

(No Model.)

J. P. LAVIGNE.
EXPANSIBLE BIT.

No. 509,667.

Patented Nov. 28, 1893.

Fig. 2

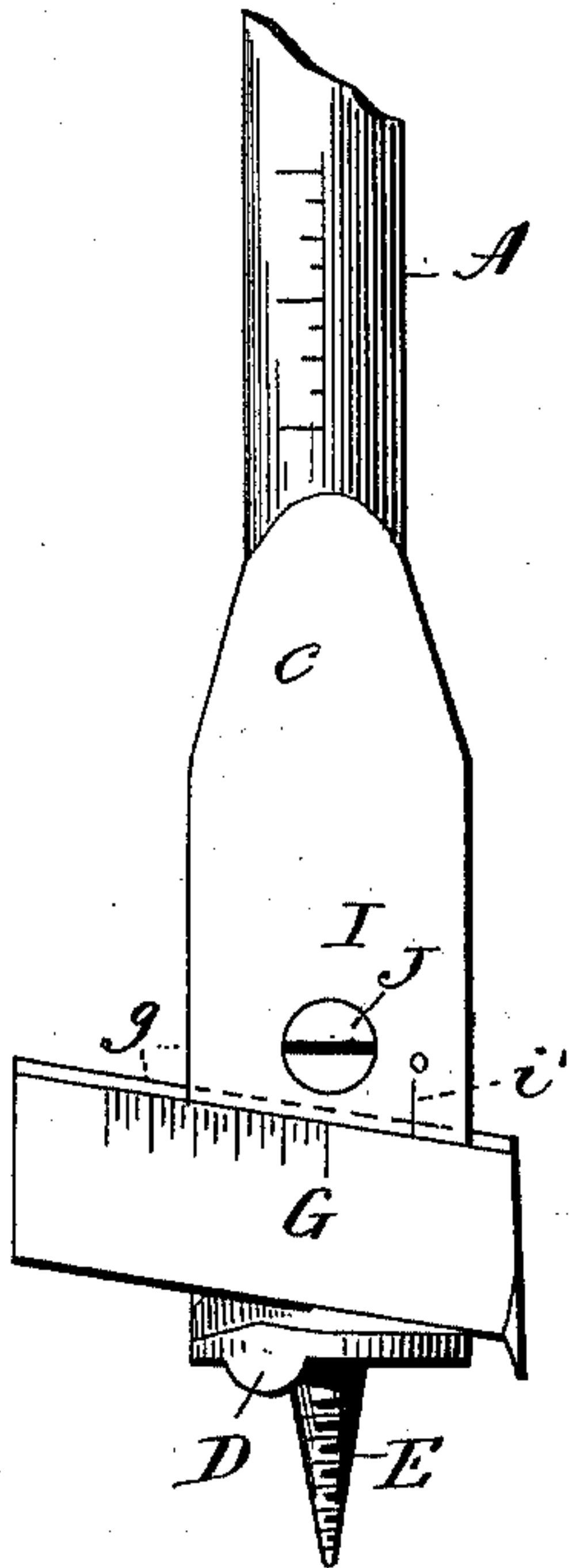


Fig. 3

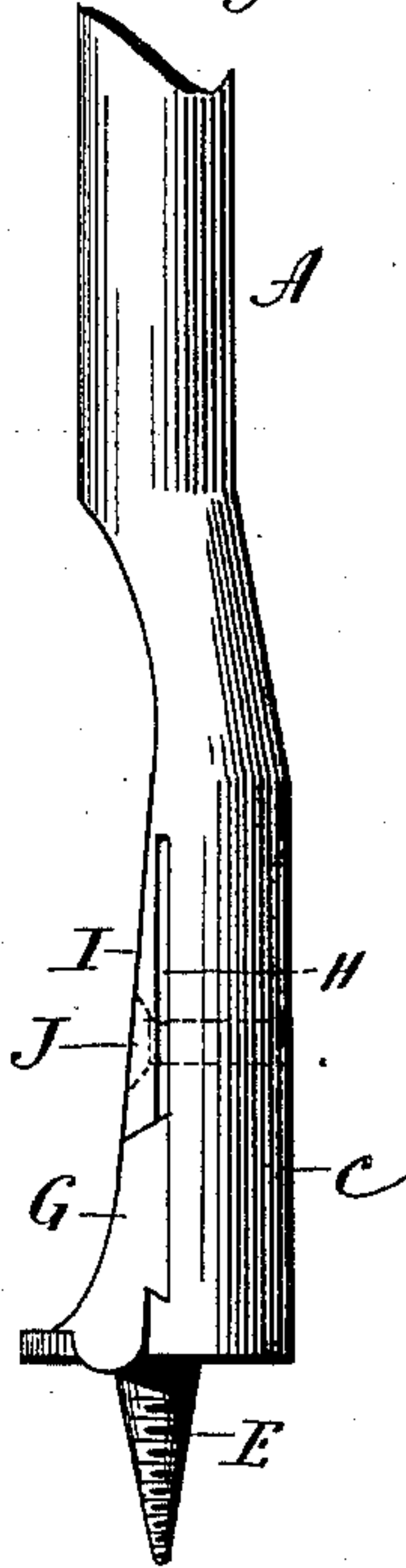


