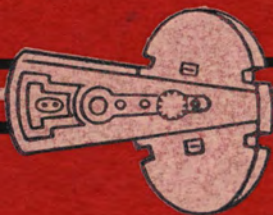


LUFKIN OIL FIELD EQUIPMENT



CATALOG 34

LUFKIN FOUNDRY & MACHINE COMPANY • LUFKIN, TEXAS

2011

LUFKIN EQUIPMENT OF ADVANCED DESIGN

LUFKIN FOUNDRY & MACHINE CO.

FACTORY AND GENERAL OFFICES
LUFKIN, TEXAS

BRANCH OFFICES AND WAREHOUSES

GULF COAST DIVISION
806 2nd Nat'l Bank Bldg.
Houston, Texas.

CALIFORNIA DIVISION
Los Angeles, Calif.,
5959 South Alameda

MID-CONTINENT DIVISION
Tulsa, Okla.,
1901 Philtower Bldg.

EXPORT DIVISION
New York, N. Y.,
149 Broadway,
Cable address "LUFFO"

WAREHOUSES
Odessa, Texas
Beville, Texas

EAST TEXAS DIVISION
Henderson, Texas,
Crim Crest Hill, P. O. Box 516
Dallas, Texas
1504 Magnolia Bldg.

WAREHOUSES
Seminole, Oklahoma

ARKANSAS-LOUISIANA DIVISION
El Dorado, Arkansas

PRODUCTS:

Herringbone Geared Pumping Units
Worm Geared Pumping Units
Geared Central Pumping Powers
Production Hoists
Samson Posts

Walking Beams—Improved
Pitmans—Trout Oil-bath
Center Irons—Oil-bath and A. P. I.
Trout Counterbalance Crank
Rod Line Weights
Improved Oil Field Equipment.

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Plant of the
Lufkin Foundry
& Machine Co.,
Lufkin, Texas

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LUFKIN, TEXAS

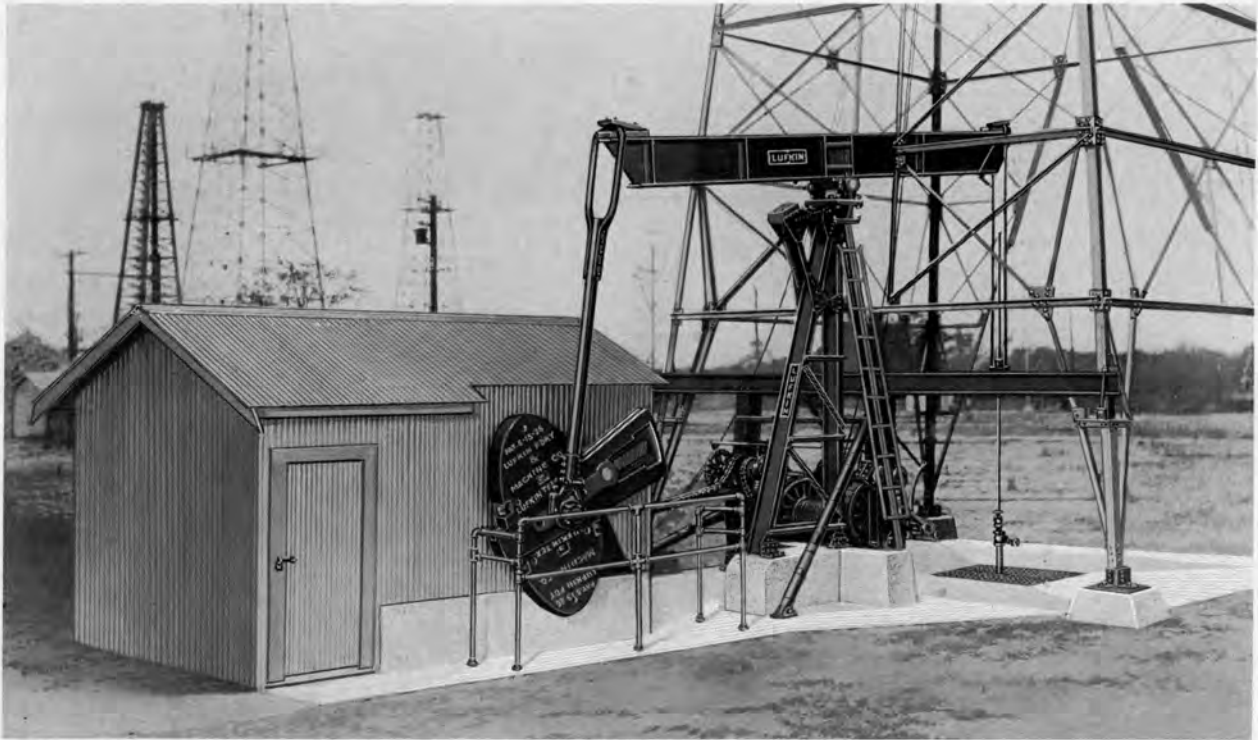


Figure 1

*Typical Herringbone Gear Installation
Complete with Lufkin Samson Post,
Walking Beam, Pitman and Rod and
Tubing Hoist.*

INTRODUCTION

So universally has the reduction gear for pumping and servicing wells been adopted by the Oil Industry, both in Domestic and Foreign fields, that the advantages of this type of production unit are well known.

Prior to ten years ago, before Lufkin introduced the first successful reduction geared unit, little improvement of value had been made in pumping of oil since the earliest days of the Industry. So completely, however, has the LUFKIN GEARED UNIT revolutionized the method of pumping oil wells, that it is now conceded by Engineers high in the industry, that where sucker rods and working barrels are used, Geared Units are the modern accepted medium by which power is transferred from the prime mover to the polished rod.

With the advent of the electric motor in the oil producing field, accurate accounting of power consumption and lifting costs became available. **Friction losses** were found to be **financial losses** and a demand was created for efficient gear reduction rather than the crude, makeshift, inefficient reduction through band wheels and the like, in which the only consideration was **first cost**. It was soon recognized that gears were the most efficient and desirable means of reducing speeds as is evidenced by their wide adaptation by every other industry—notably the automotive industry. While at first thought to be the major consideration, it was discovered that Power savings

(through the use of **Lufkin Geared Units**) were of secondary importance for after a period of time—**FEWER REPAIR PARTS, SAVINGS OF LABOR and UNINTERRUPTED PRODUCTION** created **greater savings** and resulted in a greater reduced cost of lifting oil than the savings in power consumption.

With the realization that Lufkin Geared Units produced oil more economically than any other type of speed reduction, when applied to electrical motor operation, adaptations were made to the steam engine, gas engine and oil engine. Large expensive "Standard Rig" buildings gave way to small, neat inexpensive housings for Lufkin Units; fire hazard was eliminated, and the once unsightly lease now presents the ultimate in efficiency and attractiveness.

Lufkin Units are of two types, namely: Herringbone Gear and Worm Gear. Manufactured in a number of sizes, there is a Lufkin Unit for any well condition and depth from shallow production to the world's deepest wells. Where Central Powers are practical four sizes are available. Auxiliary equipment such as Hoists, Beams, Posts, Pitmans, etc., of improved design, complete the line of Lufkin Production Equipment. Complete details and full information beyond that given in this abbreviated catalogue may be obtained by addressing the home office or to branches in principal oil centers.

LUFKIN FOUNDRY & MACHINE CO.

LUFKIN, TEXAS

**THE LUFKIN
SYKES-HERRINGBONE
GEAR UNIT**

Pulley and brake are interchangeable and drive can be arranged from either side for gas, steam engine or electric motor. Unit is also furnished with or without base as desired.

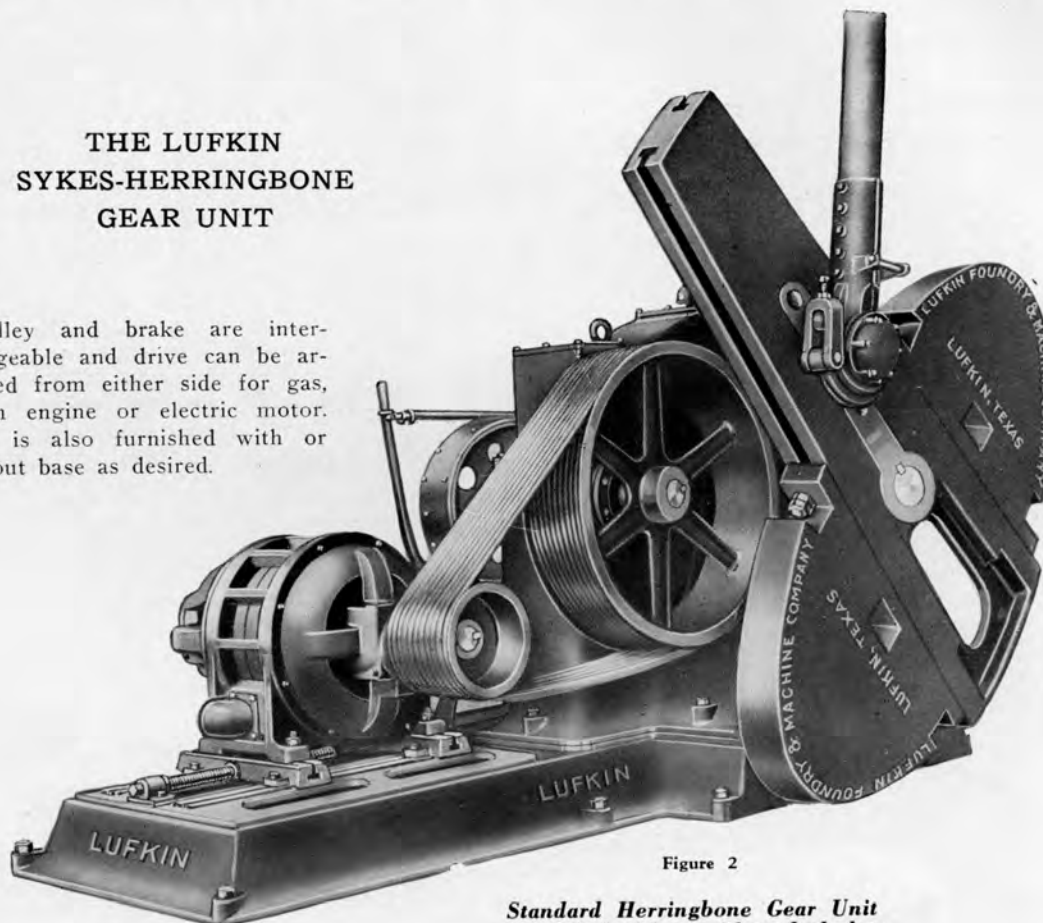


Figure 2

**Standard Herringbone Gear Unit
Furnished with or without bed-plate**

LUFKIN HERRINGBONE GEAR UNITS

The Lufkin-Sykes continuous tooth herringbone gears, used in all Lufkin Herringbone Units, have from 20% to 40% more bearing surface for width of face and at least 60% greater strength than any other type of Herringbone gears with which we are familiar. The teeth are precision cut and ground to match on special generators in our own plant under our control and supervision. They are silent in operation and efficient in the use of power. All gears are of cast alloy steel, and pinions are of forged chrome nickel generated integral with shaft and are hardened and heat

treated. **Shafts:** Forged of S. A. E. 1045 alloy steel, turned and ground and of adequate size for carrying loads within rated capacity of unit with large safety factor. **Bearings:** **Main Gear shaft bearing** is of renewable bronze; **Pinion shaft, Hyatt Roller Bearings.** **Lubrication:** Bath and splash system—simple and positive. Rotation of gears provide continuous flow of lubricant to bearings and gear teeth.

Lufkin Units are of simple design, permitting easy adaptation to any type prime mover; of strong rigid construction and made of best materials available—precision workmanship and interchangeability of parts are assured through the use of jigs and templates for all machine operations.

SPECIFICATIONS OF LUFKIN SINGLE REDUCTION HERRINGBONE GEAR PUMPING UNIT

SIZE UNIT	RATIO	H. P.	Crank Shaft Gear	PINION	Crank Shaft and Bearings	Pinion Shaft and Bearings	Pinion Sheave Data	TOTAL WEIGHT
4 1/2" Twin-Crank	10.5	19* 93†	6" Face 42" P.D. 147-T.	6" Face 4" P.D. 14-T.	4 7/8" Dia. Bronze Bearings	3 1/2" Dia. Hyatt Bearings	34" O.D. 2250 F.P.M. 37.8 H. P.	With Standard Crank 14,650# Also Furnished With Special Heavy Crank Weighing 19,350#
5" Junior	8.5	21* 95†	8" Face 34" P.D. 119-T.	8" Face 4" P.D. 14-T.	4 1/2" Dia. Bronze Bearings	3 1/2" Dia. Hyatt Bearings	60" O.D. 8-C Belts 3200 F.P.M. 68 H.P.	11,300#
5 1/2" Standard	9 3/4	36* 154†	8" Face 47" P.D. 141-T.	8" Face 5" P.D. 15-T.	5 1/8" Dia. Bronze Bearings	3 1/2" Dia. Hyatt Bearings	37" O.D. 11-C Belts 2190 F.P.M. 69.3 H.P.	17,100#
6 1/2" Heavy Duty	9 3/4	58* 229†	10" Face 54.4" P.D. 136-T.	10" Face 5.6" P.D. 14-T.	6 1/8" Dia. Bronze Bearings	4 1/2" Dia. Hyatt Bearings	43 1/2" O.D. 11-C Belts 2700 F.P.M. 81.4 H.P.	22,650#

*Pinions operating under H. P. listed should carry the load 24 hours per day for 5 years without loss in efficiency thru wear. Lufkin gears as rated have a strength factor of safety of 20 to 1.

