W. W. RATCLIFF.

GLASS CUTTER.

APPLICATION FILED JAN. 19, 1921.

1,402,961. Patented Jan. 10, 1922.

Fig. 3.

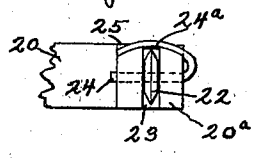


Fig. 4.

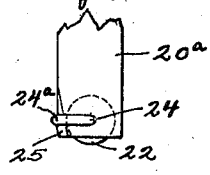
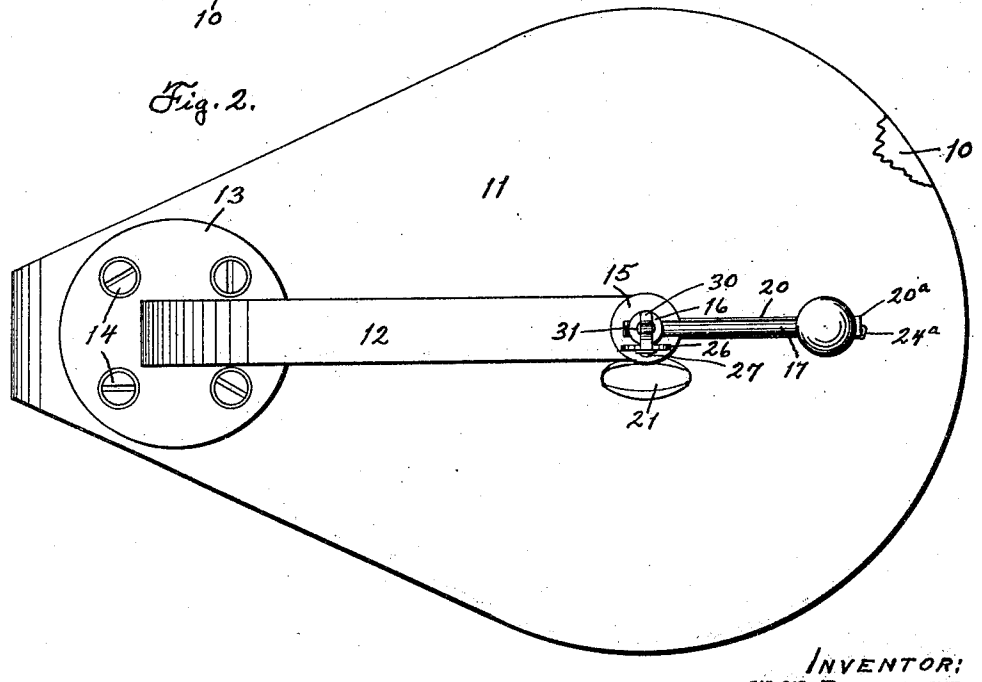


Fig. 1.

Fig. 2.



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GLASS CUTTER.

1,402,961. Specification of Letters Patent. Patented Jan. 10, 1922.

Application filed January 19, 1921. Serial No. 438,378.

To all whom it may concern:

Be it known that I, WALTER W. RATCLIFF, a citizen of the United States of America, and resident of Glidden, Carroll County, Iowa, have invented a new and useful Glass Cutter, of which the following is a specification.

The object of this invention is to provide an improved construction for a rotary glass cutter.

A further object of this invention is to provide improved means for cutting glass in circular form of any desired radius and applying even pressure throughout the operation upon the glass, at a single point only.

A further object of this invention is to provide improved means for throwing the cutting mechanism up into inoperative position.

With these and other objects in view, my invention consists in the construction, arrangement and combination of elements hereinafter set forth, pointed out in my claims and illustrated by the accompanying drawing, in which—

Figure 1 is a side elevation of the complete device, the cutting mechanism being shown in full lines in inoperative position, and in dotted lines in position for cutting. Figure 2 is a plan of the same. Figure 3 is a detail bottom plan, and Figure 4 an end elevation, on an enlarged scale, showing the arm which carries the cutting wheel and illustrating the means for detachably securing the wheel to said arm.

In the construction of the device as shown the numeral 10 designates a base member, which may be formed of wood, of any desired size and shape, said member preferably being overlaid with a sheet 11 of felt or other suitable cushioning material. A supporting arm 12 is provided with a base plate 13 adapted to be secured to one end portion of the base member 10 as by screws 14. The supporting arm 12 extends vertically from the base a suitable distance and then is bent and extends horizontally above and parallel with the base member, terminating in a vertical head 15 arranged substantially over the center of said base member. The head 15 has a vertical bore in which a stem 16 is arranged for reciprocation and for rotation, and said head is of sufficient length to provide sufficient bearing to prevent lateral play of said stem. The stem 16 projects at both ends from the head 15 and at its upper end is formed with a crank handle 17 by means of which it may be manually rotated. To the lower end of the stem 16 is fixed a block 18, which is spaced a slightly varying distance above the base member 10. An expansive coil spring 19 is coiled on the stem 16 between the head 15 and block 18 and exerts a downward pressure on said block. The block 18 is formed with a lateral opening extending therethrough, preferably angular in cross-section, and a bar 20 is mounted in and fitted to said opening and adapted for lengthwise adjustment therein, a set-screw 21 being provided to hold said bar in any position to which it may be adjusted. The bar 20 preferably extends parallel with the crank handle 17, and is formed with a downturned portion 20^a on one end, the lower end of which is adapted at times to approach closely to the upper surface of the base member 10, or the cushion 11 thereon. A suitable cutting member, adapted to score a sheet of glass in the ordinary manner, is carried by the lower end of the downturned portion 20^a. In this instance the cutting member is illustrated as a steel wheel 22 mounted within a recess 23 in the lower end of the downturned portion and extending at right angles to the longitudinal trend of the arm 20. The wheel 23 is mounted for rotation on a pin 24 extending through the downturned portion 20^a, and to provide for easy removal and replacement of said wheel, said pin is mounted loosely in said downturned portion and is formed with an integral recurved portion 24^a adapted to be extended around one side of said downturned portion and to be sprung into a notch 25 formed in such side (see Figures 3 and 4). When the recurved part 24^a is engaged in the notch 25 it holds the pin 24 firmly in place so that the wheel 23 may not be removed from its axis; and when said recurved part is disengaged the pin may readily be withdrawn from its seat to permit changing the wheel, which is frequently necessary.

