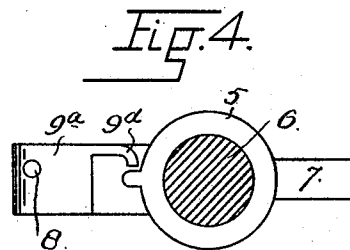
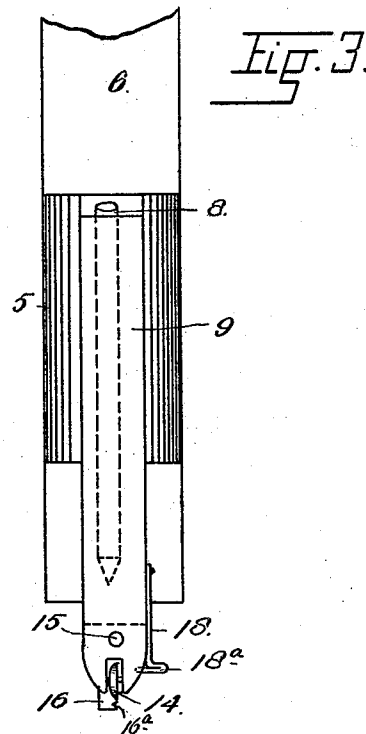
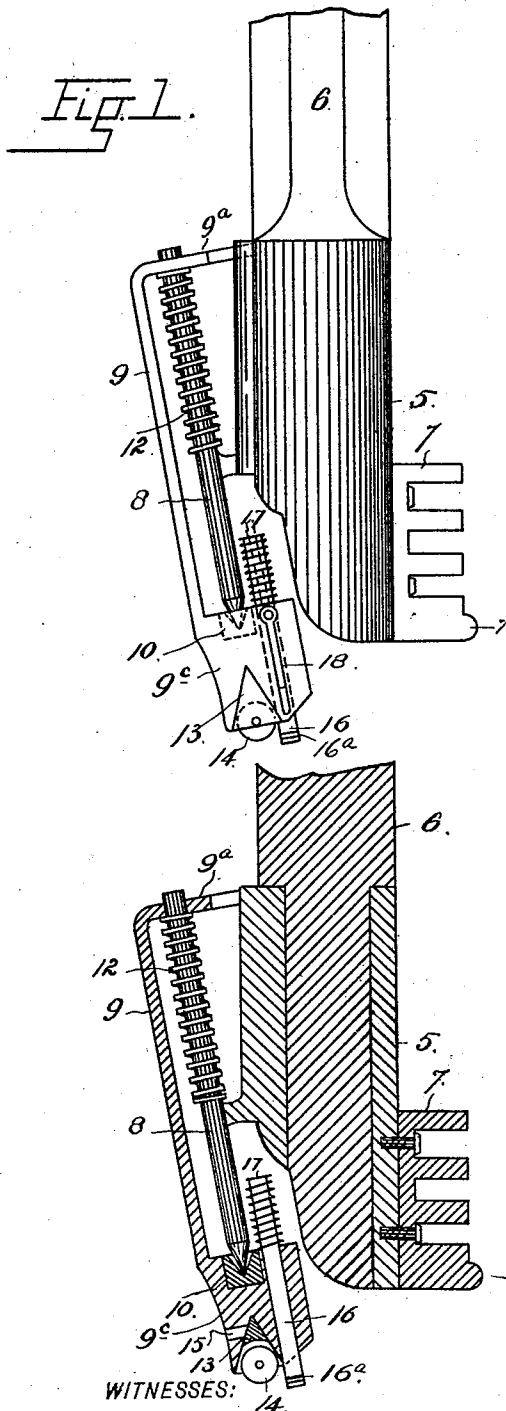


(No Model.)

W. J. MILLER.
GLASS CUTTER.

No. 515,298,

Patented Feb. 20, 1894.



WITNESSES:
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WILLIAM JOHN MILLER, OF DENVER, COLORADO.

GLASS-CUTTER.

SPECIFICATION forming part of Letters Patent No. 515,298, dated February 20, 1894.

Application filed April 22, 1893. Serial No. 471,489. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM JOHN MILLER, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Glass-Cutters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in glass cutters, and consists of the features hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a side elevation of the device, the handle being partly broken away. Fig. 2 is a longitudinal section of the same. Fig. 3 is a rear view. Fig. 4 is a transverse section taken through the handle, the parts below being shown in plan.

Similar reference characters indicating corresponding parts or elements of the mechanism in the several views, let the numeral 5 designate the metal shank of the device, recessed to receive the handle 6 which fits tightly therein. The lower part of the shank is provided with the rack 7 having the hammer 7^a at its lower extremity which projects slightly outward from the body of the rack. Rigidly secured to the back of the shank is a spindle 8, which stands at an angle to the shank, or occupies an inclined position with reference thereto. Pivotaly supported upon this spindle is the knife-holder 9, the body of which consists of a metal plate lying parallel with the spindle. The upper extremity of the knife-holder consists of a flange 9^a bent toward the shank and apertured to receive the upper extremity of the spindle, which projects therethrough. The lower extremity of part 9 consists of a lug 9^b which also projects toward the shank, occupying a position below the spindle. The upper face of the lug 9^b lies parallel with the flange 9^a and is recessed to receive a steel block 10 forming a socket for the reception of the lower extrem-

ity of the spindle 8, which is cone-shaped and nicely pivoted in said socket. The spindle 8 is surrounded by a coil-spring 12 which is made fast to the spindle at its lower extremity and secured to the flange 9^a at its upper extremity. The lower extremity of the lug 9^b is provided with a wedge shaped recess in which is located the correspondingly shaped block 13 carrying the rotating cutter 14. The lug 9^b is provided with an aperture 15 communicating with the recess in which the block 13 is located. This block is held in place by means of solder which holds it in the socket. Provision is thus made for removing the cutter block and substituting another at will. This removable feature of the cutter block is important, since the block and its knife are the only parts which are subjected to much wear, and as soon as they become worn out, new ones can be substituted at a very small cost.

