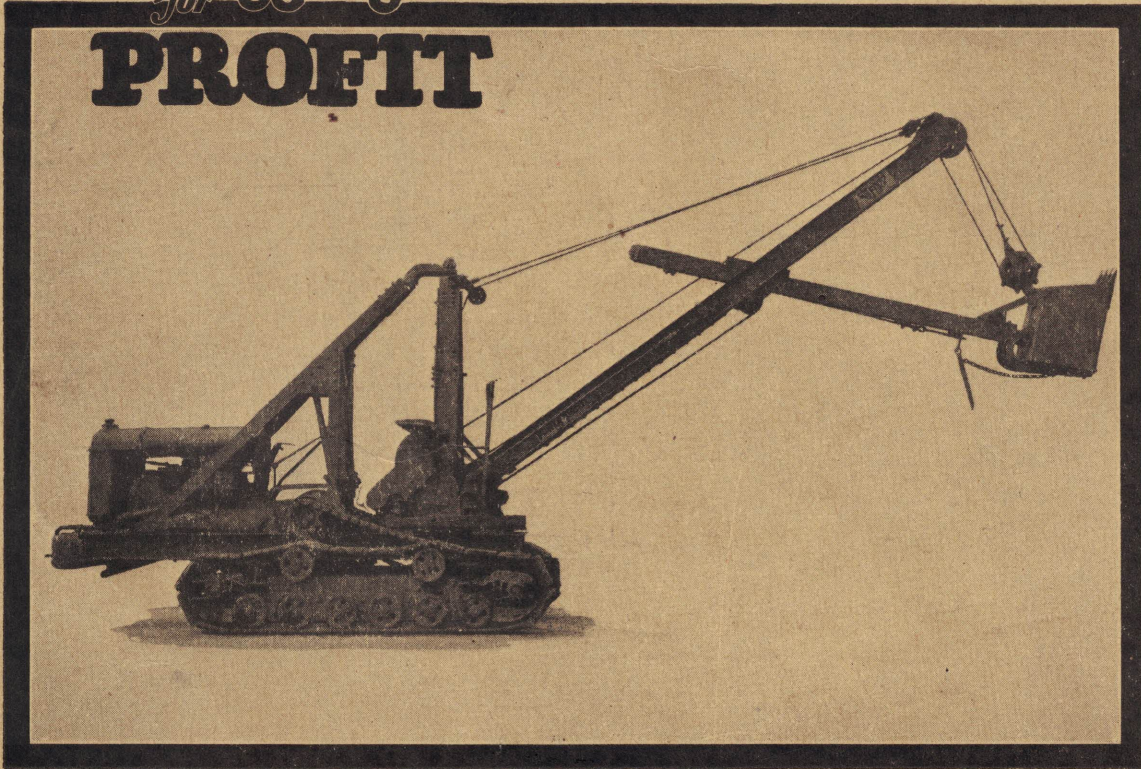




Digging
for **88**

PROFIT



Dealers
Engineering, Sales
and Service Manual

Universal Power Shovel Company
DETROIT

BULLETIN No. 4



THE Wilford is a thoroughly practical quarter yard power shovel, readily convertible into clamshell, crane and backfiller through interchangeable booms. It has been designed by experienced power shovel engineers to provide the utmost in economy in the big majority of all excavating and material handling operations where speed, high mobility, dependability, low costs and versatility are more important than large dipper capacity.

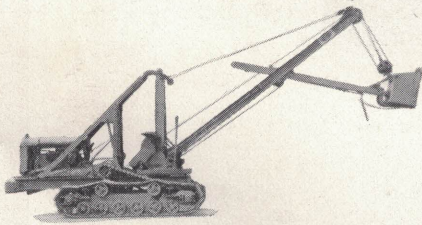




Foreword

This engineering, sales and service manual has been sent you in order that you may become more familiar with the Wilford and realize the opportunity it offers for lower excavating costs in many different lines of business. It will show you a few typical installations taken at random from our files. It will give you technical specifications. In addition, it shows the simplicity of operation, maintenance, and lubrication.

The Wilford Power Shovel is the result of years of experimentation, exhaustive tests and improvement. That it has found a place in the nation's industrial life is manifest from the enthusiastic letters received from all parts of the country—letters that have one thing in common—lower ultimate costs for excavating and material handling.



*Please file this engineering,
sales and service manual
for future reference*

UNIVERSAL POWER SHOVEL CO.
WILLIAM FORD, PRES.
Detroit



Sand, Gravel and Rock

This Wilford is owned by Brown and Son, Los Angeles, California. Mr. R. C. Brown, President, writes: "We have loaded out an average of 300 yards of gravel per day, and at no time have we worked the shovel to anywhere near its full capacity. We are confident we could load 25% more by keeping it in continual use. This shovel has stripped overburden of the hardest clay and at no time did we have any trouble digging this hard adobe soil. We do not think that any of the much larger shovels could move dirt any faster on account of the speedy swing of the boom."



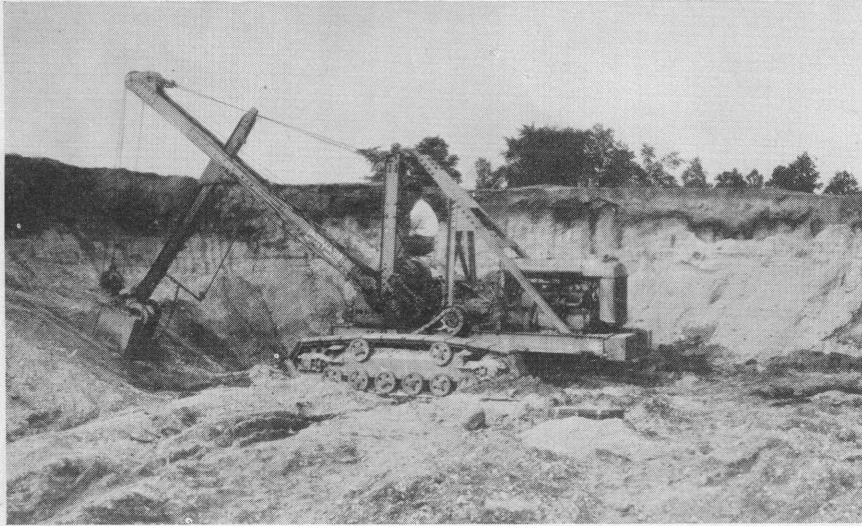
Street Grading

The City of Detroit's Department of Parks and Boulevards is seen here using the Wilford for street grading near the Detroit River. It is working in blue clay, and has proven its economy for this type of work. It is easily moved, on its own power from one job to another, traveling at from two-and-one-half to three miles an hour. Its comparatively light weight, (about seven tons) well distributed, enables it to be moved over city streets without damage to the pavement. For long hauls, however, it is easily loaded onto a trailer. For municipal use, Wilford's versatility and adaptability to alley operations and other excavations in restricted space are making it a profitable piece of equipment.

Ditch Digging and Clearing

The Wilford is particularly well adapted to this type of work, the reason being that it permits both a wide dumping radius and high lift. In addition, the comparatively narrow tread of the Wilford permits it to work in ditches that are impassable for large shovels, and its crawler construction permits successful operations in soft or muddy soil. Digging, under these conditions, requires frequent moving of the shovel, and the single reversible seat of the Wilford enables the operator to save valuable time in moving the shovel. It is here seen operating in the San Joaquin Valley in California.



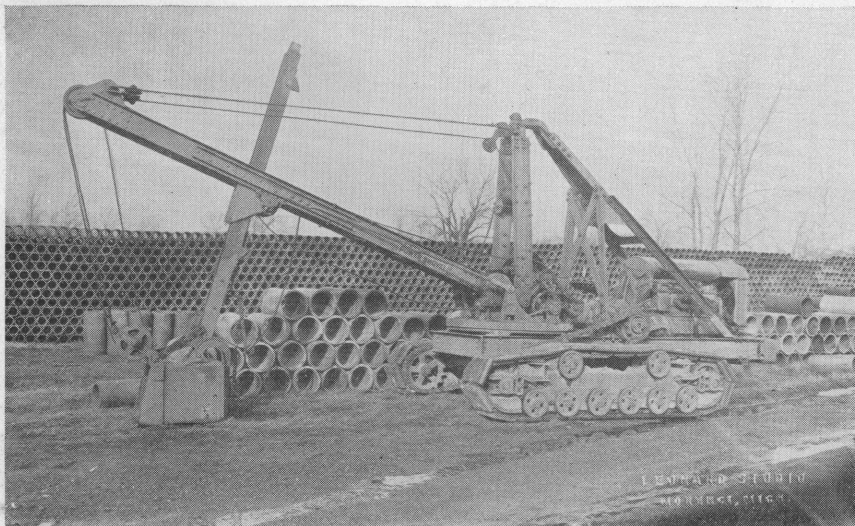


Sand and Gravel

This is one of the first Wilfords built, and it is still earning money for the Stein Sand & Gravel Company, Wayne, Michigan. Its average is around 275 yards of gravel a day, which includes the time spent in stripping the top soil. Mr. Stein reports this shovel is handling gravel at about $7\frac{1}{4}$ cents per cubic yard. His entire cost for parts for the first year's operation was much less than he had counted on, and this cost has been included in his estimate of production figures.

Mountain Road Construction

One of four Wilfords owned by the Provincial Government of British Columbia at Victoria. They report that gravel of cemented deposit which required to be stripped and shot, was excavated at 9c per cubic yard, although unfavorable weather conditions made it impossible to keep the Wilford working to capacity. Two-and-one-half yard trucks were loaded to capacity in two minutes, and one yard trucks in approximately one minute. The shovel also stripped the pit and kept runway clear for trucks. The cost above includes salary of operator, maintenance and repairs. The shovel was later moved 13 miles under its own power in $7\frac{1}{4}$ hours over winter roads.



Brick and Tile

F. W. Fairbanks, president of Fairbanks Brothers, Morenci, Mich., writes about the Wilford:

"Our Wilford has performed away beyond our expectations. It is working in hard, blue clay, that comes out in slabs, and has lowered the cost of getting the clay to the plant more than 60 per cent.

"We have had absolutely no trouble of any kind—no repairs—no replacement parts. We have investigated the small shovel field quite thoroughly and are more convinced than ever that the Wilford will outperform them all. We shall be glad to show it to other brick and tile manufacturers at any time."

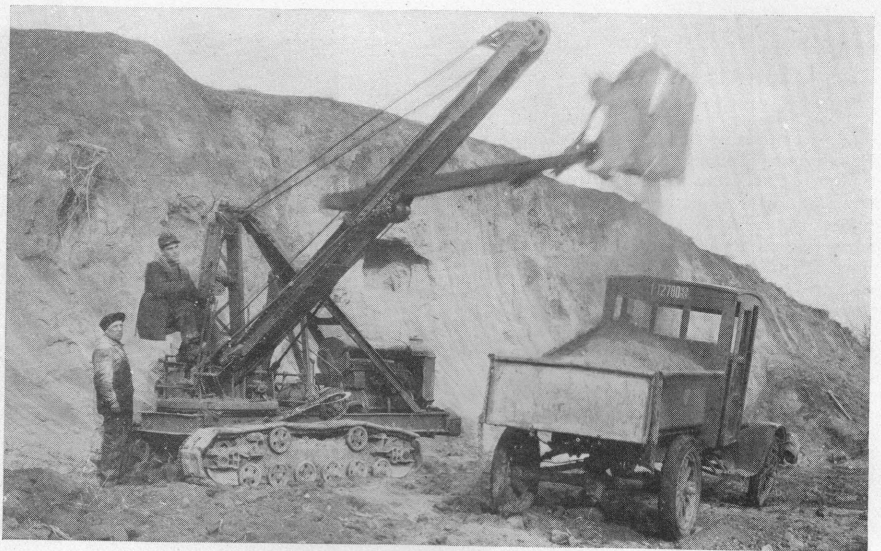


Shallow Excavating

In shallow excavating, such as this church basement in Freeport, Long Island, or in stripping work, where the shovel must be moved frequently, the Wilford is saving money for contractors through its exceptionally high mobility. Power, dependability, low first cost and low operating costs, plus universal distribution and service mean a lot to the contractor who realizes that lower costs mean greater profits.

