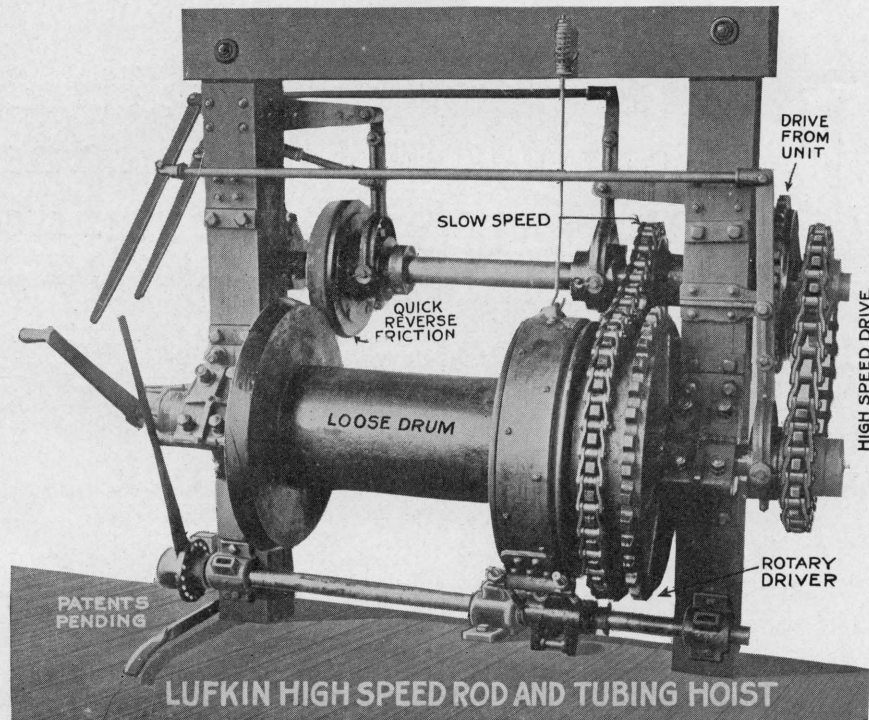


Original Lufkin Rod and Tubing Hoists

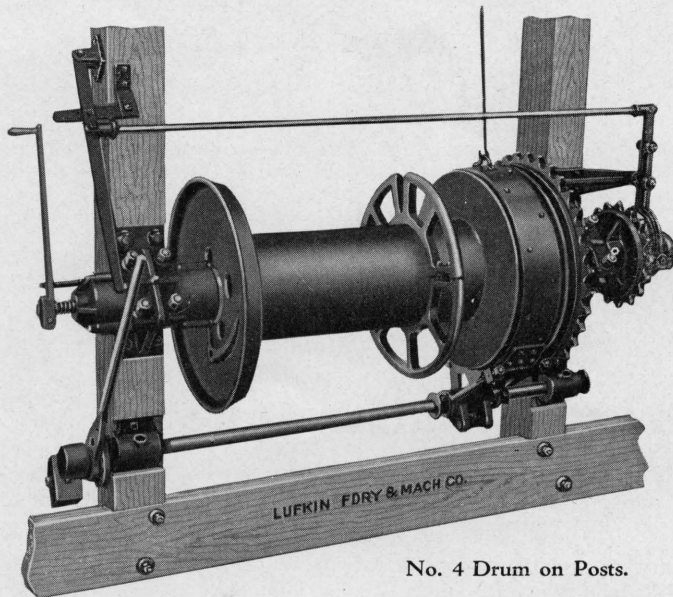
ADVANTAGES

- No reverse of power necessary.
- Powerful Hoist—2 speeds.
- Cut time Pulling Rods or Tubing in half.
- Will drive rotary for cleaning or drilling deeper.
- Can also be used with Cable tools.
- Well made — Substantially built.
- With ordinary care will last for years.
- Field men like them.



No. 1 Hoist is known as the Gulf Coast Type and is used as an all around purpose hoist for rods and tubing, but is a powerful hoist, lifting safely 7,500 pounds on single line (it has lifted over 19,000 pounds) and

is used for redrilling with rotary, setting small casing, fishing, etc. Line and drum shafts are $3\frac{15}{16}$ " diameter. Drum capacity is as follows— $9\frac{1}{16}$ "-4,500', $5\frac{1}{8}$ "-4,000', $3\frac{1}{4}$ "-3,000', $7\frac{1}{8}$ "-2,000', 1"-1,600'.

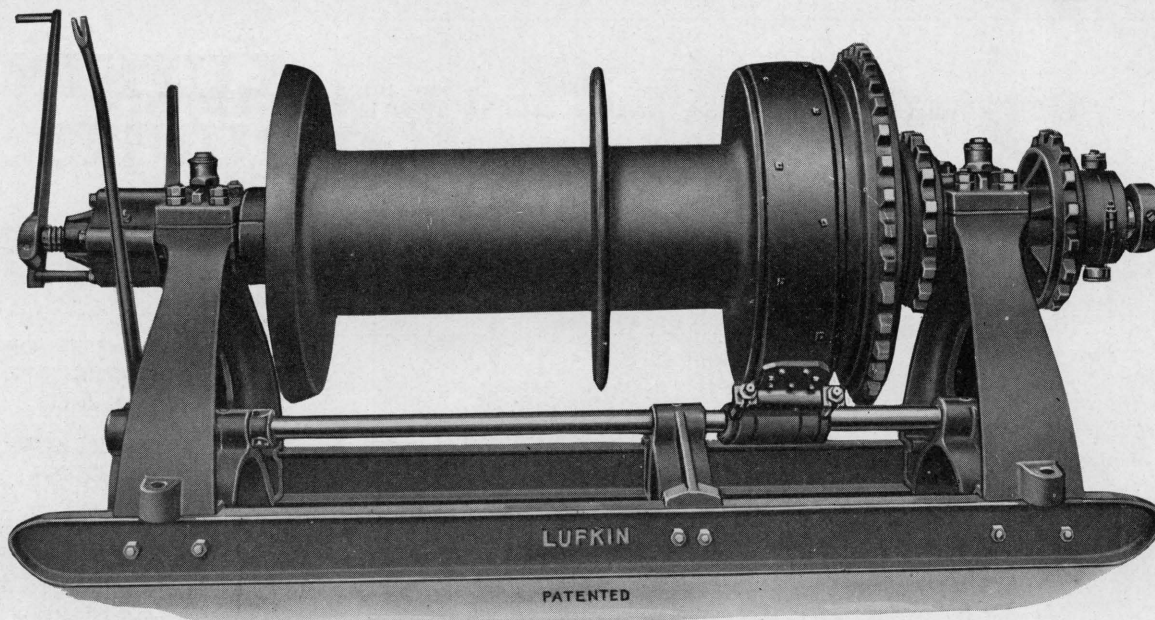


No. 4 Drum on Posts.

