(No Model.)

E. L. LAKE.

REAMER.

No. 318,994. Patented June 2, 1885.

FIG 1

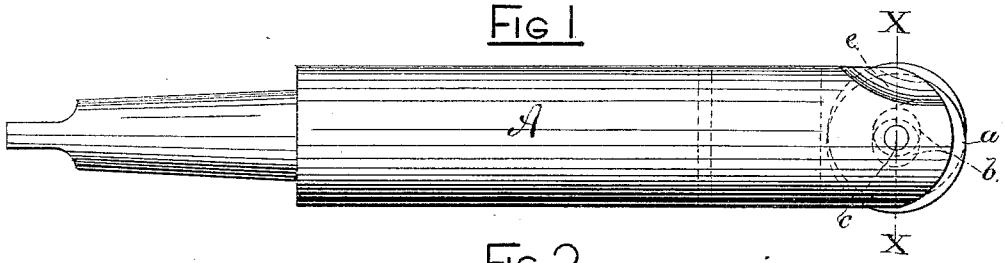


FIG 2

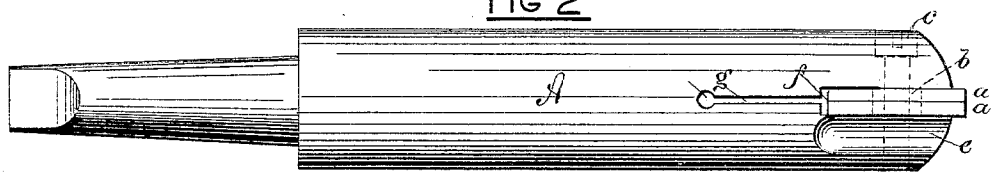


FIG 3

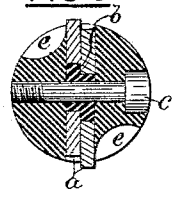


FIG 4

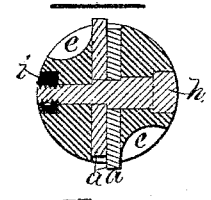


FIG 5

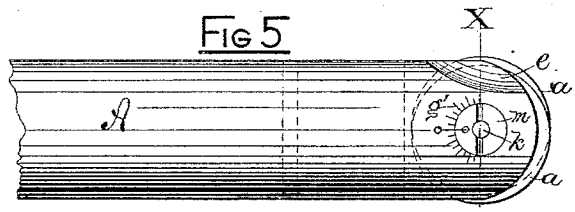


FIG 6

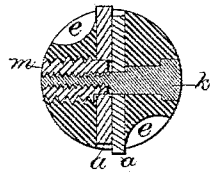


FIG 8

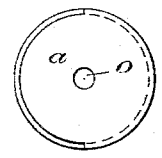
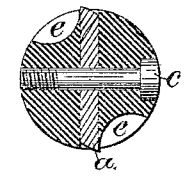


FIG 7



Witnesses.

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UNITED STATES PATENT OFFICE.

EVERETT L. LAKE, OF SYRACUSE, NEW YORK.

REAMER.

SPECIFICATION forming part of Letters Patent No. 318,994, dated June 2, 1885.

Application filed February 27, 1885. (No model.)

To all whom it may concern:

Be it known that I, EVERETT L. LAKE, a citizen of the United States, residing at Syracuse, Onondaga county, New York, have invented a certain new and useful Improvement in Reamers, of which the following is a specification.

The elements of my invention are a holder of peculiar construction, one or more circular cutters to be held therein, and means for adjusting said cutters axially and laterally.

The objects of my invention are to obtain in reamers, first, a fresh cutting-edge without grinding or changing the size of the cutters; second, the largest practicable amount of cutting-edge on each cutter, and, third, a practical means of adjusting or varying the swing of the cutters, so as to determine the size of hole when reamed.