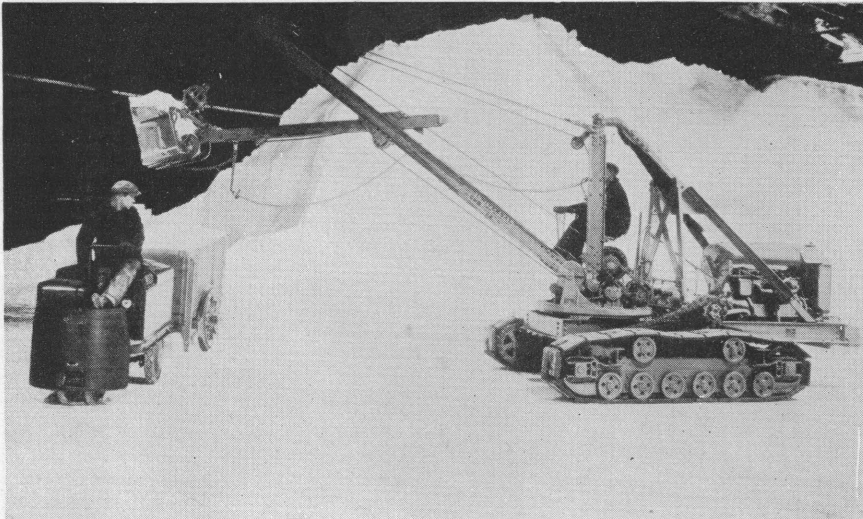
General Excavating

The operator of this shovel, in Lincoln, Nebraska, is quoted as follows: "It takes only one man to operate this machine. With this, I make five swings a minute right along with a quarter yard dipper. And it's light on fuel, for I've run ten hard hours and used only twelve gallons of gas, and plenty of power to pull that dipper anywhere. It is just as easy on lubricating oil as on gas. I have dug up old cement pavements with this Wilford and dug gutters and it has never failed me. It's a mighty good little machine. They don't make 'em better."



Subdivision Work

This Wilford is owned by George W. Smith, Franklin, Mich. Mr. Smith, who is a road contractor as well as real estate developer, is well equipped with large shovels, but purchased the Wilford in addition to his heavy equipment. It is shown here digging gravel for road grading. "Its operation has been a revelation to me," said Mr. Smith. "Its field of usefulness is unlimited. It is versatile, can be moved from one job to the next quickly, and the savings on operation and maintenance have been great. I consider it one of the most valuable pieces of equipment I have."

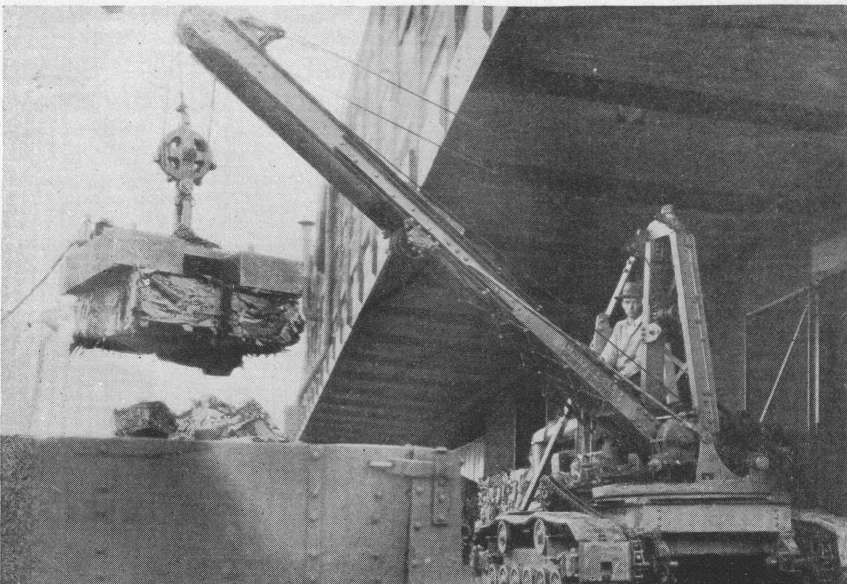


Salt Handling

This illustration shows the Wilford operating in the warehouse of the Mulkey Salt Co., Detroit. The Wilford has proved its adaptability not only to salt handling, which is hard digging because salt packs down, but to many kinds of material handling in various lines, for use with salt, sawdust, and sugar beets as well as for snow removal. Its size permits it to operate in places too small for the larger shovels to work. It can go in and out with greater speed, and one man, from the single seat, can control both digging and moving with the greatest ease. For inside work, where exhaust fumes are objectionable, the Wilford may be equipped with water muffler which neutralizes the exhaust gases.

Desert Highway Construction

L. E. Smith, of Willowbrook, California, writes: "We wish to give you a summary of the work we have done in the last twenty-eight weeks of consecutive running. In this length of time we have a total loss of six hours stoppage. We have been digging in a cement-like formation, which had to be blasted, and yet have delivered onto the trucks an average of 300 yards per eight hour working day. This work has been building roads for the State of California on the Highway from Las Vegas to Barstow. The total operating expense checked up with the State Highway Commission's figures. We have actually dug and loaded at a total operation cost of 4½¢ per yard. This includes operator's cost, gas, oil and grease cost, cable expense and minor upkeep."



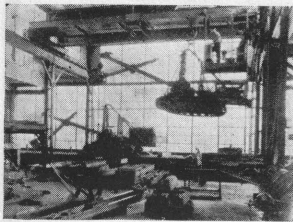
Industrial Operations

There are many industrial concerns using Wilfords for general utility purposes, excavating for new construction, loading materials, snow removal and clean-up work. In others the Wilford has been assigned to specific duty, as in the instance illustrated here. This Wilford has had the dipper replaced by a large electro-magnet. Current is furnished by flexible cable, and scrap is loaded or unloaded with ease and economy. The high mobility and one man operation fit it nicely for work of this kind.



The Home of the Wilford

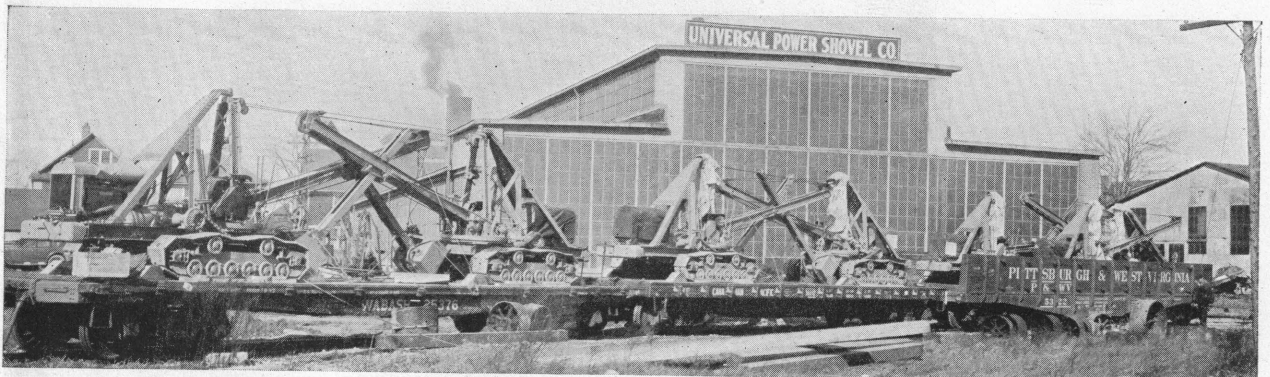
WILFORD POWER SHOVELS, Clamshells, Cranes and Backfillers are manufactured under ideal conditions, in a new and modern factory built for and used exclusively by the Universal Power Shovel Company. This factory has a present capacity of five Wilfords a day.



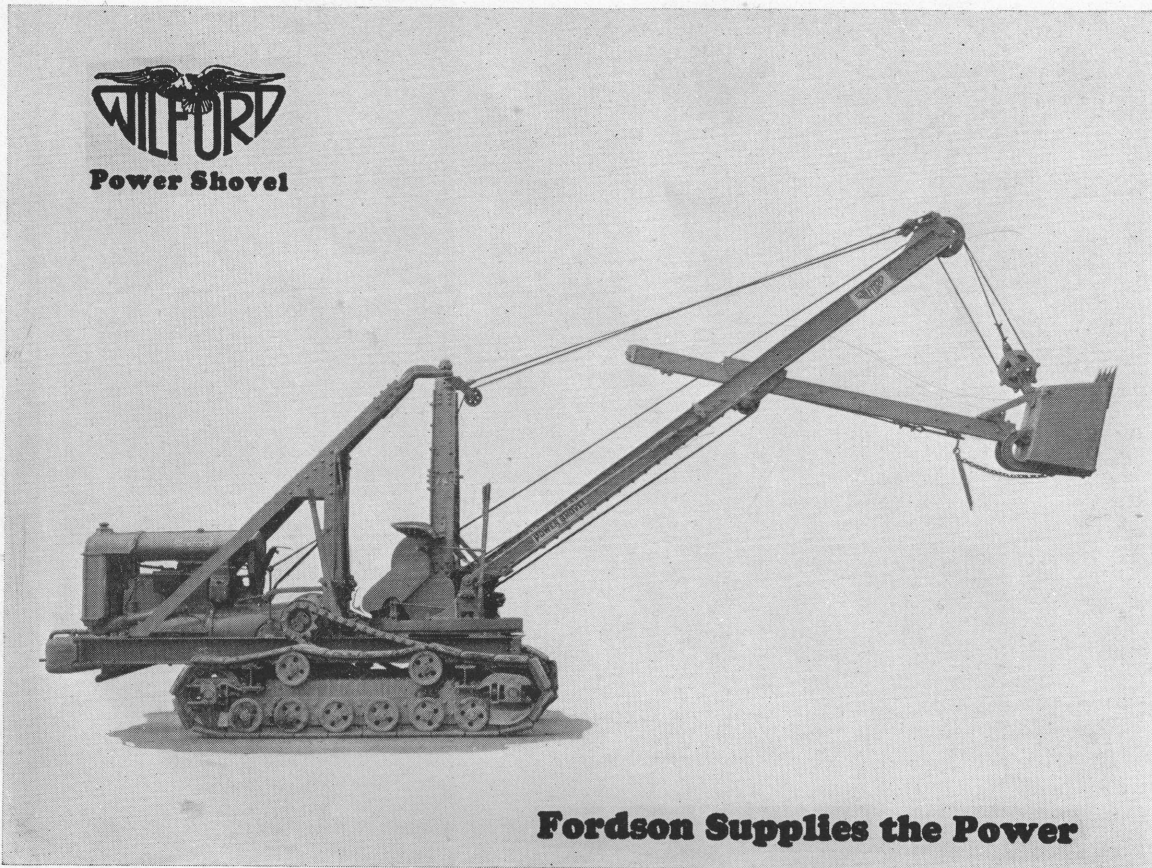
Straight line assembly operations are installed, and the latest types of machin-

ery and handling equipment are used. Plant efficiency is reflected in the low cost of Wilford units. Production offices are located in the factory building as are the engineering and drafting departments. Private railroad sidings with two loading platforms serve the shipping department, as does a special track running right into the factory, on which Wilfords are easily loaded by crane.

The factory is located at 15841 Second Boulevard, Detroit, and visitors are always welcome.



One Day's Shipment of Wilford Power Shovels



Fordson Supplies the Power

Specifications—Wilford Model B

Power—Fordson Tractor, equipped with governor.

Lubrication—Alemite.

Fuel—Any good grade of gasoline.

Traction—Crawler type track of rugged construction.

Weight—Approximately 7¾ tons.

Dipper—Welded plate construction with 4 manganese teeth; one-quarter yard capacity, water level measure.

Boom—Two 7" channels, 15 ft. long built together; raised and lowered by self-locking worm and worm gear, which hold boom at any desired angle.

Dipper Handle—Channel construction; two 5" members, 10 ft. long; dipper handle socket is electric steel casting, with adjustable dipper braces to change rake of dipper.

Mast—Channel construction with two 7" members, fastening at lower end to turn table casting and upper end supporting mast head casting.

Turn Table—One electric steel casting on which all machinery and bearings are mounted. Two-thirds circle swing.

Crowding Device—Operated by Ford one-ton truck worm gear; reversed by two friction bevel pinions; crowding drum is mounted on worm gear shaft; no shipper shaft pinions, gears, or brakes are used with this arrangement; the usual dipper handle racking is also eliminated; a single cable operates the dipper handle up or down, independent of the hoist.

Bearings—All shafts running 100 R. P. M. or more have Timken roller bearings that can be adjusted for wear and end play; all other bearings of highest grade babbitt or bronze bushings.

Gears—All gears are drop forged from special analysis high carbon steel, machine cut teeth, double heat treated and bores ground after heat treatment.

Shafting—All shafting, pins, etc., are made of special analysis high carbon steel.

Clutches—Special disc type of our own design. Lined with special molded lining, unaffected by weather conditions. Require but little adjustment. No relining for one year under normal conditions.

Digging Capacity—Normal digging capacity approximately five (5) dips per minute.