†H. P. listed is safe working load by Lewis Formula using allowable tensile strength of 15,000 pounds.

LUFKIN FOUNDRY & MACHINE CO.,

LUFKIN, TEXAS

ADAPTATIONS OF LUFKIN HERRINGBONE PUMPING UNITS

UNIVERSAL ADAPTABILITY

Universal adaptability to any type prime mover and ease with which difficult operating conditions are accommodated have been marked characteristics and highly desirable features contributing to the success of Lufkin Units.

Some of the more common types of "Hook-ups" are described and illustrated on this page. For other prime mover applications detailed layouts will be gladly furnished. Lufkin Units may be easily transported from lease to lease and where found necessary the change from one type prime mover to another, may be easily and inexpensively accomplished.

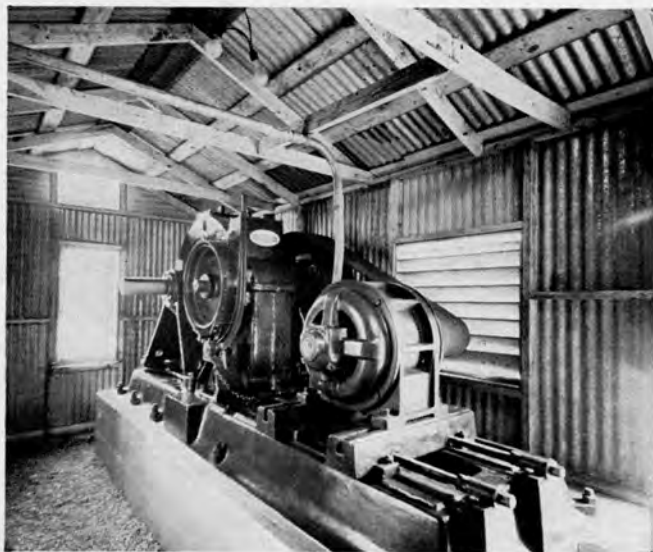


Figure 3

STANDARD ELECTRIC MOTOR DRIVE TO LUFKIN HERRINGBONE UNIT

This is undoubtedly the most popular type of drive in use. The Electric Motor is mounted upon Lufkin Universal slide rails which are designed to accommodate any size or type of electric motor and also to permit, without trouble, the changing of sheaves sizes to secure various speed reductions. This is a very compact and efficient arrangement.

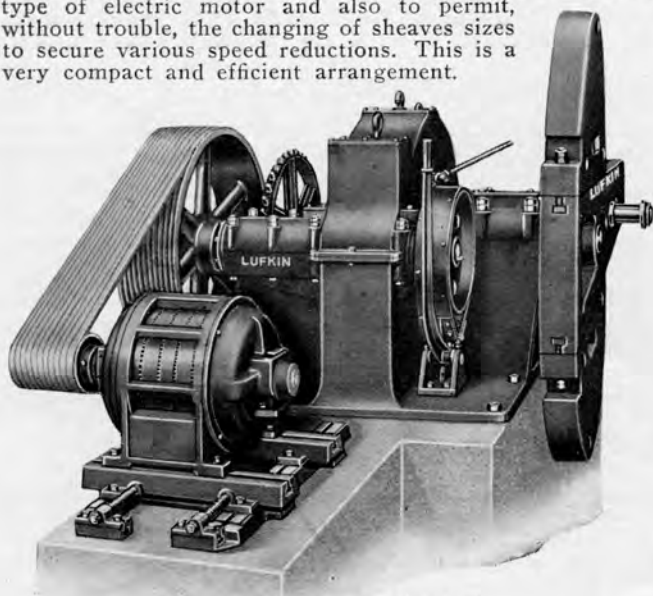


Figure 4

GULF COAST ARRANGEMENT LUFKIN HERRINGBONE UNIT

This unit is especially designed for use with constant high speed motors where tractors are used for pulling. This design permits the use of larger sheaves than the regular standard unit so that 1200 speed motors may be used.

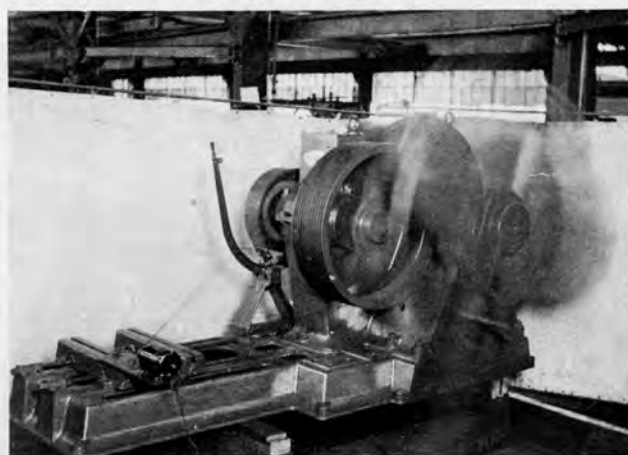


Figure 5

LUFKIN EFFICIENCY

Note the ease with which this 1/2-H.P. motor turns this Lufkin Heavy Duty Herringbone Unit at regular pumping speed. Lufkin Hyatt equipped—friction free, Sykes-Herringbone Units are 96% mechanically efficient at rated capacity.

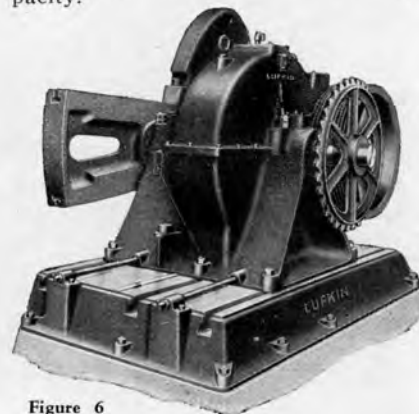


Figure 6

LUFKIN SLIDE-BASE HERRINGBONE UNIT

This is the regular Lufkin Herringbone Unit mounted upon a slide-base to eliminate "V" belt tighteners. Designed especially for single or multi-cylinder engine drives. This arrangement furnished in sizes 5", 5 1/2" and 6 1/2" only.

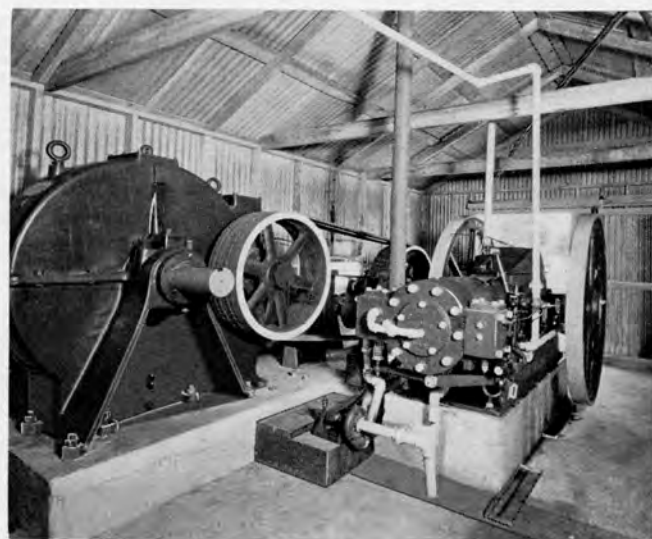


Figure 7

LUFKIN HERRINGBONE UNIT DRIVEN BY SINGLE CYLINDER ENGINE

This is the regular standard Herringbone Unit without bed plate (mounted directly on concrete base) with single cylinder engine as prime-mover and "V" belt drive. This is a very popular drive arrangement for single cylinder engine operation; is compact, making possible a minimum housing job. Regular "V" belt tightener is provided.

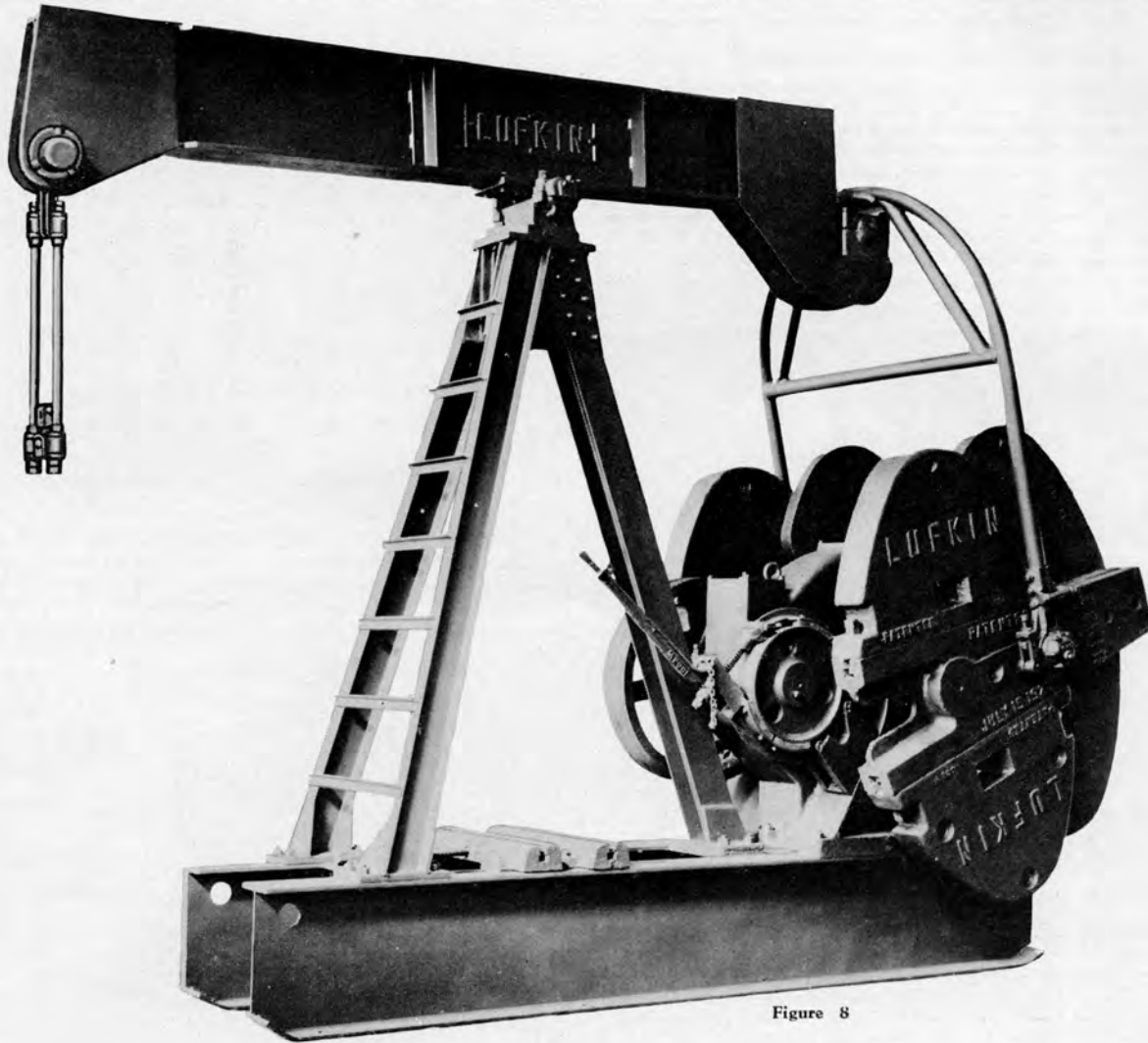


Figure 8

LUFKIN TWIN CRANK HERRINGBONE UNIT ASSEMBLY

The Lufkin Twin Crank Herringbone Unit Assembly was originally designed to meet a need for a "floor unit" for installations over water or swampy ground, saving necessarily expensive foundations for pumping equipment.

The first Units were of the Standard Crank Type for use in medium depth fields, but later, with the addition of crank counter-weights, deep well pumping was made possible.

The "wind and weave", so often found in light single-crank units, is entirely eliminated in the LUFKIN TWIN CRANK UNIT due to the even balance of the double adjustable cranks.

