F. M. HENSHAW.

SHAFT TUG.

APPLICATION FILED JULY 21, 1908.

964,477.

Patented July 12, 1910.

Fig. 1.

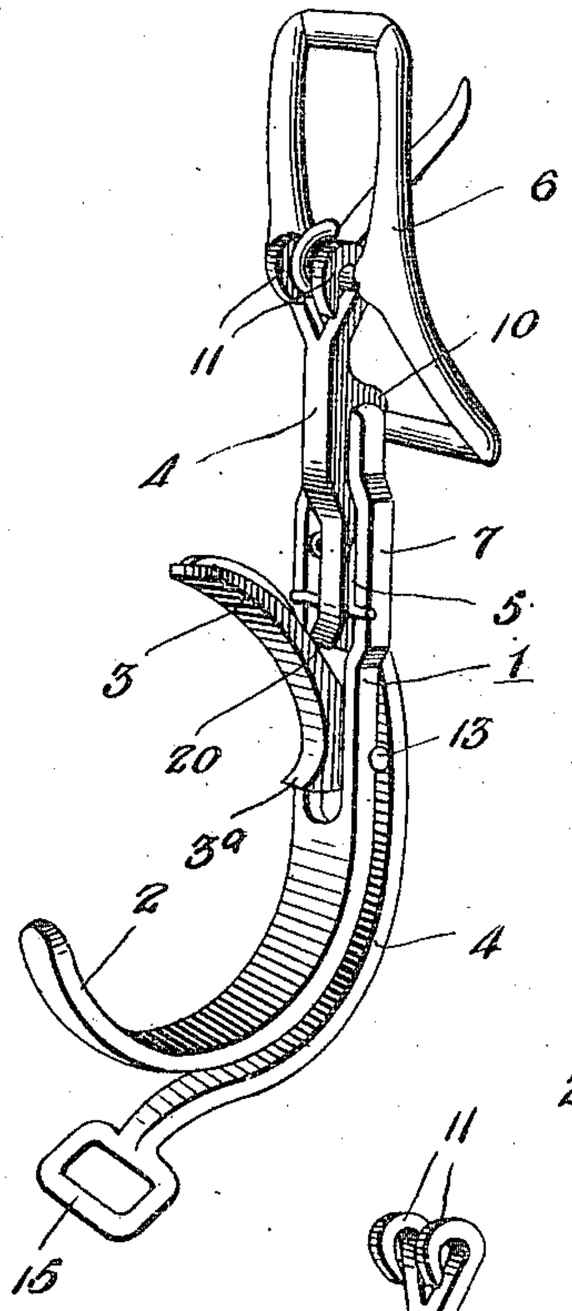


Fig. 2.