Fig. 4

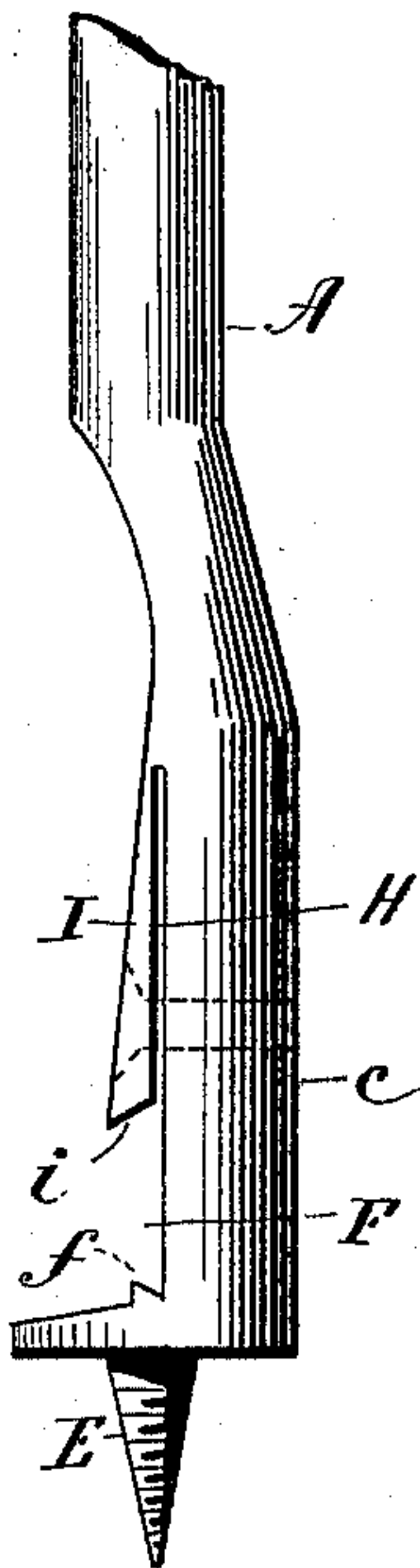
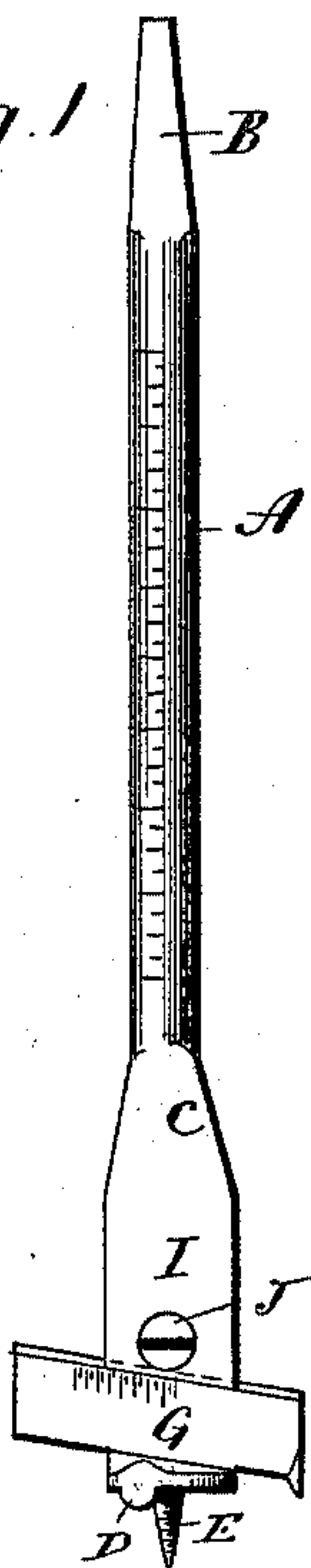


Fig. 1



Witnesses.
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UNITED STATES PATENT OFFICE.

