

Nov. 29, 1927.

1,651,069

F. REDICK

WIRE JERK LINE SHOCK ABSORBER

Filed Jan. 19, 1927

2 Sheets-Sheet 1

Fig. 1.

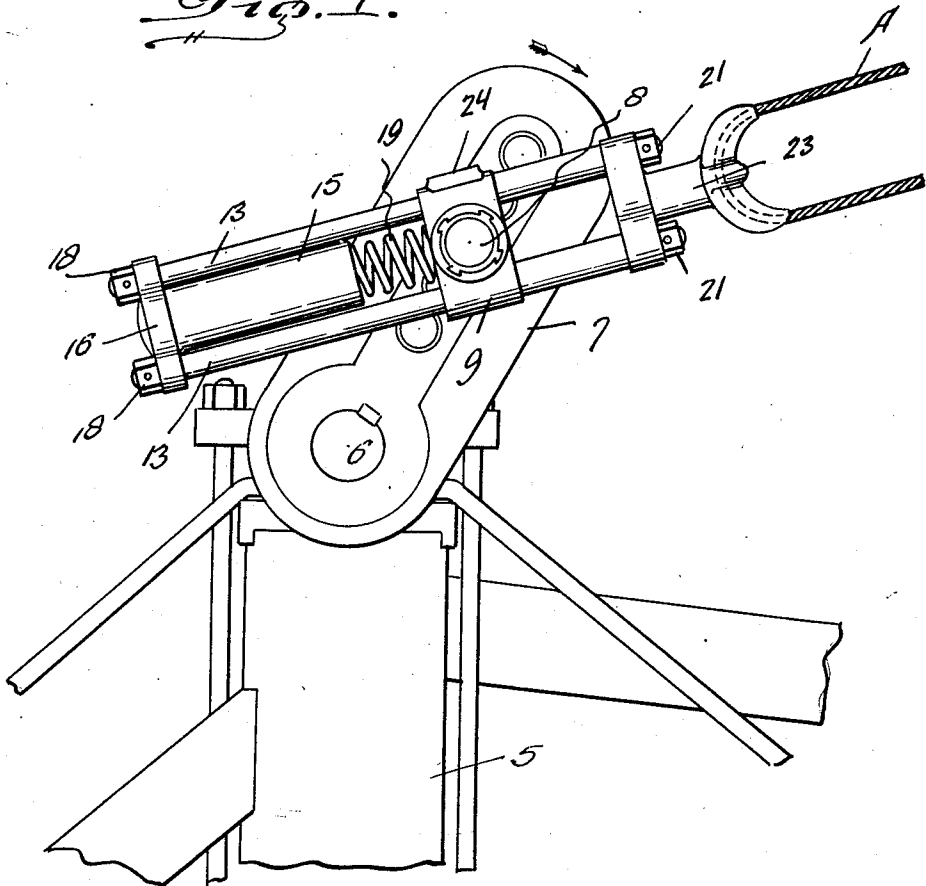
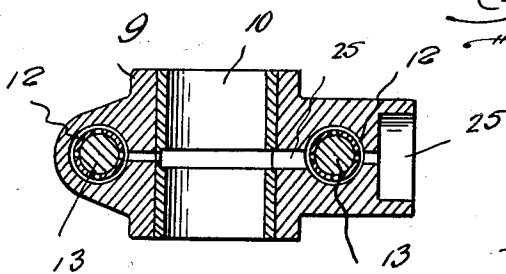


Fig. 5.



