

No. 662,199.

Patented Nov. 20, 1900.

J. P. LAVIGNE..

EXPANSIBLE BIT.

(Application filed Apr. 2, 1900.)

(No Model.)

Fig 1

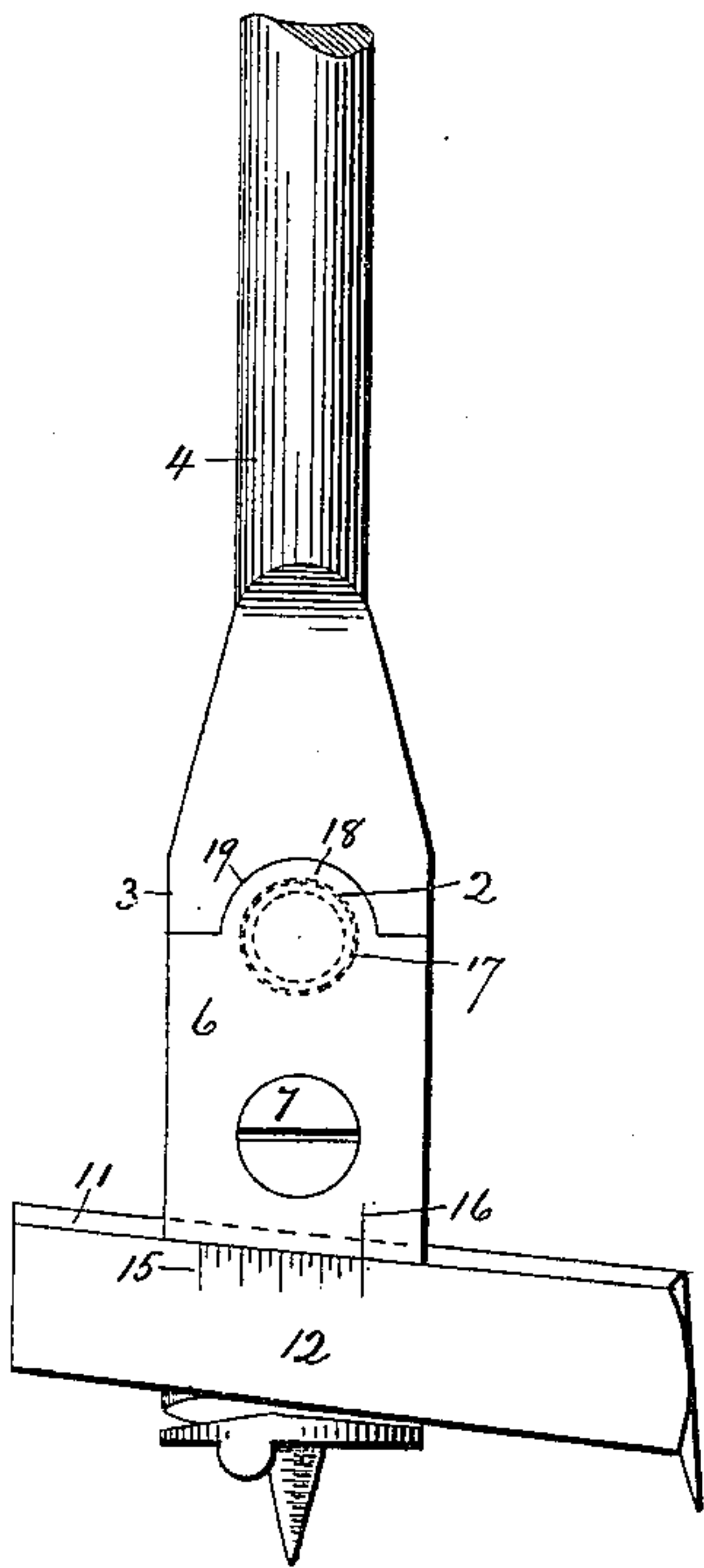


Fig. 2

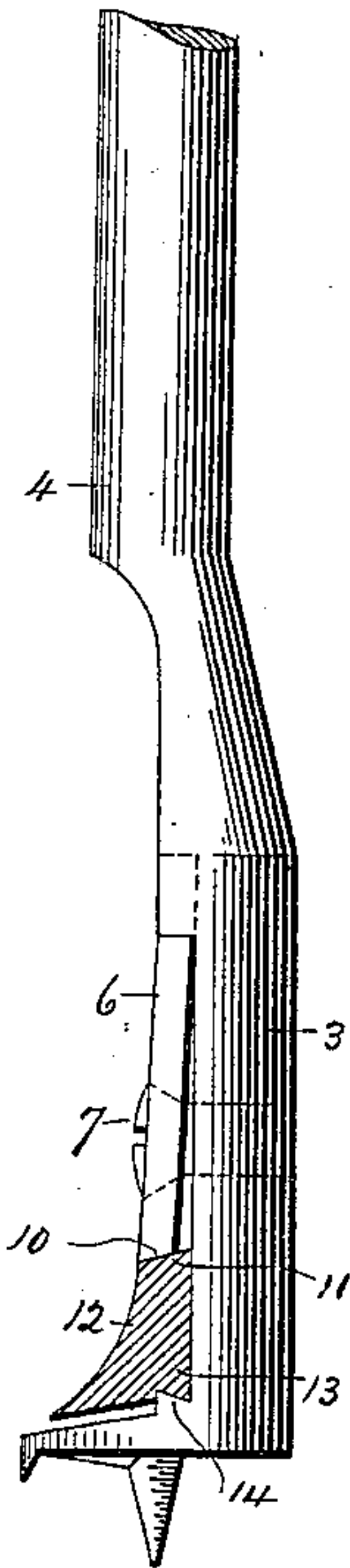


Fig. 3

