

CRAWLER BASE — SPEEDER TRACKS

TWO SPEEDER lug-driven crawler belts each 33 lug-driven shoes, 9" pitch, of manganese alloy steel, heat-treated, smooth both sides, self-cleaning.

TRACK PINS—1 $\frac{1}{8}$ " diameter, full width of track shoe.

TRACK SHOES:

Standard 20" flat, total ground contact 4,380 sq. in. or 30.4 sq. ft.
 Optional 24" flat, total ground contact 5,260 sq. in. or 36.5 sq. ft.
 Optional 30" flat, total ground contact 6,570 sq. in. or 45.5 sq. ft.

TRACK ROLLERS—8 per belt, double-flanged, 10" tread diameter, hub bronze-bushed, 2 $\frac{1}{2}$ " diameter, 5 $\frac{3}{4}$ " long, rims flame-hardened.

CRAWLER REAR DRIVE SPROCKET—26 $\frac{3}{8}$ " pitch diameter, 9 teeth, welded to chain drive sprocket and bronze-bushed 3" diameter 12" long. Crawler front idler roller, 23 $\frac{1}{8}$ " tread diameter, bronze-bushed, 3" diameter, 5 $\frac{1}{4}$ " long. Sprocket and idler shafts are 3" diameter.

CRAWLER TRACK FRAME MEMBERS—8", 16.25 lbs. channels.

Main cross members 5" "Manten" H-beams.
 Longitudinal frame members, 10", 35 lbs. I-beams.

DRIVE CHAINS—Link-Belt XXS-40, 3.075" pitch 1 $\frac{1}{2}$ "x5/16" side bars, $\frac{5}{8}$ " diameter pins, 1 $\frac{1}{4}$ " dia. rollers, all alloy steel, heat-treated.

CHAIN SPROCKETS—Rear, 21 $\frac{5}{8}$ " pitch diameter, 22 teeth; front, 9 teeth.

TRACTION SHAFT—3-piece 3" diameter, S.A.E. 4140 chrome-moly steel. Traction bevel gear, 18" diameter, 27 teeth, 3 $\frac{1}{2}$ " face, alloy steel, cast teeth, fully enclosed in steel case, running in oil bath. Traction pinion 8" diameter, 12 teeth, 3 $\frac{1}{2}$ " face. Shaft has 4 babbitted bearings 5" diameter, 5" long.

CENTER PIN—8" diameter, alloy cast steel, riveted and welded to frame members.

TURNTABLE—Cast steel with machined roller path 63" diameter, channel-shaped section. Internal gear 51" pitch diameter, 102 teeth, 5" face.

TRACTION LOCK—A cab-operated traction lock which locks the quill shaft to the center pin. Also regular SPEEDER traction lock engaging with traction shaft and adjustable to forward, reverse or neutral.

CRAWLER BASE DATA:

Overall length of crawlers	-----11'-7 $\frac{1}{2}$ "	Crawler ground contact,	
Length of ground contact	-----9'-11 $\frac{1}{2}$ "	30" tracks	-----6570 sq. in., 45.5 sq. ft.
Overall width with 20" tracks	-----9'-0"	Crawler travel speed, low gear	-----.85 M.P.H.
Overall width with 24" tracks	-----9'-4"	Crawler travel speed, high gear	-----2.00 M.P.H.
Overall width with 30" tracks	-----10'-4"	Maximum grade climbable	-----30%
Crawler ground contact,		Minimum clearance under traction gear case	-----8 $\frac{1}{2}$ "
20" tracks	-----4380 sq. in., 30.4 sq. ft.	Clearance under frame cross members	-----17 $\frac{1}{2}$ "
Crawler ground contact,			
24" tracks	-----5260 sq. in., 36.5 sq. ft.		

CRAWLER BASE WITH "CATERPILLAR" TRACTOR TYPE CRAWLERS

TWO "CATERPILLAR" track belts each 40 links, 7.50" pitch, of drop forged alloy steel, with hardened rails.

TRACK PINS—1 $\frac{5}{8}$ " diameter, bushings 2 $\frac{3}{8}$ " diameter, carborized and ground.

TRACK SHOES:

Standard 20" flat, total ground contact 4380 sq. in. or 30.4 sq. ft.
 Optional 24" flat, total ground contact 5260 sq. in. or 36.5 sq. ft.

TRACK ROLLERS—7 per belt, double-flanged, 8 $\frac{1}{2}$ " tread diameter, 10" O.D. hub bronze-bushed for 2" diameter pin.

CRAWLER REAR DRIVE SPROCKET—25 $\frac{1}{2}$ " pitch diameter, 21 teeth, welded to chain sprocket and bronze-bushed, 3" diameter, 12" long. Crawler front idler roller, 21 $\frac{3}{8}$ " tread diameter, 3" diameter shaft, hub 7" long bronze-bushed.

CRAWLER TRACK FRAME MEMBERS—9", 28.5 lbs. ship channels.

4 Main cross members 5" "Manten" H-beams.
Longitudinal frame members, 12", 35 lbs. I-beams.

DRIVE CHAINS—Link-Belt XXS-40, 3.075" pitch, 1½"x5/16" side bars, 5/8" diameter pins, 1¼" diameter rollers, alloy steel, heat-treated.

CHAIN SPROCKETS—Rear, 215/8" pitch diameter, 22 teeth; front, 9 teeth.

TRACTION SHAFT—3-piece 3" diameter, S.A.E. 4140 chrome-moly steel. Traction bevel gear, 18" diameter, 27 teeth, 3½" face, alloy steel, cast teeth, fully enclosed in steel case, running in oil bath. Traction pinion 8" diameter, 12 teeth, 3½" face. Shaft has 4 babbitted bearings 4" diameter, 5" long.

CENTER PIN—8" cast alloy steel, riveted and welded to frame members.

TURNTABLE—Cast steel with machined roller path 63" diameter. Internal gear 51" pitch diameter, 102 teeth, 5" face.

TRACTION LOCK—A cab-operated traction lock which locks the quill shaft to the center pin. Also regular SPEEDER traction lock engaging with traction shaft and adjustable to forward, reverse or neutral.

CRAWLER BASE DATA:

Overall length of crawlers-----11'-10"
Length of ground contact-----9'-11½"
Overall width with 20" tracks-----9'-0"
Overall width with 24" tracks-----9'-4"
Crawler ground contact,
20" tracks ----4380 sq. in., 30.4 sq. ft.

Crawler ground contact,
24" tracks -----5260 sq. in., 36.5 sq. ft.
Crawler travel speed, low gear----- .85 M.P.H.
Crawler travel speed, high gear-----2.00 M.P.H.
Maximum grade climbable-----30%
Minimum clearance under traction gear case--12"
Clearance under frame cross members-----19½"

UPPER REVOLVING FRAME

TURNTABLE ROLLERS—Five 8½" diameter, 3½" face, 3" diameter bronze bushing, 3½" long. Rollers machined from alloy steel blanks, flame-hardened.

CENTER PIN BEARING—8" diameter, alloy steel with 8"x4½" bronze bushing. Center pin bearing bolted to upper frame.

FRAME—12", 35 lb. I-beams with cross ties and plates electric welded.