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2 Sheets-Sheet 2

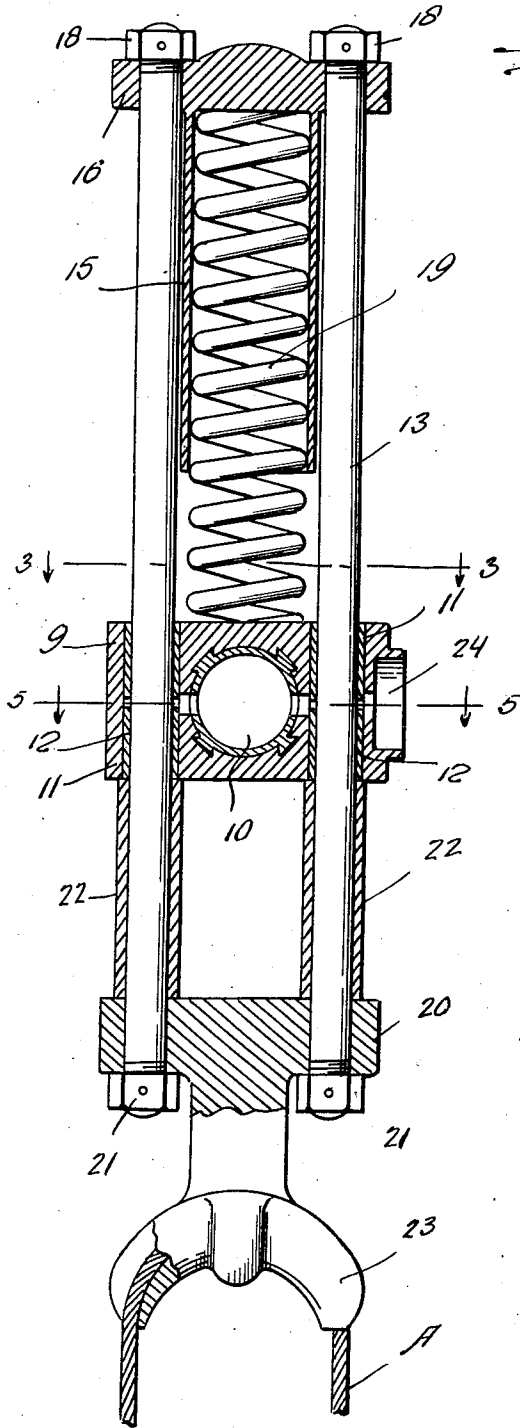


Fig. 2.

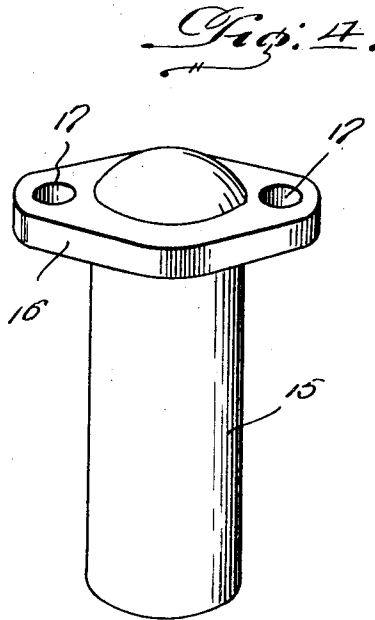


Fig. 4.

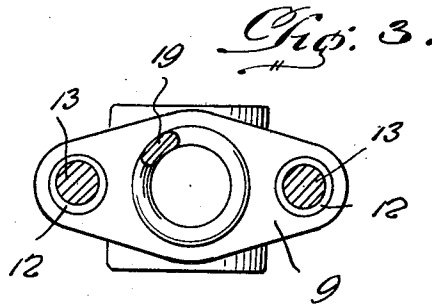


Fig. 3.

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UNITED STATES PATENT OFFICE.

FRANK REDICK, OF PARKERTON, WYOMING.

WIRE-JERK-LINE SHOCK ABSORBER.

Application filed January 19, 1927. Serial No. 162,125.

This invention relates generally to well drilling rigs and has more particular reference to a wire jerk line shock absorber for use exclusively during the spudding operation or the actual starting of the hole and continues in use until the well is of such depth to permit the using of the walking beam in the regular manner.

The primary object of the invention resides in the provision of means for eliminating terrific jar and strain to the drill rig crank pin and band wheel shaft when using a wire jerk line and drilling line to "spud in" with.

During the spudding operation, wire rope has now taken place of the manila rope almost exclusively and this imposes a tremendous strain and jerk on the drilling equipment in the starting of a well. This device placed on the drilling rig crank eliminates this objectionable feature attendant to the use of wire drilling and jerk lines for the actual starting of the well.

A further object of the invention is to provide an absorber of this character that is relatively simple of construction, and one that may be installed at any part of the drill rig without materially adding to the cost thereof.

Other objects will become apparent as the nature of the invention is better understood, the same comprising the novel form, combination, and arrangement of parts hereinafter more fully described, shown in the accompanying drawings and claimed.

In the drawings wherein like reference characters indicate corresponding parts throughout the several views:

Figure 1 is a fragmentary side elevation of a portion of a well rig, the drilling crank wrist pin being equipped with an absorber constructed in accordance with the present invention.

Figure 2 is a detail longitudinal section of the absorber per se.

Figure 3 is a transverse section taken substantially upon the line 3—3 of Figure 2.