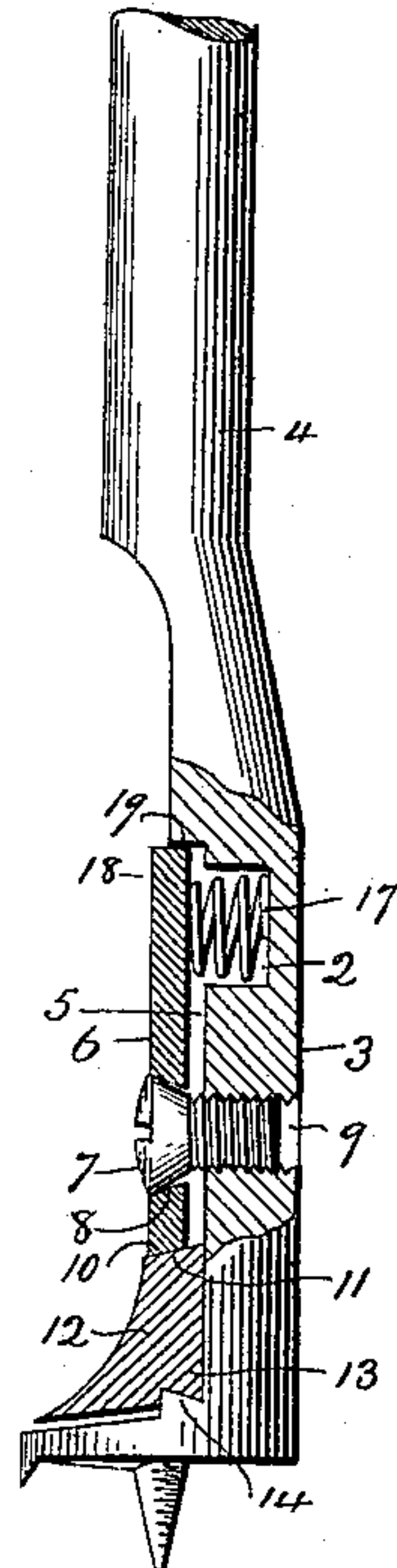


Fig. 4

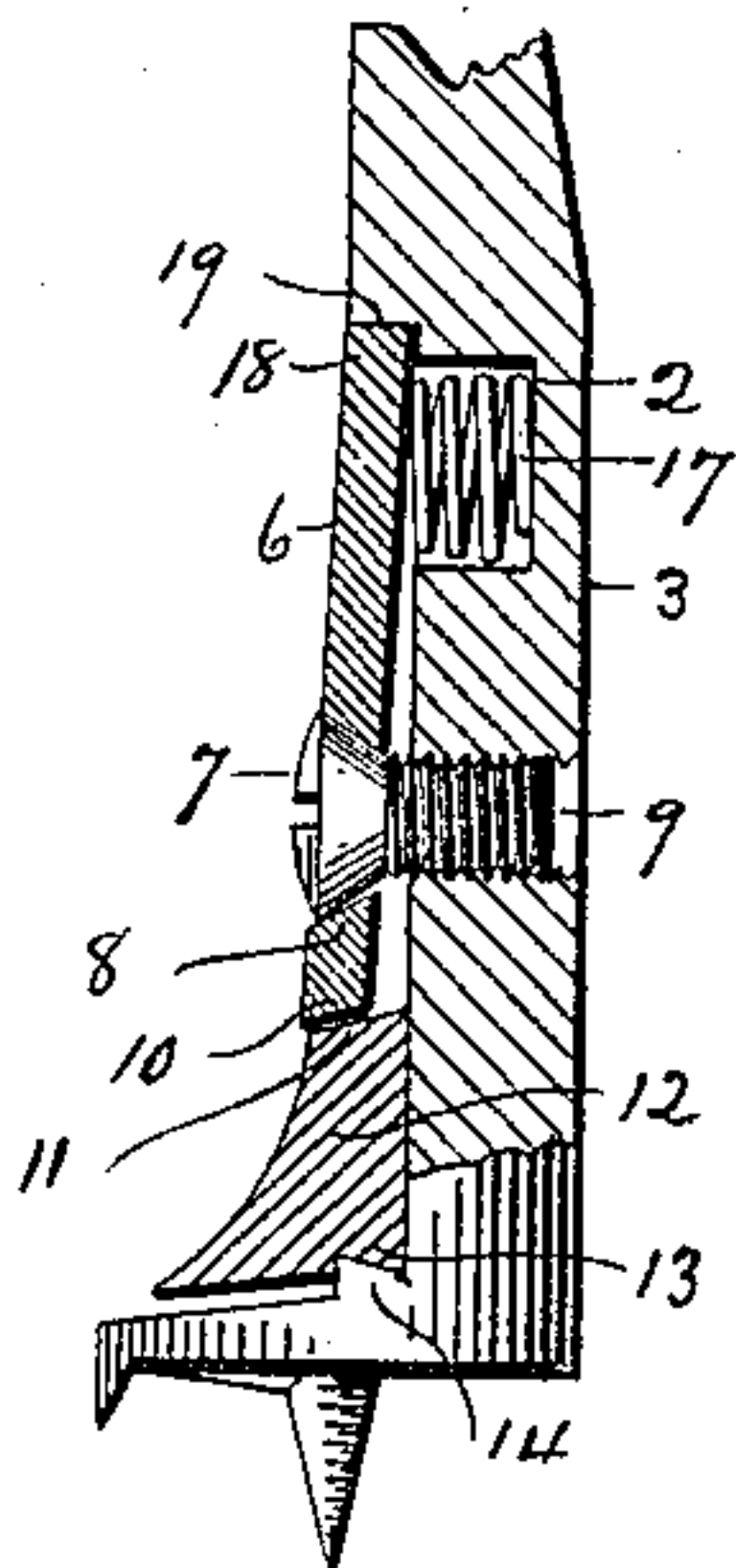


Fig. 6