GASOLINE ENGINE—Waukesha 6 SRK, 6-cylinder, 45/8" bore, 5½" stroke.

Displacement—517 cubic inches.
Normal speed, 1325 R.P.M., 80 H.P., 318 ft. lbs. torque.
Carburetor—Zenith 456-2.
Magneto—American Bosch U-6.
Air Filter—Vortex oil bath type, 1850-D.
Oil Filter—Waukesha-Michiana "Duo-Flo".
Starter—Delco-Remy, 371.
Generator—Delco-Remy 941-H.
Governor—Waukesha centrifugal, built-in type.
Battery—6-volt, 17-plate, standard make.
Fuel Tank—55-gallon, gravity feed.
Radiator—"Perfex". Cooling system capacity, 9½ gallons.
Lubricating oil capacity—10 quarts.

DIESEL ENGINE—"Caterpillar" D-8800, 4-cylinder, 5¾" bore, 8" stroke.

Displacement—831 cubic inches.
Normal speed, 850 R.P.M., piston speed 1133 F.P.M., 80 H.P., 496 ft. lbs. torque.
Lubricating oil filter—Double "Purolator".
Air Filter—Donaldson.
Fuel Filter—Two-stage, edge and wire wound.
Starter—Two-cylinder gasoline engine, 2 speed reduction gear.
Fuel tank—55-gallon, gravity feed.
Radiator—"Caterpillar." Cooling system capacity 18½ gallons.
Lubricating oil capacity—16 quarts.

CLUTCH—"Twin Disc" clutch, C-111-P-2, 11½" diameter, single plate, 2½" diameter shaft.

TRANSMISSION—4" silent chain, 1" pitch, enclosed.

Sprockets—Gasoline, 17 and 102 teeth.

Sprockets—Diesel, 17 and 64 teeth.

Reduction gears to reverse shaft are 8" and 27½" P.D., 3" face, 4 pitch.

REVERSE SHAFT—3" diameter S.A.E. 4140 chrome-moly steel.

Normal speed, 64 R.P.M.

Bearings "Shafer" self-aligning roller.

Spur gear 23" diameter, 3" face, machine-cut teeth, 3 pitch.

Miter gears, 12" diameter, 18 teeth, 3" face, cast teeth.

Swing and traction clutches, 17" diameter, 4" face, double band, external contracting type, manually operated.

DRUMS—12" between flanges, alloy steel, with 25" diameter clutch and brake flanges. Removable two-piece steel lagging to suit various purposes.

Shafts—3" diameter S.A.E. 4140 chrome-moly steel.

Front drum gear—36" P.D., 3" face, 3 pitch, cut teeth.

Rear or hoist drum gear—31" P.D., 3" face, 3 pitch, cut teeth.

Clutches—25" diameter, 4" face, double band, external contracting type, manually operated.

(Boosters on special order only.)

Brakes—25" diameter, 4" wide, external contracting, foot-operated.

Speed—Front drum 40.9 R.P.M.; rear drum 47.5 R.P.M.

Hoist drum, floating with two 3½"x5" bronze bushings.

Crowd drum keyed to shaft, bronze shaft bearings, 3"x6½".

Crowd drum reversed by roller chain drive and 17" diameter external band clutch, for retracting dipper stick.

VERTICAL SHAFTS AND GEARS:

Vertical drive and quill gear shafts 3" diameter, swing shaft 3½" diameter splined for sliding jaw clutches, all S.A.E. 4140 chrome-moly steel.

Vertical drive shaft upper bearing is an SKF self-aligning ball-type, all others bronze.

Two-speed travel and swing gears, 3" face, 3 pitch, 15" to 28" diameter.

Swing lock engages with swing shaft sliding jaw clutch.

BOOM HOIST—Self-locking worm-gear type, 2-pitch, 20 to 1 ratio, steel worm and bronze gear enclosed in cast steel case. Worm shaft has ball thrust bearing. Drum 10" diameter. Drive through sliding pinion meshing with vertical shaft gear, using swing clutches. Worm shaft locked against rotation automatically when disengaged.

A-FRAME—Tubular front members and double bar rear tension members, pin connected.

CAB—No. 11-gauge steel sides, 14-gauge top. Sliding doors on ball bearing rollers. Inside height 6'-2", width 8'-0". Safety glass panels in operator's compartment at extra cost.

COUNTERWEIGHT—Shovel, 2,800 lbs.

DIMENSIONS:

Rear radius of cab—9'-2".

Overall height—10'-8".

Radius of boom hinge pin—3'-1¾".

Height of boom hinge pin—4'-10½".

SPEEDS:

Swing speed—5 R.P.M.

Hoist drum—15" P.D. grooved lagging, 11,250 lbs. Line pull @ 180 F.P.M.

Shovel crowd—100 F.P.M.

Shovel retract—150 F.P.M.

Dragline inhaul—12½" P.D. tapered grooved lagging, 15,000 lbs. @ 135 F.P.M.

Boom hoist drum—10" diameter, 35 F.P.M. high gear; 15 F.P.M. low gear, single line.

SHOVEL ATTACHMENT

BOOM—18'0" center to center of pins, made of steel plates and cross ties, welded into a rigid box section. Boom 16" wide, 20" deep at center.

Shipper shaft 3" diameter, with 17-tooth double crowd pinions, 3" face, 6.8" P.D. Main sheave steel 22¾" P.D. bronze-bushed 2½" diameter, 6" long.

Boom hoist sheaves 10" P.D. bronze-bushed.

Weight of boom only 2950 lbs.

DIPPER STICKS—Tubular steel 5½" diameter, 5/8" wall thickness, 14 feet long. Weight of sticks and end casting, 1200 lbs.

BUCKET—¾-cubic yard, 36¾" wide inside, cast steel head, "AMSCO" manganese front. Four manganese steel removable teeth 3¾" wide, 10" long. Weight 2,000 lbs.

PADLOCK BLOCK—Sheave 16½" P.D. bronze-bushed 2½" diameter, 3½" long.

CROWDING ACTION—The front drum has a split 21-tooth sprocket, and is reversed by chain drive from the reverse shaft. Crowd and retract chains are Link-Belt Hyper-40, 3.075" pitch heavy-duty type with alloy steel side bars and pins. The front drum sprocket drives to a countershaft at the base of the boom and up to the shipper shaft. Both drives have takeup idlers. The shipper shaft has two chrome nickel steel pinions engaging with the crowd racks on the dipper sticks. Crowd and reverse are handled with one lever.

CABLES:

Hoist— $\frac{3}{4}$ "x75 ft. 6x19 Improved Plow, Hemp Center.
 Boom— $\frac{5}{8}$ "x108 ft. 6x19 Improved Plow, Hemp Center.
 Trip— $\frac{5}{16}$ "x36 ft. 6x19 Improved Plow, Hemp Center.

WEIGHT—Complete with cables, 6,550 lbs.

