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.

MS-23 Printed in U. S. A.

INDEX

Foreword

WE 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.

Printed in U. S. A. June, 1936

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 is 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

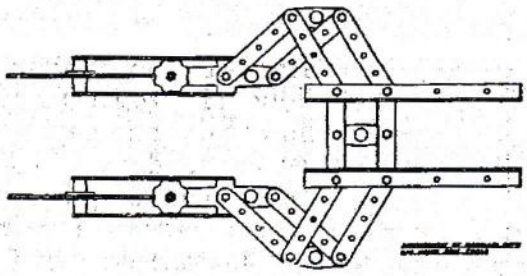


Photo No. 1

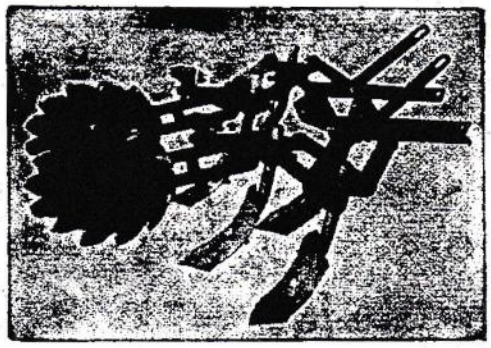


Photo No. 1A

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.

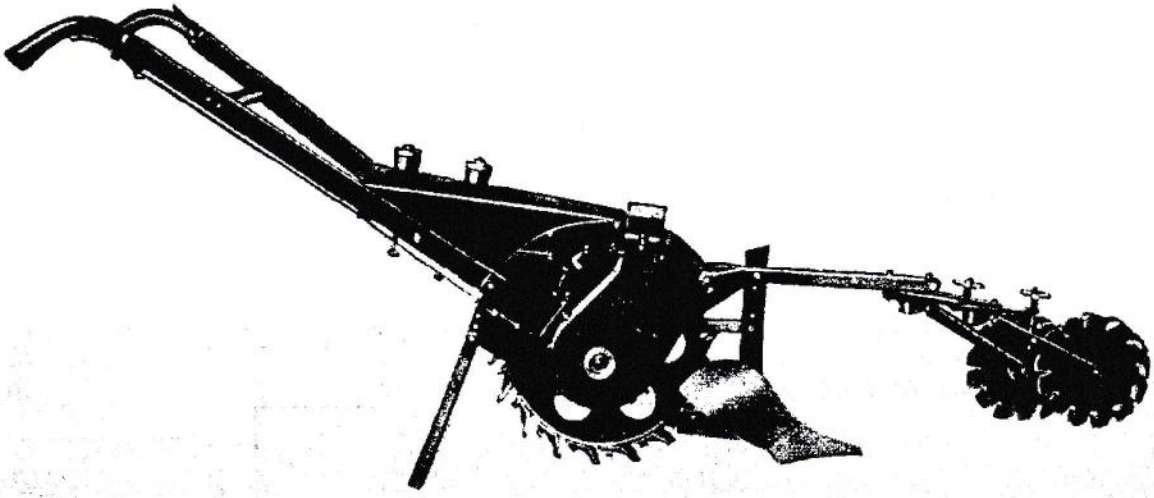


Photo No. 2

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.

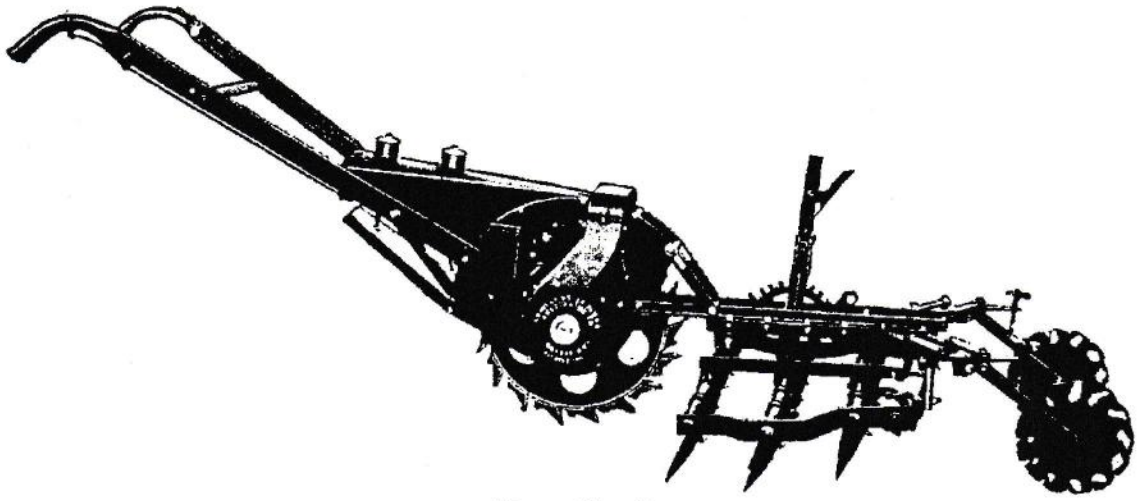


Photo No. 3

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.

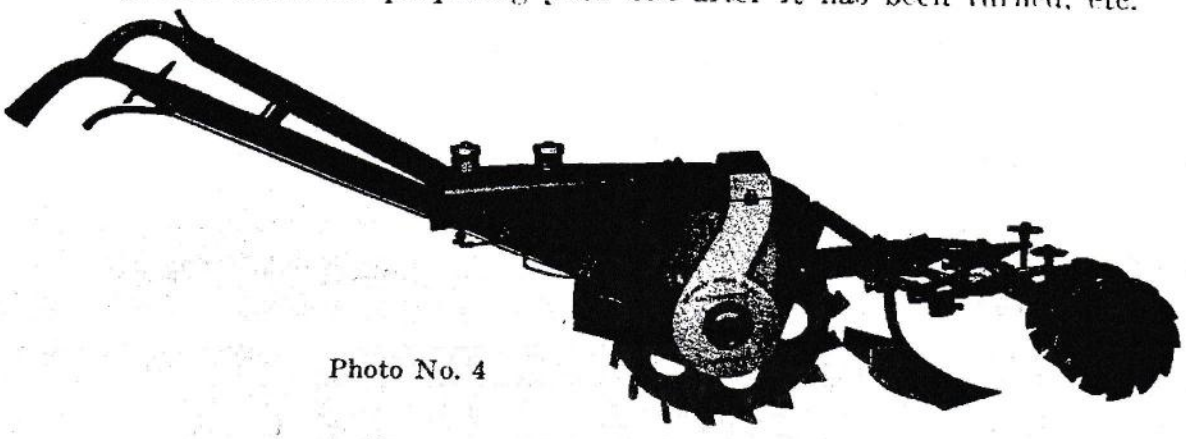


Photo No. 4

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.

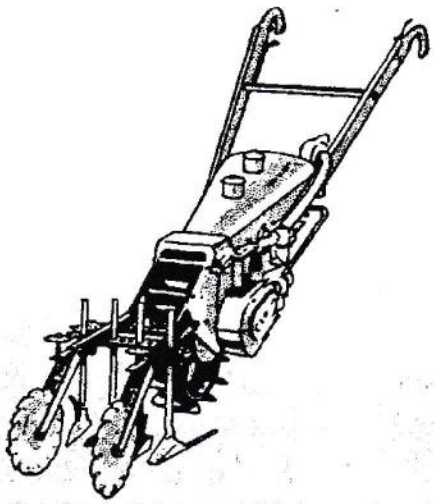


Photo No. 6

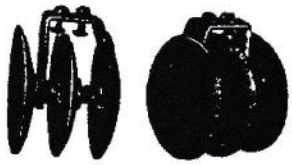


Photo No. 6-A

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.

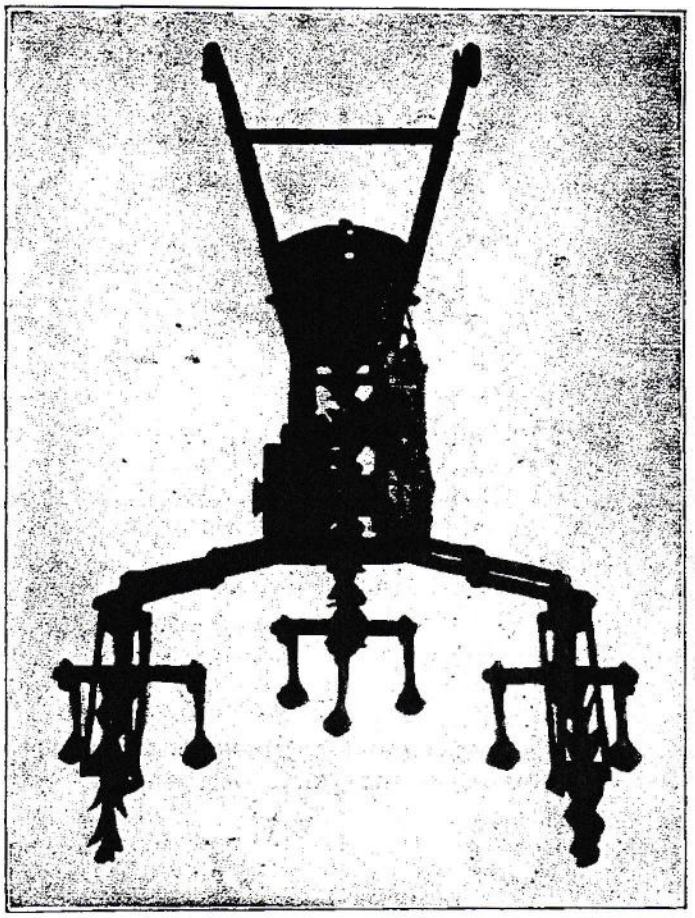


Photo No. 7

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.

