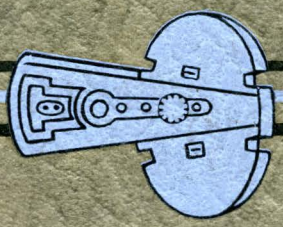
LUFKIN
OIL FIELD
EQUIPMENT



Catalogue No. 33

LUFKIN FOUNDRY & MACHINE CO.

FACTORY AND GENERAL OFFICES
LUFKIN, TEXAS

BRANCH OFFICES AND WAREHOUSES

GULF COAST DIVISION
Houston, Texas,

WAREHOUSES
Odessa, Texas

CALIFORNIA DIVISION
Los Angeles, Calif.,
5959 South Alameda

EAST TEXAS DIVISION
Henderson, Texas,
Crim Crest Hill, P. O. Box 516

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

WAREHOUSES
Seminole, Oklahoma

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

ARKANSAS-LOUISIANA DIVISION
El Dorado, Arkansas

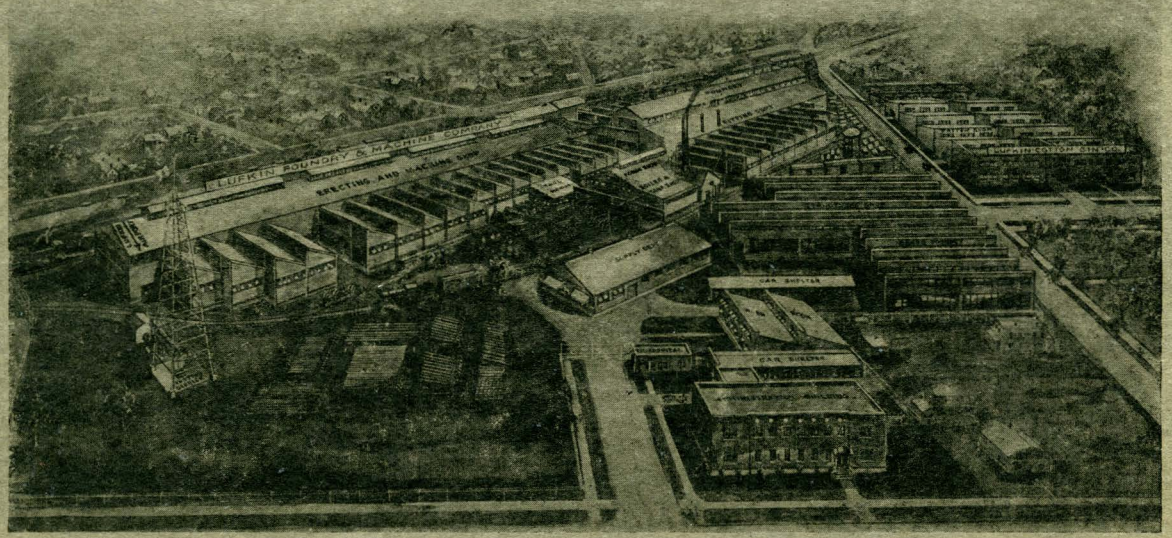
PRODUCTS:

- Herringbone Geared Pumping Units
- Worm Geared Pumping Units
- 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.

INDEX

LUFKIN OIL FIELD EQUIPMENT

Catalogue No. 33.



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

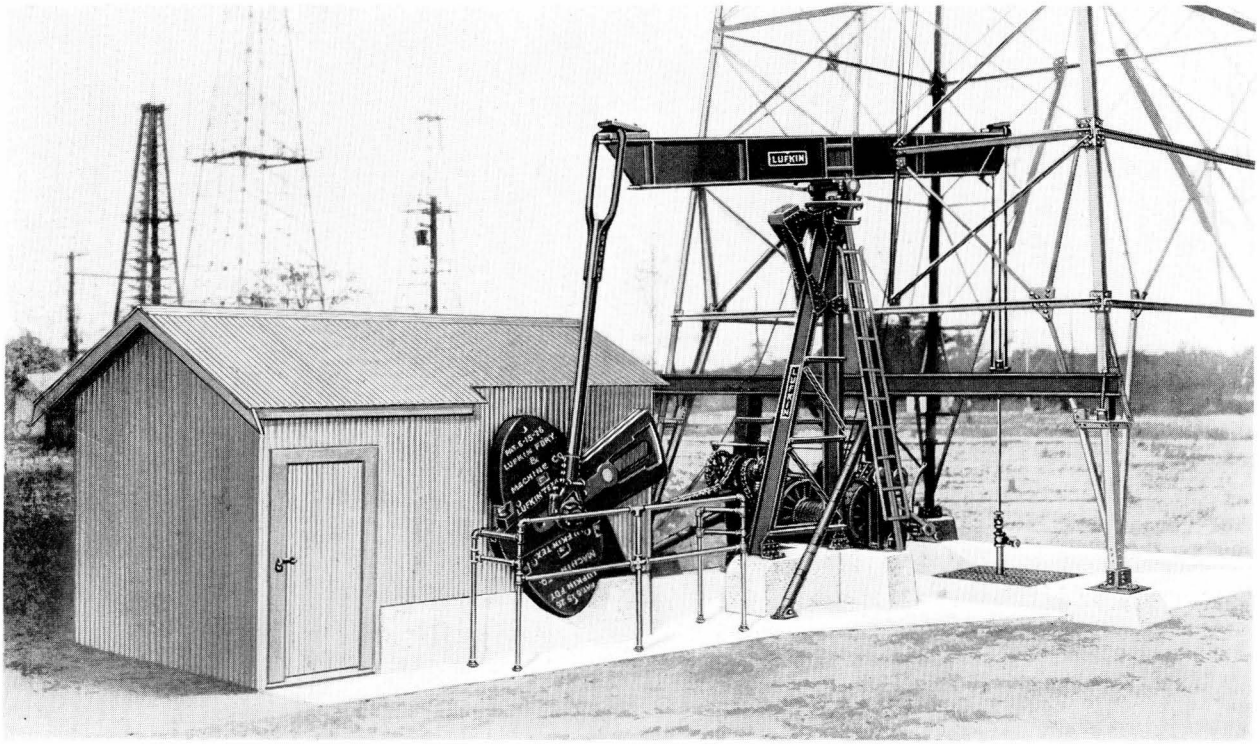


Figure 1

Typical Herringbone Gear Installation

INTRODUCTION

In compiling this catalogue we have endeavored to furnish the prospective purchaser with full information concerning our equipment together with an unusual amount of engineering and mechanical data, thereby saving time; and cable and telegraphic expense.

Lufkin Engineers are continually striving to improve our products and therefore constructive criticism and helpful suggestions are always invited and appreciated. Our leadership in the development of Modern Oil Well Pumping Equipment is due in a large measure to that host of friends in the Oil Industry who have contributed so generously to that end. To those friends we express our keenest appreciation.

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 nine years ago, when Lufkin introduced the first successful reduction geared unit, little improvement of value had been made in the 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 created a demand for efficient speed 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 by the Oil Industry that Gears were the most efficient and desirable means of reducing speeds as they are so recognized by every other major 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 minor importance when it was found, after a period of time, that FEWER REPAIR PARTS, SAVING OF LABOR and UNINTERRUPTED PRODUCTION created greater savings and reduced the cost of lifting oil more than the savings in power consumption.

With the realization that Lufkin Geared Units produced oil more economically than any other type of speed reduction, they were adapted to the steam engine, gas engine and oil engine as well as to the electric motor. Large, expensive "Standard Rig" buildings have given way to small, neat, inexpensive types, housing Lufkin Units, fire hazard has been 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, two 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 drive. Unit is also furnished with or without base as desired.

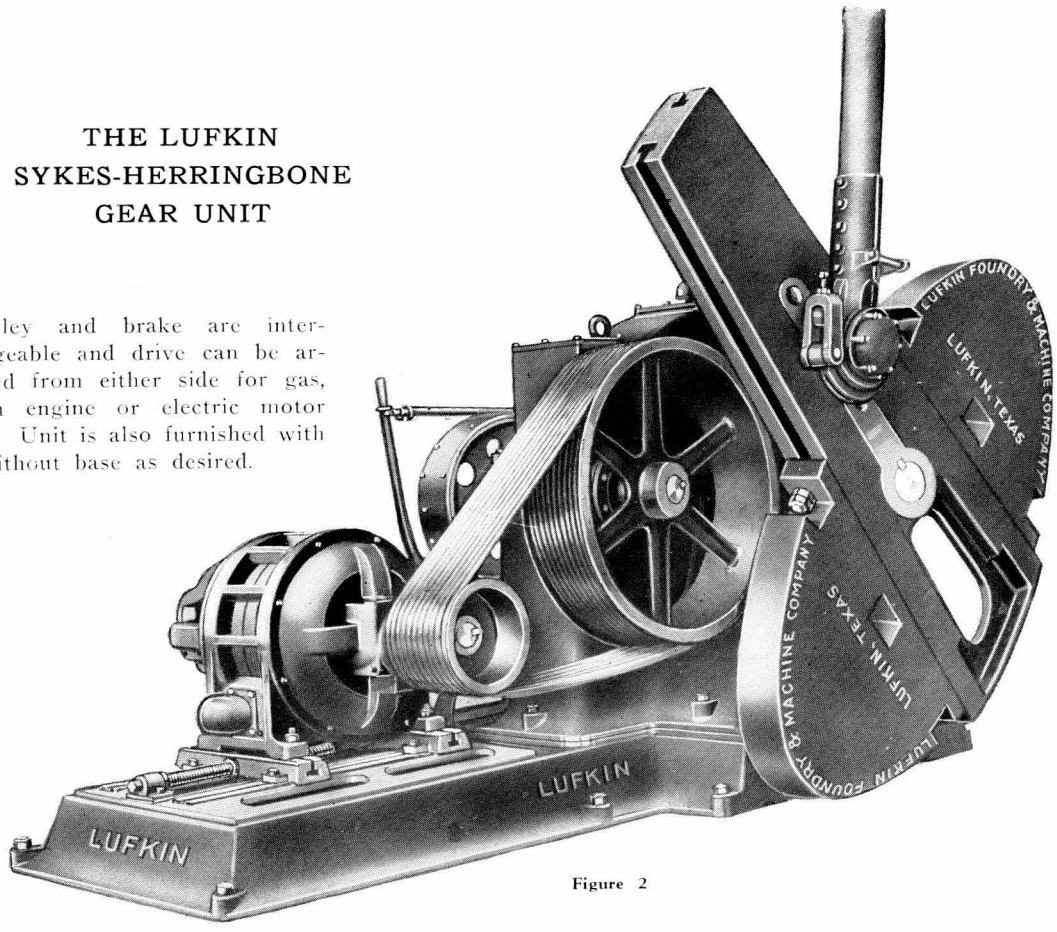


Figure 2

LUFKIN HERRINGBONE GEAR UNITS

The Farrel-Sykes continuous tooth herringbone gears, used in all Lufkin H. B. Units, have from 20% to 40% more bearing surface 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. **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

For length of stroke and effective counterbalance, see page 10

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 7/16″ Dia. Bronze Bearings	3 11/32″ Dia. Hyatt Bearings	34″ O.D. 2250 F.P.M. 37.8 H. P.	With Light Crank **14,650#** With Heavy Crank **19,350#**
Also furnished with Double Reduction Gears—Ratio 30.6 to 1								
5″ Junior	**8.5**	**21*** **95†**	8″ Face 34″ P.D. 119-T.	8″ Face 4″ P.D. 14-T.	4 15/16″ Dia. Bronze Bearings	3 11/32″ Dia. Hyatt Bearings	60″ O.D. 8-C Belts 3200 F.P.M. 68 H.P.	**11,300#**
5½″ Standard	**9** 2/3	**36*** **154†**	8″ Face 47″ P.D. 141-T.	8″ Face 5″ P.D. 15-T.	5 7/16″ Dia. Bronze Bearings	3 15/16″ Dia. Hyatt Bearings	37″ O.D. 11-C Belts 2190 F.P.M. 69.3 H.P.	**17,100#**
6½″ Heavy Duty	**9** 5/7	**58*** **229†**	10″ Face 54.4″ P.D. 136-T.	10″ Face 5.6″ P.D. 14-T.	6 7/16″ Dia. Bronze Bearings	4 11/16″ Dia. Hyatt Bearings	43¼″ O.D. 11-C Belts 2700 F.P.M. 81.4 H.P.	**22,650#**
Rig Front	**8.5**	**66*** **229†**	10″ Face 54.4″ P.D. 136-T.	10″ Face 6.4″ P.D. 16-T.	7 7/16″ Dia. Bronze Bearings	5⅛″ Dia. Hyatt Bearings	Sheave or Pulley as Desired	**21,000#**

*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.