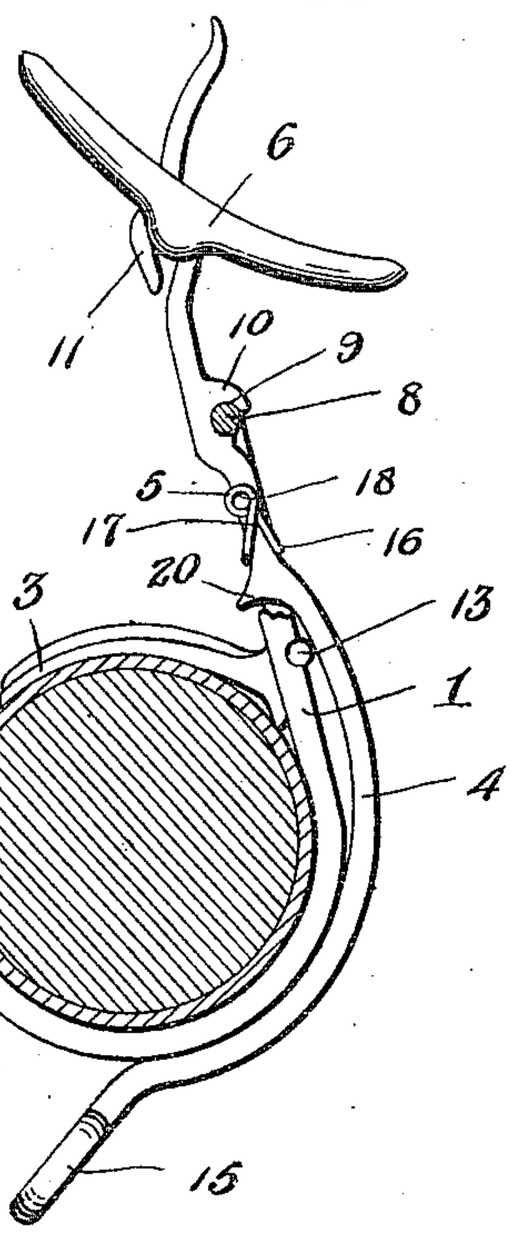


Fig. 3.

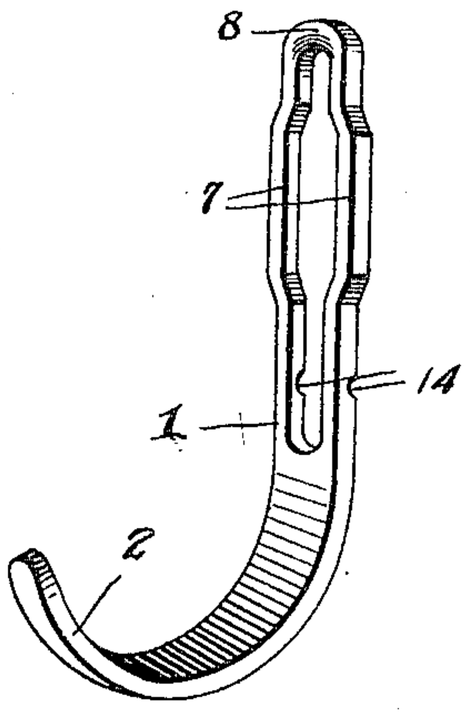


Fig. 4.

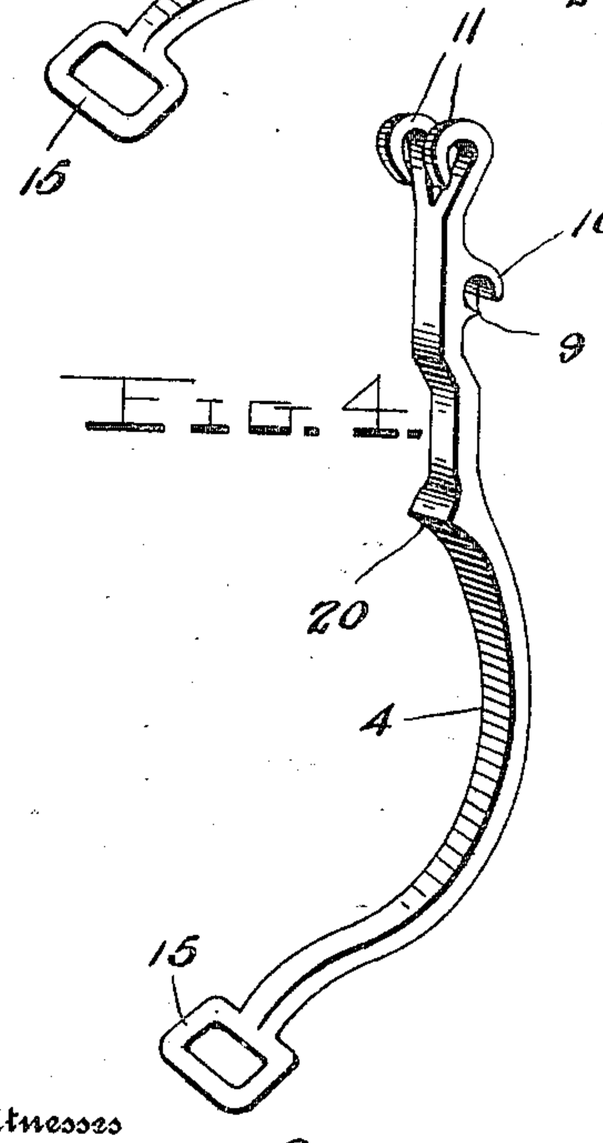


Fig. 5.

