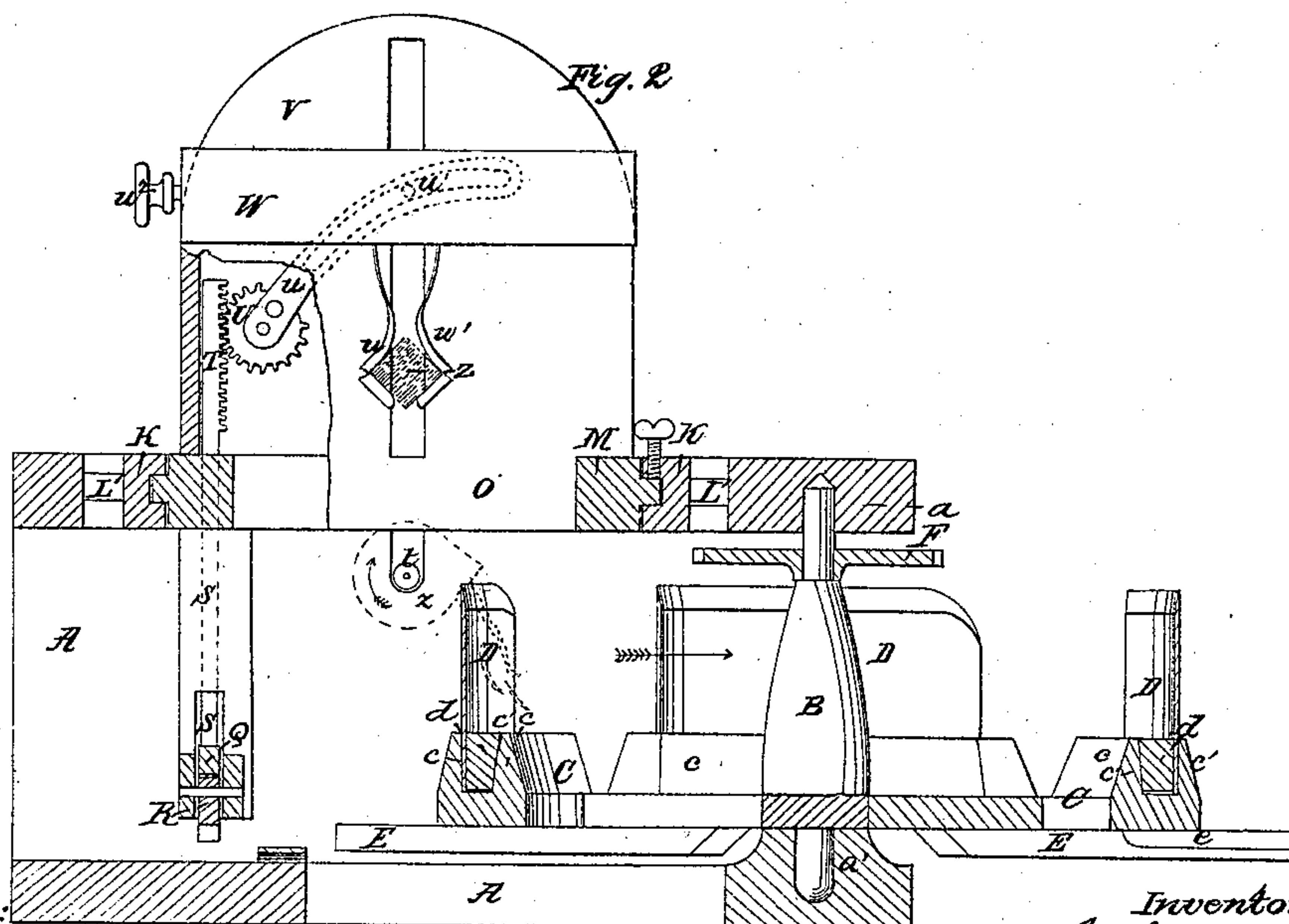