CRANE, CLAMSHELL, AND DRAGLINE ATTACHMENTS

BOOM—Standard length 35 ft. Extra center sections 5 and 10 ft. Standard box boom is made of four $2\frac{1}{2}$ "x $2\frac{1}{2}$ "x $\frac{1}{4}$ " steel angles latticed with $1\frac{1}{4}$ "x $1\frac{1}{4}$ "x $\frac{3}{16}$ " angles. Boom has lattice bars welded and is 20" deep and 26" wide at center. End sheaves are $15\frac{3}{4}$ " P.D. with hub $3\frac{1}{2}$ " long bronze-bushed for $2\frac{1}{2}$ " diameter shaft. Boom hoist sheaves are 10" P.D.
 Weight of 35 ft. boom without cables, 1,400 lbs.
 Weight of 40 ft. boom without cables, 1,650 lbs.
 Weight of 45 ft. boom without cables, 1,800 lbs.

DRAGLINE BUCKET— $\frac{3}{4}$ -yard capacity, body made of $\frac{3}{8}$ " plate, lip $\frac{3}{4}$ "x12" plate steel with four removable and reversible chrome nickel steel teeth. Inhaul chains $\frac{3}{4}$ "x7 ft., hoist chains $\frac{5}{8}$ ".
 Bridle sheave 10" P.D.
 Bucket—37" wide inside.
 Dumping clearance—9'-0".
 Weight complete with chains—1,850 lbs. empty.
 Weight with average material—4,500 lbs.

FAIRLEAD—Sheave-type, cast steel frame with two vertical swing sheaves, $11\frac{3}{4}$ " P.D., 3" hub, $2\frac{1}{2}$ " diameter shaft, bronze-bushed. The two horizontal guide sheaves are 8" diameter, 3" pin, bronze-bushed. Weight of fairlead, 450 lbs.

CABLES:

Dragline:

	Boom Length		
	35	40	45 ft.
Inhaul— $\frac{3}{4}$ " Improved Plow, wire rope center, lang lay -----	48	53	58 ft.
Hoist— $\frac{3}{4}$ " Improved Plow, Hemp Center-----	85	95	105 ft.
Boom— $\frac{5}{8}$ " Improved Plow, Hemp Center-----	180	205	230 ft.
Weight—Complete set -----	235	265	295 lbs.

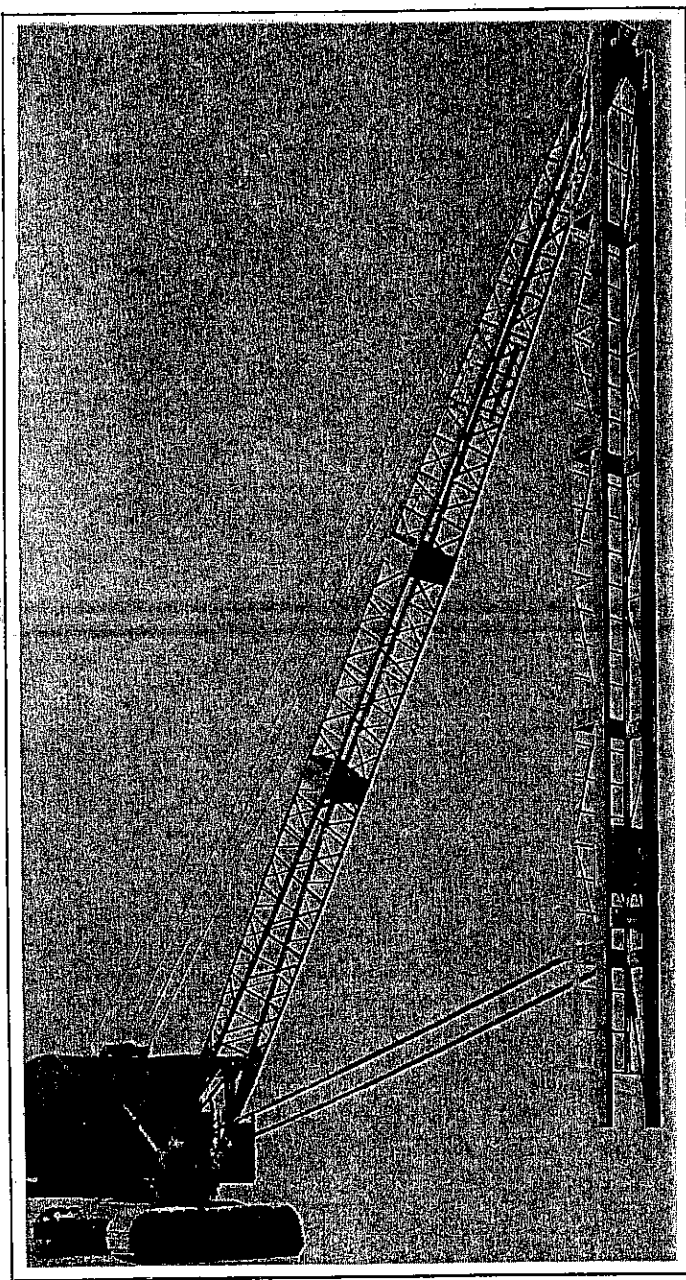
Clamshell:

	Boom Length		
	35	40	45 ft.
Closing line— $\frac{5}{8}$ " Improved Plow, Hemp Center -----	130	140	150 ft.
Holding line— $\frac{5}{8}$ " Improved Plow, Hemp Center -----	95	105	115 ft.
Boom— $\frac{5}{8}$ " Improved Plow, Hemp Center-----	180	205	230 ft.
Tagline— $\frac{5}{16}$ " Regular Plow, Hemp Center -----	50	55	60 ft.
Weight—Complete set -----	260	290	320 lbs.

CLAMSHELL BUCKET—The machine will handle any standard make clamshell bucket of $\frac{3}{4}$ -yard capacity.