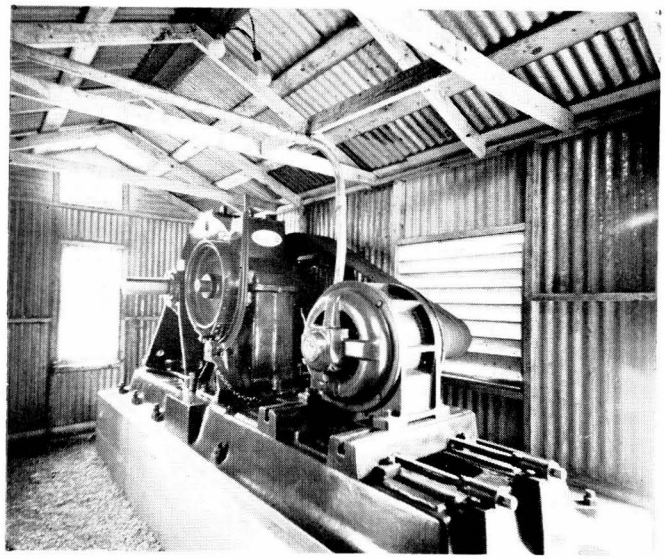


Figure 3

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.

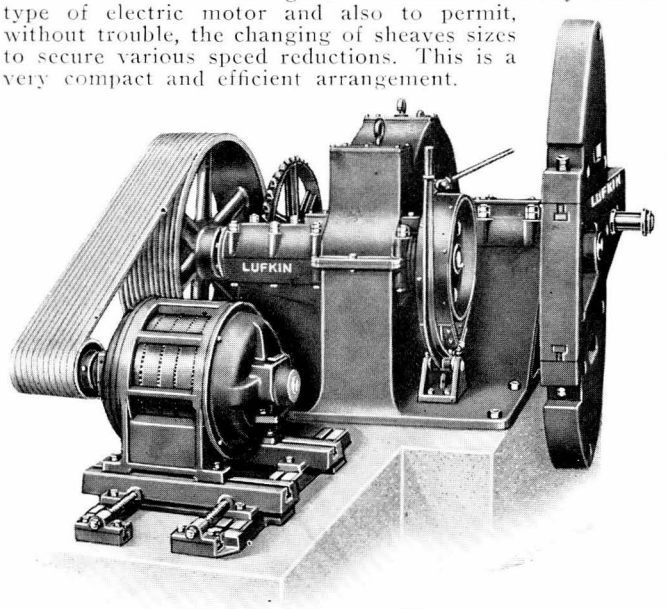


Figure 4

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.

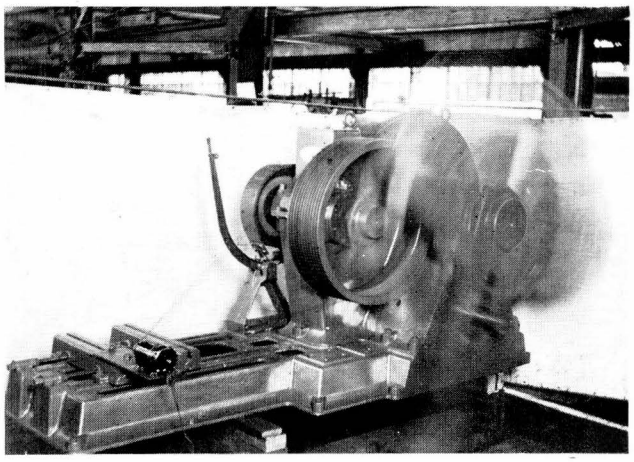


Figure 5

LUFKIN EFFICIENCY

Note the ease with which this ½-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.

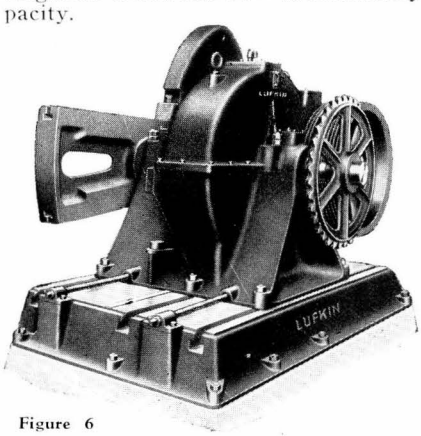


Figure 6

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", 5½" and 6½" only.

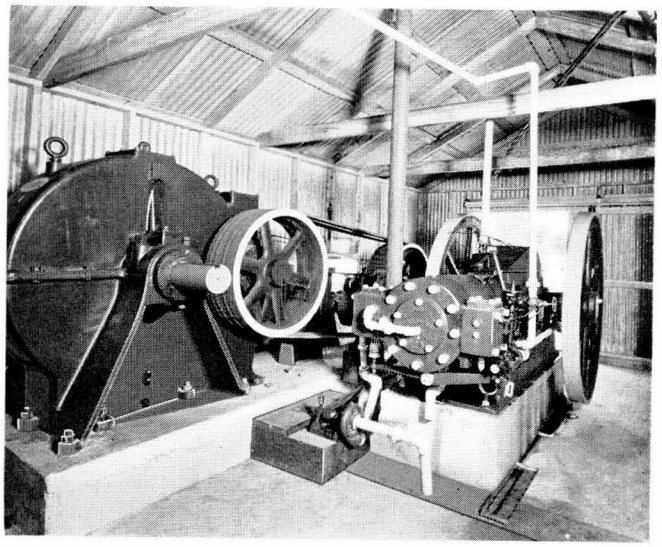


Figure 7

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.

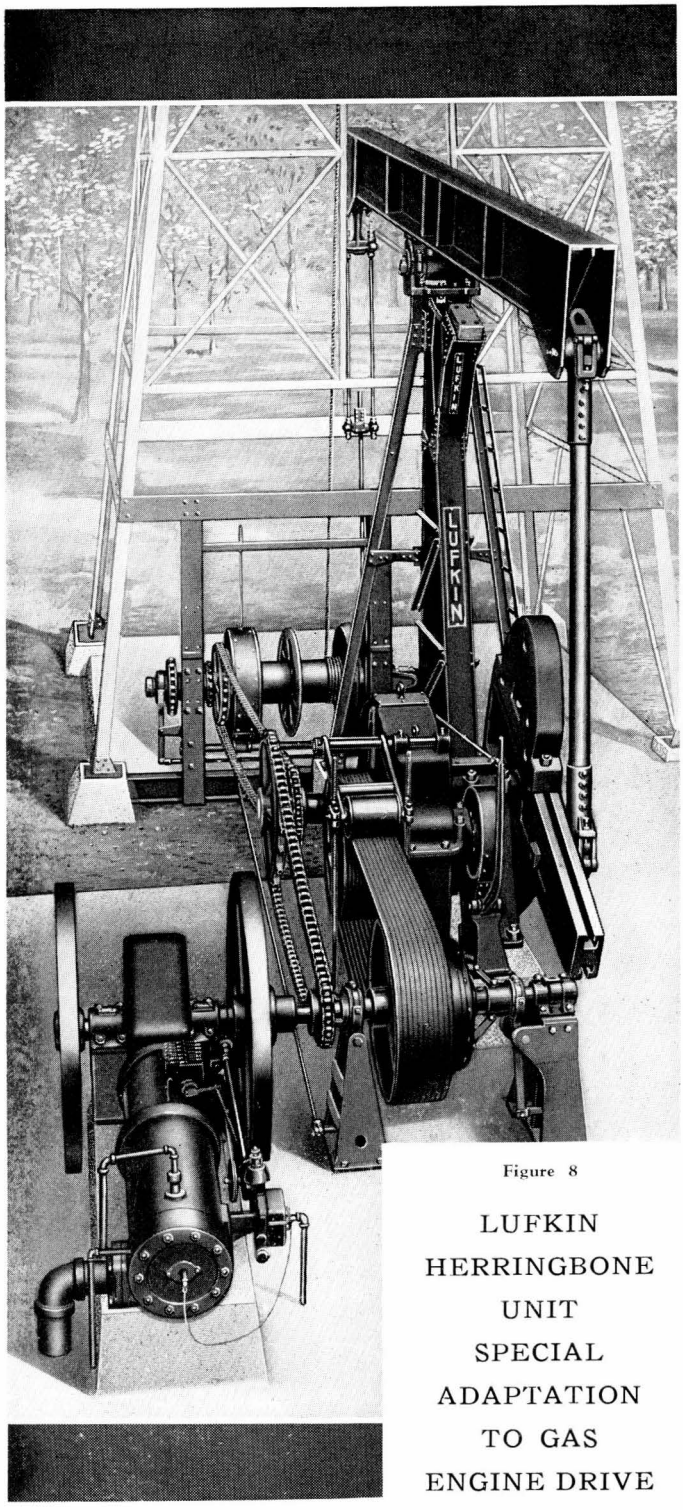


Figure 8

LUFKIN HERRINGBONE UNIT SPECIAL ADAPTATION TO GAS ENGINE DRIVE

This Lufkin Herringbone Unit set-up makes this job a truly "general-purpose" one. Pulling jobs are handled with ease —no need to shift weights—and power ordinarily required to turn gear and crank is entirely eliminated.

ROD AND TUBING JOBS ARE HANDLED INDEPENDENT OF UNIT IN THIS LUFKIN HOOK-UP.

Where single cylinder gas engines are used as prime movers with Lufkin Herringbone Gear Units, and individual hoists are used for servicing, a simple attachment consisting of a sleeve with loose twin sprockets may be mounted on the gear shaft serving as a countershaft to reduce speed from engine to hoist. This arrangement eliminates the necessity of balancing the crank and rotating the gears and crank when the hoist is in operation.

With the use of a loose drum hoist, reverse clutches with their costly upkeep are not required; service operations are speeded up, so that only about half the time is consumed for each service operation as against that of positive clutch hoists with reversals of the rig for each trip into the hole.

Another factor to be considered is the saving in gear wear when wells are serviced by this method, with the resultant saving in power required to operate the entire mechanism.

Primarily designed for use with the single cylinder gas engine, this unit is easily adaptable to other types of prime mover where the power saving will be a greater consideration.

ADVANTAGES

1. Pulling operation independent of unit gears and drive.
2. Twin sprocket is loose on main shaft of unit which serves simply as a countershaft, to reduce speed of engine to hoist.
3. Makes fast pulling operation with loose drum hoist.
4. Saves wear on the gears.
5. Unnecessary to change counterbalance weights.
6. Reverse eliminated.

LUFKIN UNIVERSAL GEARED RIG FRONT

for Cable Tool Drilling and Pumping
a "Standard Rig with geared efficiency."
Adaptable to Any Type Prime-Mover

To meet the demand for a Geared Standard Rig for cable tool production, the Lufkin "Universal" Geared Rig Front was designed. This neat, attractive, self-contained and housed **Geared** Unit replaces the band wheel shaft and crank and the large expensive belts of the old Standard Rig, assuring an efficient—balanced Unit that is generally universal in its use. While especially adaptable to single cylinder gas engine operation, electric motor or any other type prime mover may be used.