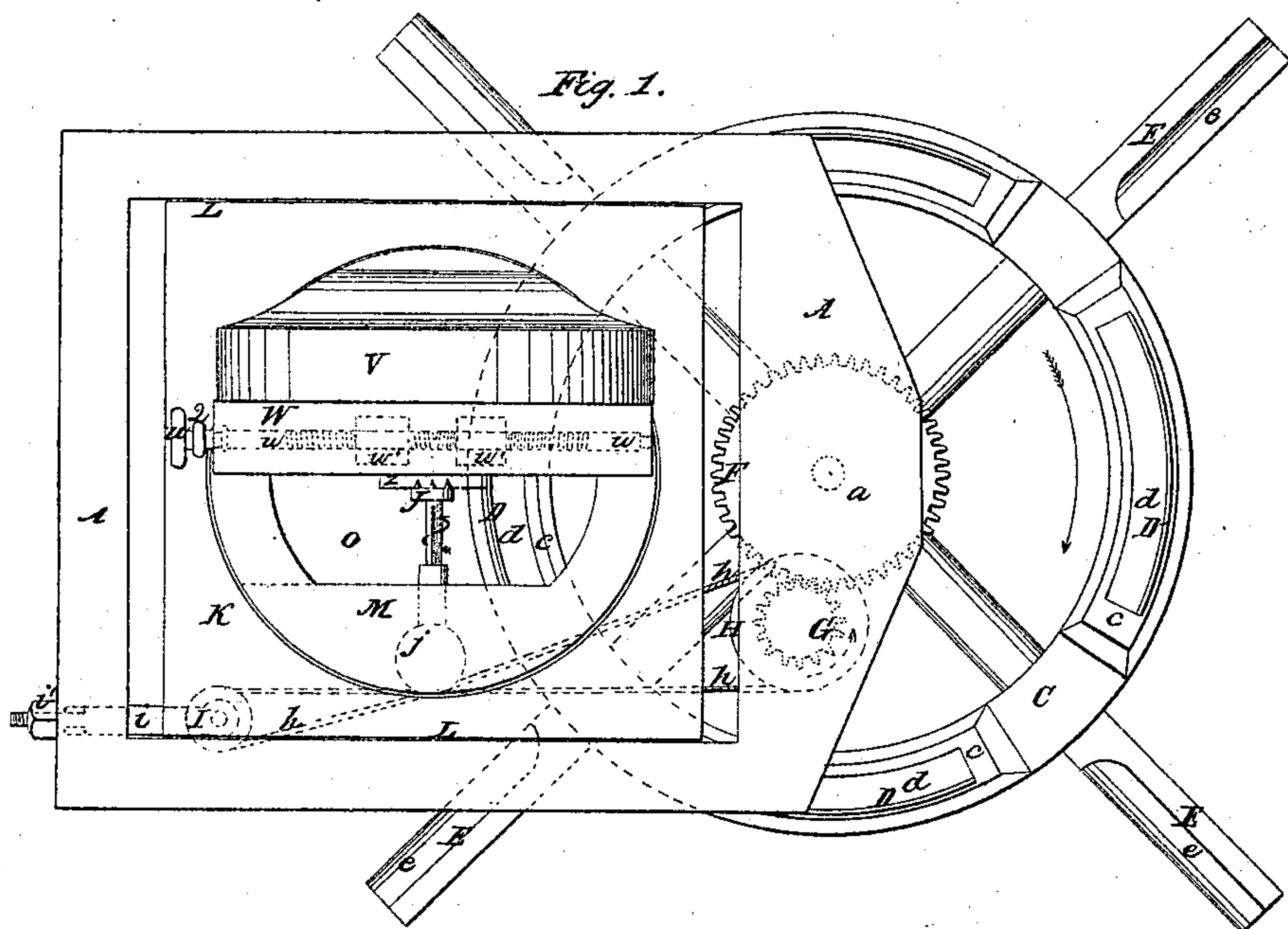