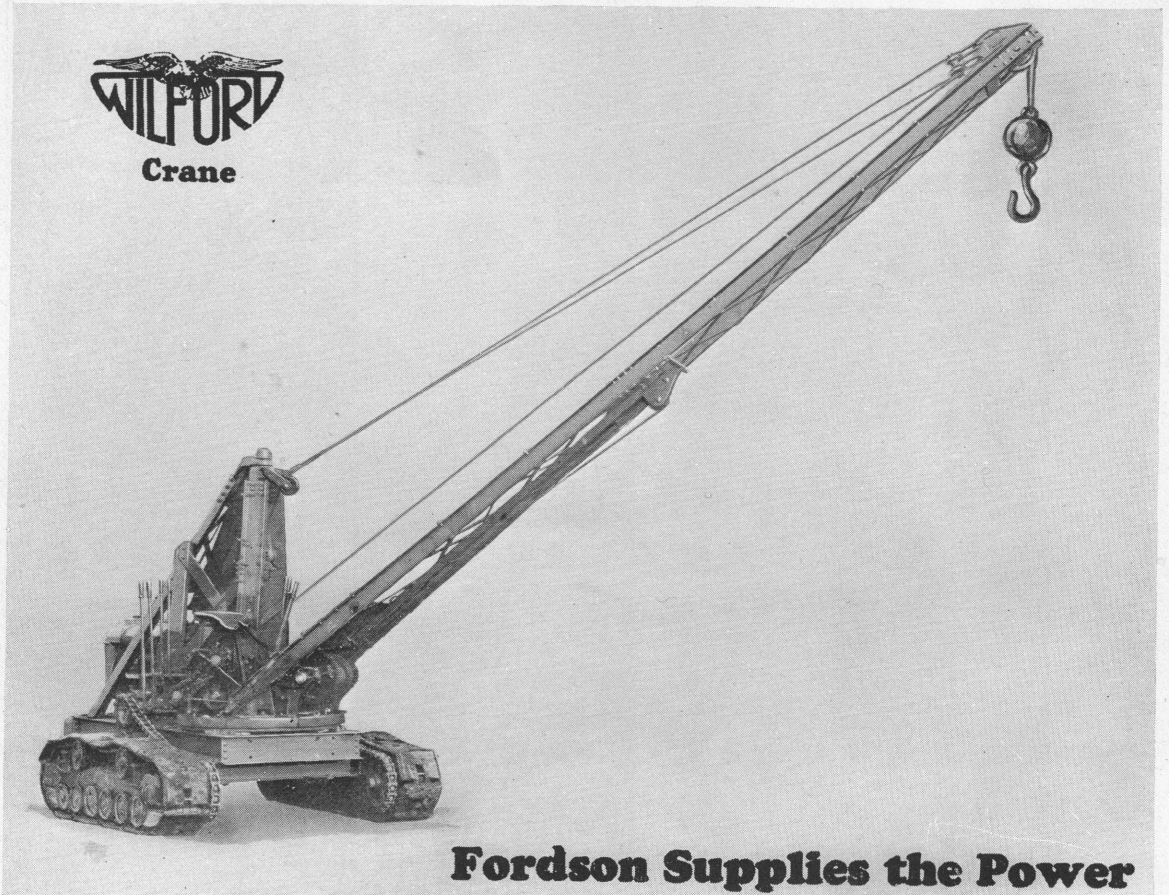
Lifting Capacity—Used as a crane the Wilford will lift easily the loads shown on chart on page 15.

Control—Hoist, crowd and swing are operated by three hand levers, and one foot pedal operates complete digging control. Traveling is controlled from operator's seat.

GENERAL DIMENSIONS

Length of tracks	9'5¼"
Width over all of track	7'1"
Length of boom	15'0"
Length of dipper handle	10'0"
Height from ground to top of mast head	9'7"
15'6" Dumping Radius } at 45° angle { Refer to chart }	on page 14
13'0" Height of Dump }	

The Wilford Power Shovel is quickly converted into either a Clamshell or Crane, as shown on the following pages. Instructions for proper installation are attached to each unit shipped



Fordson Supplies the Power

Crane and clamshell attachments consist of extra booms, all drive and controlling mechanisms, cables, and miscellaneous parts. To convert shovel into crane, remove boom, dipper and dipper stick and apply boom. Write for information on power lift for boom, and see special ordering chart on pages 16, 17 and 18.

Wilford's Economies Are Creating New Standards of Performance

THE Wilford Power Shovel was designed to accomplish certain definite things. It was believed that a small power shovel would fill a long-felt need by making possible the economies of power shovel operation on the smaller excavating jobs. That its market has developed to the point where it is replacing larger units is due to the performance made possible by improvements in design—improvements determined after a close study of the machine in actual operation, in many lines of work over a period of years.

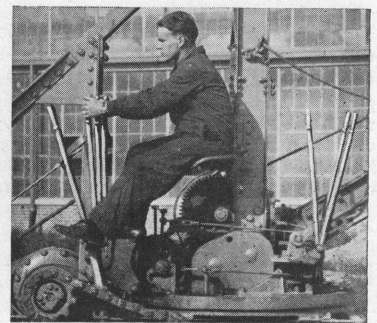
The first Wilfords were equipped with a 13-foot boom and 8-foot dipper stick. It was found that the Fordson Tractor furnished sufficient power, however, to permit the use of a 15-foot boom and 10-foot dipper stick as standard equipment. On some special installations longer booms are proving very satisfactory.

There has been constant improvement in Wilford

design, where actual operating experience showed the possibility of bettering the product. Even so, the older shovels are delivering satisfactory performance and earning money for their owners.

The Wilford of today is offered as a time-tested unit, capable of holding up under severe operating conditions. Large dipper capacity is more than offset by speed and mobility.

This is made possible by truly one-man operation, the operator working



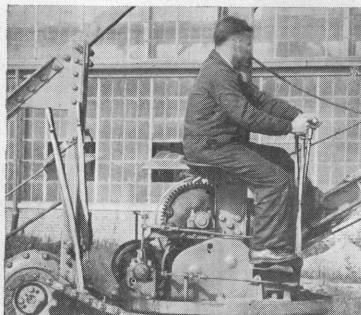
Operator in Moving Position



Fordson Supplies the Power

An extra drum is included for the clam shell. To convert shovel into clamshell, remove boom, dipper, dipper stick and crowd cables and apply boom and the extra drum which is included for the clamshell. Both clamshell and crane booms are interchangeable with shovel booms. See special ordering chart on pages 16, 17 and 18.

from a single, reversible seat. When facing the power plant, as shown in the illustration on page eight, he is in position to move the shovel. Controls are conveniently located, and the Wilford will travel at from two and one-half to three miles an hour on its own power. To change from the moving to the digging position requires but a moment. The operator swings around in his seat and is ready to start.



Operator in Digging Position

But the Wilford offers yet another advantage that puts it in a class by itself.

It is backed by a sales and service organization that covers the entire United States and Canada. Forty-five distributors, working with more

than nine thousand Ford dealers, insure universal clamshell, backfiller or crane service. No matter where a Wilford shovel may be operating, the local Ford dealer can furnish or secure replacement parts quickly.

The Wilford is versatile, rugged, well engineered and well built. Although small in dipper size it is large in its capacity for hard work, and this, with the low first cost, low operating costs and slow depreciation is showing operating economies that mean greatly increased profits for Wilford operators.

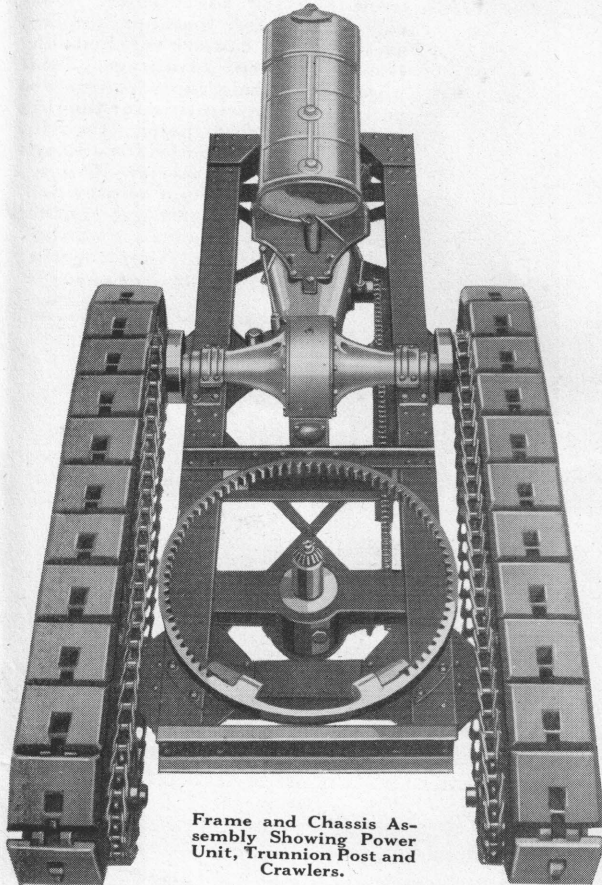
We realize, however, that to secure the greatest economies for any particular type of work, the greatest care should be used in selecting just the right combinations of boom, dipper stick and dipper. Wilford engineers will gladly assist you in solving your problems in the most efficient manner. The information given on pages 16, 17 and 18 will be of real assistance, but for additional data on specific jobs we shall be pleased to supply technical material and make recommendations based on sound engineering experience.

General Construction

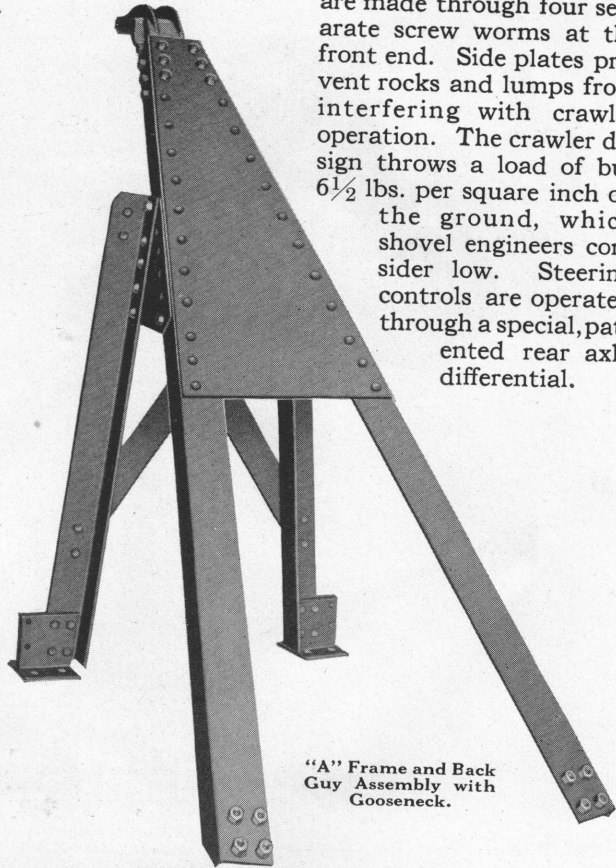
IN designing the Wilford, much consideration was given to simplicity and the elimination of unnecessary parts in the frame assembly, for one frame not only acts as chassis frame, but takes all operating loads as well, instead of requiring a sub-frame for this work. The frame and cross members are of the heaviest eight inch "I" beam construction, hot riveted, making, with the circle gear and Fordson motor, one substantial, integral assembly.

Wilford crawler tracks are designed to stand up under severe operating conditions. Adjustments

are made through four separate screw worms at the front end. Side plates prevent rocks and lumps from interfering with crawler operation. The crawler design throws a load of but $6\frac{1}{2}$ lbs. per square inch on the ground, which shovel engineers consider low. Steering controls are operated through a special, patented rear axle differential.

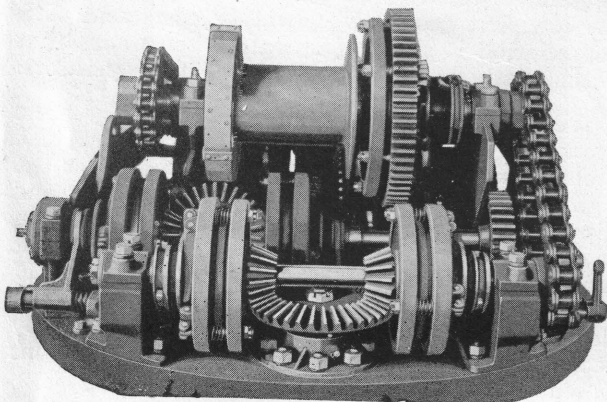


Frame and Chassis Assembly Showing Power Unit, Trunnion Post and Crawlers.

