

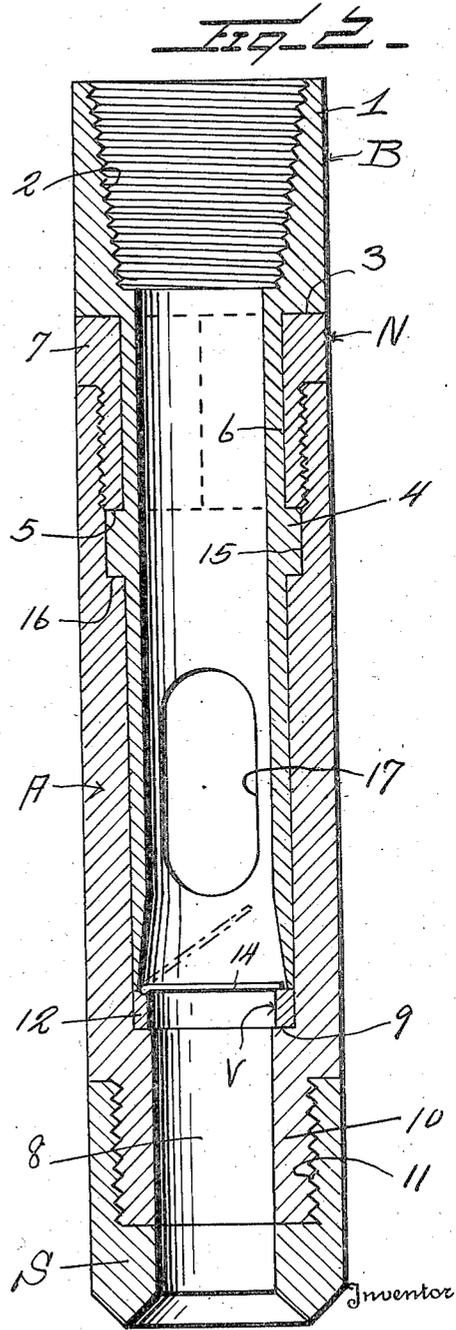
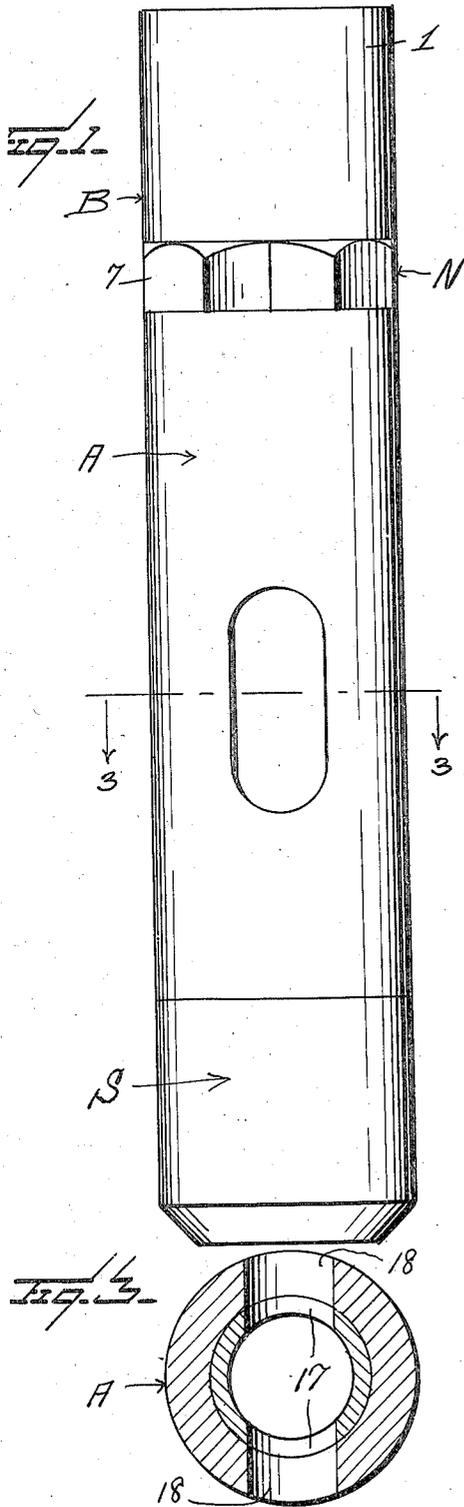
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BAILER BOTTOM

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BAILER BOTTOM

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This invention relates to a bailer bottom, and it is primarily an object of the invention to provide a structure of this kind including an inner shell and a surrounding outer shell together with means for maintaining both of the shells in assembled relation and in a manner whereby one of the shells may be readily rotated with respect to the other in order to facilitate the bringing into or out of register ports provided in both of the shells.

