut	.20	
96	Cylinder Stud Bolt	.05	2216	Bearing Securing Flange	.15	
97	304-W Cylinder Stud Nut Lock Washer	.01	2214	Bearing Securing Flange Screw	.02	
98	204-N Cylinder Stud Nut	.02	104-S	Bearing Securing Flange Washer	.01	
99	Crank Case Spindle	3.80	302-W	Flange Screw Lock Washer	.03	
100	Clutch Actuating Stud	.05	504-K	Counter Shaft Gear	3.00	
101	Spindle Nut Lock Washer	.05	2202	Counter Shaft Gear	3.50	
102	Spindle Nut	.60	2204	Drive Gear	.04	
103	Actuating Sleeve Dust Washer	.10	2218	Drive Gear Key	3.56	
104	Actuating Sleeve Bearing Bushing	.30	383-T	Drive Wheel Bearing Cup	2.28	
105	Clutch Actuating Sleeve	.76	387-T	Drive Wheel Bearing Cone with Rolls	5.84	
106	Clutch Pressure Spring	.15	2208	Drive Wheel Bearing Complete	.05	
107	Pressure Spring Thrust Collar	.40	2210	Bearing Adjusting Nut Lock Washer	.50	
108	Clutch Pinion	3.00	2209	Bearing Adjustment Nut	.04	
109	Pinion Thrust Collar	.30	2211	Bearing Adjustment Nut Shim	4.00	
110	Cone Nut Lock Washer	.05	2301	Drive Gear Housing	.10	
111	Clutch Cone Nut	.20	2312	Oil Level Plug	.02	
112	Clutch Cone	.90	104-S	Drive Gear Housing Screw	.01	
113	Clutch Cone Facing	.80	302-W	Housing Screw Lock Washer	1.52	
114	Clutch Cone Facing Rivets	.01	2305	Hub Dust Washer Retainer	.12	
115	502-K Clutch Cone Key	.02	2307	Hub Dust Washer	.03	
116	Clutch Actuating Collar	.56	109-S	Dust Washer Retainer Screw	.01	
117	Actuating Collar Clamp Screw	.02	304-W	Retainer Screw Lock Washer	.03	
118	Clutch Actuating Spring Rod	.25	109-S	Air Manifold Bolt	2.00	
119	Spring Rod Cotter Pin	.01	2304	Air Manifold	1.42	
120	Clutch Control Adjusting Clip	.05	1204	Cylinder Housing		

Plate No. 3



**PLATE 2 (Continued)**

Photo Part No.	Name	Price Each
158	Fan Cover	\$ 2.80
159	Fan Cover Screw	.05
160	Counter Shaft Gear Housing	6.28
161	Counter Shaft Gear Housing Screw	.02
162	Gear Housing Bolts	.15
163	Gear Housing Bolt Nut	.04
164	Oil Filler Plug	.10
165	Breather Connection	.12
166	Breather Tube	.16

**PLATE 3**

167	Left Frame Plate	2.28
168	Right Frame Plate	2.28
169	Frame Plate Spacer	.12
170	Frame Plate Spacer Bolt	.15
171	Spacer Bolt Nut	.04
172	Tool Box	.45
173	Tool Box Rivets	.01
174	Right Handle	1.30
175	Left Handle	1.30
176	Handle Round	.25
177	Handle Tie Bolt	.15
178	Handle Tie Bolt Nut	.02
179	Handle Tie Bolt Washer	.01
180	Handle Securing Bolt	.15
181	Handle Clamp Washer	.10
182	Handle Securing Bolt Nut	.04
183	Throttle Lever	.15
184	Throttle Lever Friction Washer	.08
185	Throttle Lever Screw	.02
186	Throttle Control Wire	.10
187	Clutch Control Wire	.10
188	Control Wire Guide	.01
189	Clutch Hand Lever	.25
190	Clutch Hand Lever Pin	.10
191	Hand Lever Pin Cotter	.01

