

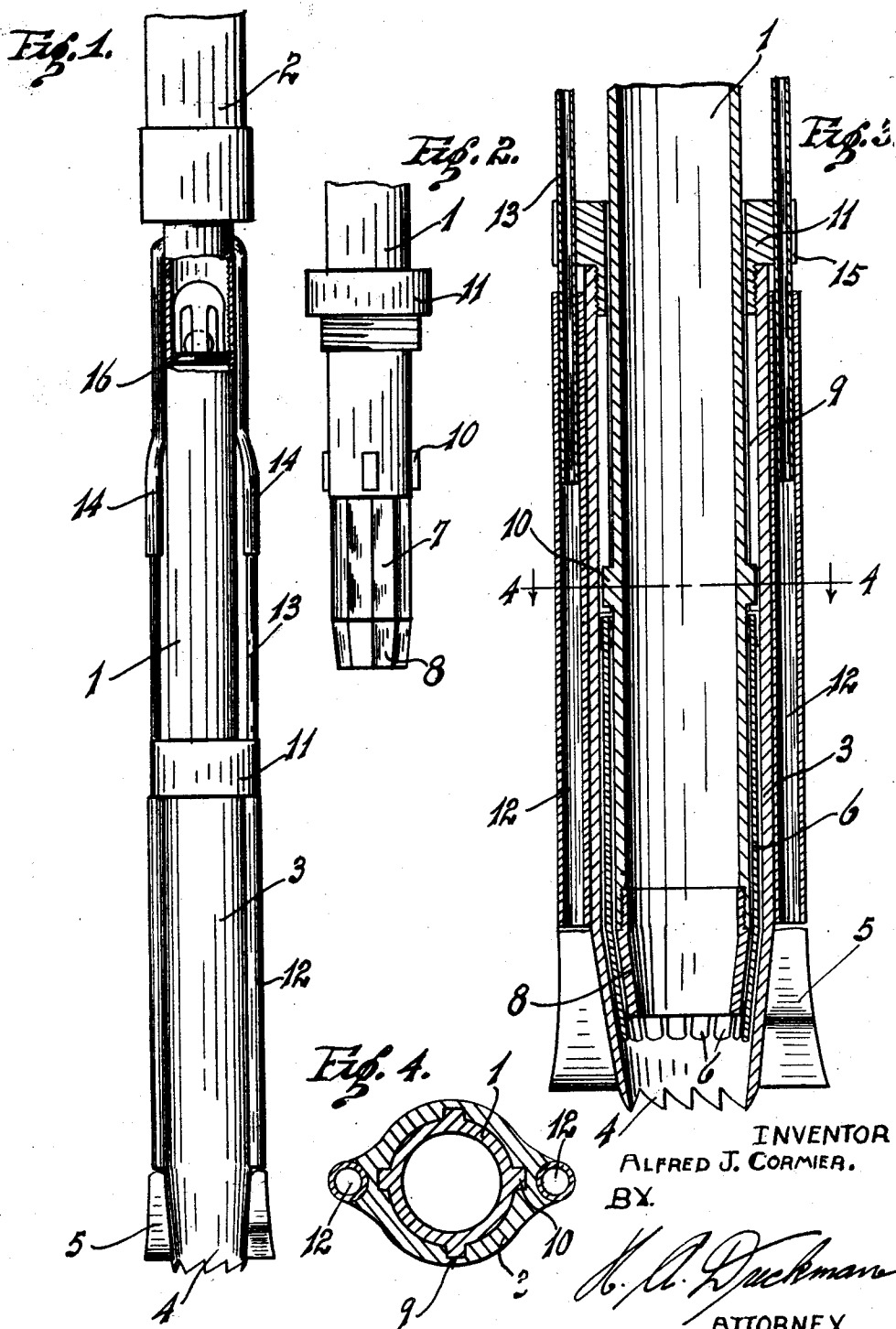
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CORE BARREL

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## UNITED STATES PATENT OFFICE

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## CORE BARREL

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This invention relates to a core barrel, and the prime object of my invention is to provide a means whereby the bottom of the core barrel is closed before it leaves the bottom of the hole.

Another object is to provide a core barrel having a novel external circulating passage.

Still another object is to provide a core barrel in which a larger core is taken than in barrels heretofore in use.

Other objects, advantages and features of invention may appear from the accompanying drawings, the subjoined detailed description and the appended claims.

In the drawings:

Figure 1 is a side elevation of my core barrel with parts broken away to show interior construction.