The invention also has for an object to provide a bailer bottom comprising two shells assembled for relative rotation and maintained in assembled relation in a manner whereby the ports in both of the shells can be brought into or out of register by turning one of the shells in either direction and without effecting the connection between the bailer bottom and the bailer barrel with which it is associated.

Another object of the invention is to provide a bailer bottom wherein desired adjustment thereof may be effected to empty the bailer or to close the same for a refill without imposing any wear or tear upon the portions of the structure in threaded engagement one with the other and also of a character whereby the desired opening or closing of the bottom does not effect any raising or lowering of the structure with respect to the barrel to which it is attached and which also substantially eliminates accidental loss of the bottom.

A further object of the invention is to provide a bailer bottom constructed and assembled in a manner whereby the bottom at all times is held firm and rigid, thus preventing wobble which eventually results in wear.

An additional as well as an important object of the invention is to provide a bottom constructed and assembled in a manner whereby it is impossible for a workman to introduce the bottom to a well without proper tightening after emptying the bailer.

A still further object of the invention is to provide a bottom for a bailer that is very positive in its action, strong and rigid in its construction and very easy to open and close yet admits of making repairs in the field.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved bailer bottom whereby certain important advantages are attained and the device rendered simpler, less expensive and otherwise more convenient and advantageous for use, as will be hereinafter more fully set forth.

The novel features of my invention will hereinafter be definitely claimed.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawing, wherein—

Figure 1 is an elevational view of a bailer bottom constructed in accordance with an embodiment of my invention;

Figure 2 is a longitudinal sectional view taken through the structure as illustrated in Figure 1;

Figure 3 is a sectional view taken substantially on the line 3—3 of Figure 1.

As disclosed in the accompanying drawing, my improved bailer bottom comprises an outer shell A and an inner shell B together with a holding nut N, a valve unit V and a shoe S. The upper end portion of the inner shell B is enlarged, as at 1, and the bore of the inner shell B within said enlarged portion is provided with a tapered thread 2 to permit the coupling of the lower portion of the barrel of the bailer proper (not shown) thereto.

The enlarged portion 1 also provides an inwardly facing annular shoulder 3 surrounding the inner shell B and at a predetermined point inwardly of the shoulder 3 the shell B is formed with an outstanding surrounding flange 4. This flange 4 provides a shoulder 5 opposed to the shoulder 3 and the space between the shoulders 3 and 5 affords a recess 6 extending around the shell B. This recess 6 in practice may be of any size desired mainly depending upon the size of the bailer bottom.

Freely surrounding the shell B which, as illustrated in Figure 3 of the drawing, is cylindrical in cross section, is the nut N. This nut, as clearly illustrated in the drawing, is split longitudinally into two equal parts whereby its placement around the shell B may be easily accomplished. The bore of the nut N is smooth and unobstructed so that it may freely rotate around the inner shell B but, of course, the nut N is held against movement lengthwise of the shell B in either direction by the shoulders 3 and 5 with which the applied nut has close contact.

The upper portion of the nut is outwardly enlarged, as at 1, to provide a head having its side face formed to provide a plurality of angularly related facets with which a wrench may be engaged for holding the nut against rotation when the outer shell A is being placed in working assembly.

The outer shell A is also cylindrical in cross section and the lower portion of the bore of the

shell A is reduced in diameter, as at 8, to provide an internal shoulder 9 at the lower part of the outer shell A. This portion 8 of the bore is continued through a reduced extension 10 formed at the lower end of the shell A proper and threading, as at 11, upon this extension 10 is the shoe S. This shoe S may be readily applied or removed, thus permitting the use of various types of shoes or other accessories to meet the various conditions in the well. This removable feature of the shoe S also makes possible the attachment of bull noses or guides; chisel bottoms to break up hard bridges or lumpy formations; stringers to reach past an obstruction; or a basket for removing pieces of steel, iron and rock.

The valve unit V comprises an angular member 12 which snugly engages within the bore of the outer shell A and seats upon the internal shoulder 9 hereinbefore referred to. This member 12 has operatively connected thereto a flat valve 14 which operates to readily permit flow up into the bottom and, of course, up into the bailer barrel proper. This valve 14, however, operates in a manner which is believed to be apparent to prevent retrograde flow out through the lower end of the bailer bottom.

The outer shell A is slipped upon the inner shell B from the lower end of the inner shell and the shells A and B are properly assembled by threading the upper portion of the outer shell A upon the nut N. During this operation the nut N is held against rotation. The upper portion of the bore of the outer shell A is enlarged to snugly receive the flange 4. This enlarged portion 15 of the bore provides an outwardly facing internal shoulder 16 in the upper portion of the shell A and with which the flange 4 contacts, thus assuring under control of the nut N an effective assembly of the shells A and B but in a manner whereby the outer shell A may readily rotate around the inner shell B without effecting the threaded connection between the shell A and nut N and more particularly without effecting the threaded connection of the inner shell B with the lower end portion of the barrel of the bailer proper.