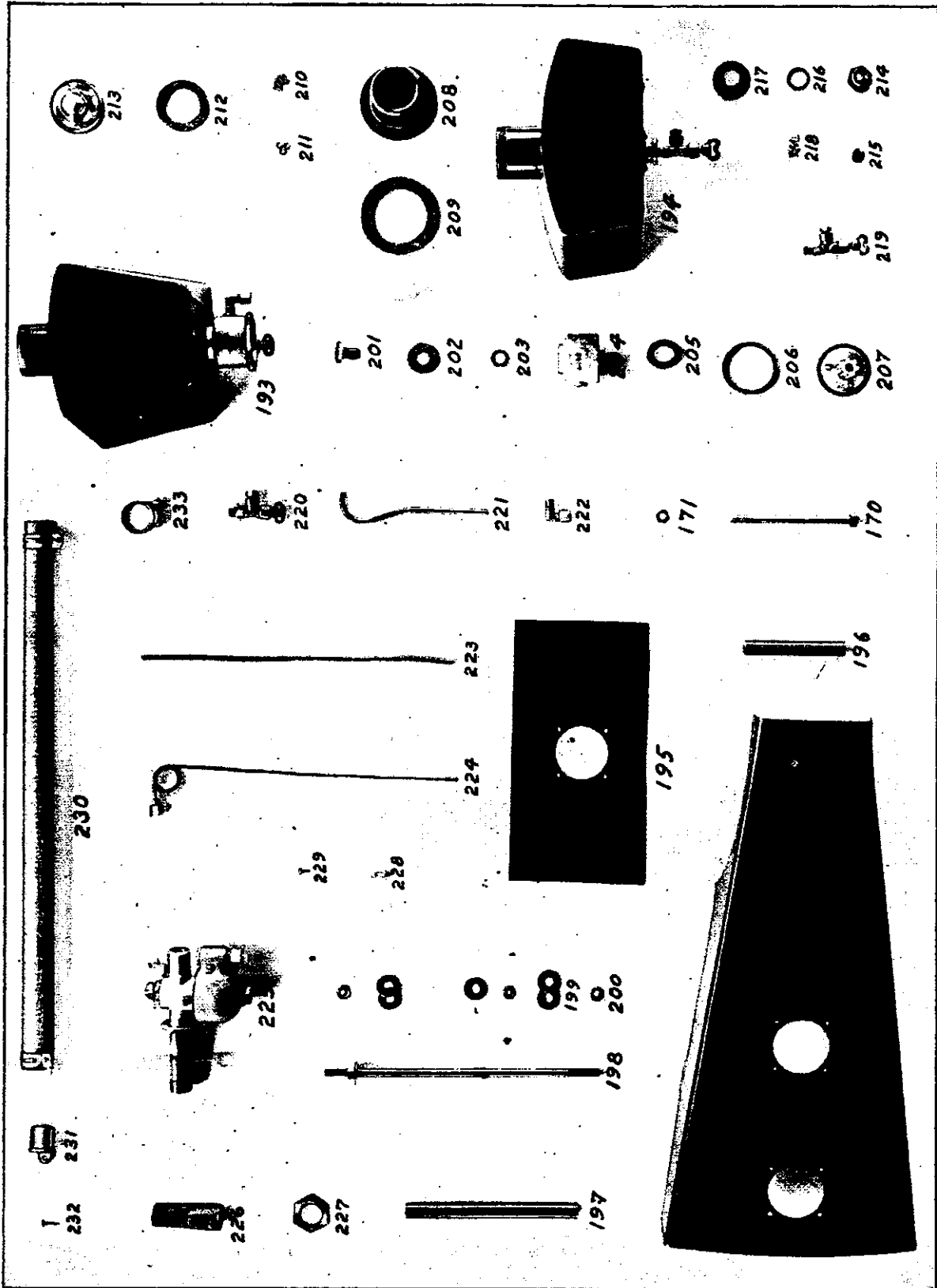
**PLATE 4**

192	Tank Shell	2.00
193	Oil Tank Complete	3.25
194	Gas Tank Complete	3.25

**PLATE 4 (Continued)**

Photo Part No.	Name	Price Each
195	Tank Pads	.....\$ .15
196	Short Tank Spacer	..... .12
197	Long Tank Spacer	..... .15
198	Long Spacer Bolt	..... .10
199	Long Spacer Bolt Washers	..... .01
200	Long Spacer Bolt Nut	..... .04
201	Oil Filler Connecting Nipple	..... .36
202	Oil Filler Connecting Gasket	..... .03
203	Connecting Nipple Nut	..... .10
204	Oil Filler Case	..... .80
205	Oil Filler Felt Washers	..... .05
206	Oil Filler Core Gasket	..... .05
207	Oil Filler Core	..... .45
208	Tank Filler Neck	..... .50
209	Filler Neck Flange Gasket	..... .10
210	Tank Securing Screw	..... .02
211	Tank Securing Screw Lock Washer	..... .01
212	Filler Cap Gasket	..... .05
213	Filler Cap	..... .30
214	Tank Strainer Plug	..... .15
215	Strainer	..... .05
216	Strainer Plug Gasket	..... .01
217	Connecting Flange	..... .56
218	Connecting Flange Rivets	..... .01
219	Gas Shut Off Valve	..... .55
220	Oil Shut Off Valve	..... .55
221	Oil Elevating Sight Tube	..... .20
222	Elbow Connector	..... .12
223	Oil Supply	..... .20
224	Oil Return Tube	..... .20
225	Gas Supply Tube	..... .20
226	Carburetor (See Page 31 for Carb. List)	7.00
227	Intake Manifold	..... .30
228	Carburetor Lock Nut	..... .20
229	Carburetor Lever Pin	..... .08
230	Carburetor Control Adjusting Screw	..... .02
231	Air Filter Complete (Not on L. M.)	4.50
232	Air Filter Plug (Not on Late Models)	..... .40
233	Air Filter Securing Screw (Not on L. M.)	..... .01
234	Air Filter Clamp (Not on Late Models)	..... .05

Plate No. 4





