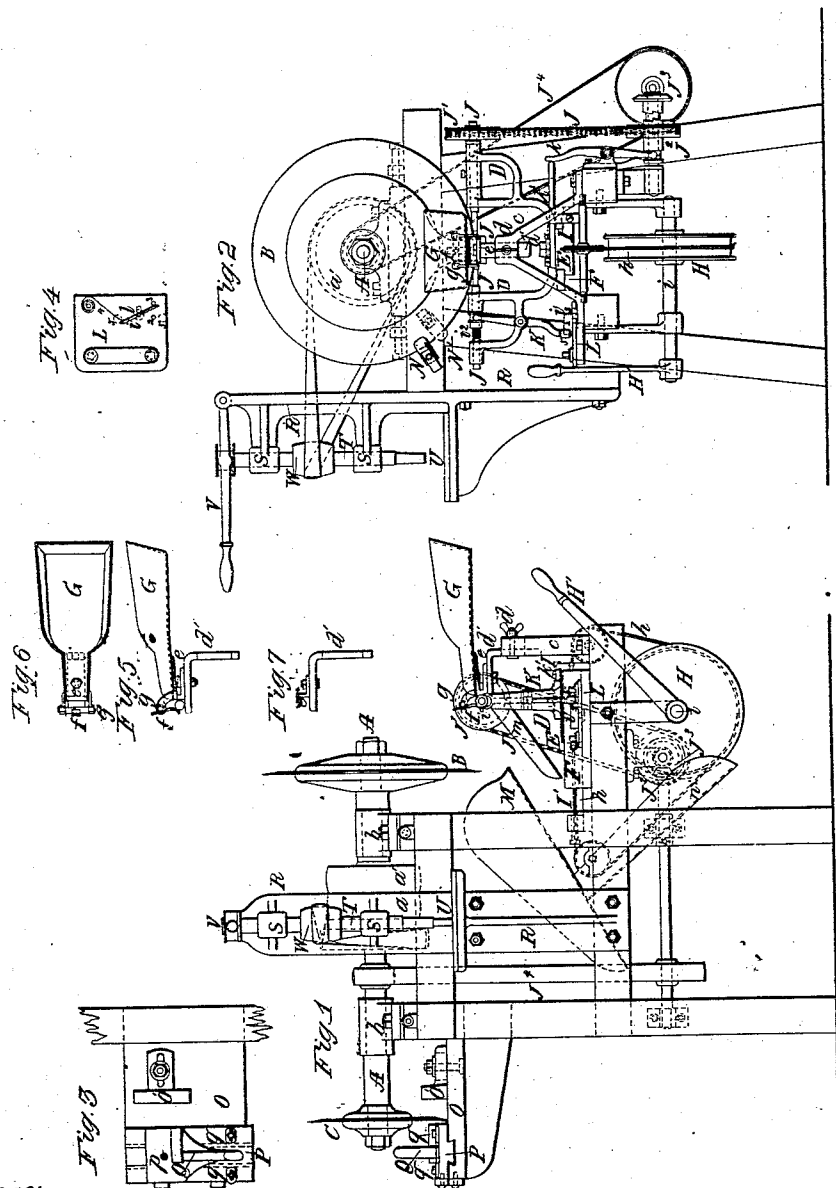


G. Hammer,
Cork Machine.

N^o 83,850.

Patented Nov. 10, 1868.



Witnesses:
Edward Rogers,
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United States Patent Office.

GEORGE HAMMER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR
TO HIMSELF AND ALFRED BUTZ, OF SAME PLACE.

Letters Patent No. 83,850, dated November 10, 1868.

IMPROVEMENT IN CORK-CUTTING MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, GEORGE HAMMER, of the city of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Cork-Cutting Machines; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawing, and to the figures and letters of reference marked thereon.

The principal object of my invention is to devise a machine, by means of which all requisite successive operations for transforming the raw bark of the cork-tree into any of the various descriptions of corks, may be conducted in such a manner that several operatives can be simultaneously employed at different manipulations upon the same machine, without hindrance to each other.

The nature of the invention consists—

First, in an improved arrangement and combination of mechanism for cutting tapered corks from square blocks, or from cylindrical corks.