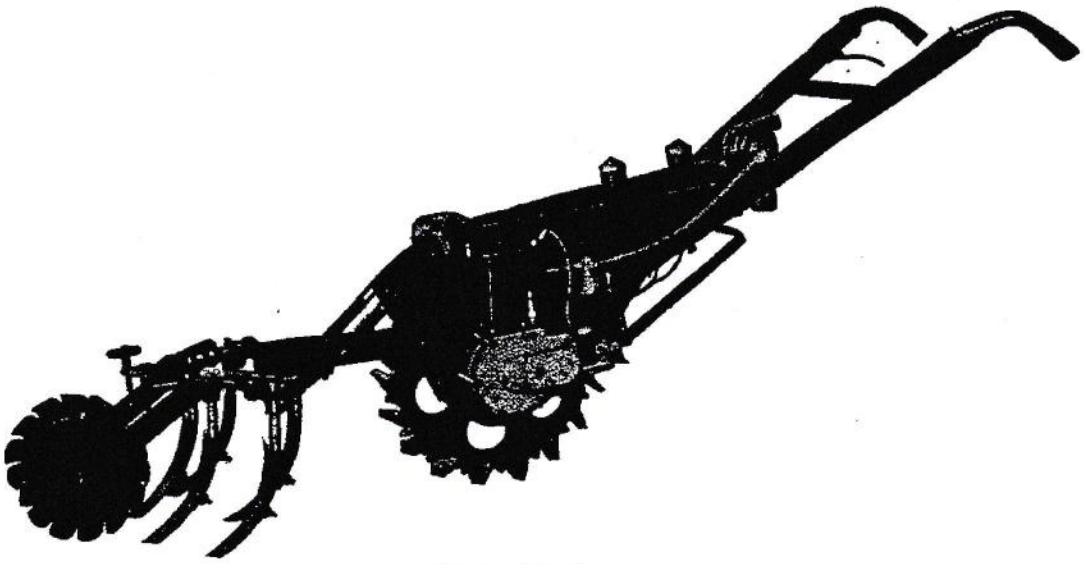


Photo No. 8

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.

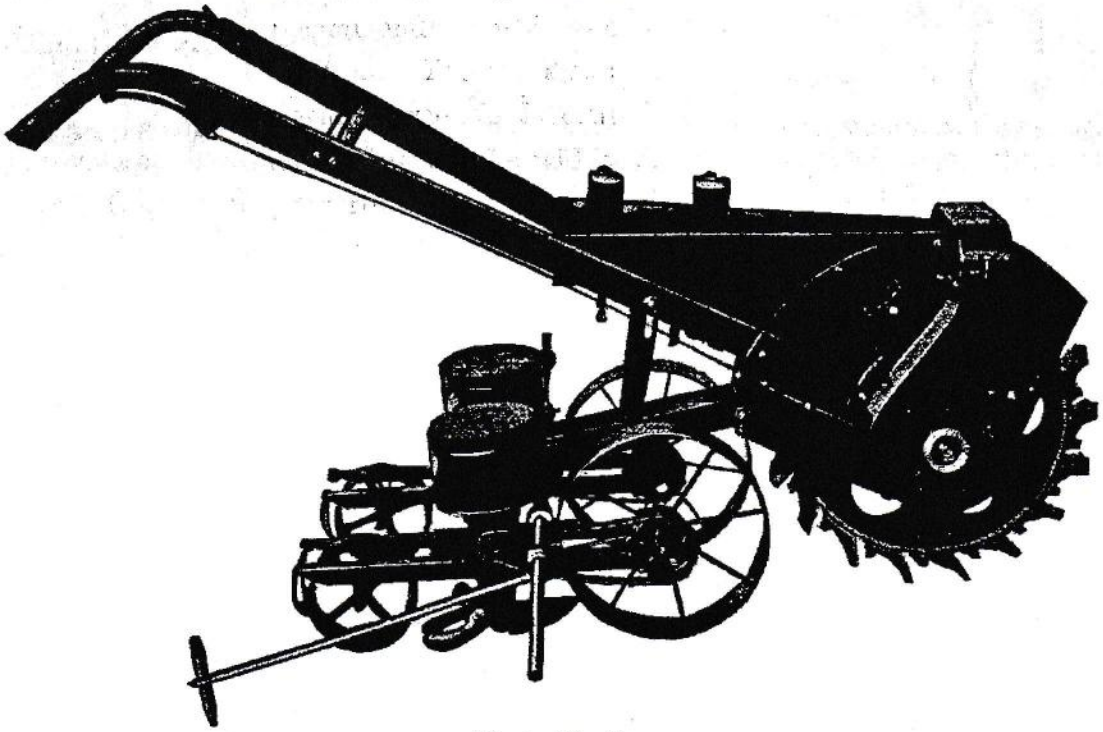


Photo No. 9

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.

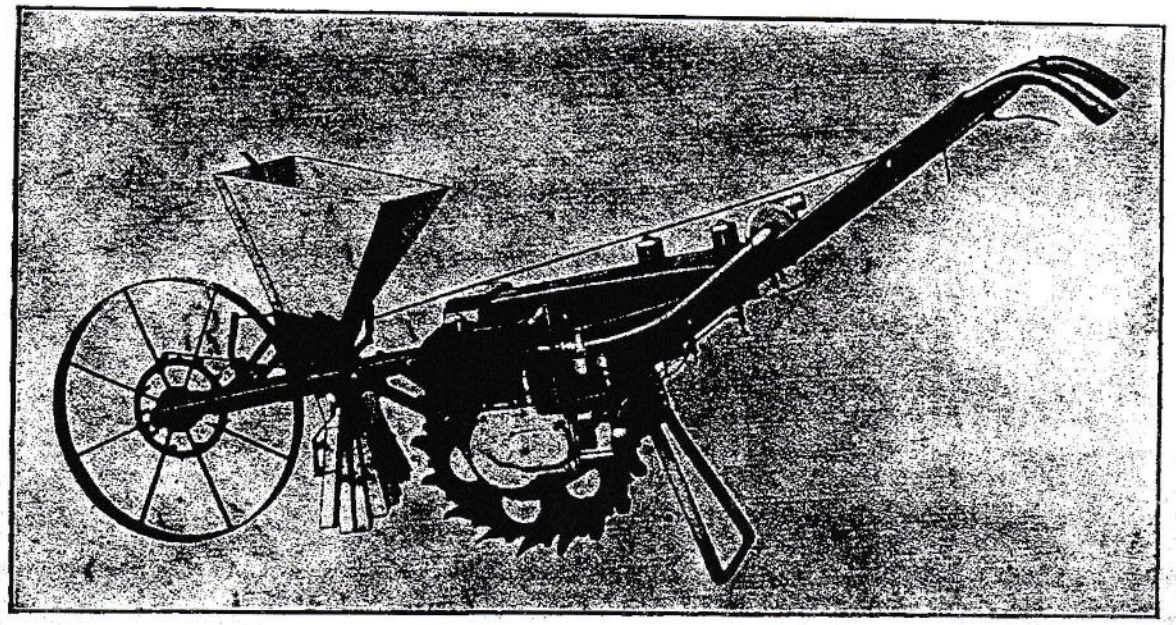


Photo No. 10

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 ½" 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 MOBILOIL "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 weeks 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 Cluthch 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.