**PLATE 5**

Photo Part No.	Name	Price Each
234	Depth Adjusting Wheel Complete.....	\$ 5.00
235	Wheel Mounting Bracket.....	1.50
236	Plain Shank Holder Complete.....	.50
237	Shank Holder Securing Screw.....	.05
238	Shank Clamp Bolt.....	.15
239	Shank Clamp Nut.....	.10
240	Depth Wheel Complete with Hub.....	.90
241	Depth Wheel Hub.....	.30
242	Depth Wheel Hub Rivet.....	.01
243	Depth Wheel Link.....	.30
244	Depth Wheel Link Spacer.....	.14
245	Depth Adjusting Nut.....	.30
246	Depth Adjusting Screw.....	.25
247	Depth Adjusting Screw Washer.....	.01
248	Depth Adjusting Knob.....	.10
249	Knob Lock Nut.....	.04
250	Depth Screw Friction Spring.....	.15
251	Tool Holder Strut.....	.40
252	Parallel Bar.....	.28
253	Parallel Clamp Bar.....	.40
254	Parallel Clamp Bar Bolt.....	.05
255	Parallel Bar Extension Bolt Complete with 205-N Nut.....	.09
256	Long Tool Shank.....	.40
257	Auxiliary Shank.....	.13
258	Auxiliary Tool Plate.....	.75
259	Tool Plate Set Screw.....	.05
260	Rear Hitch Brace.....	.15
261	Front Hitch Brace.....	.15
262	Brace Bolt.....	.05
263	Brace Bolt Lock Washer.....	.01
264	Brace Bolt Nut.....	.04
265	Stand.....	.85
266	Connecting Bolt.....	.15
267	Connecting Bolt Lock Washer.....	.01
268	Connecting Bolt Nut.....	.04

**PLATE 6**

Photo Part No.	Name	Price Each
269	Tool Holder Complete.....	\$18.50
270	Adjustable Wrench.....	.64
271	Double End Wrench ½ x 11/16.....	.42
272	Double End Wrench 7/16 x 9/16.....	.35
273	Double End Wrench ¾ x 7/16.....	.30
274	Oil Gun.....	1.25
275	Screw Driver.....	.30
276	9/16" Socket Wrench.....	.60
277	Starting Strap Complete.....	.60
278	Clutch Hand Lever Binding Strap.....	.10
2810	Box Wrench.....	.95