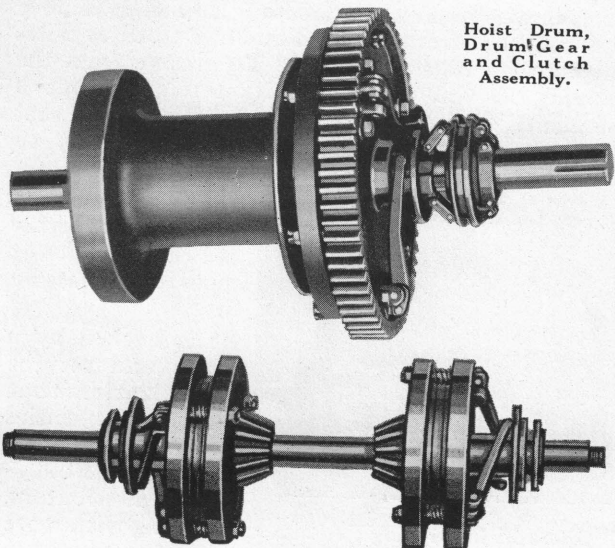


"A" Frame and Back Guy Assembly with Gooseneck.

The "A" frame and back guy frame consists of two $3" \times 5" \times \frac{1}{2}"$ angles, reinforced with $\frac{1}{2}"$ plates and hot riveted. Gooseneck is of electric steel, fastened to the "A" frame with $\frac{3}{4}"$ bolts and lock washers. This construction, while extremely simple, has proven very efficient.



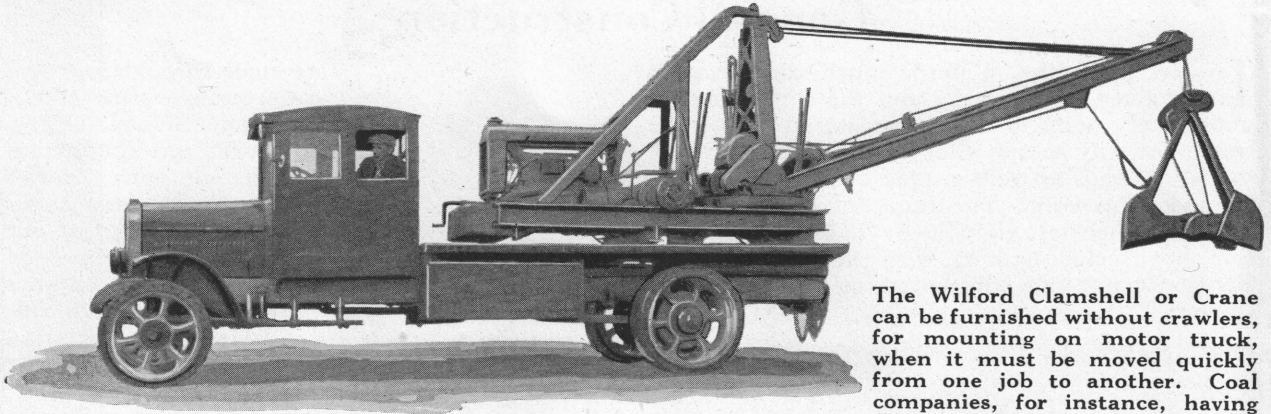
Turntable, with Swing Clutches, Crowd Clutches and Hoist Drum.



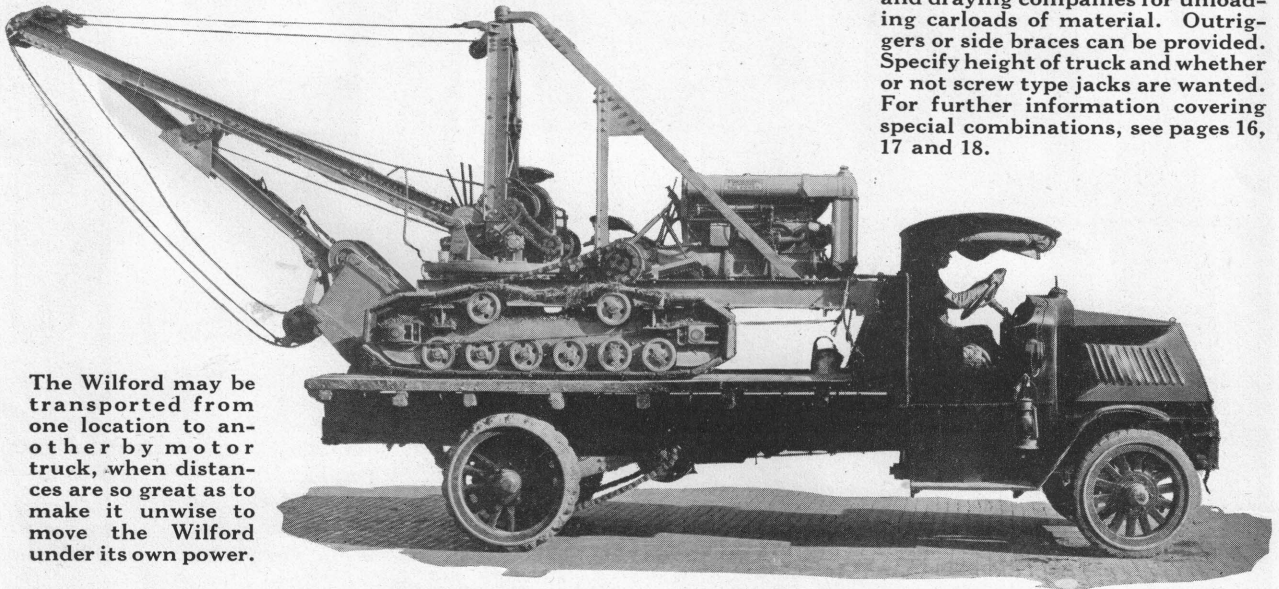
Hoist Drum, Drum Gear and Clutch Assembly.

Reversible Swing Disc Clutches (Crowd Clutches are of Similar Design).

CLAM SHELL AND CRANE

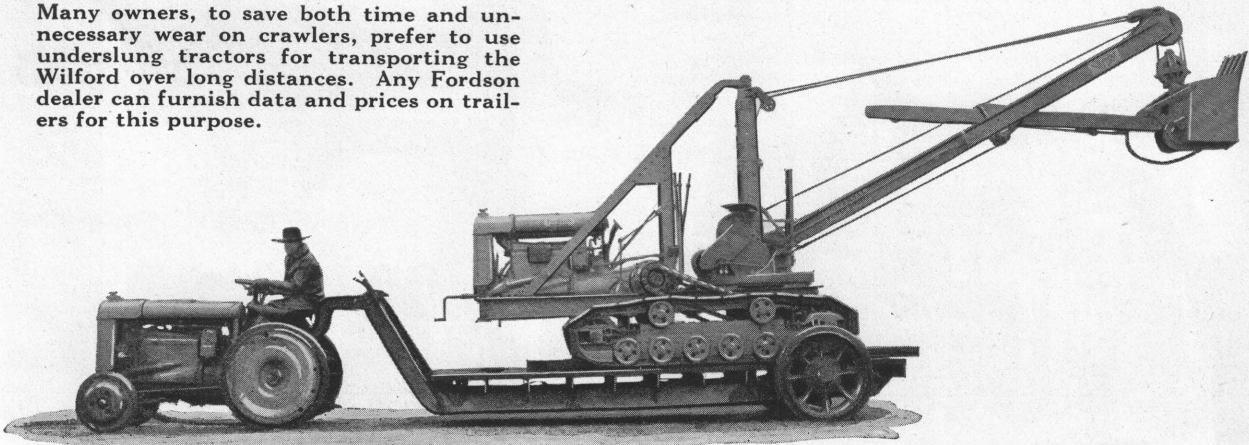


The Wilford Clamshell or Crane can be furnished without crawlers, for mounting on motor truck, when it must be moved quickly from one job to another. Coal companies, for instance, having several yards, can use this installation to excellent advantage. Telephone and telegraph companies can use this mounting for digging holes or raising poles; transfer and draying companies for unloading carloads of material. Outriggers or side braces can be provided. Specify height of truck and whether or not screw type jacks are wanted. For further information covering special combinations, see pages 16, 17 and 18.

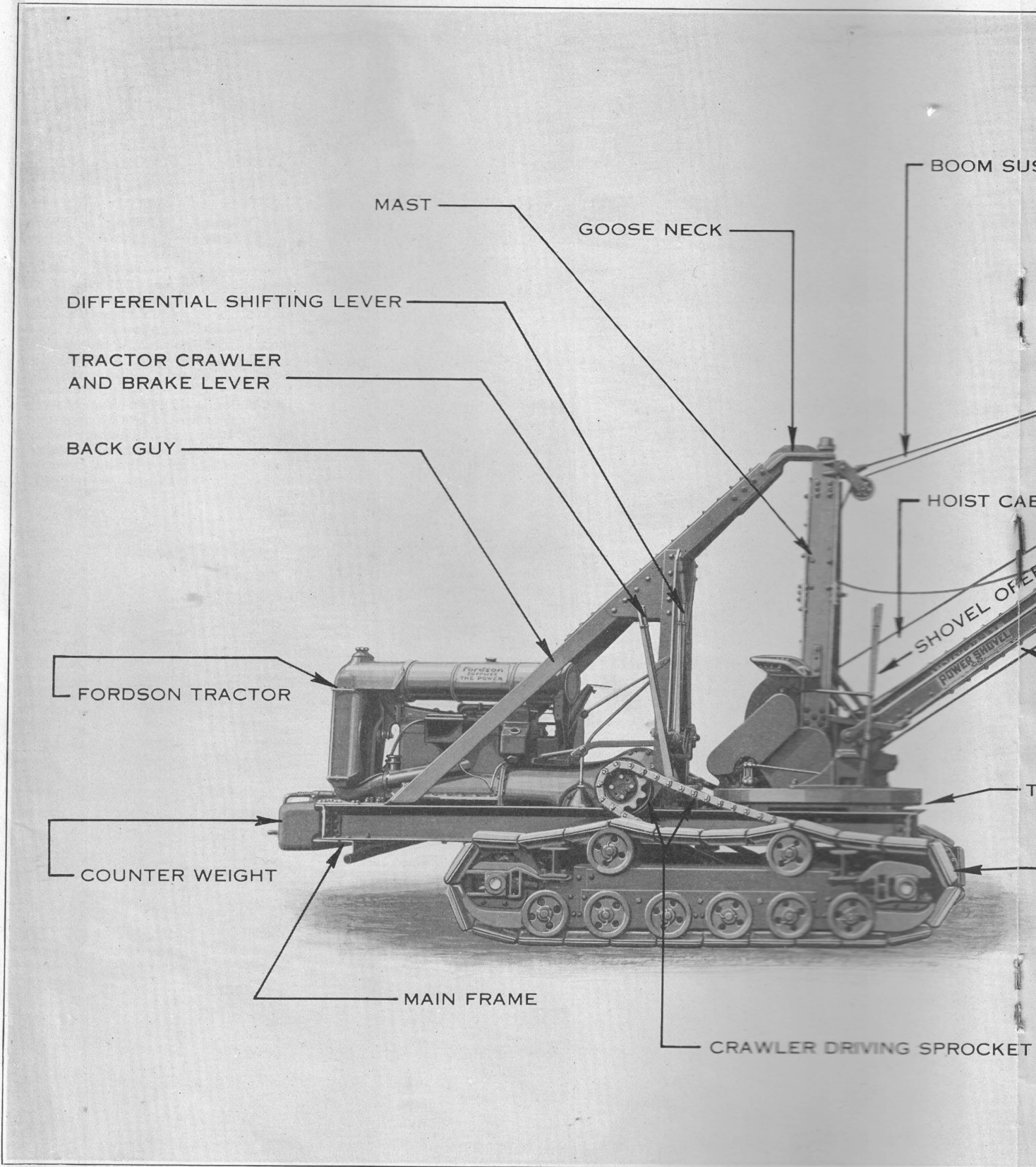


The Wilford may be transported from one location to another by motor truck, when distances are so great as to make it unwise to move the Wilford under its own power.

Many owners, to save both time and unnecessary wear on crawlers, prefer to use underslung tractors for transporting the Wilford over long distances. Any Fordson dealer can furnish data and prices on trailers for this purpose.