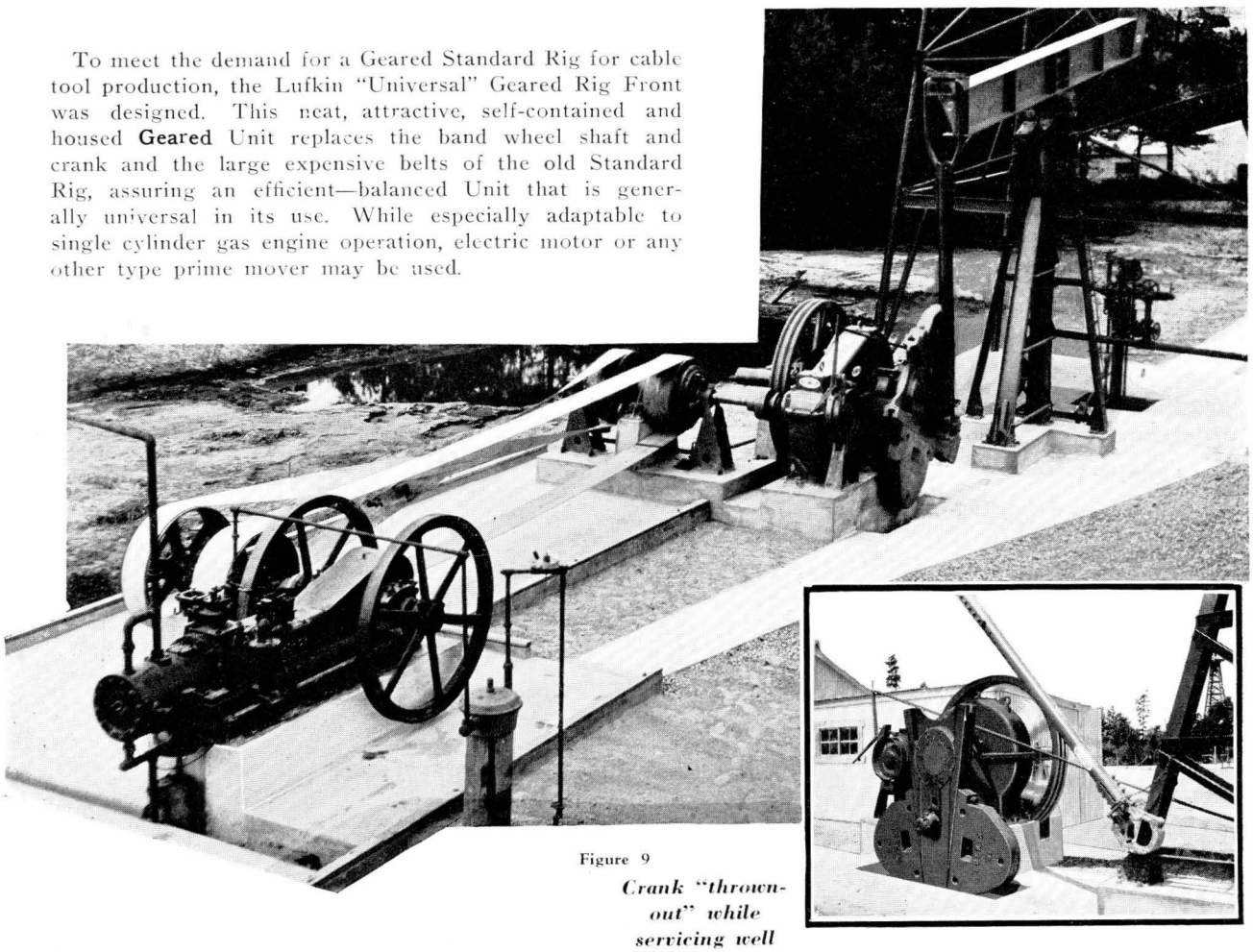


Figure 9
Crank "thrown-out" while servicing well

MECHANICAL CONSTRUCTION LUFKIN RIG FRONT.

Sykes - Herringbone (continuous tooth) gears of rugged heavy construction are used in the Lufkin Rig Front. These gears are made of a special Alloy Steel and are designed to give long, lasting service under heaviest loads; are of large diameters, for slow speed operation, insuring long life, quiet operation and are highly efficient.

The Trout-Croom Counterbalance Crank, regularly furnished with this equipment, is so designed that by a simple adjustment it may be made to "float" on an anti-friction bearing, thereby eliminating all objectional fly-wheel action in reversing bull wheels when servicing the well and allows for even wear on the gears which is a distinct advantage not found in competitive cranks.

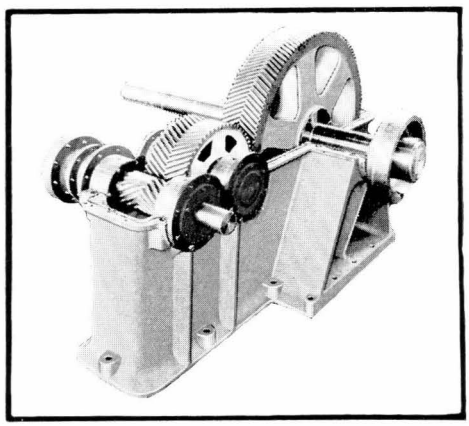


Figure 10
Gear cover removed showing type gearing

A Standard All Steel Split 2-groove Tug Rim 7′ in diameter is provided with the Unit as is also a Calf-wheel sprocket with regular jaw clutch. These may be omitted and sprocket for production hoist substituted if desired. A suitable locking brake is provided.

In the Lufkin Universal Geared Rig Front, Lufkin Engineers feel that they offer equipment unsurpassed in economy of operation and flexibility in "hook-up" arrangements.

FOR SPECIFICATION OF GEARS SEE PAGE 4

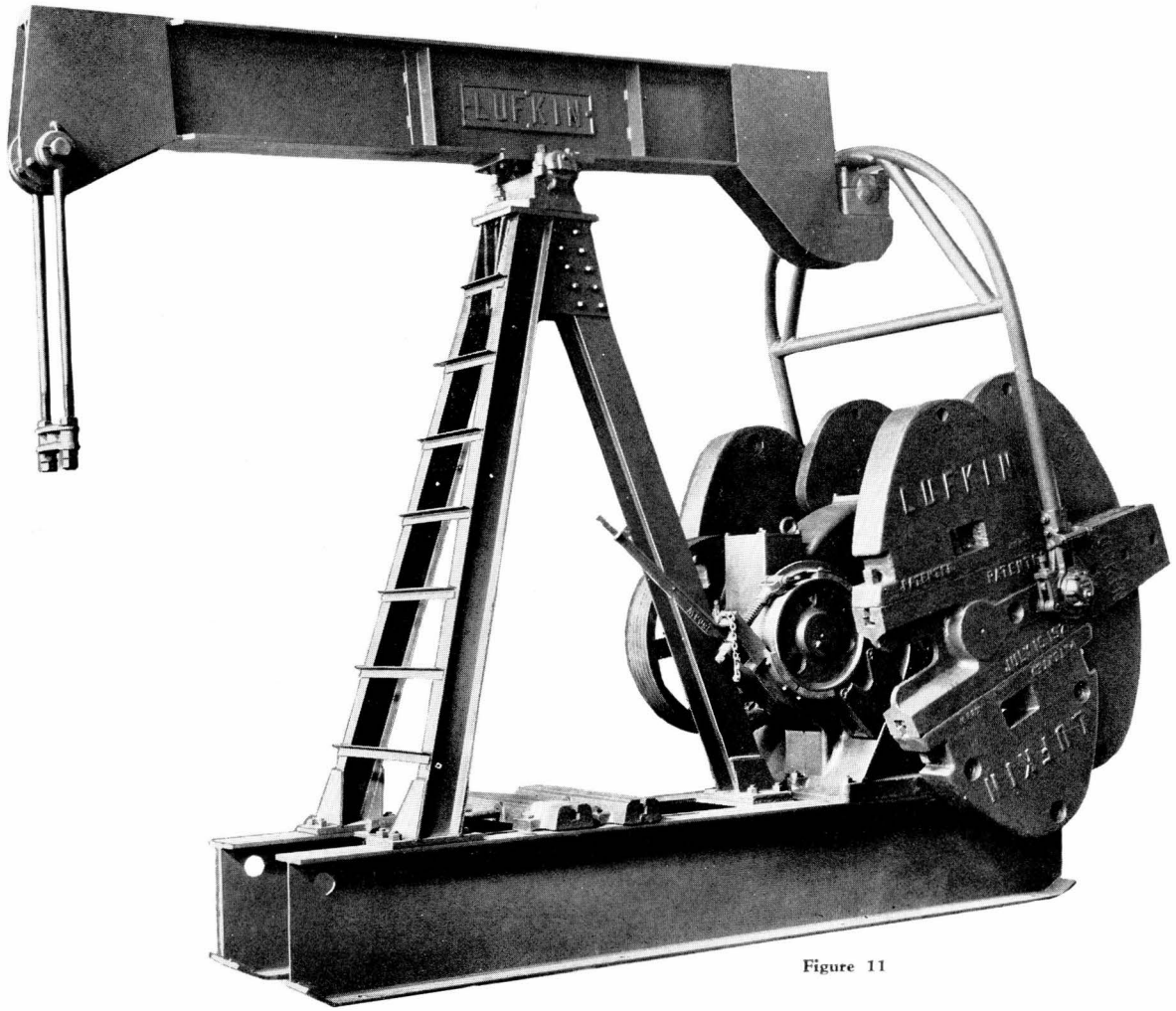


Figure 11

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

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 7/16" Dia. Bronze Bearings	3 11/32" Dia. Hyatt Bearings	34" O.D. 2250 F.P.M. 37.8 H. P.	With Light Crank **14,650** # With Heavy Crank **19,350** #
Also Furnished with Double Reduction Gears—Ratio 30.6 to 1								

*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 lbs.

For length of stroke and effective counter-balance see page 10.

For SAMSON POST and WALKING BEAM Specifications—See page 18

MECHANICAL CONSTRUCTION
LUFKIN TWIN CRANK UNIT ASSEMBLY

The LUFKIN TWIN CRANK UNIT 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—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 pinion is of forged alloy steel, generated integral with shaft, 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 shaft bearings and Hyatt roller bearings on the pinion shaft. 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 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.

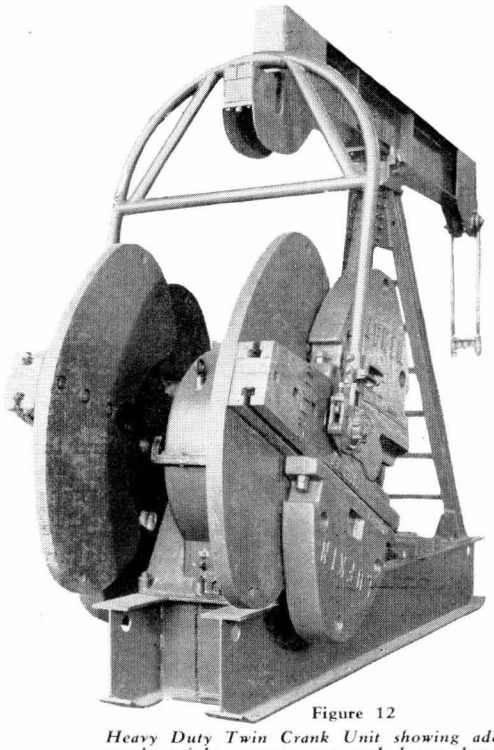


Figure 12

Heavy Duty Twin Crank Unit showing additional crank weight arrangement and heavy beam base allowing for additional length of crank.

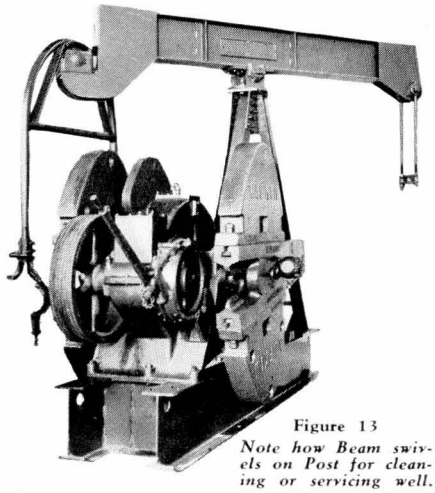


Figure 13

Note how Beam swivels on Post for cleaning or servicing well.

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 14).

Note:—This Unit can be furnished with a double set of Herringbone Gears when it is desirable to operate at less than 12-strokes per minute. We do not, however, recommend double geared rigs for normal pumping on account of excessive gear speeds and resulting shortened life.

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.

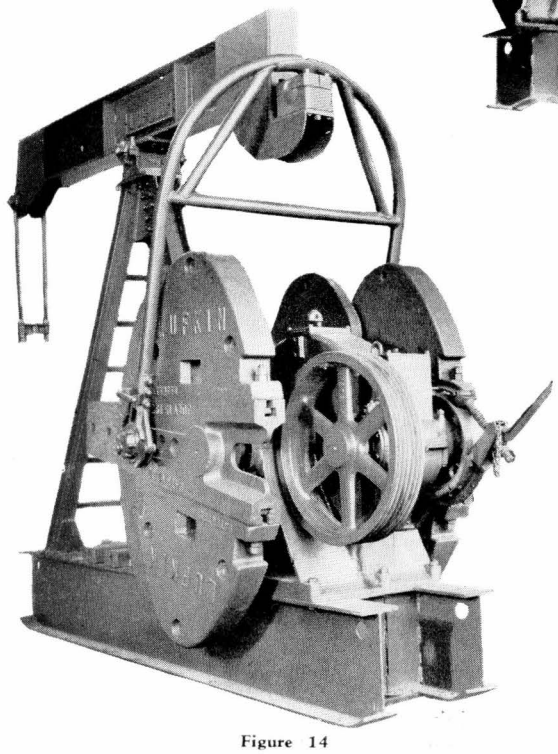
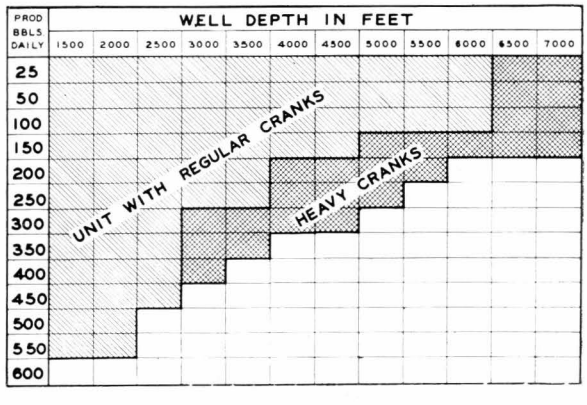


Figure 14

Unit arranged for multi or single cylinder engine operation.