Secondly, in an improved machine for the preliminary operation of cutting the raw cork into slices, and also for cutting these slices into straight or bevelled blocks, of any required size, for reducing them to a cylindrical or tapered form, in the first-mentioned part of the machine.

The improvement consists, thirdly, in so combining with the above mechanism a third appendage for cutting flat and cylindrical corks, by means of revolving cutters, that the whole may be operated simultaneously by one driving-belt.

In order that my said invention may be fully understood, I will now proceed more particularly to describe the same.

On reference to the drawing, making part of this specification, and in which similar letters of reference allude to like parts throughout the several views—

Figure 1 is a side view of the improved cork-cutting machine, combining the above-mentioned devices for the several successive operations;

Figure 2 is a front view of the machine;

Figure 3 is a plan of that part of the machine in which the bark is first sliced, and then cut into blocks;

Figure 4 is a detached view (plan) of part of the mechanism for cutting tapered corks;

Figure 5 is a detached side view of the feed-arrangement for cylindrical blocks to the tapering-machine;

Figure 6 is a plan thereof; and

Figure 7, a detached view of the feed-table, for square or bevelled blocks, to the tapering-machine.

A is the main shaft of the machine, provided with fast and loose pulleys *a a'*, and carrying, at its extreme ends, outside of the adjustable bearings *b b*, the circular cutting-disks or knives B and C, the larger one of which, B, serves to cut conical or cylindrical corks from blanks, fed to it by means of the sliding-spindle frame D. This frame (hereafter more fully described) is fastened, in an adjustable manner, to the slide E, reciprocating in a bed, F.

The feeding-device, for supplying cylindrical blocks to the spindle for transmittal to the knife B, is supported upon a stand, *c*, and is constructed as follows: Attached to the stand *c*, and vertically adjustable on the same, by means of a screw, *d*, is a rectangular piece, *d'*. On top of the horizontal part of *d'* is placed the gauge *e*, which is lengthwise adjustable on *d'*, and secured by a screw and nut. A receptacle, G, for the corks to be fed to the spindles, is provided, on top of *e*. The position in which the cork is placed for being grasped by the spindles J and J', is best understood from fig. 5.

Resting upon the inwardly-projecting end of *d'*, the cork is lightly pressed against the gauge *e*, by a spring-pad, *f*, swinging upon a small rock-shaft, *g*, which pad is sufficiently yielding to allow the cork to be removed horizontally toward the cutting-disk.

A sliding movement of the spindle-frame D, for alternately carrying the corks to the knife, and returning to the feed-table for a next one, is given by means of a cord or band, *h*, so attached to the opposite ends of the slide E, and to the periphery of a pulley, H, that, by means of a lever, H', on the pulley-shaft *i*, motion is transmitted to E, by the cord *h*, in either direction. The outward movement of the slide E is arrested by a fixed stop, I, on the plate F, while a screw, I', serves as an adjustable stop for the movement of E, in the opposite direction. By varying the position of this screw, the finished diameter of the cork is regulated with accuracy.

The live spindle J, for rotating the cork as it is presented to the cutting-edge of the circular knife B, is driven by means of a chain, *j*, passing over the pulleys *j'* and *j''*, the latter being the driver, and receiving motion, through the bevel-wheels *j'''* and belt *j'''*, from the main shaft A. *j''* is provided with a clutch, and so actuated, by a clutch-lever, *k*, and arm *k'*, projecting from slide E, that the spindle J ceases to rotate as it recedes toward the feed-table, and is in turn thrown into action when approaching the cutting-disk.

The spindles being thus at rest, when grasping the blank to conduct it to the knife, will be much more certain to take accurate hold of the blank than if they were revolving at the time.

A rocking-arm, K, actuated during the sliding motion of E, by an inclined plane, *i'*, and by a spiral spring, *i''*, on the spindle J', serves to give the requisite sliding movements to that spindle, for alternately grasping and releasing the corks as they pass through the machine. Although this sliding motion of one spindle only is ordinarily sufficient, it may, in some cases, be advantageously given to both spindles.

The arrangement of the inclined plane *i'*, and the manner in which it actuates, through the double-armed lever K, the spindle J', will be best understood upon reference to fig. 4. Here it will be seen that *i'* is attached to a plate, L, in the following peculiar manner: It has a limited vibrating movement upon a central axis, *l*, between two small stops, 2, 3, the axis *l* being

confined in an oblong opening in the plate L. A light coiled spring, 4, bears against one end of i' , and brings its other end in contact with the pin 3.

