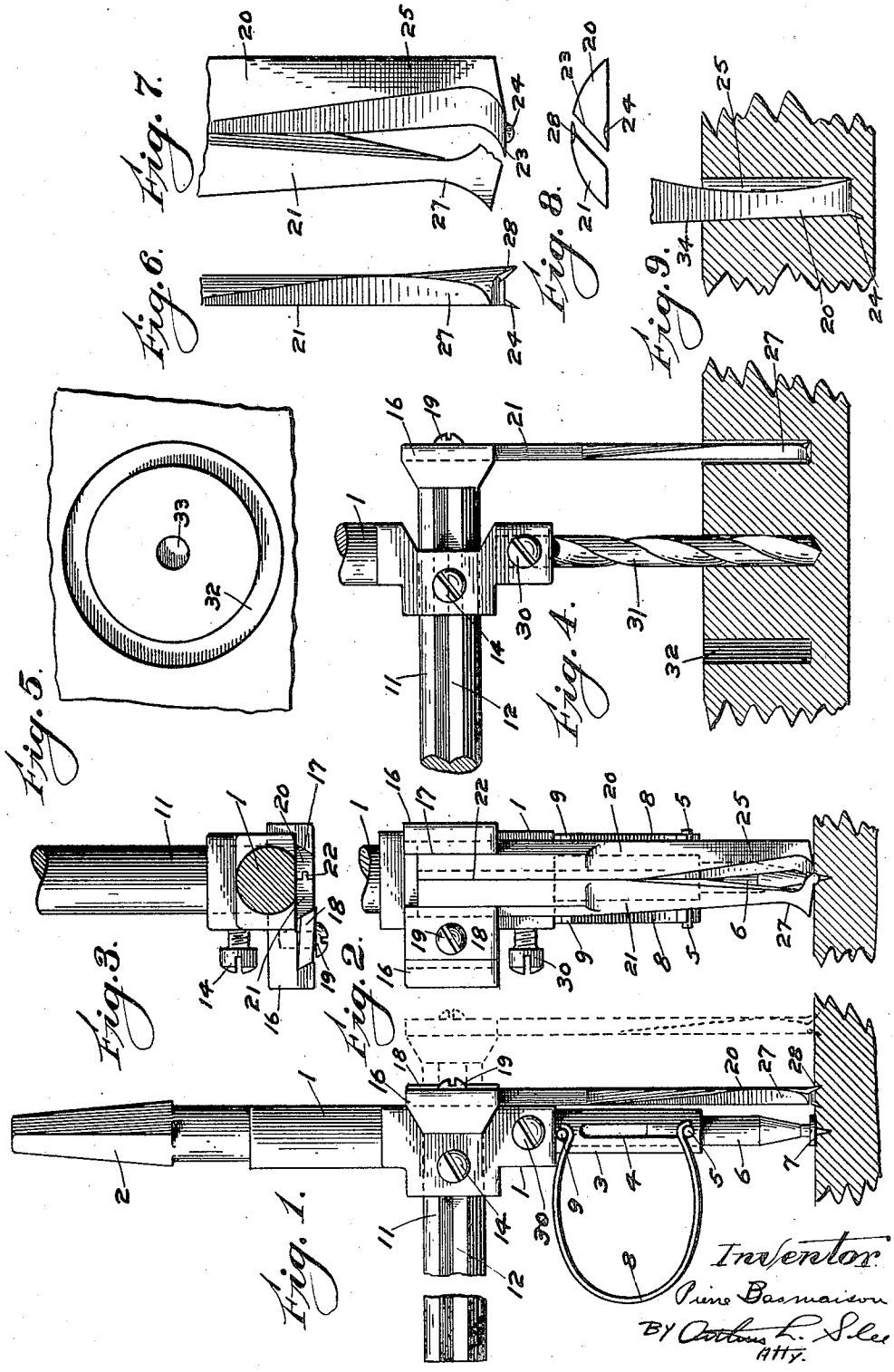
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EXTENSION BIT.

APPLICATION FILED JULY 18, 1918.

**1,323,570.** Patented Dec. 2, 1919.



# UNITED STATES PATENT OFFICE.

PIERRE BASMAISON, OF SAN FRANCISCO, CALIFORNIA.

## EXTENSION-BIT.

1,323,570. Specification of Letters Patent. Patented Dec. 2, 1919.

Application filed July 18, 1918. Serial No. 246,254.

*To all whom it may concern:*

Be it known that I, PIERRE BASMAISON, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented a new and useful Improvement in Extension-Bits, of which the following is a specification.

My invention relates to improvements in extension bits wherein a pair of bits operate in conjunction with a drill or other suitable center; and the objects of my invention are—

First, to provide an improved extension bit having improved means for regulating the cutting depth thereof whereby said cutting depth may be regulated to hard or soft material and so that the chips cut by the bit will be of uniform thickness in order to minimize liablity to breakage of the bits;

Second, to provide an improved arrangement for facilitating the sharpening of the cutting edge;

Third, to provide an improved bit having an inclined or slanted cutting edge to produce a greater cutting surface;

Fourth, to provide an improved device of the class described having improved means whereby a tapered plug may be cut from the material being worked; and

Fifth, to provide an improved extension bit adapted to bore a hole without cutting through the entire contents or area of the hole diameter.