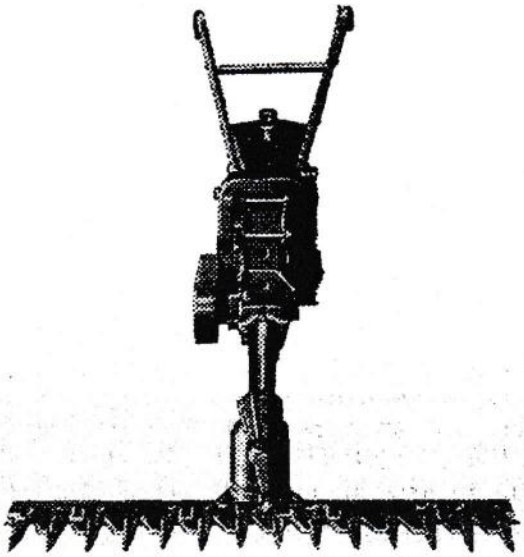


Photo No. 11

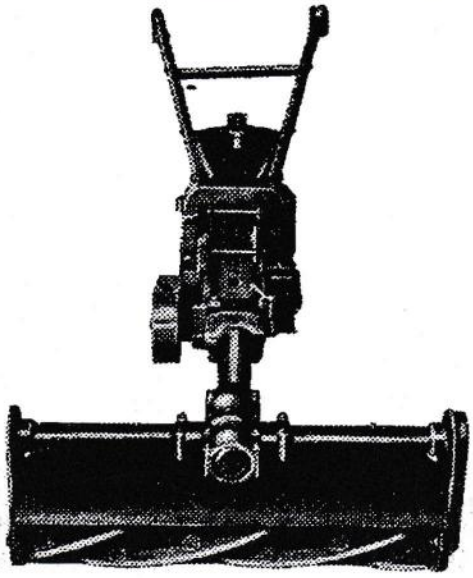


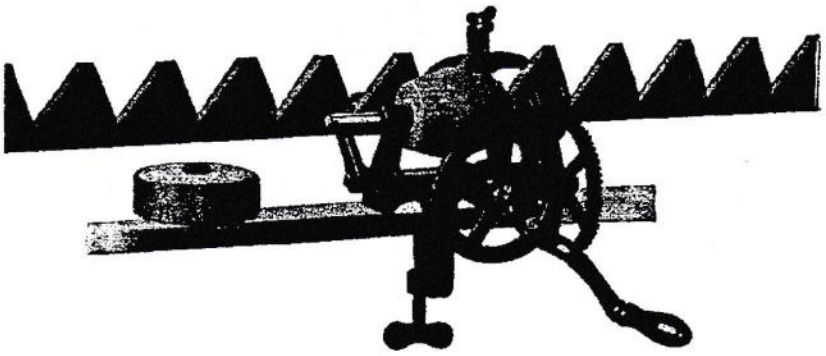
Photo No. 12

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 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 uncovored 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 2½, 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 (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 positon, 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 play 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,

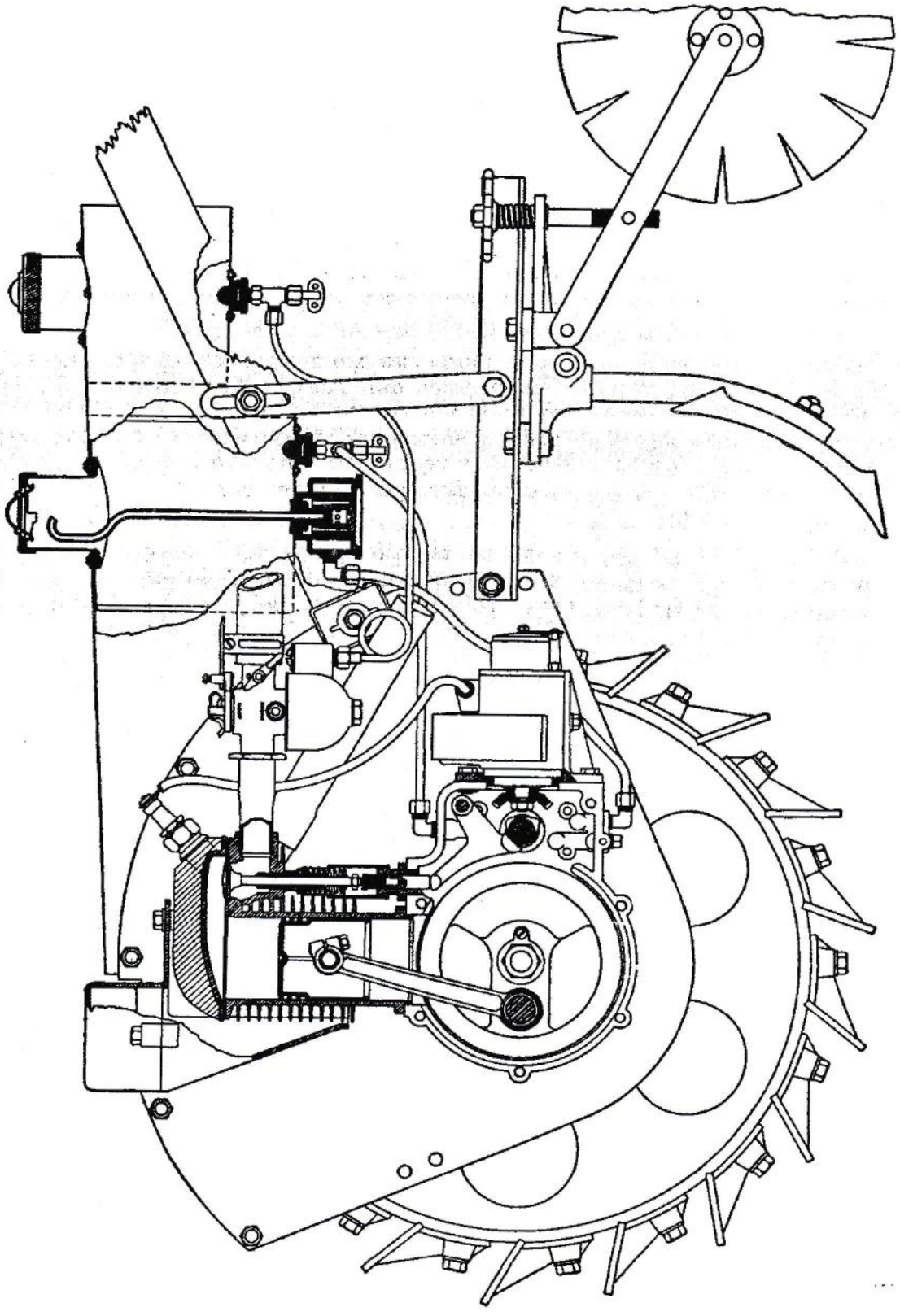
TROUBLE HINTS

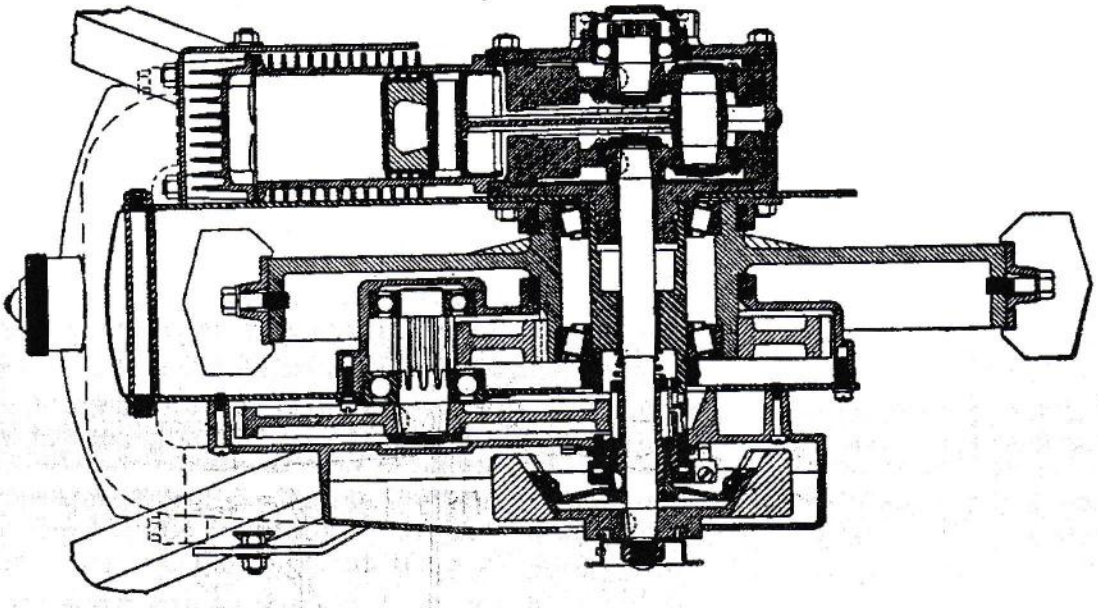
ENGINE HARD TO START: This may be due to any of the following: Improper carburetor adjustment; faulty ignition; interrupter contacts too wide; spark plug dirty; or points improperly spaced; collector spool and brush dirty. Read paragraphs on carburetor adjustment and ignition. Store the machine in warm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