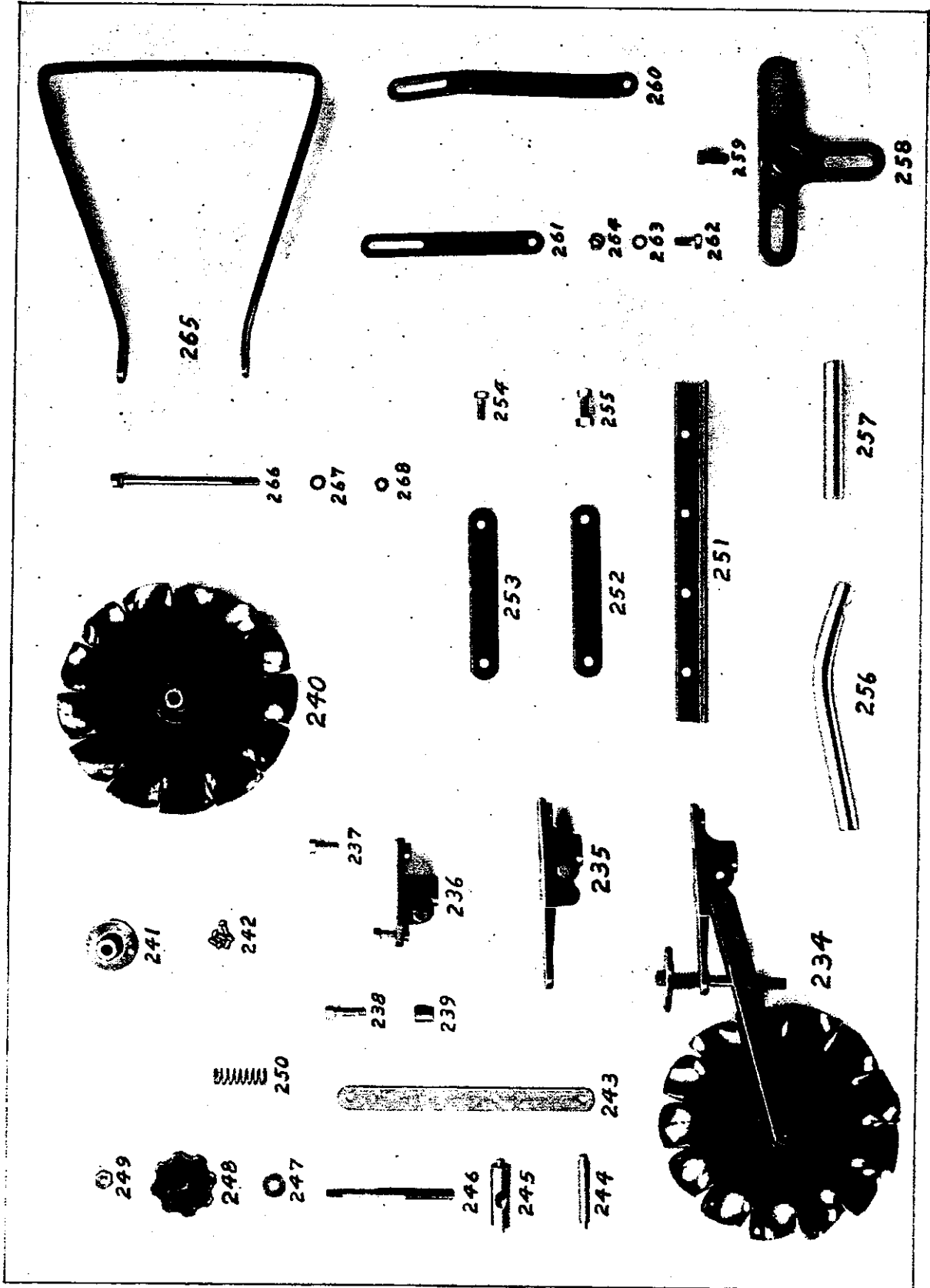
**TRACTOR PARTS NOT ILLUSTRATED**

2527	Auxiliary Tank Braces.....	.20
1716	Donaldson Air Cleaner.....	4.50
1717	Air Cleaner Mtg. Clip.....	.05
1718	Mounting Clip Screw.....	.02
1719	Air Cleaner Hose.....	.50
1720	Air Cleaner Clamp Bolt.....	.02
	Completely Assembled Connecting Rod.....	2.50
	Completely Assembled Oil Pump.....	2.70
	Complete Set Motor Gaskets.....	.64
	Complete Set Felt-Cork Washers.....	1.36
	Completely Assembled Cylinder.....	17.80

**MODEL "D" GRAVELLY CARBURETOR**

2901	Body.....	.50
2902	Rotor.....	1.50
2903	Nozzle.....	.25
2904	Nozzle Nut.....	.10
2905	Needle Guide.....	.22
2906	Friction Collar.....	.18
2907	Adjusting Needle.....	.75
2908	Cam Adjusting Screw.....	.05
2909	Cam Follow Screw.....	.07
202-N	Follow Screw Nut.....	.01
2910	Rotor Lever.....	.10
2911	Rotor Dust Washer.....	.01