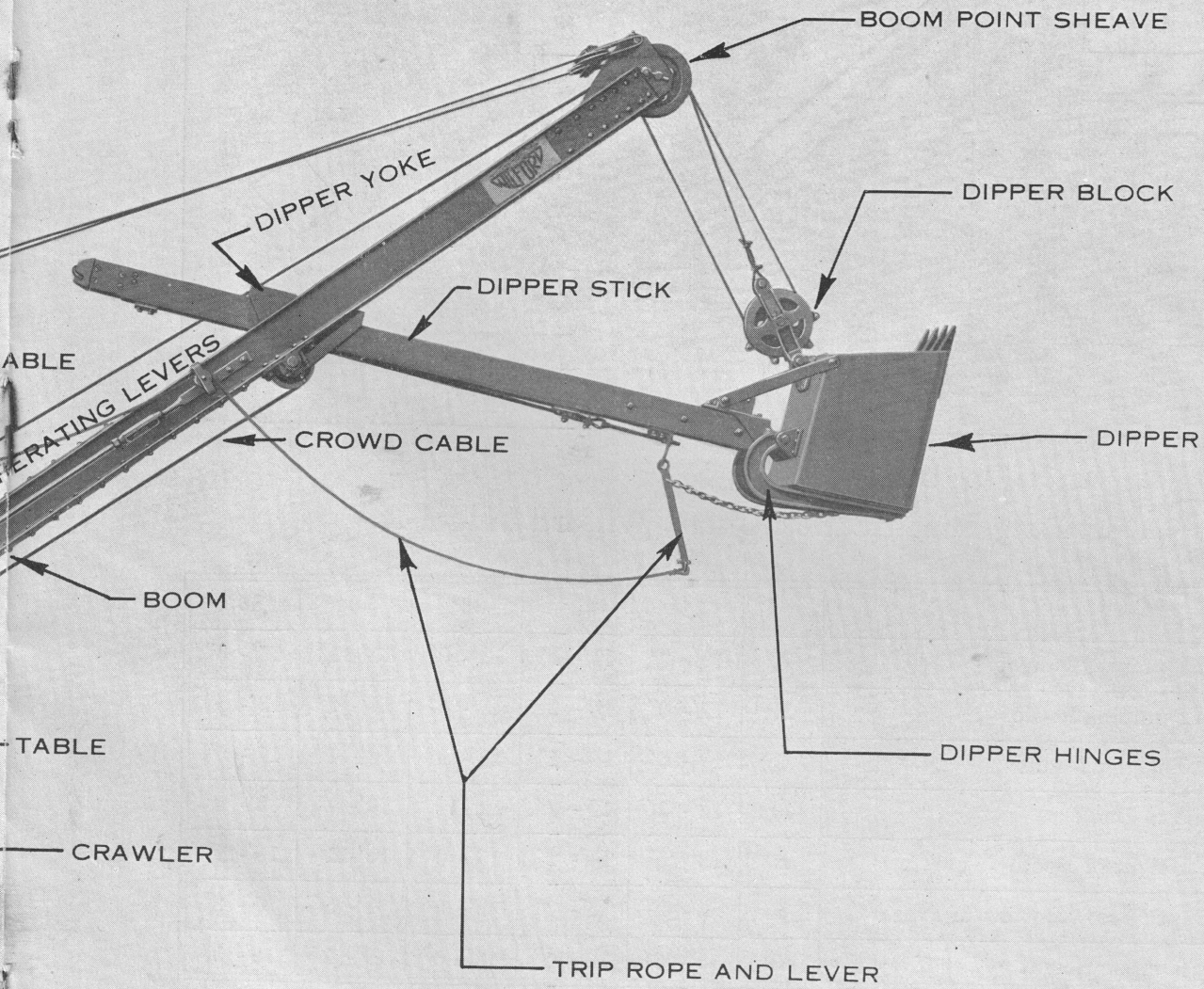
WILFORD POWER



In discussing the Wilford Power
considered the Front End, and t

POWER SHOVEL

SUSPENSION CABLE

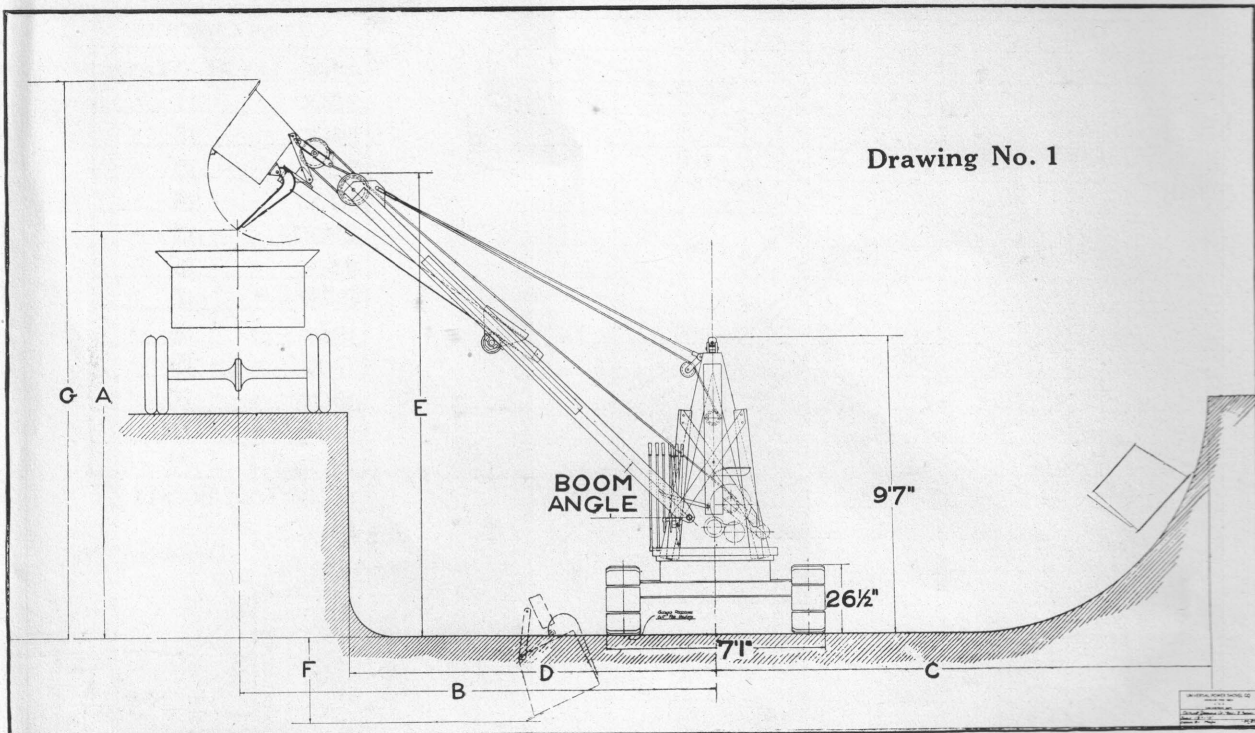


TABLE

CRAWLER

LINK AND CHAIN

Power Shovel the Table End is
connected to the Tractor the Rear End.



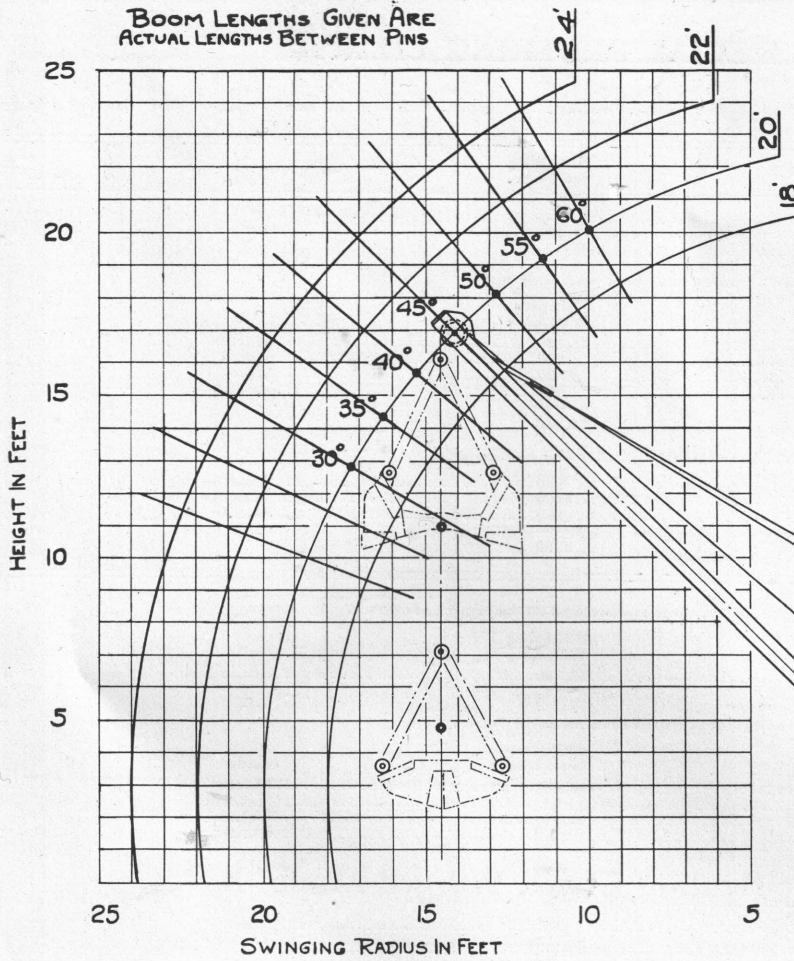
Operating Specification Chart, Wilford Model-B

Boom Angle		35°	40°	45°	50°	55°
Maximum Dumping Height	A	10'- 7"	11'-11"	13'- 0"	13'-11"	15'- 0"
Maximum Dumping Radius	B	17'- 0"	16'- 2"	15'- 6"	14'- 2"	12'- 5"
Maximum Digging Radius	C	19'- 6"	19'- 1"	18'- 9"	18'- 1"	17'- 6"
Center Line to Bank	D	13'- 2"	12'- 7"	11'-11"	10'- 7"	8'- 8"
Clearance Height of Boom	E	13'- 0"	14'- 1"	15'- 0"	15'-11"	16'- 9"
Digging Depth Below Bottom of Track	F	3'- 2"	2'- 7"	2'- 0"	1'- 5"	0'- 8"
Maximum Dipper Height	G	15'- 6"	16'-10"	18'- 0"	19'- 2"	20'- 3"

Drawing No. 1, above, shows shovel boom at 45° angle. If working through 180°, (½ circle swing), from digging to dumping, the dipper will make two and one-half trips per minute, and handle five-eighths yard per minute. Working through one-quarter swing it will handle 1¼ yard per minute. Time for loading the bucket will vary somewhat from these figures. This time will be governed by type of soil or material handled. An average reduction gives a working capacity of one-half yard for half circle swing and one yard for quarter circle swing.

Drawing No. 2, on page 15, enables you to determine the clearance height and working radius of clamshell or crane attachments at various boom angles and with various lengths of boom. The lifting capacities are also shown in this drawing, and are determined solely by the length of the swinging radius.

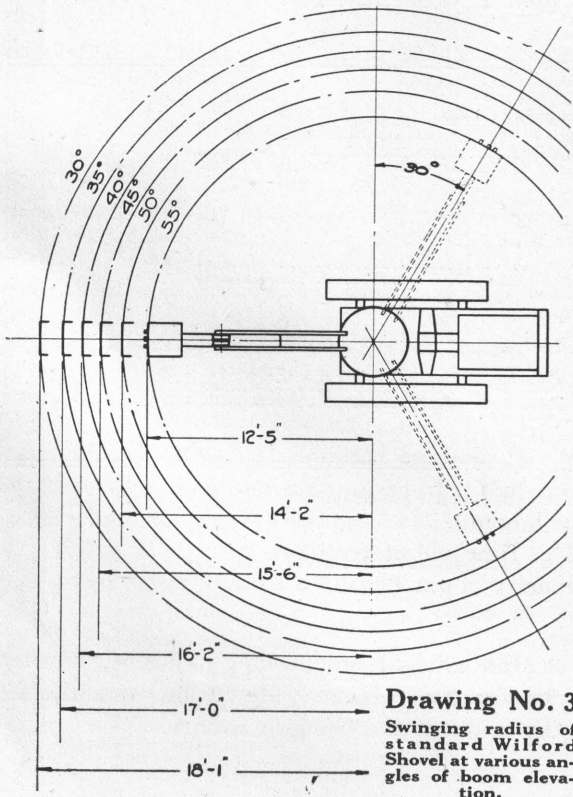
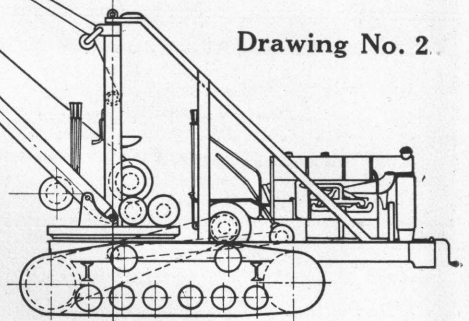
CLAM SHELL AND CRANE



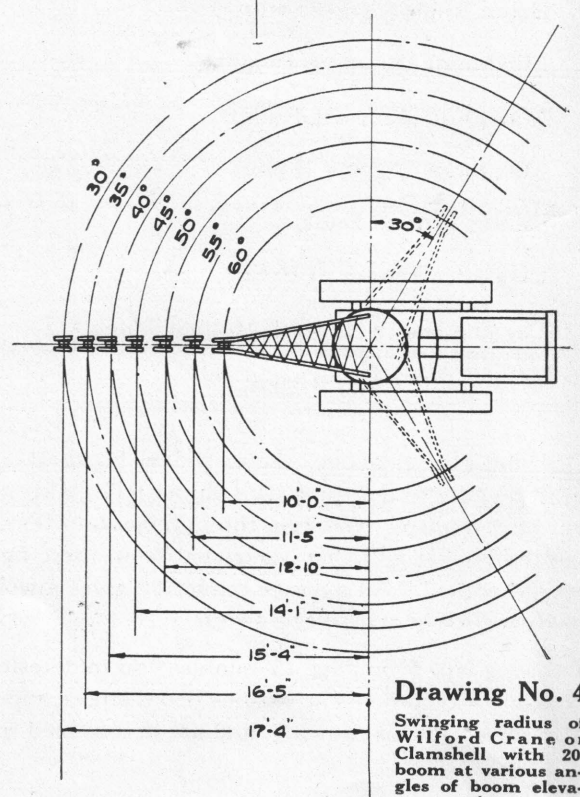
LIFTING CAPACITIES	
4200	LBS AT 10' RADIUS
3800	" " 11 "
3400	" " 12 "
3150	" " 13 "
2900	" " 14 "
2700	" " 15 "
2500	" " 16 "
2100	" " 17 "
1900	" " 18 "
1700	" " 19 "
1500	" " 20 "
1400	" " 21 "
1300	" " 22 "

WITHOUT BUCKET

Drawing No. 2



Drawing No. 3
Swinging radius of standard Wilford Shovel at various angles of boom elevation.