JOSEPH P. LAVIGNE, OF NEW HAVEN, CONNECTICUT.

EXPANSIBLE BIT.

SPECIFICATION forming part of Letters Patent No. 509,667, dated November 28, 1893.

Application filed August 2, 1893. Serial No. 482,148. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH P. LAVIGNE, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Expansible Bits; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view in front elevation of an expansible bit constructed in accordance with my invention; Fig. 2, a broken enlarged view of the same, the main portion of the shank being broken away; Fig. 3, a similar view in side elevation; Fig. 4, a similar view with the cutter removed.

My invention relates to an improvement in that class of expansible bits in which the head of the tool is constructed with a mortise which receives a radially adjustable cutter. Heretofore, the cutters of such bits have generally been held in place by clamping plates secured to the head of the tool by a screw. That construction is, however, objectionable for several reasons, among which may be mentioned that when the plate is relieved for adjusting the cutter, the same is free to drop out, and being a small part, there is always a danger of its being lost; that the plate is liable to displacement when it may interfere with the clearance of the tool, and cause the same to drag, and furthermore interfere with the accurate setting of the cutter, the graduations of which are read in connection with a mark upon the plate.

The object of my invention is to overcome the objections above mentioned, and to produce a simple, cheap, reliable and strong device.

With these ends in view, my invention consists in an expansible bit having its head constructed with a transverse recess to receive the cutter and an integral spring-tongue forming the inner wall of the said recess, and means for clamping the tongue upon the cutter.

My invention further consists in certain details of construction and combinations of parts as will be hereinafter described and pointed out in the claims.

As herein shown, the cylindrical shank A,

and beveled butt B, of the tool are of ordinary construction, except that the shank is provided with longitudinal graduations which enable the user of the tool to determine the depth of the bore. The head C, of the tool is formed integral with the shank, and is made on a circle of larger diameter than the same, its general form being hemi-spherical except at its lower end, where the circle is approximately completed by the cutting edge D. A screw-point E, projects from the center of the outer end of the head in the ordinary manner. The flat inner face of the head is constructed with an inclined transverse recess F, having an under-cut outer wall *f*, and adapted to receive the radially movable cutter G, the inner edge of which is furnished with graduations *g*, and which considerably exceeds in length the width of the head. The recess F, is made just wide enough to permit the insertion of the cutter.

It will be understood that generally each bit is provided with two or more cutters varying in length to increase the range of the tool for boring holes of different sizes. Instead of cutting away the flat inner face of the head at a point behind the cutter for the reception of a clamping-plate, I form a long slot H, in the head in the plane of the bottom of the recess, and extending inward for a sufficient distance to form a spring clamping tongue I, the inner edge of which is under-cut as at *i*, in conformity with the beveled inner edge of the cutter G. This tongue is given such a set that it will normally press against the inner edge of the cutter, and hold the same against endwise movement, though not with such force but what the cutter may be shifted back and forth with the fingers. A screw J, is passed through this tongue, and the head, for the purpose of causing the former to take hold of the cutter with sufficient force to prevent the same from moving under the strain of use. A mark *i'* formed at the end of the tongue near one edge thereof, is used in connection with the graduations of the cutter for adjusting the same. It will be understood that when the screw is loosened for adjusting the cutter, the tongue still retains a sufficient grip upon the cutter to prevent the same from slipping, so that there is no danger of losing the cutter during the operation of setting it.

Furthermore by making the tongue which takes the place of the old clamping-plate, integral with the head of the tool, it cannot become displaced so as either to overhang the edges of the head and interfere with the clearance of the tool, nor get out of its true relation to the tool so as to effect the integrity of the adjustment of the cutter, for it is apparent that if the tongue should be moved one way or the other, its index mark *i'* would no longer properly form a starting point for the adjustment of the cutter. My improved construction is also cheap, inasmuch as it is less expensive to slot the head as described, than to make and fit an independent clamping-plate.

I would have it understood that I do not limit myself to the exact construction herein shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim is—

1. An expansible-bit having a transverse recess to receive a radially adjustable cutter, and an integral spring-tongue forming the inner wall of the said recess and engaging with the inner edge of the cutter for holding the same against endwise displacement, and means for clamping the tongue upon the cutter, substantially as described.

2. An expansible bit having its shank provided with longitudinal graduations and its head constructed with a transverse recess to receive a radially adjustable cutter, and with an integral spring-tongue forming the inner wall of the said recess, and adapted to engage with the inner edge of the cutter, and means for clamping the said tongue upon the cutter, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOSEPH P. LAVIGNE.

Witnesses:

FRED C. EARLE,
LILLIAN D. KELSEY.