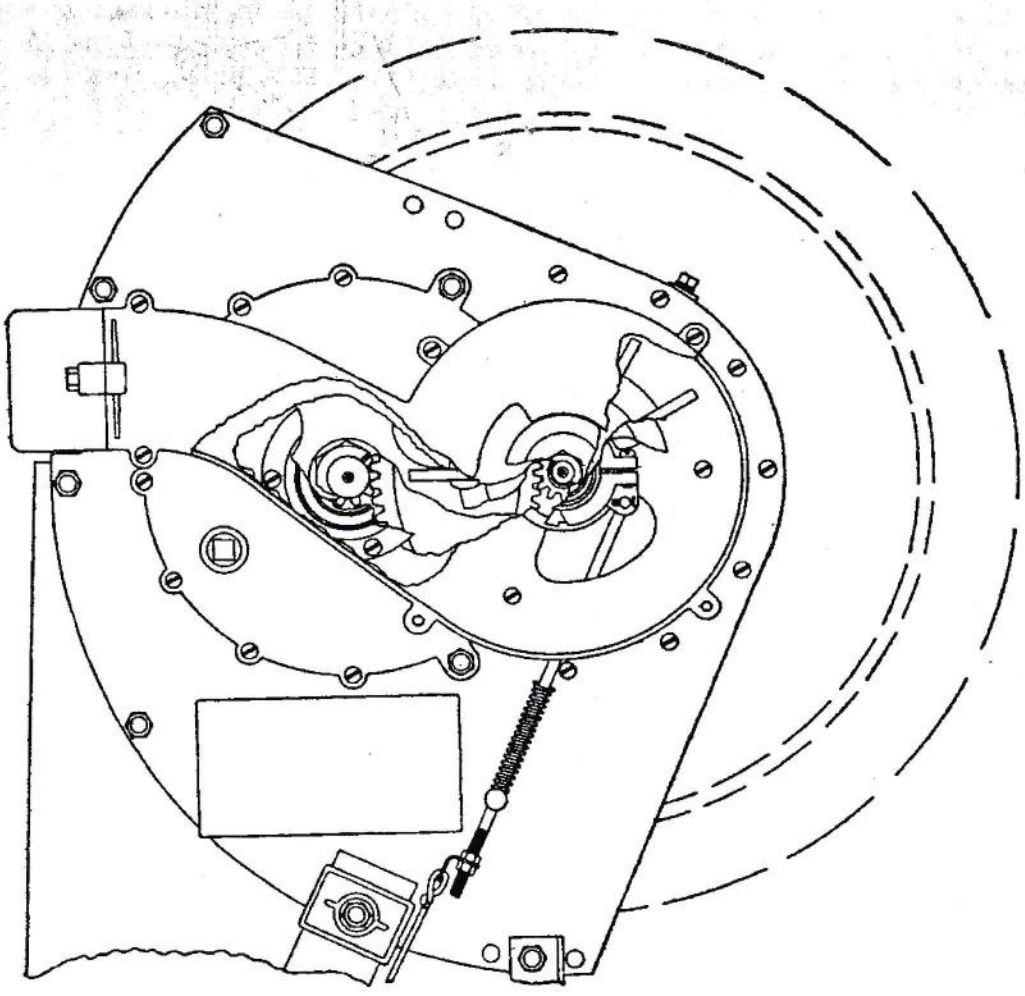
ENGINE FLOODED: If when cranking engine ,you notice a vapor coming from the exhaust, more particularly when it is hot, it is due to excess gasoline and it will not start until this excess fuel is eliminated from the cylinder. To do this, turn carburetor adjusting needle right-hand until completely closed.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







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 necessaryy. 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.

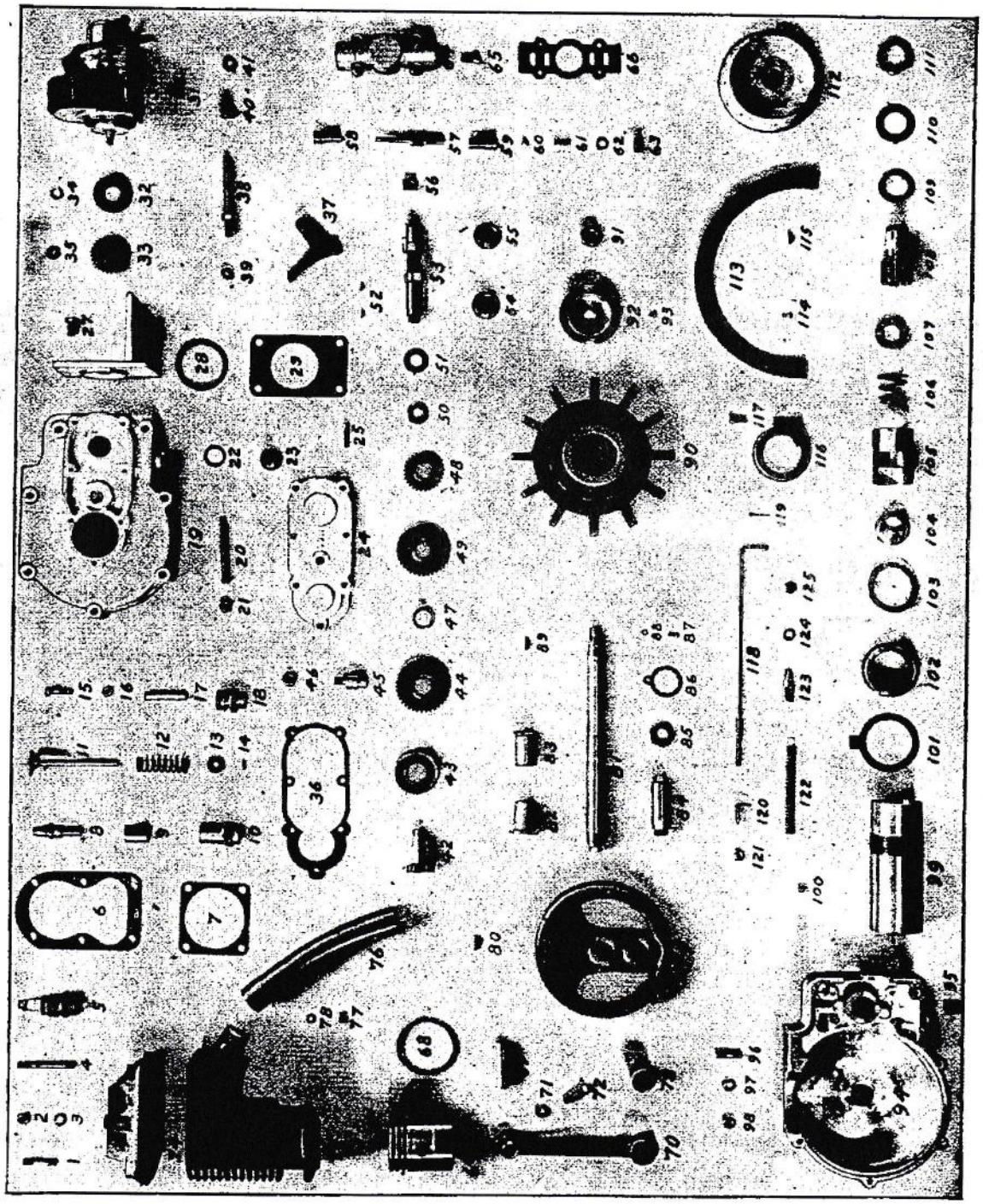


Plate No. 1

PLATE 1

Photo No.	Part No.	Name	Price Each
1	1206	Short Cylinder Head Stud	$ .05
2	204-N	Cylinder Head Stud Nut	.02
3	304-W	Head Stud Nut Lock Washer	.01
4	1205	Long Cylinder Head Stud	.10
5	1709	⅞ Standard Spark Plug	.75
6	V-229	Head Gasket	.30
7	1207	Cylinder Flange Gasket	.05
8	1605-A	Valve Guide	.36
9	1614	Upper Spring Sleeve	.15
10	1615	Lower Spring Sleeve	.23
11	1601	Valve, Intake or Exhaust	.68
12	1602	Valve Spring	.16
13	1603	Valve Spring Cap	.05
14	1604	Valve Spring Cap Key	.02
15	1608	Valve Tappet Screw	.10
16	1609	Tappet Screw Lock Nut	.03
17	1606	Valve Plunger	.32
18	1607	Valve Plunger Guide	.25
19	1102	Outer Half Crank Case	10.50
20	1106	Crank Case Bolts	.08
21	204-N	Crank Case Bolt Nut	.02
22	1814	Crank Case Drain Plug Gasket	.01
23	1812	Crank Case Drain Plug	.36
24	1103	Timing Gear Cover	1.82
25	105-S	Timing Gear Cover Screw	.02
26	1702	Magneto Bracket	2.00
27	117-S	Magneto Bracket Screws	.04
28	1703-A	Magneto Gasket	.06
29	1703	Magneto Bracket Gasket	.06
30	1701	Magneto (State whether German or American)	30.00
31	116-S	Magneto Securing Screws	.03
32	1705	Magneto Oil Washer	.10
33	1505	Magneto Gear	1.50
34	304-W	Magneto Gear Nut Lock Washer	.01
35	203-N	Magneto Gear Nut	.04
36	1104	Timing Gear Cover Gasket	.06
37	1610	Valve Lift Lever	1.25
38	1611	Valve Lift Lever Stud	.80
39	204-N	Valve Lift Lever Stud Nut	.02
40	1613	Valve Lift Lever Spacer	.05

PLATE 1 (Continued)