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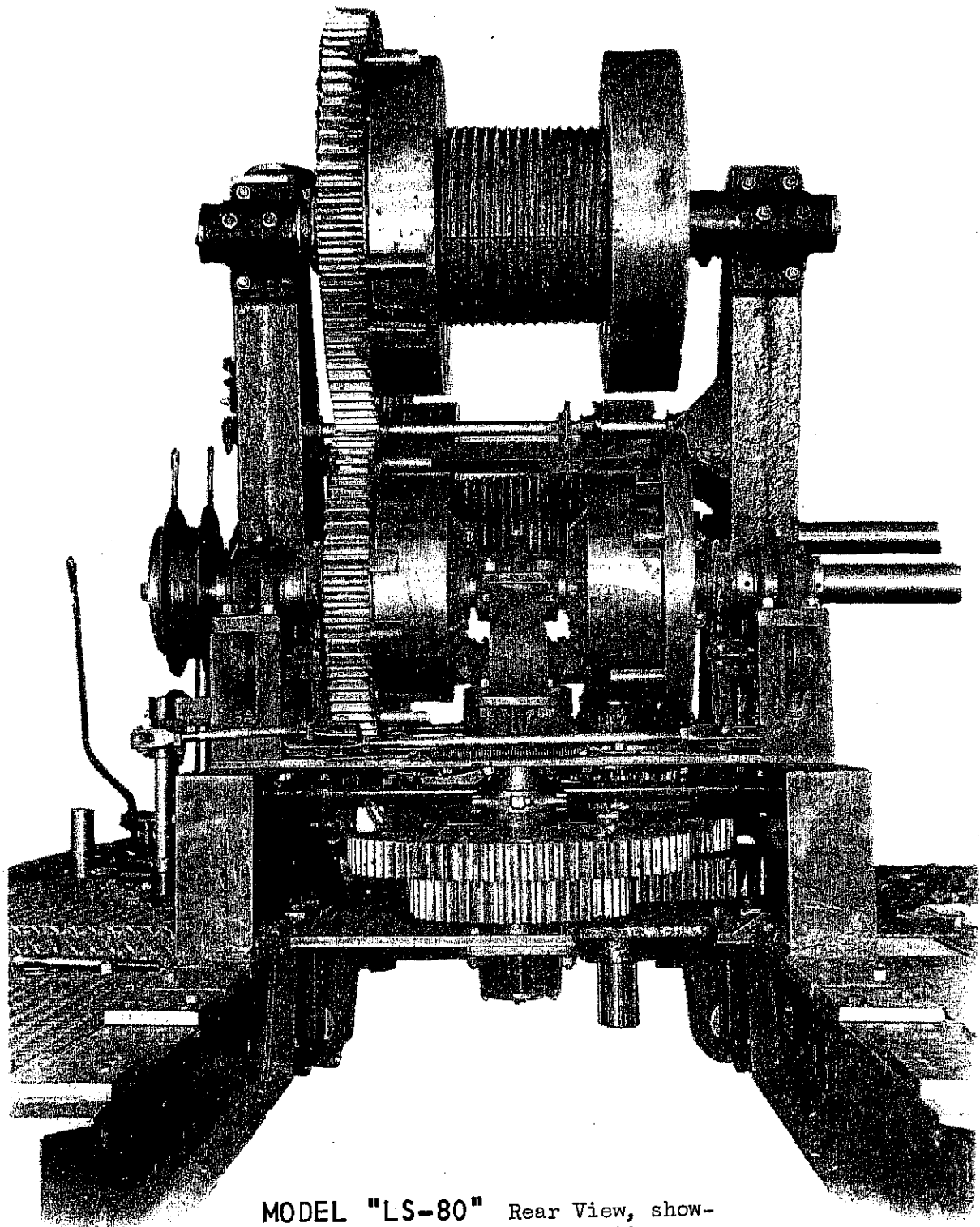
LS-80 PILE DRIVER ATTACHMENT



For piledriving work the LS-80 $\frac{3}{4}$ yard heavy duty crane can be furnished with the piledriver attachment illustrated above. With a 40 ft. boom and 40 ft. leads, the maximum working radius on level ground is 20 ft. At this radius the lower end of the leads rests on the ground and the clearance under the pile hammer is 35 ft. 6 inches. Standard hammer weighs 2400 lbs. and the pile cap 500 lbs. Weight of 40 ft. leads without hammer or cap is approximately 2600 lbs.

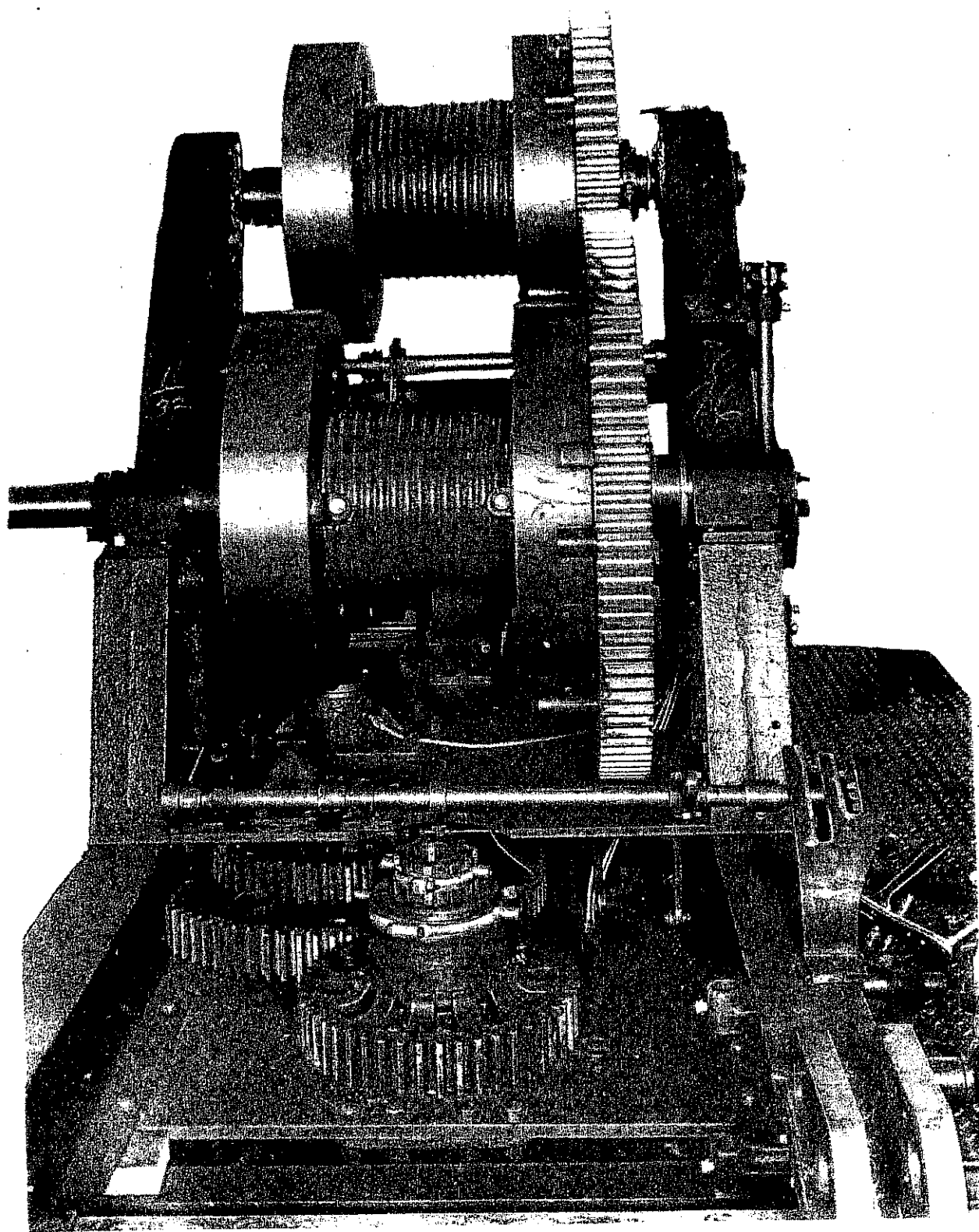
Leads and hammer of special size can be furnished.

