F. L. BLAIR.

Cork Cutting Machine.

No. 238,082. Patented Feb. 22, 1881.

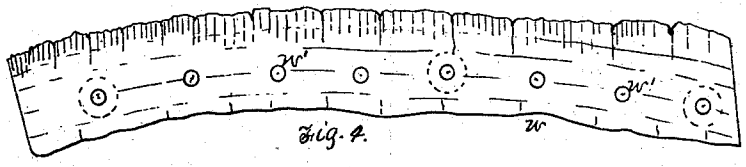

Fig. 4.

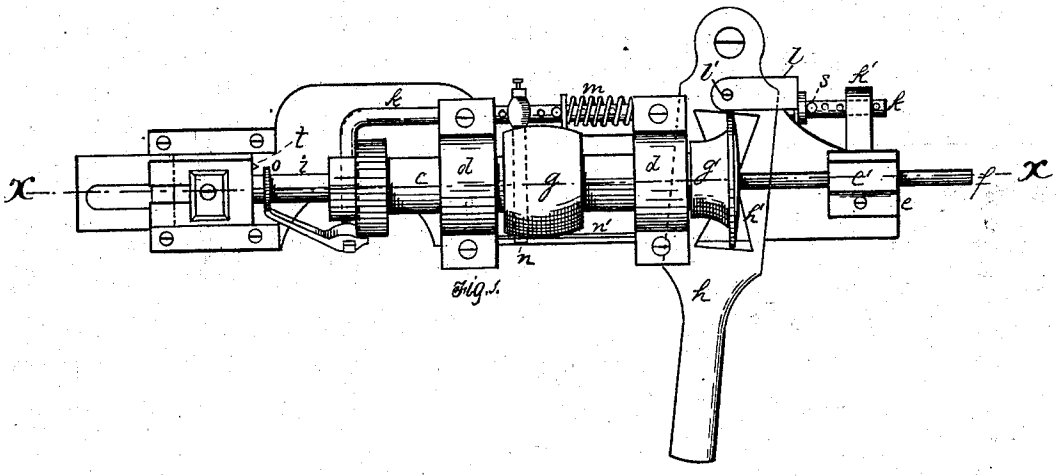

Fig. 1.

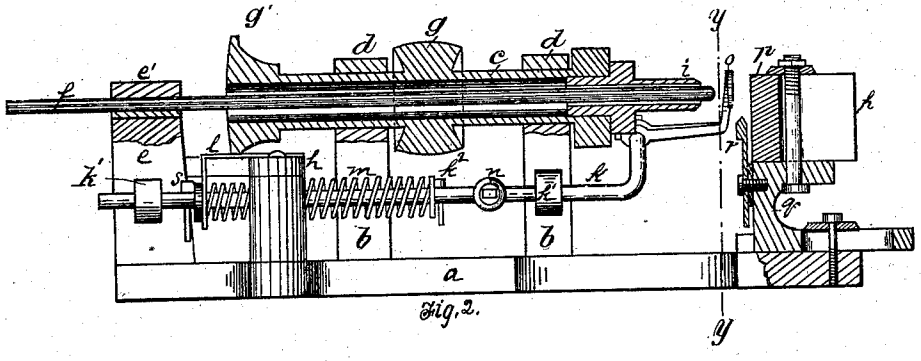

Fig. 2.

Witnesses.

R. F. Wentworth

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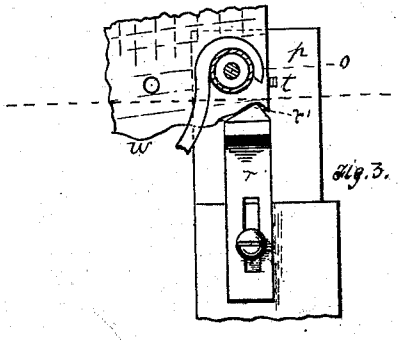

Fig. 3.

Inventor.

Frank L. Blair

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# UNITED STATES PATENT OFFICE.

FRANK L. BLAIR, OF ALLEGHENY CITY, PENNSYLVANIA.

## CORK-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 238,082, dated February 22, 1881.

Application filed February 24, 1880.

