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MECHANISM FOR ELEVATING TORPEDOES INTO MOUTHS OF WELLS.

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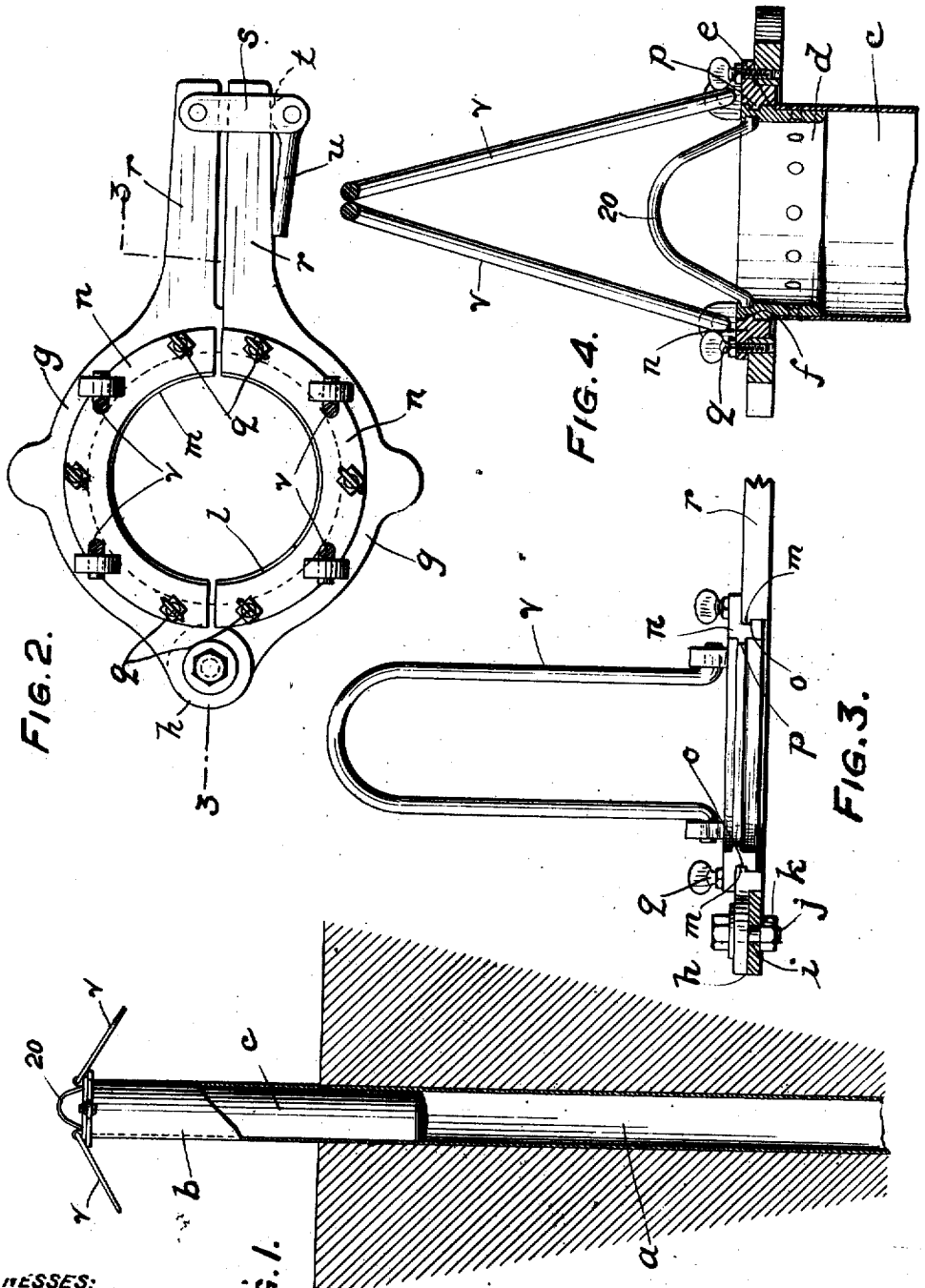

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MECHANISM FOR ELEVATING TORPEDOES INTO MOUTHS OF WELLS.

1,004,554. Specification of Letters Patent. Patented Oct. 3, 1911.

Application filed April 1, 1909. Serial No. 487,358.

To all whom it may concern:

Be it known that I, LUKE H. BROADWATER, a citizen of the United States, residing at Findlay, county of Hancock, and State of Ohio, have invented a new and useful Improvement in Mechanism for Elevating Torpedoes to the Mouths of Wells, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

In using torpedoes in firing wells, for instance oil wells, it is necessary to elevate the torpedo from the ground to the mouth of the projecting pipe and there adjust it so as to lower it properly into the well.