April 1, 1940
Form LS-807-L



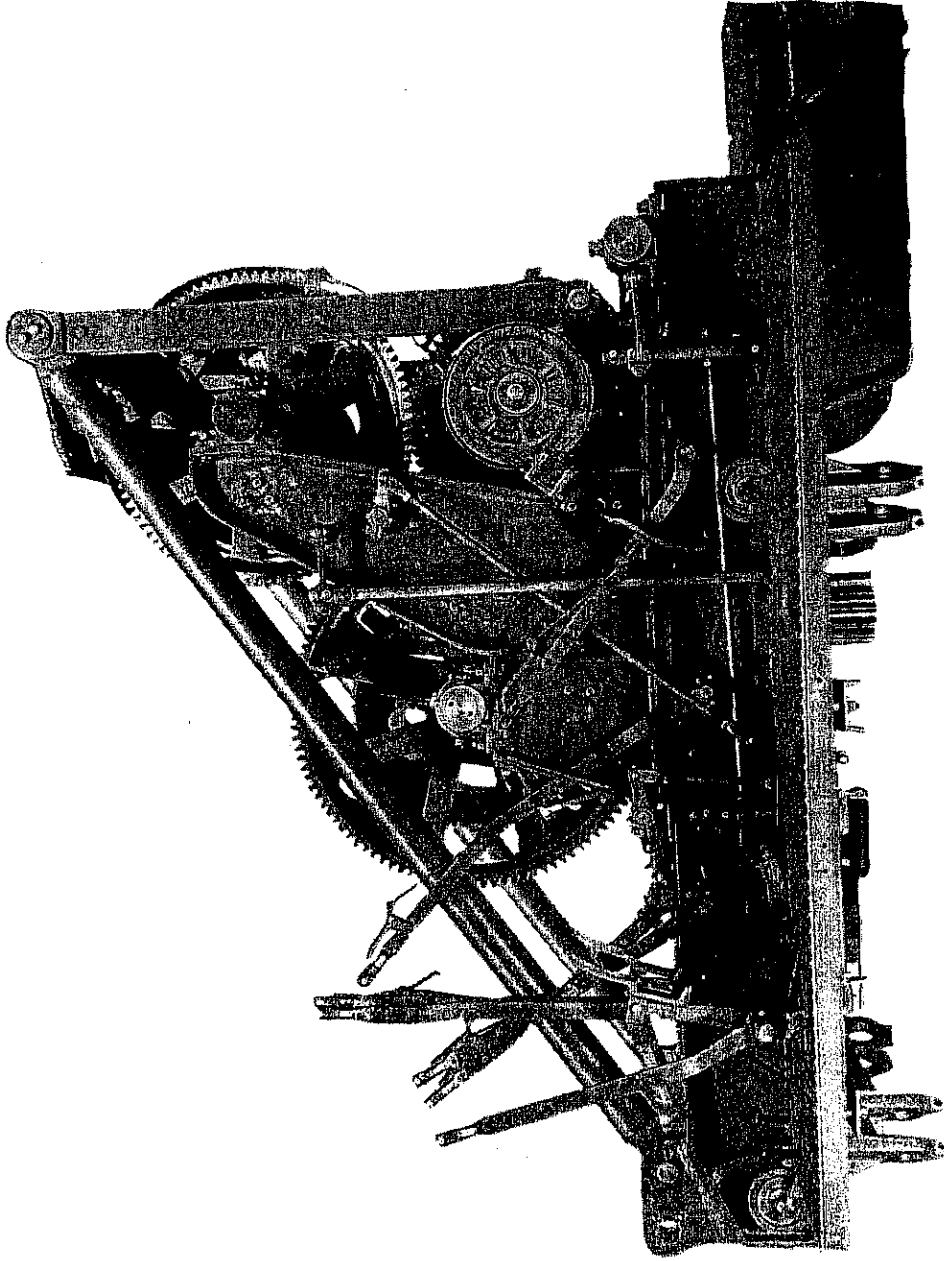
MODEL "LS-80" Rear View, showing another portion of traction two-speed arrangement. Splined oversized SAE 4140 shafting used throughout. Reverse shaft held in place by three bearings, the two outer ones being ball-bearing pillow blocks. Note heavy duty reverse miters and oversize clutch drums.

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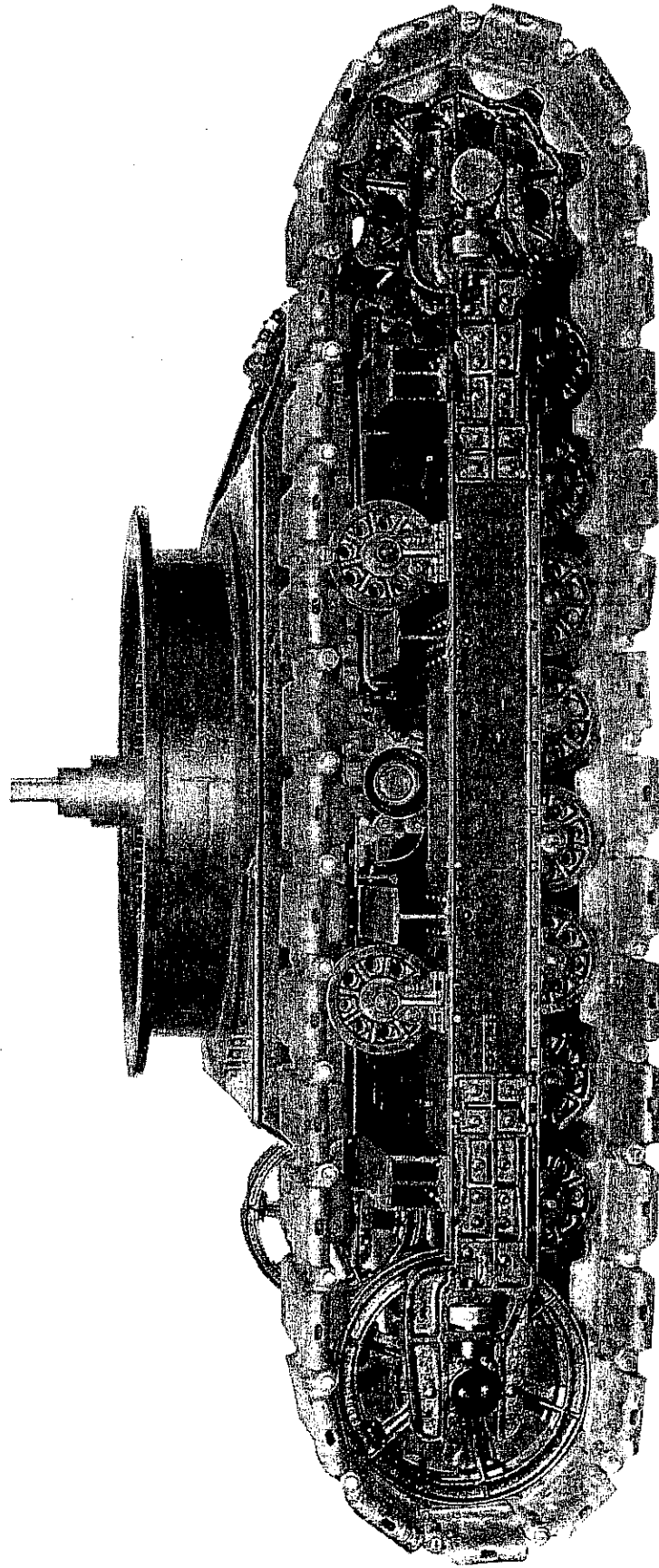
MODEL "LS-80" Front View, showing: Traction Two-Speed Gear Arrangement - Grooved Lagging On Both Drums - Heavy Duty Coarse Pitch Machine Cut Drum Gear, Meaning Slow Speed and Long Life - Large Diameter and Broad Faced Clutch and Brake Drums, with Clutch and Brake at Opposite Ends of Drum, Insuring Proper Heat Dissipation.

