C. F. RIGBY.

CLAMP FOR WELL DRILLING CABLES.

APPLICATION FILED JULY 28, 1913.

1,159,096.

Patented Nov. 2, 1915.

2 SHEETS—SHEET 1.

FIG. 1.

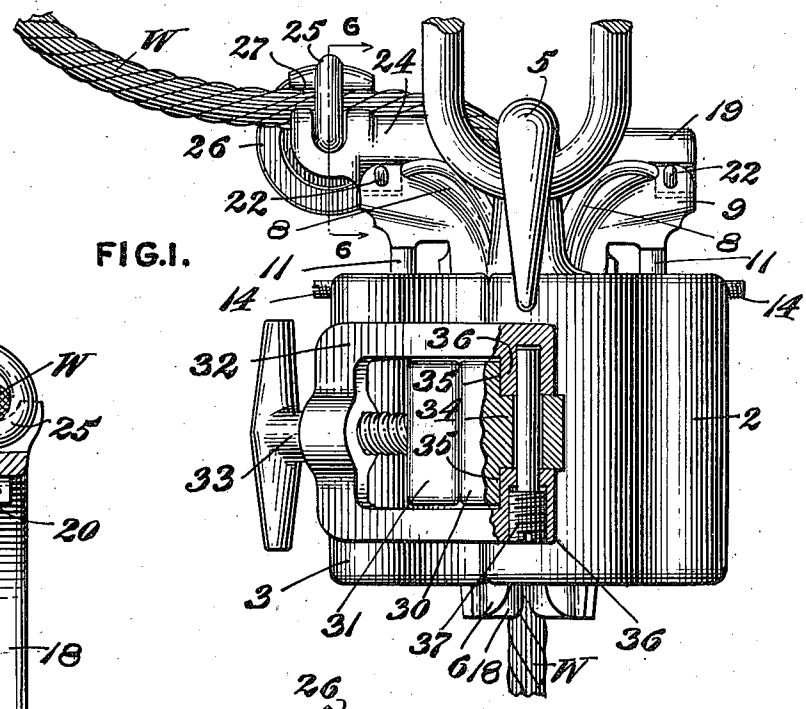


FIG. 6.

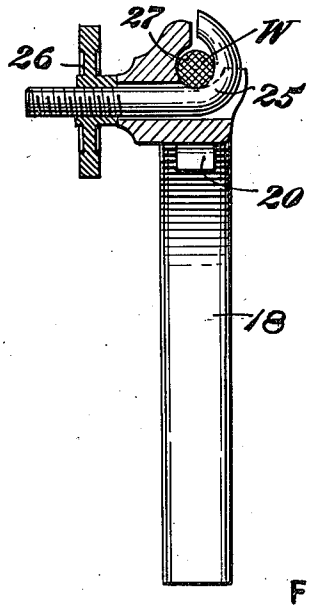


FIG. 2.

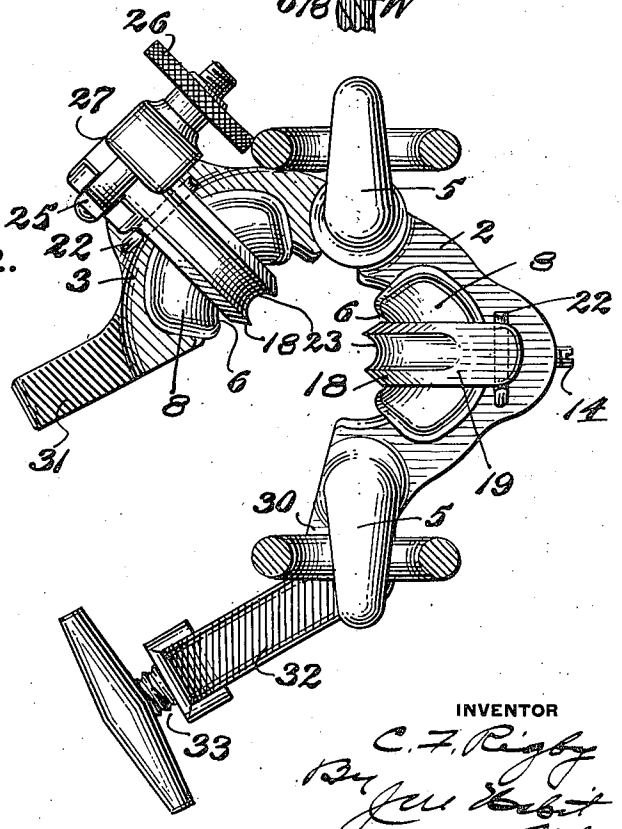
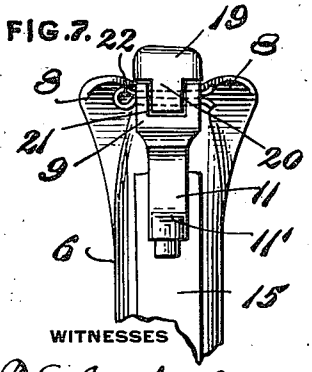


FIG. 7.