Drawing No. 4
Swinging radius of Wilford Crane or Clamshell with 20° boom at various angles of boom elevation.

W I L F O R D P O W E R S H O V E L

WILFORD SPECIAL ORDERING CHART

To order a Standard Wilford Shovel with regular 1/4-yard dipper bucket, 10' dipper stick and 15' boom with tractor the following applies:

Name	Shipping Wt., Lbs.	Code
Wilford Shovel (regular).....	14,840.....	Stansho

Note: To order any portion of above, the following parts numbers and code apply:

Part No.	Shipping Wt., Lbs.	Code
S-1.....	13,330.....	Marlow
S-30.....	650.....	Millot
S-40.....	350.....	Motrew
S-50.....	518.....	Mogul
	14,840	

Note: Any time owner desires to convert shovel into clamshell, order the following:

S-61 Crane.....	950.....	Nacome
S-70 Clamshell.....	1100.....	Ottam
S-80 Extra Drum.....	250.....	Planor
	2300	

To order a Standard Wilford Clamshell with 1/4-yard clamshell bucket and 20' boom, the following applies:

Name	Shipping Wt., Lbs.	Code
Wilford Clamshell	15,380.....	Stanclam

Note: To order any portion of above, the following parts numbers and code apply:

Part No.	Shipping Wt., Lbs.	Code
S-10.....	13,080.....	Mattow
S-61.....	950.....	Nacome
S-70.....	1,100.....	Ottam
S-80.....	250.....	Planor
	15,380	

Note: Any time owner desires to convert from clamshell to shovel, order the following:

S-30 Boom.....	650.....	Millot
S-40 Dipper Stick.....	350.....	Motrew
S-50 Dipper.....	518.....	Mogul
S-90 Crowd Mechanism.....	350.....	Crowd
	1868	

To order Standard Wilford Crane 20' boom, the following applies:

Name	Shipping Wt., Lbs.	Code
Wilford Crane.....	14,030.....	Stancran

Note: To order any portion of above, the following parts numbers and code apply:

Part No.	Shipping Wt., Lbs.	Code
S-10.....	13,080.....	Mattow
S-61.....	950.....	Nacome
	14,030	

Note: Any time owner desires to convert crane to shovel, order the following:

S-30 Boom.....	650.....	Millot
S-40 Dipper Stick.....	350.....	Motrew
S-50 Dipper.....	518.....	Mogul
	1,518	

To order Wilford Back Filler with 24' boom and 1/2-yard back filling board, the following applies:

Name	Shipping Wt., Lbs.	Code
Wilford Back Filler.....	14,765.....	Stanfiller

Note: To order any portion of above, the following parts numbers and code apply:

Part No.	Shipping Wt., Lbs.	Code
S-11.....	13,300.....	Malon
S-55.....	465.....	Board
S-63.....	1,000.....	Nadette
	14,765	

CLAM SHELL AND CRANE

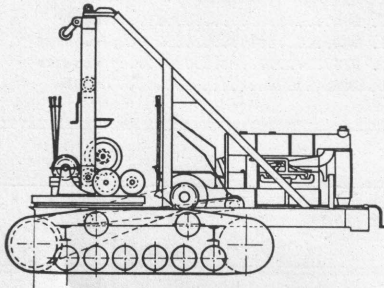
Note: Any time owner desires to convert backfiller to shovel, order the following:

Part No.	Shipping Wt., Lbs.	Code
S-30 Boom.....	650	Millot
S-40 Dipper Stick.....	350	Motrew
S-50 Dipper.....	518	Mogul
S-90 Crowd Mechanism.....	350	Crowd
	1,868	

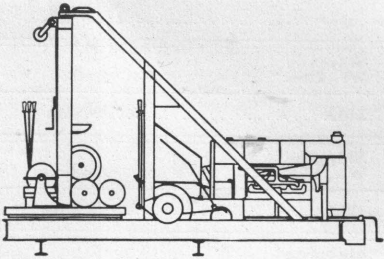
Note: In ordering a shovel, the table construction permits adapting it to clamshell, backfiller, or crane, or vice versa, on any unit. Proper instructions will be attached to any combination order as to proper installation.

A study of the foregoing, and the balance of units upon this chart, will assist in simplifying ordering of various combination units.

NOTE: MAKE STUDY OF THIS ENTIRE LIST BEFORE ORDERING.
IN TELEGRAPHING ORDERS, USE CODE WORDS.

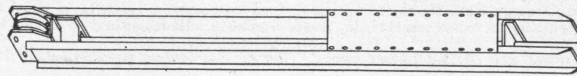


Part No.	Name and Description	Shipping Wt., Lbs.	Code
S-1	Wilford Shovel, complete less boom, dipper, dipper stick and cables.....	13330	Marlow
S-10	Wilford Shovel, complete less boom, dipper, dipper stick, cables and dipper stick crowding mechanism.....	13080	Mattow
S-11	Wilford Shovel, complete less boom, dipper, dipper stick, dipper stick crowding mechanism but with part S-80 added.....	13300	Malon



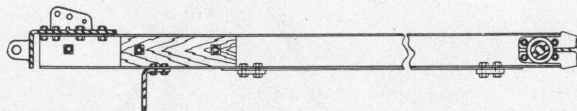
Part No.	Name and Description	Shipping Wt., Lbs.	Code
S-20	Wilford Shovel, complete less boom, dipper, dipper stick, cables, crawlers, crawler chains and sprockets.....	11630	Merwin
S-21	Wilford Shovel, complete less boom, dipper, dipper stick, cables, crawlers, crawler chains, sprockets and dipper stick crowding mechanism.....	10630	Messler
S-22	Wilford Shovel, complete less boom, dipper, dipper stick, cables, crawlers, crawler chains, sprockets, dipper stick crowding mechanism but with part S-80 added.....	10880	Merton

Part No.	Name and Description	Shipping Wt., Lbs.	Code
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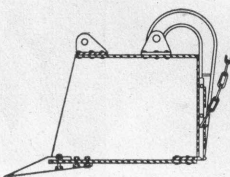


S-30	Wilford Boom, 15' regular length, complete including cable.....	650	Millot
S-31	Wilford Boom, 17' length. This is desirable sometimes in light work such as cleaning or making canal ditches and other places when used in light materials. It is customary to use 11' 6" dipper stick with this boom length.....	400	Mallard

Part No.	Name and Description	Shipping Wt., Lbs.	Code
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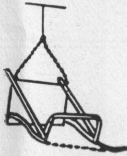


S-40	Wilford Dipper Stick, regular 10' length.....	350	Motrew
S-41	Wilford Dipper Stick, special length 11' 6".....	400	Movin



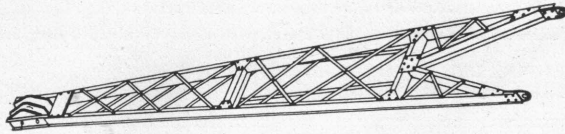
Part No.	Name and Description	Shipping Wt., Lbs.	Code
S-50	Wilford ¼-yard Dipper, standard size.....	518	Mogul
S-51	Wilford ¼-yard Dipper, standard size, equipped with extra trench digging tooth on each corner.....	545	Moher
S-52	Wilford Dipper, special ⅓-yard capacity. Used in loose materials such as coal, salt, gravel, beets and for lighter than usual digging.....	585	Nehlow
S-53	Wilford Dipper, special ½-yard capacity. Used for handling loose materials such as sugar beets and snow removal.....	760	Neklam

WILFORD POWER SHOVEL



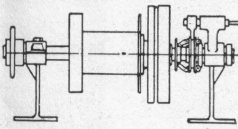
Part No.	Name and Description	Shipping Wt., Lbs.	Code
S-55	Wilford Backfiller Board.....	465.....	Board

Part No.	Name and Description	Shipping Wt., Lbs.	Code
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S-60	Wilford Crane Boom, 18', includes two 9' Sheaves, includes cables.....	900.....	Nalor
S-61	Wilford Crane Boom, 20', includes two 9' Sheaves, includes cables.....	950.....	Nacome
S-62	Wilford Crane Boom, 22', includes two 9' Sheaves, includes cables.....	975.....	Nadette
S-63	Wilford Crane Boom, 24', includes two 9' Sheaves, includes cables.....	1000.....	Nagle

The above Crane Booms can be used for either back-filling or Clamshell purposes.



Part No.	Name and Description	Shipping Wt., Lbs.	Code
S-80	Extra Drum and Controls, complete..... This drum necessary when ordering Clamshell or Backfiller units and is mounted upon the table ahead of other table mechanism.	250.....	Planor

Part No.	Name and Description	Shipping Wt., Lbs.	Code
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S-90	Crowd Mechanism.....	350.....	Crowd
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Part No.	Name and Description	Shipping Wt., Lbs.	Code
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S-70	Wilford Clamshell, 1/4-yard capacity.....	1100.....	Ottam
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Part No.	Name and Description	Shipping Wt., Lbs.	Code
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S-71	Wilford Orange Peel Bucket.....	1215.....	Orange
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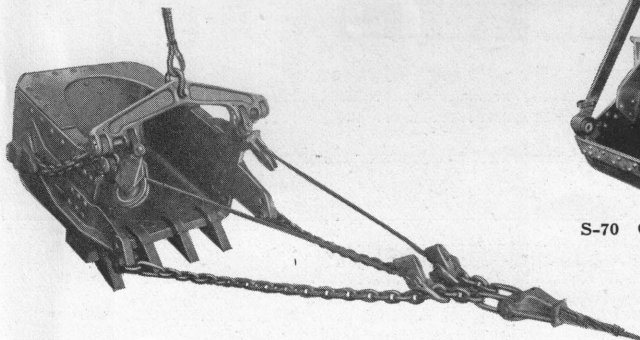
Part No.	Name and Description	Shipping Wt., Lbs.	Code
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S-72	Wilford Drag Line Bucket.....	875.....	Drag
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Wilford Drag Line, Clamshell and Orange Peel Buckets are designed to carry or handle 1/4 yard of material. This is figured at water level measure. In average digging, especially in loose materials, these buckets will handle 1/5 yard of material.

The Wilford buckets illustrated below are of the heavy type. The construction permits easy lubrication and accessibility for any adjustments or repairs.

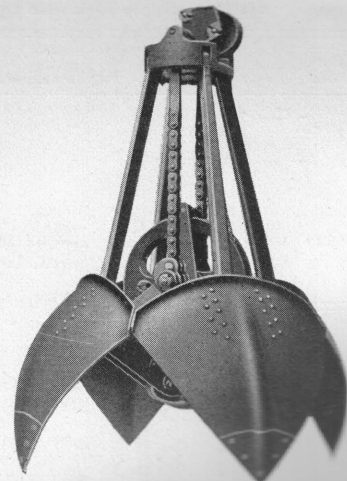
While only three types of buckets are shown, should there be need for some other design either heavier or lighter, write our engineering department giving size, weight, design and type of work to be done and Wilford engineers will furnish information as to price and length of time to deliver.



