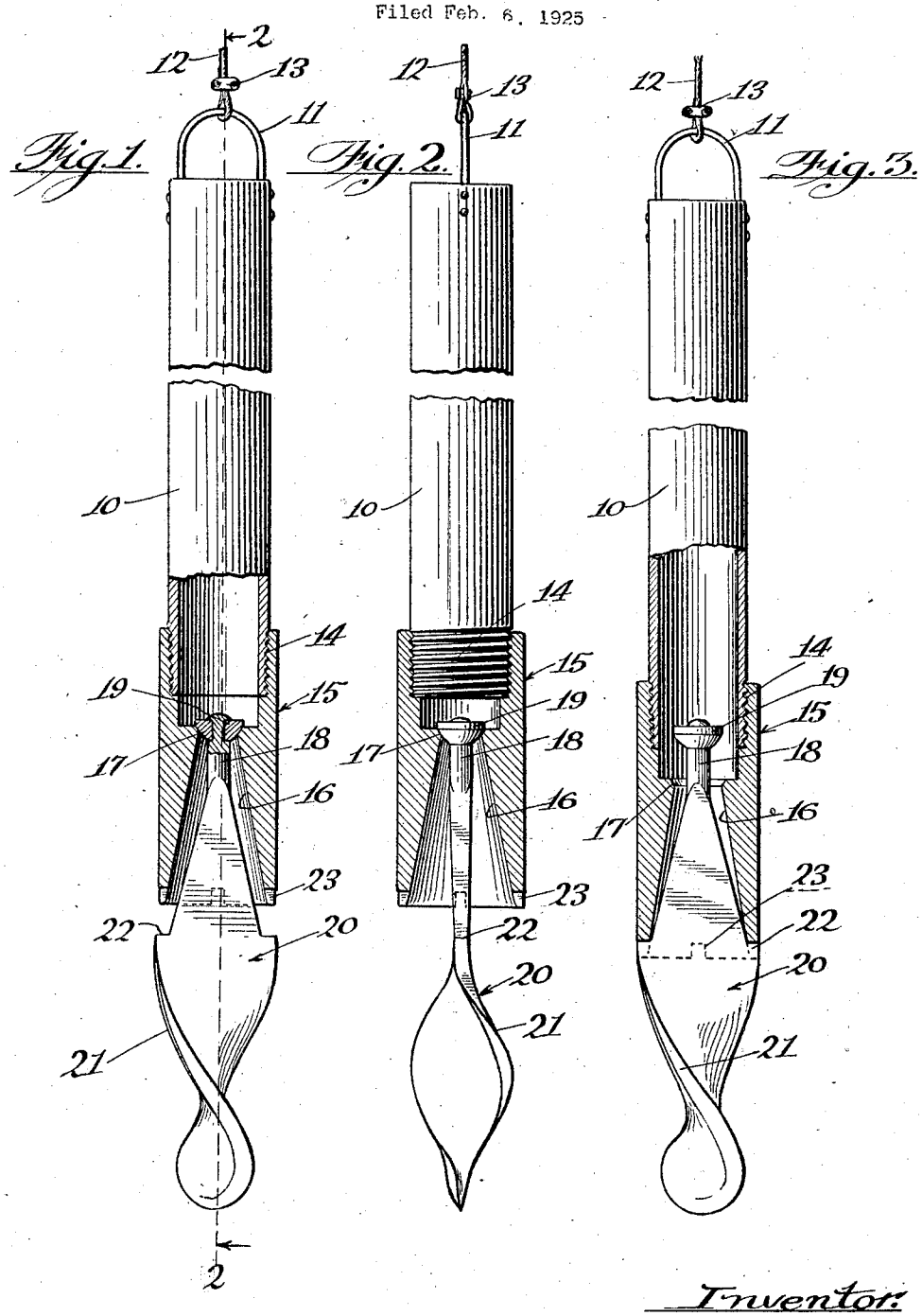
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LOCK DART BAILER BOTTOM

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LOCK-DART BAILER BOTTOM.

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This invention relates to improvements in bailers.

Frequently in bailing out deep wells, such as oil wells, the bottom of the well becomes filled with sand, mud and other fluid and semi-fluid material, which is of such thickness that it is difficult to cause it to enter the bailer in bailing out the well.

It is an object of this invention to provide an improved bailer which has associated with it a penetrating device which will penetrate the thick mud and sand so as to cause it to easily and readily enter the bailer and become entrapped therein so that it may be removed from the well.

With the foregoing and other objects in view which will be made manifest in the following detailed description and pointed out in the appended claims, reference is had to the accompanying drawings for an illustrative embodiment of the invention, wherein:

Figure 1 is a side elevation of the improved bailer, parts being broken away and shown in section;

Fig. 2 may be considered as a vertical section taken substantially on the line 2—2 of Fig. 1; and

Fig. 3 is a view similar to Fig. 1 after the bailer has encountered the thick mud or sand at the bottom of the well.