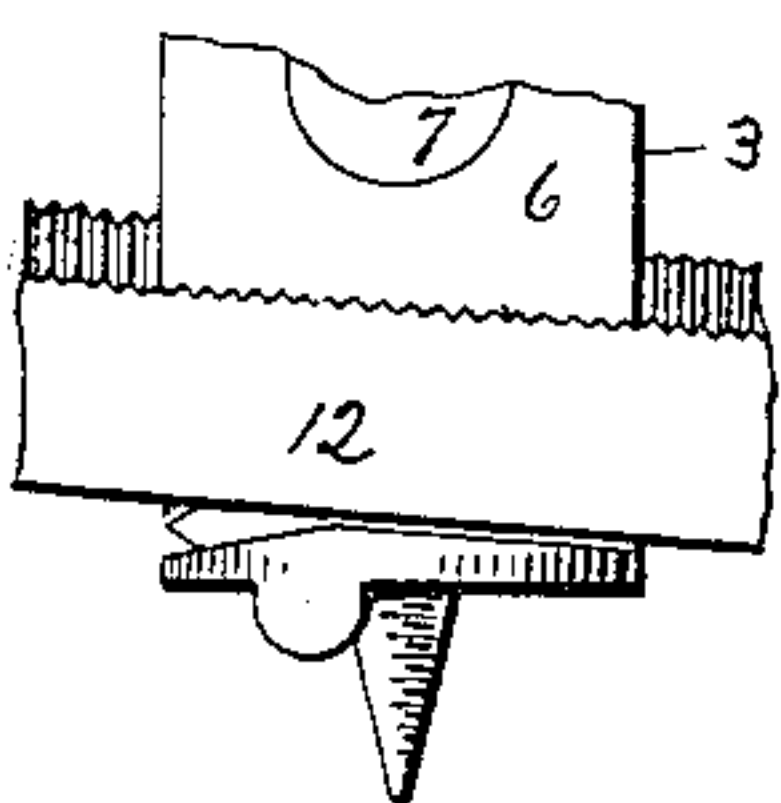


Fig. 5

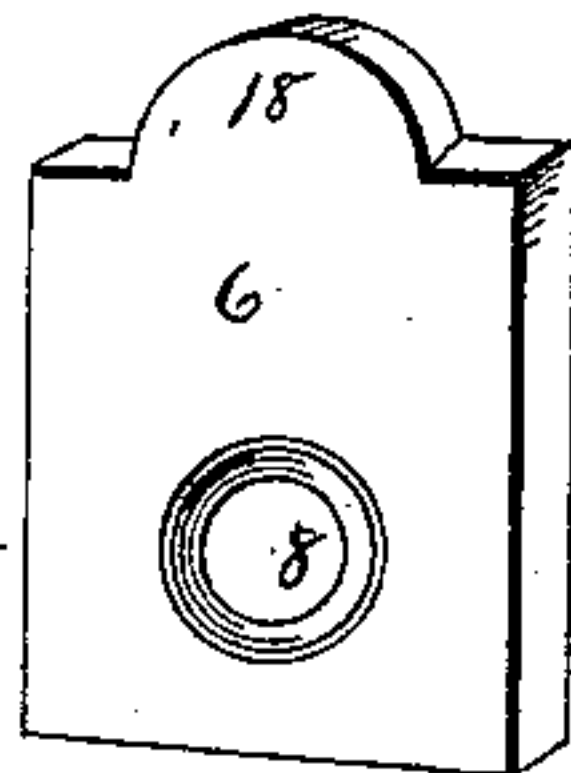
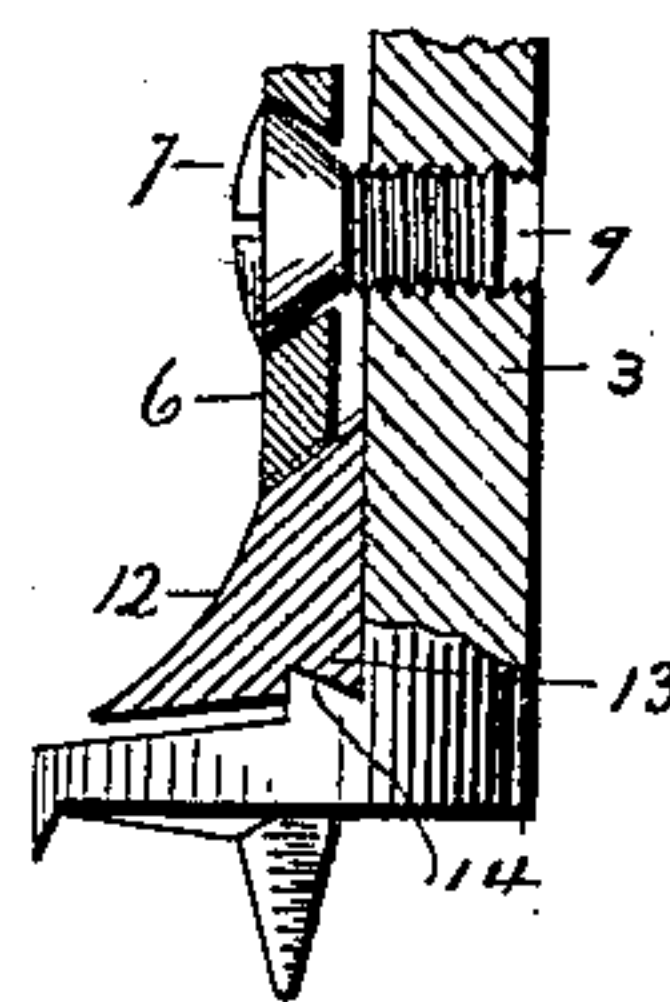


