

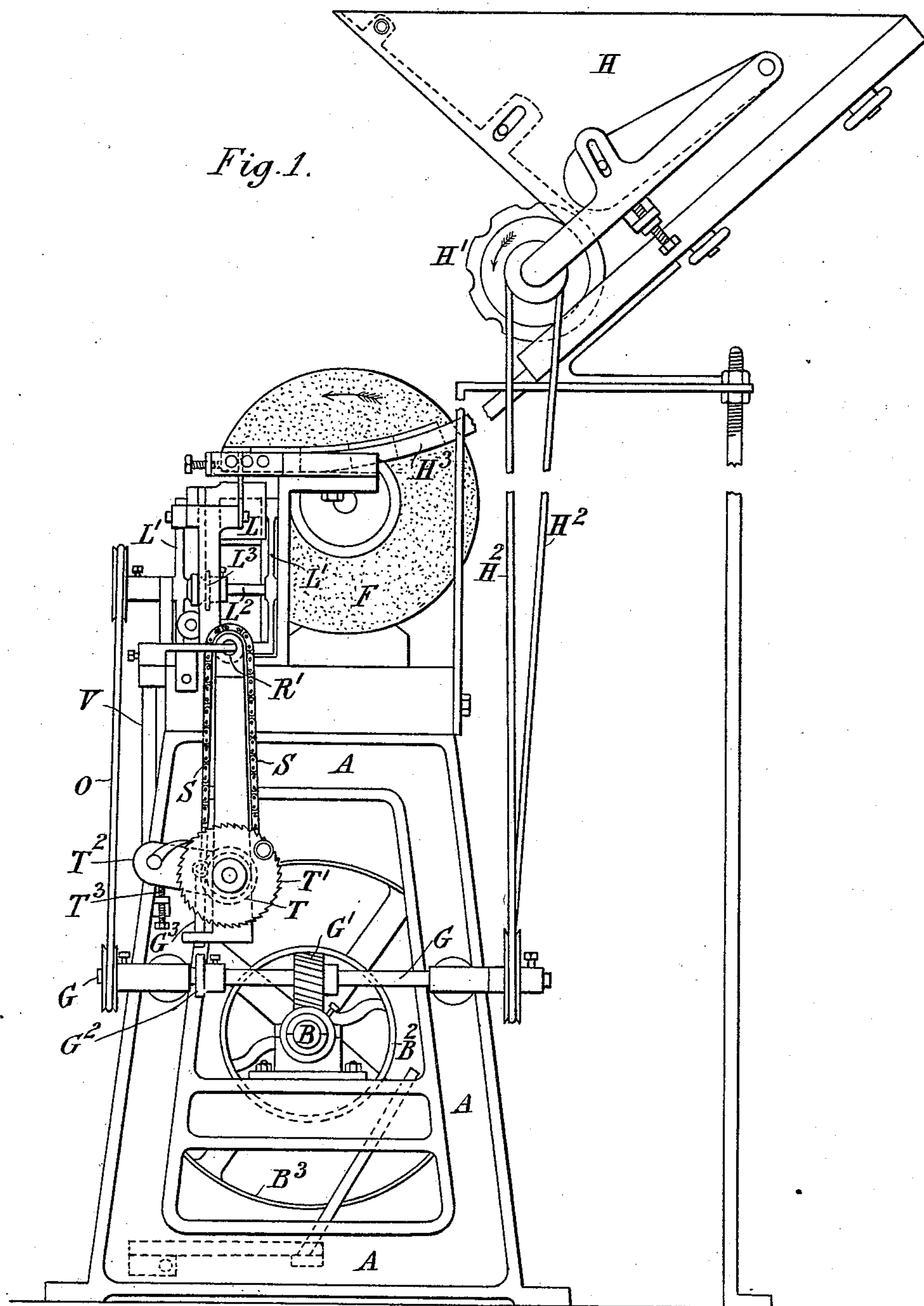
(No Model.)

3 Sheets—Sheet 1.

J. LOWMAN.
MACHINERY FOR FINISHING CORKS.

No. 523,046.

Patented July 17, 1894.



Witnesses

B. W. Miller

Baltus D. Long

Inventor

John Lowman

By his Atty's

Baldwin Dickinson Wright

(No Model.)