WITNESSES

P. E. Gaither

Ella M. Connell

INVENTOR

C. F. Rigby

By Jas. Gaither

Atty

C. F. RIGBY.

CLAMP FOR WELL DRILLING CABLES.

APPLICATION FILED JULY 28, 1913.

1,159,096.

Patented Nov. 2, 1915.

2 SHEETS—SHEET 2.

FIG.3.

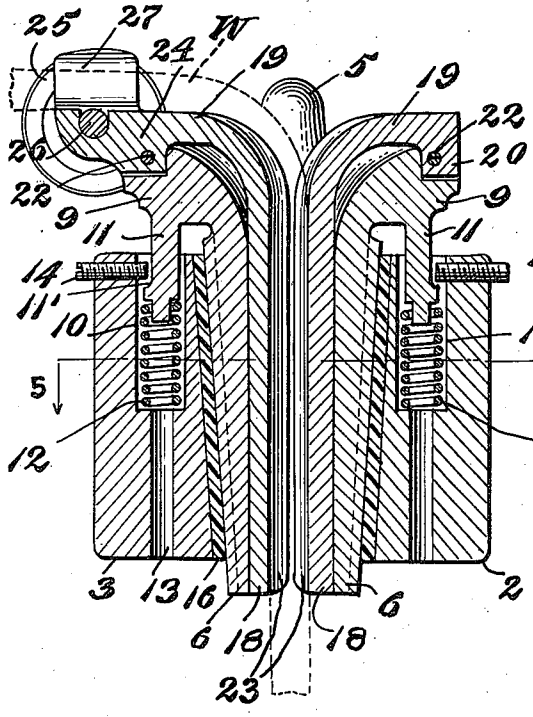


FIG.4.

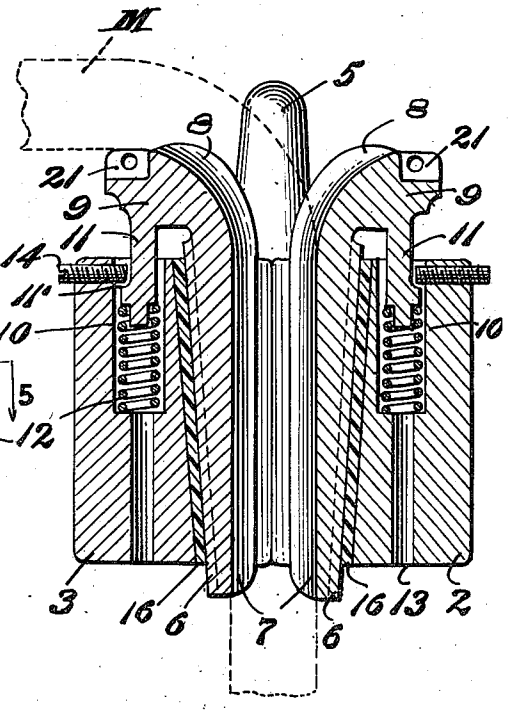
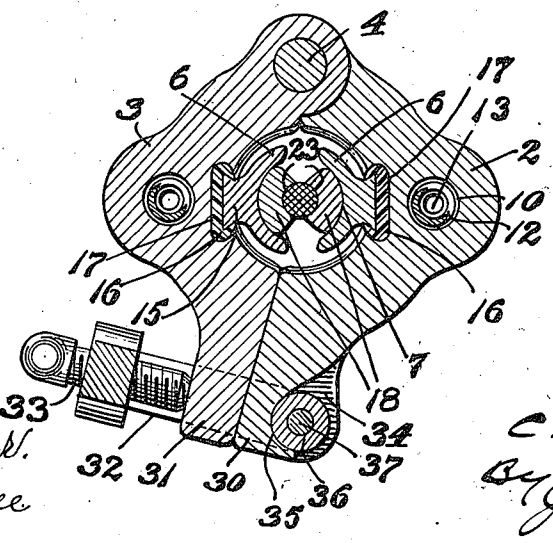


FIG.5.



WITNESSES

F. E. Gaither.

Ella McConnell

INVENTOR

C. F. Rigby

By Jas. Robertson
Atty.

UNITED STATES PATENT OFFICE.

CLARK F. RIGBY, OF BUTLER, PENNSYLVANIA.

CLAMP FOR WELL-DRILLING CABLES.

