

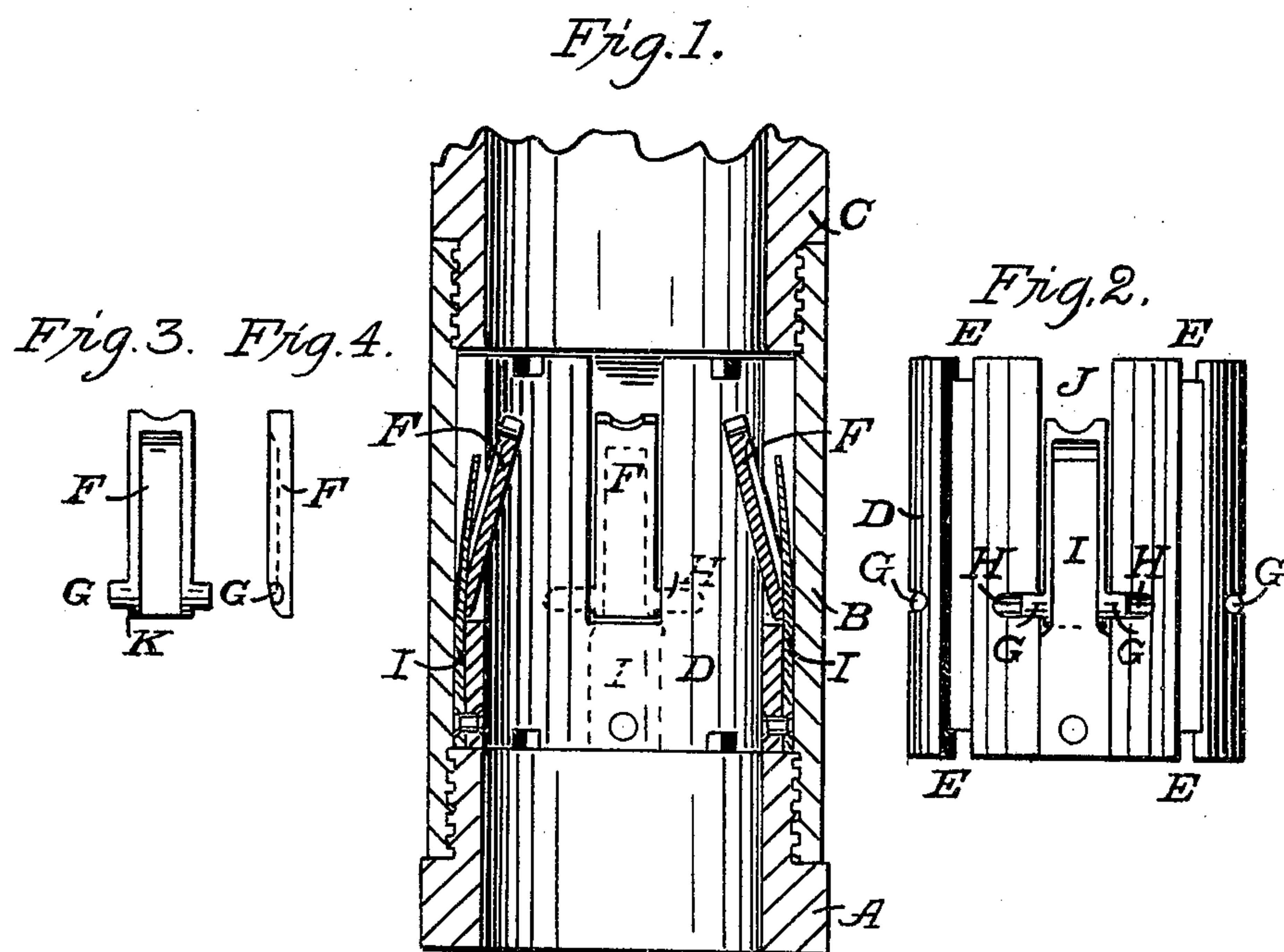
(No Model.)

H. COSSETTE.

CORE LIFTER FOR ANNULAR ROCK DRILLS.

No. 377,239.

Patented Jan. 31, 1888.



WITNESSES

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## CORE-LIFTER FOR ANNULAR ROCK-DRILLS.

SPECIFICATION forming part of Letters Patent No. 377,239, dated January 31, 1888.