This compact, self-contained unit—smooth and silent in operation—high in mechanical efficiency, is the ultimate in equipment for pumping loads of 20 H.P. and under.

SPECIFICATIONS—LUFKIN TWIN CRANK PUMPING UNITS—SINGLE REDUCTION

SIZE UNIT	RATIO	H. P.	Crank Shaft Gear	PINION	Crank Shaft and Bearings	Pinion Shaft and Bearings	Pinion Sheave Data	TOTAL WEIGHT
4½" Twin-Crank	10.5	19* 93†	6" Face 42" P.D. 147-T.	6" Face 4" P.D. 14-T.	4 1/8" Dia. Bronze Bearings	3 1/4" Dia. Hyatt Bearings	34" O.D. 2250 F.P.M. 37.8 H. P.	With Light Crank 14,650 #
								With Heavy Crank 19,350 #

SPECIFICATIONS—LUFKIN TWIN-CRANK DOUBLE REDUCTION PUMPING UNIT

Size Unit	Ratio	H. P. @ 24	High Speed Gears	Slow Speed Gears	H. S. Pinion Shaft & Brgs.	Intermediate Shaft & Brgs.	Crank Shaft and Brgs.	Pinion Sheave Data	Total Weight
4½" Twin-Crank Double Reduction	30.6	17* 95†	4" Face 19" P.D. Gear 114 T.	7" Face 24.875" P.D. Gear 87 T.	2-11/32" Dia. Hyatt Bearings	2-15/16" Dia. Hyatt Bearings	4-7/16" Dia. Bronze Bearings	40" Max. O. D. 3-C-Belts	With Light Crank 15,000 lbs.
			3" P.D. Pinion 18 T.	5.143" P.D. Pinion 18 T.					With Heavy Crank 19,700 lbs.

*Pinions operating under H.P. listed should carry the load 24 hrs. per day for 5 years without loss in efficiency through wear. Lufkin gears as rated have a strength factor of safety of 20 to 1.
†H.P. listed is safe working load by Lewis Formula using allowable tensile strength of 15,000 lbs.

LUFKIN FOUNDRY & MACHINE CO.

LUFKIN, TEXAS

LUFKIN TWIN CRANK UNITS

The LUFKIN TWIN CRANK UNIT, furnished in both single and double reduction gears, is constructed along the same general mechanical lines as is the larger Lufkin Units of the Herringbone Gear Types, using large gears at slow speeds and designed on a wear basis with ample factors of safety for strength. The result of this practice is reliability for continuous service and reserve for undue punishment and long life.

The large gear of the TWIN CRANK UNIT is made of a special alloy steel and the pinions are of forged alloy steel, generated integral with shafts, and are hardened and heat treated. The main shaft is of S. A. E. 1045 steel, turned and ground. Extra long, renewable bronze bearings are used in the main gear shaft bearings and Hyatt roller bearings are used on the pinion shafts. Bath and splash lubrication system—simple and positive in action, is employed,—the rotation of the gear producing a continuous flow of lubricant to the bearings and gear teeth.

The Twin Cranks used on this Unit are of the Trout Counter-balance type which provide for the maximum effective counter-balance. Special auxiliary counter-weights are furnished, when needed, at a slight additional cost. Trout Counter-balance Cranks are conceded to give at least a 10% saving in power over beam or reciprocating types of balance.

The Twin Pitman is of tubular construction and braced for greatest strength. The top pitman bearing is of ball and socket construction—universal in action, having special patented Lufkin features. Special Trout universal oil-bath crank pin connections have been designed for use with this Unit.

The Samson post is of tripod design, allowing the strain and weight of the well to be spread over two-thirds of the length of the Base beams. This post

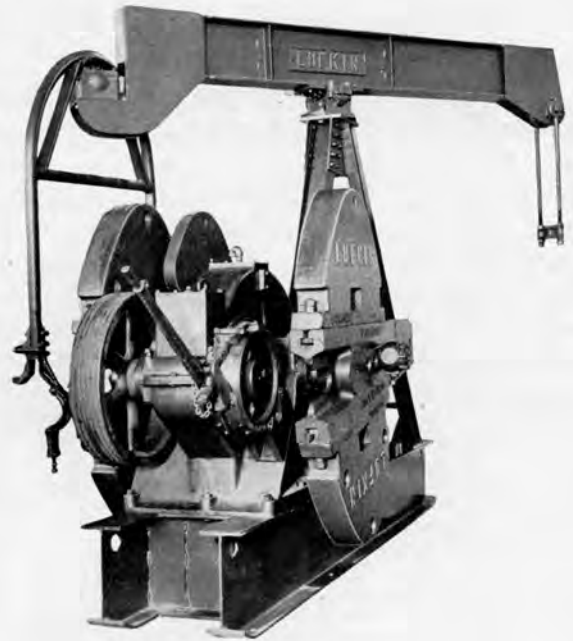


Figure 10

Heavy Duty Twin Crank Unit showing additional crank weight arrangement and heavy beam base allowing for additional length of crank. Note how Beam swivels on Post for cleaning or servicing well.

is fitted with an oil-bath and dust proof Center Iron which is so designed that by loosening two bolts the beam and pitman may be swung to right angles of the well, allowing ample room for well servicing.

The entire assembly is compactly mounted upon a heavy, rugged, electrically welded "I" beam base of ample size which is well braced throughout. This base is designed to fasten directly to the derrick floor or to a concrete foundation.

The LUFKIN TWIN CRANK UNIT is easily adaptable to any type prime mover. A cover is provided for motor and drive and when driven by a gas engine the Unit is reversed on the base and engine set at rear—away from well, (see Figure 10).

For complete specifications see detailed table and for well conditions handled by this Unit—see the "Unit Service Chart." Further detailed information will be gladly furnished upon request.

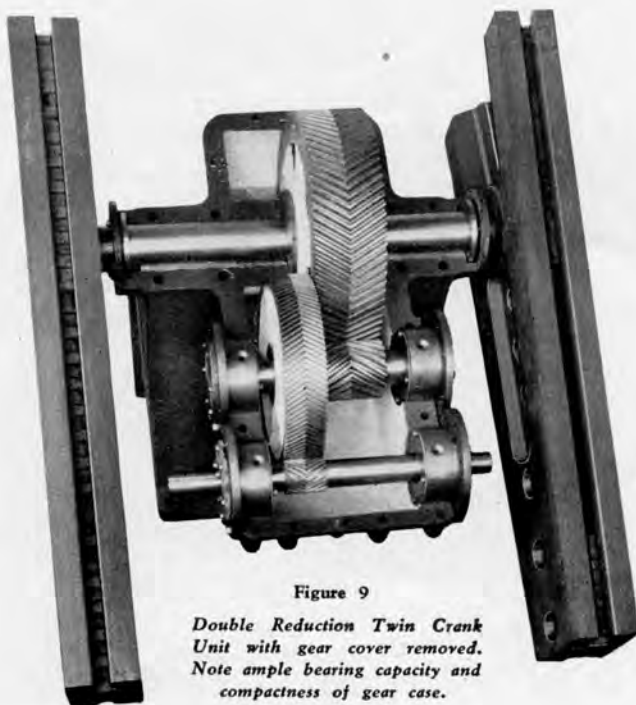


Figure 9

Double Reduction Twin Crank Unit with gear cover removed. Note ample bearing capacity and compactness of gear case.

PROD BBLs DAILY	WELL DEPTH IN FEET											
	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000
25												
50												
100												
150												
200												
250												
300												
350												
400												
450												
500												
550												
600												

Figure 11

Lufkin Twin Crank Unit Service Chart

LUFKIN FOUNDRY & MACHINE CO.

LUFKIN, TEXAS

LUFKIN BABY UNITS ARE PERFORMING A REAL PUMPING JOB

Answering the need for an economical installation, yet one adequate to handle a large volume of production, the Lufkin twin crank unit has met with instant acceptance. The installations on this page are those in East Texas exclusively although this particular Unit is operating in several oil fields and particularly in foreign fields. The unit may be mounted upon the derrick floor or upon a small concrete block and is adaptable to any type prime mover. Over one hundred and fifty of this type unit now operating in East Texas. Installations of heavier equipment may be seen on page 12.



Figure 16
TIDE WATER OIL COMPANY
Lufkin Single Reduction Twin Crank Unit—
G.E. electric motor drive.



WEAVER-CRIM OIL CO.
Lufkin single reduction twin
crank unit driven by Chrysler
gas engine.
Figure 12



Figure 13
HUMBLE OIL & REFINING CO.
Lufkin Double Reduction Twin Crank Unit
driven by electric motor.



Figure 15
MURRAY & GOODE, INC.
Lufkin Single Reduction Twin
Crank with Waukesha
engine drive.



Figure 17
HUMBLE OIL & REFINING CO.
Lufkin Single Reduction Twin Crank Unit—
G.E. electric motor drive.



Figure 14
STROUBE & STROUBE, INC.
Lufkin Double Reduction Twin Crank Unit—Waukesha
engine drive.

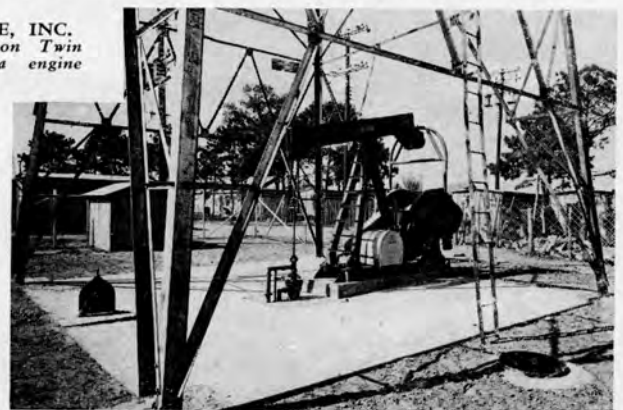


Figure 18
TIDE WATER OIL CO.
Lufkin Single Reduction Twin Crank Unit—
electric motor drive.

LUFKIN FOUNDRY & MACHINE CO.

LUFKIN, TEXAS

THE TROUT COUNTER-BALANCE CRANK

After exhaustive tests and comparisons with every conceivable method of balancing a pumping well, the Trout counterbalance crank has been accepted by oil producers as the most desirable and effective means of well balancing.

The Trout counter-balance crank (see illustration) is the most effective and flexible counter-balance that has been offered the oil industry. It is compact and made up of a few simple parts which are "fool proof." The counter weights can be moved along the ways of the crank, so that any desired effective counter-balance can be easily obtained.

Studying the pump cycle of a well we find that all of the useful work is done during half the cycle, or in other words, on the upstroke of the rods. At the start and finish of the stroke the power required is theoretically zero as the rods are stationary. During the center portion of the up-stroke of the rods, the velocity in feet per minute at which the rods travel is a maximum. Power required is the product of force times velocity. Therefore, from a power input standpoint the counter-balance should be most effective during the center portion of the upstroke which is the case with the Trout-Crank.

Whether the center of gravity of a rotary counter-balance should lead or lag the crank pin has been a much mooted question. But it has been definitely determined by experiment that the counter-balance cannot economically lead or lag over five degrees. It has never been shown that either a leading or lagging counter-balance has any advantage over a counter-balance with its center of mass in line with crank shaft and crank pin.

Theoretically the greastest force should be found at the

Adjustable Counter-Balance Crank —

Note, Safety lugs: weights can not slide off. This feature with fly-wheel brake allows weights to be shifted in five minutes

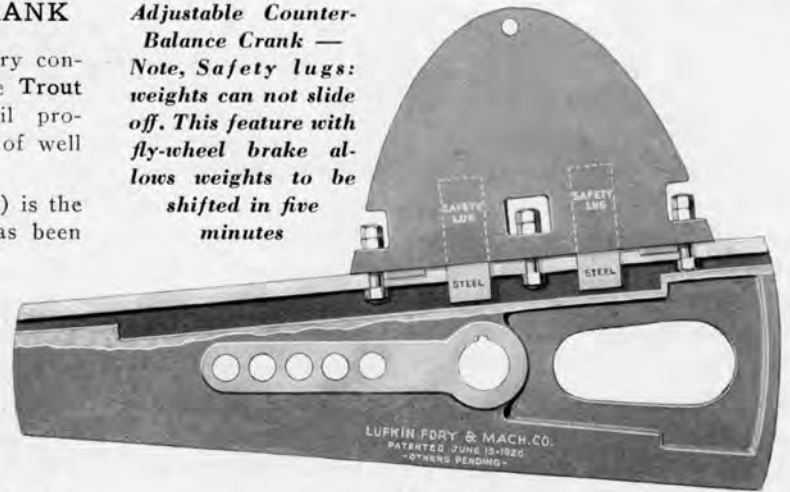


Figure 19

point of maximum acceleration since

$$\text{Force} = \text{Mass} \times \text{Acceleration}$$

The point of maximum acceleration is at the start of the upstroke, but dynamometer cards indicate that during the upstroke the force varies throughout and reaches a peak about the center of the upstroke, depending upon pumping conditions.