*To all whom it may concern:*

Be it known that I, FRANK L. BLAIR, of Allegheny city, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Machines for Cutting Corks; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan view of my improved cork-cutting machine. Fig. 2 is a side view, partly in section, on line *x x* of Fig. 1. Fig. 3 is a section on line *y y* of Fig. 2. Fig. 4 shows a strip of cork, and *w* indicates the edge placed on the rest.

Like letters of reference indicate like parts in each.

My invention relates to machines for cutting corks; and it belongs to that class in which the cork is cut out of a strip of cork-wood by a hollow cutter. The particular parts improved by me are the devices for centering, holding, and discharging the cork.

To enable others skilled in the art to make and use my invention, I will now describe its construction and mode of operation.

Mounted on a suitable bed, *a*, are two uprights or bearings, *b*, which sustain a hollow shaft, *c*, and are provided with journal-caps *d*. Clamped upon a post, *e*, by a cap, *e'*, is a rod, *f*, which extends longitudinally through the hollow shaft *c*. Upon the shaft *c* is a pulley, *g*, by which it is rotated by power. At the rear end of the shaft *c* is a wide sleeve or disk, *g'*, which projects down into the opening *h'* in a lever, *h*, pivoted at one side of and extending across the machine, and designed to move the hollow shaft *c* reciprocally upon its bearings and over the rod *f*. On the front end of the shaft *c* is a hollow cutter, *i*, which is slightly tapered externally.

At the side of the machine upon which the lever *h* is pivoted there is a rod, *k*, mounted in bearings *k'*, and passing through the bracket *l*, which extends down from lever *h*. This bracket *l* is pivoted on the lever *h*, as at *l'*, between the fulcrum of the lever and its point of contact with the disk *g'* of hollow cutter-shaft *c*, so that the rod *k* moves parallel with the cutter-shaft and the clamp *o* in advance of the cutter until it clamps the strip of cork against the cutter-block *p*, where it holds it for the action of the cutter. A spring, *m*, is placed on the rod *k*, one end bearing against the bracket *l* and the other against a pin, $k^2$. The rod *k* has a guide-pin, *n*, which moves in the guides *n'*. At the front end of rod *k*, and fastened to it, is a curved clamp, *o*, designed for clamping and holding the strip of cork as the cutter advances and makes its cut. The hollow cutter *i* works through the center of the curved clamp *o*, which is open at its lower side, so that the cork, when expelled from the cutter, will not be caught in and retained by the clamp.

In front of the cutter is the cutter-block *p*, against which the cut is made. This block is adjustably mounted on a sliding chair, *q*, and they are both capable of being adjusted to suit making corks of different lengths. Extending up from the chair *q*, and standing in front of the block *p*, is the stop *r*, upon which the strip of cork is rested to be cut. The edges of the strips of cork are often defective, especially by reason of holes or irregularities in them. When such a strip is placed upon a straight level rest this hole or indentation is raised up near the cutter and the cork is defective. I construct this rest with a tapered projection, *r'*, upon it. Then a good strip, being placed on the rest, will cut as usual, while a defective one will take over the projecting point of the rest and drop sufficiently to carry down the defective part below the edge of the cutter, and thus enable a good cork to be cut. Fig. 5 shows a strip of cork, and *w* the edge which is placed on the rest. The irregularities are those which exist on the surface of the bark.

The operation is as follows: The shaft *c*, carrying the hollow cutter *i*, is rotated by power by means of a belt to the pulley *g*. The end of the piece of cork-wood is placed on the rest *r* and against the gage *t*, and the lever *h* thrown forward to move the cutter against the block. This causes the clamp *o* to advance and clamp the cork tightly against the block *p*. The cutter then works through the semicircular clamp and cuts the cork. It is then withdrawn sufficiently to cause the cork to be forced out of it and discharged by the stationary rod *f*. The spring *m* permits the clamp to adjust itself to

the unequal thickness of the strips of cork used. It is kept to the required compression, and the length of the rod is adjusted, by inserting the pin *s* in the necessary hole in rod *k*, there being a number of such holes therein, so that by moving the pin and inserting it in the proper hole the compression may be increased or diminished at will. The rod *k*, being operated by a bracket, *l*, which latter is pivoted to the lever *h*, nearer to the fulcrum of the lever, does not have so long a movement as the shaft *c*, but it is sufficient to cause the clamp *o* to grasp the piece before the cutter reaches and cuts it. The clamp and cutter are perfectly centered with each other, the guide-rod *n* holding the clamp in such relation to the cutter that the latter shall work through it.