It is to be noted that the wall of the enlarged portion 15 of the bore of the shell A immediately adjacent to the shoulder 16 is smooth and unobstructed to assure proper coaction with the periphery of the outer face of the flange 4.

The distance from the flange 15 to the lower end of the inner shell B is such that when the shells A and B are in assembled relation, the inserted end of the shell B will closely approach or contact the member 12 of the valve unit to maintain said member 12 in desired contact with the shoulder 9.

The inner shell B is provided at desired points intermediate its ends with diametrically opposed ports 17 adapted to be brought into register with the diametrically opposed ports 18 provided in the outer shell A. When these ports 17 and 18 are in register the material within the bailer may be readily emptied and, of course, when such ports are out of register the bailer is in proper adjustment for bailing out.

In the bailer bottom herein disclosed it is to be particularly noted that the outer shell A may be rotated in either direction around the inner shell B to bring the ports 17 and 18 into or out of register as may be required without the turning of any threaded connections which would otherwise cause a continuous wear and tear on the threads with the probability of loss of the bailer bottom.

It is also to be noted that the improved bailer bottom as herein disclosed does not require the workman to turn the shell A in any particular direction as it can be opened or closed with equal facility upon turning in either direction. It is to be particularly emphasized that the means of attaching the outer shell A to the inner shell B excludes any and all wear on threads and makes the accidental loss of the bottom an impossibility as a result of threads becoming worn or by not having been properly tightened.

It is to be further noted that the relative rotation of the shells A and B does not raise or lower either shell as would be the case were the shells held in place by threaded connections. It is, therefore, believed to be obvious that in the device as herein disclosed there are no threads to sand up, strip or wear and that there is provided a bottom constructed and assembled in a manner that makes it very positive in its action, strong and rigid in its construction and easy to open and close.

The assembly of the shells A and B as herein embodied is also such as to make easy the removal of the outer shell A and thus admits of making repairs in the field.

I claim:—

1. A bottom structure for a bailer comprising two shells one being rotatably mounted on the other for free rotation in either direction free of relative endwise movement, said shells having ports to be brought into or out of register upon rotation of the outer shell in either direction, means carried by the inner shell for securing the same to the bailer to maintain the bottom structure in working position within the structure below the ports of the shells, the outer shell having an internal shoulder coacting with the inserted end of the inner shell for maintaining the valve unit in position.
2. A bottom structure for a bailer or the like comprising two shells, one rotatably surrounding the other, attaching means carried by the inner shell, a nut rotatably surrounding the inner shell, the outer shell slipping upon the inner shell from an end thereof with the inner end of the outer shell detachably engaging the nut, said nut providing a rotating mounting for the outer shell and holding the outer shell in applied position upon the inner shell, means for holding the nut against movement lengthwise of the inner shell, said shells having ports to be brought into or out of register upon rotation of the outer shell in either direction, and an inwardly opening non-return valve unit within the outer shell below the ports.
3. A bottom structure for a bailer or the like comprising two shells, one rotatably surrounding the other, attaching means carried by the inner shell, a nut rotatably surrounding the inner shell, the outer shell slipping upon the inner shell from an end thereof with the inner end of the outer shell detachably engaging the nut, said nut providing a rotating mounting for the outer shell and holding the outer shell in applied position upon the inner shell, means for holding the nut against movement lengthwise of the inner shell, said shells having ports to be brought into or out of register upon rotation of the outer shell in either direction, and an inwardly opening non-return valve unit within the outer shell below the ports, the inner shell providing means for holding the valve unit in place.
4. A bottom structure for a bailer or the like comprising two shells, one rotatably surrounding

the other, attaching means carried by the inner shell, a nut rotatably surrounding the inner shell, the outer shell slipping upon the inner shell from an end thereof with the inner end of the outer shell detachably engaging the nut, said nut providing a rotating mounting for the outer shell and holding the outer shell in applied position upon the inner shell, means for holding the nut against movement lengthwise of the inner shell, said shells having ports to be brought into or out of register upon rotation of the outer shell in either direction, and an inwardly opening non-return valve unit within the outer shell below the ports, said nut being split.

5. A bottom structure for a bailer or the like

comprising an inner shell, securing means carried by said inner shell, an outer shell surrounding the inner shell, said inner shell being provided therearound with an outstanding flange, the outer shell being provided with an internal groove snugly receiving the flange of the inner shell whereby the two shells are held in assembled relation and against relative endwise movement, ports carried by both of the shells to be brought into or out of register upon rotation of the outer shell in either direction, and an inwardly opening non-return valve unit within the bottom structure below the ports.

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