With more complete knowledge of what happens during the pumping cycle it is generally accepted that there is no advantage in leading or lagging the counterweights.

Counter-balance cranks aided by high speed fly wheels cut down the strain on pumping equipment, aid economical operation by permitting the use of smaller electrical equipment and lets the driving power operate at a higher efficiency.

The accompanying chart gives the various effective static weights for the different sizes and models of Lufkin Units.

EFFECTIVE STATIC WEIGHTS AND LENGTH OF STROKE OF TROUT COUNTER-BALANCE CRANKS

FOR 6½" WORM OR HERRINGBONE GEAR UNITS:

	Stroke:	32"	42"	52"	62"	72"
		Pounds	Pounds	Pounds	Pounds	Pounds
Regular Crank No. 1158 W and Weights.....		14,400	11,000	8,900	7,400	6,400
With Auxiliary Weights (extra price).....		17,800	13,500	10,900	9,200	7,900
With lead Weights 9" thick (extra price).....		23,800	18,150	14,700	12,300	10,600

FOR 5½" WORM OR HERRINGBONE GEAR UNITS:

	Stroke:	32"	42"	52"	62"	72"
		Pounds	Pounds	Pounds	Pounds	Pounds
Regular Crank No. 1157 W and Weights.....		10,400	8,000	6,400	5,400	4,600
With Auxiliary Weights (extra price).....		13,100	10,000	8,100	6,800	5,800
With lead Weights 8½" thick (extra price).....		18,400	14,000	11,300	9,500	8,200

FOR 4½" WORM OR JUNIOR HERRINGBONE GEAR UNITS:

	Stroke:	21"	30"	39"	48"
		Pounds	Pounds	Pounds	Pounds
Regular Crank No. 1001 W and Weights.....		10,800	7,550	5,800	4,720
With Auxiliary Weights (extra price).....		13,400	9,400	7,200	5,900

FOR 4½" TWIN CRANK UNITS:

	Stroke:	18.6"	21.7"	30.5"	35.2"	42"	48.8"
		Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
Standard Crank No. 155-W and weights.....		9,230	7,900	6,620	4,870	4,100	3,520
With Kidney weights.....		13,200	11,300	8,050	7,000	5,850	5,030
Heavy Duty Crank No. 1590-W and weights.....		18,000	15,400	10,950	9,950	8,000	6,860
With Kidney weights.....		26,300	22,500	16,000	13,900	11,650	10,000

FOR BABY WORM GEAR UNIT:

	Stroke:	16"	26"	36"
		Pounds	Pounds	Pounds
Regular Crank No. 1209 W and Weights.....		10,300	6,300	4,560

NOTE: Tabulated weights, as listed are equivalent to a much greater weight attached to the end of beam due to dynamic force. Weights as listed are effective only when crank is horizontal and counter weights are at end of long end of crank.

LUFKIN FOUNDRY & MACHINE CO.

LUFKIN, TEXAS

SELECTING LUFKIN UNITS

In order to insure absolute satisfaction and lasting service over a period of years, (as this class of machinery should), Lufkin Units are all designed with large factors of safety. They will stand tremendous overloads, yet, being designed for their main job of pumping and to retain high efficiency it is very essential they be selected on a horse power input basis with ample leeway or reserve strength, that the wearing surface may have long life.

Most important also is having a unit with counterweight heavy enough to balance the well. An unbalanced well results in a tremendous loss of power, and an unnecessary strain and wear on the pumping equipment.

The selection of the correct size unit to pump a particular well, or of a group of units for the pumping of a number of wells, is a very difficult problem. First of all, the operating conditions should be diagnosed from a standpoint of what the well may develop into; mainly as to pumping depth, fluid to be handled and horse power required.

From a standardization standpoint, the pumping unit should be purchased large enough to efficiently and economically handle the heaviest pumping that it is possible to estimate for the particular problem in hand, or for the heaviest pumping to which it may be necessary to move the unit due to later developments.

In order to assist in selecting a unit, we have devised a chart which gives the size of the unit which will operate satisfactorily under average well conditions, at various pumping depths, and varying production in barrels on a 24-hour basis. This chart has been arrived at on a theoretical basis and the assumption that we are pumping fluid equivalent to the weight of water; as the average United States crude oil has a gravity of about 32 degrees A. P. I. and is about 13 per cent lighter than water. This is a conservative basis. Well friction due to moving parts and internal

friction of the oil and friction of the oil against the tubing is a difficult item to compute and makes the chart only an approximation at best. Different viscosity oils have widely differing friction head losses. For this reason the unit selection chart should be used as a guide and, before the size of the unit is decided upon, all of the well conditions should be considered.

In equipping a lease where there is a question as to whether 5½" or 6½" Units should be used, bear in mind that the bases of these two Units are interchangeable. That is to say that the bolting layout is the same on both Units. Where 5½" Units are installed on wells that afterwards prove "Heavy" 6½" Units may be mounted upon the same base or bedplate without difficulty.

In using this chart, consideration should be given to the possibility of deepening the well to lower producing sands, also the practicability of moving the unit to other locations. In considering the fluid to be lifted, always consider the volume of water that may encroach and create the necessity for handling larger volumes of fluid as the well gets older.

Lufkin maintains an engineering department trained and experienced in this particular work, and will gladly co-operate with you in the selection of suitable equipment for your individual requirements.

Lufkin Unit Selection Guide

BBLs. DAILY PROD.	WELL DEPTH IN FEET										
	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000
50	<div style="position: absolute; top: 10%; left: 10%; transform: rotate(-45deg); font-size: small;"> BABY 4½" WORM GEAR UNIT 10HP </div> <div style="position: absolute; top: 20%; left: 10%; transform: rotate(-45deg); font-size: small;"> STANDARD 4½" WORM GEAR JUNIOR 5 HERRINGBONE 21HP </div> <div style="position: absolute; top: 30%; left: 10%; transform: rotate(-45deg); font-size: small;"> 5½" INTERMEDIATE WORM GEAR UNIT 5½" HERRINGBONE GEAR UNIT 36HP </div> <div style="position: absolute; top: 40%; left: 10%; transform: rotate(-45deg); font-size: small;"> 6½" HEAVY DUTY WORM GEAR UNIT 6½" HEAVY DUTY HERRINGBONE 58HP </div>										
100											
150											
200											
250											
300											
350											
400											
450											
500											
550	AND GREATER										
600											
650											
700											
750											
800											
850											
900											
950											
1000											

Figure 24

LUFKIN FOUNDRY & MACHINE CO.

LUFKIN, TEXAS

LUFKIN HEAVY EQUIPMENT IN EAST TEXAS

(See Page 8 for Twin Crank installations)

The East Texas field opened at a time when pumping equipment was going through its peak development period—therefore, one should find in this field the latest types of all available equipment. In this field "LUFKIN" has placed its latest and most modern equipment with "hook-ups," until this time, unknown to the oil industry. In the pictures appearing on this page some of the many Lufkin installations of heavier equipment are shown.

ROESER & PENDLETON, INC.
Lufkin 5½" Herringbone Unit with back-side crank for pumping two additional wells with gas engine drive.

Figure 25

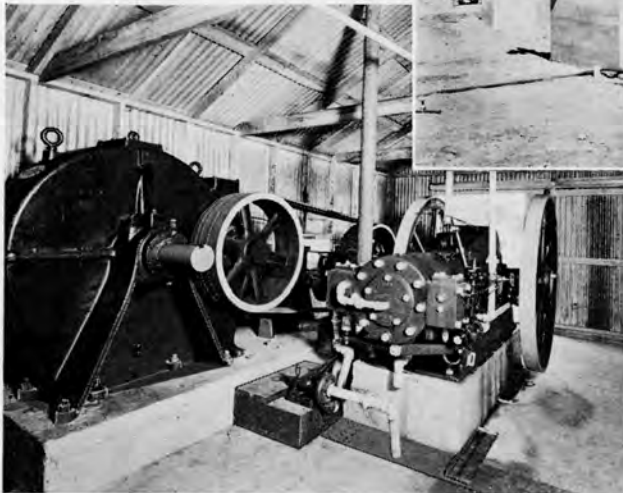


Figure 26

H. K. SPEAR COMPANY
Lufkin 5½" Herringbone Unit with gas engine drive.



Figure 27

DEEP ROCK OIL CORP.
Lufkin 5½" Herringbone Unit electric motor drive—Lufkin designed piling job.



Figure 28

SINCLAIR OIL & REFINING CO.
Lufkin 5½" Herringbone Unit with Lufkin Hoist and sand reel—electric motor drive.



Figure 29

SUN OIL COMPANY—FIRST EAST TEXAS PUMPER
Lufkin 5½" Herringbone Unit, electric motor drive, Lufkin Center Line Beam and Post assembly.



Figure 30

COX & HAMON, INC.
Lufkin 5½" Herringbone Unit with back side crank pumping three wells—15/40 Y-Delta G.E. Motor Drive.

LUFKIN FOUNDRY & MACHINE CO.

LUFKIN, TEXAS

LUFKIN WORM GEAR UNITS

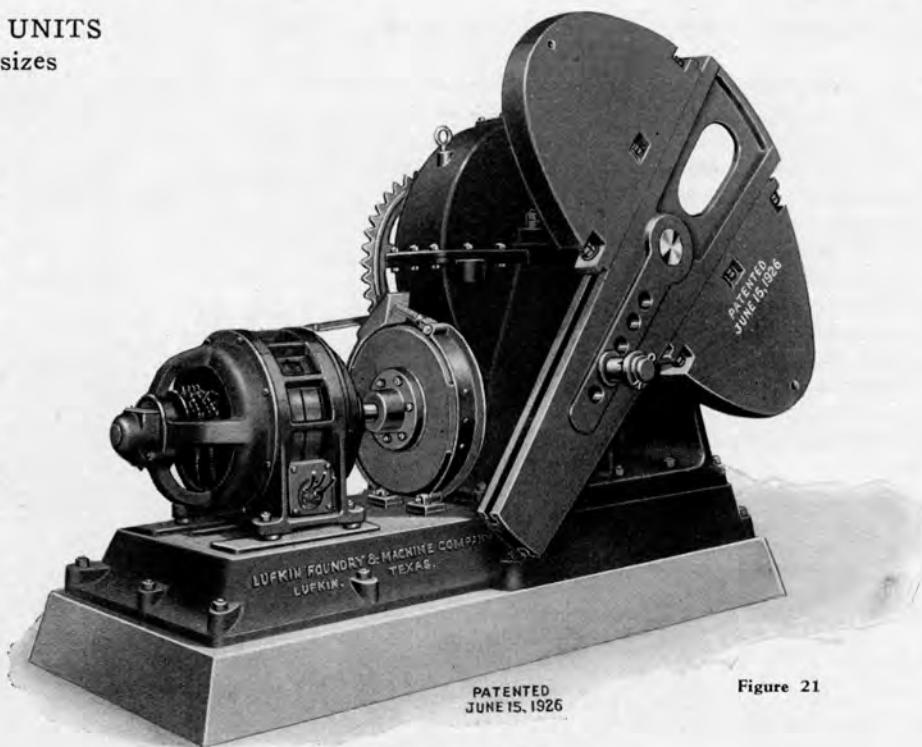
Manufactured in four sizes

The Lufkin Worm Gear Pumping Unit was the first Lufkin geared pumping unit offered to the oil producer. The efficiency of worm gearing is about 7% lower than a single reduction herringbone gear at STARTING but its efficiency is maintained throughout its entire life. The worm gear unit is well adapted to the electric motor and multi-cylinder gas engine.

This unit, originally designed for the two speed, two horsepower, oilfield type motor, is successfully operating with Y-Delta and regular squirrel cage motors direct connected and with an auxiliary V-belt drive, also with single and multi-cylinder gas engine drives.

The Lufkin Worm Gear Unit is designed of generous proportions for long lasting efficient service.

Where Lufkin Worm Gear Units are used with constant speed motors, the application of a "V" belt drive furnishes a quick, economical method of changing the ratio and pumping speed of the Unit. The only change necessary is to change the motor sheave which is not expensive and requires very little time for the change.