No 2 Hoist, known as the Arkansas Type, is the same hoist, except that it holds more line on drum which is longer, the flanges being larger, and it is popular in the cable tool country. Drum holds $9\frac{1}{16}$ "-11,900', $5\frac{1}{8}$ "-9,700', $3\frac{1}{4}$ "-6,700', $7\frac{1}{8}$ "-5,100', 1"-4,000'.

Oklahoma Type Hoists No. 4 on Posts—same drum shaft as on No. 1 Hoist, only drum is longer so that it will hold a bailing line, with space for tubing line.

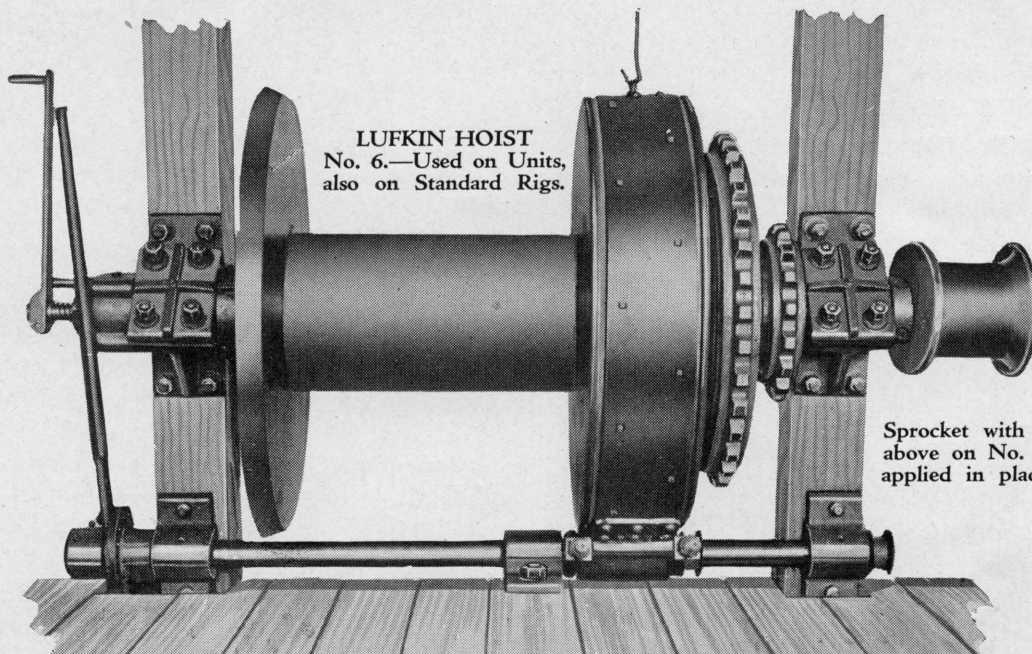
FOR IMPROVED HOISTS SEE PAGES 31 TO 42.



Original Oklahoma Type Hoist No. 4, Made With Single or Double Brake Drums, With Sprocket on End to Drive Bull Wheels.

This Hoist has 16" drum, 3-15/16" shaft, 6" brake band, with 2-7/16" brake shaft. A 50-lb. weight on line brings hook down. No

reverse is necessary. This hoist requires a 45-T sprocket on units having 30 to 1 gears, and 22-T with 20 to 1 gears.



LUFKIN HOIST
No. 6.—Used on Units,
also on Standard Rigs.

Sprocket with clutch as shown above on No. 4 Hoist, may be applied in place of Cat Head.

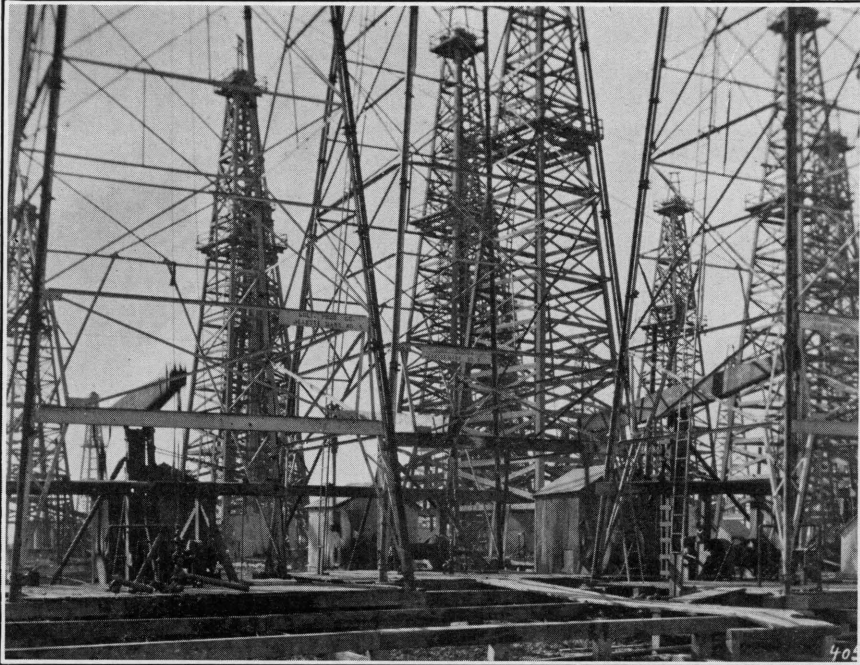
LOOSE DRUM HOIST FOR STANDARD RIGS

No. 6 Hoist used with units or driven from calf-wheel sprocket on standard rig shaft. Shaft is 3-15/16" diameter, with 16" drum, 42"x8" brake drum of semi-steel, and

2-15/16" brake shaft.

Note: Expansible Brake Drum either of cast steel or semi-steel may be furnished at extra price.