The lug 9^b is provided with an aperture located forward of the cutter, in which aperture is located a guide pin 16 which passes through the lug and projects above its upper face. The upper extremity of this guide pin is surrounded by a coil-spring 17 which is attached to the upper face of the lug at one extremity and to the top of the pin at the opposite extremity. This spring is so regulated that the guide pin normally projects below the bottom of the lug and the rotating cutter.

The lower extremity of the guide pin is provided with a niche 16^a which the edge of the pattern enters while the instrument is in use. The aperture in which the guide pin is located is preferably angular in cross section to prevent the pin from turning during the use of the instrument. To the outer surface of the lug 9^b is pivoted the spring 18 having a foot 18^a at its lower extremity which is turned inward toward the lug, and enters a shallow recess formed therein. This spring 18 is reversible, since its foot may be detached from its retaining recess, and turned upward to the position shown in dotted lines in Fig. 1. When in the upraised position, the foot of the spring is made to engage the spring 17 and retain it in such a position as to hold the guide 16 upward, so that its lower extremity shall not project below the bottom of the lug. The ob-

ject of holding the guide in the last named position is to permit access to the rotating cutter for the purpose of sharpening the same.

The flange 9^a of the part 9 is provided with
 5 a projection 9^d which bears against a stop
 formed on the shank 5. The cutter 14 lies in
 a plane slightly to one side of the pivotal
 point of the spindle 8. This is illustrated in
 Fig. 3. When the instrument is drawn to-
 10 ward the user, as in practice, the knife is at
 the left of the point of the spindle. Hence as
 the location of the knife determines the point
 of resistance, as the instrument is moved for-
 ward, the tendency will be to maintain the
 15 projection 9^d in contact with the stop on the
 shank, since the said projection is at the right
 of the point of the spindle and the cutter at
 the left. The tendency will therefore be for
 the three points to assume a position in a di-
 20 rect line with the movement of the instru-
 ment, the spindle or pivoted point being lo-
 cated between the other two points. This
 tendency maintains the projection 9^d in con-
 stant contact with the stop on the shank,
 25 when the instrument is used in doing free
 hand work, and keeps the knife-holder per-
 fectly rigid with the shank at such times.
 The instrument is, however, specially de-
 signed for use in pattern work, or when a pat-
 30 tern is employed to aid the workman in cut-
 ting the glass of the proper shape. The pat-
 terns employed for this purpose are made of
 paper and the curves are often such that they
 are difficult to follow with the ordinary glass-
 35 cutter.

In using my improved instrument, the
 guide is placed against the edge of the pat-
 tern which engages the niche 16^a formed in
 its lower extremity. The shank is then turned
 40 inward toward the pattern and away from the
 projection 9^d, the position of the knife-holder
 and guide pin being determined by the con-
 tour of the pattern edge. This inward move-
 ment of the shank places the spring 12 under
 45 tension, giving the knife-holder a constant
 tendency to turn inward and adjust itself in
 line with the position of the shank. This
 tendency causes the guide and the cutter to
 automatically follow the curves or windings
 50 described by the edge of the pattern, where-
 by the work is much more accurately per-

formed, and with the exercise of much less
 care and skill on the part of the workman
 than if the knife-holder were rigid with the
 shank as in the case of ordinary instruments 55
 of this class.

It will be observed that the instrument
 should be so held that the spindle 8 will oc-
 cupy a position approximately vertical, thus
 allowing the user to hold the handle and 60
 shank at about the natural inclination.

Having thus described my invention, what
 I claim is—

1. In a glass-cutter, the combination with
 the handle and the rigid shank carrying the 65
 spindle made fast thereon of the spring-actu-
 ated knife-holder pivotally supported upon
 the spindle, substantially as described.

2. The combination with the handle, of the
 rigid shank having the spindle made fast 70
 thereto, the knife-holder pivoted on the spin-
 dle, the coil-spring surrounding the spindle
 and attached thereto at one extremity, its op-
 posite extremity being attached to the holder,
 substantially as described. 75

3. In a glass-cutter, the combination with
 the knife-holder and the spring-actuated
 guide-pin, of the spring arm carrying the
 flange or foot which engages a niche formed
 in the holder, said arm being adjustable, 80
 whereby it is made to engage the spring of
 the guide, as and for the purpose set forth.

4. In a glass-cutter, the combination with
 the handle and rigid shank, of the spring-actu-
 ated knife-holder pivoted thereon and pro- 85
 vided with a projection adapted to engage a
 stop formed on the shank, substantially as
 described.

5. The combination with the handle and
 rigid shank, of the knife-holder attached to 90
 a spindle pivoted on the shank, the cutter be-
 ing located to one side of the pivotal point,
 and the holder provided with a stop adapted
 to engage the shank, substantially as de-
 scribed. 95

In testimony whereof I affix my signature in
 the presence of two witnesses.

WILLIAM JOHN MILLER.

Witnesses:

BRINTON GREGORY,
 CHAS. E. DAWSON.