Plate No. 5



### MODEL "D" GRAVELY CARBURETOR (Continued)

Photo Part No.	Name	Price Each
2912	Choke Disc.....	\$.01
2913	Choke Shaft.....	.10
2914	Packing Gland Nut.....	.05
2915	Bowl.....	.30
2916	Float.....	.25
2917	Float Lever.....	.01
2918	Float Bolt.....	.05
2919	Float Nut.....	.03
2920	Float Lever Pin.....	.05
2921	Float Needle.....	.05
2922	Connector.....	.35
2923	Connector Gasket.....	.01
206-N	Connector Nut.....	.10
2925	Bowl Nut.....	.50
2926	Bowl Gasket.....	.01
2928	Coupling Sleeve.....	.02
2929	Compression Nut.....	.05
2605	Control Pin.....	.08
101-S	Control Adjusting Screw.....	.02
1713	Intake Nipple.....	.12
2216	Nipple Nut.....	.20
2518	Breather Connector.....	.12
	Complete Bowl and Float Assembled.....	1.76
	Complete Carburetor Assembled.....	7.00

### GRAVELY SICKLE TYPE MOWER (Drive Mechanism)

1	3103	Bevel Pinion.....	2.04
2	3104	Bevel Gear.....	2.37
3	3105	Gear Housing.....	4.59
4	3106	Sprocket Shaft Bearing Housing.....	2.82
5	3107	Column.....	5.58
6	3113	Clutch Release Cam Housing.....	1.47
7	3114	Lower Crank Housing.....	5.00
8	3115	Upper Crank Housing.....	3.74
9	3116	Crank Yoke.....	2.42
10	3117	Knife Actuating Lever.....	2.55
11	3118	Clutch Body.....	1.48
12	3119	Clutch Friction Plate.....	1.18
13	3126	Friction Plate Stud.....	.04

### GRAVELY SICKLE TYPE MOWER (Continued)

Photo Part No.	Name	Price Each	
14	3127	Clutch Ball Race.....	\$.86
15	3128	Clutch Bearing Ball.....	.03
16	3129	Clutch Release Thrust Ball.....	.05
17	3130	Clutch Release Cam.....	.54
18	3132	Clutch Release Cam Lever.....	.18
19	3133	Clutch Release Pull Rod.....	.08
20	3134	Clutch Spring.....	.07
21	3135	Clutch Spring Cap.....	.15
22	3136	Clutch Spring Rod.....	.20
23	3137	Clutch Spring Rod Extension.....	.20
24	3138	Clutch Spring Adjusting Nut.....	.17
25	202-N	Clutch Adjusting Lock Nut.....	.02
26	1304	Clutch and Gear Nut.....	.10
27	309-W	Clutch and Gear Nut Lock Washer.....	.02
28	3139	Pinion Shaft Thrust Spring.....	.12
29	3140	Thrust Spring Cap.....	.08
30	3141	Pinion Shaft.....	1.59
31	3142	Crank Shaft.....	1.58
32	3143	Crank Disc.....	1.38
33	3144	Crank Yoke Ball Stud.....	2.02
34	3145	Ball Stud Bearing.....	.96
35	3146	Crank Shaft Thrust Spring.....	.07
36	3147	Pinion and Crank Shaft Bearing.....	2.48
37	3148	Bearing Closure Felt.....	.10
38	3149	Closure Felt Retainer.....	.05
39	3166	Bearing Housing Shim.....	.12
40	121-S	Bearing Housing Bolt.....	.06
41	305-W	Lock Washer.....	.03
42	3167	Column Shim.....	.06
43	122-S	Column Bolt.....	.03
44	308-W	Lock Washer.....	.01
45	3169	Gear Housing Oil Plug.....	.06
46	503-K	Clutch Key.....	.01
47	504-K	Gear and Crank Disc Key.....	.01
48	207-N	Crank Disc Nut.....	.02
49	307-W	Lock Washer.....	.01
50	208-N	Ball Stud Nut.....	.02
51	3176	Crank Yoke Knuckle Pin.....	1.20
52	3177	Knuckle Pin Locking Rivet.....	.01
53	3178	Knuckle Pin Bearing.....	.45

