(No Model.)

H. J. WEISINGER.

CORE LIFTER FOR DIAMOND DRILLS.

No. 465,305. Patented Dec. 15, 1891.

Fig. 1.

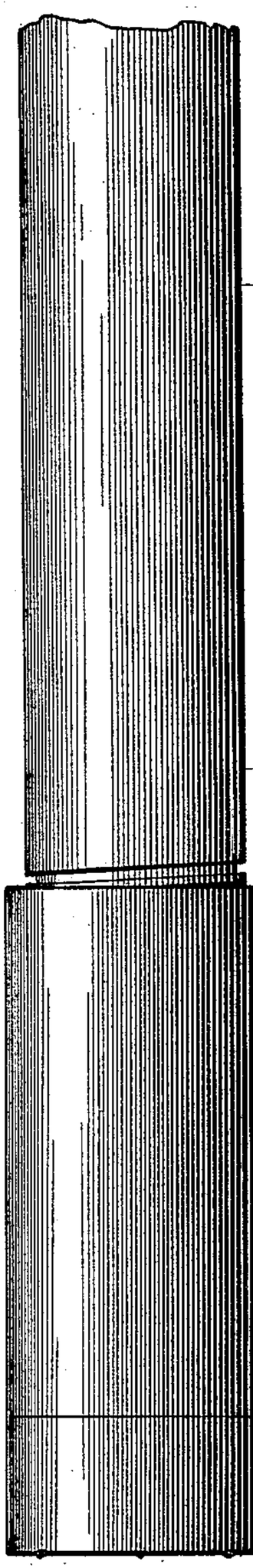


Fig. 2.

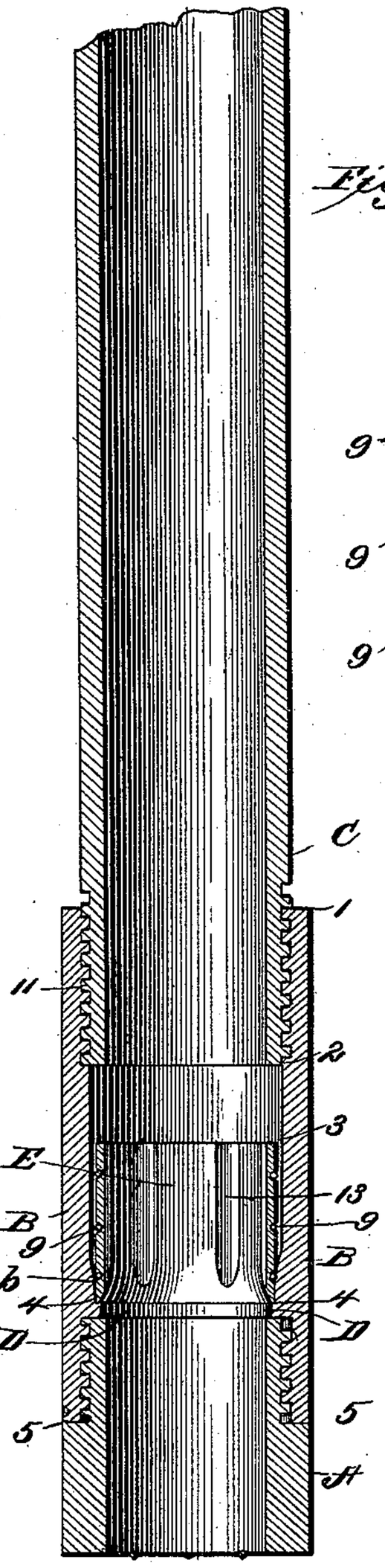


Fig. 3.

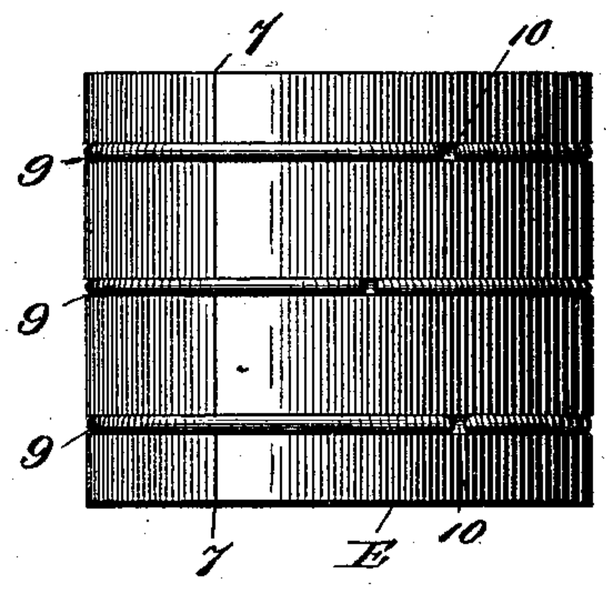
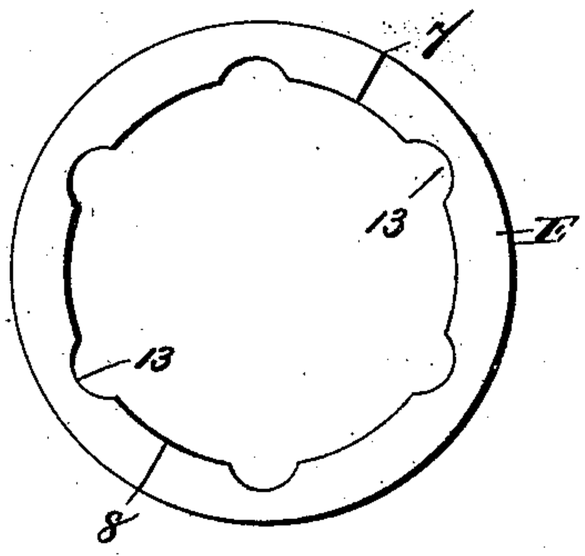