FOR IMPROVED HOISTS SEE PAGES 31 TO 42



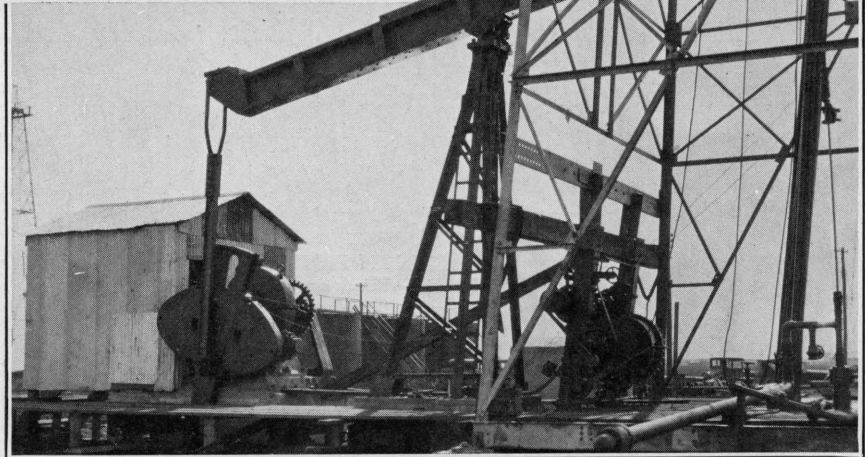
THREE GULF WELLS AT
SPINDLE TOP WHERE
DERRICK BASES MAKE A
CONTINUOUS FLOOR
FROM ONE TO THE
OTHER

LUFKIN UNITS

Save Space

DOUBLE THE NUMBER OF
WELLS CAN BE PUT ON A
LEASE THAN POSSIBLE WITH
STANDARD RIGS

INDISPENSIBLE IN TOWN
LOT OPERATIONS.



TWO MODERN
INSTALLATIONS
OF
RIO BRAVO OIL CO.
AT
PIERCE JUNCTION, TEXAS

USING BOTH STANDARD
AND TRUSS LINK TYPE
WALKING BEAMS

Walking Beams Steel Samson Posts Pitmans, Rig Irons, Chains, Etc.



ONLY A LUFKIN SELF-SUPPORTING POST COULD STAND THIS STRAIN

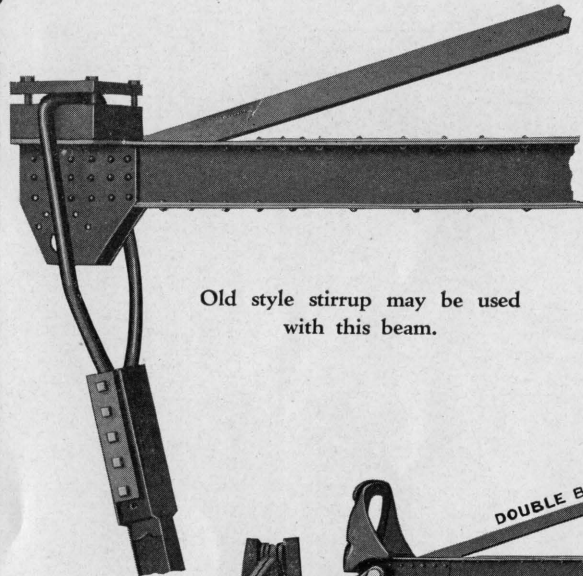
What happened on Rio Bravo Settegast "B-5" during recent storm. Derrick sill caught horse-head of walking beam as it went over, pulling over Samson Post, breaking

concrete connection between Samson Post and Unit, the section of which was 24" wide, 30" deep. The post was uninjured and was set back in place and is in regular use.

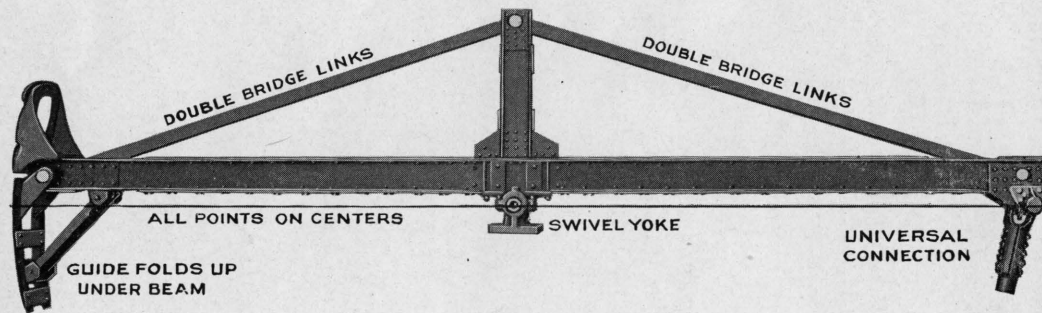
Lufkin "Truss Link Type" Walking Beam

AND HANGER COMBINED—PATENTS PENDING.

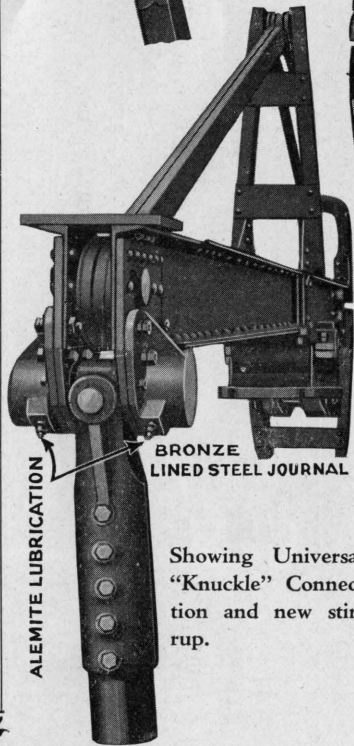
All Points on Center Line—Means no side strain on polish rod. No sway strain on beam or Sampson post. Universal stirrup connection and universal connection to crank pin box takes care of any slight mis-alignment so common with old style rig irons.



Old style stirrup may be used with this beam.



GUIDE FOLDS UP UNDER BEAM

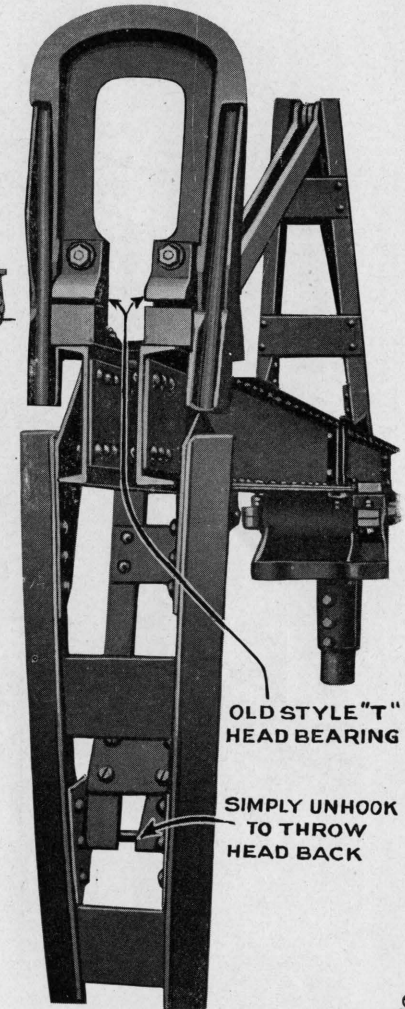


Showing Universal "Knuckle" Connection and new stirrup.