Photo No.	Part No.	Name	Price Each
41	1612	Valve Lift Lever Thrust Collar	$ .04
42	1501	Crank Shaft Pinion	2.45
43	1308	Crank Shaft Thrust Bearing	5.00
44	1502	Idle Gear Complete with Bearing	1.45
45	1516	Idle Gear Stud	.60
46	206-N	Idle Gear Nut Stud	.04
47	1509	Idle Gear Bearing	.25
48	1504	Cam Shaft Mitre Gear	1.47
49	1503	Cam Shaft Drive Gear	1.47
50	1510	Cam Shaft Drive Gear Nut	.13
51	1511	Drive Gear Nut Lock Washer	.03
52	501-K	Cam Shift Gear Key	.02
53	1506	Cam Shaft	5.00
54	1507	Cam Shaft Outer Bearing	.30
55	1508	Cam Shaft Inner Bearing	.30
56	1815	Oil Pump Crank Brass	.20
57	1811	Oil Pump Piston	.80
58	1804-A	Oil Pump Upper Cylinder	.30
59	1805-A	Oil Pump Lower Cylinder	.30
60	1809	Oil Pump Ball Valve	.02
61	1810	Oil Pump Valve Spring	.05
62	4025	Oil Pump Cylinder Plug Gasket	.02
63	1806-A	Oil Pump Cylinder Plug	.10
64	1801	Oil Pump Housing	.90
65	107-S	Pump Housing Securing Screw	.02
66	1802	Pump Housing Gasket	.10
67	1401-A	Piston	2.30
68	1402-A	Piston Ring	.25
69	1403-A	Piston Wrist Pin	.50
70	1312	Connecting Rod	2.00
71	306-W	Clamp Bolt Lock Washer	.01
72	1313	Connecting Rod Clamp Bolt	.10
73	1311	Crank Bearing	.30
74	1202-A	Cylinder Head	3.00
75	1201-A	Cylinder	11.00
76	1715	Exhaust Pipe	.25
77	101-S	Exhaust Pipe Securing Screw	.02
78	301-W	Securing Screw Lock Washer	.01
79	1301	Fly Wheel	2.60
80	503-K	Fly Wheel Key	.02

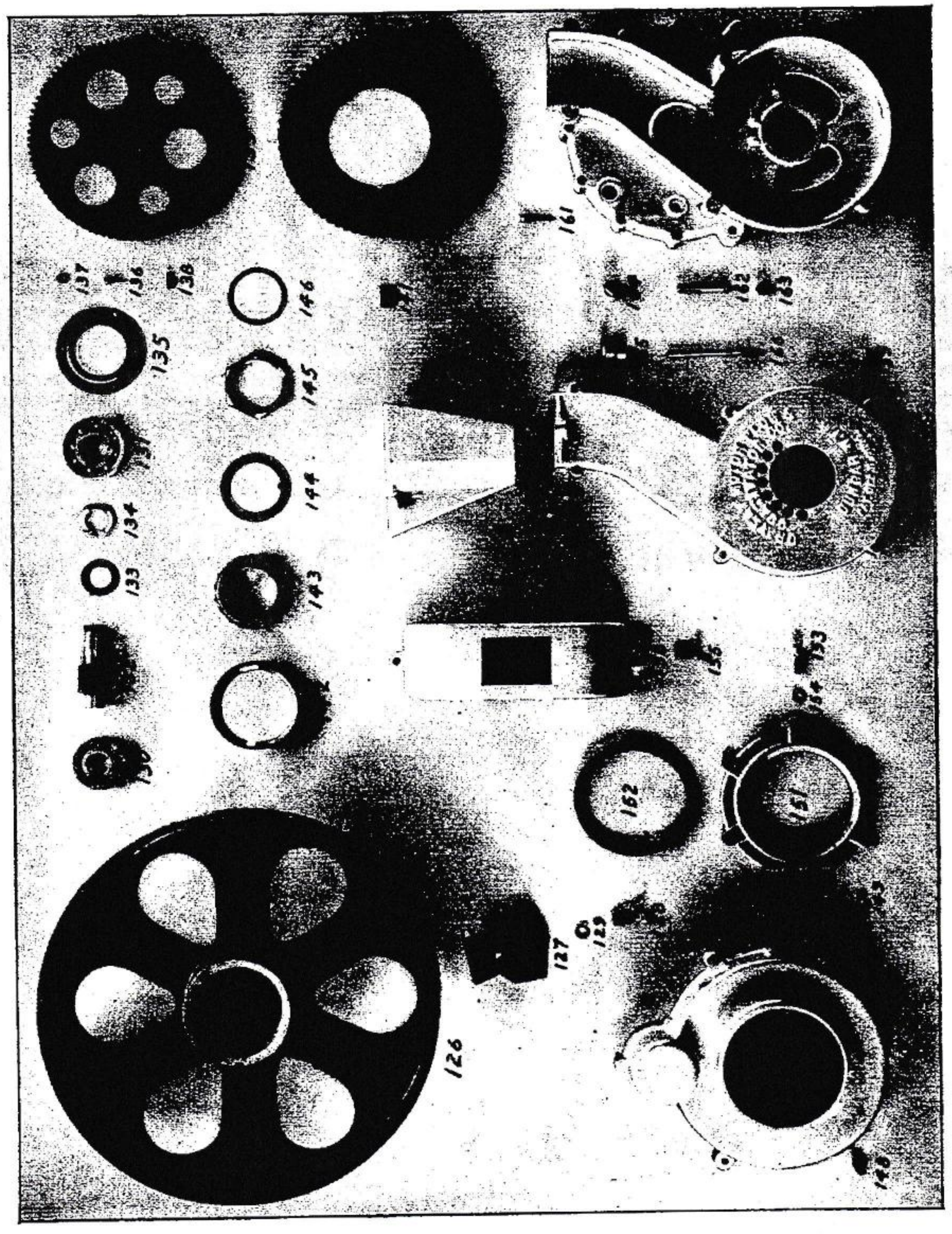


Plate No. 2

PLATE 1 (Continued)

Photo No.	Part No.	Name	Price Each
81	1302	Drive Shaft	$ 3.50
82	1309	Drive Shaft Bearing	.32
83	1310	Spindle Bearing Bushing	.32
84	1303	Crank Shaft	2.00
85	1304	Fly Wheel Nuts	.10
86	1305	Fly Wheel Nut Locking Collar	.05
87	101-S	Locking Collar Securing Screw	.02
88	301-W	Securing Screw Lock Washer	.01
89	503-K	Fan Key	.02
90	2001	Fan	2.25
91	207-N	Starter Pulley Nut	.05
92	2002	Starter Pulley	.44
93	2003	Starter Pulley Stud	.04
94	1101	Inner Half Crank Case	11.00
95	1111	Oil Port Plug	.10
96	1208	Cylinder Stud Bolt	.05
97	304-W	Cylinder Stud Nut Lock Washer	.01
98	204-N	Cylinder Stud Nut	.02
99	1108	Crank Case Spindle	3.80
100	2101	Clutch Actuating Stud	.05
101	1110	Spindle Nut Lock Washer	.05
102	1109	Spindle Nut	.60
103	2104	Actuating Sleeve Dust Washer	.10
104	2103	Actuating Sleeve Bearing Bushing	.30
105	2102	Clutch Actuating Sleeve	.76
106	2106	Clutch Pressure Spring	.15
107	2107	Pressure Spring Thrust Collar	.40
108	2201	Clutch Pinion	3.00
109	2105	Pinion Thurst Collar	.30
110	2217	Cone Nut Lock Washer	.05
111	2216	Clutch Cone Nut	.20
112	2005	Clutch Cone	.90
113	2008	Clutch Cone Facing	.80
114	2009	Clutch Cone Facing Rivets	.01
115	502-K	Clutch Cone Key	.02
116	2108	Clutch Actuating Collar	.56
117	103-S	Actuating Collar Clamp Screw	.02
118	2111	Clutch Actuating Spring Rod	.25
119	602-C	Spring Rod Cotter Pin	.01
120	2117	Clutch Control Adjusting Clip	.05

PLATE 1 (Continued)

Photo No.	Part No.	Name	Price Each
121	202-N	Clutch Control Adjusting Nuts	$ .02
122	2110	Clutch Actuating Spring	.10
123	2113	Spring Rod Guide Stud	.20
124	204-N	Guide Stud Nut	.02
125	304-W	Guide Stud Nut Lock Washer	.01

PLATE 2

126	2205	Drive Wheel	10.00
127	2206	Drive Wheel Cleats	.25
128	112-S	Cleat Securing Screw	.05
129	305-W	Cleat Securing Screw Lock Washer	.01
130	2212	Small Counter Shaft Bearing	5.00
131	2213	Large Counter Shaft Bearing	6.00
132	2203	Counter Shaft Pinion	3.20
133	2217	Counter Shaft Gear Nut Lock Washer	.05
134	2216	Counter Shaft Gear Nut	.20
135	2214	Bearing Securing Flange	.15
136	104-S	Bearing Securing Flange Screw	.02
137	302-W	Flange Screw Lock Washer	.01
138	504-K	Counter Shaft Gear Key	.03
139	2202	Counter Shaft Gear	3.00
140	2204	Drive Gear	3.50
141	2218	Drive Gear Key	.04
142	383-T	Drive Wheel Bearing Cup	3.56
143	387-T	Drive Wheel Bearing Cone with Rolls	2.28
	2208	Drive Wheel Bearing Complete	5.84
144	2210	Bearing Adjusting Nut Lock Washer	.05
145	2209	Bearing Adjustment Nut	.50
146	2211	Bearing Adjustment Nut Shim	.04
147	2301	Drive Gear Housing	4.00
148	2312	Oil Level Plug	.10
149	104-S	Drive Gear Housing Screw	.02
150	302-W	Housing Screw Lock Washer	.01
151	2305	Hub Dust Washer Retainer	1.52
152	2307	Hub Dust Washer	.12
153	109-S	Dust Washer Retainer Screw	.03
154	304-W	Retainer Screw Lock Washer	.01
155	109-S	Air Manifold Bolt	.03
156	2304	Air Manifold	2.00
157	1204	Cylinder Housing	1.42