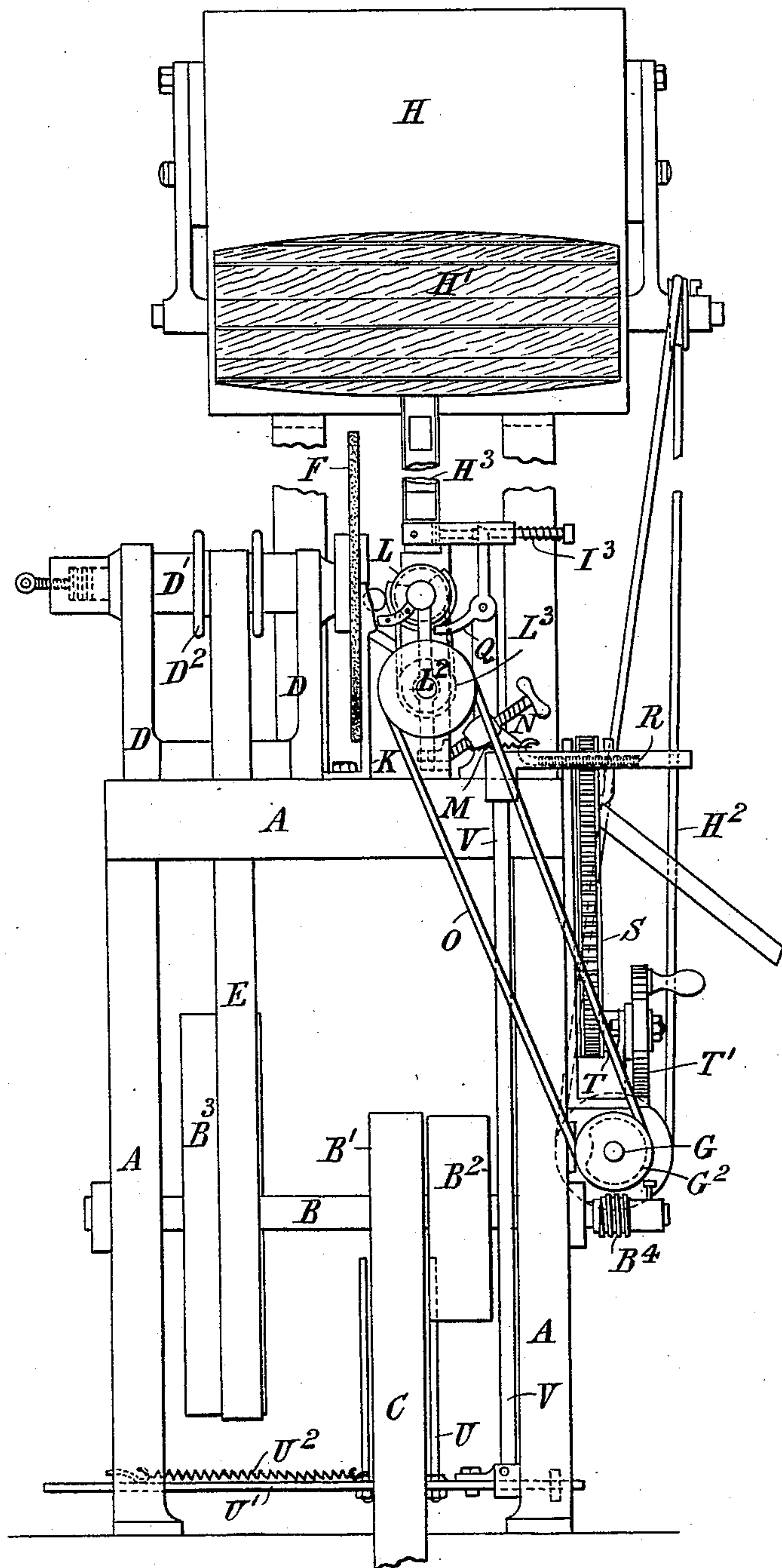
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Fig. 2.