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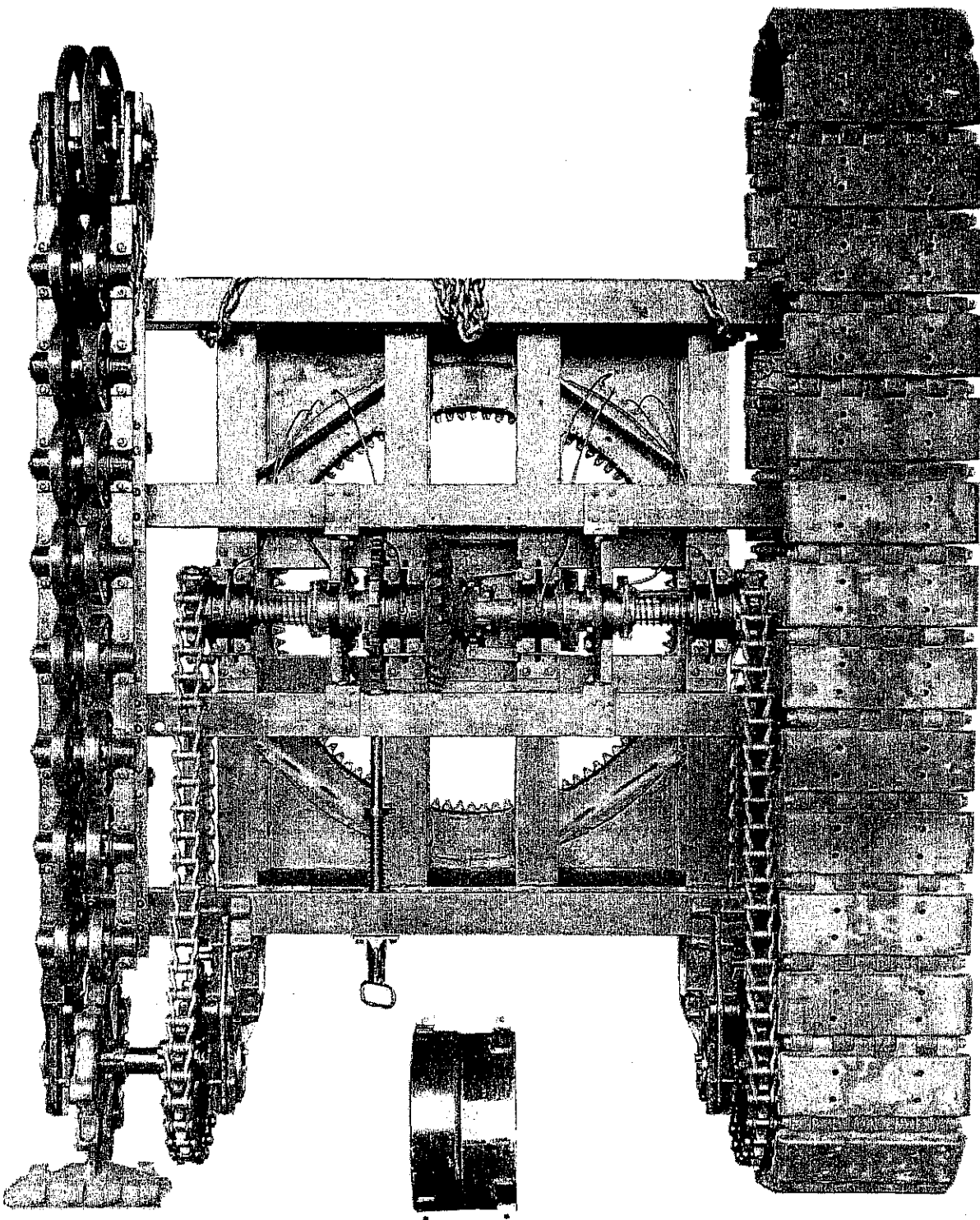
MODEL "LS-80" Left Side View. Note streamlined appearance, accessibility to all moving parts. All weight back of large 8" center pin. Note, especially, bearings supporting hoist drum (rear drum) are bolted to rear side of side frames instead of to front side, thus the cast frames take all thrust instead of the bolts only, as on some competitive machines.

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MODEL "LS-80" Lower Frame. Alloy Structural Steel, Welded Construction - Renewable Large Diameter, Internal Tooth Turnable Gear - Paths Machined and Bevelled for Hold-down Rollers - Large 8" Diameter Center Pin, to take horizontal stresses between upper and lower frame - Long Tracks - Self-Cleaning Track Shoes. "A Shovel is BUILT from the Ground Up!"