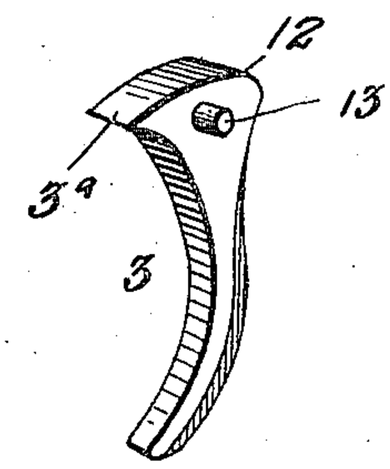
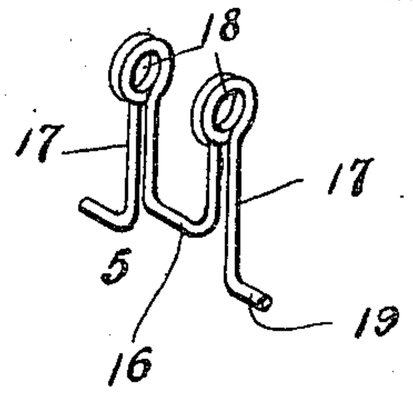


Fig. 6.



Witnesses

Chas. L. Griesbauer.

M. L. Skinner.

Inventor

Fred M. Henshaw

By Walton E. Coleman

Attorney

UNITED STATES PATENT OFFICE.

FRED M. HENSHAW, OF DALLAS, TEXAS, ASSIGNOR OF TWO-THIRDS TO JOSEPH B. GRIGSBY AND HARMAR D. DOUGHERTY, OF DALLAS, TEXAS.

SHAFT-TUG.

964,477. Specification of Letters Patent. **Patented July 12, 1910.**

Application filed July 21, 1908. Serial No. 444,670.

To all whom it may concern:

Be it known that I, FRED M. HENSHAW, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented certain new and useful Improvements in Shaft-Tugs, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in shaft tugs and consists of the novel features of construction and the combination and arrangement of parts hereinafter fully described and claimed.

The object of the invention is to provide a simple and practical tug which will loosely engage the shaft and permit the latter to slide therethrough when the belly band of the harness is loose and which will effectively hold the shaft when said band is tightened, thereby permitting the horse to be completely hitched up upon one side before passing around to the other side.

The above and other objects of the invention are attained in the preferred embodiment illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the tug showing the same in its open position; Fig. 2 is a side elevation of the device, showing the same in its closed position, the shaft being indicated in section; Figs. 3, 4 and 5 are detail views of the shaft supporting plate, the tension lever and the retaining arm, respectively; and Fig. 6 is a detail view of the spring.

The invention comprises a supporting plate or member 1 having a hook 2 to receive the shaft, a retaining arm 3 to lock the shaft in said hook, a tension lever 4 to control said arm and which is connected to the belly band, billet or strap (not illustrated), a spring 5 for actuating the lever and a buckle or equivalent fastening 6 for securing the device to the carrier strap (not illustrated). The body or supporting member 1 is in the form of a metal plate having its lower end reduced and shaped to provide the hook 2 and its upper end formed with a vertical slot or opening to receive the arm 3, the lever 4, and the spring 5. Said opening or slot in the body plate 1 provides the upper portion of the latter with two spaced side bars 7 united at their upper ends by a cross bar 8, which latter serves as the fulcrum for the lever 4 and is adapted to be arranged in a bearing recess 9 formed in the outer face of the lever adjacent to its upper end. The pivot or fulcrum 8 is retained in the recess 9 by bending one wall 10 of said recess downwardly and around the same, as shown more clearly in Fig. 2. The upper end of the lever 4 carries the buckle 6 which is preferably secured to the same by bifurcating said upper end to provide spaced branches bent upon themselves to form eyes 11 that surround the pivot bar of the buckle on opposite sides of the tongue of the latter.