An adjusting disk 26 is pivoted in decentered relation by means of a screw 27 to the stem 16 immediately above the upper end of the head 15 and in rolling contact with such upper end. The disk 26 is formed with a handle 28 projecting radially therefrom, by means of which it may be rotated manually. At its upper end the handle 29 is formed with a lateral extension 30 adapted

to engage at times over the upper end of the stem 16 and hold the disk 26 in such position that a maximum of reacting pressure is exerted upon said stem by contact of its face with the upper end of the head 15. The extension 30 may be dented downwardly between its ends for engagement in a depression or concavity 31 in the upper end of the stem, thus tending to hold said extension in engaging position with the stem.

When the handle 28 of the adjusting member is turned upwardly as shown in Figure 2, and by full lines in Figure 1, and the extension 30 caused to engage the upper end of the stem 16, the cam face of the disk 26, in rolling contact with the upper end of the head 15 exerts an upward pull upon the stem and raises it in said head, thus raising the bar 20 and cutting mechanism relative to the base member, against the action of the spring 19. When the handle 28 is turned laterally, as indicated by dotted lines in Figure 1, the spring 19 acts to press the stem downwardly and the cutting wheel is carried toward the base member. When the cutting mechanism is raised a plate of glass to be cut may be placed and positioned on the base member, the operator sighting downwardly over the stem to determine the approximate center of the circle to be outlined, and consequently the proper position of the glass. Then the set screw 21 is loosened to permit adjustment of the bar 20 in the block 18 to the radius of the circle to be cut, such adjustment being assisted by a graduated scale 32 which preferably is formed on and longitudinally of said bar. Then the handle of the adjusting disk is turned laterally and the spring 19 presses the members downwardly, the wheel 23 or other cutting device contacting with the glass. Then the stem is rotated by means of the handle 17 to cause the cutting member to execute a complete circle in contact with the glass, the spring supplying all the pressure which is needed for the cutting operation. It will be noted that contact with the glass is had at only one point at a time, namely the point of contact of the cutting member, and that the pressure supplied by the spring is uniform throughout the operation, thus obviating the danger of cracking the glass because of inequalities which may exist in it. The operation may be performed very rapidly and accurately, and a considerable radial adjustment of the cutting member may be had, to adapt the device for cutting glass of various sizes, as for clock dials, headlight lenses and many other purposes.

I do not wish to be understood as limiting myself to the precise construction and arrangement shown and described as various modifications may be employed within the scope of the appended claims without departing from the spirit of my invention.

I claim as my invention—

1. A rotary glass cutter, comprising a base, a standard thereon having a laterally projecting portion terminating in a vertical head, a stem mounted for rotation and for vertical adjustment in said head, a cutting member carried by the lower end of said stem, a spring exerting a downward pressure on said stem, and means for raising said stem and cutting member against the influence of said spring.

2. A rotary glass cutter, comprising a base, a standard thereon, said standard having a laterally projecting portion terminating in a vertically arranged head, a stem mounted for rotation and vertical movement in said head, a cutting member carried by and radially adjustable on the lower end of said stem, a spring pressure device exerting a downward pressure on said stem, and a cam device for raising said stem and cutting member against the influence of said spring.

3. A rotary glass cutter, comprising a base, a standard thereon having a laterally projecting supporting arm, said supporting arm terminating in a vertically arranged head above said base, a stem mounted for rotation and for vertical adjustment in said head, a bar arranged horizontally and adjustable longitudinally in the lower end of said stem, means for clamping said bar in said stem, a cutting member carried by one end of said bar, a spring exerting downward pressure on said stem, and means for raising and lowering said stem.

4. A rotary glass cutter, comprising a base, a standard thereon having a laterally projecting portion terminating in a head, a stem mounted for rotation and for vertical adjustment in said head, a cutting device carried by the lower end of said stem, a spring exerting downward pressure on said stem, an adjusting disk pivoted eccentrically on said stem and adapted to engage the upper surface of said head, means for adjusting said disk to raise and lower said stem, and means for rotating said stem.

5. In a glass cutter, a bar formed with an end-opening recess, a pin mounted through said bar and crossing said recess, a cutting wheel journaled on said pin, said bar being formed with a notch in its side, said pin being formed with a recurved portion adapted to engage within said notch to prevent withdrawal of said pin from its seat.

Signed at Glidden, in the county of Carroll and State of Iowa, this 8th day of January, 1921.

WALTER W. RATCLIFF.