In the accompanying drawings, Figure 1 is a view of my improved reamer assembled. Fig. 2 is another view of the same, more particularly showing the slot *f* and split *g*, described hereinafter. Figs. 3 and 4 are cross-sections of Fig. 1 at the line *x x*. Fig. 5 is another view of the reamer assembled, showing an arrangement of details somewhat different from Fig. 1. Fig. 6 is a cross-section of Fig. 5 at *x x*. Fig. 7 is a cross-sectional view of the reamer, showing the same in a form adapted to the use of a single cutter. Fig. 8 is a side view of the cutter in Fig. 7.

Similar letters refer to similar parts throughout the several views.

In the several views, A is the holder, which is provided with a slot, *f*, for housing or containing the cutters, and a split, *g*, whereby it is possible to close the sides of the slot *f* against the cutters by means of a grip-screw.

In Figs. 1, 2, 3, 4, 5, and 6, *a a* are the cutters, which are circular in form and square-faced on their periphery. It will be seen that these cutters are placed on either side of the center of the holder, so that, notwithstanding they are square-faced on their periphery, but one lip or edge is in position to cut. The cutters are also hung eccentrically to the center line of the holder, and each of them on an independent eccentric set slightly quartering one to the other. When the working-section of each cutter has become worn or dull, the operator should turn the cutters on their axes a sufficient distance to present a fresh section to the work. When the cutters have become worn all around on one edge, they should be so shifted as to present the unused edge to the work.

In the above figures a clearance-groove, *e e*, for chips is shown.

In Figs. 1, 2, and 3, *b* indicates the eccentrics on which the cutters are hung, and whereby they are held off toward opposite sides of holder. A grip-screw, *c*, passes through one side of the holder and on through the eccentrics *b*, on which the cutters are hung, and is threaded into the opposite side of holder, the effect of which is obvious.

In Fig. 4 a bolt, *h*, with eccentrics turned on its body, and a nut, *i*, are shown. These are designed to show another way of suspending and tightening up the cutters.

In Figs. 5 and 6 another way of suspending and gripping the cutters is shown. This consists of a differentially-threaded hollow screw or nut, *m*, and a grip-screw, *k*. The hollow screw or nut *m* is threaded on its outside to fit into a corresponding thread in a recess in A, and on its inside it is threaded to fit onto the threaded end of *k*. The inner thread of *m* is finer than the outer one in a ratio of two to one. On the inner end of *m* an eccentric is turned, which forms the journal or axis of one of the cutters, and on the body of *k* is turned an eccentric which forms the axis of the other cutter. Around the recess in A which receives the nut *m* are graduations indicating the throw of the eccentric on *m* in divisions representing one-thousandth parts of an inch. (See *g'*, Fig. 5.) A similar scale (not shown in drawings) is provided around the head of *k*. By the proper manipulation of *k* and *m*, in combination with above-mentioned graduations *g'*, the operator may not only grip the cutters *a a*, but also throw them a few thousandths of an inch out or in, and so vary the diameter of the reamer.

Fig. 7 shows the reamer adapted to a single cutter. In this instance the reamer cannot of course be expanded, as above. The cutter *a* is here shown backed off one way on half of its perimeter and the other way on the other half, the object of which is clear.

In Fig. 8, *a* is another view of the single cutter, and *o* is the hole in same for the grip-screw to pass through.

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

1. In reamers, an adjustable circular cutter, in combination with a holder, substantially as described.

2. In reamers, two square-faced circular cutters placed side by side in a holder, in combination with means for adjusting them axially, substantially as described.

3. In reamers, two square-faced circular cutters placed side by side in a holder, in combination with means for adjusting them laterally, substantially as described.

4. In reamers, two square-faced circular cutters placed side by side in a holder, in combination with means for retaining them, substantially as described.

5. In reamers, two square-faced circular cutters placed side by side in a holder, in combination with means for adjusting them axially, and means for adjusting them laterally, and means for retaining them, substantially as described.

6. In reamers, a square-faced circular reversible cutter, substantially as described.

In witness whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

EVERETT L. LAKE.

Witnesses:

ALBERT E. DORSEE,

J. G. CHAMBERS.