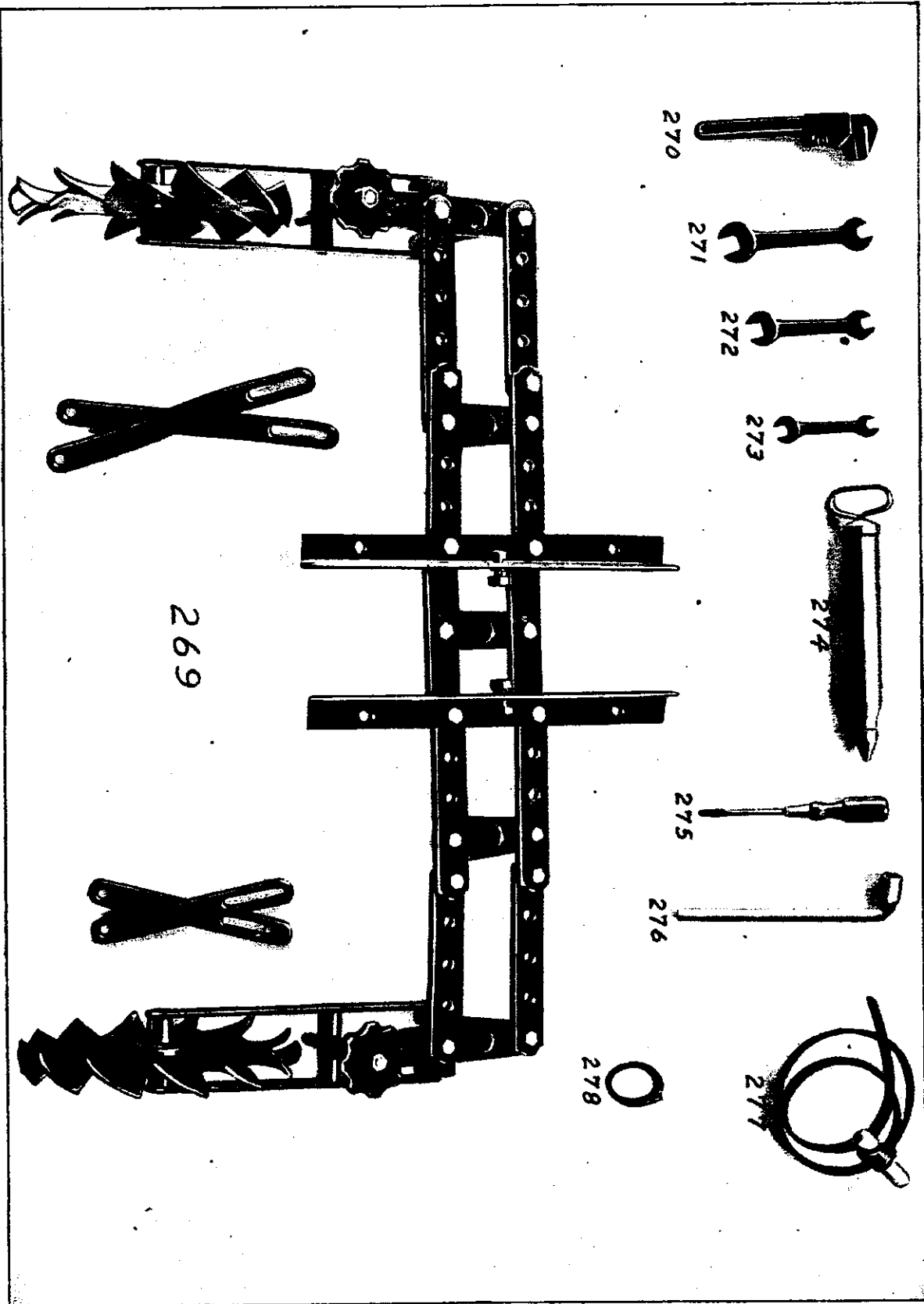


Plate No. 6

79	3194	Chain Guard	.....	\$	.40
80	144-S	Chain Guard Bolt	.....		.06
81	401-W	Washer	.....		.01
		Complete 3" Regular Cutter Bar, Incl. Knife with Bracket	.....		15.00
		Box 25 Knife Sections	.....		1.25
		Knife Rivets, Pound Lots	.....		.25

**1 1/2" CLOSE CUTTER BAR**

3201	Guard Bar	.....	3.23
146-S	Guard Screw, Short	.....	.06
147-S	Guard Screw, Long	.....	.06
3214	Guard	.....	.75
3215	Guard Clip	.....	.06
145-S	Guard Clip Screw	.....	.06
3205	Knife Back	.....	1.35
3206	Knife Section	.....	.09
3207	Knife Section Rivet	.....	.01
3208	Knife Section Rivet Thorough Dr. Br.	.....	.01
	Complete 1 1/2" Close Cutter Bar, Incl. Knife with Bracket	.....	20.00
	Complete 2" Close Cutter Bar, Incl. Knife with Bracket	.....	20.00
	(In Ordering Parts 2" Bar Use Price on Parts 3" Bar	.....	
	Specifying they are for 2" Size Bar)	.....	