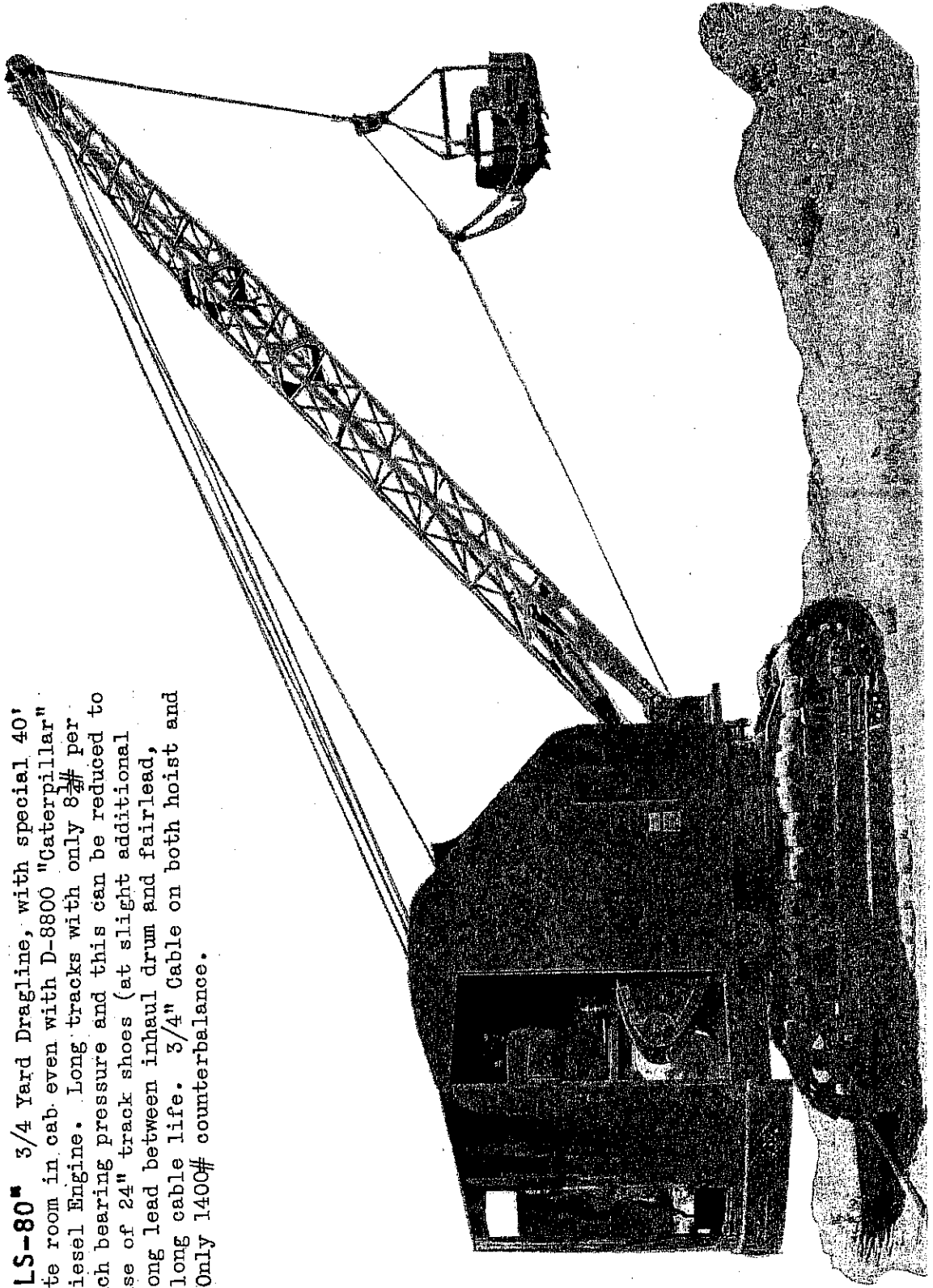
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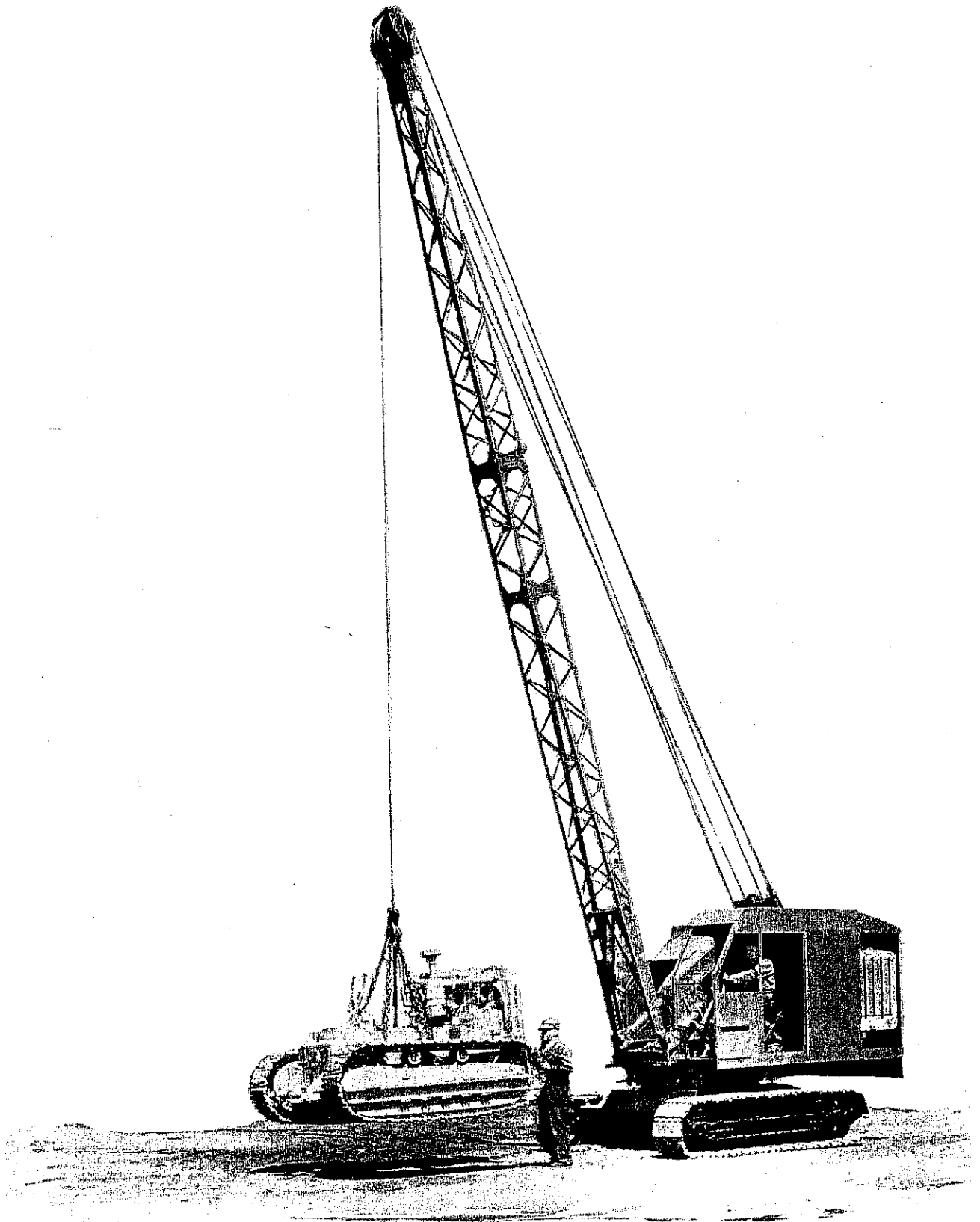
MODEL "LS-80" Showing Underside View Lower Frame. Note - Standard "Speeder" Lug-Driven Track - Dirt Shedding Track Shoes - Alloy Structural Steel - Welded Construction - Positive Steering - Centralized Lubrication - Gears Enclosed In Oil-Tight Case - Auxilliary Traction Lock.

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MODEL "LS-80" 3/4 Yard Dragline, with special 40' Boom. Note room in cab. even with D-8800 "Caterpillar" 80 H.P. Diesel Engine. Long tracks with only 8 $\frac{1}{2}$ " per square inch bearing pressure and this can be reduced to 6.8" by use of 24" track shoes (at slight additional cost). Long lead between inhaul drum and fairlead, insuring long cable life. 3/4" Cable on both hoist and inhaul. Only 1400# counterbalance.



