

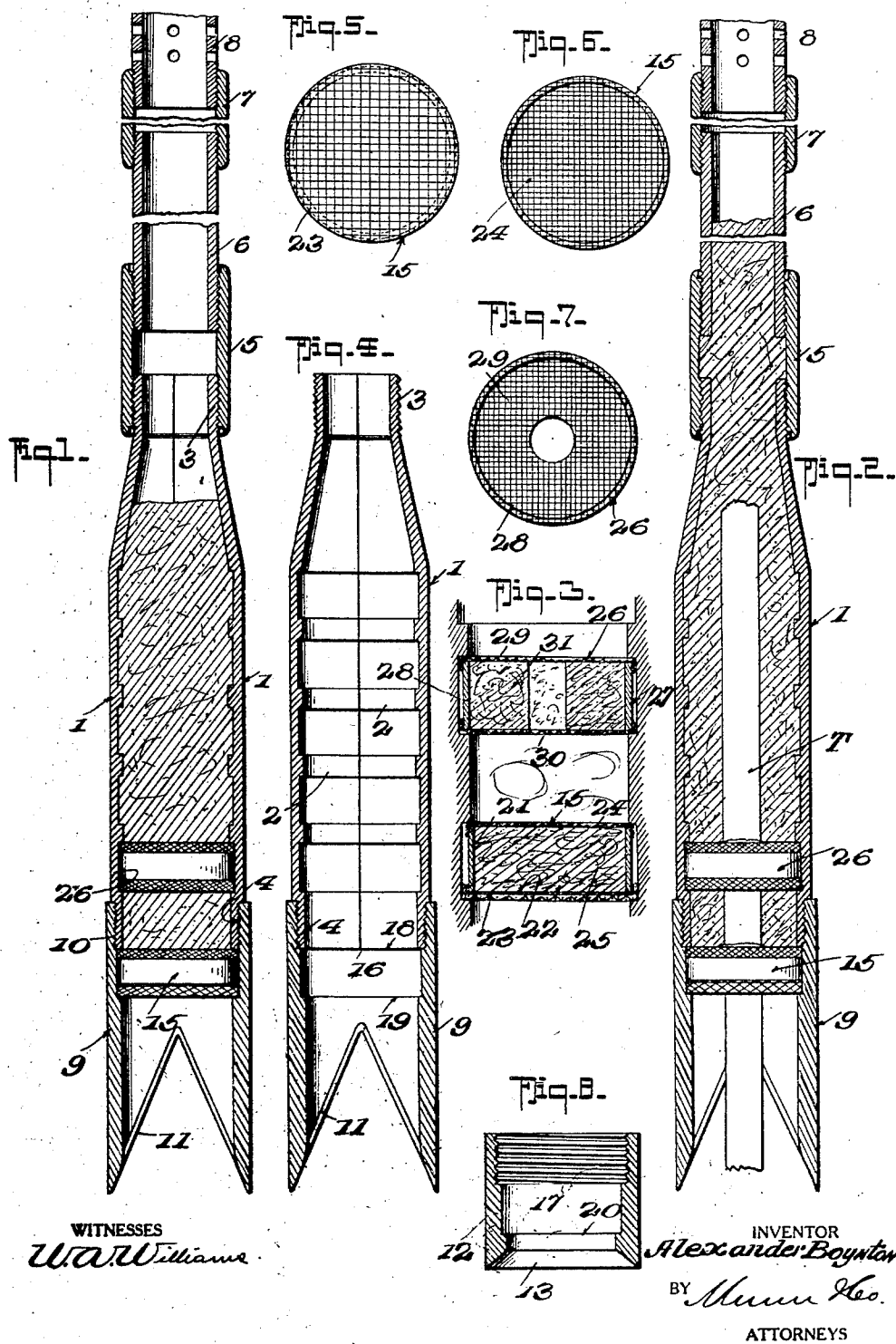
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A. BOYNTON

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OVERSHOT

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UNITED STATES PATENT OFFICE.