1,159,096. Specification of Letters Patent. Patented Nov. 2, 1915.

Application filed July 28, 1913. Serial No. 781,580.

To all whom it may concern:

Be it known that I, CLARK F. RIGBY, a citizen of the United States, and resident of Butler, in the county of Butler and State of Pennsylvania, have invented certain new and useful Improvements in Clamps for Well-Drilling Cables, of which the following is a specification.

The primary object of this invention is to provide supplemental cable-gripping slips for well drilling clamps, and particularly clamps of the general type illustrated in Letters Patent No. 873,090, granted to me December 10, 1907, whereby the same clamp mechanism may be used interchangeably for either manila or wire cable without disturbing the larger or manila cable slips, the supplemental slips of the present invention being adapted to be removably secured in position on the larger slips and so contracting the cable passage as to effectively secure the smaller wire cable. The same slip mounting serves for both uses, the main or larger slips remaining constantly in place and operating either directly on the manila cable or indirectly on the wire cable through the interposed supplemental slips.

A further purpose is to improve the cushion supports for the larger or main slips; also to provide a yoke of novel construction for securing together the bowl parts.

Still a further object is to construct the clamp body or bowl with slip-forming guideways of improved construction, whereby absolute accuracy is attained in the manufacture of the clamps so that the slips will operate in exactly the same manner and with the same accuracy in all clamps embodying the invention, the improved construction also facilitating the movement of the slips.

In the accompanying drawings, Figure 1 is a front elevation of a set of clamps constructed in accordance with the invention, and Fig. 2 is a top plan of the same with the bowl parts open and with portions of the construction shown in section. Figs. 3 and 4 are vertical cross-sections of the clamp, taken through the center of the slips, Fig. 3 illustrating the supplemental slips in position for securing a wire cable, while in Fig. 4 the supplemental slips are removed and the main slips are shown gripping a manila cable. Fig. 5 is a sectional plan on line 5—5 of Fig. 3. Fig. 6 is a detail view of one of the supplemental slips partly in section and showing a cable clamp connected thereto. Fig. 7 is a fragmentary view of one of the main slips, and the end of a supplemental slip carried thereby.

Referring to the drawings, the clamp body consists of the vertically divided bowl parts 2 and 3 which are hinged together at one side at 4, part 2 preferably carrying both of the clamp suspending lugs 5 for facilitating insertion and removal of the cable, as shown and described in my above mentioned patent.

Operative within the downwardly tapering bore of the bowl are the permanently located slips 6 of relatively larger size for securing the manila cable M, the inner faces of the slips being grooved vertically at 7 to embrace the cable, and with the upper portion of the grooved slips cupped or flared at 8 to receive the overhanging portion of the cable, also to accommodate a wrapping of jute or other material commonly employed for accelerating the hold of the slips on the cable.

The outwardly flared upper ends 9 of slips 6 overhang the vertical depression 10 in bowl parts 2 and 3, with arms 11 depending from the slips into the recesses and bearing on the upper ends of coiled springs 12 seated therein. Each of cavities 10 is open through the lower extremity of the bowl at 13, said openings facilitating casting the bowl parts with cavities 10, and also serving to keep said cavities clear of dirt, etc. Each arm 11 is shouldered adjacent its lower end at 11′ for engaging the stop-forming screw 14, thereby retaining the slip against complete withdrawal without interfering with the vertical cushioning thereof.

On the rear or outer side of each slip is an upright dove-tail runner 15 which fits a similarly formed slideway in soft metal 16 molded or cast into cavity 17 in the wall of the clamp body bore. The slideways have accurate downward convergence for contracting the slips into clamping engagement with the cable as they lower in opposition to cushioning springs 12.

For gripping and securing a wire cable W, which is of much smaller diameter than the manila cable M, opposed supplemental slips 18 are provided for contracting the cable passage. The arrangement is preferably such that the supplemental slips are removably mounted on the larger slips 6,

the upper portions of the supplemental slips being flared outwardly at 19 to overhang the cupped portions 8 of slips 6, a tongue 20 depending from the under side of overhanging portion 19 into a recess 21 in the upper end portion 9 of slip 6 where it is secured by cotter pin 22. The overhanging upper portions 19 protect the cupped or flared portion 8 of the main slips from being worn or roughened by contact with the wire cable. The opposed faces of slips 18 are curved to embrace cable W as shown at 23, and the outer faces of the depending portions of said slips are curved complementary with and seat in the gripping faces 7 of the main slips 6. Hence, each supplemental slip when in position fits as accurately and is as firmly held as though it were an integral part of the main slip.