Referring to the accompanying drawings wherein similar reference characters designate similar parts throughout, the improved bailer consists of a barrel 10 which may be a section of pipe of any desired length. A suitable bail 11 may be mounted upon the upper end of the barrel 10 and a cable or other suspending device 12 may be secured thereto, as by means indicated at 13. The lower end of the barrel 10 is exteriorly threaded as at 14 to receive the upper end of a member 15 which might be termed a shoe. The shoe 15 is provided with a conical bore 16 and provides a valve seat at the upper end of the conical bore 16, which valve seat is indicated at 17. A stem 18 is disposed within the conical bore 16 and carries a check valve 19 which may be of any desired construction and which is adapted to seat upon the valve seat 17. The stem 18 has a penetrating device 20 integral therewith, which penetrating device is in the form of a twisted blade presenting helical cutting edges 21. Shoulders 22 are formed upon the penetrating device 20, which shoulders are capable of being received in notches 23 formed upon the lower end of the shoe 15 constituting a part of the bailer. The penetrating device 20 may be considered as a dart which is adapted to be locked with the barrel 10.

When the improved bailer is lowered into the well by the cable 12, the check valve 19 is resting upon its valve seat 17, and the shoulders 22 are disengaged from the notches 23, as shown in Figs. 1 and 2. As the penetrating device or dart 20 encounters the sand or mud at the bottom of the well, it is forced upwardly against the shoe 15, lifting the check valve 19 from its seat 17. Because of the shape of the penetrating device 20, it acts as a type of auger and tends to rotate while sinking in the mud and sand under the weight of the barrel 10. The upward movement of the dart or penetrating device 20 causes the shoulders 22 to engage with the lower edge of the shoe 15, and if the shoulders 22 do not immediately fit into the notches 23 upon the upward movement of the penetrating device, the rotation of the penetrating device will bring the shoulders 22 into alignment with the notches 23, so that the shoulders may enter the notches. In this manner the penetrating device 20 is locked against relative rotation with respect to the barrel 10, and as the bailer sinks into the mud or sand, the bailer will be caused to rotate with the dart or penetrating device 20.

The shape of the penetrating device 20 is such that it easily and quickly penetrates the thickened mud or sand and provides a guide for directing the semi-fluid upwardly into the barrel 10 past the check valve 19. In this manner it is seen that the penetrating device 20 not only facilitates penetration into the semi-fluid, but provides a guide means for guiding the material encountered into the bailer.

In some types of bailers it is not necessary to provide the shoulders 22 and the notches 23, but the penetrating device or dart 20 may rotate relatively to the barrel 10 upon sinking into the mud, if so desired. The check valve 19 with the penetrating device mounted thereon in this form of construction provides a swivel connection between the penetrating device and the barrel 10.

In the preferred form of construction, the threads 14 are so constructed that rotation caused by the penetrating device 20 will tend

to tighten the shoe 15 upon the barrel 10. In other words, if the threads 14 are right hand threads, the penetrating device 20 preferably has a left hand twist, so that it will tighten the shoe 15 upon the barrel 10. Conversely, if the threads 14 are left hand threads, the penetrating device is given a right hand twist to maintain the shoe 15 tight upon the barrel 10.

It will be understood that various changes in the detail of construction may be made without departing from the spirit or scope of the invention as defined by the appended claims.

I claim:

1. A bailer comprising a barrel, a check valve mounted upon said barrel, a penetrating device having a swivel connection with said barrel and extending therebelow, said penetrating device being in the form of a twisted blade, and means for locking said penetrating device against rotation with respect to said barrel upon starting to penetrate a relatively stiff material.

2. A bailer comprising a barrel, a check valve mounted upon said barrel, a penetrating device mounted upon said check valve and extending below said barrel, said penetrating device being in the form of a twisted blade, shoulders provided upon said penetrating device, and notches formed upon said barrel adapted to receive said shoulders so as to lock said penetrating device against rotation with respect to said barrel.

3. A bailer comprising a barrel, a check valve for the barrel, and a penetrating device rigidly secured to the check valve and extending therebelow, said penetrating device being in the form of a twisted blade.

4. A bailer comprising a barrel, a check valve for the barrel, a penetrating device rotatably mounted upon the barrel, said penetrating device presenting helical edges so that on penetrating material in a well hole, it will be caused to rotate, and means for locking said penetrating device against rotation relatively to the barrel upon starting to penetrate the material.

In testimony whereof I have signed my name to this specification.

AUGUSTUS B. SCOTT.