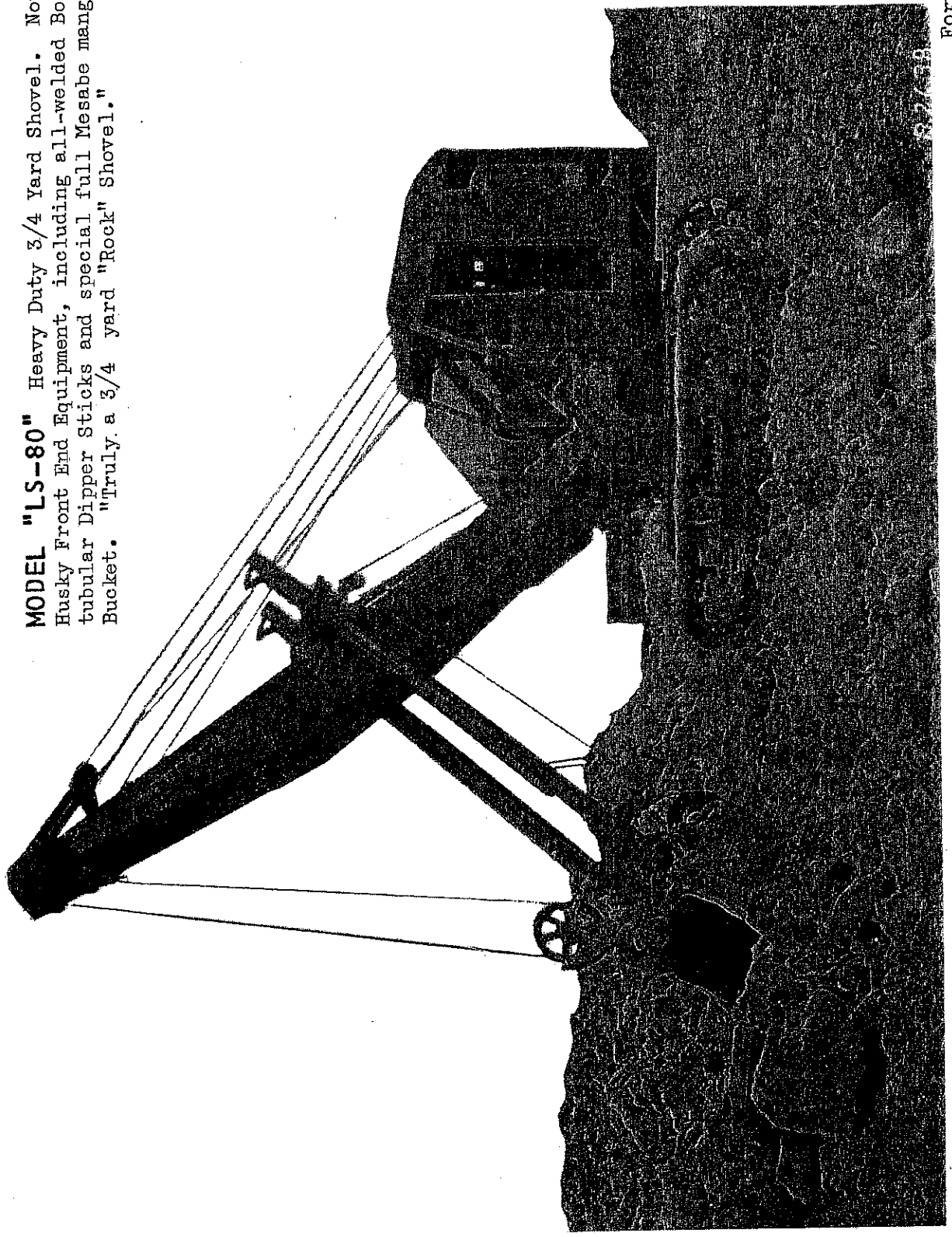
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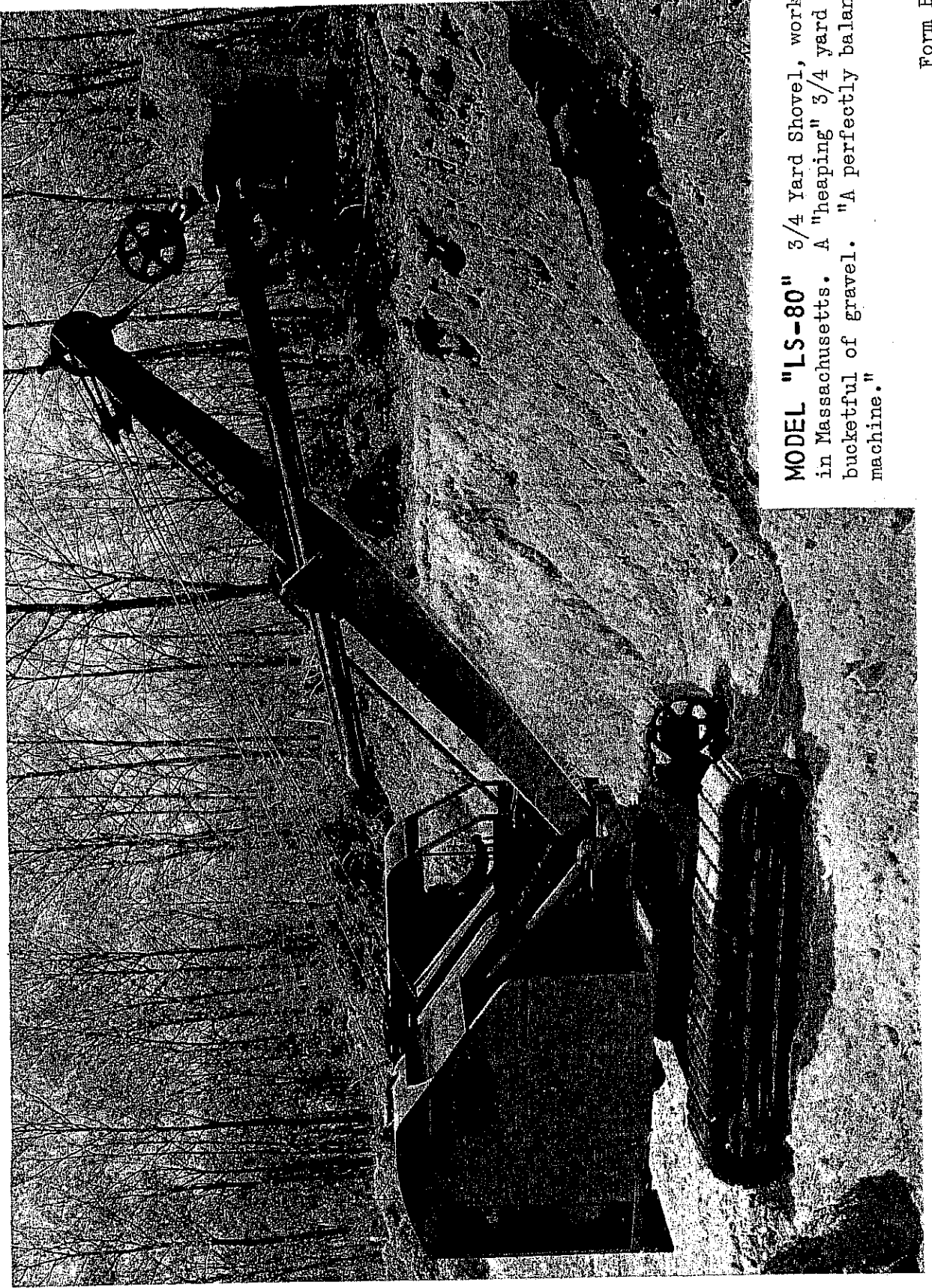
MODEL "LS-80" Crane, with 40' Boom, Lifting D-6 "Caterpillar" Diesel Tractor weighing 14,400#. The radius is 15'. The catalogue shows 11,750# at 15' - so SPEEDER crane ratings ARE conservative.

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MODEL "LS-80" Heavy Duty 3/4 Yard Shovel. Note Husky Front End Equipment, including all-welded Boom, tubular Dipper Sticks and special full Mesabe manganese Bucket. "Truly a 3/4 yard "Rock" Shovel."



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MODEL "LS-80" $\frac{3}{4}$ Yard Shovel, working in Massachusetts. A "heaping" $\frac{3}{4}$ yard bucketful of gravel. "A perfectly balanced machine."