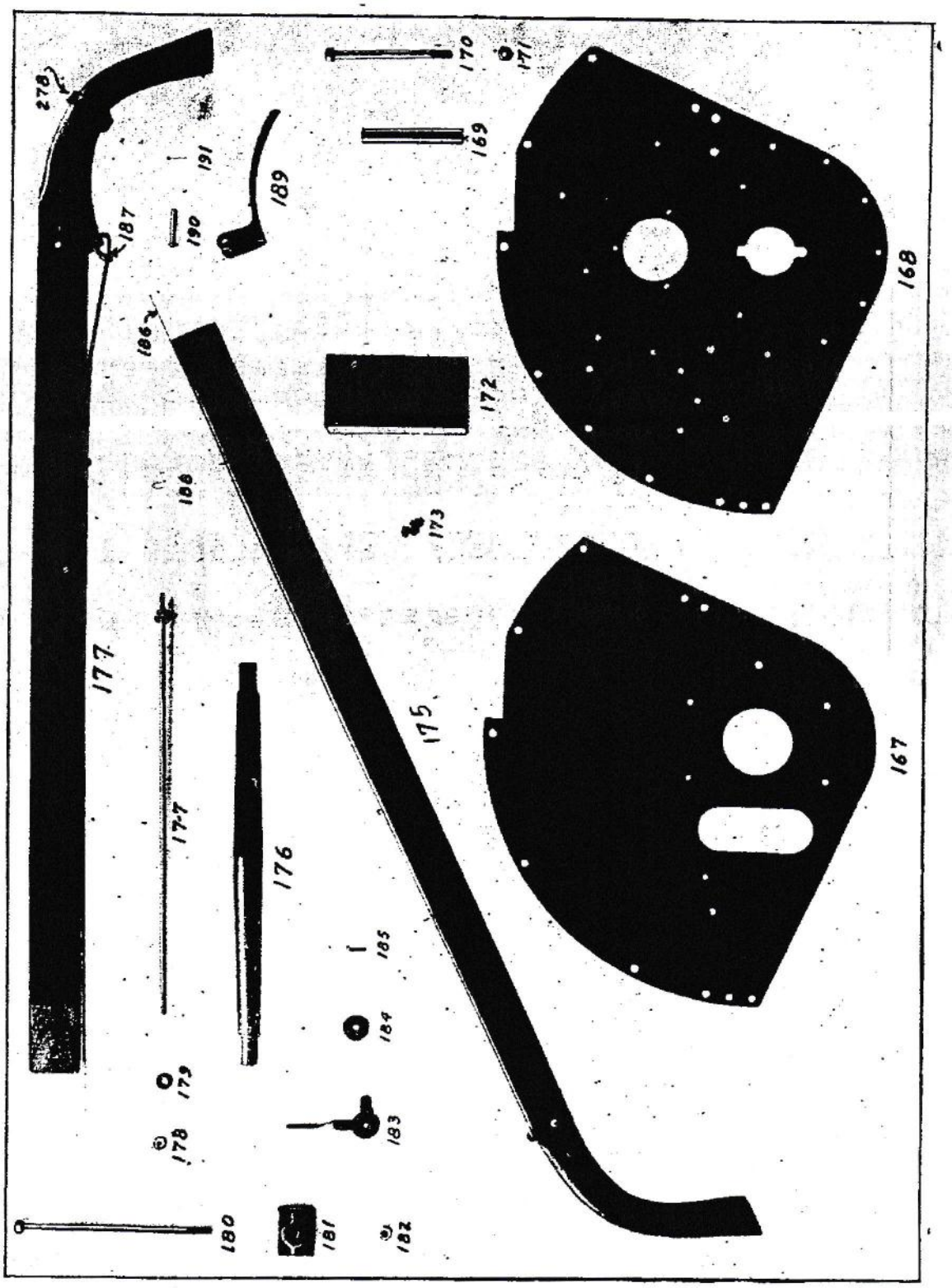

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Plate No. 8

PLATE 2 (Continued)

Photo No.	Part No.	Name	Price Each
158	2303	Fan Cover	$ 2.80
159	108-S	Fan Cover Screw	.05
160	2302	Counter Shaft Gear Housing	6.28
161	106-S	Counter Shaft Gear Housing Screw	.02
162	2316	Gear Housing Bolts	.15
163	206-N	Gear Housing Bolt Nut	.04
164	2311	Oil Filler Plug	.10
165	1710	Breather Connection	.12
166	1711	Breather Tube	.16

PLATE 3

167	2401	Left Frame Plate	2.28
168	2402	Right Frame Plate	2.28
169	2403	Frame Plate Spacer	.12
170	2404	Frame Plate Spacer Bolt	.15
171	206-N	Spacer Bolt Nut	.04
172	2415	Tool Box	.45
173	2416	Tool Box Rivets	.01
174	2406	Right Handle	1.30
175	2407	Left Handle	1.30
176	2408	Handle Round	.25
177	2409	Handle Tie Bolt	.15
178	201-N	Handle Tie Bolt Nut	.02
179	401-W	Handle Tie Bolt Washer	.01
180	2412	Handle Securing Bolt	.15
181	2413	Handle Clamp Washer	.10
182	206-N	Handle Securing Bolt Nut	.04
183	2601	Throttle Lever	.15
184	2603	Throttle Lever Friction Washer	.08
185	102-S	Throttle Lever Screw	.02
186	2604	Throttle Control Wire	.10
187	2604	Clutch Control Wire	.10
188	2611	Control Wire Guide	.01
189	2607	Clutch Hand Lever	.25
190	2608	Clutch Hand Lever Pin	.10
191	601-C	Hand Lever Pin Cotter	.01

PLATE 4

192	2501	Tank Shell	2.00
193	2502	Oil Tank Complete	3.25
194	2503	Gas Tank Complete	3.25

PLATE 4 (Continued)

Photo No.	Part No.	Name	Price Each
195	2509	Tank Pads	$ .15
196	2510	Short Tank Spacer	.12
197	2511	Long Tank Spacer	.15
198	2512	Long Spacer Bolt	.10
199	403-W	Long Spacer Bolt Washers	.01
200	206-N	Long Spacer Bolt Nut	.04
201	1903	Oil Filter Connecting Nipple	.36
202	1907	Oil Filter Connecting Gasket	.03
203	1904	Connecting Nipple Nut	.10
204	1901	Oil Filter Case	.80
205	1906	Oil Filter Felt Washers	.05
206	1908	Oil Filter Core Gasket	.05
207	1902	Oil Filter Core	.45
208	2504	Tank Filler Neck	.50
209	2526	Filler Neck Flange Gasket	.10
210	101-S	Tank Securing Screw	.02
211	301-W	Tank Securing Screw Lock Washer	.01
212	2506	Filler Cap Gasket	.05
213	2505	Filler Cap	.30
214	2521	Tank Strainer Plug	.15
215	1813	Strainer	.05
216	1814	Strainer Plug Gasket	.01
217	2524	Connecting Flange	.56
218	2525	Connecting Flange Rivets	.01
219	2520	Gas Shut Off Valve	.55
220	2517	Oil Shut Off Valve	.55
221	1905	Oil Elevating Sight Tube	.20
222	2518	Elbow Connector	.12
223	2515	Oil Supply	.20
	2516	Oil Return Tube	.20
224	2519	Gas Supply Tube	.20
225	1712	Carburetor (See Page 31 for Carb. List)	7.00
226	1713	Intake Manifold	.30
227	2216	Carburetor Lock Nut	.20
228	2605	Carburetor Lever Pin	.08
229	101-S	Carburetor Control Adjusting Screw	.02
230	1716	Air Filter Complete (Not on L. M.)	4.50
231	1717	Air Filter Plug (Not on Late Models)	.40
232	1718	Air Filter Securing Screw (Not on L. M.)	.01
233	1719	Air Filter Clamp (Not on Late Models)	.05