Lufkin Twin Crank Unit Service Chart

THE TROUT COUNTER-BALANCE CRANK

The counter-balance crank for oil well pumping has been accepted by oil producers and manufacturers of oil field equipment as the most desirable means of balancing wells, but only after exhaustive tests and comparisons with every other conceivable method of balancing a pumping well.

The Trout counter-balance crank (see illustration) is the most effective and flexible counter-balance that has been placed at the disposal of 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 point of maximum acceleration since

Force = Mass X 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.

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

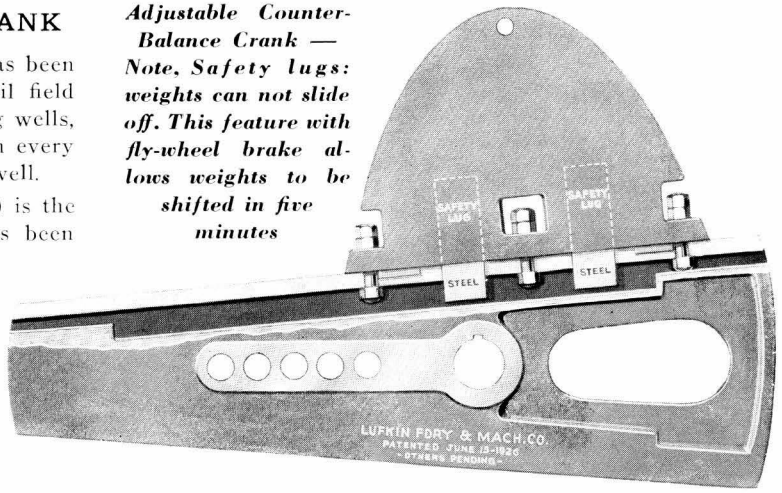


Figure 15

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" Pounds	42" Pounds	52" Pounds	62" Pounds	72" 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"
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"
Regular Crank No. 1001 W and Weights	10,800	7,550	5,860	4,720
With Auxiliary Weights (extra price)	13,400	9,400	7,200	5,900

FOR 4½" TWIN CRANK UNITS:

Stroke:	18.6"	30.5"	41.9"
Standard Crank No. 1455 W and Weights	13,200	8,050	5,850
Heavy Crank No. 1590 W and Weights	27,000	16,500	12,000

FOR BABY WORM GEAR UNIT:

Stroke:	16"	26"	36"
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.

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.

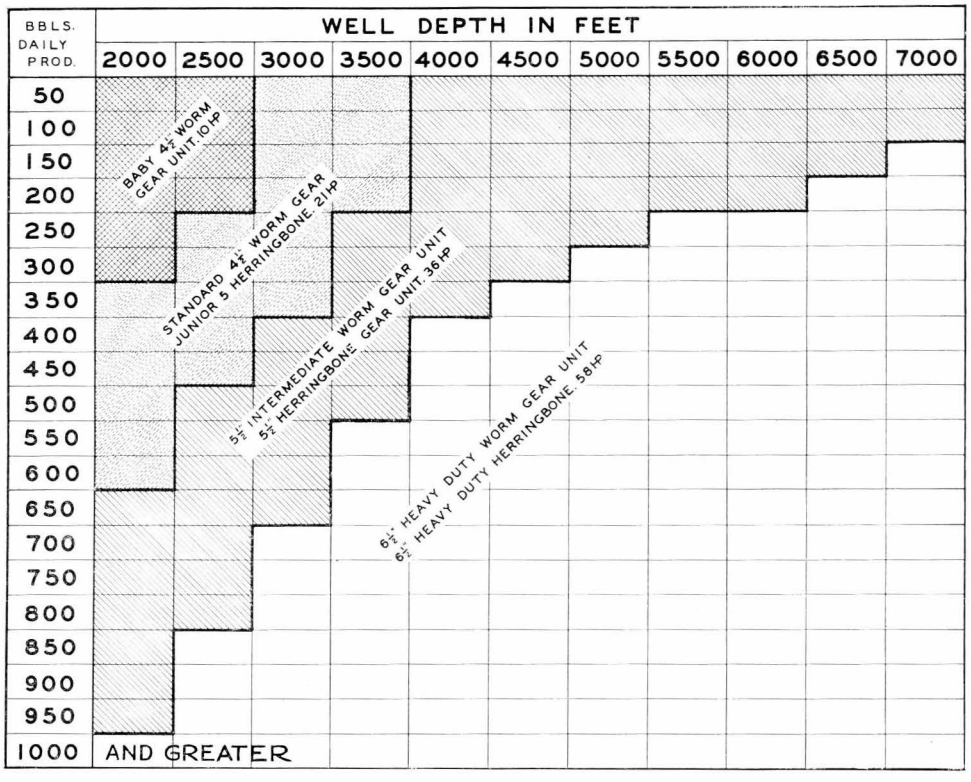
In order to assist in selecting a unit, we have devised a chart which gives the size of the unit which will operate satisfactorily under average well conditions, at various pumping depths, and varying production in barrels on a 24-hour basis. This chart has been arrived at on a theoretical basis and 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



LUFKIN WORM GEAR UNITS
Manufactured in four sizes

The Lufkin Worm Gear Pumping Unit was the first 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.

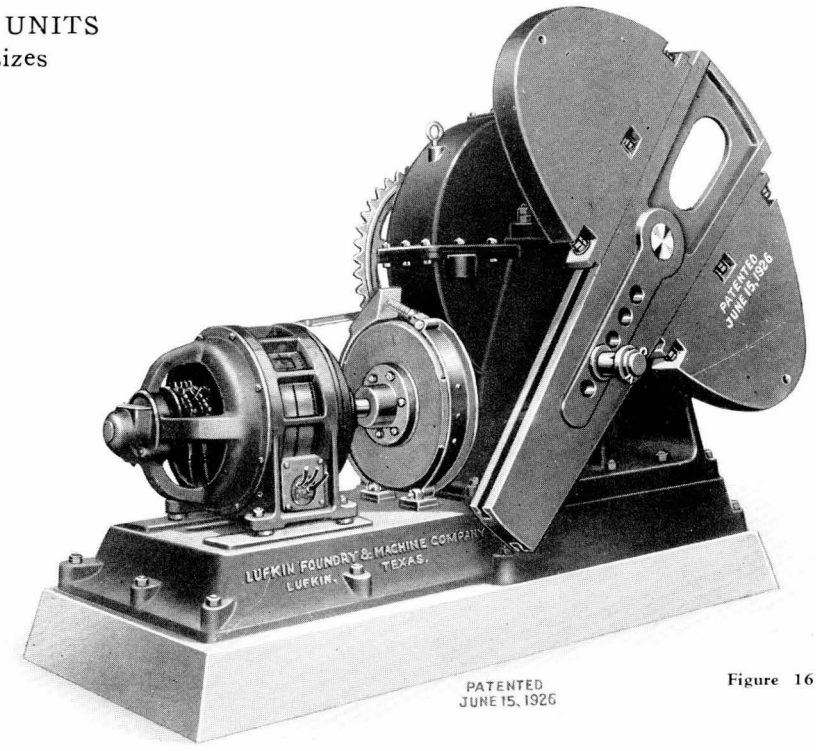


Figure 16

Lufkin Worm Gear Unit

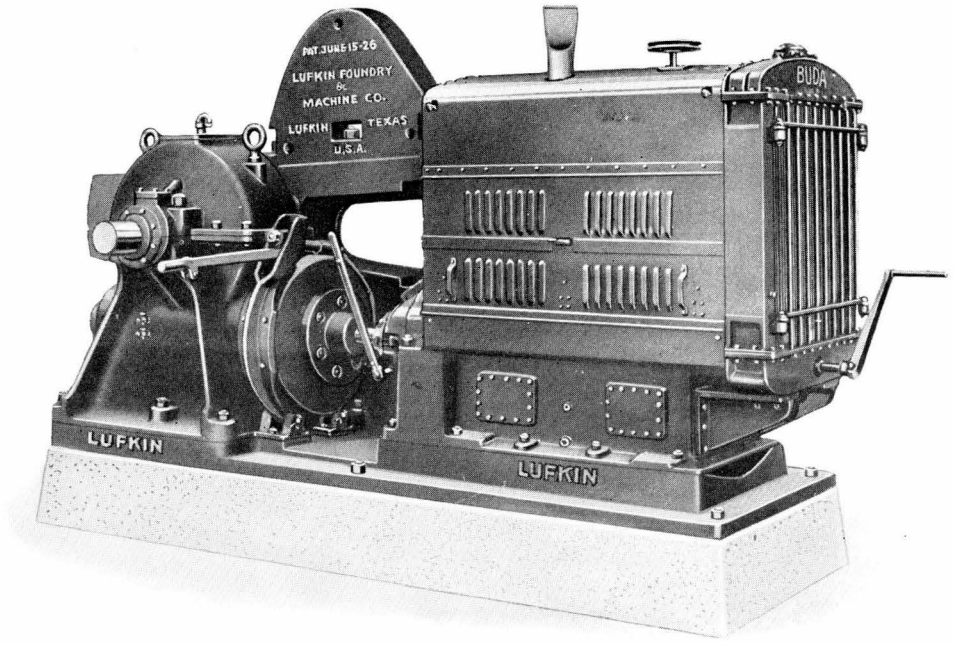


Figure 17

Special low base for 4½" Stripped Standard Unit

LUFKIN "STRIPPED STANDARD" WORM GEAR UNIT

This Lufkin Unit is the regular 4½" 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.

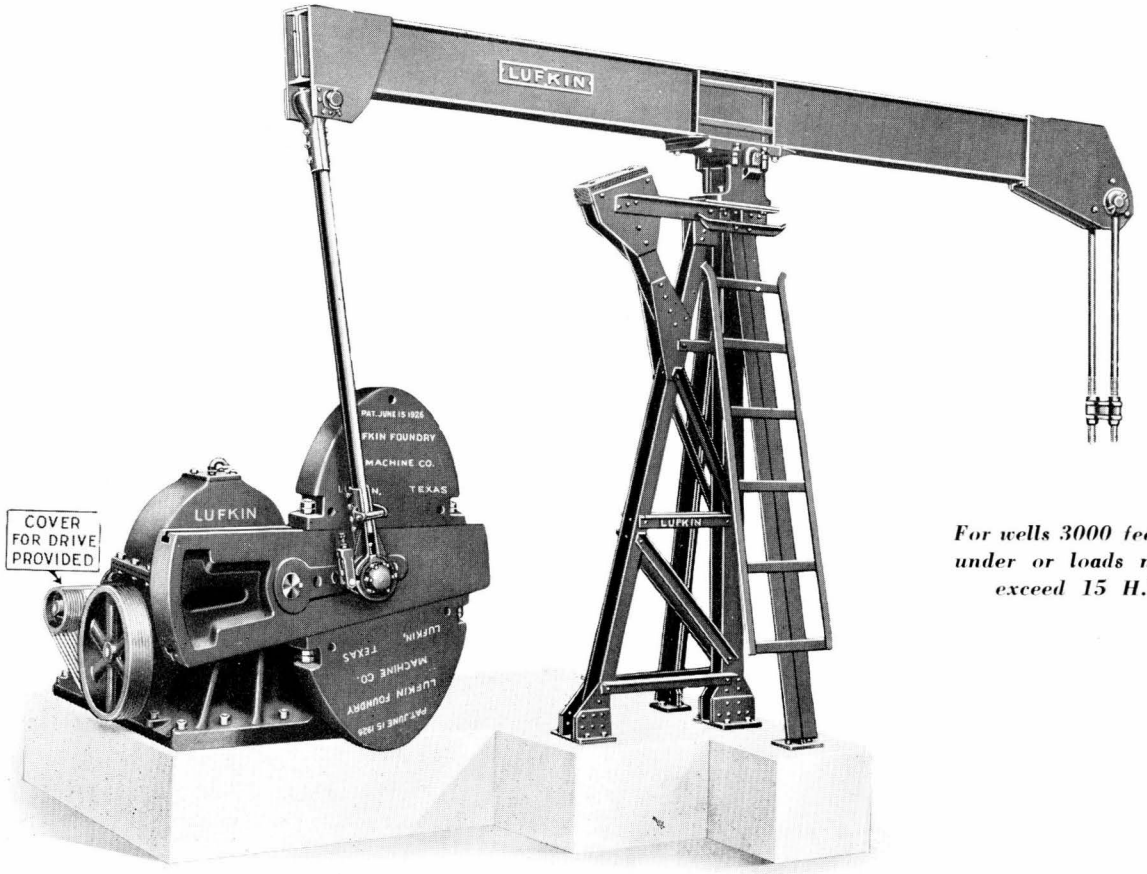
A popular multi-cylinder "Hook-up" is that illustrated where both the Unit and engine are mounted upon a rigid one-piece reinforced bed-plate insuring positive alignment and smoothness of operation.