The operation of the whole is as follows: The lever K, while holding the cork to the knife, occupies the position represented in fig. 2, and as it recedes toward the feed-table, its small friction-roller 5 brings up against i' , as shown in red lines at fig. 4. By yielding to the inclined plane, the lower arm of K is drawn inward, and, by a consequent movement of its upper end in an outward direction, the cork just finished is released from between the two spindles and falls down. In this separated position, the spindles remain during the whole outward movement, until, at the instant of the slide E bringing up against the stop I, the friction-roller 5 is liberated from the inclined plane. The spiral spring i' being thus freed from its previous compression, suddenly pushes the spindle J inward, to make it grasp the cork or block on the feed-table.

The roller 5, on the arm K, is now in the position shown in red dotted lines, fig. 4, and as upon the advance of E toward the knife this roller comes in contact with the inclined plane i' , on the opposite side, the latter will yield to it in the oblong bearing of its axis i , so as not to disturb the spindles in their hold upon the cork to be cut. In returning from the knife, the described routine of movements is repeated.

By an arrangement of hoppers or inclined planes, clearly shown in fig. 1, the chips are separated from the finished corks. The former, curling up on the inner side of the knife, fall into the large hopper M, and are heaped up under the frame of the machine, while the corks, as they leave the spindles, are carried over two inclined planes, m and n , into a separate receptacle.

N and N' are small oil-stones, so attached to their supports as to press lightly against opposite sides of the cutting-edge of the knife, thus keeping it uniformly sharp.

The mechanism for cutting the bark into strips consists, in addition to the small circular knife C, of a table, O, and gauge O'. The end of the piece of bark to be cut into slices is held against the gauge O', and then laterally advanced toward the edge of the revolving circular knife C, the direction of motion of which is such as to draw the bark through without the least application of force on the part of the workman.

For the subsequent operation of reducing these strips into blocks, a sliding saddle, P, is employed, in addition to the gauge O', which saddle has a vibrating head-piece, Q. When required for cutting blocks with parallel sides, this head-piece is permanently fastened upon the sliding saddle P, in the position shown in the draw-

ing, fig. 3; but the same parts are, in a very simple and efficient manner, adapted to cutting blocks with tapering sides, from which tapered corks can be cut most economically. To this end the head-piece Q is made to vibrate upon an axis, p , this movement being limited between adjustable stops $g g$. The strip of cork is laid upon the front part of the head Q, against the squaring-strip Q', and between successive cuts of the knife the head is moved alternately from one stop to the other, so that the cork-blanks become tapered by thus reversing the angle for each successive cut.

In addition to the above mechanism, the machine is provided with a frame, R, carrying, in bearings S S, the hollow cutter-spindle T, for cutting cylindrical or flat corks, of any required diameter and thickness, by means of changeable cutters set into the lower end of the spindle. (The arrangement and operation of these parts are the same as those minutely described in my patent, granted February 15, 1859.)

U is the table, upon which rests the slice of cork to be operated upon by the revolving cutter, and V is the lever for actuating the cutter-spindle. The latter is driven from a pulley on the main shaft A, by means of a half-twist belt running over the small pulley W.

Having thus fully described the construction and objects of my improvements, I do not desire to confine myself, in the arrangement of the same, to the detail of the described parts in every minutia, as their construction may be varied, or equivalents substituted, without impairing my invention.

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

1. The sliding-spindle frame D, when its live spindle J is actuated by the clutched chain-pulley j' , and clutch-lever k , substantially as and for the purpose specified.
2. Operating the sliding spindle J, by means of the double lever K, spring i' , and inclined plane i , substantially in the manner and for the purpose described.
3. In combination with the cutting-disk C, the sliding saddle P, when its vibrating head-piece Q is, respectively to the stops $g g$ and gauge O', arranged substantially in the manner and for the purpose set forth.
4. The described combination of the mechanism for slicing the cork, and for tapered and cylindrical cutting, when the same are so arranged as to be simultaneously operated from one driving-shaft A, substantially as specified.

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Witnesses:

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WILLIAM SCHENKEL.