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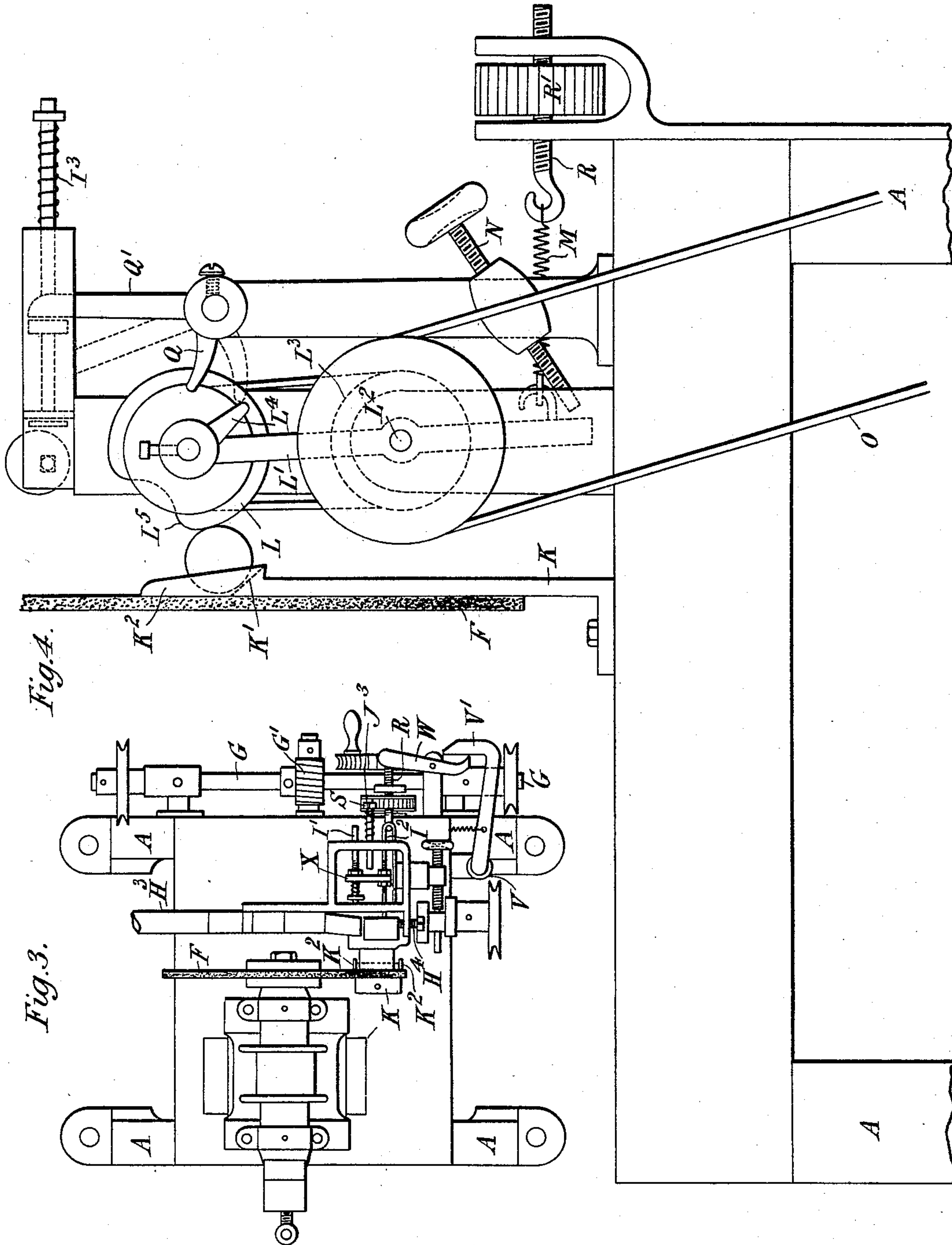
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UNITED STATES PATENT OFFICE.

JOHN LOWMAN, OF LONDON, ENGLAND, ASSIGNOR TO PABLO LARIOS, OF GIBRALTAR.

MACHINERY FOR FINISHING CORKS.

SPECIFICATION forming part of Letters Patent No. 523,046, dated July 17, 1894.

Application filed October 20, 1893. Serial No. 488,713. (No model.) Patented in Spain January 27, 1893, No. 14,050, and in Portugal February 20, 1893, No. 1,758.

To all whom it may concern:

Be it known that I, JOHN LOWMAN, engineer, a subject of the Queen of Great Britain, residing at 78 Coburg Road, Old Kent Road, London, in the county of Surrey, England, have invented certain new and useful Improvements in Machinery for Finishing Corks, (for which I have received Letters Patent in Spain, No. 14,050, dated January 27, 1893, and in Portugal, No. 1,758, dated February 20, 1893,) of which the following is a specification.

This invention relates to novel automatic mechanism by which corks are taken one at a time from a hopper, are then held against an abrading surface and rotated, and finally, when finished all around are automatically released. Also, to mechanism for automatically regulating the pressure of the corks against the abrading surface and for stopping the machine when the abrading surface is worn out.