Fig. 7



Witnessed.
J. H. Shumway
Lillian D. Kelley.

Joseph P. Lavigne.
Inventor
By atty Seymour & Carey

UNITED STATES PATENT OFFICE.

JOSEPH PETER LAVIGNE, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO
JOHN J. TOWER, OF NEW YORK, N. Y.

EXPANSIBLE BIT.

SPECIFICATION forming part of Letters Patent No. 662,199, dated November 20, 1900.

Application filed April 2, 1900. Serial No. 11,148. (No model.)

To all whom it may concern:

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

Figure 1, a view in elevation of an expansible bit constructed in accordance with my invention; Fig. 2, a view thereof in side ele-
15 vation with the clamping-plate in its clamping position and the cutter in section; Fig. 3, a view of the bit partly in side elevation and partly in vertical section, showing the clamping-plate in the position into which it is forced
20 by the spring when the clamping-screw has been turned back preparatory to releasing the cutter; Fig. 4, a less comprehensive view of the bit in vertical section, showing the releasing of the cutter by rocking the clamping-
25 plate upon the head of the clamping-screw; Fig. 5, a detached perspective view of the clamping-plate; Fig. 6, a broken view in front elevation of a modification of my improvement; Fig. 7, a broken view of such modifi-
30 cation in vertical section, taken on a line passing transversely through the cutter.

My invention relates to an improvement in expansible bits, the object being to produce
35 a simple, strong, and durable bit, constructed with particular reference to adjusting the position of the transversely-arranged sliding cutter without removing the clamping-plate by means of which it is held in place against longitudinal movement.

40 With this end in view my invention consists in a bit having a spring coacting with the clamping-plate to cause the same to retain its hold upon the cutter when the clamping-screw is reversed preparatory to adjusting
45 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.

50 In carrying out my invention as herein shown I locate a spring-socket 2 in the upper

portion of the head 3, formed at the lower end of the shank 4 of the bit, the said socket entering the said head from the bottom of the upper end of the recess 5, formed in the head 55 for the reception of the clamping-plate 6, which is secured in place by the clamping-screw 7, which passes through a countersunk hole 8, formed in the plate, and into a screw-threaded hole 9, passing through the head at 60 a point in line with but below the spring-socket 2. The said socket receives a spring 17, the function of which will appear later on. The lower edge of the clamping-plate is formed with a bevel 10, arranged to coact with the 65 beveled upper edge 11 of the transversely-arranged sliding cutter 12, the lower edge of which is formed with an undercut rib 13, engaging with the undercut lower wall 14 of the recess 5. The back of the cutter as thus 70 formed constitutes a dovetail, whereby it is held in place. The cutter itself is provided upon its outer face with graduations 15, which are used in conjunction with the guiding-mark 16 upon the clamping-plate in setting the cut- 75 ter. The upper end of the plate 6 is provided with a rounded centrally-arranged centering-lug 18, which enters a recess 19, corresponding to it in shape and leading out of the upper end of the clamping-plate recess 5. This 80 lug acts to prevent the plate from swinging upon the clamping-screw as upon a center and so maintains the guiding-mark 16 upon the plate in its right relation to the other members of the tool, for if this mark were shifted 85 by the swiveling of the plate one way or the other the value of the mark as a gage for the adjustment of the cutter would be lost. The lug also increases the length of the clamping-plate and improves its leverage upon the 90 spring 17. The said spring 17 exerts a constant effort to push the upper end of the clamping-plate 6 outward and is placed under considerable tension when the clamping-screw is turned inward sufficiently to cause the 95 clamping-plate 6 to impose a strong grip upon the cutter. Now when the screw is reversed the spring will immediately act to push the upper end of the clamping-plate outward, as shown in Fig. 3, and maintain the grip of the 100 lower end of the plate upon the cutter, which will thus be prevented from accidentally