The supplemental slip 18 carried by bowl part 3 has its out-turned upper portion 19 extended at 24 for guiding the cable and for carrying the hooked clamping bolt 25 which is adjusted by a nut 26 for securing the cable to an offset 27 of the guide, the cable being thus secured in a preliminary way or until slips 18 can obtain a firm wedging hold thereon. Without thus holding the cable some difficulty would be experienced in tightly gripping the same, whereas with the more yielding and compressible manila cable greater friction is developed and a hold is more readily obtained.

The free portions of bowl parts 2 and 3 are formed with lugs 30 and 31, respectively, which are adapted to be embraced by yoke 32 carrying clamp screw 33. At the rear side of lug 30 is offset 34 with the lug above and below the offset-forming bearing surfaces 35 for the upper and lower portions 36 of the open rear end of yoke 32, said parts 36 and offset 34 being apertured vertically to receive the hinged bolt 37 which is preferably inserted from beneath. With this construction, while the hinge bolt maintains the yoke in place when the clamp is open, the considerable strain to which the yoke is subjected when holding the clamp closed is borne by the heavier yoke parts 36 which are in engagement with the lug bearing surfaces 35.

The bowl parts 2 and 3 are heavy steel castings, and to form them with accurate dove-tail grooves, as shown in my Patent No. 873,090, is a tedious and expensive operation, and at best great difficulty has been experienced in making them exactly the same in all instances so that one clamp will operate exactly the same as another. I have overcome this difficulty by casting the bowl parts with recesses 17 of general dove-tail form in cross section but materially larger than is required to form slideways, and subsequently Babbitt or other relatively soft metal is filled into these cavities in such manner as to form absolutely accurate slideways which are of the same size and have exactly the same inclination or convergence in all clamps to which the improvement is applied with the result that slips may be used interchangeably on different clamps of my manufacture, and all of the clamps have exactly the same cable gripping action. The larger dove-tail cavities 17 serve to confine the softer metal, and the latter comprise a self-lubricating bearing surface for the slip runners 15.

I claim:

1. A clamp for well drilling cables having a passageway for confining a cable of relatively large diameter, and cable-gripping devices adapted to be inserted in the passageway for securing a cable of relatively small diameter.

2. A clamp for well drilling cables comprising a bowl, opposed slips operative therein for gripping a cable of relatively large diameter, and supplemental slips adapted to be positioned in the bowl without removing the first mentioned slips for securing a cable of relatively small diameter.

3. A clamp for well drilling cables comprising a bowl opposed slips operative therein for securing a cable of relatively large diameter, and supplemental slips adapted to be removably mounted on the first mentioned slips and fitting the cable-gripping faces of the latter for securing a cable of relatively small diameter.

4. A clamp for well drilling cables comprising a bowl formed with opposite vertical recesses, springs within the recesses, opposed cable-securing slips movable vertically in the bowl, and arms depending from the slips and movable in the bowl recesses and engaging the springs confined in the latter.

5. A clamp for well drilling cables comprising a bowl formed with opposite vertical recesses, springs within the recesses, opposed cable-securing slips movable vertically in the bowl, arms depending from the slips and movable in the bowl recesses and engaging the springs confined in the latter, and stop devices for confining the arms within said recesses.

6. A clamp for well drilling cables comprising a bowl, slips operative therein for confining a cable of relatively large diameter, supplemental slips fitting the first mentioned slips for securing a cable of relatively small diameter, and tongue and groove and pin connections between each supplemental slip and the slip which supports it.

7. A clamp for well drilling cables comprising a bowl having vertical depressions at opposite sides of its bore, a metallic filling for each of said depressions with the filling recessed vertically to form a guideway, and

cable-securing slips operative in the bowl with the outer face of each slip shaped to fit and move vertically in the guideway.

8. A clamp for well drilling cables comprising a hard metal bowl having its bore formed with opposite vertical recesses, relatively soft metal within the recesses with the soft metal depressed to form vertical guideways, cable-securing slips operative in the bowl, and a runner-like rib on the outer face of each slip adapted to fit and move vertically in the guideways.

9. In a clamp adapted to be used interchangeably for securing manila and wire well drilling cables, the combination of a bowl having a downwardly tapering bore and with guideways in opposite sides of the bore, a pair of opposed downwardly tapering slips having upright runners on their outer faces movable in said guideways, the inner or opposed faces of the slips grooved to embrace a manila cable, and a second pair of opposed slips curved on their outer sides complementary with and adapted to removably fit the cable-gripping faces of the first mentioned slips, the opposed faces of said second slips grooved to embrace a wire cable.

In testimony whereof I affix my signature in presence of two witnesses.

CLARK F. RIGBY.

Witnesses:
J. M. NESBIT,
F. E. GAITHER.