PATENTED
JUNE 15, 1926

Figure 21

Lufkin Worm Gear Unit

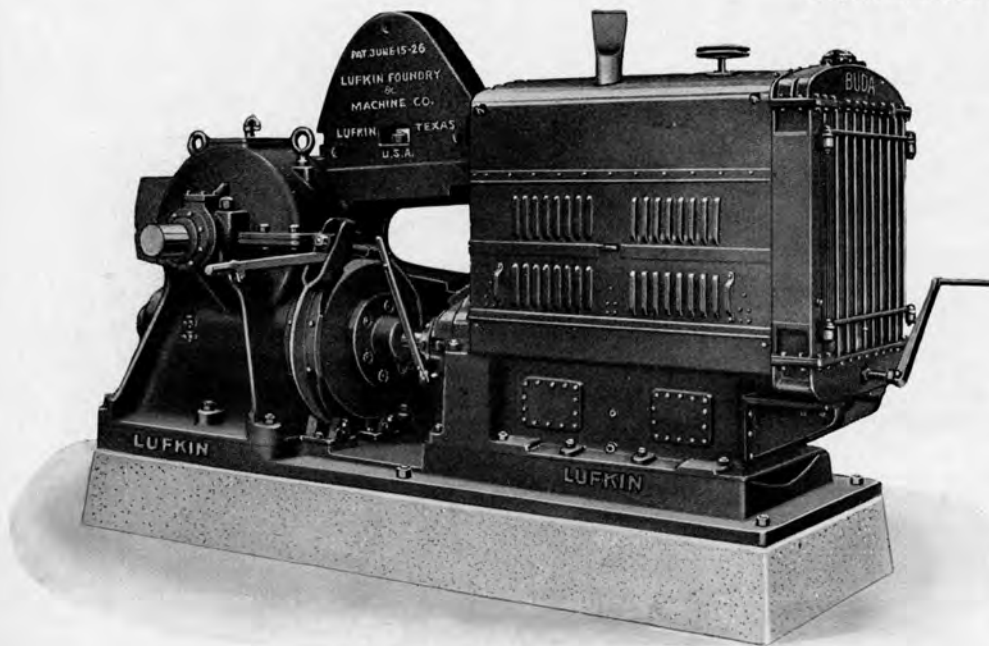


Figure 20

Special low base for 4 1/2" Stripped Standard Unit

LUFKIN "STRIPPED STANDARD" WORM GEAR UNIT

This Lufkin Unit is the regular 4 1/2" Standard Unit, furnished with special bed-plate and sprocket and is designed for the pumping only of wells of medium depth.

For electric motor and "V"-belt drive, the Unit sets directly on concrete foundation and is provided with a special bracket for the motor.

A popular multi-cylinder "Hook-up" is that illustrated where both the Unit and engine are mounted upon a rigid one-piece reinforced bed-plate insuring positive alignment and smoothness of operation.

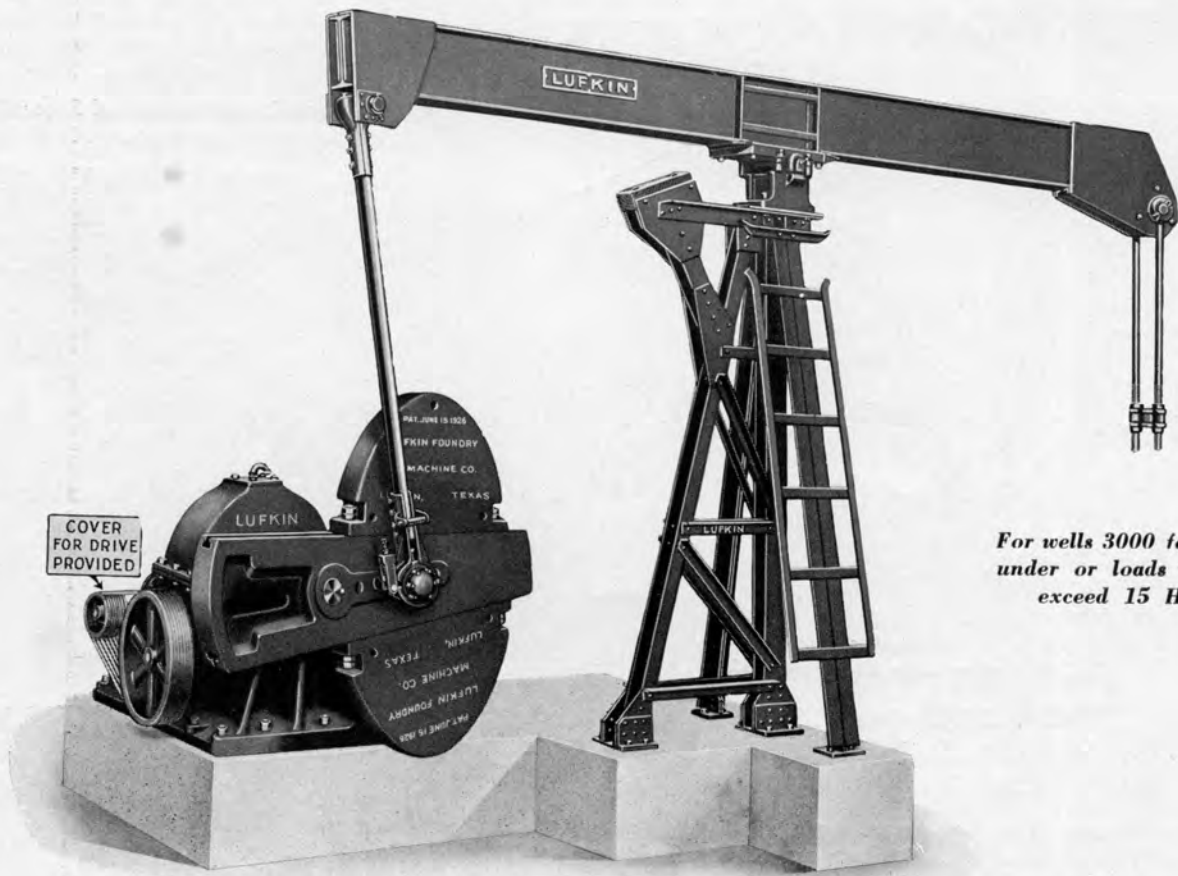
Specifications LUFKIN WORM GEAR UNITS

SIZE UNIT	RATIO	H. P.	Crank Shaft Gear	WORM	Crank Shaft Bearings	Worm Shaft Bearings	TOTAL WEIGHT
BABY	19 3/4 : 1 29 1/2 : 1	14.5	3" Face 59 Teeth 23.475" P.D.	1.25" C. Pitch 3.398" P.D.	4 1/2" Dia. Bronze	Timken Thrust Hyatt Radial	6,000 #
4 1/2" Standard	19 3/4 : 1 29 1/2 : 1	23.2	3.5" Face 59 Teeth 28.17" P.D.	1.50" C. Pitch 3.957" P.D.	4 1/2" Dia. Bronze	Timken Thrust Hyatt Radial	12,300 #

Lufkin worm gear units, in addition to above sizes, are made in sizes comparable to Lufkin Herringbone Units, but are furnished on special order only. For length of Stroke and Effective Counter-Balance See Special Sheet.

LUFKIN FOUNDRY & MACHINE CO.

LUFKIN, TEXAS



For wells 3000 feet and under or loads not to exceed 15 H.P.

Figure 22

Lufkin Baby Worm Gear Unit Assembly

The Lufkin Baby Unit Assembly is rugged in construction, highly efficient in operation and simple in design. Requiring practically no upkeep expense, this unit is one of our most popular sizes for light production not to exceed 15-H.P. load. This unit has proven its value in many oil fields of the world. It is just as efficient as any double set of gears necessary to secure the 30 to 1 reduction which is so easily and simply accomplished with worm gears, with the additional advantage of the worm gear maintaining highest efficiency throughout the life of the gears.

One of our largest export customers, who has purchased nearly one hundred and fifty of these units, claims a lifting cost of only 2½ cents per barrel, the lowest known cost for pumping wells 2000 to 3000 feet in depth. No upkeep expense, and low power cost are the answer.

The Unit proper is similar in design and constructed of the same high quality materials as the larger Lufkin Units and is equipped with a special structural steel Samson Post, Beam and Trout Universal Pitman.

For Unit specifications see Special Bulletin. For Post and Beam specifications see Page 14.

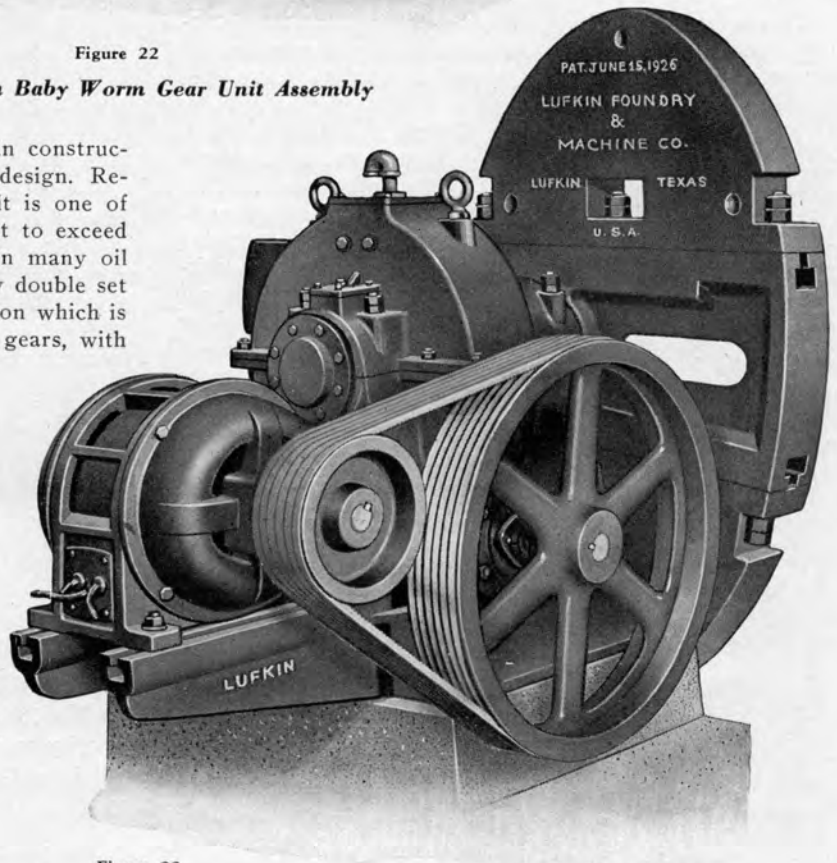


Figure 23

Lufkin "Stripped Standard" Worm Gear Unit with especially adapted bracket for electric motor operation. This unit also furnished with cast iron base and Universal Motor Slide Rails



Figure 31
Lufkin Center Line Beam Assembly

Both Beam End Connections are Alemite Lubricated from this Central Point.

*See Center Iron Detail Page 15
See Beam Bearing Details Below*

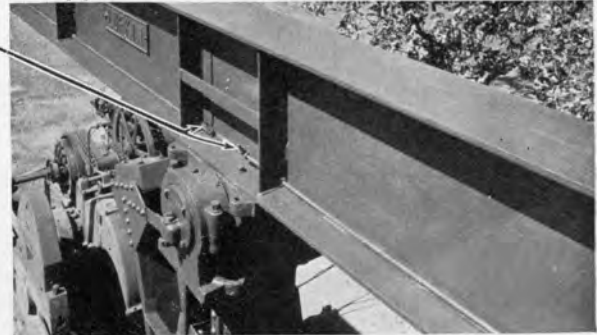


Figure 33

**LUFKIN CENTER LINE WALKING BEAM,
PITMAN BEAM BEARING AND FULL
UNIVERSAL ROD HANGER**

Numerous attempts have been made to design a Center Line Beam, but most have met with little success. We believe this due to the retention of the old style conventional type of friction producing stirrups and regular head connections. Engineers familiar with this inefficient type of design have demanded improvements.

The Lufkin Center Line Beam assembly is the answer to these problems. This new assembly consists of the regular I-beam type walking beam with all bearings in line and with improved pitman and rear hanger bearings.

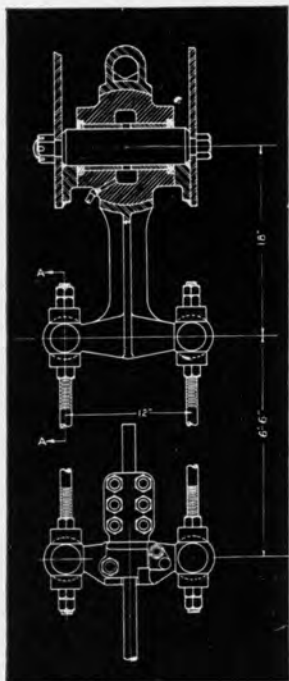
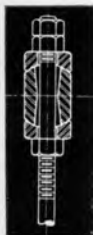


Figure 32

Sectional Drawing Lufkin Universal Pitman and Rod Hanger Bearing Connections.



Section "A-A"

The beam is equipped with heavy welded-on plates, arranged with steel pins and bronze bearings. Alemite lubrication to these bearings is facilitated by means of pipe connections from the center of the beam (see illustration).