In my improved machine, the corks are one at a time pressed against a rapidly revolving disk faced with an abrading material, such as glass paper. While so held, the corks are turned slowly around and when the entire circumference of the cork has been acted upon, it is released and another cork is supplied to take its place. As the abrading surface becomes worn, the corks are pressed more firmly against it, and when the surface becomes unserviceable, the machine is stopped.

In the accompanying drawings,—Figure 1 is a side elevation of my improved machine for polishing or finishing corks. Fig. 2 is a front view. Fig. 3 is a plan of the same, and Fig. 4 shows some of the parts on a larger scale.

A is the frame of the machine, upon it the shaft B is mounted, and B' B² are fast and loose pulleys on the shaft. C is the driving strap. On the shaft B is also the belt pulley B³.

D is a head stock and this carries the spindle D'.

D² is a pulley on the spindle and E is a belt passing around this pulley and also around the larger pulley B³.

The disk F which is faced with abrading

material is mounted on the spindle D' and by the means described it is rapidly rotated. The shaft B also has a worm B⁴ upon it and this is engaged with the worm wheel G' on the shaft G which thus is slowly rotated.

H is a hopper such as is commonly employed for the delivery of corks; it receives the corks to be operated upon by the machine.

H' is a roller at the lower part of the hopper, it has ribs upon it against which the corks lie. The shaft of the roller is turned in the direction indicated by the arrow by an endless cord H² passing around a pulley on the shaft G. The corks being thus kept in motion pass into the throat of the inclined guide trough H³ along which they then descend by gravity.

In the drawings the corks are seen lying in the trough. At the lower end of the trough H³ are two pushers I' and I² they receive from time to time by means hereinafter described a movement from and toward the disk F. The pushers as they retire release the corks which slide down the guide trough as far as a stop H⁴ admits. When the pushers advance the leading cork is pushed sidewise off the trough by the pusher I² and the next cork is held back in the trough by the pusher I'.

K is a stationary support which receives the cork when it is delivered from the trough H³. The cork rests upon the inclined surface K' and is kept in place thereon by the guards K². The cork when on the support K is pressed against the surface of the disk F by the roller L. The shaft of the roller L is carried by a frame L' which is capable of rocking upon a shaft L². The frame is held by a spring M against an adjustable stop N. By the regulation of this spring M the pressure exerted against the cork to hold it to the face of the disk F is graduated as is hereinafter described. The cork rotates while it lies against the disk F and the support K in unison with the rotation of the roller L.

The roller L is driven from the shaft G in the following manner:—The cord O connects a pulley on this shaft and a pulley on the axis L² on which latter axis there is also another pulley L³; a cord transmits movement from the pulley L³ to a pulley on the shaft

of the roller L. This axis has also a finger L^4 upon it to actuate the pushers I^1 and I^2 and once in a revolution this finger comes against another finger Q. The finger Q is upon a short shaft carried by a fixed standard, and the shaft has upon it another finger Q' . The pushers I^1 and I^2 can slide horizontally in the frame which carries them and to the finger I^2 the cross piece X is clamped by lock nuts screwed onto the pusher. The pusher I^1 also passes through the cross piece X but a spring between the lock nuts on the pusher I^1 gives freedom so that the pusher I^1 can yield and allow the pusher I^2 to advance independently. The cross piece X has a stem I^3 which projects rearwardly through the frame and has a coiled spring upon it. When the finger L^4 comes against the finger Q, an arm on the axis of the latter finger pressing upon the cross piece X causes it to advance compressing the spring on the stem I^3 . The cross piece then carries both the pushers forward with it until the pusher I^1 coming against a cork at the lower end of the trough H is stopped; it holds the cork pressed against the side of the trough. The pusher I^2 advances farther and it thrusts the cork abutting on the stop H^4 off the shelf on which it till then was.

When the finger L^4 has passed the finger Q the spring on the stem I^3 brings the pushers back and another cork delivered from the hopper descends to the stop H^4 . The cork displaced by the advance of the pusher I^2 falls on to the incline K' and between the guards K^2 K^2 and it is held by the roller L against the face of the disk F. The disk by means of the abrading material on its face polishes the cork and as the cork partakes of the slow rotary movement of the roller L every part of its face is successively operated on and finally the cork is released when the recess L^5 in the roller L coming round to the cork gives it room to fall away. The way in which the pushers almost simultaneously operate to bring forward another cork has been already described.