Specifications
LUFKIN WORM GEAR UNITS

SIZE UNIT	RATIO	H. P.	Crank Shaft Gear	WORM	Crank Shaft Bearings	Worm Shaft Bearings	TOTAL WEIGHT
BABY	19 2/3 : 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#**
4½" Standard	19 2/3 : 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, specifications of which are found on page 4, but are furnished on special order only.

For length of Stroke and Effective Counter-Balance See Page 10.



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

Figure 18

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 is 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 page 12.

For Post and Beam Specifications see page 18.

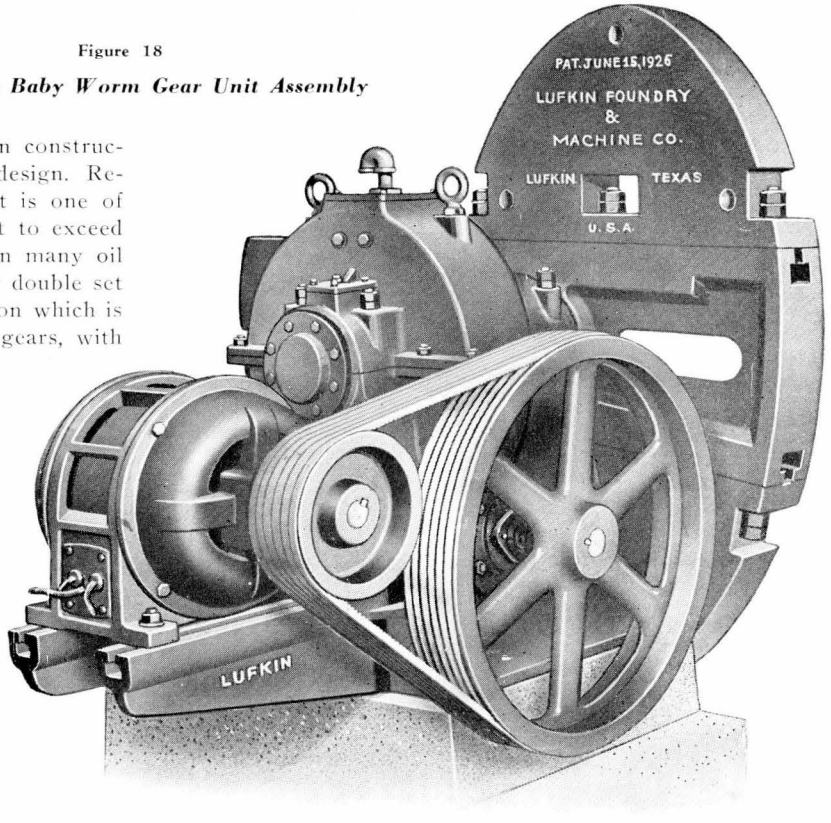


Figure 19

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

LUFKIN CENTRAL PUMPING POWERS

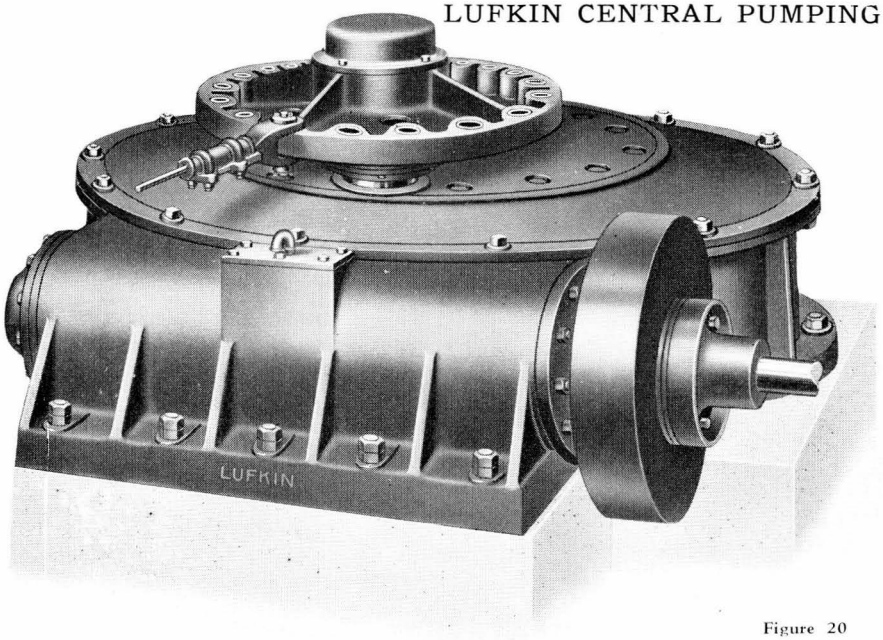


Figure 20

The Lufkin Giant Central Power is designed to handle heavy production. Designed of generous proportion this Power is intended to operate at 100 to 125 H.P. continuously but will handle safely 250 H.P. loads for short intervals.

GENERAL DESCRIPTION
Lufkin Central Powers

Central Power Pumping has long been in use. For many years the only available equipment for such pumping consisted of open gear units and band wheel powers.

Six years ago **Lufkin** introduced the first oil bath, cut gear, self contained, Central Pumping Power. This Unit, known as the Lufkin "Standard" Power met with instant success and quite a number are now in use. The need for a larger unit for deeper production led to the design of a larger, more powerful Unit known as the Lufkin Giant Central Power.

Lufkin Central Powers are economical in the use of power and the upkeep expense, in most instances, is limited to the lubricating oil consumed in its operation. They are efficient, silent, entirely self-enclosed and self-lubricated and immune to dirt and grit. They occupy but small space, can be set in the open so that direct lines can be set in any direction and therefore the fire hazard is entirely eliminated.

Lufkin Central Powers may be adapted to any type prime mover including steam, gas or Diesel engines and electric motors.

MECHANICAL CONSTRUCTION

Realizing the often severe conditions of greatly unbalanced loads under which Central Powers have to operate, Lufkin Powers have been designed to handle these operating difficulties with the use of gears and bearings having ample safety factors. The result is dependability for continuous duty and reserve for out-of-the-ordinary conditions and long life.

Reference to the cross-section illustration of Lufkin Powers will reveal that the whole mechanism revolves on Timken Bearings, mounted upon a special alloy steel column or shaft which is securely fastened to the gear box housing. This is an exclusive Lufkin, patented, feature which insures absolute stability and rigidity at the most vital operating point and also makes impossible any mis-alignment in the central Timken bearing regardless of load distribution.

Worm gears are the ideal type of gearing for Central Powers. Their use involves the minimum number of bearings and consequently the lowest friction loss. All wearing parts are easily accessible and replacement, if ever necessary, is a simple procedure.

The Crank is a solid alloy steel casting with ample crank pin diameter. Crank pins are alemite lubri-

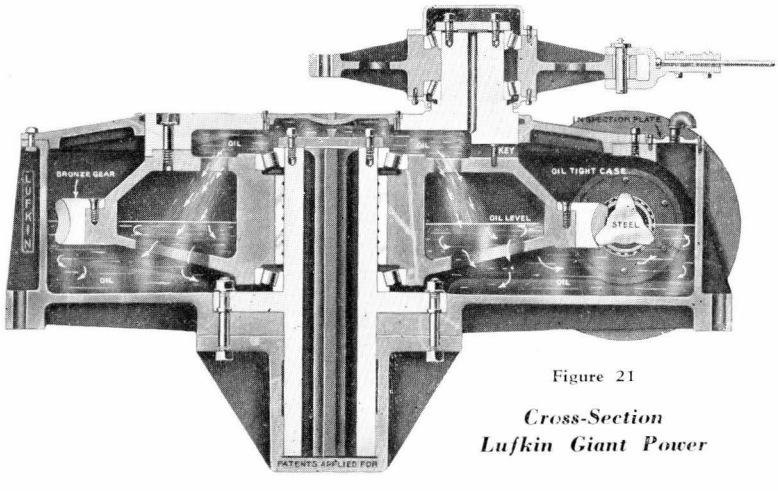


Figure 21

Cross-Section Lufkin Giant Power

LUFKIN CENTRAL PUMPING POWERS

cated. Timken Bearings are used on the Giant Power crank pins and renewable bronze bearings on the Standard Power.

The worm shaft is equipped with a double Timken thrust bearing and a Hyatt bearing is used on the fly wheel end so that the Unit may be run in either direction to suit prime mover or reversed to secure longer life on gear.

The fly wheel on the line shaft greatly flattens out peak loads, insuring a steady, smooth, noiseless operation and overcomes any reasonable out-of-balance conditions.

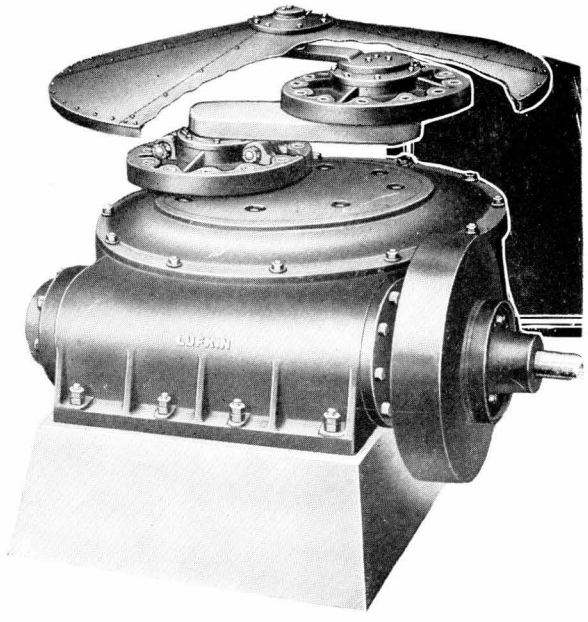


Figure 22

The Lufkin Standard Central Power is equipped with double throw crank with pull rod connections for handling 24 wells of medium depth. This power is designed to handle loads of 40 to 50 horsepower and give long, lasting service but will temporarily handle overloads of 100 per cent.

HORSE POWER LOADS

The Giant Power is designed to handle 125 HP loads continuously with a large safety factor and will handle 250 HP loads for short intervals.

The Standard Power is designed to handle loads of 40 to 50 HP continuously and give lasting service under such conditions, but will handle greater loads with ease. For lasting service however, loads within the rated horsepower are of course necessary.

We also furnish line shaft and drives including motors or engines, also well equipment to suit conditions.

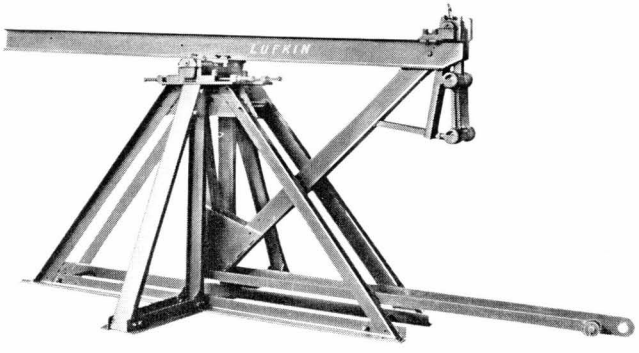


Figure 23

LUFKIN JACK

The Lufkin Jack is heavily constructed, thoroughly braced and electrically welded throughout, with improved Rod Hanger.

Specifications

LUFKIN CENTRAL PUMPING POWERS

	STANDARD POWER	GIANT POWER
H. P. Rating	50	125
Gear Ratios*	Standard, 29 2/3 to 1 and 22 1/4 to 1. Special 44 1/2 to 1 and 13 to 1.	Standard 29 2/3 to 1. Special 44 1/2 to 1 and 13 1/3 to 1
Bronze Gear	50″ dia., 4 1/2″ face., 13 3/4″ C.P.	71″ dia., 6″ face, 2 7/16″ C.P.
Alloy Steel Worm Hardened and Ground	5 7/16″ Pitch Diameter	6 11/16″ Pitch Diameter
Center Trunnion Nickel Chrome Steel	8″ diameter.	12″ diameter.
Trunnion Bearings Timken	Radial Rating 68,500 # Thrust Rating 51,000 #	Radial Rating 243,128 # Thrust Rating 162,490 #
Worm Thrust Bearings, Timken	Radial Rating 11,060 # Thrust Rating 13,575 #	Radial Rating 24,360 # Thrust Rating 21,241 #
Worm Flywheel Bearing, Hyatt	Radial Rating 7,050 #	Radial Rating 11,100 #
Cranks — Chrome Nickel Steel	Standard 24″ stroke Special 18″ stroke (7″ dia. pin)	Standard 36″ stroke Special 30″ stroke (8″ dia. pin).
Crank Pin Bearings	Renewable Bronze	Timken, Radial Rating 68,500 #.
Line Shaft	3 7/16″	3 15/16″
Well Connections	24	20
Base to center of Pull Rods	Lower Crank Pin 24 1/4″ Upper Crank Pin 35 1/4″	34 5/8″
Weight	Domestic 11,500 # Export 13,200 #, 214 Cu. Ft.	Domestic 22,200 # Export 24,950 #, 417 Cu. Ft.