To meet a demand for a lighter yet stronger Walking Beam we have brought out this Truss Link Type Beam which after a year's test in several fields we believe we are offering the trade the acme of perfection, in a practical, more efficient beam that will outlast the severest service.

The illustrations speak for themselves. This beam can be used the same as any other on either end with the advantage of an improved Pitman connection, and a very practical "Arc" head yoke, both of which can be stripped from the beam if any other type of connection is desired.

These beams are carried in stock, 14' working centers.



OLD STYLE "T" HEAD BEARING

SIMPLY UNHOOK TO THROW HEAD BACK

Trout Universal Pitman

Forged Steel
Universal
Connection

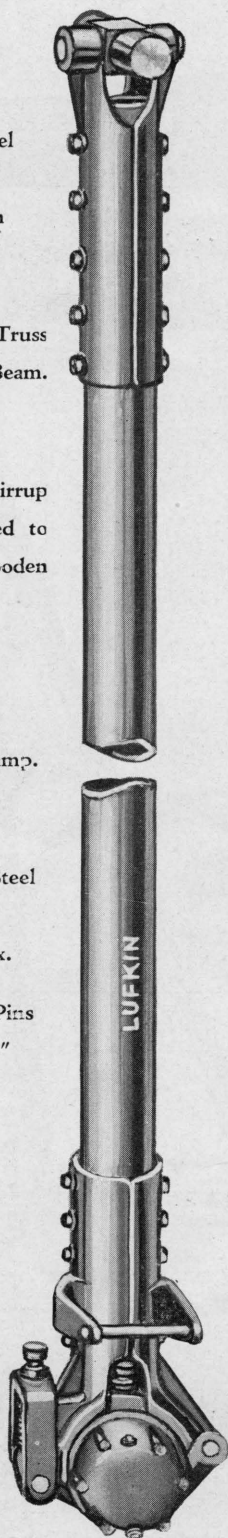
For use with "Truss
Link Type" Beam.

Old style stirrup
may be applied to
attach to wooden
beam.

Cast Steel
Yoke and Clamp.

Entirely of Steel
Except
Journal Box.

For A. P. I. Pins
3½" and 4"



Unfasten one shackle bolt to take Pitman off. Crank Pin Box which always stays on pin, is self-oiling and oil tight. Ball and Socket Yoke connection around box.

The oil that is wasted around the ordinary crank pin on an oil well would easily lubricate the whole rig equipment. To eliminate waste oil we designed the Pitman and journal shown herewith. The journal or box always remains on the crank pin (unless pin has to be moved from one hole to another) is oil tight, has adjustable journal and carries enough oil to last a month.

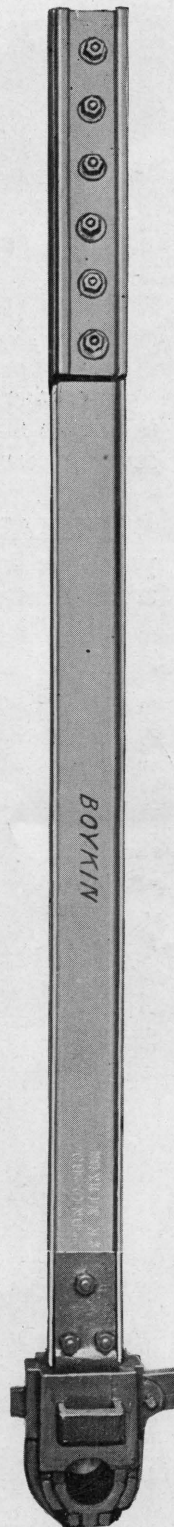
The pitman yoke is detached from journal by unfastening one shackle bolt which is a safety bolt and locks into yoke casting.

The yoke clamp around journal is a ball and socket connection, also the top end has a universal connection to beam that takes care of any misalignment.

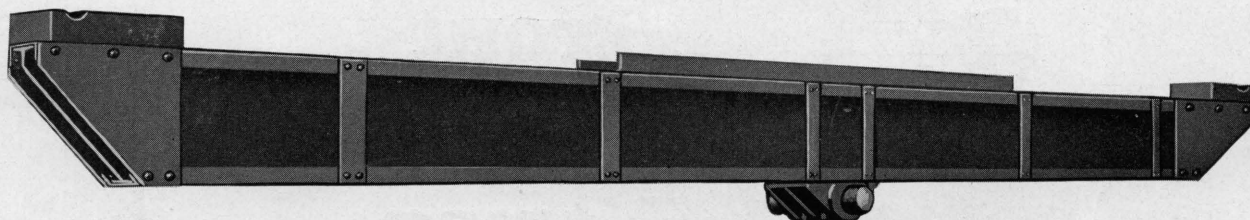
This Pitman has adjustments so that there is no knock or lost motion between beam and unit. Bearings on universal connection on top are renewable bronze. This Pitman will be found to give unusually long wear and service with the minimum upkeep and attention.

BOYKIN PITMAN

The Boykin Steel Pitman is designed to meet a demand for a substantial pitman at reasonable price. They are made in three sizes, *light, medium and heavy*, and are furnished with or without stirrups.