Figure 2 is a fragmental side elevation of the lower part of the inner barrel.

Figure 3 is an enlarged longitudinal sectional view of my core barrel.

Figure 4 is a sectional view taken on line 4-4 Figure 3.

Referring more particularly to the drawings, the numeral 1 indicates the inner or main barrel of the core barrel, and the usual drill pipe 2 is screwed on to the upper end of the barrel 1. A sleeve 3 surrounds the lower part of the barrel 1 and the barrel is slidable therein as will be further described. A core cutting bit 4 is formed on the lower end of the sleeve 3 and the usual reaming side cutters 5 are also provided. A plurality of spring fingers 6 are provided in the sleeve 3, and these fingers extend to adjacent the lower end of said sleeve. They tend to spring inwardly, thus closing the bottom of the core barrel to prevent the core from moving downwardly. The fingers 6 are suitably secured within the sleeve 3 by riveting, welding or other suitable means.

The lower end of the barrel 1 is formed with a multisided section 7, and a tapered tip 8 at the bottom thereof. The tip 8 screws into the bottom of the barrel 1 and may be removed and replaced when it is worn. The section 7 is so formed that a spring 6 will lie along each of the faces thereof. The

sleeve 3 is provided with a plurality of slots 9 in the upper end thereof, and the barrel 1 is provided with lugs 10 which fit into the slots 9. The purpose of this arrangement is to cause the sleeve 3 to rotate with the barrel 1 and still enable the barrel to slide in the sleeve. A nut 11 surrounds the barrel 1 and screws into the top of the sleeve 3, thus holding the sleeve onto the barrel and preventing its removal therefrom, by reason of the fact that the lugs 10 will engage the bottom of the nut.

Tubes 12-12 are provided on outside of the sleeve 3 and a pair of pipes 13-13 extend into the tubes 12 and are slidable therein. The pipes 13 screw into a pair of pipes 14-14, which pipes are secured to the sides of the barrel 1 and extend into said barrel for the purpose of conducting the circulating fluid downwardly along the sides of the barrel 1 and sleeve 3. The nut 11 is notched as at 15 to receive the pipes 13 and the pipes also serve to lock the nut and prevent accidental rotation thereof. A check valve 16 is provided in the barrel 1 adjacent the upper end thereof for the purpose of relieving any pressure above the core, all of which is usual in core barrels.

In operation the core barrel is lowered into the hole and when the bottom is reached the weight of drill pipe is sufficient to force the barrel 1 downwardly to the position shown in Figure 3. In this position the fingers 6 are forced outwardly against the walls of the sleeve 3 and are out of the way of the core. The core is now taken in the usual manner and when the drill pipe is pulled upwardly for the purpose of removing the core barrel from the hole, the barrel 1 will slide upwardly, thus permitting the fingers 6 to contract around the bottom of the core, and the core will be held against downward movement before the sleeve 3 leaves the bottom of the hole.

Having described my invention, I claim:

1. A core barrel comprising an inner barrel section, a sleeve slidably mounted over the lower end of said barrel section, a plurality of spring fingers in said sleeve, said barrel section being adapted to engage said spring

5 fingers to force them outwardly when a core is being taken, lugs on said inner barrel, said sleeve having longitudinally extending grooves formed therein, in which said lugs are adapted to slide, and a nut screwed into the top of said sleeve, said nut surrounding the inner barrel.

10 2. A core barrel comprising an inner barrel section, a sleeve slidably mounted over the lower end of said barrel section, a plurality of spring fingers in said sleeve, said barrel section being adapted to engage said spring fingers to force them outwardly when a core is being taken, a core cutter on the lower end of said sleeve, said inner barrel being formed with a multi-sided section against which said spring fingers are adapted to lay, and a tapered tip on the lower end of said inner barrel.

20 3. A core barrel comprising an inner barrel section, a sleeve slidably mounted over the lower end of said barrel section, a plurality of spring fingers in said sleeve, said barrel section being adapted to engage said spring fingers to force them outwardly when a core is being taken, a core cutter on the lower end of said sleeve, said inner barrel being formed with a multi-sided section against which said spring fingers are adapted to lay, and a tapered tip on the lower end of said inner barrel, a plurality of lugs on said inner barrel, said sleeve having grooves therein in which the lugs fit, and a nut screwed into the top of the sleeve around said inner barrel.

35 In testimony whereof I affix my signature.  
ALFRED J. CORMIER.

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