*Standard gear ratios are for Electric Motor with "V" belt drive, Special gear ratios are for Multi-cylinder or Single cylinder gas engines

LUFKIN CENTRAL PUMPING POWERS

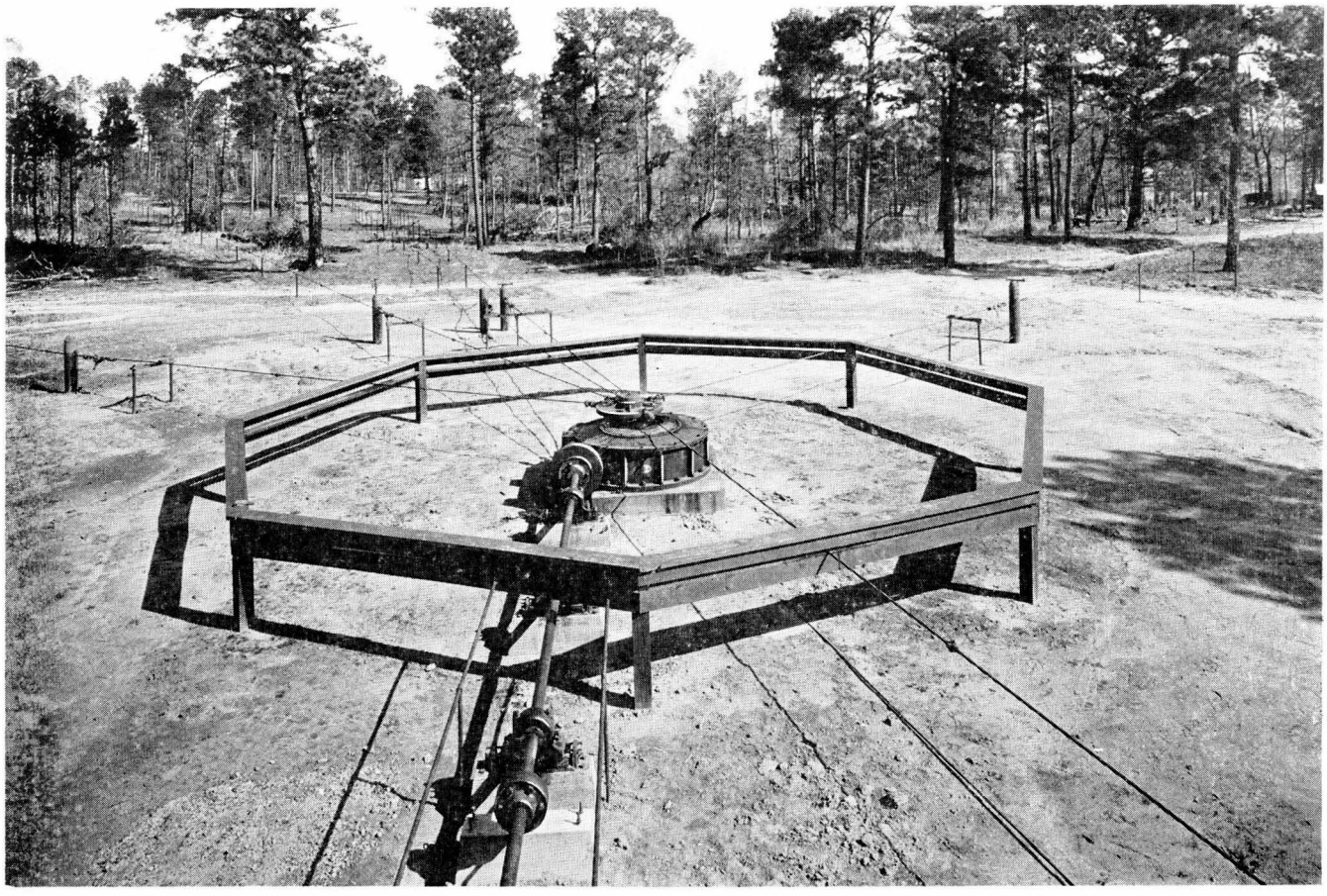


Figure 24

Lufkin Giant Power, one of four installations for Hunt Production Company in East Texas. Each power is pumping from 12 to 14 wells, 3,700 ft. depth with 2½" tubing.

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 offsetting unbalanced pull rod lines at the Power with counterweight 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

FACTS ABOUT LUFKIN EQUIPMENT
BOILED DOWN FOR BUSY MEN

ADAPTABILITY:

Adapted to any prime mover without countershafts 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:

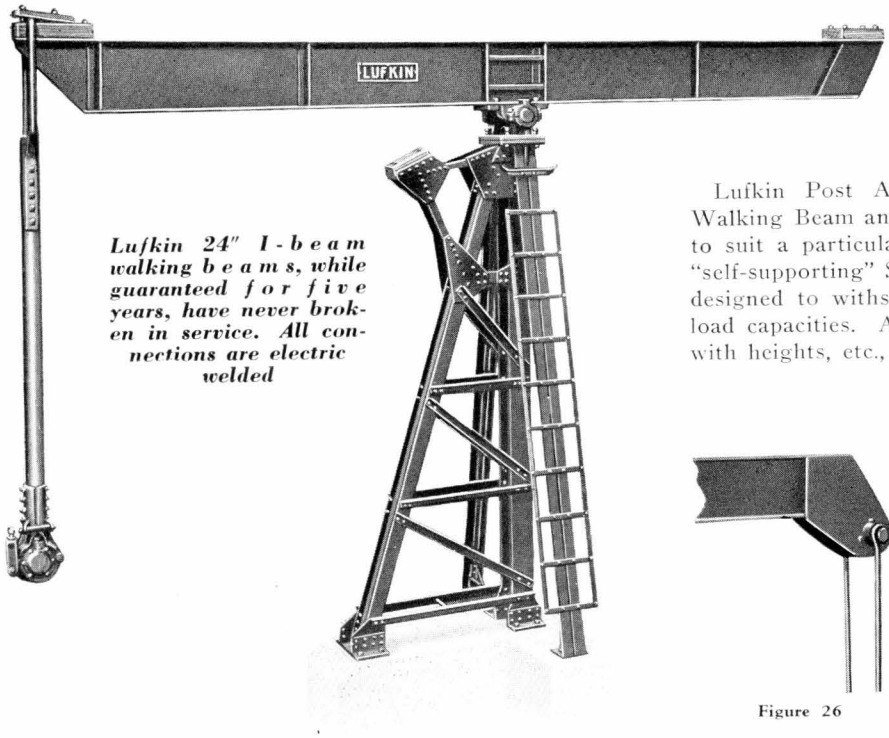
Except for the foundation, 100 per cent salvage value is realized on Lufkin installations. Many Lufkin Units have operated on as many as four leases.

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 24" I-beam walking beams, while guaranteed for five years, have never broken in service. All connections are electric welded

Figure 25

LUFKIN BEAM AND POST ASSEMBLIES, ETC.

Lufkin Post Assemblies, consisting of Samson Post, Walking Beam and Pitman, are manufactured in four 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 26

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

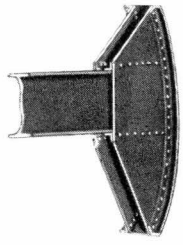


Figure 27

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	Carnegie 24" 100#	Carnegie 24" 100#	Carnegie 24" 100#	Carnegie 16" 45#	Carnegie 16" 45#	Carnegie 16" 58 #
Weights	3200#	3200#	4150#	1250#	1100#	1100#
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"x¼ Angles	6" 25# I Beam
Height—Base to Trunion	15' 3"	15' 3"	15' 3"	12' 0"	8' 2½"	8' 2½"
Weights	3250#	2900#	2900#	2150#	900#	925#
PITMAN—						
Pipe	5" I. D.	5" I.D.	5" I. D.	5" I. D.	2½" I. D.	2½" I. D.
Stirrup	2½" Rough Round	2½" Rough Round	3½" Shaft	2½" Rough Round	1¾" Rough Round	6" Ball
Bearing Sizes	4"x6"	4"x6"	4"x6"	3¼"x6"	2½"x4"	2½"x4"
Weights	600#	600#	700#	600#	300#	450#
Assembly Weight	7050#	6700#	7750#	4000#	2300#	2475#

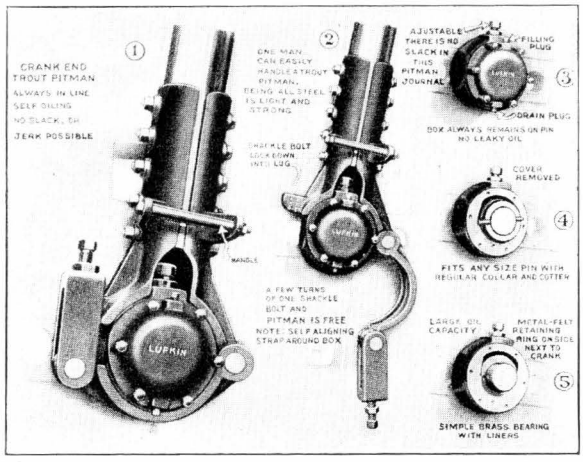


Figure 28

Trout Universal, Oil-Bath, Pitman

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.

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 soon find it advantageous to standardize on this type of bearing.

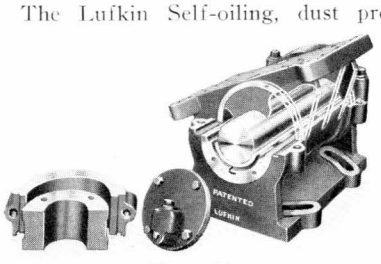
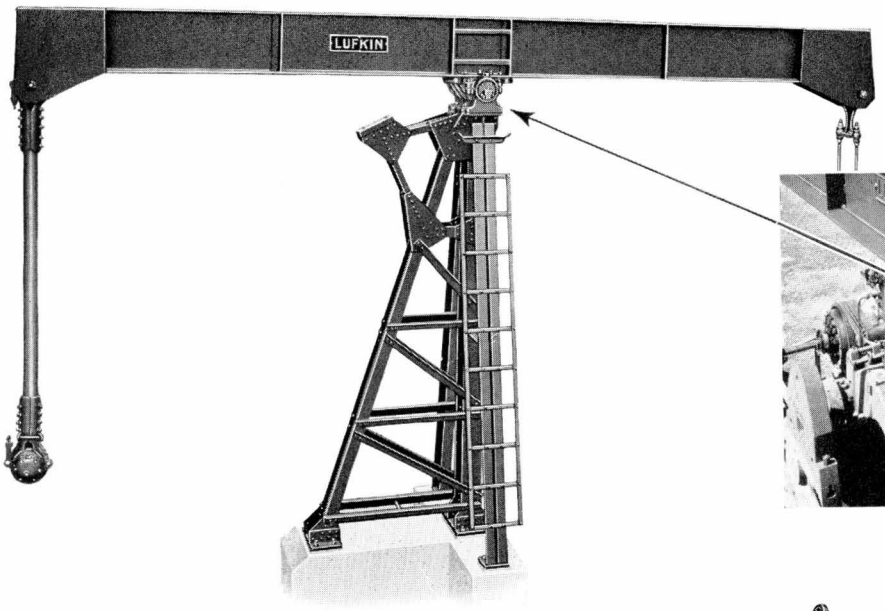


Figure 29



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

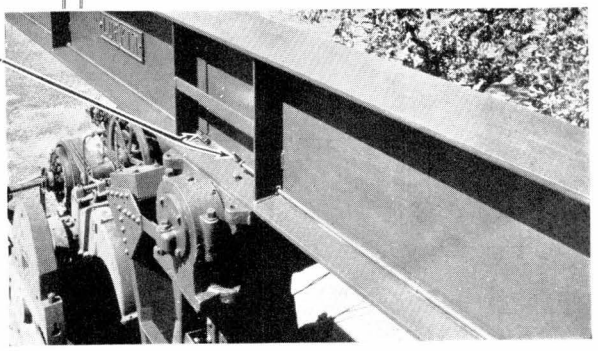


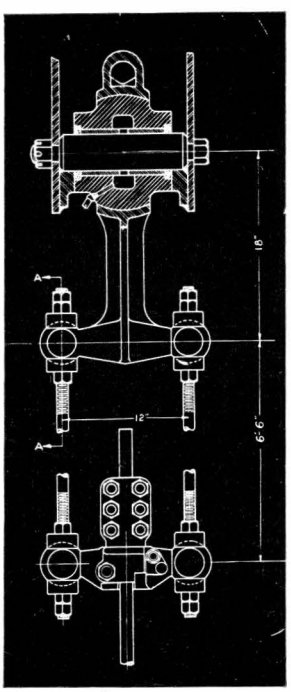
Figure 30
Lufkin Center Line Beam Assembly

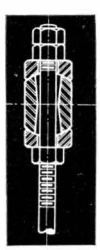
LUFKIN CENTER LINE WALKING BEAM, PITMAN BEAM BEARING AND FULL UNIVERSAL ROD HANGER

Several attempts have been made to design a center line beam—retaining the old fashioned friction producing stirrup and regular head connections, trying to fit every hanger made, which have met with little success.