I accomplish these several objects by means of the device disclosed in the drawings forming a part of the present specification wherein like characters of reference are used to designate similar parts throughout the said specification and drawings, and in which—

Figure 1 is a broken side elevation of my improved extension bit, the dotted lines indicating another position of the bit;

Fig. 2 is a broken front elevation of Fig. 1;

Fig. 3 is a broken plan view of Fig. 2;

Fig. 4 is a broken side elevation of a modified from of the invention;

Fig. 5 is a plan view of a hole and channel as bored by the modified form disclosed in Fig. 4;

Figs. 6 and 7 are enlarged broken side and front elevations, respectively, of the bit and the limiting gage removed from the device;

Fig. 8 is a bottom plan view of Fig. 7; and

Fig. 9 is an enlarged broken view of a modified form of a cutting portion of the bit.

Referring to the drawings the numeral 1 is used to designate a suitable vertically disposed stem squared as at 2 to facilitate attachment to a brace or chuck, not shown.

In the preferred form of the invention the stem 1 is provided with a hollow depending extension 3 provided with longitudinal slots 4 through which project the ends of a lateral pin 5 carried by a vertically disposed conical pivotal point 6 slidably mounted within the hollow extension 3 and having an annular flange or shoulder 7 rotatably mounted upon the bottom thereof to limit the projection of said point thereof into the wood or material being bored. A suitable spring 8 is interposed between the ends of the pin 5 and a second pin 9 secured to the upper end of the extension 3, the whole constituting a resiliently yielding pivotal point for the support of the device.

A bar or member 11 is slidably mounted to move horizontally within the stem 1 and is provided with a longitudinal groove 12 which is engaged by a suitable securing screw 14 within the stem 1 to prevent longitudinal and rotary movement of said bar.

A head 16 is mounted or secured to one end of the bar 11 which head 16 is provided with a beveled groove 17 and a plate 18 therein secured by a screw 19, said plate 18 being provided to secure a bit 20 and a limiting gage 21, which are so connected by means of a tongue and groove 22 as disclosed in Fig. 3 of the drawings, as to be adapted to slide longitudinally upon each other.

Referring to Figs. 7 and 8 of the drawing it will be seen that the bit 20 is provided with a cutting edge 23 which is inclined relatively to any diameter of a hole being bored whereby a greater cutting edge or area is obtained. The forward point of the cutting edge 23 is near the pivotal point while the rear end of the said cutting edge 23 is on the outer point of the periphery of the cutting circular so that a slicing effect is obtained which will produce a greater efficiency in removing the shavings or chips.

The bit 20 is also provided with a slight

concavity 25 on the outer side or surface thereof which leaves an aperture between said bit 20 and the outer surface of an annular channel or hole being bored through which the shaving passes as the bit 20 moves forward. The bit 20 is provided with the usual scoring cutter 24.

The gage 21 is arranged in front of the bit 20, and the bottom of the gage is slightly inclined and extended in advance of and above the cutting edge 23 of the bit, as disclosed in Fig. 7 of the drawings and the gage is also provided with an arcuate or concave part 27, which, when the gage has made a complete revolution and encounters the shaving cut by the cutting edge 23 of the bit 20, causes the removal of the shaving from the path of the bit. At its bottom the gage is also provided with a scoring cutter 28, which coöperates with the cutter 24 on the bit 20 for scoring the shaving in the path of the bit and thereby facilitating the removal of the shaving from the path by the gage.

In Fig. 4, I have disclosed a modified form of the invention wherein the extension 3, secured by the screw 30, has been replaced by a drill 31. By means of this modified form a hole may be bored without cutting through the entire contents as embraced by the circle or diameter of the hole being bored.

As the stem 1 is rotated the bit 20 and the gage 21 perform their function and simultaneously the drill 31 bores a central hole thus providing a turning point or bearing for the bit 20 and the gage 21.

In Fig. 9, I have disclosed a further modification wherein the bit 20 is provided with a vertically disposed and slanted inner cutting edge 34 by means of which a tapered plug of any diameter may be cut when the bit 20 and the gage 21 are used in conjunction with the resiliently yielding pivotal point 6.

By moving the gage 21 longitudinally of the bit 20 the distance between the lower surface of the gage 21 and the cutting edge 23 of the bit 20 may be regulated and adjusted to cut a greater or lesser depth of width of shaving. In hard woods and other hard material a thinner shaving is removed by the gage than when boring in softer materials.

Therefore it is obvious that the cutting depth of the bit may be easily and readily adjusted and that the shavings cut by the bit will be of uniform thickness. It is also evident that the gage will minimize liability to breakage of the bit by being in advance of the bit and thus preventing the bit from digging into the material, in which it is operating, and by removing the shavings from the path of the bit.

The feature of slidably connecting a limiting gage with a bit presents a further advantage in that the gage and the bit may be separated to facilitate access to the cutting edge 23 when same is to be sharpened.

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

1. In an extension bit having a stem, a bit secured to the stem and arranged parallel therewith; and a limiting gage secured to the stem and arranged parallel with and in front of the bit and being slidable longitudinally upon the bit, the bottom of the gage being inclined and extended in advance of and above the cutting edge of the bit.

2. In an extension bit having a stem, a bit secured to the stem and arranged parallel therewith; and a limiting gage secured to the stem and arranged parallel with and in front of the bit and being slidable longitudinally upon the bit, the gage having in front thereof a concave part which causes the removal of shavings from the path of the bit when the gage encounters the shavings, and the bottom of the gage being inclined and extended in advance of and above the cutting edge of the bit.

In witness whereof, I hereunto set my signature.

PIERRE BASMAISON.