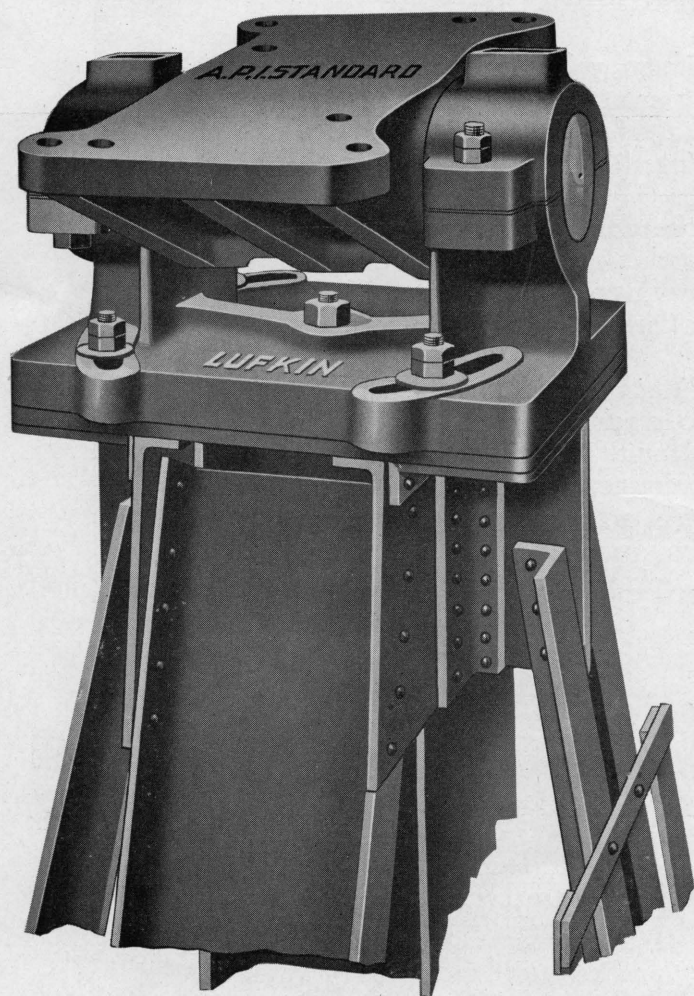
BOYKIN
PITMAN



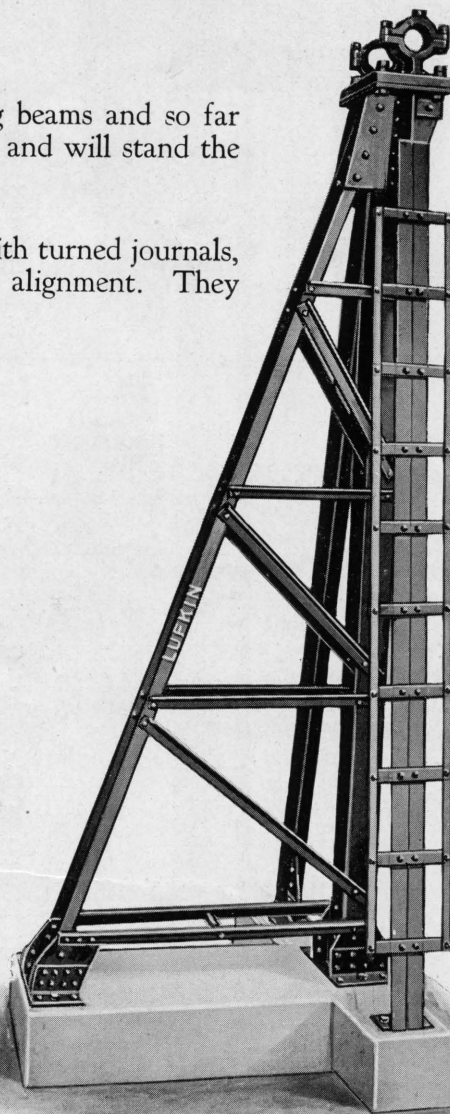
Standard I Beam Type Walking Beam (20" I Beam with 10" Channels) carried in stock;
14' Working Centers.

We have furnished hundreds of this type of walking beams and so far as known none have ever broken. They are dependable and will stand the severest service. They are complete as shown.

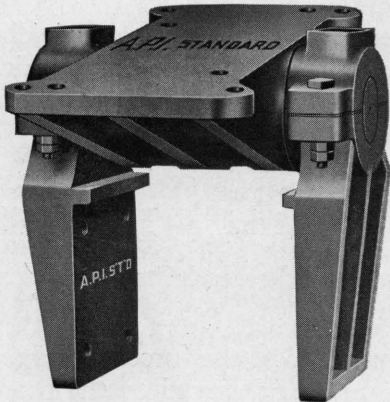
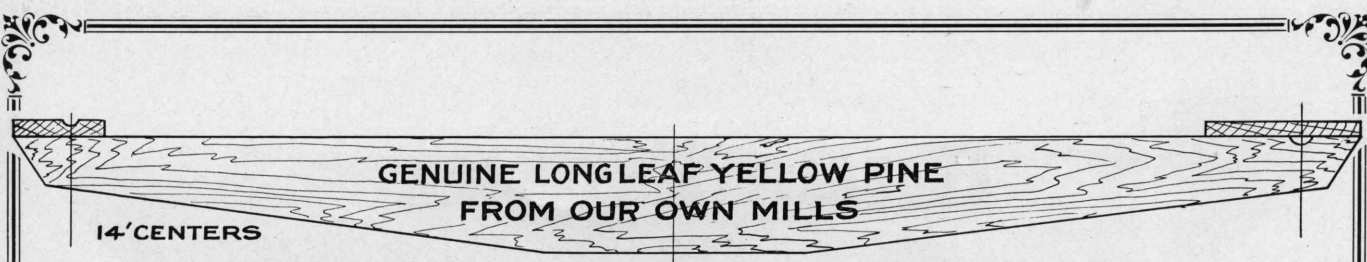
SPECIAL attention is called to saddle iron castings with turned journals, yokes are bored with a boring bar that insures absolute alignment. They are extra strong and have good oiling facilities.



Showing "Swivel" Yoke. No mis-alignment here.



Lufkin Self Supporting Samson Post.
Rigid, Strong and Dependable.
Standard Post is 15'-8" Base to Center.
Special Longer Post Made to Suit Conditions.



We are prepared to furnish genuine long leaf yellow pine walking beams with taper cut and ends finished, ready to set in place, at reasonable prices. Sizes to suit.

We can also furnish rig irons, A. P. I. Standard, with or without bolts, as desired.

A. P. I. Chain

Rex Chabelco 1030 steel chain has an ultimate strength of 28,000 pounds. It is the most highly developed chain for heavy duty drives and combines hardness, toughness, and light weight with great strength.



AN ALL STEEL CHAIN FOR HEAVY DUTY DRIVE

Rex 1030 Chabelco is the ideal steel chain for drive duty at comparatively high speeds. The entire flexing wear of Rex Chabelco Chain is confined to the pins and their bushings, while the external wear is taken by the rollers. The bearing parts (bushings and pins) are all carefully case-hardened to insure great strength, hardness and toughness.

Sprocket fit is maintained by rollers that resist wear. Sidebars resist elongation. The

bushing is unusually durable—no slack will develop there. No play can develop between bushing and sidebars. No bent pins to destroy pitch, no brittle pins to snap. Case-hardened pin bearing on case-hardened bushing—no wear in sidebar holes—no change in pitch. Sidebar holes are multiple punched, further assuring pitch accuracy.

And Rex Chabelco 1030 will fit all standard sprocket wheels. A large stock is carried at all times and immediate delivery is assured.

REX CHABELCO

Made by Chain Belt Company, Milwaukee, Wisc.

Buda Power

Oil field men are fast becoming acquainted with the multi-cylinder engines. Not only are they used on Lufkin Units in the fields, but extensively used on trucks, tractors, lighting service, pick-up pumps, ditching and pipe laying machines, boat engines, and for most every service where portable power is required.

These engines are of the medium speed, heavy duty type, operating on natural or residue gas, or gasoline.