*A. J. Bailey,*  
*Cork Machine.*

*Nº 55.036.*

*Patented May 29, 1866.*



Witnesses:

*Fit. Corneli  
Arcture*

*Inventor:*

A. J. Bailey  
per Brown Cambridge  
attys





# UNITED STATES PATENT OFFICE.

ANDREW J. BAILEY, OF CHARLESTOWN, MASSACHUSETTS.

## IMPROVEMENT IN MACHINES FOR CUTTING CORKS.

Specification forming part of Letters Patent No. 55,036, dated May 29, 1866.

*To all whom it may concern:*

Be it known that I, ANDREW J. BAILEY, of the city of Charlestown, in the county of Middlesex and State of Massachusetts, have invented a new and useful Machine for Cutting Cylindrical and Tapered Corks; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a plan view of my invention. Fig. 2 is a central longitudinal vertical section of the same, and Fig. 3 is a transverse vertical section of the same, taken by a plane passing through line *x x* on Figs. 1 and 2.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists, first, in a novel arrangement of the rotating knife in relation to the revolving mandrel which produces the rotary motion of the cork, whereby the face of the knife is caused, in cutting, to be always tangential to the whole length of the cork, whether the cork is cut cylindrical or conical and whatever its size or degree of taper, thereby making a clean and smooth cut from end to end of the cork.

It also consists in a centering-feeder which accommodates itself to blanks of varying sizes inserted between its jaws and places them concentrically between the centers of the machine, in readiness for the action of the cutters.

It also consists in a sliding and revolving carriage, to which are attached the centering feeder and the revolving mandrel and fixed center, between which the corks are held during the cutting operation, and which provide for the adjustment of the said attached parts relatively to the cutters, whereby the diameter and shape of the corks may be varied from a cylinder to a frustum of a cone, or with concave or convex profile, as desired.

To enable others skilled in the art to construct my invention and apply it to practical use, I will proceed to describe it with reference to the drawings.

The frame-work A supporting the various portions of the machine is furnished with stationary bearings *a* and *a'*, respectively, in its upper and lower parts, to the right-hand end of the machine, looking at the drawings. In these bearings, which are situated perpendicularly opposite each other, there revolves an

upright standard or shaft, B, which has motion given to it by a pulley or by gearing suitably arranged, but not deemed of sufficient importance to require representation.

An open wheel, C, is affixed to the lower portion of the shaft B, and on its rim, at intervals, are placed the sockets or knife-receptacles *c c c c*, each of which has in it a cavity, *c'*, the outer side of which is parallel with the axis of the wheel, and the inner side slightly inclined from the bottom toward the center, presenting a wedge-shaped transverse section, as shown in Fig. 2. The said cavity is of arc form longitudinally and concentric with the axis of the wheel, and against the outer side of the said cavity is placed the knife D, which is curved horizontally, but is straight vertically, its outer face forming a segment of a cylinder concentric with the wheel C. The edge of the knife is straight for the greater portion of its length and occupies a plane perpendicular to the axis of the wheel C, and is therefore horizontal, except that one end, which first comes into operation on the cork, is rounded off. This knife is held in place in the cavity *c'* of the socket *c* by a curved wedge, *d*, which is driven into the said socket, and may be further secured by means of set-screws, if found necessary.

On the upper part of the shaft B is secured a spur-gear, F, which gears with a pinion, G, on the stud, carrying the band-pulley H, over which passes the band *h*, used to impart rotary motion to the mandrel J through the pulleys I and *j* and levers *k* and *l*. The cord or band *h* is so arranged around the several pulleys as to allow the compound carriage K M, which carries the rotating mandrel and opposite center between which the cork is held, and the centering feeder to move to or from the knife without being ungeared. The carriage K M is composed of an outer horizontally-sliding carriage, K, and an inner carriage, M, which is movable therein about a vertical axis. The outer carriage, K, is tongued on its two edges, L L, and slides in grooves L' L' in the frame A, as shown in Fig. 3.

The sliding compound carriage K M may be secured by a set-screw or other device at any distance from the knives, according to the size of the cork to be cut, while by the oscillating motion of the inner carriage, M, the profile of the cork may be formed of any desired



shape, either cylindrical, conical, or with concave or convex profile.

The rotating mandrel J, its opposite fixed center *t*, and feeding-grippers and mechanism operating them are all secured to the carriage M, in order that they may always sustain the same relation of position to each other and to the revolving knife. The mandrel J is fixed to a hollow rotating shaft, and has an intermittent reciprocating motion to clasp the blank cork *z* between its face, which is studded with sharp points to insure the rotation of the cork with it and the fixed opposite center at each downward motion of the feeder.