Plate No. 4

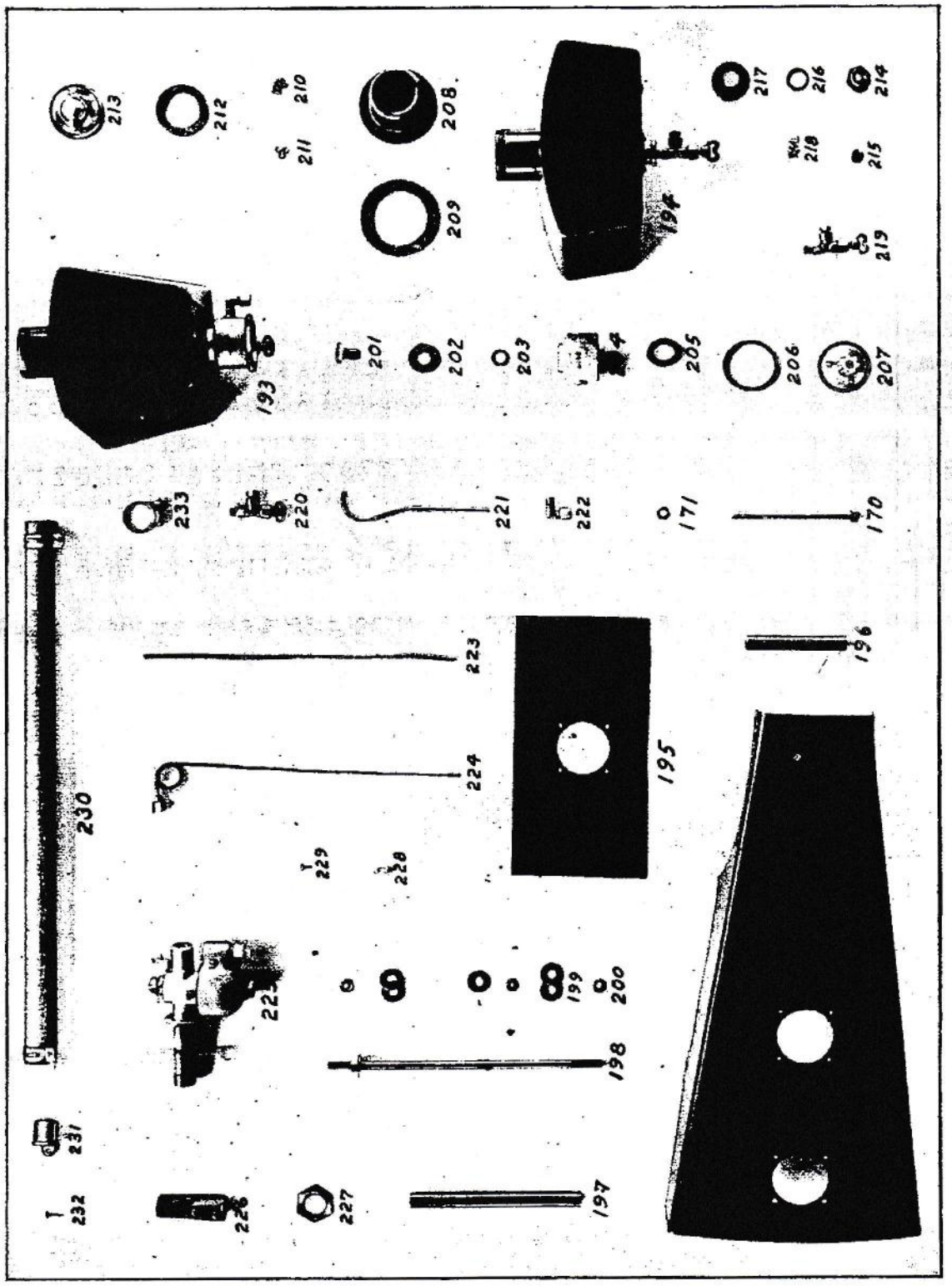
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PLATE 5

Photo No.	Part No.	Name	Price Each
234		Depth Adjusting Wheel Complete	$ 5.00
235	2709	Wheel Mounting Bracket	1.50
236	2710	Plain Shank Holder Complete	.50
237	111-S	Shank Holder Securing Screw	.05
238	2725	Shank Clamp Bolt	.15
239	2726	Shank Clamp Nut	.10
240	2715	Depth Wheel Complete with Hub	.90
241	2716	Depth Wheel Hub	.30
242	2717	Depth Wheel Hub Rivet	.01
243	2718	Depth Wheel Link	.30
244	2719	Depth Wheel Link Spacer	.14
245	2724	Depth Adjusting Nut	.30
246	2720	Depth Adjusting Screw	.25
247	403-W	Depth Adjusting Screw Washer	.01
248	2721	Depth Adjusting Knob	.10
249	205-N	Knob Lock Nut	.04
250	1602	Depth Screw Friction Spring	.15
251	2701	Tool Holder Strut	.40
252	2708	Parallel Bar	.28
253	2707	Parallel Clamp Bar	.40
254	111-S	Parallel Clamp Bar Bolt	.05
255	112-S	Parallel Bar Extension Bolt Complete with 205-N Nut	.09
256	2712	Long Tool Shank	.40
257	2713	Auxiliary Shank	.13
258	2714	Auxiliary Tool Plate	.75
259	115-S	Tool Plate Set Screw	.05
260	2702	Rear Hitch Brace	.15
261	2703	Front Hitch Brace	.15
262	110-S	Brace Bolt	.05
263	305-W	Brace Bolt Lock Washer	.01
264	205-N	Brace Bolt Nut	.04
265	2417	Stand	.85
266	2404-A	Connecting Bolt	.15
267	305-W	Connecting Bolt Lock Washer	.01
268	206-N	Connecting Bolt Nut	.04

PLATE 6

Photo No.	Part No.	Name	Price Each
269		Tool Holder Complete	$18.50
270	2806	Adjustable Wrench	.64
271	2805	Double End Wrench ½ x 11/16	.42
272	2804	Double End Wrench 7/16 x 9/16	.35
273	2803	Double End Wrench ⅜ x 7/16	.30
274	2809	Oil Gun	1.25
275	2808	Screw Driver	.30
276	2807	9/16" Socket Wrench	.60
277	2801	Starting Strap Complete	.60
278		Clutch Hand Lever Binding Strap	.10
	2810	Box Wrench	.95

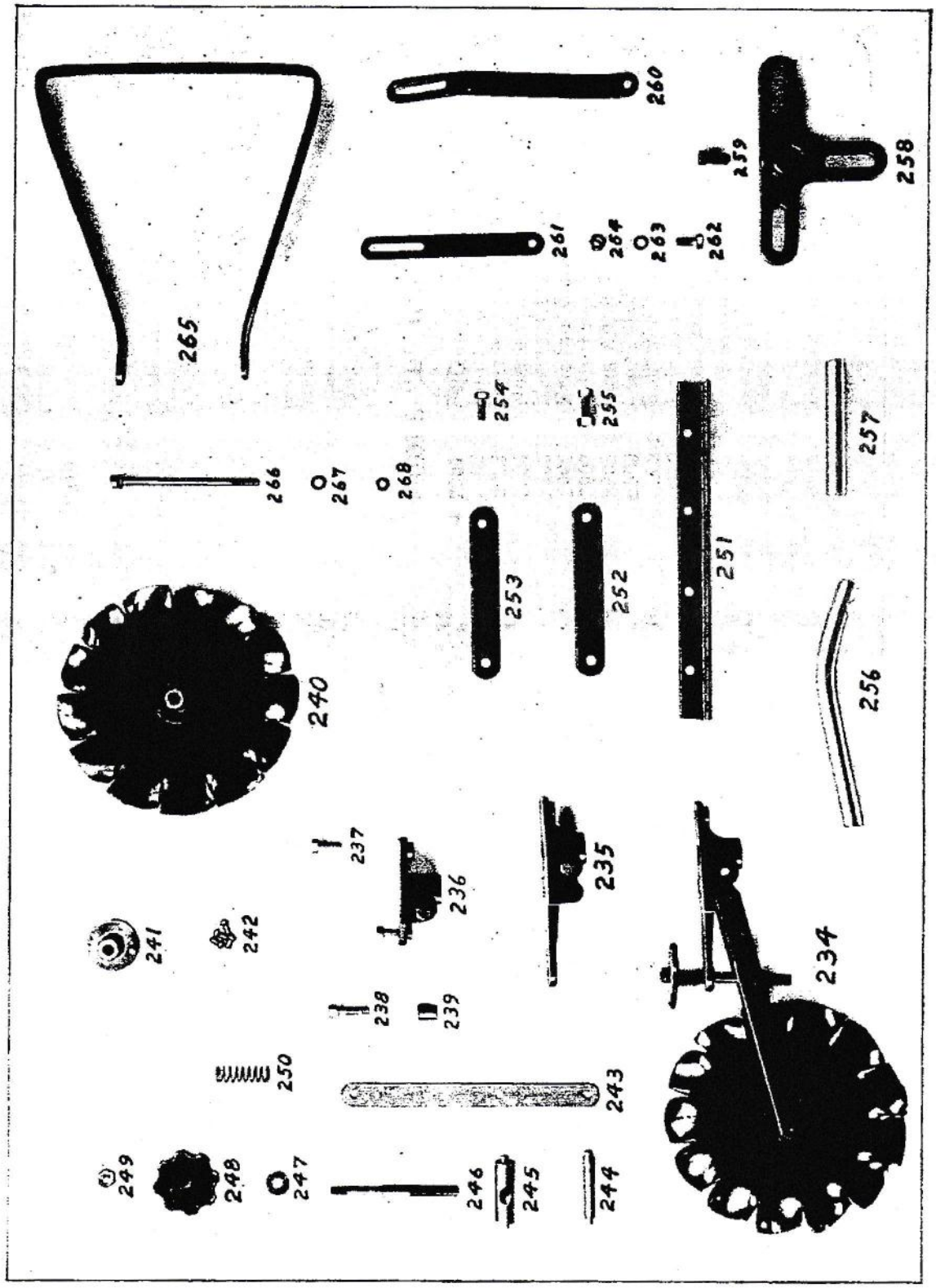
TRACTOR PARTS NOT ILLUSTRATED

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" GRAVELY CARBURETOR

2901	Body	.50
2902	Rotor	1.50
2903	Nozzle	.25
2904	Nozzle Nut	.10
2905	Needle Guide	.22
2906	Friction Collar	.18
2907	Adjucting 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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MODEL "D" GRAVELY CARBURETOR (Continued)

