

F. M. PRICE.  
WELL CASING EXTRACTOR.  
APPLICATION FILED JULY 29, 1920.

1,387,944.

Patented Aug. 16, 1921.  
2 SHEETS—SHEET 1.

*Fig. 1.*

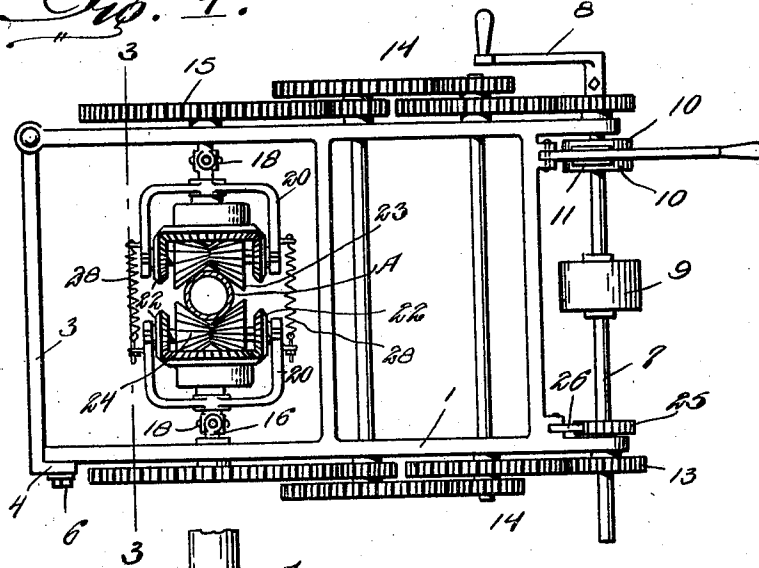


*Fig. 2.*

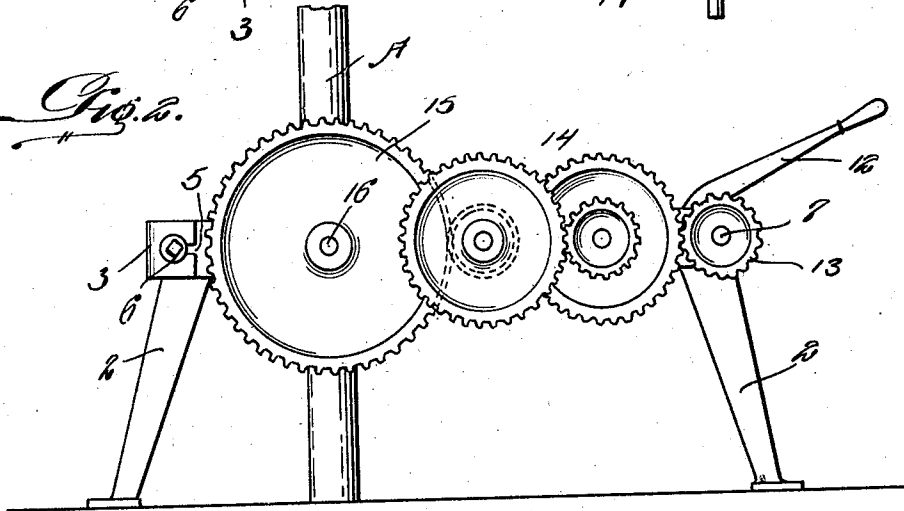
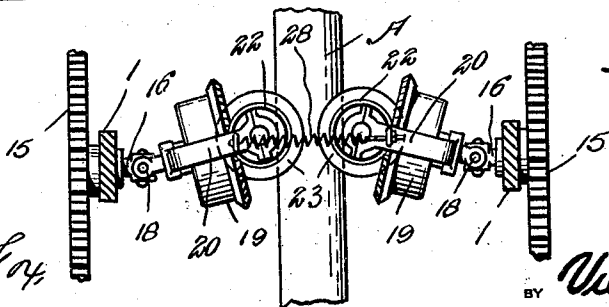


*Fig. 3.*



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2 SHEETS—SHEET 2.