They are a complete unit in themselves, having a self-contained cooling system com-

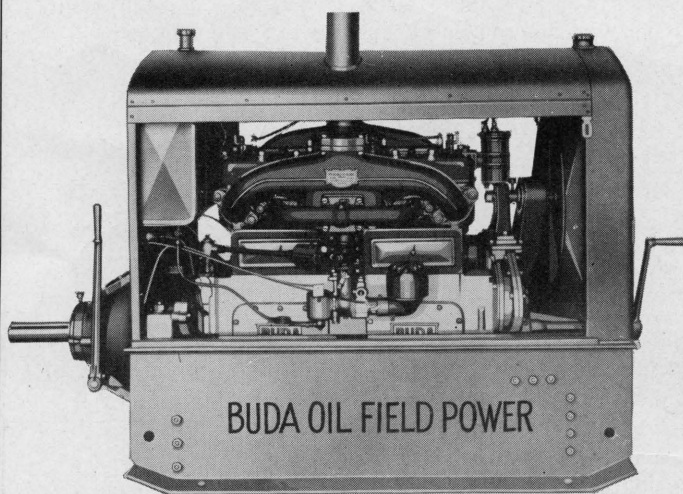
posed of an extra large radiator, rigidly made, having cast iron shell. No outside piping is required for the installation, except a gas connection to the mixing valve.

The engine is similar in design to those used in motor trucks, but of lower speed and heavier design. Any field man familiar with automobiles will understand its operation and care.

The oiling system is of the force feed type, oil under pressure being forced to the bearings by a gear pump located at the bottom of the oil pan. There are no threaded pipe connections or complicated system of tubes in the system to work loose. The main oil line is a seamless steel tube cast into the crankcase. All other oil passages are drilled through webs in the case. The crankshaft is also drilled to allow oil to reach the rod bearings under pressure.

The clutch, used for starting purposes, is an extra large model of Twin Disc, with ample capacity for heavy loads at low speed.

Buda Engines are equipped with high tension magneto with impulse starters for easy starting, combination gasoline and natural gas carburetor, speed regulating governor, oil filter, air cleaner and telegraph throttle control.



Selecting Buda Power

It is a great advantage to the buyer to purchase units with the same ratio gears as would be used with oil field type motors. This requires a slightly larger gas engine than necessary to use, but with the advantage of

operating the engine at comparatively slow speed for pumping 450 to 600 R. P. M.—with a higher speed and more power for pulling rods and tubing. Should electric motors be installed later they simply replace the engine on same bed plate.

Specifications of Buda Engines Carried in Stock for Lufkin Units

No. 22½—Model WTU. 3¾ x 5½ Four Cylinder Engine complete unit with regular base with heavy duty clutch, fittings and fixtures as above. (Not I beam base). Maximum horsepower, 25 at 1200 R.P.M.

RECOMMENDED FOR BABY UNIT AT 600 TO 700 R.P.M.

No. 50—Model BTU. 5 x 6½ Four Cylinder Engine: Complete unit with above specifications also with heavy duty clutch, large radiator, sheet metal housing and steel "I" beam base.

Maximum horsepower for operating hoist, 50 at 1000 R.P.M. with gasoline fuel. Natural gas approximately 20 per cent less.

RECOMMENDED FOR PUMPING AT 450 TO 750 R.P.M. (PULLING SPEED 1200 R.P.M.) ON STANDARD UNIT FOR ORDINARY WELLS. FOR HEAVY WELLS USE NO. 75 ON STANDARD UNIT.

No. 75—Model JV. 5¾ x 7½, Four Cylinder Engine: Complete unit with above specifications also with heavy duty clutch, large radiator, sheet metal housing and steel "I" beam base.

Maximum horsepower for operating hoist 70, at

1000 R.P.M. with gasoline fuel. Natural gas approximately 20 per cent less.

RECOMMENDED FOR INTERMEDIATE UNIT FOR 450 TO 650 R.P.M. FOR PUMPING. PULLING SPEED 1000 R.P.M. FOR EXTRA HEAVY WELLS USE NO 85.

No. 85—Model JH. 6 x 7½, Four Cylinder Engine: Complete unit with above specifications, also with heavy duty clutch, large radiator, sheet metal housing, and steel "I" beam base.

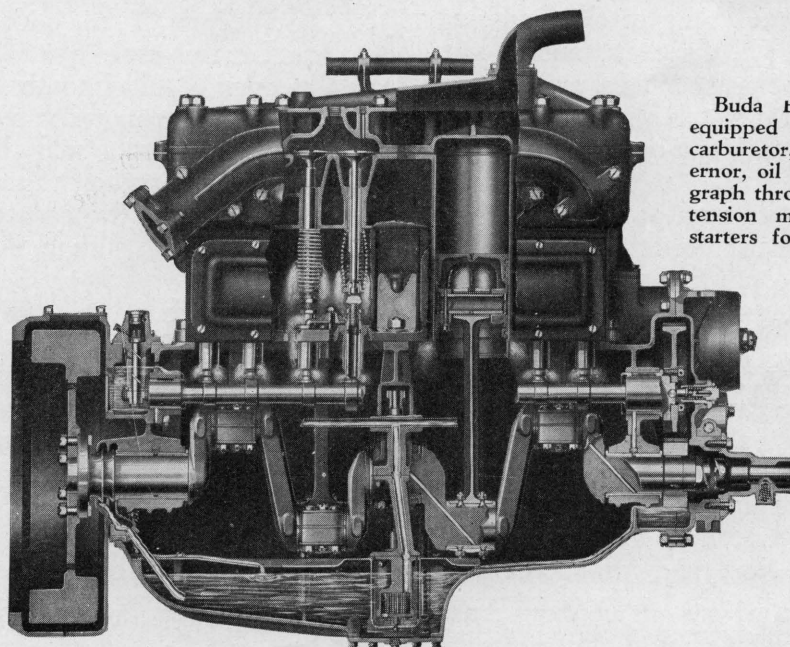
Maximum horsepower for operating hoist, 83 at 1000 R.P.M. with gasoline fuel. Natural gas approximately 20 per cent less.

RECOMMENDED FOR HEAVY DUTY UNIT. FOR 450 TO 650 R.P.M. FOR PUMPING AND 1000 R.P.M. FOR PULLING.

Model JH-6. Six cylinder Engine: Complete unit with above specifications also with sheet metal housing on steel base. Radiator cooling system, electric starting equipment and auxiliary ignition optional equipment.

Maximum horsepower, 150 at 1200 R.P.M. on gasoline, natural gas approximately 20 per cent less.

RECOMMENDED FOR DRILLING RIGS AND HEAVY DUTY SERVICE.