The retaining arm or lever 3 is adapted to have its free end swing vertically above the hook 2 and shaped to bear upon the top of the shaft so as to retain the latter in said hook, as shown in Fig. 2. The other end of the lever is formed with a cam 12 and at opposite points upon the sides with pivot studs 13 to engage bearing recesses or notches 14 formed at opposite points in the outer face of the side bars 7 of the body plate 1. A projection or lug 3^a is also formed upon the pivoted end of the arm 3 and is adapted to be engaged by the shaft when the latter is placed in the hook 2. When the shaft engages this lug or projection 3^a the arm 3 will be automatically swung downwardly over the shaft to retain the latter in the hook 2.

The pivots 13 are retained in the notches 14 by reason of the engagement of the lever 4 with the cam 12, said lever being held in engagement with said cam by the spring 5 and also by the belly band of the harness which is engaged with a hoop or eye 15 formed upon the lower end of the lever, which lower end is curved to conform to the curvature of the hook 2. The spring 5 is formed from a single piece of resilient wire bent at its center to provide a loop 16 to surround and engage the lever and to provide two spring side portions or arms 17 which are arranged between the opposite edges of the lever and the side bars 7 of the body plate 1 and each of which contains a coil 18 and has a hook-shaped portion 19 which engages one of said side bars 7, as clearly shown in the drawings. This spring tends to throw the lever inwardly or against the outer face of the body plate or member 1 and to thereby actuate the cam 12 to cause the free end of the retaining arm 3 to swing

downwardly and clamp the shaft in the hook 2. Upon the inner face of the lever at a point intermediate its ends is formed an inwardly projecting portion 20 which serves as a stop to limit the upward swinging movement of the arm 3.

In using the invention, the shaft carrier strap of the harness is engaged with the buckle 6 and the belly band billet or shaft billet is passed through the loop 15. When the arm 3 is swung upwardly to engage the stop 20 its cam portion 12 passes beneath the horizontal plane of its pivots 13 so that the tension of the lever 4 will retain said arm 3 in its elevated and open position and the shaft or fill may be readily dropped into the hook 2. When the shaft is placed in the hook 2 its engagement with the lug 3[a] will swing the arm 3 downwardly into engagement with the shaft, in which position said arm will be retained by the tension of the spring 5. When the shaft is thus retained the tug will be permitted to slide upon the shaft as the horse moves forwardly and backwardly and one side of the harness can be hitched up complete before the attendant passes to the other side. Upon the tightening of the belly band the levers 4 of both of the tugs will be drawn inwardly so that they will actuate the cams 12 of the retaining arms 3 and thereby effectively force the outer ends of the arms 3 downwardly to prevent the disengagement of the shafts from the hooks 2.

While the preferred embodiment of the invention is shown and described in detail, it will be understood that the invention is not limited to the specific construction set forth and that various changes in the form, proportion and minor details may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described the invention what is claimed is:

1. A device of the character described comprising a body member having at its lower end an inwardly curved hook to receive and support a shaft, a vertically swinging shaft retaining arm projecting from the inner side of the upright portion of said member and provided adjacent to its pivot with a cam portion, and a tension lever arranged upon the outside of said member and pivoted to the upper portion of the same, said lever being adapted to engage the cam portion of said retaining arm to maintain said arm in either its elevated inoperative or its lowered operative position.

2. A device of the character described comprising a body member having at its lower end an inwardly curved hook to receive and .support a shaft, a vertically swinging shaft retaining arm projecting from the inner side of the upright portion of said member and provided adjacent to its pivot with a cam portion, a tension lever arranged upon the outside of said member and pivoted at its upper end to the upper portion of the latter, said lever being adapted to engage the cam on said retaining arm to actuate the latter, means at the lower end of the lever for the attachment of a belly band billet, and means for connecting the device to a carrier.