ALEXANDER BOYNTON, OF SAN ANTONIO, TEXAS.

OVERSHOT.

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To all whom it may concern:

Be it known that I, ALEXANDER BOYNTON, a citizen of the United States, residing at San Antonio, in the county of Bexar, State of Texas, have invented certain new and useful Improvements in Overshots, of which the following is a specification.

This invention relates in general to overshots and more particularly an overshot designed to use cement for the purpose of binding the tool or object being recovered in the overshot so as to insure the recovery of the lost object.

The object of the invention resides in the provision of an overshot of this character which is of simple and durable construction, which is reliable and effective in operation, which is adapted to provide an extremely strong and dependable union between the lost object and the overshot and yet be capable of convenient removal from the lost object when the overshot and the object have been raised to above the ground.

Other objects and advantages reside in certain novel features of construction, arrangement and combination of parts which will be hereinafter more fully described and particularly pointed out in the appended claims, reference being had to the accompanying drawings forming a part of this specification, and in which:—

Figure 1 is a sectional view of an overshot constructed in accordance with the present invention and showing the cement employed as the same appears while the overshot is being lowered into the well,

Figure 2 is a view similar to Figure 1 but showing the cement as displaced by a recovered object which has entered the overshot,

Figure 3 is a detail view in section of the frangible sealing or packing elements employed,

Figure 4 is a detail view in section showing the structure of the body of the overshot and one type of shoe employed at its forward end,

Figure 5 is a bottom plan view of the lower packing or sealing element,

Figure 6 is a top plan view of the element shown in Figure 5,

Figure 7 is a top plan view of the upper sealing member or packing element, and

Figure 8 is a view in section of a different type of shoe from that shown in Figures 1, 2 and 4.

Referring to the drawings, the numeral 1

designates generally the hollow body portion of the overshot. This body portion is made up of two sections which when assembled are of substantially cylindrical form and present a smooth exterior. Internally the bottom of the overshot is provided with a series of annular ribs or shoulders 2 to provide anchoring means for the cement as will hereinafter appear and to provide means for holding in position the sealing or packing members to be hereinafter described. The upper end of the hollow body portion 1 is tapered to an externally threaded reduced end 3 and the lower end of the body portion is also externally threaded and reduced, as indicated at 4.

A coupling 5 is engaged with the reduced and threaded upper end 3 and is engaged with the lower end of an imperforate section 6. The upper end of the pipe section 6 is connected by a coupling 7 with a perforated pipe section 8.

A shoe 9 is threadedly connected, as at 10, to the reduced and threaded lower end 4 of the hollow body portion 1 of the overshot. The shoe 9 is formed with V-shaped slots 11 at its forward end, the walls of which are beveled to the inside. These slots facilitate the passage of the tools to be recovered into the hollow body portion. In lieu of the shoe 9 a shoe, designated at 12, and illustrated in Figure 3, may be employed. The shoe 12 is somewhat shorter than the shoe 9 and instead of having the slots 11 it is simply inwardly beveled, as indicated at 13. Both the shoes 9 and 12 have a greater external diameter than any of the elements of the overshot. This feature provides an opening of maximum size in which the tools to be recovered pass into the overshot, and it also reduces the area or surface liable to binding engagement with the well casing. The purposes of the shoes 9 and 12 are to facilitate the entrance of the objects to be recovered into the overshot and to aid the coupling 5 in holding the sections of the overshot assembled.