To relieve the cork *z* after being finished, a stationary plunger, *m*, Fig. 3, pushes the cork off the mandrel-face, when it is drawn back by means of the arms E on the wheel C, which, in revolving in the direction indicated by the arrow, come in contact with the lower end of the bell-lever N, moving on a center, *f*, in the pendant P, moving this lower end upward and the upper end laterally outward, and this end of the lever being jointed to the hollow mandrel J carries it with it until the arm E has passed the end of the lever, when the spring *n* produces the return stroke; but before this return stroke has taken place the finished cork has been pushed off by the studded face of the mandrel coming back beyond the fixed plunger *m*, and the feeding-grippers, after receiving from the operator's hands a blank, *z*, have moved down through opening *o* in carriage M, and the blank is clasped between the fixed center *t* and rotating mandrel J. As soon as the arm E has moved the mandrel back and the finished cork is pushed off the chuck the arm E begins to force itself against the inclined lower edge or face of the lever *q*, moving on a fulcrum, *g*, in the pendant P. This lever moves up and is geared by segment *q* and rack *s*, or otherwise suitably connected with the lower end of an upright rod, S, being formed into a rack, T, on its upper end Fig. 2, and this rack gears with a pinion, U, within the casing V, said casing being attached rigidly to the carriage M. This pinion is rigidly secured to and moves on the same center with a curved slotted lever, *u*, and the slot of which works against the pin *w'* in the cross-head *v*, and when the rack T moves up the farther end of slotted lever *u* moves down and carries with it the cross-head *v*, Fig. 3.

To the cross-head *v* is attached a box, W, having parallel guides within it, and a screen, *w*, with two opposite threads working within correspondingly-threaded nuts. To the lower side of each of these nuts is attached the two yielding clamps or grippers *w' w'*, which are bent toward each other at right angles and form a receptacle in form that of a square set diagonally. As before stated, the cross-head *v* moves down and carries with it the box W and grippers *w'*, which carry the blank cork *z* to the rotating mandrel J, which is just then moving up toward its fixed opposite center *t*. After the cork is in its position and centered

opposite the chuck, which is constantly revolving, the arm E passes on and moves the lever R, which gears with lever Q at *r*, and through the segment *q*, rack *s*, rod S, rack T, &c., the grippers are moved up clear from the blank to be cut and ready to receive another blank, and the knife or cutter D then follows the arm E and cuts the revolving blank cork *z* down to the requisite diameter and taper at one and the same operation.

The box W and its appendages are of about the same weight as the levers Q and R, rack T, and pinion U, and lever *u*; but the grippers are started in their upward stroke more easily by the slight spring *p*, which pulls downward on lever Q.

The parings from the blank when being cut fall on the one side of the knife, as shown in Fig. 2 in red outline, and the finished cork falls on the opposite side thereof. This is an advantage over the ordinary knives in use, as the cork and parings fall together, thereby producing an extra subsequent amount of hand labor to separate them. The vertical knife also has an advantage over any of those heretofore constructed in always having its edge in a plane with the axis of rotation of the mandrel and cork, and is therefore always at a tangent to the periphery of the cork in its whole length.

As before stated, the grippers are right angled and set diagonally and center all sizes of corks; but when large or small corks of a nearly-uniform size are to be fed the grippers must be set by the screw *w* and hand-wheel *w*<sup>2</sup> to a suitable distance apart, which will accommodate them all.

Having described my invention, I do not claim a cylindrical knife with an arc edge, neither do I claim giving an intermittent reciprocating motion to the mandrel, as these have been used before; but

What I do claim as my invention, and desire to have secured me by Letters Patent, is—

1. The rotating knife D, having its face in the form of an arc of a cylinder and its edge parallel with its planes of rotation, when arranged in segments of a circle and operating in combination with the rotating mandrel J, substantially as herein shown and described.

2. The centering-feeder constructed with elastic or self-adjusting grippers for the reception of blanks of varying size, applied and operating in relation to the rotating mandrel and opposite center substantially as herein specified.

3. The compound carriage K M, having attached to it the mandrel which carries and produces the rotation of the cork in its rotation, and made adjustable relatively to the cutter-wheel to vary the size and form of the cork, substantially as herein specified.

ANDREW J. BAILEY.

Witnesses:

GEORGE E. MCKAY,  
JOHN McDONALD.