The center iron is of a special Lufkin (patented) design with a bronze bearing 5" x 24"—is self-oiling and oil and dust tight.



Figure 34

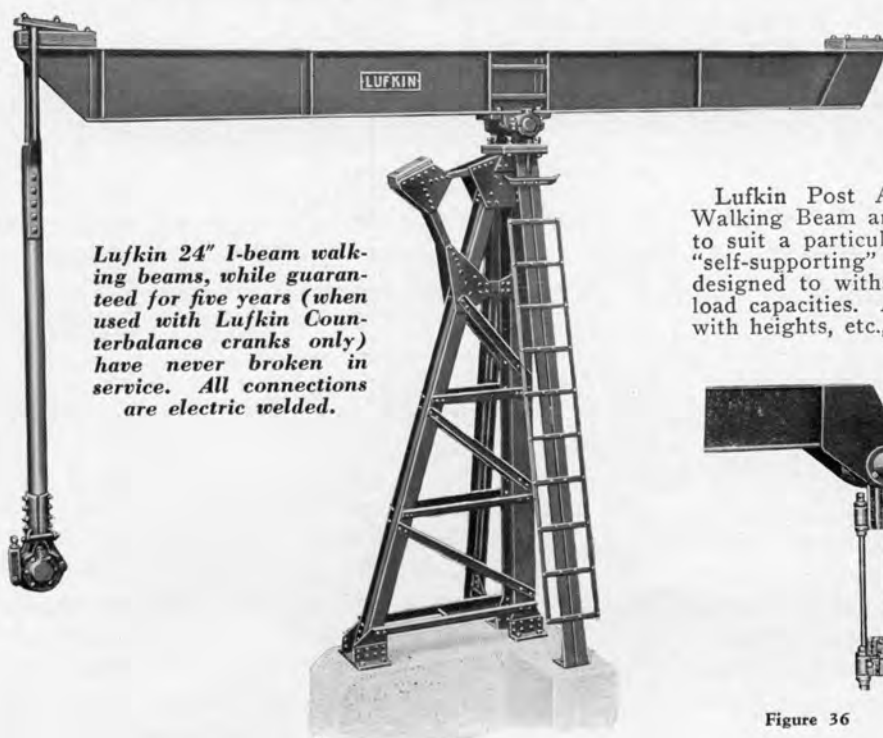
*Lufkin Universal Pitman and Rear Beam Bearings for Lufkin Center Line Beam.
Every Bearing of Bronze.*

The tail or rear bearings and rod hanger bearings (size 3-7/16" x 9") are bronze bushed—oil tight and dust proof—and like the Trout Pitman bearing, stays on the pin. Connections to the pitman and rod hanger are by means of steel strap shackles which are very readily disconnected for well servicing and are also designed to accommodate any mis-alignment.

All bearings on the Lufkin Center Line Beam are of bronze—no babbitt whatever is used in this assembly. All bearings are Alemite lubricated. Special bulletin upon request.

LUFKIN FOUNDRY & MACHINE CO.

LUFKIN, TEXAS



Lufkin 24" I-beam walking beams, while guaranteed for five years (when used with Lufkin Counterbalance cranks only) have never broken in service. All connections are electric welded.

Figure 35

LUFKIN BEAM AND POST ASSEMBLIES, ETC.

Lufkin Post Assemblies, consisting of Samson Post, Walking Beam and Pitman, are manufactured in five sizes to suit a particular Unit and type of installation. Lufkin "self-supporting" Samson Posts are of rugged construction, designed to withstand heavy well conditions and extreme load capacities. All Lufkin Beams are of the I-beam type with heights, etc., conforming to A.P.I. specifications.

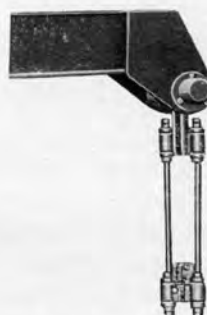


Figure 36

Optional Polish Rod Hangers for Nos. 2, 3 and Twin-Crank Walking Beams



Figure 37

Specifications

SAMSON POST, WALKING BEAM AND PITMAN ASSEMBLIES

DESCRIPTION	Heavy Duty No. 1 Assembly	Standard No. 1 Assembly	No. 1 Center Line Assembly	No. 2 Assembly	No. 3 Assembly	Twin Crank
WALKING BEAM—						
Size I Beam.....	24" 100# C. B. Sec.	24" 100# C. B. Sec.	24" 100# C. B. Sec.	16" 45# C. B. Sec.	16" 45# C. B. Sec.	18" 64# C. B. Sec.
Length.....	28' 9" Long	28' 9" Long	28' 9" Long	16' 7" Long	14' 7" Long	11' 10 1/2" for 48" Stroke
Weights.....	3200#	3200#	4150#	1250#	1100#	10' 10 1/2" for 42" Stroke 1200#
SAMSON POST—						
Size Main Post.....	10" 36# C. B. Sec.	10" 25# I Beam	10" 25# I Beam	10" 15# Channel	5"x5" "H" Beam	(2) 6"x12.5# H Beams
Size Back Post.....	10" 25# I Beam	10" 15# Channel	10" 15# Channel	10" 15# Channel	2"x3"x 1/4 Angles	6" 25# I Beam
Height—Base to Trunion	15' 3"	15' 3"	15' 3"	12' 0"	8' 2 1/2"	8' 2 1/2"
Weights.....	3250#	2900#	2900#	2150#	900#	925#
PITMAN—						
Pipe.....	5" I. D.	5" I. D.	5" I. D.	5" I. D.	2 1/2" I. D.	2 1/2" I. D.
Stirrup.....	2 1/2" Rough Round	2 1/2" Rough Round	3 1/2" Shaft	2 1/2" Rough Round	1 3/4" Rough Round	6" Ball
Bearing Sizes.....	4"x6"	4"x6"	4"x6"	3 1/4"x6"	2 1/2"x4"	2 1/2"x4"
Weights.....	600#	600#	700#	600#	300#	450#
Assembly Weight.....	7050#	6700#	7750#	4000#	2300#	2475#

TROUT, OIL-BATH, DUST-PROOF PITMAN

The Lufkin-Trout Universal, self-aligning Pitman met with immediate acceptance by the oil industry. The Trout Pitman is oil-tight, and dust-proof. The box remains on the pin as shown in the illustration. It is only necessary to unloosen shackle bolts to unstrap Pitman from box to make any necessary adjustments. Made in sizes to fit any A.P.I. Pin.

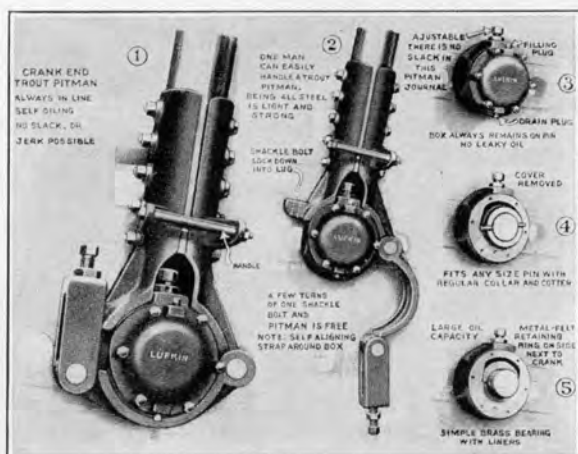


Figure 38

Trout Universal, Oil-Bath, Pitman

LUFKIN DUST-PROOF, OIL BATH CENTER IRON

The Lufkin Self-oiling, dust proof center iron provides strength where most needed and owing to its construction (bearing of bronze and oil tight) is designed for long life and little care. Operators using the Lufkin Oil Bath Center Iron find it advantageous to standardize on this type of bearing.



Figure 39

LUFKIN FOUNDRY & MACHINE CO.**LUFKIN, TEXAS**

**FACTS ABOUT LUFKIN EQUIPMENT
BOILED DOWN FOR BUSY MEN**

ADAPTABILITY:

Adapted to any prime mover without counter-shafts or extra equipment.

EFFICIENCY:

Lufkin-Sykes Herringbone gear Units are 96 per cent efficient at rated capacity.

MAINTENANCE:

While saving in power was first thought to be of greatest importance, experience, after a period of time, shows that **fewer repair parts, savings in labor expense and uninterrupted production** created for greater savings in the final cost of lifting oil. Lufkin Units are of simple but rugged design requiring few replacement parts, and consequently very low maintenance expense.

LUBRICATION:

Automatic Lubrication requiring little attention. One pumper can look after four times as many wells. Economical Lubrication.

ALIGNMENT:

Being self-contained are always in alignment. There is no need or place for a roughneck to put a wrench on a Lufkin Unit.

OPERATION:

Herringbone gears give a smooth steady flow of power and with Trout Counter-balance insures steady strain on sucker rods; reducing crystallization to the minimum; resulting in less rod trouble and longer life to rods.

STABILIZATION:

Flywheel effect in pinion shaft pulley and counter balance crank stabilizes and equalizes power load.

VIBRATION:

There is no vibration or "wind" in a Lufkin Unit, when set on concrete.

SPEED FLEXIBILITY:

Geared Units are run as high as 37-6 ft. strokes per minute successfully, and can be operated as slow as 10 strokes per minute by changing small motor pulley or as low as 3 strokes with small gear attachment.

WELL SERVICING:

Using Lufkin Loose Drum Hoists (going in the hole by gravity), power is never stopped or reversed. Loads are lifted with ease and speed; rod and tubing jobs are done in one-half the usual time. On rod jobs one crew will service nearly twice the number of wells than possible with Bull Wheels. Usual cup changing time on 4000 ft. wells in one hour is ordinary practice.

POST, BEAM AND PITMAN MAINTENANCE:

Automatically oiled, Lufkin Center Line (center-oiled) Beam, Post and Pitman assemblies require little attention—every thirty days is sufficient. Center line beams deliver "full" stroke on Polish Rod.

SALVAGE:

Except for the foundation, 100 per cent salvage value is realized on Lufkin installations. Many Lufkin Units have operated on as many as four leases.

PERMANENT INVESTMENT:

A ten year investment spread is the usual investment charge made by users of Lufkin Units. This is a conservative figure especially when Units are operated within their capacities.

WORLD USE:

Over two thousand Lufkin Units are in use in the Domestic and Foreign fields. Its acceptance has been world-wide—wherever oil is produced.

LUFKIN FOUNDRY & MACHINE CO.

LUFKIN, TEXAS

LUFKIN PRODUCTION HOISTS

Lufkin Engineers feel that they have reached the ultimate in operating efficiency in Production Hoists. Operation under the most severe conditions in the field over a period of years, has definitely proven the many advantages of the Lufkin "Loose-drum" roller bearing Hoists. The loose drum feature permits the Hoist to reverse without use of Power when going into the hole. This is found particularly desirable when using multi-cylinder or single cylinder engines. All Lufkin Hoists are equipped with Trout Expansion Brake Drums, which are unaffected by heat; Hyatt drum bearings; asbestos clutch brake blocks and asbestos brake bands of superior quality. Lufkin Hoists are ruggedly constructed and are fast and powerful in action. Time pulling rods and tubing is greatly reduced. Lufkin Hoists are furnished with either steel or wooden posts.