**GRAVELLY ROTARY MOWER**

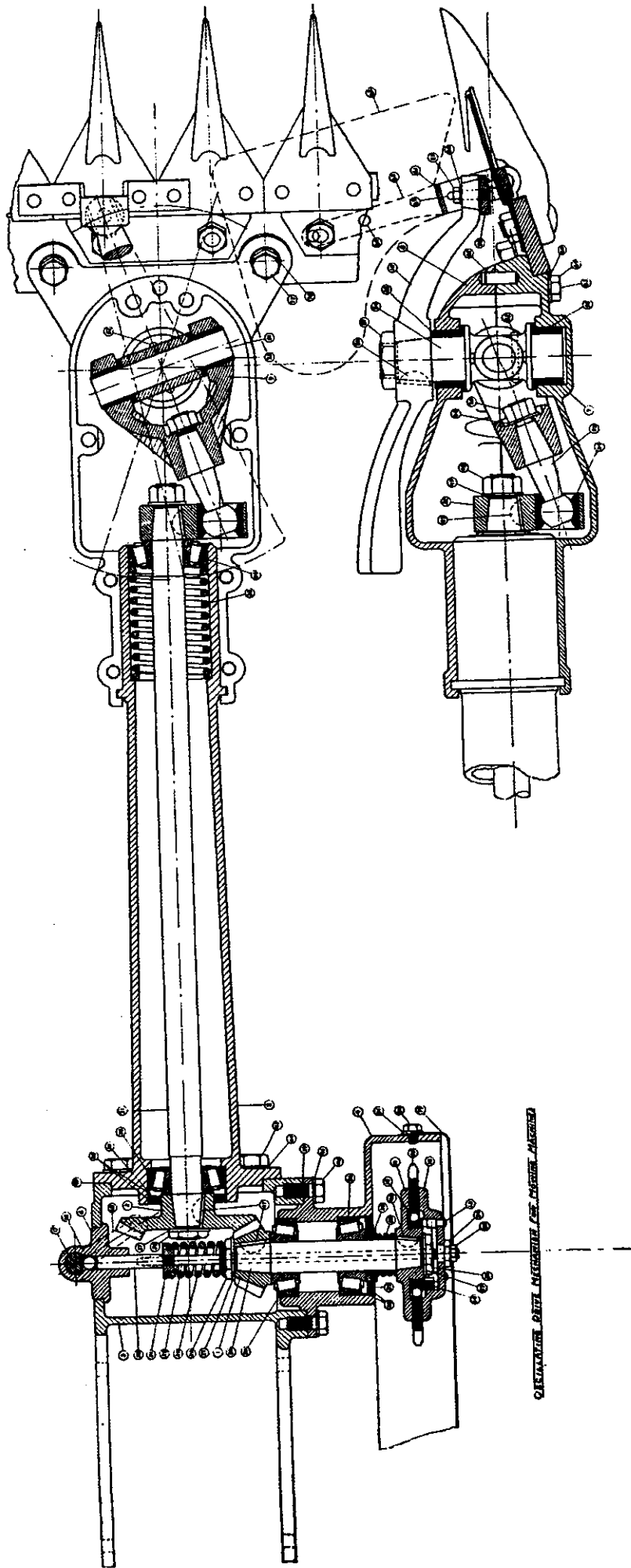
3420	Mitre Gear Housing	.....	2.54
3421	End Bracket	.....	1.18
3422-R	End Plate Right	.....	1.96
3422-L	End Plate Left	.....	1.88
3423	Bearing Housing	.....	.93
3424	Gear Housing Cap	.....	.70
3425	Gear Cover	.....	1.16
3426	Reel Drive Gear	.....	1.70
3427	Idle Gear	.....	.68
3428	Mitre Gear	.....	1.92
3429	Frame Cross Member	.....	.64
3430	Cross Member Plug	.....	.02
3431	Reel	.....	30.00
3432	Cross Shaft	.....	2.04
3433	Reel and Cross Shaft Bearing	.....	1.28
504-K	Reel and Shaft Key	.....	.01
3434	Idle Gear Bearing	.....	1.50
3435	Cutter Bar	.....	6.00