By my construction the machine is perfectly under the control of the operator, and by one reciprocal movement of the lever the strip is clamped and the cork cut and discharged. The attachment of the clamp-rod to the lever between the fulcrum and the spindle reduces the labor of the operator and increases the production of the machine. This attachment must be such as permits the reciprocation of the clamp-rod in a right line by the pivoted lever.

The clamp *o* may be made circular; but in that case the shaft *c* should have more throw and the rod *f* be shorter, so that the cutter shall clear the clamp before discharging the cork, and thus avoid the cork catching in the clamp.

The advantages of the use of the clamp are obvious. Where before the proper feeding of the machine depended upon the attention of the attendant it was often carelessly done, and much valuable wood was lost by the careless presentation of the strip, which caused it to be cut diagonally, scantily, and in defective places, now the gage limits the insertion of the piece, and the clamp grasps, flattens it out, and prevents it slipping. Formerly it was very dangerous to feed a short piece, and there were many accidents, resulting in painful injuries to the hands of the attendants, and frequently loss of fingers. By my clamp arrangement feeding is a safe operation, and a short piece can be fed without danger.

When it is desired to cut shell or annular corks by means of the machine shown in Figs. 1 and 2 the center rod, *f*, is removed, and the center rod, *u*, (shown in Fig. 4,) is substituted therefor, said rod being secured to the hollow cutter by a set-screw or equivalent means to hold the collar $c^4$. This rod *u* will reciprocate with the cutter, instead of being clamped to the post *e*, as is the rod *f*, and will also be free to yield when the advance of the cutter compresses the spring $s^4$.

The cutter *c* and rod *u*, with their adjuncts, will operate as follows: A strip of cork, such as shown in Fig. 5, having first been perforated at intervals, as at *w'*, is fed to the machine provided with center rod, *u*, and the leading point *u'* of rod *u* having entered the perforation *w'* in the cork, centers the cork and holds it accurately before the cutter *i*, which continues to advance, and cuts an annular cork or shell from the strip, as indicated by the dotted lines, Fig. 5. As the cutter recedes the spring $s^4$ holds the rod *u* against the cork until the cork is stripped from the cutter.

By the use of my improved machine great economy of material is obtained.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in a machine for cutting corks, of a hollow reciprocating cutter, a pivoted lever for reciprocating the cutter, and a reciprocating clamp connected to the lever which operates the cutter at a point between the fulcrum of the lever and its point of contact with the cutter-spindle, substantially as described.

2. A reciprocating hollow cutter having a central discharging-rod, in combination with a semicircular clamp, open at its lower end, arranged concentric with the cutter, and operating in front thereof, substantially as and for the purpose described.

3. In a machine for cutting corks, the combination, with a reciprocating cutter and its cutter-block, of the strip-rest *r*, having a pyramidal projection on its upper surface, substantially as and for the purpose specified.

In testimony whereof I, the said FRANK L. BLAIR, have hereunto set my hand.

FRANK L. BLAIR.

Witnesses:
T. B. KERR,
FRANK W. SMITH.

Correction of Letters Patent No. 238,082.

It is hereby certified that in Letters Patent No. 238,082, granted February 22, 1881, to Frank L. Blair for an improvement in "Cork Cutting Machines," the paragraphs commencing with line 53 on page 2, and ending with line 75, page 2, were erroneously printed and published as a part of the specification of said patent, whereas, they form no part thereof, the same having been stricken out by amendment; that the proper corrections have been made in the files and records of the Patent Office, and are hereby made in said Letters Patent.

Signed, countersigned, and sealed this 26th day of March, A. D. 1881.

[SEAL.]

A. BELL,
*Acting Secretary of the Interior.*

Countersigned:

E. M. MARBLE,
*Commissioner of Patents.*