A lower packing or sealing member, designated generally at 15, is provided and is set in a recess 16 provided in the shoe 9 or in a recess 17 provided in the shoe 12, depending on which shoe is used. The packing member engages a shoulder 18 provided by the lower end of the body portion of the overshot and a shoulder on the shoe used, the shoulder of the shoe 9 being designated

at 19 and the shoulder of the shoe 12 being indicated at 20. The packing member 15 comprises an open ended cylinder or shell 21 of sheet metal, a frangible bottom plate of sheet metal, such as tin or the like, designated at 22, a covering 23 of wire mesh over the underside of the bottom plate 22 and an upper wall 24 of wire mesh. The wire mesh covering 23 and the wire mesh upper wall 24 are bent over the edges of the cylinder 21 and are soldered thereto. The interior of the packing member 15 is filled with steel wool or other similar substance, designated at 25.

15 An upper packing member, designated generally at 26, is provided and is set in a chamber 27 provided between two adjacent shoulders 2. The packing or sealing member 26 comprises a cylindrical body portion 28 of sheet metal or any other suitable material and annular upper and lower walls 29 and 30 of mesh. The central openings of the walls 29 and 30 are aligned. The edges of the wire mesh walls 29 and 30 are bent over the cylindrical body portion 28 and soldered thereto. The interior of the packing or sealing member 26 is filled with steel wool, designated at 31. Steel wool may also be placed between the sealing members 15 or 26 and above the sealing member 26.

20 In use, the lower packing ring or sealing member 15 is placed in the shoe to be employed and the upper packing ring is placed between the sections of the hollow body portion and the hollow body portion is then screwed down into the shoe. The coupling 5 is then threaded on the upper portion of the overshot. Liquid cement is then poured into the overshot through the upper end of the coupling 5. The cement passes down through the upper packing or sealing member 26 but does not pass through the lower packing or sealing member 15 due to the position of the sheet metal bottom 22. Prior to the pouring of the cement the desired quantity of steel wool may be placed in the hollow body of the overshot. The pipe 6, coupling 7 and perforated pipe 8 are then coupled up and the overshot is lowered down into the well. Unless the object to be recovered is very short and lies upon the bottom of the well the shoe 9 is employed since this form of shoe greatly facilitates the passage of the object to be recovered into the overshot. For the sake of illustration a lost or broken tool, designated at T, is shown in Figure 2 and as indicated the tools to be recovered pass into the shoe 9 and break through the sealing members, the wire mesh as well as the thin sheet metal bottom 22 being easily broken to permit the passage of the liquid into the interior of the overshot. The steel wool in the packing or sealing members, being tightly packed therein, close around the tool or object being recovered after the same passes through the sealing or packing members and prevents the cement from draining out. "Quick set" or some other chemical used for the purpose of causing the cement to set quickly is usually mixed with the cement so that it is necessary to leave the tool in the well only a comparatively short time before the same may be withdrawn. When the overshot is withdrawn the object which has now embedded and set in the cement is pulled out with the overshot. The purpose of the perforated section or tubing 8 is to balance or equalize the pressure which might force the cement up through the tubing and out of the well when the fluid is entered in the wall if it were not for the provision of this perforated pipe section or tubing. The purpose of the pipe section 6 is to provide an expansion chamber into which the liquid cement may be displaced when the object to be removed is forced into the cement chamber of the overshot.

After the overshot with the recovered tool has been raised to above the ground the shoe is struck over the threads several times with a hammer and the coupling 5 is similarly hammered. A pipe wrench is then applied and both the shoe and coupling are unscrewed. Thereafter, a slight tap with the hammer will loosen the two sections of the body portion of the overshot and the same will drop off of the cement. The cement may then be broken and the recovered object removed therefrom. Of course, the overshot would perform these functions if the main body were made in one piece except that it would be practically impossible to remove the cement and take the recovered object therefrom. It is to be understood that any plastic substance which has the property of setting may be used as for instance amalgam, gutta-percha, or any other liquid or plastic setting substance is contemplated as substitutes for cement.