Engineers are familiar with the inefficiency of the old stirrup type beam which shortens polish rod stroke, also the T-head which bends the rods at every stroke, and are demanding improvement.

We are pleased to offer our new **Center Line Beam** with Lufkin pitman type rear bearing in the beam that is self lubricating and oil tight, our new oil bath center iron, and our full universal rod hanger all in combination that judging by the reception it has received by the trade, we believe is a beam of exceptional merit.





Section "A-A"

The beam itself is the same section as our regular No. 1 beam with heavy plates welded on each end to take the bearings.

The oil bath center iron with 5" x 24" bearing is shown on page 18 and should be used with this beam.

Figure 32
Sectional Drawing Lufkin Universal Pitman and Rod Hanger Bearing Connections.

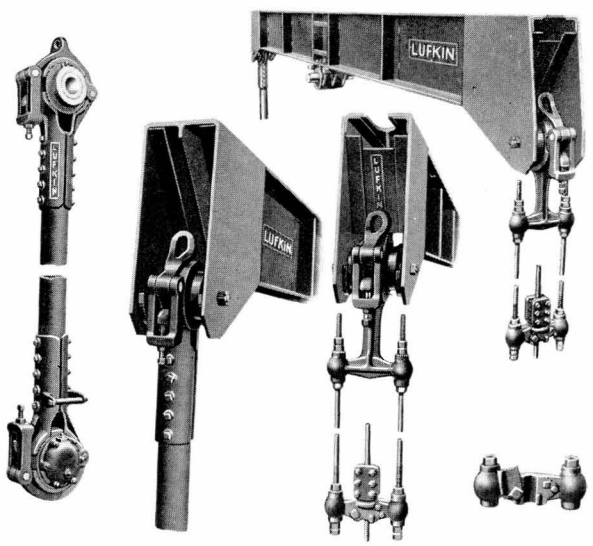


Figure 31
Lufkin Universal Pitman and Rear Beam Bearings for Lufkin Center Line Beam.

The tail or rear bearing is 3-7/16" x 9" built on same principle as our pitman which is so favorably known and also with a shackle, can be removed in a few moments time. While there is only a slight movement of this bearing it is three inches longer than crank pin and with bronze liner should last indefinitely. It is oil tight and is lubricated by Alemite from the center of the beam at top of ladder.

The new beam hanger bearing is the same size bearing and is lubricated by the same method, from center of the beam at top of ladder.

The new beam hanger is simplicity itself and illustrations show plainly its design and construction. We are retaining the T-head bearing for temper screw and by removing one bolt the whole hanger can be removed intact and temper screw used in the regular way.

The new hanger and bearing strap accommodates itself to any mis-alignment between polish rod and beam, yet there is no wear except on large bearing as shown.

All parts of rear bearing and rod hanger are steel. Our beams are 12" wide on top and if desired a guard rail full length of beam can be furnished at slight extra charge.

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 Hoist. The loose drum feature permits 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.**

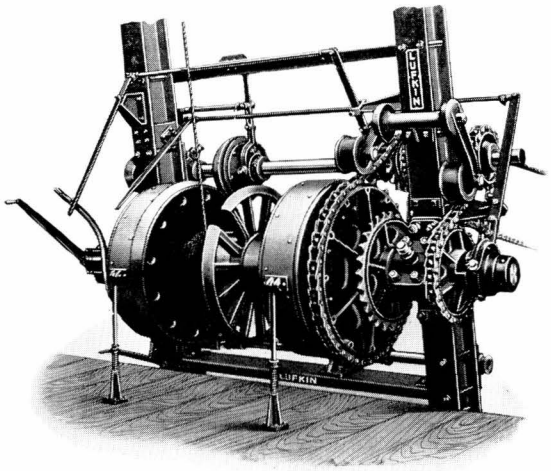


Figure 35
No. 52 Lufkin Production Hoist
(Same as No. 522 with line shaft added)

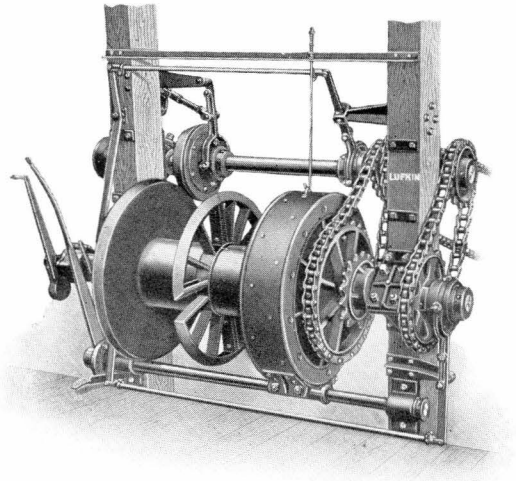


Figure 32
No. 2 Lufkin Production Hoist

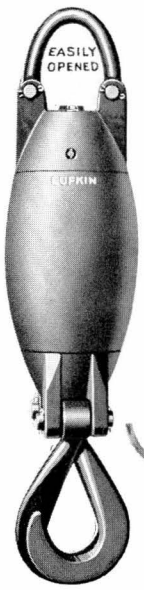


Figure 34
Lufkin Combination Ball Bearing Rod Line Weight and "Sister Hooks"

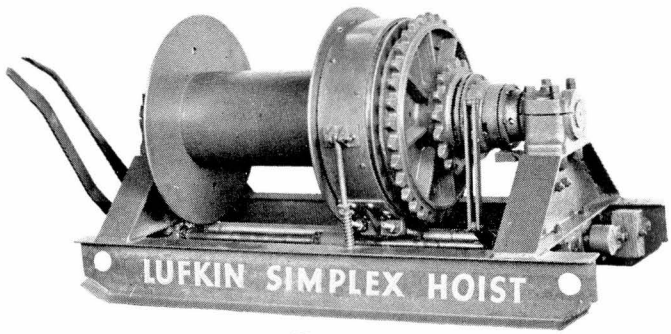


Figure 36
Lufkin Simplex Hoist

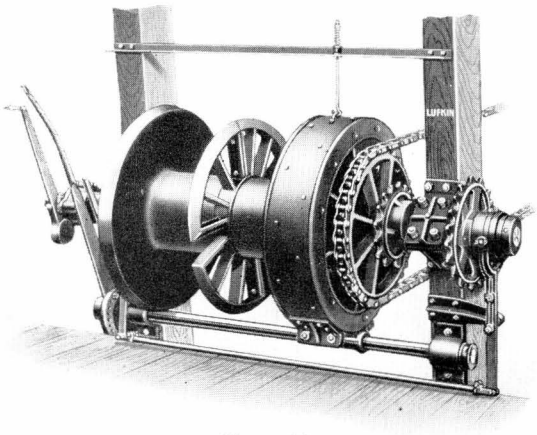


Figure 33
No. 6 Lufkin Production Hoist
(Same as No. 2 without line shaft)

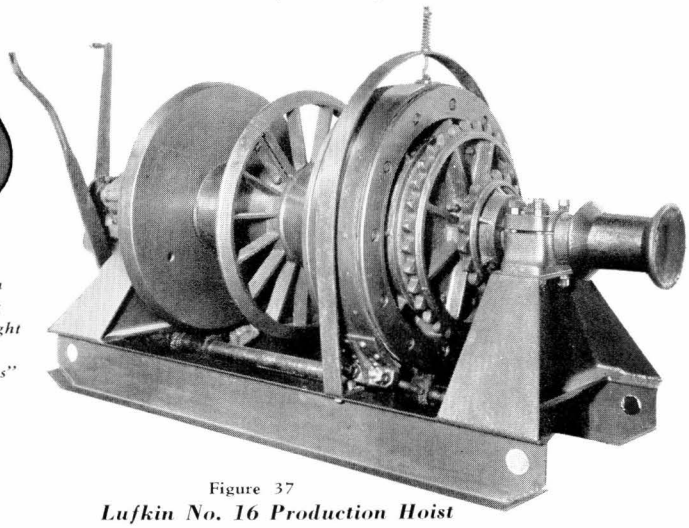


Figure 37
Lufkin No. 16 Production Hoist

SPECIFICATIONS OF LUFKIN PRODUCTION HOISTS

DIMENSIONS		No. 2	No. 6 & 16	No. 52	No. 522	Simplex
Line Capacity	9/16" Line	10,000	10,000	11,000	11,000	6,400
	5/8" Line	8,500	8,500	9,000	9,000	5,200
	3/4" Line	6,000	6,000	6,400	6,400	3,600
	7/8" Line	4,400	4,400	4,600	4,600	2,600
	1" 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.

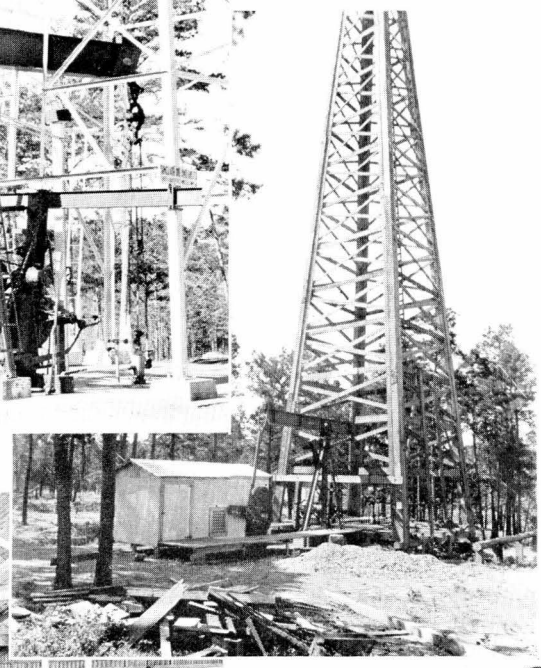
LUFKIN FOUNDRY & MACHINE CO. LUFKIN, TEXAS

TWENTY-TWO OPERATORS ARE USING LUFKIN EQUIPMENT IN EAST TEXAS

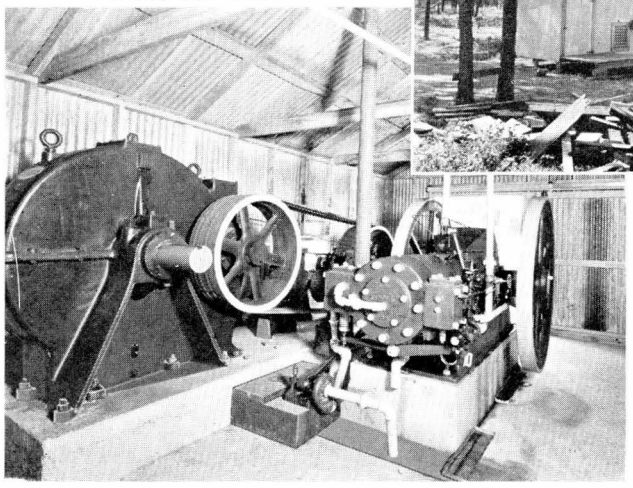
Much improvement has been made in LUFKIN EQUIPMENT since the discovery of oil in the East Texas field and therefore in East Texas is to be found the most modern efficient Lufkin equipment of all fields—the ultimate in production equipment.

On this page is illustrated modern installations of a few of the twenty-odd operators in East Texas who are using Lufkin Equipment. All types of equipment is in use from the smallest to the largest units. A number of Lufkin Central Powers are also operating in East Texas. Note various types illustrated on this page.