Application filed February 2, 1887. Serial No. 226,206. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY COSSETTE, of Champlain, in the Province of Quebec and Dominion of Canada, have invented a new and  
5 Improved Core-Lifter for Annular Rock-Drills; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

10 My improvement has primarily for its aim the bringing up the cores made by the annular drills in soft or broken strata, where what is desired is to secure pieces of core which have been already broken off. Heretofore for this  
15 purpose there has been used some form of frictional device or a series of springs which rest against and tend to destroy the pieces of core while the core is passing upward into the core-barrel, and which are designed to close  
20 down behind the pieces that have passed through the springs. The practical working of such is obviously destructive in a greater or less degree of the soft cores, to preserve which is ordinarily the chief aim of the work,  
25 and they are more or less ineffective in their practical working, and are themselves quickly worn out or destroyed.

My device avoids all practical friction against the core while it is passing upward, but pre-  
30 vents it from dropping out of the core-barrel when the drill-rod is drawn up. Its very great advantages are the combination of great strength and a wide range of movement, which the others lack, and it is cheap and durable  
35 and effective.

In order to better understand this invention, reference should be had to the accompanying drawings, in which—

40 Figure 1 is a central vertical sectional view of my improvement as inserted in a core-lifter shell and between a core-barrel and an annular drill-head. Fig. 2 is a side view of my core-lifter. Fig. 3 is a front view of the tilting catch, and Fig. 4 is a side view of the same.

45 In different drawings like letters refer to corresponding parts.

A represents the annular drill-head, which is screwed to the tube or shell B.

50 C is the lower end of the section of the drill-rod, commonly known as the "core-barrel."

The shell B is made thinner in its wall, and

consequently with larger inside diameter, than either A or C, and a recess or cylindrical chamber is thus formed with shoulders at top and bottom.

55 D is a cylindrical holder, which fits freely in the last-mentioned recess or chamber, and is a part of the core-lifter. It is preferably provided in its outer circumference with grooves E E for water-ways, and for a part of  
60 its length with open spaces J for the reception of the catches and springs hereinafter mentioned.

F F are catches provided with shoulders G G, which fit freely in a recess, H H, made in  
65 the exterior of the holder D. These shoulders are preferably not at the extreme end of the catch; but below them is an extension, K, so constructed as to prevent the catch from fall-  
70 ing below the desired angle in the shell, thereby preventing the core from forcing the catch down too far.

I is a light spring riveted or otherwise se-  
cured to the outside of the holder D, and bearing against the catch F when the latter is up-  
75 right, and tending to keep the catch just off the perpendicular.

I prefer to make the lifter with four of these catches and springs; but of course one or any  
80 reasonable number can be used.

The practical operation of my core-lifting device is as follows: As the drill-rod advances, the core comes up into and through the shell and lifter, raising the catches F, which offer  
85 no substantial resistance to its passage. In case the core should fill the holder D so far as to raise the catch to a perpendicular position the spring I comes into action, not sufficiently  
90 to throw it forcibly against the core, but so that when the core gives place the catch cannot remain in a perpendicular position, but will rest against the core and will fall into any  
95 openings or breaks in the core as the core, piece by piece, is forced up. As the catch falls, the lower end comes against the spring, (or, in the absence of the spring, against the shell,) and is thereby held from falling below the  
100 horizontal. When the drill-rod is pulled up, the catches hold and prevent the core from falling out of the barrel.

It is obvious that my catch could be used  
without the springs I, or that some other simple



device could be exchanged for it, and so, also, as to the shoulders G, for which other hinging devices could be substituted; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the core-barrel of an annular rock-drill, of a core-lifter consisting of an inside jacket or casing, D, provided with one or more vertical slots, J, and as many tilting catches F, each having an end lug, K, hinged in said slots near their lower ends, substantially as described.

2. The combination, with the core-barrel of an annular rock-drill, of a core-lifter consisting of an inside jacket or casing, D, provided with one or more vertical slots, J, as many tilting catches F, hinged in said slots near their lower ends, and a spring, I, secured to said jacket or casing behind each catch, substantially as described.

3. The combination, with the core-barrel of an annular rock-drill, of a core-lifter consisting of an inside jacket or casing, D, provided with

one or more vertical slots, J, and two horizontal recesses, H H, near the base of each slot, and with a tilting catch, F, for each slot having two side lugs, G G, adapted to fit in the recesses H H, and an end lug, K, substantially as and for the purposes set forth.

4. The combination, with the core-barrel of an annular rock-drill, of a core-lifter consisting of an inside jacket or casing, D, provided with one or more vertical slots, J, and two horizontal recesses, H H, near the base of each slot, one or more tilting catches, F, having two side lugs, G G, and an end lug, K, and one or more springs, I, secured to said jacket or casing behind the catches, substantially as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY COSSETTE.

Witnesses:

WARREN J. DURHAM,  
GEORGE R. JARVIS.