I claim:

1. An overshot including a hollow body portion adapted to receive a plastic substance, and a frangible packing member designed to prevent the escape of the plastic substance and yet admit the passage of the object to be recovered into the body portion and into the plastic substance whereby when the plastic substance hardens the object to be recovered will be firmly bound to the overshot.
2. An overshot including a hollow body portion adapted to receive a plastic substance, a frangible packing member designed to prevent the escape of the plastic substance and yet admit the passage of the object to be recovered into the body portion and into the plastic substance whereby when the plastic substance hardens the object to be recovered will be firmly bound to the

overshot, and a shoe forwardly of the packing member.

3. An overshot including a hollow body portion adapted to receive a plastic substance, and a frangible packing member designed to prevent the escape of the plastic substance and yet admit the passage of the object to be recovered into the body portion and into the plastic substance whereby when the plastic substance hardens the object to be recovered will be firmly bound to the overshot, said frangible packing member having plastic means compressible to permit the passage of the object to be recovered therethrough and expansible to engage said object to prevent the escape of the plastic substance.

4. An overshot including a hollow body portion adapted to receive a plastic substance, and a frangible packing member having frangible end walls and a filling of steel wool and designed to prevent the escape of the plastic substance and yet admit the passage of the object to be recovered into the body portion and into the plastic substance whereby when the plastic substance hardens the object to be recovered will be firmly bound to the overshot.

5. An overshot including a hollow body portion adapted to receive a plastic substance, and a frangible packing member having wire mesh end walls and a filling of steel wool therein designed to prevent the escape of the plastic substance and yet admit the passage of the object to be recovered into the body portion and into the plastic substance whereby when the plastic substance hardens the object to be recovered will be firmly bound to the overshot.

6. An overshot including a hollow body portion adapted to receive a plastic substance, and a frangible packing member having a lower wall including a frangible sheet metal plate and a covering of wire mesh, an upper wall of wire mesh and a filling of steel wool and designed to prevent the escape of the plastic substance and yet admit the passage of the object to be recovered into the body portion and into the plastic substance whereby when the plastic substance hardens the object to be recovered will be firmly bound to the overshot.

7. An overshot including a hollow body portion adapted to receive a plastic substance, and a frangible packing member designed to prevent the escape of the plastic substance and yet admit the passage of the object to be recovered into the body portion and into the plastic substance whereby when the plastic substance hardens the object to

be recovered will be firmly bound to the overshot, said hollow body portion having internal anchoring means for the plastic substance.

8. An overshot including a hollow body portion designed to receive a plastic substance and also to receive the object to be recovered, and a pair of spaced packing members adjacent the lower end of the body portion, the packing members being designed to prevent the loss of the plastic substance and yet permit the tool to pass into the overshot, the upper packing member having openings permitting the plastic substance to pass into the space between the packing members.

9. An overshot including a hollow body portion designed to receive a plastic substance and also to receive the object to be recovered, and a pair of spaced packing members adjacent the lower end of the body portion, the lower packing member having a bottom wall comprising a frangible plate and a covering of wire mesh, an upper wall consisting of wire mesh and a filling of steel wool, the upper packing member having upper and lower walls of wire mesh and a filling of steel wool.

10. An overshot comprising a hollow body portion, a shoe at the forward end of the body portion, frangible packing members adjacent the forward end of the body portion, the body portion being designed to contain liquid cement, an imperforate pipe connected with the upper portion and providing a chamber to receive the cement when the same is displaced by the object to be removed, and a perforated pipe above said imperforate pipe to equalize the pressure upon the cement.

11. In an overshot, a hollow body portion, frangible packing members adjacent the forward end of the body portion, the body portion being adapted to contain liquid cement, and means for equalizing the pressure on said cement.

12. In an overshot, a body portion including sections, a shoe at the forward end of the body portion having threaded engagement with the sections and a coupling at the rear end of the body portion also having threaded engagement with the rear end of the sections, a frangible packing member arranged between the sections, the sections having shoulders holding the packing member in position in the assembly, said shoe also having a portion adapted to receive a frangible packing member.

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