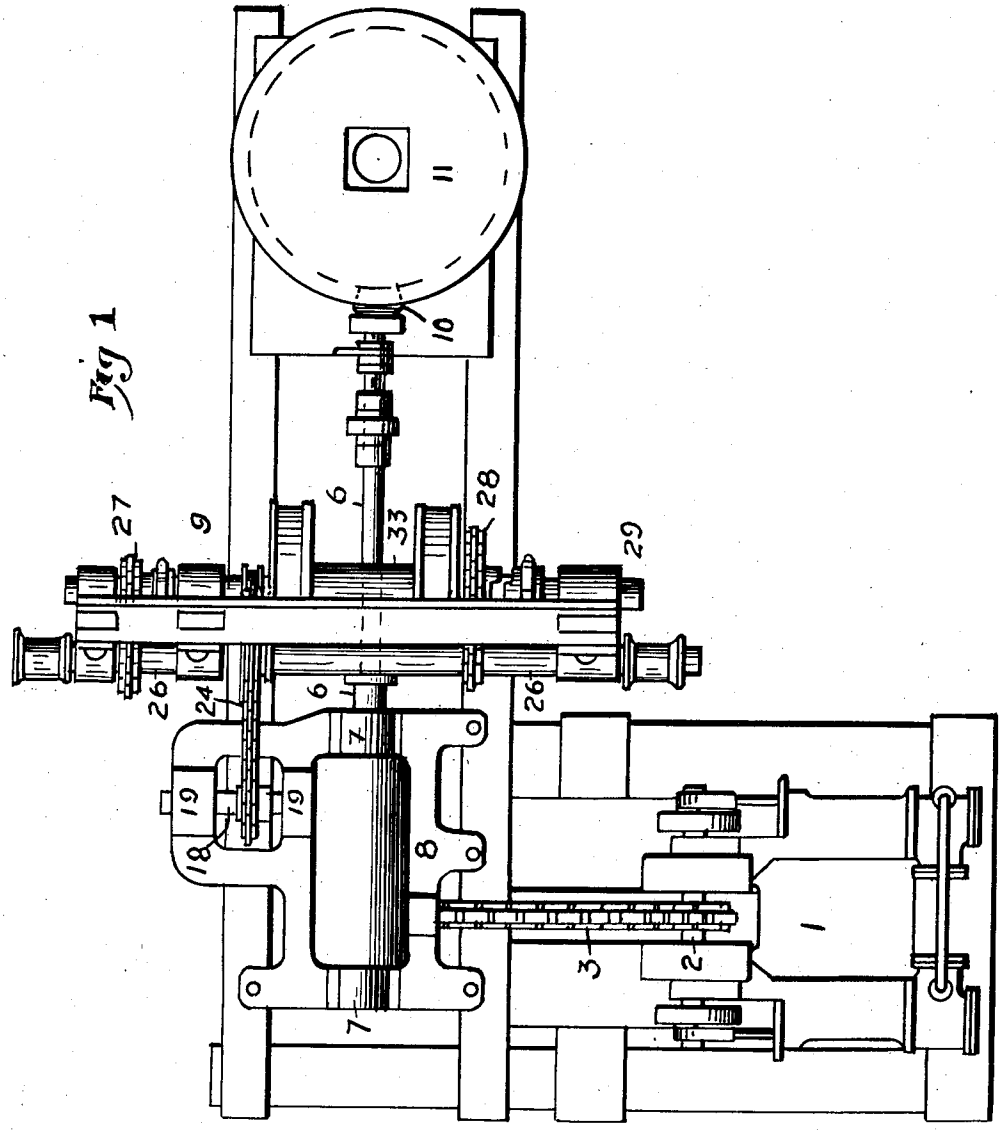
Jan. 19, 1926. 1,570,243

E. W. GOESER ET AL

SHAFT DRIVE DRAW WORKS AND ROTARY DRILLING MACHINE

Original Filed March 8, 1921 2 Sheets-Sheet 1

Fig 1



WITNESS
R. F. Dilworth

INVENTOR
E. W. Goeser
W. D. Davidson
by F. N. Barber
their attorney

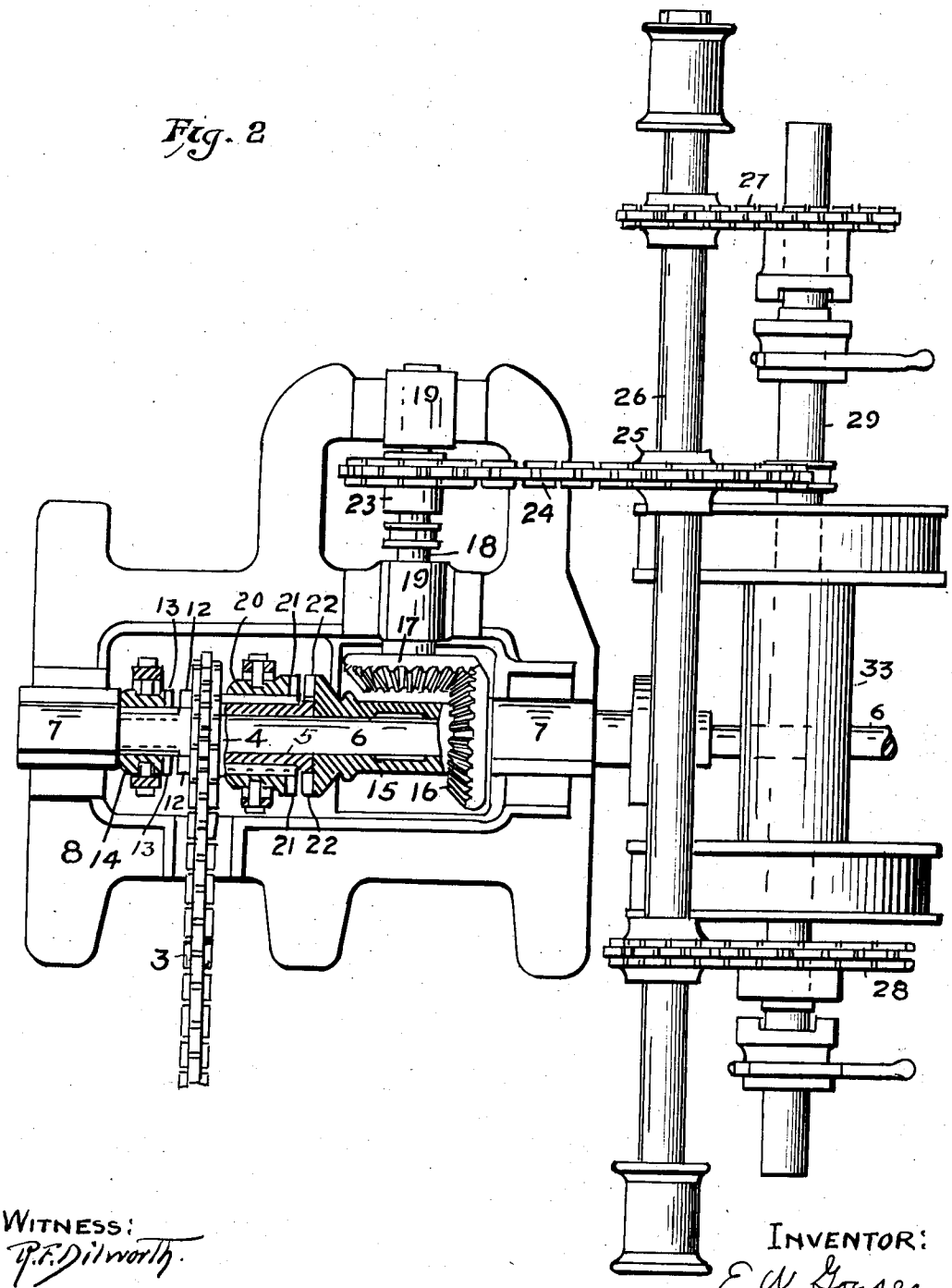
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SHAFT DRIVE DRAW WORKS AND ROTARY DRILLING MACHINE

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Fig. 2



WITNESS:
P. F. Dilworth.

INVENTOR:
E. W. Goeser,
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their attorney.

Patented Jan. 19, 1926. 1,570,243

UNITED STATES PATENT OFFICE.

EDWIN W. GOESER AND WILLIAM D. DAVIDSON, OF LOS ANGELES, CALIFORNIA, ASSIGNORS TO THE NATIONAL SUPPLY COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO.

SHAFT-DRIVE DRAW WORKS AND ROTARY DRILLING MACHINE.

Application filed March 8, 1921, Serial No. 450,676. Renewed March 3, 1922. Serial No. 540,915.

To all whom it may concern:

Be it known that we, EDWIN W. GOESER and WILLIAM D. DAVIDSON, citizens of the United States, both residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Shaft-Drive Draw Works and Rotary Drilling Machines, of which the following is a specification.

Our invention relates to well drilling machinery, and more particularly to the mechanism for driving rotaries and the draw works accompanying the same.

The object of the present invention is to provide a direct shaft drive for a rotary table together with means whereby the shaft drive may be operatively connected to the draw works or to the rotary table or to both, or disconnected from either or both, so that either the rotary table alone or the draw works alone or both together may be operated or remain idle. Another object of this invention is to do away with the usual drive sprocket chain which runs over the floor from the prime mover to the rotary and not only block the way past it but also causes severe accidents to the attendants. Our invention saves power and eliminates unnecessary wear on both the rotary and the draw works.