Figure 4 is a perspective of one element of the absorber, and

Figure 5 is a transverse section taken substantially upon the line 5—5 of said Figure 2.

Now having particular reference to the drawing, 5 indicates fragmentarily the conventional standard of a well drilled rig upon the upper end of which is suitably journaled the band wheel shaft 6 to the end of which is keyed the conventional drilling crank 7

equipped with a wrist pin 8. My invention per se consists of an absorber for the wire jerk line A that consists of a main body 9 of angular formation, and preferably in the form of a single casting. This body 9 is formed transversely with an opening within which is an anti-friction bearing 10 through which said pin 8 of the drilling crank 7 is arranged.

At opposite sides of the bearing 10 of said body 9 and at right angles thereto, this body is formed with a pair of parallel bores 11—11 within which are arranged circular bushings 12—12. Slidably arranged within these bushings are relatively elongated bolts 13—13 threaded at their opposite ends as disclosed in Figure 2 for a purpose hereinafter more fully described.

The absorber further consists of a somewhat elongated cylinder 15 closed at one end and provided at this end with a plate 16, the ends of which are formed with openings 17—17 through which certain ends of the bolts 13—13 are arranged and secured therein by reason of nuts 18—18. As disclosed more clearly in Figure 2 when the cylinder is attached to the bolts the same will be arranged between the bolts and in parallelism therewith. Arranged within the cylinder is a relatively strong expansible spring 19 that bears at one end against the closed end of the cylinder and at its opposite against the body 9 previously described.

Arranged upon the opposite ends of the bolts 13—13 is a cross head 20 that is secured to the bolts by reason of nuts 21—21. Surrounding the bolts 13—13 between the body 9 and said head 20 are elongated spacing sleeves 22—22 for the purpose of limiting the inward movement of the head with respect to said body. This head 20 carries at its outer end a curved and channeled finger 23 around which the wire jerk line A is disposed as in Figures 1 and 2.

The top side of the body 9 is of cup-like formation as at 24 while communicating with the bushing bores of said body and said cup are suitable passages 25 for the purpose of permitting a lubricant injected into the cap to pass into the bearing 10 as well as the bushings 12—12, said bearing 10 being also formed with opposed ports as in Figures 2 and 5.

It will thus be seen that in the use of an absorber of this character during the spudding operation of an oil well terrific jar

and strain to the drill rig crank pin and band wheel shaft will be eliminated and by reason of the simple construction of the device it may be readily associated with the wrist pin and wire jerk line without requiring much time and skill.

Even though I have herein shown and described the invention as consisting of certain detail structural elements it is nevertheless to be understood that some changes may be made therein without effecting the spirit and scope of the appended claims.

Having thus described the invention, what I claim is:—

1. In a wire jerk line shock absorber for well drilling rigs, a body loosely mounted upon the drilling crank wrist pin of the rig, a pair of bolts slidably arranged through bearings in said body, means associated with certain ends of the bolts for facilitating the attachment of the jerk line thereto, and expansible spring means between the body and the opposite ends of the bolts for normally drawing said jerk line attaching means toward said body but to permit the same to move forwardly with respect thereto in overcoming shocks incident to the operation of the rig.

2. In a shock absorber for wire jerk lines of well drilling rigs, a body adapted to be loosely mounted upon the drilling crank wrist pin, a bolt slidable through the body, means upon one end of the bolt to facilitate

the attachment of a jerk line thereto, and means between the opposite end of the bolt and said body for normally drawing the jerk line toward said body.

3. In a shock absorber of the character described, a pair of spaced elongated bolts, a body through which said bolts are slidable, a jerk line attaching head mounted on the bolts at one end thereof, spacing sleeves arranged on the bolts between the head and said body, and means between the opposite ends of the bolts and the body for normally urging the spacing sleeves toward the body.

4. In a shock absorber of the character described, a pair of spaced elongated bolts, a body through which said bolts are slidable, a jerk line attaching head mounted on the bolts at one end thereof, spacing sleeves arranged on the bolts between the head and said body, and means between the opposite ends of the bolts and the body for normally urging the spacing sleeves toward the body, said last mentioned means comprising a cylinder closed at its outer end and disposed between the bolts, the closed outer end of the cylinder being secured on the ends of the bolts, and an expansible coil spring having one end thereof extending into the cylinder for engagement with the closed end thereof, the other end of the expansible coil spring being in engagement with said body.

In testimony whereof I affix my signature.

FRANK REDICK.