The object of my invention is to provide a simple construction which will enable the torpedo to be readily attached to the elevating device, safely elevated and alined in the projecting tube so that when the bail is attached to the lowering rope or cable to allow it to descend into the well, it will properly pass downward. In general I accomplish this result by providing the can containing the nitroglycerin or other explosive with a ring secured to its upper surface. This ring is preferably formed of cast iron. It is provided with a flange in the outer surface of which is formed a groove. The device for connecting this can with the lifting cable or elevator, comprises two jaws pivotally connected and projecting arms, and an intermediate flat portion having a curved vertical inner surface, the projecting arms being provided with locking mechanism. To each section of the jaw is secured a metall curved plate, preferably of brass, having a projecting flange which, when the jaws are brought together around the ring connected to the explosive can, enables the plate flanges to enter the groove in the ring. Pivotally connected to the jaws are bails to connect with the elevating apparatus. When the jaws encircle the can ring they are locked, and the bails are connected to the elevating apparatus, the can is then elevated and swung over the mouth of the projecting well pipe and lowered until the flat surface of the jaws rest upon the upper end of said pipe, which enables the explosive can or torpedo to be properly centered in the pipe and the lowering cable or rope secured to the bail in the top of the ring connected to the can. All of this can be done without any danger, as the explosive can or torpedo is firmly held by the seating or resting of the flat surface of the jaws on the top of the pipe. When the lowering rope has been securely attached, the lock may be released, and the jaws separated to free the can, or the pivot bolt may also be removed and the jaws entirely separated. Then the torpedo or explosive can may be lowered into the well.

I will now describe the embodiment of my invention illustrated in the accompanying drawing, in which—

Figure 1 is a sectional view showing a torpedo in the mouth of the projecting pipe. Fig. 2 is a detail plan view of the lifting device. Fig. 3 is a partial section on line 3—3, Fig. 2. Fig. 4 is a cross section of lifting device at right angles to Fig. 3 and shown in connection with the top of the torpedo.

a is the well, *b* the pipe projecting therefrom. In practice this pipe projects about three feet above the mouth of the well.

c is the can containing nitroglycerin or other explosive and forming the torpedo. Secured to the top of this can by rivets or bolts is the ring *d* which may be a casting, and of cast iron. The upper portion of this ring *d* has the flange *e*, in the face of which is formed the groove *f*.

g, *g*, are two jaws, each having the projecting portion *h* having an orifice *i* through which orifices the bolt *j* secured on the under surface by nut *k* passes, thus forming a hinge for the jaws. The central or main portion of each of these jaws has a vertical curved surface provided with an inwardly projecting flange *m*.

n, *n*, are brass plates or bushings having the groove *o* in which the flange *m* enters. Each of these plates has a projecting flange *p* adapted to enter the groove *f* in the flange of ring *d*. These plates are secured to their respective jaw members by means of set screws *q*. The flat horizontal surface of the plates *n* of the jaws *g*, *g*, are of such width as to rest securely in the top of pipe *b*. Each of these jaws *g*, *g*, is also provided with a projecting arm *r*. To one of these arms is pivotally secured the strap *s* and in this strap is pivoted the cam *t* provided with the operating handle *u*.

When the jaws *g*, *g*, are pivotally con-

nected together, as described, they are encircled around the ring *d* so that the flanges *p* enter the groove *f*. The arms *r r* are then moved toward each other and the strap *s* brought over the other jaw *g* and the arms *r r* moved until the flanges *p* are securely fitted in the groove *f* when the cam is operated to lock the two jaws fixed in that position. To the main body of each of the jaws is pivotally connected a bail *v* by which the jaws are connected to the elevator. The elevator then lifts the can. The can is swung over and lowered until it enters the pipe *b* and the flat surface of the jaws rest upon the top of said pipe securely holding the torpedo until the lowering cable or rope is attached to the bail 20 connected with the top of the ring. Then the lock is released and the jaws swing free, or the pivot bolt may be removed and the jaws separated. With this arrangement I provide security, in lifting the torpedo, bringing it to proper position, adjusting it and securing to it the lowering cable.

As may be seen, the jaws may be moved to adapt themselves to coact with varying seized torpedoes and the plate portion of the jaws are removable so that plates of the proper size for the torpedo may be inserted and secured.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:

1. In an apparatus for elevating and alining a torpedo in the well tube, the combination with the can, containing the explosive forming the torpedo, and a ring at the upper portion of said can, said ring having a groove, of pivoted jaws comprising a surface adapted to rest on the top of the tube, a curved plate, said plate having a projection adapted to enter the groove in the can ring and set screw for securing said plate to said jaws, and a locking device for holding the jaws in their closed position.

2. In an apparatus for elevating and alining a torpedo in the well tube, the combination with the can, containing the explosive forming the torpedo, and a ring at the upper portion of said can, said ring having a groove, of pivoted jaws comprising a surface adapted to rest on the top of the tube, a plate having a projection adapted to enter the groove in the can ring and set screw for securing said plate to said jaw.

3. In an apparatus for elevating and alining a torpedo in the well tube, the combination with the can, containing the explosive forming the torpedo, and a ring at the upper portion of said can, said ring having a groove, of pivoted jaws comprising a surface adapted to rest on the top of the tube, and a curved vertical inner surface having an inward projection adapted to the groove in the ring, and a locking device for holding the jaws in their closed position, the portion of said jaws having the projection being separate from the other portion of said jaws and set screws for securing the two portions of the jaws together.

4. In an apparatus for elevating and alining a torpedo in the well tube, the combination with the can, containing the explosive forming the torpedo, and a ring at the upper portion of said can, said ring having a groove, of pivoted jaws comprising a surface adapted to rest on the top of the tube and provided with a projection adapted to the groove, the portion of said jaws having the projection being separate from the other portion of said jaws and set screws for securing the two portions of the jaws together.

In testimony of which invention, I have hereunto set my hand, at Basin, Wyoming, on this 23rd day of March, 1909.

LUKE H. BROADWATER.

Witnesses:
H. H. HIME,
A. HIGLEY.