*Fig. 4.*

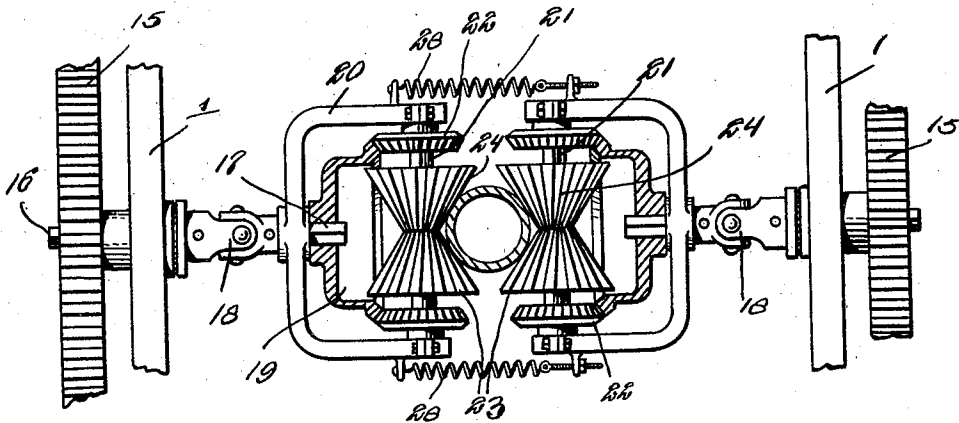


*Fig. 7.*

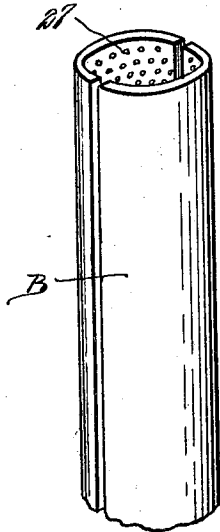


*Fig. 5.*

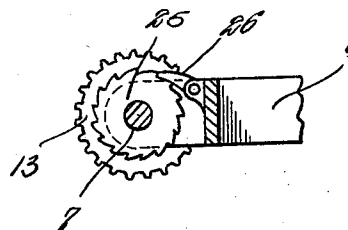
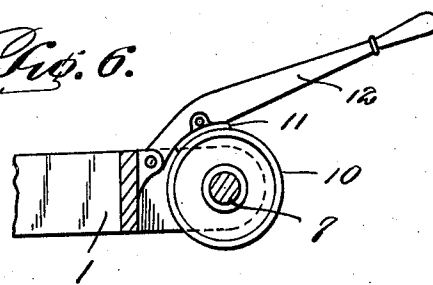


*Fig. 6.*



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WITNESSES:

# UNITED STATES PATENT OFFICE.

FILMORE M. PRICE, OF FLOYDADA, TEXAS.

## WELL-CASING EXTRACTOR.

1,387,944.

Specification of Letters Patent. Patented Aug. 16, 1921.

Application filed July 29, 1920. Serial No. 399,761.

*To all whom it may concern:*

Be it known that I, FILMORE M. PRICE, a citizen of the United States, residing at Floydada, in the county of Floyd and State of Texas, have invented new and useful Improvements in Well-Casing Extractors, of which the following is a specification.

This invention relates to a well casing extractor one of the objects of the invention being to provide gripping rollers for engaging the casing with means for rotating the rollers and at the same time pressing them against the casing in order to draw the casing from the well.

Another object of the invention is to provide a supporting frame for the movable parts of the apparatus with means for preventing spreading of the parts of the frame by the action of the rollers on the casing.

Still another object of the invention is to provide means whereby the rollers may be driven either by power or by hand, with ratchet mechanism for preventing the retrograde movement of the parts when the power is removed.

A further object of the invention is to provide braking means for the device when the same is being used to lower the casing into the well.

A still further object of the invention is to provide two part sleeves for use with casing of such strength that there is danger of the rollers crushing the same.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a plan view of the apparatus showing the rollers as being in engagement with the casing.

Fig. 2 is a side elevation of Fig. 1.

Fig. 3 is a section on line 3—3 of Fig. 1.

Fig. 4 is an enlarged plan view, with parts in section, of the gripping rollers and their attached parts.

Fig. 5 is a detail view of the ratchet mechanism for the drive shaft.

Fig. 6 is a detail view of the brake mechanism for said shaft.

Fig. 7 is a perspective view of a portion of the split sleeve.

In these views 1 indicates a frame which is preferably supported by the legs 2. The cross piece 3 at one end of the frame is hinged to one of the side bars of the frame and has its other end bent at right angles, as at 4, to overlap the other side bar, this piece 4 being provided with a slot 5 through which passes the bolt 6 which is carried by the side bar. At the other end of the frame a drive shaft 7 is journaled, this shaft being provided with the crank handle 8, by which it may be rotated by hand, and with the pulley 9 for receiving a belt which may lead to any desired source of power. While this pulley is shown as centrally arranged on the shaft, I prefer to locate it at the end thereof so as to facilitate the placing of the belt on the pulley. The shaft also carries a drum 10 which is adapted to be engaged by the shoe 11 which is located on the hand lever 12, pivoted to one of the cross pieces of the frame.