Sectional View Buda Engine

Buda Engines are regularly equipped with gas and gasoline carburetor, speed regulating governor, oil filter, air cleaner, telegraph throttle control; also high tension magneto with impulse starters for easy starting.

Why,

WHY: The worm gear is best adapted for oil well pumping in preference to any other type of gear.

WHY: It maintains its original high efficiency.

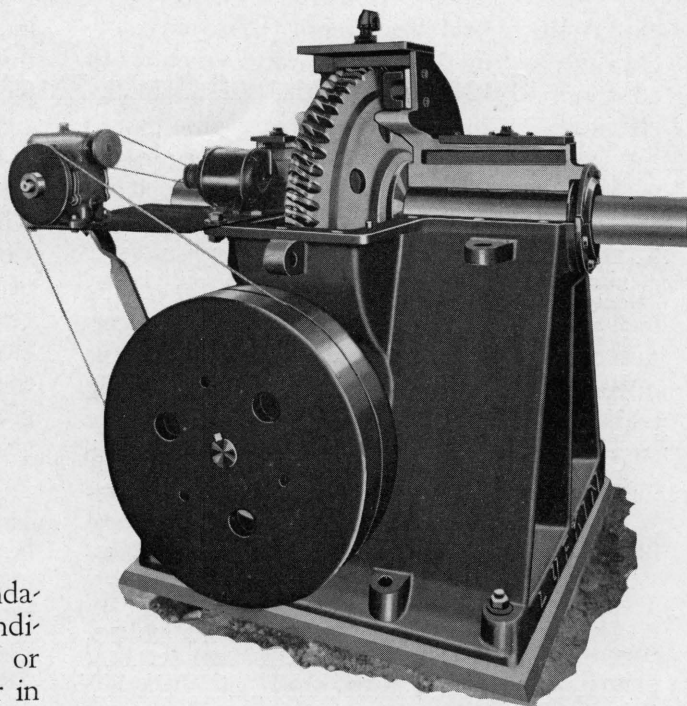
WHY: Worm gearing gives lasting service.

WHY: More worm gears are being adopted for every dependable service—Steel Mills, Industrial and Power Plants, on cranes, hoists, pumps, compressors, automobiles, trucks, and numerous other places where efficiency and continuity of service, long life and simplicity of DESIGN are essential features.

WHY: Lufkin worm gears are ideal for oil well pumping.

There are several salient features of fundamentals in worm gearing applied to conditions where the loads are of a pulsating or fluctuating nature, such as you encounter in pumping oil wells, where it is desirable, if not absolutely essential, under the pulsating load variations that the driven or crank shaft will not retard or drive backwards, and this is positively prevented in the worm gear reduction, due to the fact that the worm wheel cannot drive the worm. Hence, there cannot be any counter-rotative effect, which is very detrimental, not only to the pumping equipment and its connections, but is also very harmful to the prime mover, particularly if this be an electric motor, as these counter-impact loads are very apt, in time, to cause trouble with the motor windings, due to overheating, etc. The self-locking character of the worm and worm wheel positively provides against this condition, as no other form or type of gear transmission will do.

Even with the most accurately cut spur, or helical gears operating with parallel shaft axis, there must be a clearance (which is commonly called backlash) between the mating teeth to permit the gears to operate. The influence of this clearance, or lost motion, when applied to conditions where the load characteristics are variable, is to cause accelerations and decelerations when running. This action is further accentuated by any errors or inaccuracies in the circumferential



Standard Unit Driven by 1/16 H.P. Motor and Fish Line for Belt. Modern worm gears are highly efficient.

spacing of the teeth or variations in the tooth profiles, which conditions are not only possible, but very probable in most spur gears, as in the strictest sense of the term there are very few accurately cut spur gears, due to the fact that this type of gear is produced in most cases with form tooth cutters on machines with tooth to tooth indexing, where circumferential errors may be cumulative. When the accelerations are sufficient to cause the teeth to leave contact, they will come together again with an impact, the force of which may be many times as great as the applied loads. This action is not only detrimental to the connected apparatus, but has a tendency to quickly deform the original tooth profiles, resulting in resistance, rapidly decreasing efficiency, excessive noise and vibration. Whereas, the correctly designed and proportioned worm gear reductions are not only highly efficient units when new, but the efficiency does not decrease during years of service, even after considerable wear may have taken place. The reason for this is that the action of the worm on the wheel is identical to that of the hob which originally gen-

erated the worm gear teeth. As wear occurs the worm generates new correct tooth contours on the gear, with the result that the efficiency on the combined unit is unimpaired by wear; also an absolute uniformity of torque is delivered to the driven shaft at all times.

Again, in a spur or herringbone gear, the tooth action is primarily rolling, but a certain amount of sliding takes place, due to the difference in curvature of the two mating teeth. This results in a steady erosion of such teeth, which alters their contour and makes the rolling action rough, and tends toward a lowered efficiency with length of life.

The worm gear, on the other hand, has a sustained efficiency throughout its life. It is primarily a sliding gear, and the materials used in it, and to lubricate it, are all selected to afford the minimum of sliding friction. There is no such thing as perfect lubrication, but the very small amount of wear evidenced

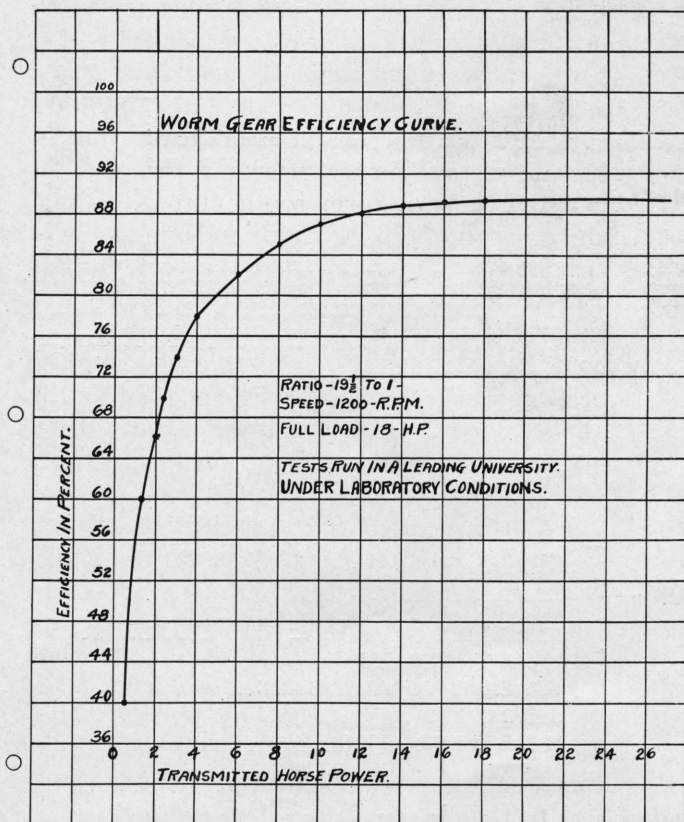
in worm gearing affords ample proof that this condition is closely approached in the worm gear, and that is the reason the efficiency is high to start with. The worm gear is made of hard bronze, which is, however, soft in comparison to the case-hardened worm. Wear, therefore, occurs on the gear alone; the worm is scarcely touched in years of operation. As a result, the wear on the gear is uniform, the tooth profile is not altered, as the unchanging worm performs the same action in its gradual wearing on the gear that the hob performed in cutting the gear.