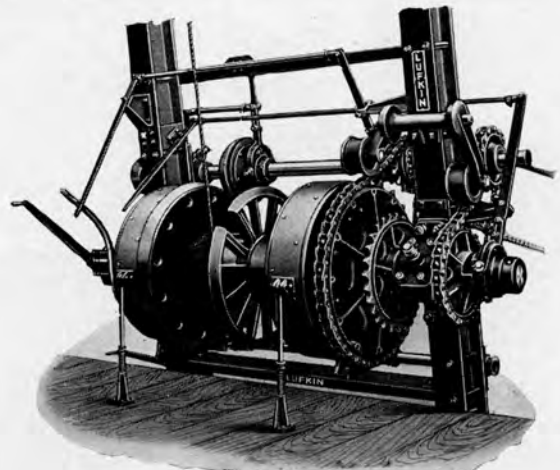


Figure 43
No. 52 Lufkin Production Hoist
(Same as No. 522 with line shaft added)

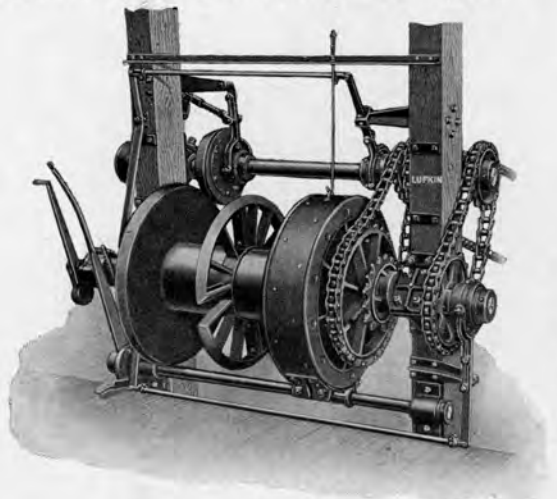


Figure 40
No. 2 Lufkin Production Hoist



Figure 42
**Lufkin
Combination
Ball Bearing
Rod Line Weight
and
'Sister Hooks'**

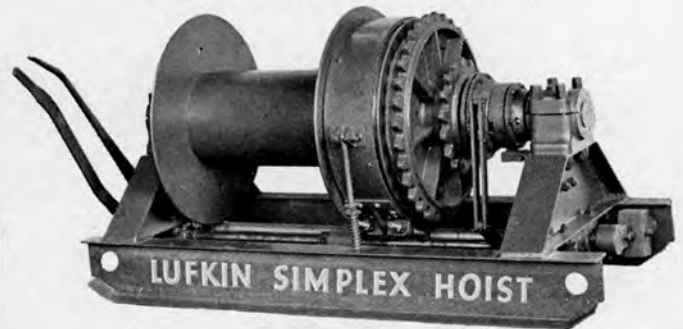


Figure 44
Lufkin Simplex Hoist

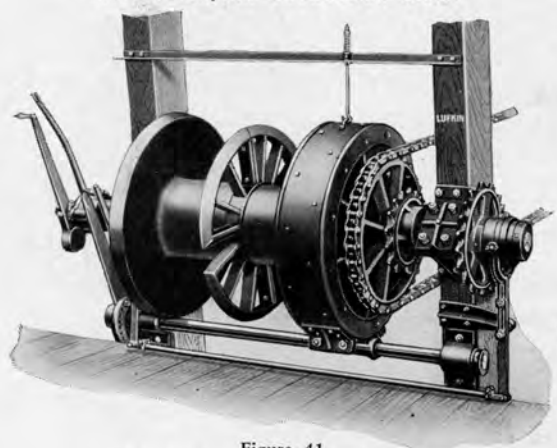


Figure 41
No. 6 Lufkin Production Hoist
(Same as No. 2 without line shaft)

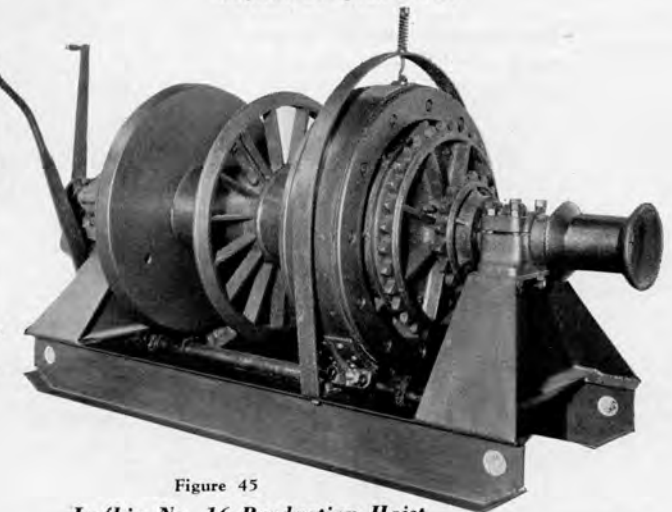


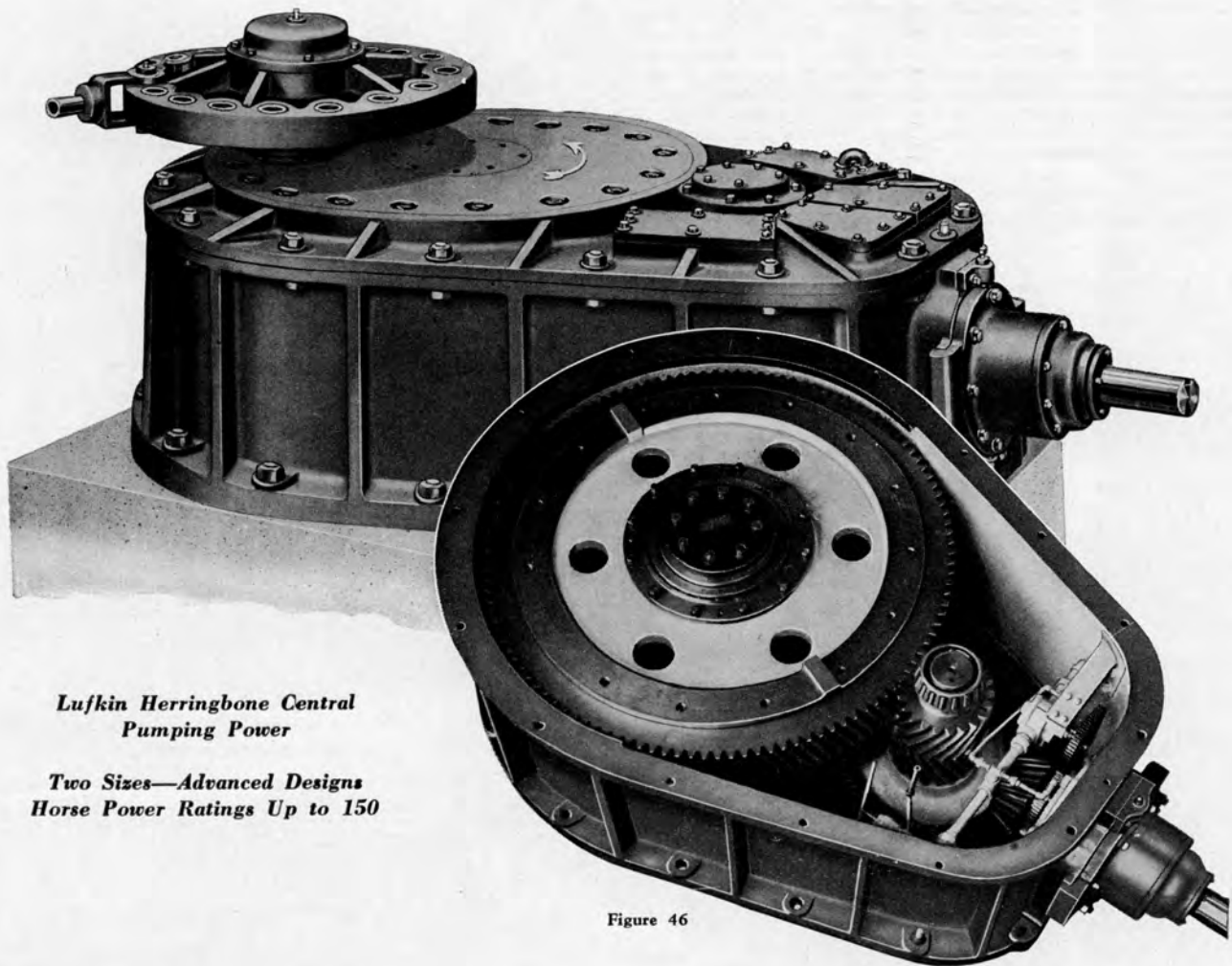
Figure 45
Lufkin No. 16 Production Hoist

SPECIFICATIONS OF LUFKIN PRODUCTION HOISTS

DIMENSIONS		No. 2	No. 6 & 16	No. 52	No. 522	Simplex
Line Capacity.....	1 1/2" Line	10,000	10,000	11,000	11,000	6,400
	1 1/4" Line	8,500	8,500	9,000	9,000	5,200
	1 1/8" Line	6,000	6,000	6,400	6,400	3,600
	1 1/2" Line	4,400	4,400	4,600	4,600	2,600
	1 1/4" Line	3,550	3,500	3,600	3,600	2,000
Diameter Drum Shaft.....	4	4	5	5	4	
Diameter Drum.....	16	16	16	16	16	
Length of Drum.....	35	35	36	36	30	
Diameter Drum Flanges.....	42	42	42	42	36	
Diameter Line Shaft.....	4	None	4	None	None	
Line and Drum Shaft Bearings.....	Babbitt	Babbitt	Babbitt	Babbitt	Babbitt	
Drum or Clutch Sprocket Bearings*.....	Hyatt	Hyatt	Hyatt	Hyatt	Hyatt	
Area Braking Surface.....	880 Sq. In.	880 Sq. In.	1760 Sq. In.	1760 Sq. In.	690 Sq. In.	
Area Friction Clutch.....	443 Sq. In.	443 Sq. In.	706 Sq. In.	706 Sq. In.	443 Sq. In.	
Low Speed Sprocket.....	32T.	32T.	44T.	44T.	32T.	
High Speed Sprocket.....	22T.	17T.	22T.	28T.	17T.	
Bull Wheel Drive Sprocket.....	17T.	22T.	28T.	22T.	None	
Weight in Pounds.....	7400#	6200#	12,000#	11,000#	3500#	

*Clutch Sprocket Bearing on Simplex Only.

LUFKIN CENTRAL PUMPING POWERS



*Lufkin Herringbone Central
Pumping Power*

*Two Sizes—Advanced Designs
Horse Power Ratings Up to 150*

Figure 46

LUFKIN HERRINGBONE GEARED CENTRAL PUMPING POWERS

Mechanical Characteristics

LUFKIN CENTER TRUNION

Note: Cross section drawing — the shocks of unbalanced well conditions are transmitted through this massive Alloy Steel Trunion directly to the solid concrete foundation in which it is mounted. This design insures absolute stability and rigidity at the most vital operating point and makes impossible any misalignment in the central Timken bearing regardless of load distribution. No strain is carried by the cover plate—no shearing effect on the gear box base—deficiencies common in most geared Powers. The Lufkin Central Trunion is a distinct Lufkin patented

feature found only in the design of Lufkin Central Powers.

LOW CENTER OF GRAVITY
Crank Pin Cast Integral With Crank

Lufkin Powers are of compact design with low centers of gravity for the transmission of power to pull rods meaning minimum lever for transfer of load from crank to trunion bearing—pull rod take-off is only 34" above base of power. The crank is keyed and cap screwed directly to the main gear—eliminating torsion load transmitted to a shaft. Crank pin is cast integral with crank thereby eliminating loose crank pins—crank is of a special nickel Alloy Steel.

LUFKIN FOUNDRY & MACHINE CO.

LUFKIN, TEXAS

LUFKIN CENTRAL PUMPING POWERS

HERRINGBONE GEAR ELIMINATES THRUST LOAD

Easy Adjustability

Herringbone main gear equalizes all gear thrust load insuring longer bearing life. A Lufkin patented feature permits easy adjustability, in the field, of both Herringbone and Gleason Helical bevel gears.

ANTI-FRICTION BEARINGS THROUGHOUT

All bearings are Timken Roller Bearings of generous size with high load carrying capacities.

GENERAL SPECIFICATIONS

Herringbone Units

1. Lufkin-Sykes Herringbone Main Gears.
2. Gleason Helical Bevel Gears.
3. Nickel-Alloy Massive Steel Trunion.
4. Low Center Gravity—compact.
5. Pressure Pump Lubrication—Positive.
6. Timken equipped throughout.
7. Crank Pin cast integral with crank.
8. No housing expense except for prime mover.
9. Designed throughout with conservative wear formulas—rugged—strong—for long lasting service.

Ask for special bulletin.

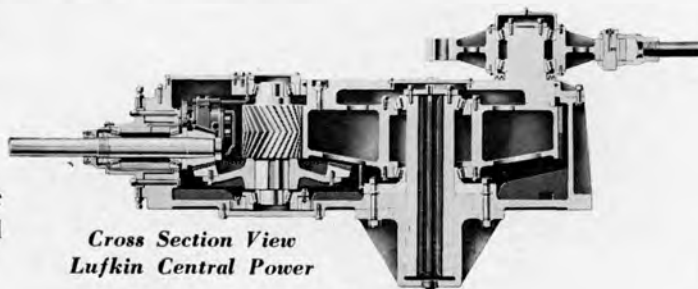


Figure 48

Distinct Features

A distinct feature characteristic of both the Lufkin Worm Gear and Herringbone Gear Powers is the design of the **center trunion**. This massive center trunion is an exclusive patented Lufkin feature found in no other type of geared central powers. All the shocks and strains due to unbalanced well conditions are transmitted through this center trunion, directly to the solid concrete base. The Lufkin center trunion is the result of ten years operating experience with various designs of geared central powers.

Lufkin Powers may be adapted to any type of prime mover.

LUFKIN WORM GEAR CENTRAL POWERS

Mechanical Characteristics

The first Lufkin Geared Powers were of the Worm Gear type. The earliest installations are today operating as efficiently as when first installed—an operating characteristic of Worm Gears, namely, sustained efficiency throughout the life of the gears.

Lufkin Worm Gear and Herringbone Gear Powers are comparable in many operating characteristics. Lufkin Worm Gear Powers, it may be said, exceed Herringbone Powers in simplicity of design—with fewer wearing parts—other mechanical features may be summed up in the following:

1. Center Trunion of Nickel Alloy Steel.
2. Center and Crank pin bearings; Timken.
3. Worm Bearings: double Timken Thrust, Hyatt Radial.
4. Gear is of alloy bronze.
5. Worm of alloy steel heat treated.