Adjacent each end of shaft 7 is located a gear 13 and on each side of the frame is arranged a train of gears 14 which mesh with the gear 13 and with a large gear 15 carried by the outer end of the stub shaft 16 which is journaled in the side piece of the frame. A shaft 17 is connected with said stub shaft 16 by the universal joint 18 and each shaft 17 has secured thereto a cup gear 19. A yoke 20 is rotatably mounted on each of the shafts 17 between the universal joint and the cup gear and each yoke has journaled in its ends a shaft 21. Each shaft carries a pair of gears 22, one adjacent each end thereof, and one of which is secured to the shaft and the other is loosely arranged thereon. These gears engage with the cup gear 19. Each shaft 21 carries a roller 23 which is provided with a groove have sloping walls, making the roller of substantially the shape of a double cone. The sloping walls are provided with teeth 24 for gripping the casing.

The shaft 7 is provided with a ratchet wheel 25 which is engaged by a dog 26 pivoted to the frame, this ratchet mechanism preventing the reverse rotation of the shaft.

In the operation of the device the cross piece 3 is swung open to permit the appa-

ratus to be placed around the well casing, indicated at A. The yoke members and the parts attached thereto are swung upwardly to permit the apparatus to be properly located in respect to the casing and then the parts are swung downwardly to place the rollers in engagement with the casing, the parts being so proportioned that the rollers and parts carried thereby will assume the position shown in Fig. 3 so as to insure the rollers gripping the casing when they are rotated. The cross piece 3 is then swung to closed position to prevent spreading of the side bars of the frame, the shaft 7 is then rotated either by hand or power, as desired, and this movement will be communicated to the stub shafts 16 through the train of gearing and the rotation of these shafts 16 will be communicated to the roller shafts through the universal joints, shafts 17 and the gears 19 and 22. The formation of the rollers and the teeth thereon will cause them to firmly grip the casing and move it upwardly and thus draw it from the well. This peculiar formation of the rollers will also make them accommodate themselves to casings of different sizes.

The device may also be used for placing casings in wells by rotating the parts in an opposite direction to push the casing downwardly instead of upwardly. In this case the dog 26 is swung out of engagement with the ratchet wheel and if the descent should be too rapid under the weight of the casing the brake mechanism shown at 10, 11 and 12 may be used to check this descent.

In cases where the well casing is thin and there is danger of crushing it between the rollers I provide the sleeves shown at B in Fig. 7. Each sleeve is split in half so that the two halves may be placed around the casing and engaged by the rollers. The inner walls of the sleeves are roughened as at 27 for frictionally engaging the casing. I would provide a plurality of such sleeves and each sleeve would be short enough to be placed between the exposed part of the casing and the apparatus and when its lower end was about to pass from between the rollers a second sleeve would be placed in engagement with the casing below the first sleeve.

If necessary or desirable I may connect the yoke frames together by coil springs 28,

these springs being arranged at the sides of the frames and they may be detachably connected with the frames in any desired manner. These springs will insure the rollers gripping the casing.

While I have shown the device as being used to extract casings, it will of course be understood that it may be used for extracting pipes, posts and the like.

It is thought from the foregoing description that the advantages and novel features of my invention will be readily apparent.

I desire it to be understood that I may make changes in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:—

1. An apparatus of the class described comprising a supporting frame, a pair of opposing stub shafts journaled therein, a short shaft connected with each stub shaft by a universal joint, a yoke rotatably mounted on each short shaft, a cross shaft carried by each yoke, gears connecting the cross shaft with the short shaft, a gripping roller on each cross shaft, a drive shaft and gears connecting the same with the stub shafts.

2. An apparatus of the class described comprising a supporting frame, yoke frames hingedly supported therein, gripping rollers carried by said hinged frames, means for rotating the rollers and a movable cross bar for preventing spreading of the side bars of the main frame.

3. An apparatus of the class described comprising a main supporting frame, yoke frames, a universal joint connection between each yoke frame and the main frame, gripping rollers carried by the yoke frames, a drive shaft, means for rotating the rollers from the drive shaft, ratchet mechanism connected with the drive shaft and brake mechanism on the drive shaft.

4. An apparatus of the class described comprising a main frame, yoke frames, a universal joint connection between each yoke frame and the main frame, gripping rollers carried by the yoke frame, means for rotating said rollers and a split sleeve for surrounding the casing and adapted to be engaged by the gripping rollers.

In testimony whereof I affix my signature.  
FILMORE M. PRICE.