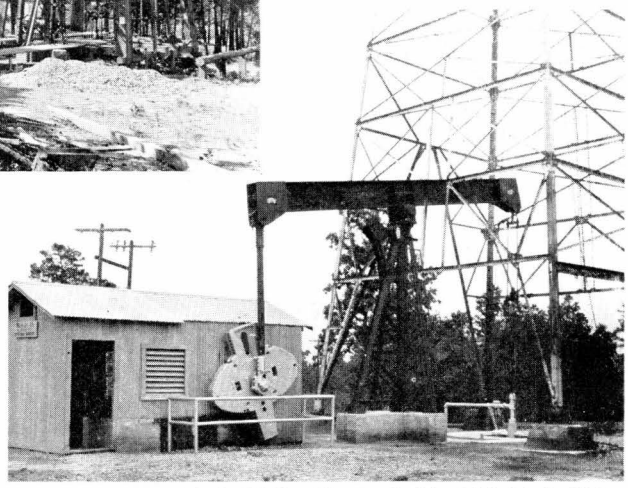
Sinclair Oil & Refining Co. Daisy-Bradford No. 2. Lufkin 6½" H. B. Unit, Post Assembly and Hoist.



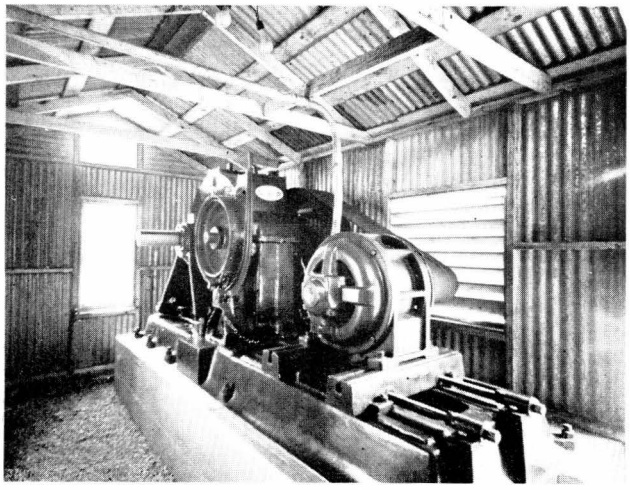
Pilot Oil Co. Finney No. 1. Lufkin 5½" H. B. Unit, Post Assembly and Hoist.



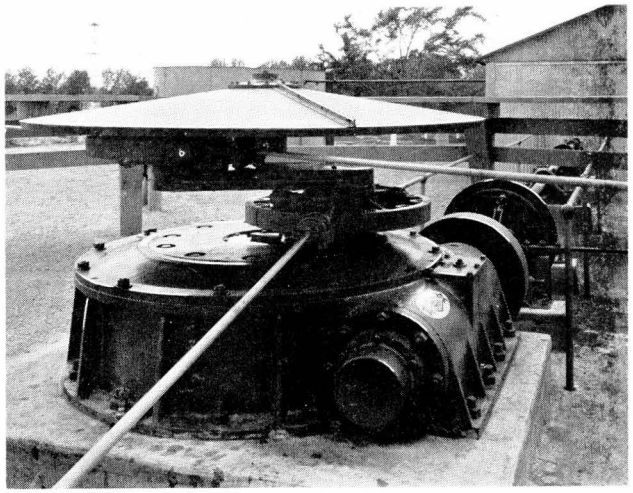
H. K. Spear Oil Corp., Joiner area. Lufkin 5½" H. B. Unit, Post Assembly. An ideal type of single cylinder installation. Unit sets directly on concrete foundation.



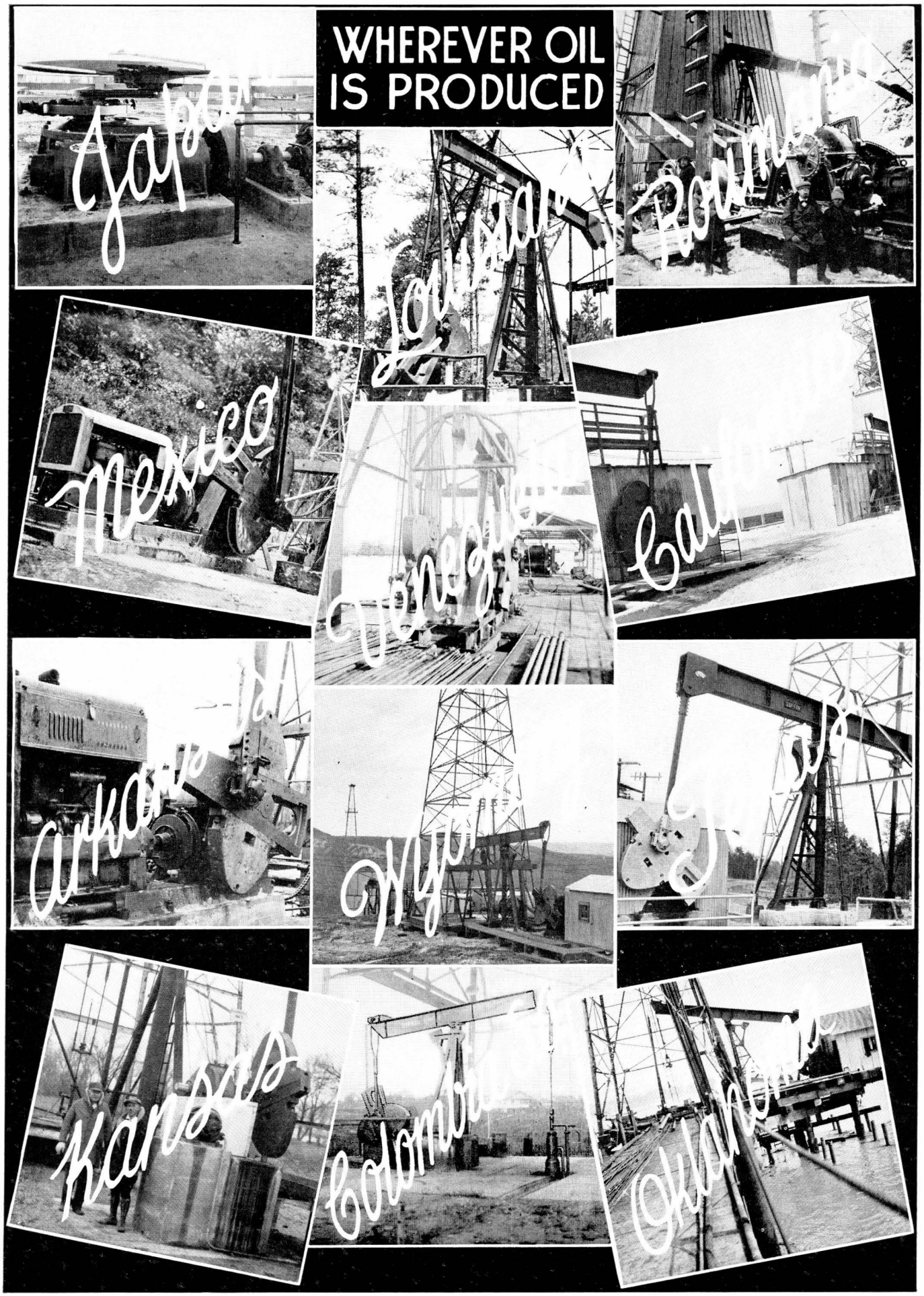
Sun Oil Company, E. L. Walker No. 1. Lufkin 5½" H. B. Unit, with Center Line Beam Assembly.



Interior View of Sun Oil Company, Walker No. 1, showing regular electric motor drive for Lufkin 5½" Unit, mounted upon Lufkin Universal base.



Pure Oil Company—Lufkin Standard Central Power installation in the Van field.



LUFKIN FOUNDRY & MACHINE CO. LUFKIN, TEXAS

OVER 100 USERS OF LUFKIN EQUIPMENT

Below is a partial list of users, both 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.

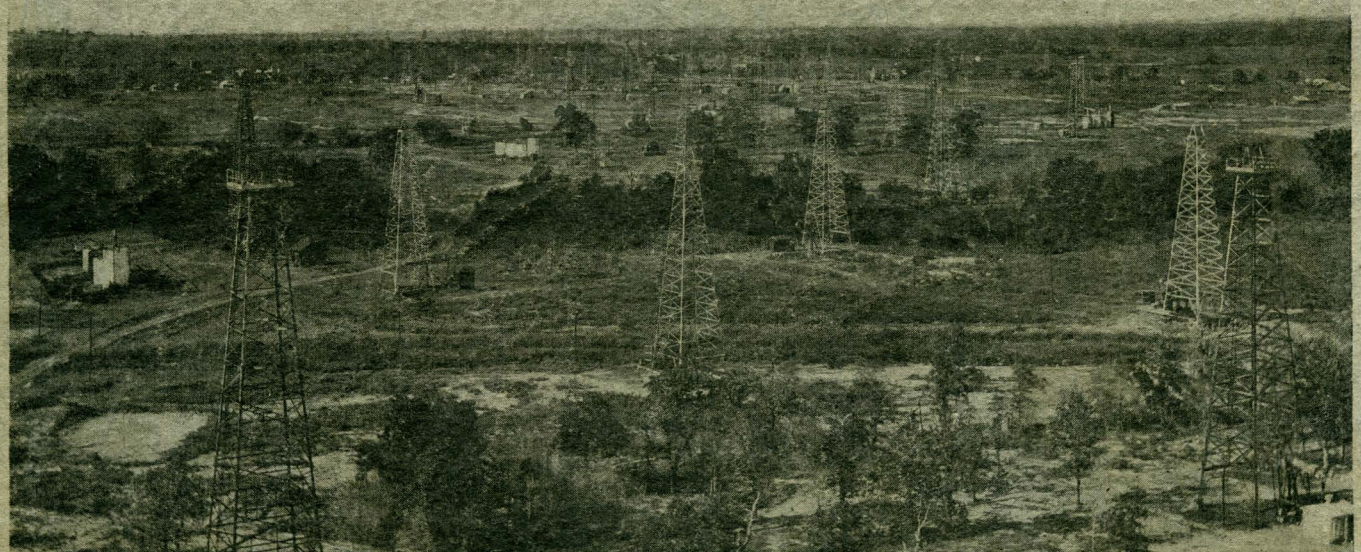
Such an imposing list of users, we feel, is pretty fine evidence of the merit of Lufkin Equipment. We gladly refer you to any user.

LUFKIN EQUIPMENT USERS IN UNITED STATES

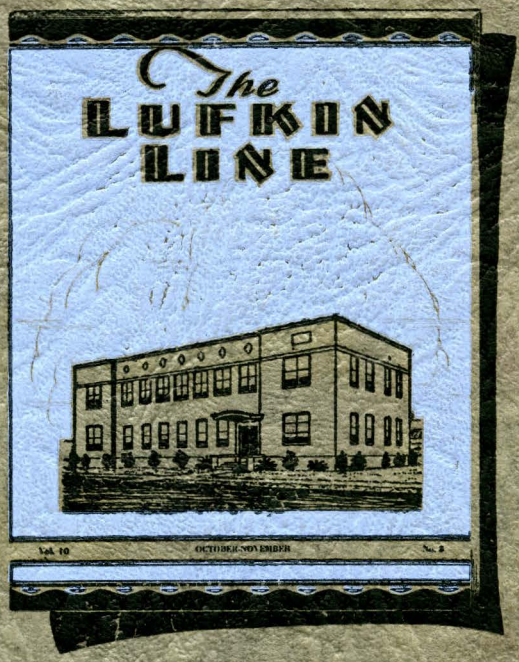
Atlantic Oil Producing Co.
Amerada Petroleum Corp.
Arkansas Fuel Oil Co.
Berry Asphalt Co.
Bill and Dave Oil Co.
Cunningham Production Co.
Cosden & Company
California Company
Carter Oil Co.
Continental Oil Co.
Deep Rock Oil Co.
Darby Petroleum Co.
Exchange Oil Company
Empire Gas & Fuel Co.
F. H. & E.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

FOREIGN

Anglo Mexican Petroleum Corp.
Oil Well Engineering Co.
Burmah Oil Co.
Steaua Romana
International Petroleum
Lago Petroleum Co.
Asiatic Petroleum Co.
Mitsubishi
Standard Oil Co.
Tropical Oil Co.
Argentine Government Oil Fields
Standard Oil Co. of N. J.
Venezuela Gulf Oil Co.
El Aguila.



Darst Creek Field near Seguin, Texas, which is more than 80% Lufkin equipped.



THE LUFKIN LINE

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The "LUFKIN LINE" contains interesting oil news and is also a digest of new equipment for the oil industry. The complete "up-to-the-minute" details of Lufkin equipment is always available when the "Lufkin Line" is preserved with our catalogue. The "Lufkin Line" will be gladly mailed free for the asking.

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