shifting its position. If pressure is now exerted upon the upper end of the plate—as, for instance, by the thumb—the tension of the spring may be overcome and the plate rocked upon the head of the screw 7 as upon a center, whereby the lower edge of the plate will be disengaged from the cutter, as seen in Fig. 4. The cutter may then be slid one way or the other, as desired. When the cutter has been brought to the right position, the pressure upon the upper end of the plate is relieved and the spring permitted to reassert itself in pushing the plate back into the position shown in Fig. 3, in which it grips the cutter strongly enough to hold the same in place while the clamping-screw is being turned inward, so as to secure the final grip on the cutter, in which position it is shown in Fig. 2.

In the modification shown by Figs. 6 and 7 of the drawings the bevel or slant of the lower edge of the clamping-plate 6 and the bevel of the upper edge of the cutter 12 are increased and the two bevels formed with shallow corrugations or equivalent gripping-surfaces, whereby a stronger grip by the plate upon the cutter is secured not only when the clamping-screw is turned home, but also when it is reversed to permit the cutter to be adjusted, at which time the cutter is prevented from slipping by the corrugations.

It is apparent that in carrying out my invention some changes from the construction shown and described may be made. I would therefore have it understood that I do not limit myself to the exact form illustrated, but hold myself at liberty to make such alterations as fairly fall within the spirit and scope of my invention.

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

1. In an expansible bit, the combination with the head, transversely-arranged sliding cutter, clamping-plate and clamping-screw thereof, of a spring coacting with the clamping-plate to maintain the grip thereof upon the cutter when the screw is turned back so as to permit the cutter to be adjusted.

2. In an expansible bit, the combination with a head formed with a recess, and with a spring-socket leading out of the bottom of the said recess, of a transversely-arranged sliding cutter adapted to be mounted in the said

head, a clamping-plate located in the said recess, and engaging with the upper edge of the cutter, a clamping-screw passing through the said plate, and a spring located in the said spring-socket, and placed under tension by the clamping-plate which it operates, when the screw is reversed, to maintain a grip upon the cutter.

3. In an expansible bit, the combination with the head thereof, of a transversely-arranged sliding cutter, a clamping-plate engaging with the said cutter for holding it against lengthwise movement, a clamping-screw passing through the plate, means for preventing the said plate from swiveling upon the said screw and a spring located above the said screw and coacting with the said plate to cause the same to maintain its grip upon the cutter when the same is turned back so as to permit the cutter to be adjusted.

4. In an expansible bit, the combination with the head thereof, of a transversely-arranged sliding cutter, a clamping-plate formed with a centering-lug coacting with the said head, a clamping-screw passing through the said plate which is prevented from swiveling upon the said screw by means of the said lug and a spring located above the said screw and coacting with the said plate to cause the same to maintain its grip upon the cutter when the screw is turned back so as to permit the cutter to be adjusted.

5. In an expansible bit, the combination with a head formed with a clamping-recess, of a transversely-arranged sliding cutter located in the lower end of the said recess, a clamping-plate located in the said recess, and formed with a centering-lug entering a recess leading out of the clamping-plate recess, a clamping-screw passing through the said plate which is prevented from swiveling upon the said screw by means of the said centering-lug, and a spring coacting with the said plate to cause the same to maintain its grip upon the cutter when the screw is turned back so as to permit the cutter to be adjusted.

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

JOSEPH PETER LAVIGNE.

Witnesses:

LILLIAN D. KELSEY,
GEORGE D. SEYMOUR.