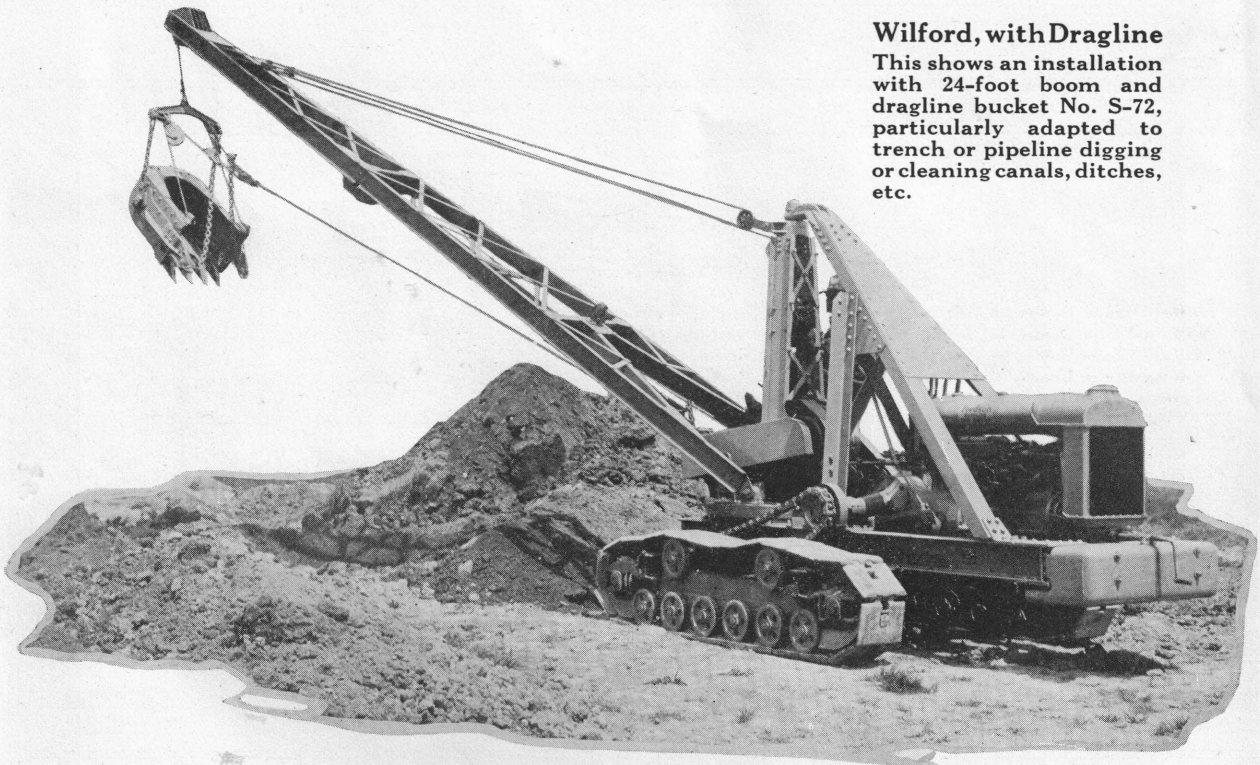
S-72 Drag Line Bucket



S-70 Clamshell Bucket

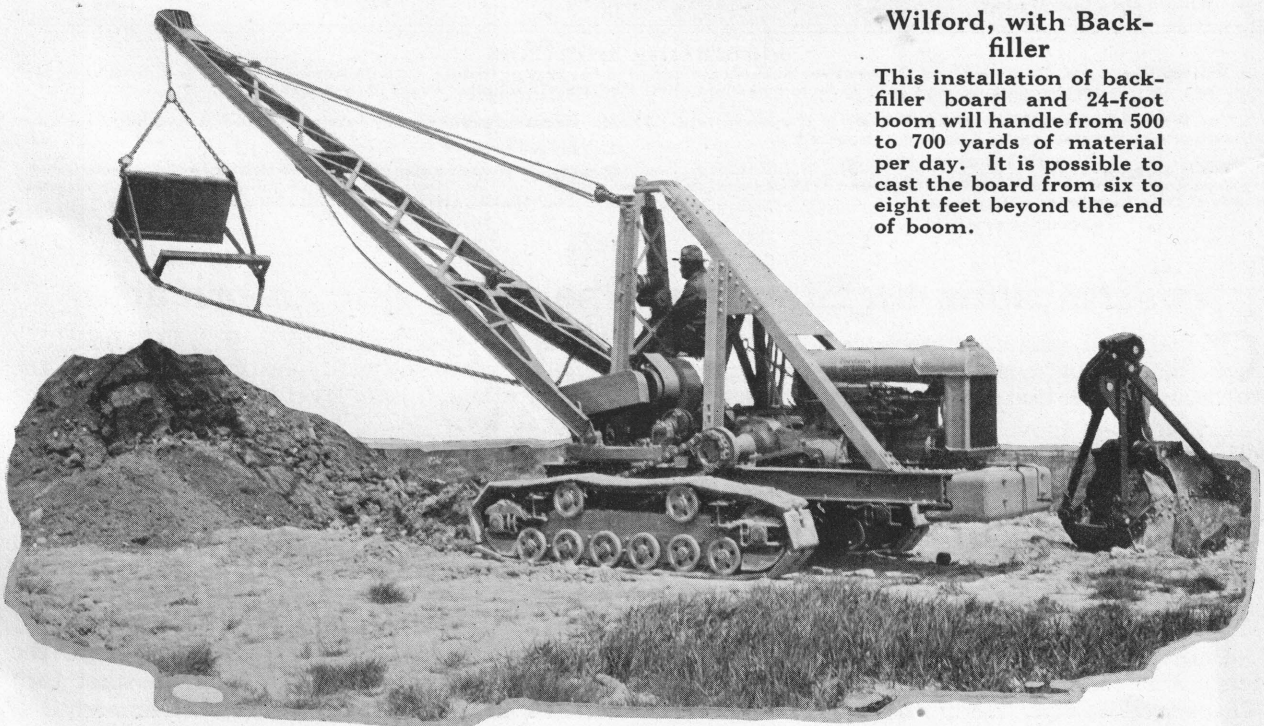


S-71 Orange Peel Bucket



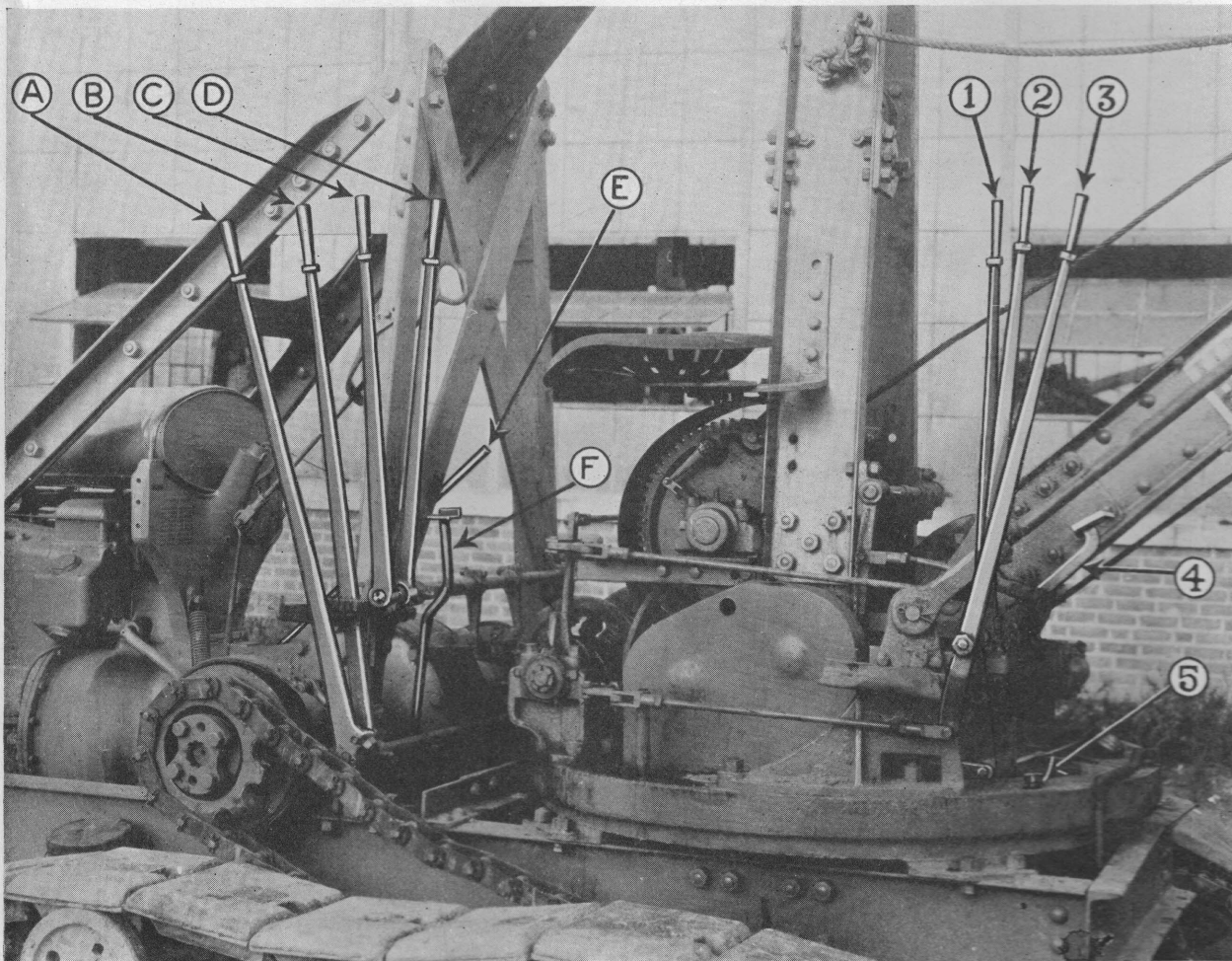
Wilford, with Dragline

This shows an installation with 24-foot boom and dragline bucket No. S-72, particularly adapted to trench or pipeline digging or cleaning canals, ditches, etc.



Wilford, with Back-filler

This installation of back-filler board and 24-foot boom will handle from 500 to 700 yards of material per day. It is possible to cast the board from six to eight feet beyond the end of boom.



Operating Controls

- | | |
|-------------------------------------|--|
| A. Left-hand track brake. | 1. Swing lever. |
| B. Right-hand track brake. | 2. Crowd lever. |
| C. Right-hand locking differential. | 3. Hoist lever. |
| D. Left-hand locking differential. | 4. Hoist brake pedal. |
| E. Power take-off gear shift lever. | 5. Turntable anchor-pin hole and anchor-pin. |
| F. Tractor clutch pedal. | |
| G. Tractor gear shift lever. | |

Instructions on Starting, Operating and Lubricating

CHECK all parts for lubrication (see lubrication instructions on instruction plate fastened to machine). See that all parts are tightly assembled.

On receiving shovel from factory the motor and other parts are very tight. To obtain best results the entire mechanism should be run in slowly the first two or three days of operation. Remove envelope from tractor and mail the enclosed card to factory, giving all data requested.

Instructions for Moving Shovel

Push tractor clutch foot pedal "F" with right foot. Put gear shifter lever "G" in speed desired. The shovel is now ready to be moved straight

ahead. See that levers "A", "B", "C" and "D" are all in their forward positions. To turn the shovel to the left, pull lever "D" toward operator; then pull lever "A." To go straight ahead again, shove both levers "D" and "A" forward. To turn to the right, pull lever "C" toward operator, then pull lever "B." To go straight ahead again, shove both levers "C" and "B" forward.

Note: Levers "C" and "D" have stops on them and should be engaged so that the stop adjustment is against the stop rest. Levers "A" and "B" should be pulled back firmly and engaged in the ratchet to prevent slipping of brake so that turn can be made in the shortest possible distance.

Instructions for Operating Shovel

To operate Wilford, proceed as follows:

Retard motor spark lever, choke carburetor by pulling choke rod clear back, disengage power take-off lever "E" and start motor. Immediately after motor has started, push choke rod completely forward. Engage Fordson power take-off by pressing foot on clutch lever "F" and moving gear shift lever "E" to right.

The operator can then sit in the shovel operating position and by practicing a short time become fully acquainted with the various shovel levers by taking each operation of the bucket and swing control and working one at a time, as follows:

Hoist Lever

Pulling hoist lever, "3," toward the operator raises the bucket. Raise the bucket two or three feet off the ground and let it settle back again by shoving the lever forward. Do this several times.

Crowd Lever

Pulling crowd lever, "2", toward the operator draws the bucket back. Pushing crowd lever, "2", away from operator crowds the bucket into the work or bank which you are digging. The amount of load picked up in a given distance is entirely regulated by the crowd. Working crowd gradually the bucket will travel farther to load than by working crowd lever fast. On a new machine it is important not to crowd too fast the first day or so, even though full buckets are not obtained.

Swing Lever

Pulling swing lever, "1", toward the operator will swing the table to the left. Pushing this lever away from operator swings the table to the right. If one side of shovel is higher than the other side, due to uneven ground, the boom and dipper will be inclined to swing faster on traveling toward the low side. This can be checked by reversing the action of the swing lever, "1", using it as brake.