Referring to the accompanying drawings, Fig. 1 is a top plan view of a drilling apparatus equipped with our invention, and Fig. 2, an enlarged top plan view of the same with the prime mover omitted and certain parts in horizontal section.

We do not confine ourselves to any particular type of prime mover for driving the drilling apparatus shown, but we have conventionally shown, merely as an illustration, a steam engine 1 for driving the power shaft 2 connected by the drive sprocket chain 3 to the sprocket-wheel 4 on one end of the sleeve 5 running loosely on the drive shaft 6. The shaft 6 rotates in the bearing boxes 7 on the machine frame 8 and extends beneath and beyond the draw works 9 and has its outer end provided with the bevel gear 10 which drives the table 11 of a rotary drilling machine.

The outer end of the sleeve 5 is provided with the clutch teeth 12, with which the teeth 13 on the clutch member 14 may interlock. The member 14 is splined to the drive shaft 6 so that it may slide thereon so as to cause the engagement or disengagement of the clutch teeth 12 and 13. The sleeve 15 is loosely carried by the drive shaft 6 and has one end abutting against the remaining end of the sleeve 5 and its other end provided with the bevel gear 16 meshing with the bevel gear 17 carried by the secondary shaft 18 turning in the bearings 19. The clutch member 20 is sleeved on the sleeve 5 and splined thereto so as to be driven thereby and to slide thereon between the sprocket-wheel 4 and the adjacent end of the sleeve 15. The opposing ends of the sleeve 15 and the clutch member 20 are provided with the clutch teeth 21 and 22 for driving the sleeve 15 and the mechanism operated thereby when the teeth are interlocked.

The shaft 18 is provided with the sprocket-wheel 23 connected by the sprocket chain 24 to the sprocket wheel 25 on the upper or line shaft 26 of the draw works 9. The shaft 26 is connected by the sprocket chains 27 and 28 to the drum shaft 29 which is provided with the drum 33. It is not necessary to further describe the draw works as it is well known to those acquainted with the well drilling art, nor is it necessary to show certain other gears or sprocket devices usable with the draw works.

When it is desired to operate the rotary table alone the clutch member 14 is moved to interlock the teeth 12 and 13, the clutch member 20 being left as shown on the drawing. When it is desired to operate the draw works alone, the clutch member 20 is operated so as to cause the teeth 21 and 22 to interlock, the member 14 remaining as shown on the drawing. When it is desired to drive the rotary table and the draw works simultaneously both clutch members are operated as just described. When the clutch members are as shown on the drawing the rotary table and the draw works remain idle.

The drive shaft 6 lies below the level of the table top so that the attendants can walk over it without danger, or it may be covered without presenting any obstacle worth noticing to the movements of the attendants. Either the draw works or the rotary may remain quiet for the purpose of repair or to save power or eliminate wear without affecting the other. The driving connection for the rotary is much simplified by our inven-

tion as compared with any known to us for the purposes described.

We claim:

1. In combination, a rotary drill table, a drive-shaft geared to the same, a draw works having a line-shaft, a drum shaft adapted to be driven by the line-shaft, a prime mover, and clutch-means for placing the prime mover in driving connection with either the drive-shaft or the line-shaft.

2. In combination, a rotary drill table, a drive-shaft geared to the same, a draw works having a line-shaft, a drum shaft adapted to be driven by the line-shaft, a prime mover, and clutch-means for placing the prime mover in driving connection with either the drive-shaft or the line-shaft or both.

3. In combination, a rotary drill table, a drive-shaft geared to the same, a draw works having a line-shaft at right angles to the drive-shaft, a drum shaft adapted to be driven by the line-shaft, a shaft parallel with the line-shaft, a sprocket chain connecting the last two shafts, a sleeve loose on the drive-shaft and having a bevel gear connection with the said parallel shaft, a second sleeve loose on the drive-shaft, a clutch member splined on the second sleeve and adapted to interlock with the first sleeve, a second clutch member splined on the drive-shaft and adapted to interlock with the second sleeve, a prime mover, and a driving connection between it and the second sleeve.

4. In combination, a rotary drill table, a drive shaft geared to the same, a draw works having a shaft at a right angle to the drive shaft, a shaft parallel with the shaft of the draw works, a power transmitting means connecting the last two shafts, a sleeve loose on the drive shaft and having a bevel gear connection with the said parallel shaft, a second sleeve loose on the drive shaft, a clutch member splined on the second sleeve, and adapted to interlock with the first sleeve, a second clutch member splined on the drive shaft and adapted to interlock with the second sleeve, a prime mover, and a driving connection between said prime mover and the second sleeve.

EDWIN W. GOESER.
WILLIAM D. DAVIDSON.