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY J. WIESINGER, OF SOUDAN, MINNESOTA.

CORE-LIFTER FOR DIAMOND DRILLS.

SPECIFICATION forming part of Letters Patent No. 465,305, dated December 15, 1891.

Application filed February 11, 1891. Serial No. 381,064. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. WIESINGER, a citizen of the United States, residing at Soudan, in the county of St. Louis and State of Minnesota, have invented a new and useful Improvement in Core-Lifters for Diamond Drills, of which the following is a specification.

My invention relates to an improvement in drills, and particularly to that class known as "diamond drills;" and the object is to provide means for securing and retaining the core of the material being drilled within the drill, so that it can be held and withdrawn to the surface for the purposes of inspection and examination. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents an elevation of my invention with all the parts in place. Fig. 2 represents a sectional view of the same, showing the interior arrangement and construction of the several parts. Fig. 3 is a perspective view of the core-holder with its surrounding springs, and Fig. 4 is a top view of the core-lifter.

Like letters of reference are used to designate similar parts through the several figures.

Letters A, B, and C represent the three sections of the drill, each being cylindrical and united by male and female screw-threads, as shown. The section or cylinder B is provided with an annular shoulder D, whose interior diameter corresponds nearly or quite with that of section A. The interior diameter of section B, above the annular shoulder D, is enlarged so as to receive the core-lifter E, whose interior diameter is somewhat smaller than that of the section A, while its exterior diameter is less than that of the interior diameter of section B, the latter being great enough to permit the expansion of the core-lifter until its interior diameter is as great, or slightly greater than that of section B or of the annular shoulder D. The core-holder is constructed of two or more parts, Fig. 3, one of the sectional lines being shown at 7 and 8. These parts are held in place so as to form the holder by one or more annular springs 9 let into annular grooves. The interior surface of the core-lifter is provided with a number of longitudinal indentations 13, whose function is to assist in holding and retaining the material forced into the lifter. The lower tip of the lifter is made flaring, as shown, 4 4, Fig. 2.

Having thus described my invention, its mode of operation is now set forth. The lower annular face of section A being set with diamonds, the drill is rotated upon its axis, and as it progresses a core composed of the material within the annular facing and the comminuted particles drilled out, rise through the chamber and annular shoulder D of section B, and is gradually forced into the core-lifter E. The core being somewhat larger in diameter than the core-lifter, it overcomes the force of the springs 9 and expands the lifter, which, by friction, is raised in the cylinder B until it abuts against a shoulder formed by the male screw-thread of the core-barrel or drill-tube, and it is thereby held stationary in this position, while the core of material passes up through the core barrel or section C. When it is desired to examine the material last bored, the drill is drawn up and at the same time the core-lifter is carried down until it strikes the shoulder D, and is compressed tightly by means of the interior enlargement of the section B, and designated by reference-letter *b*, whereby the core-lifter grips the core of material firmly, which latter is broken off and carried to the surface for inspection and examination.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a diamond drill, the combination of the head of the drill, consisting of a cylinder provided with an upper and lower chamber of different diameters divided by an annular shoulder, with an annular expansible core-holder constructed of two hemicylindrical portions held in place and made expansible by one or more annular springs, the lower tip of said core-lifter being made flaring interiorly and its interior surface being provided with indentations, all as substantially shown.

2. In a diamond drill, an annular core-lifter constructed of two or more parts held together

in place and rendered expansible by one or more annular springs let into grooves, the lower tip of said core-holder made flaring interiorly, all as substantially shown.

3. In a diamond drill, an annular core-lifter constructed of two or more parts held together in place and rendered expansible by one or more annular springs let into grooves, the lower tip of said lifter being made flaring interiorly and its inner surface provided with indentations, all substantially as shown.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

HENRY J. WIESINGER.

Witnesses:
WM. S. CAMERON,
J. L. GERRU.