Photo No.	Part No.	Name	Price Each
	2912	Choke Disc	$ .01
	2913	Choke Shaft	.10
	2914	Packing Gland Nut	.05
	2915	Bowl	.30
	2916	Float	20
	2917	Float Lever	.25
	2918	Float Bolt	.01
	2919	Float Nut	.05
	2920	Float Lever Pin	.03
	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 No.	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

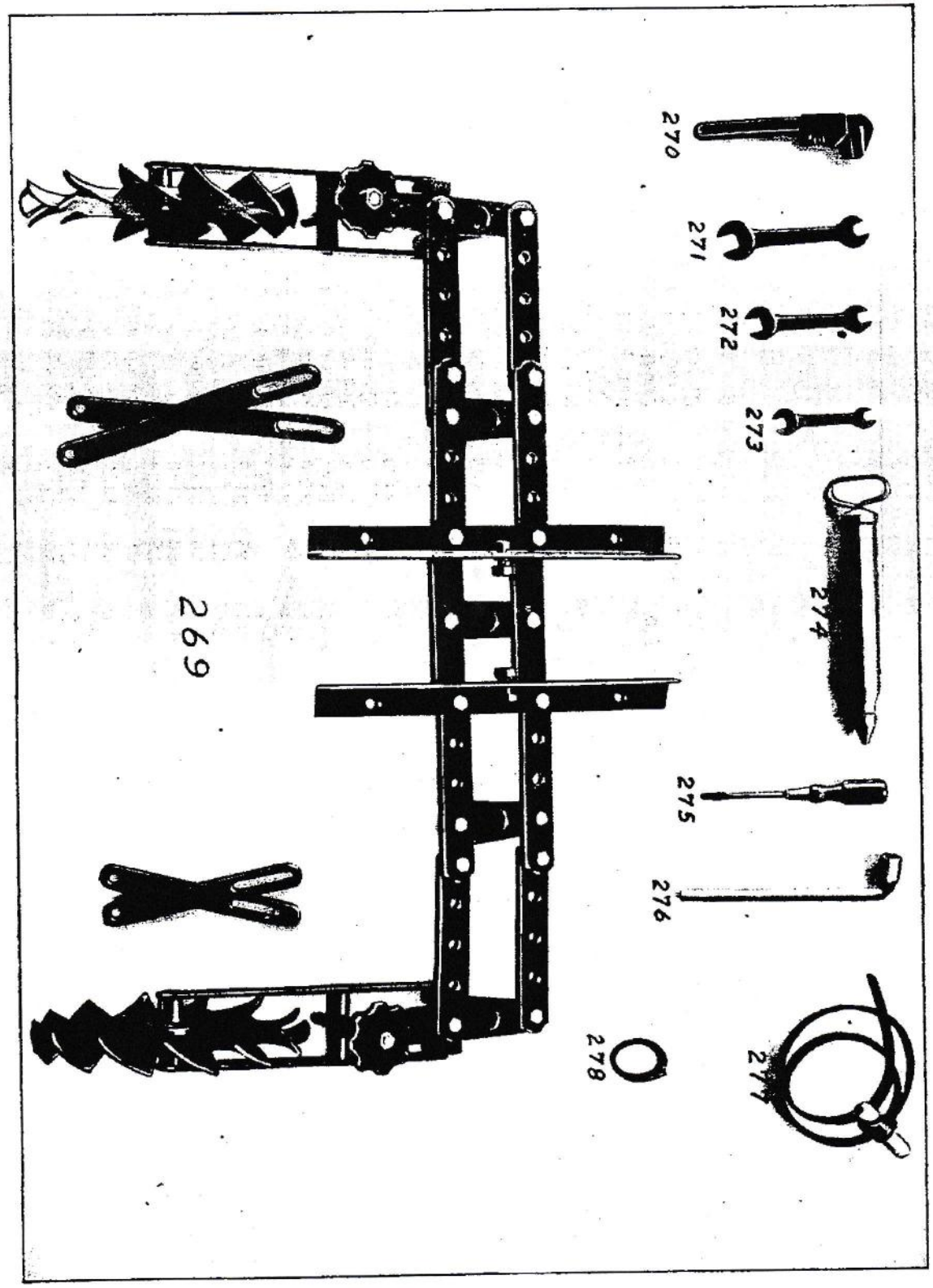


Plate No. 6

GRAVELY 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 ⅜"	.06
	122-S	Cutter Bar Sec. Bolt ½"	.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
73	3211	Skid	.16
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
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

1½" 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 Thorugh Dr. Br.	.01
Complete 1½" Close Cutter Bar, Incl. Knife with Bracket			20.00
Complete 2" Close Cutter Bar, Incl. Knife with Bracket			20.00

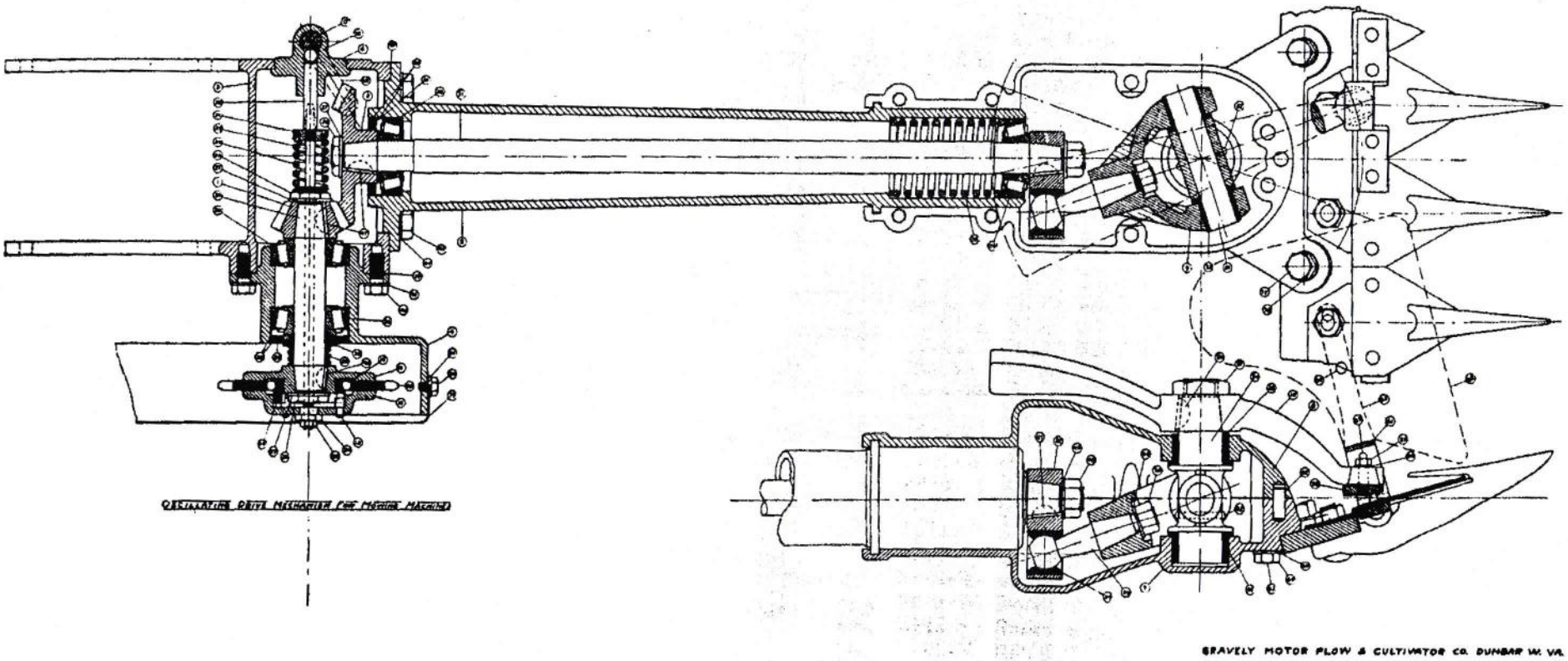
(In Ordering Parts 2" Bar Use Price on Parts 3" Bar Specifying they are for 2" Size Bar)

GRAVELY 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

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.



The GRAVELY MOWING ATTACHMENT was designed especially for the GRAVELY 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.