Lufkin worm gear powers are of heavy rugged construction designed for life-time service.

Write for special bulletin!

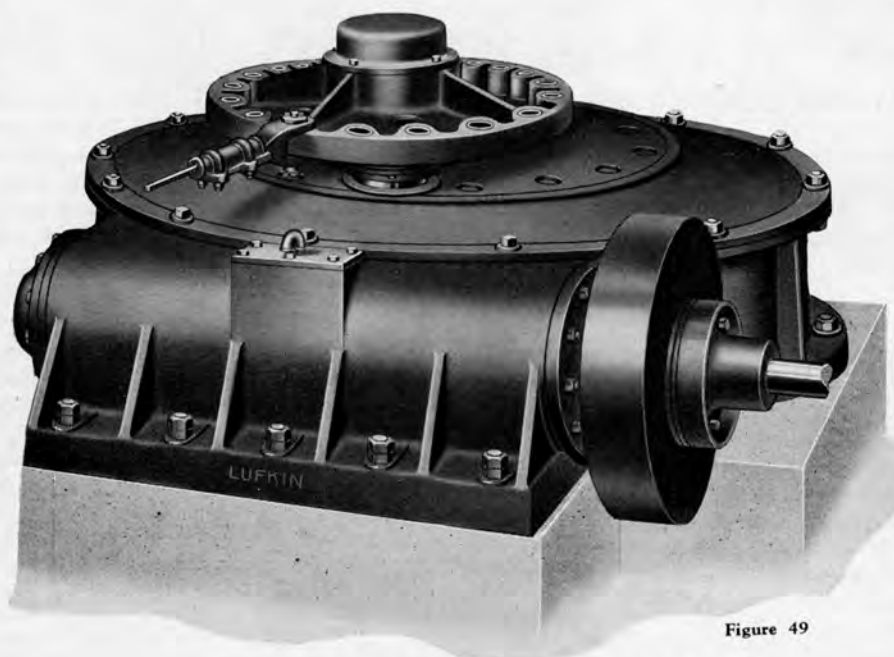


Figure 49

The Lufkin Giant Worm Gear Central Power

LUFKIN CENTRAL PUMPING POWERS



Figure 49

Lufkin Herringbone Geared Central Power installation in East Texas pulling 14 wells

NOTES ON SELECTING LUFKIN POWERS

In replacing a Band Wheel Power the total load can be easily determined by past experience. It would be advisable however, to check the friction load which is often excessive in poorly constructed Power installations.

This may be reduced by supporting the rod lines on proper carriers and by properly lubricating the jacks, swings, road crossings and other auxiliaries.

To determine beforehand the horsepower required to pump a number of either new or old wells is another problem. There are so many factors, that it is difficult to arrive at any exact horsepower figure and at best this can only be an estimate.

Individual well loads vary with depth of hole; depth to fluid level; speed and length of pumping stroke; size of working barrel; size of rods; friction of cups; gravity; temperature, and viscosity of oil; length of pull rod lines; and friction in surface equipment. Large quantities of salt water will increase the load. A flow of gas may assist or hinder the pump, depending upon conditions.

Counterweighting the sucker rods at the well and off-setting unbalanced pull rod lines at the Power

with counter weight boxes greatly affects the ability of the Power to handle the load and the power necessary for its operation. The most important consideration for Power capacity is the proper balancing or distribution of the well loads around the Power. If the load is correctly balanced the only power required is that necessary to raise the oil in the well and to overcome friction. A few wells improperly attached may subject the Power to greater strains than several times the number skillfully handled.

Most engineers are familiar with these problems and can arrive at a close approximation of horsepower required for a number of wells, however, if you wish our help or suggestion in determining size of power, engine or motor, please mail us the following information:

Make a diagram of the wells to be pumped, preferably to scale, locating your idea of where Power should set—marking from there length pull rods to each well. Then letter or number each well giving depth pumped; size of tubing; size of rods; gravity of oil; production if known; oil and water if any; any general information as to ground conditions, etc., or better, have our engineer call and make up an estimate.

LUFKIN FOUNDRY & MACHINE CO.

LUFKIN, TEXAS

LUFKIN CENTRAL POWER SURFACE EQUIPMENT



Figure 50
Trout patented Safety Coupler—a very simple, yet effective, mechanical device for hooking on and off from power—self-contained and designed for life time service.

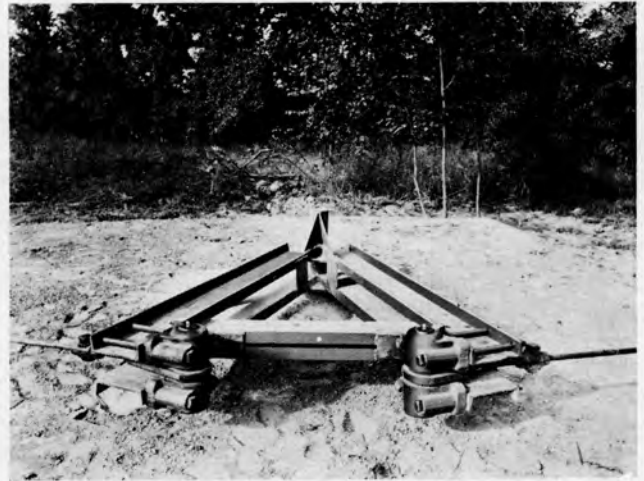


Figure 53
Lufkin heavy duty swing, all bearings bronze bushed and Alemite lubricated. Made for any degree of swing.



Figure 51
Lufkin hold-up and hold-downs. All bearings interchangeable and Alemite lubricated.



Figure 54
Lufkin "slide bar" type knockout renewable oak filler block with positive "hook-off" arrangement.



Figure 52
Lufkin underpull pumping jack. Electrically welded construction throughout—well braced and equipped with bronze bearings.

All types of surface equipment available, such as rod line carriers—center bearing type stroke posts, pull rod clevises, etc.



Figure 55
Lufkin stroke or multiplier post. This type also furnished with bearing in center position. Bearings on this post are interchangeable with hold-up and hold-downs.

20 new in 1933

LUFKIN FOUNDRY & MACHINE CO.

LUFKIN, TEXAS

Below is a partial list of users, (in domestic and foreign fields) of Lufkin equipment. A careful check of the list will reveal that practically every major oil company is a user of Lufkin Equipment.

Such an imposing list of users, we feel, is pretty fine evidence of the acceptance and use of Lufkin Equipment. We gladly refer you to any user.

LUFKIN EQUIPMENT USERS IN UNITED STATES

- ✓ Amerada Petroleum Corp.
- Arkansas Fuel Oil Corp.
- ✓ Atlantic Oil Producing Corp.
- Berry Asphalt Co.
- Bill and Dave Oil Co.
- ✓ California Company
- ✓ Capps, L. W.
- ✓ Carter Oil Co.
- ✓ Columbia Oil & Gas Co.
- ✓ Continental Oil Co.
- ✓ Cosden & Company
- ✓ Cox & Hamon
- ✓ Cunningham Production Co.
- ✓ Darby Petroleum Co.
- ✓ Deep Rock Oil Co.
- ✓ Empire Gas & Fuel Co.
- ✓ Exchange Oil Company
- ✓ Falcon Oil Co.
- ✓ F. H. & E. Oil Co.
- ✓ Fort Bend Oil Co.
- ✓ General Petroleum Corp.
- ✓ Gordon Folwell & Dickson
- ✓ Gulf Production Co.
- ✓ Gypsy Oil Co.
- ✓ Houston Oil Co.
- ✓ Howard County Oil Co.
- ✓ Humble Oil & Refg. Co.
- ✓ Humphreys Oil Co.
- ✓ Hunt, H. L. Production Co.
- ✓ Hyland Oil Co.
- ✓ Jergins Company, A. T.
- ✓ Johnson, T. A.
- ✓ Johnston & Owens
- ✓ Kathleen Oil Co.
- ✓ Knox, Powell & Stockton
- ✓ Laurel Oil Company
- ✓ Lechner & Hubbard
- ✓ Lide-Rowe Oil Co.
- ✓ Lion Oil & Refg. Co.
- ✓ Lonnie Glasscock
- ✓ Loring Oil Co.
- ✓ Louisiana Oil & Refg. Co.
- ✓ Luling Oil & Gas Co.
- ✓ Magna Production Co.
- ✓ Magnolia Petroleum Corp.
- ✓ Mar-La-Fay Oil Corp.
- ✓ Marland Oil Company
- ✓ McCutcheon, Alex
- ✓ Mecon Oil Company
- ✓ Merrick, J. F.
- ✓ Mid-Continent Production Co.
- ✓ Mid-Kansas Petroleum Corp.
- ✓ Miller-Lacy Oil Co.
- ✓ Mills Bennett Production Co.
- ✓ Moss, H. S.
- ✓ Mul-Berry Oil Co.
- ✓ Murdock, C. E., Inc.
- ✓ Murray & Goode
- ✓ Murray, T. W.
- ✓ Navarro Oil Co.
- ✓ Nelms, H. G.
- ✓ Nicholson-Terrell Oil Corp.
- ✓ Nile Oil Co.
- ✓ Ohio Oil Co.
- ✓ Omega Oil Co.
- ✓ Orchard, Chas.
- ✓ Owen & Sloan Oil Co.
- ✓ Pan American Petroleum
- ✓ Petroleum Securities
- ✓ Phillips Petroleum Co.
- ✓ Pilot Oil Co.
- ✓ Prairie Lea Production Co.
- ✓ Pure Oil Co.
- ✓ Richfield Oil Co.
- ✓ Rio Bravo Oil Co.
- ✓ Roeser & Pendleton, Inc.
- ✓ Rovenger Oil Co.
- ✓ Seward Oil Co.
- ✓ Shaffer Oil & Refining Co.
- ✓ Shaw, T. G.
- ✓ Shell Petroleum Co.
- ✓ Simms Oil Co.
- ✓ Sinclair-Prairie Oil Co.
- ✓ Skelley Oil Co.
- ✓ Smith, R. E.
- ✓ Smith, Victor C.
- ✓ Smitherman & McDonald
- ✓ Sonron Oil Corp.
- ✓ South Texas Oil Co.
- ✓ Southern Development & Prod. Co.
- ✓ Spear, H. K.
- ✓ Standard Oil Co. of La.
- ✓ Standard of California
- ✓ Standard of Kansas
- ✓ Stanolind Oil & Gas Co.
- ✓ Stroube & Stroube, Inc.
- ✓ Sun Oil Company
- ✓ Tarver, A. H.
- ✓ The Texas Company
- ✓ The Tidal Osage Companies
- ✓ Tide-Water Companies
- ✓ Turman, L. C.
- ✓ United North & South Co.
- ✓ United Oil Well Supply Co.
- ✓ Unity Oil Co.
- ✓ Vacuum Oil Co.
- ✓ Weaver-Crim Oil Co.
- ✓ Western Gulf Oil Co.
- ✓ Winfree Oil Co.
- ✓ Witherspoon Oil Co.
- ✓ Woodley Petroleum Corp.

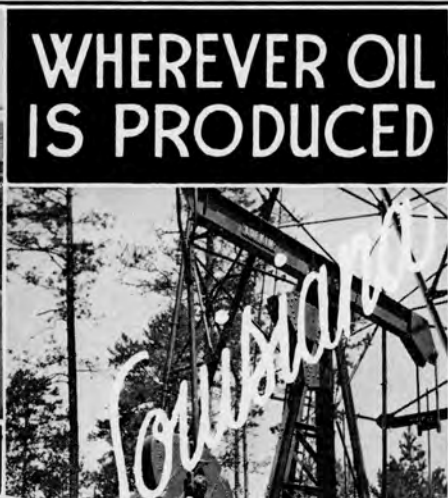
FOREIGN

- Anglo Mexican Petroleum Corp.
- Argentine Government Oil Fields
- Asiatic Petroleum Co.
- Burmah Oil Co.
- Cia Mexicana de Petroleo "El Aguila"
- International Petroleum Co., Ltd.
- Lago Petroleum Co.
- Mitsubishi Shoji Kaisha, Ptd.
- North Saghalien Petroleum Co.
- Oil Well Engineering Co.
- Romano Americana
- Steaua Romana
- Standard Oil Co. of New Jersey
- Standard Oil Co. of Argentine
- Standard Oil Co. of Venezuela
- Tropical Oil Co.
- Venezuela Gulf Oil Co.

LUFKIN FOUNDRY & MACHINE CO.

LUFKIN, TEXAS

WHEREVER OIL IS PRODUCED



LUFKIN

EQUIPMENT OF ADVANCED DESIGN