3. A device of the character described comprising a body member having a hook to receive and support a shaft, the retaining arm 3 pivoted to said member and provided adjacent to its pivoted end with the cam 12 and the projection 3[a], a tension lever pivoted at its upper end to the upper portion of the body member and adapted to bear against said cam 12, means at the lower end of the lever for the attachment of a belly band billet and means for suspending the device from a carrier.

4. A device of the character described comprising a body member having a shaft supporting hook at its lower end and a slot in its upper portion, the arm 3 pivoted in the lower portion of said slot and having the cam 12 adjacent its pivoted end, and the spring pressed tension lever 4 extending through and pivoted in the upper portion of the slot in the body member and adapted to bear against said cam 12 to actuate the arm 3, said lever being formed with the projection 20 to limit the movement of the arm 3.

5. A device of the character described comprising a body member provided at its lower end with an inwardly turned shaft supporting hook and formed in its upper portion with a vertical slot and in its outer face with pivot recesses, a vertically swinging shaft retaining arm arranged in the lower portion of said slot and formed with pivot studs to engage said pivot recesses and also with a cam adjacent said pivot studs, and a spring actuated tension lever arranged upon the outside of said body member and pivoted at its upper end to the upper portion of said member, said lever being adapted to engage the cam on the retaining arm to actuate the latter and retain its pivot studs in the pivot recesses in the body member.

6. A device of the character described comprising a body member provided at its lower end with a shaft supporting hook and at its upper end with a vertical slot forming two side bars and a connecting cross bar, the latter being rounded to serve as a pivot, a shaft retaining arm pivoted in the lower portion of the slot and having a cam and a spring actuated tension lever having a portion to engage said rounded cross bar or pivot whereby the lever is pivotally mount-

ed, said lever being adapted to engage the cam of said retaining arm to actuate the latter.

7. A device of the character described comprising a body plate provided at its lower end with a shaft supporting hook and at its upper end with a vertical slot, the latter forming side bars and an upper cross piece, a retaining arm pivotally mounted in the lower portion of said slot and provided with a cam portion, a tension lever pivoted upon said cross piece and having a lower portion extending through the slot in the body plate and engaged with the cam portion of said retaining arm, means at the lower end of said lever to receive the belly band billet, and means at the upper end of said lever to engage a carrier.

8. A device of the character described comprising a body plate provided at its lower end with a shaft supporting hook and at its upper end with a vertical slot, the latter forming side bars and an upper cross piece, a retaining arm pivotally mounted in the lower portion of said slot and provided with a cam portion, a tension lever pivoted upon said cross piece and having a lower portion extending through the slot in the body plate and engaged with the cam portion of said retaining arm, means at the lower end of said lever to receive the belly band billet, a spring for actuating said lever and a buckle carried by the upper end of said lever and adapted to engage a carrier strap.

9. A device of the character described comprising a body plate having a shaft supporting hook at its lower end and a vertical slot at its upper end, said slot forming side bars and an upper cross piece, the side bars being formed with bearing notches, a retaining arm formed with a cam portion and with pivot lugs, said arm being arranged in the lower portion of said slot and its lugs being engaged with said bearing notches, a tension lever arranged in the upper portion of the slot of the body plate and fulcrumed upon said cross piece, the lower portion of said lever being engaged with the cam portion of the retaining arm and having means to receive the belly band billet, a spring for actuating said lever and means at the upper end of said lever for engaging a carrier.

10. A device of the character described comprising a body plate having a shaft supporting hook at its lower end and a vertical slot at its upper end, said slot forming side bars and an upper cross piece, the side bars being formed with bearing notches, a retaining arm formed with a cam portion and with pivot lugs, said arm being arranged in the lower portion of said slot and its lugs being engaged with said bearing notches, a tension lever arranged in the upper portion of the slot of the body plate and fulcrumed upon said cross piece, the lower portion of said lever being engaged with the cam portion of the retaining arm and being formed with an eye to receive the back band billet, a spring for actuating said lever and a buckle carried by the upper end of said lever.

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

FRED M. HENSHAW.

Witnesses:
RICHARD JAAP,
CORNELIUS HAYNES.