Brake Lever

The hoist brake foot pedal, "4", is used to stop the dipper on the downward fall or to hold bucket or dipper in extended position while dumping load or swinging.

Practice one operation at a time until fully accustomed to the action of each lever. Practice raising and lowering the bucket several times in order to become familiar with the travel on the downward fall. Raise it by pulling lever "3" back. Then, upon releasing this lever, catch the fall of the bucket with the foot brake, "4". The brake operation is very important.

After practicing with the hoist and brake action until you can place bucket on the ground at any position ready for digging, raise the bucket about

half way and hold it with the brake. Then, with bucket in this position, start practicing crowding the bucket back and forth with lever "2".

With the bucket still raised about half way, start swinging it to the right and left, very slowly at first, but gradually increasing the speed.

After becoming familiar with the individual lever operations it is time to start operating the three hand levers and the one foot lever. To become efficient at this it is best to set a small pole or stick in the ground, about the height of a motor truck, either to the left or right of the shovel and start the dipper from the place of load, raising and swinging at the same time until the dipper has passed above and beyond the stick, at which time the dipper is ready to be tripped. Continue this operation for at least one hour, going through the same operations as though actually loading trucks. After becoming fully familiar with this, small loads of material can be picked up and dumped. The operation is going to appear a little difficult at first, but after two or three days of actual working the simplicity will be very apparent. Remember that practice makes perfect.

Suggestions

It is very important to see that there is plenty of lubrication at all points of both shovel and tractor. See that cables are well lubricated and adjusted. Use care to keep clutches *free* from grease or oil.

Do not leave shovel standing overnight on real soft ground.

In freezing weather, drive the shovel upon two or three planks to prevent the tracks from freezing to the ground.

Drain water from the tractor during freezing weather unless a non-freezing solution is used.

In freezing weather, start work slowly until cables and table have had an opportunity to loosen up. Working cables when frosted or frozen may snap or break them.

Before engaging power take-off, be sure to disengage clutches.

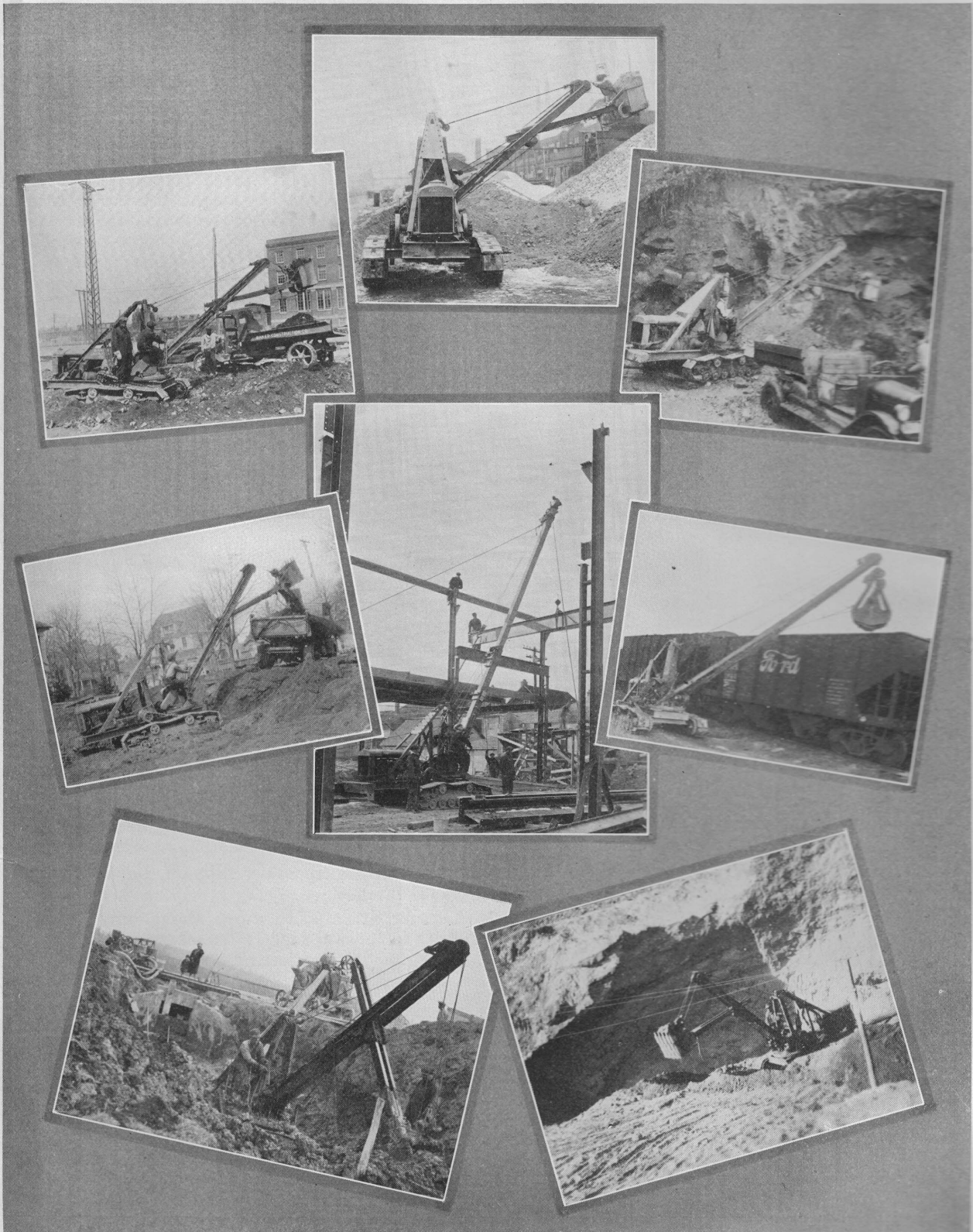
Do not attempt to move shovel any distance unless table is properly anchored by inserting anchor-pin "5", as letting boom swing loose may cause damage.

Governor

The governor supplied with each Wilford has been set at the factory. Each governor is subjected to a dynamometer test and does not require any adjusting for average working conditions. This governor is known as the Kingston and we do not recommend the use of other types. Should faster motor speed be desired, turn the adjustment toward the motor, for slower speeds turn from the motor.

Caution: The carburetor hand throttle, located on the dash board of the tractor, should be pulled half way down to obtain governor action.

W I L F O R D P O W E R S H O V E L



A Few Typical Installations of Wilfords

UNIVERSAL POWER SHOVEL CO.

15841 Second Boulevard, Detroit, Michigan

DISTRIBUTORS

Any of the distributors listed below can arrange for demonstration and quote delivered prices on all Wilford installations

BADGER EQUIPMENT CO.
Omaha, Neb.

C. W. BULL EQUIPMENT CO.
3907 Harrisburg Blvd.
Houston, Texas

CHISHOLM EQUIPMENT CO.
331 So. Rio Grande
Salt Lake City, Utah

DEALERS EQUIPMENT CO.
3673 Michigan Ave.
Chicago, Ill.

DEALERS EQUIPMENT &
IMPLEMENT CO.
1434 Riverside Drive
Memphis, Tenn.

F-D EQUIPMENT CO.
1115-17 St. Mary
Dallas, Texas

WM. FORD & CO., INC.
15841 Second Blvd.
Highland Park, Mich.

GASH-STULL CO.
Chester, Pa.

GASH-STULL CO.
Kearney, N. J.

GASH-STULL CO.
Washington, D. C.

B. HAYMAN CO., INC.
1918 E. Seventh St.
Los Angeles, Calif.

H. R. HOOPER CO.
Youngstown, Ohio

H. R. HOOPER CO.
6510 Euclid Ave.
Cleveland, Ohio

H. R. HOOPER CO.
Pittsburg, Pa.

HOOPER EQUIPMENT CO.
224 No. Alabama St.
Indianapolis, Ind.

W. B. MAY, INC.
41 Perry
Buffalo, N. Y.

T. W. MEIKLEJOHN COMPANY
Fond du Lac, Wisc.

MITCHELL, LEWIS & STAVELAND CO.
330-36 Morrison, East
Portland, Oregon

MONARCH AUTO CO., INC.
Broadway at Brook,
Louisville, Ky.

MONARCH EQUIPMENT CO., INC.
4235 Duncan Ave.
St. Louis, Mo.

MONARCH SALES CO., INC.
907 Broadway
Cincinnati, Ohio

H. W. MOORE EQUIPMENT CO.
6th and Acoma
Denver, Col.

MOTOR POWER EQUIPMENT CO.
Ford Rd. and River Blvd.
St. Paul, Minn.

MOTOR POWER EQUIPMENT CO.
 Fargo, N. D.

NEW ENGLAND IMPLEMENT CO., INC.
22 Garden St.
Worcester, Mass.

NEW ORLEANS EQUIPMENT CO.
400 Jackson Ave.
New Orleans, La.

NORTHWEST APPLIANCES, INC.
1117 Valley St.
Seattle, Wash.

O. R. PETERSON CO., INC.
21st and Alabama
San Francisco, Calif.

POWER EQUIPMENT CO.
1725 W. Grand Ave.
Des Moines, Iowa

RYAN EQUIPMENT CO.
901-07 Main St., West
Oklahoma City, Okla.

TRUCK TRACTOR EQUIPMENT CO.
460 Neilson St.
Columbus, Ohio

UNIVERSAL EQUIPMENT CO.
1201 Winchester Ave.
Kansas City, Mo.

UNIVERSAL MOTOR CO., INC.
1710-22 Altamont
Richmond, Va.

UNIVERSAL MOTOR CO., INC.
Charlotte, N. C.

UNIVERSAL MOTOR CO., INC.
Atlanta, Ga.

UNIVERSAL MOTOR CO., INC.
Jacksonville, Fla.

CANADIAN DISTRIBUTORS

K. C. IRVING, LTD.
300 Union St.
Saint John, N. B.

UNIVERSAL MOTOR CARS, LTD.
Calgary, Alta.

W. C. WARBURTON AND CO.
844 Bathurst St.
Toronto, Ontario

C. O. MONAT AND CO.
5644 Park Ave.
Montreal, Que.

DOMINION MOTOR CO., LTD.
Graham and Fort Sts.
Winnipeg, Man.

B. C. TRACTOR EQUIPMENT CO.
1350 Richards St.
Vancouver, B. C.

INSTRUCTIONS FOR ORDERING PARTS

1. Order all parts through the authorized distributors listed above.
2. Be sure to give catalog number and name of each part ordered when ordering by mail. When ordering by wire order by code word.
3. Specify whether shipments are to be made by freight, express, or parcel post. Prices subject to change without notice.

TELEGRAPH CODE

You will find below a brief general code which covers miscellaneous instructions relative to parts shipments:

Coperig—Ship to me (us) by express.

Coperkleur—Ship by express to—.

Copersteen—Ship to me (us) by freight.

Copfton—When and how did you ship parts called for in my (our) telegram of—.

Coper—Ship to me (us) by parcel post.

Copflutch—When and how will you ship parts called for in my (our) telegram of—.

Copwasser—When and how will you ship parts called for in my (our) letter of—.

WARRANTY

The factory obligation with respect to replacement of alleged defective parts is fully covered by our warranty as follows:

We warrant the Wilford Power Shovel manufactured by us to be free from defects of material and workmanship under normal use and service, our obligation under this warranty being limited to making replacement of part or parts thereof which shall, within ninety days after delivery of such shovel to the original purchaser, be returned to us with transportation charges prepaid, and which in examination shall disclose to our satisfaction to have been thus defective.

This warranty is expressly in lieu of all other warranties expressed or implied, and of all other obligations or liabilities on our part, and we neither assume nor authorize any other person to assume for us any other liability in connection with the sale of the Wilford Power Shovel.

This warranty shall not apply to any Wilford Power Shovel which shall have been repaired or altered outside of our factory or authorized distributors in any way so as, in our judgment, to affect its stability or reliability, or which has been subject to misuse, negligence, or accident.

Our factory does not participate in any labor costs incident to the replacement of parts under the warranty. The warranty under which the Wilford Power Shovel is sold will be interpreted by the distributor or Dealer from whom the Shovel was purchased.

THE UNIVERSAL POWER SHOVEL COMPANY
Detroit, Michigan

Why You Should Own a Wilford

1. Greatest digging or hoisting power per pound of machine weight.
2. High speed while traveling from place to place.
3. Simplicity of operation, lubrication, steering. One man control, digging and driving handled from the same seat.
4. Built of steel throughout.
5. All high speed shafts are mounted on adjustable Timken bearings.
6. Interchangeability from shovel to clam accomplished in a few hours' time.
7. Lower first cost (consistent with quality and service facilities).
8. Lower operating costs and repair parts cost.
9. Largest number of sales and service distributing branches.
10. The two-thirds swing requires less room to operate in, digs and works closer on side hill work.
11. Lower investment, lower operating costs.