**GRAVELLY SICKLE TYPE MOWER (Continued)**

Ph.No.	P't.No.	3" REGULAR CUTTER BAR	Price Each	
54	3179	Actuating Lever Shaft	.....\$ 3.00	
55	3180	Lever Shaft Bearing	.....	.45
56	505-K	Actuating Lever Key	.....	.01
57	3181	Actuating Lever Nut	.....	.05
58	3182	Actuating Lever Wearing Tip	.....	.80
59	1608	Wearing Tip Bolt	.....	.07
60	303-W	Lock Washer	.....	.01
61	3183	Knife Drive Bracket	.....	.39
62	3184	Crank Housing Dowel	.....	.03
63	3185	Crank Housing Bolt	.....	.06
64	206-N	Crank Housing Nut	.....	.03
65	305-W	Lock Washer	.....	.01
66	3186	Clutch Sprocket	.....	2.32
67	3187	Drive Sprocket	.....	1.02
68	3175	Drive Sprocket Spacer	.....	.30
69	124-S	Drive Sprocket Bolt	.....	.03
70	3188	Drive Chain	.....	3.60
71	3189	Connecting Link	.....	.12
72	3190	Offset Link	.....	.12
	3191	Crank Housing Gasket	.....	.10
	3196	Divider	.....	.50
	3301	Cutter Bar	.....	1.83
	121-S	Cutter Bar Sec. Bolt 3/8"	.....	.06
	122-S	Cutter Bar Sec. Bolt 1/2"	.....	.06
	3302	Guard	.....	.48
	3303	Guard Bolt	.....	.06
	3304	Guard Bolt Through Clip	.....	.06
	3305	Knife Back	.....	1.35
	3306	Knife of 13-Sections, Complete	.....	3.50
	3307	Knife Rivet	.....	.01
	4014	Knife Drive Bracket Screw	.....	.05
	306-W	Knife Bracket Lock Washer	.....	.01
	3309	Knife Clip	.....	.15
	3310	Wearing Plate	.....	.15
		Knife Section, Only	.....	.09
		Skid	.....	.16
73	3211	Skid Bolt	.....	.06
74	3213	Skid Bolt	.....	.06
75	309-W	Skid Nut	.....	.06
76	3213	Skid Spacer	.....	.06
77	122-S	Guard Bar Sec. Bolt	.....	.06
78	308-W	Securing Bolt Lock Washer	.....	.01

140-S	Cutter Bar Screw, Short	.....\$	.03
141-S	Cutter Bar Screw, Long	.....	.03
3437	Reel Bearing Adjusting Nut	.....	.15
3438	Adjusting Nut Lock Washer	.....	.02
3439	Reel Bearing Cap	.....	.84
139-S	Bearing Cap Screw	.....	.01
302-W	Cap Screw Lock Washer	.....	.01
3441	Reel Fender	.....	.35
139-S	Fender Screw	.....	.01
302-W	Fender Screw Lock Washer	.....	.01
121-S	Idle Gear Securing Bolt	.....	.01
106-S	Gear Cover Screw	.....	.01
121-S	Frame Adjusting Bolt	.....	.01
403-W	Frame Adjusting Bolt Washer	.....	.01
117-S	Reel Adjusting Bolt	.....	.01
402-W	Reel Adjusting Bolt Washer	.....\$	.01
3444	Frame Rivet	.....	.01
113-S	Mitre Gear Housing Bolt	.....	.05
305-W	Housing Bolt Lock Washer	.....	.01
3445	Gear Cover Gasket	.....	.06
3446	Bearing Cap Gasket	.....	.06
2311	Gear Housing Oil Filler Plug	.....	.02
3447	Roller Bracket	.....	.60
121-S	Bracket Bolt	.....	.01
305-W	Bracket Bolt Lock Washer	.....	.01
3448	Roller Spindle	.....	.10
206-N	Roller Spindle Nut	.....	.01
305-W	Spindle Nut Lock Washer	.....	.01
3449	Roller Section (5 used)	.....	.40

The Rotary Mower uses practically all the same parts as the Sickle Mower for the Drive Mechanism. Use Sickle list for ordering these.



GRAVELLY MOTOR FLOW & CULTIVATOR CO. DUNSMuir W. VA.

The GRAVELLY MOWING ATTACHMENT was designed especially for the GRAVELLY GARDEN TRACTOR. It consists of a conventional sickle bar with an oscillating drive mechanism developed by us after long experience in this field. The drive head is centrally located on the cutter bar for balance, and has a swivel action allowing the bar to follow any uneven or sloping ground independent of the tractor.

The power take-off from the tractor is through hardened sprockets and roller chain with an idling clutch incorporated in the mower sprocket.

All gears are enclosed in dirt proof housings with self-adjusting roller bearings, and running in oil.

All vital parts in the oscillating mechanism are made from chrome alloy steel with certified malleable cast housings, making an attachment that will withstand severe use without breaking.