The spring M by which the pressure upon the cork when in contact with the disk is exerted is attached to a regulating screw R and as the machine continues at work and the abrading material gets less and less keen this screw is progressively tightened. For this purpose the screw is provided with a nut R' upon the periphery of which are teeth adapted to receive the pitch chain S which also passes around another chain pulley T. T' is a ratchet wheel fast on the shaft of the pulley T. The arm T^2 is free to turn on the same shaft and it carries a pawl engaged with the teeth of the ratchet.

Once in each rotation of the shaft G the cam G^2 acts upon a slide G^3 and lifts the arm T^2 away from a stop T^3 and the pawl then turns the ratchet wheel. Afterward when the arm T^2 is released it falls back to the stop T^3 . In this way movement is imparted to the

nut R' and thus the spring M is progressively tightened. So compensation is made for the wearing away of the abrading material from the face of the disk.

U is a belt fork, it is fixed to the sliding bar U' and there is a spring U^2 connected with this bar which tends to move the bar in a direction to shift the driving belt C onto the loose pulley and so to stop the machine. The bar U' is however geared or connected with the shaft V and cannot move without rotating this shaft. V' is an arm on the shaft V. It is shown in Fig. 3 in the position it occupies when the machine is at rest. In starting the machine the arm V' is pushed back and its return is prevented by putting the pivoted stop W in its path so that the end of the arm abuts upon the end of the stop. In the progressive tightening of the spring M as already explained the end of the screw R travels progressively outward; it comes in contact with and acts against the pivoted stop W and finally it thrusts the stop round so far that the arm V' escapes from its end. When this takes place the machine stops the belt C being shifted to the loose pulley by the action of spring U^2 and the attendant knows that it is time to renew the abrasive surface upon the disk F or rather to change the disk for another which is kept ready to hand.

What I claim is—

1. In a machine for finishing or polishing corks, the combination of a rapidly moving abrading surface and appliances for holding a cork in contact with the said surface and slowly rotating it without change of position in order that every part of the periphery of the cork may be successively operated on; such appliances for holding and rotating the cork consisting of a stationary support (K') on which the cork lies and in which it is free to revolve, devices for preventing the end-wise movement of the cork, and a roller (L) pressed against the cork and pressing it against the abrading surface; the organization being such that the abrading surface and the roller are in contact with the periphery of the cork on opposite sides and that the part of the abrading surface in contact with the cork moves downward or toward the support and the part of the roller in contact with the cork moves upward or away from the support; thereby causing the cork while kept in one position by the support to present successively every part of its periphery to the abrading surface.

2. The combination of the revolving abrading surface, the stationary support for holding the cork while in contact with the abrading surface, and a slowly revolving roller provided with a recess for the purpose specified.

3. The combination in a machine for polishing or finishing corks of a hopper, a feed trough, a rapidly moving abrading surface, pushers for automatically moving the corks from the feed trough into position to be acted upon by the abrading surface, mechanism for

actuating the pushers, a stationary support in which the cork lies, and in which it is free to revolve, and devices for preventing the end-wise movement of the cork while revolving.

5 4. The combination of a feed trough, a rapidly revolving abrading surface, pushers for moving the corks from the feed trough into position to be acted upon by the abrading surface, means for supporting a cork while
10 being polished or finished, and a roller which revolves in contact with the cork.

5 5. The combination with a rapidly moving abrading surface, of means for feeding corks thereto, devices for supporting the cork while
15 being acted upon by the abrading surface, and a notched roller revolving in contact with the cork, the arrangement being such that the cork is revolved so that its entire surface is acted upon by the abrading surface, and the
20 cork is delivered or discharged when the notch comes opposite the abrading surface.

6. The combination of the abrading surface, means for feeding corks thereto and for holding the cork in position to be acted upon by

the abrading surface, the roller revolving in 25 contact with the cork, a frame in which the roller is mounted, and devices for acting upon the frame to cause it to move gradually toward the abrading surface to compensate for wear thereon substantially as described. 30

7. The combination of the rapidly moving abrading surface, means for supplying corks thereto, a roller revolving in contact with the cork while being acted upon by the abrading surface, a frame in which said roller is 35 mounted, driving mechanism for the abrading surface and the roller, devices for moving the frame of the roller gradually toward the abrading surface, and devices for stopping the machine when the abrading surface is ex- 40hausted.

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