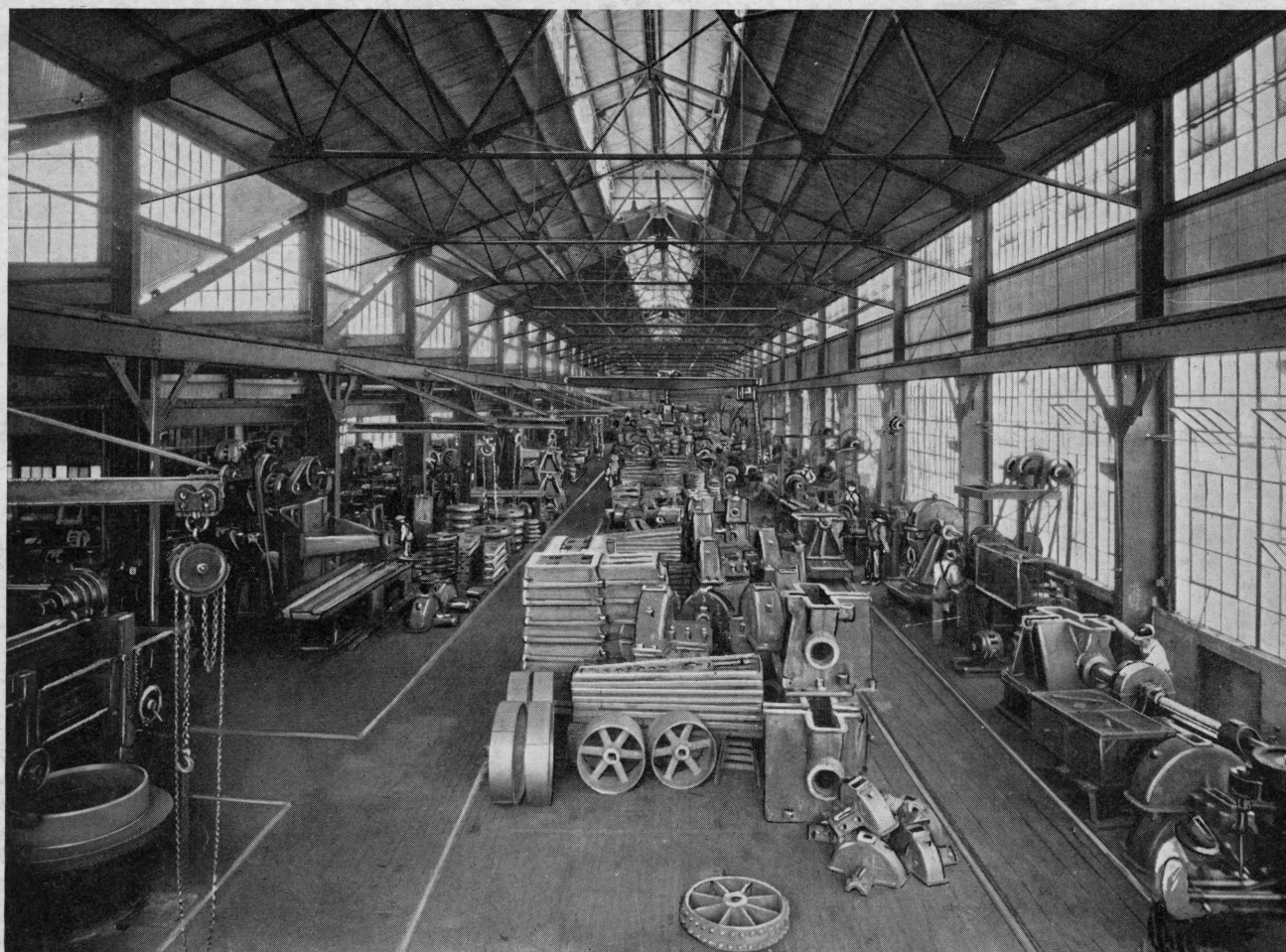
This is in no way true of spur or herringbone gearing, where the material of the two mating parts must be selected for strength, rather than bearing qualities, and where there is no tendency to regenerate the correct tooth profile in operation.

To consider herringbone or spur gear performing the same work, a double reduction would be necessary, which, if well made would afford an efficiency of about 92% new, but this figure would not be sustained for any length of time.

The accompanying diagram indicates a curve showing 89% efficiency on our 20 to 1 ratio (exact 19½ to 1) triple thread worm gears under test by Cornell University, who state these figures are justified within 1%. We have also verified these tests in our own shop with home-made apparatus and believe that with special lubricants as high as 92% can be obtained.

An over-all efficiency from motor to Polish Rod of 70 to 80% may be realized and maintained for years with Lufkin Gears. After all, efficiency of the units is the net cost of operation at the end of the month. The cost of maintenance, loss in down time, saving in time cleaning well, all go to make the lifting cost per barrel, and only that tells the story.





New Machine Shop, 103 feet wide, 386 feet long, where Lufkin Equipment is manufactured by most modern methods. Made strictly to gauges and templates, out of the best materials and with good workmanship.

In our plant will be found a modern Foundry that can handle pieces up to 30,000 pounds. A modern Forge Plant that can forge shafts 12" diameter and under from

mill billets, a Tank and Structural Shop, a well appointed Pattern Shop, a Pipe Shop, and a modern and well stocked Mill Supply House.

We specialize on:

Oil Field Equipment—

PUMP UNITS
HOIST, ETC.
ROTARY DRAW WORKS
TAYLOR ROTARIES
HEAVY SCREWED END AND
FLANGED FITTINGS

General—

HEAVY TRANSMISSION
FLY WHEELS UP TO 12 FEET DIAMETER
HEAVY PULLEYS
GEARING OF ALL KINDS
SPROCKETS AND CHAIN
HEAVY FORGINGS

General Supplies—Send Us Your Inquires

