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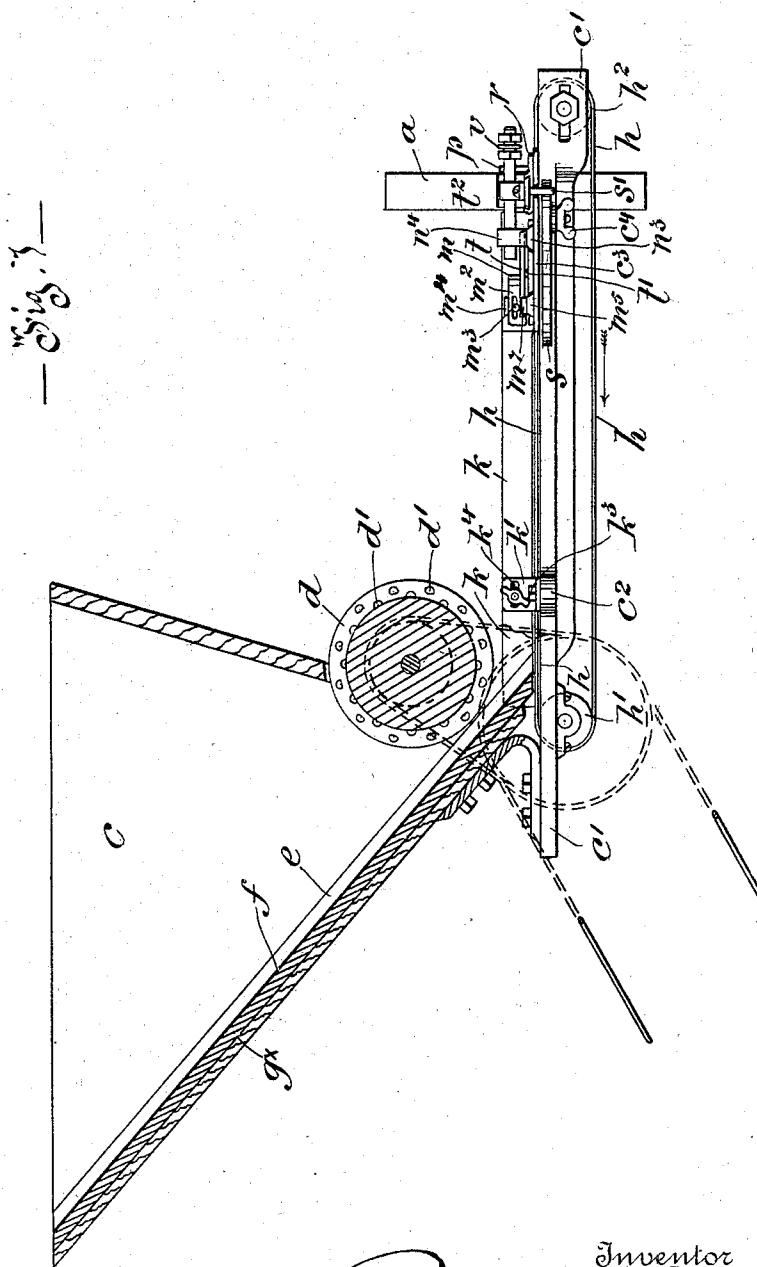
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J. A. LAFRANCE.

FEED MECHANISM FOR CORK CUTTING MACHINES.

No. 559,391.

Patented May 5, 1896.



Witnesses

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(No Model.)

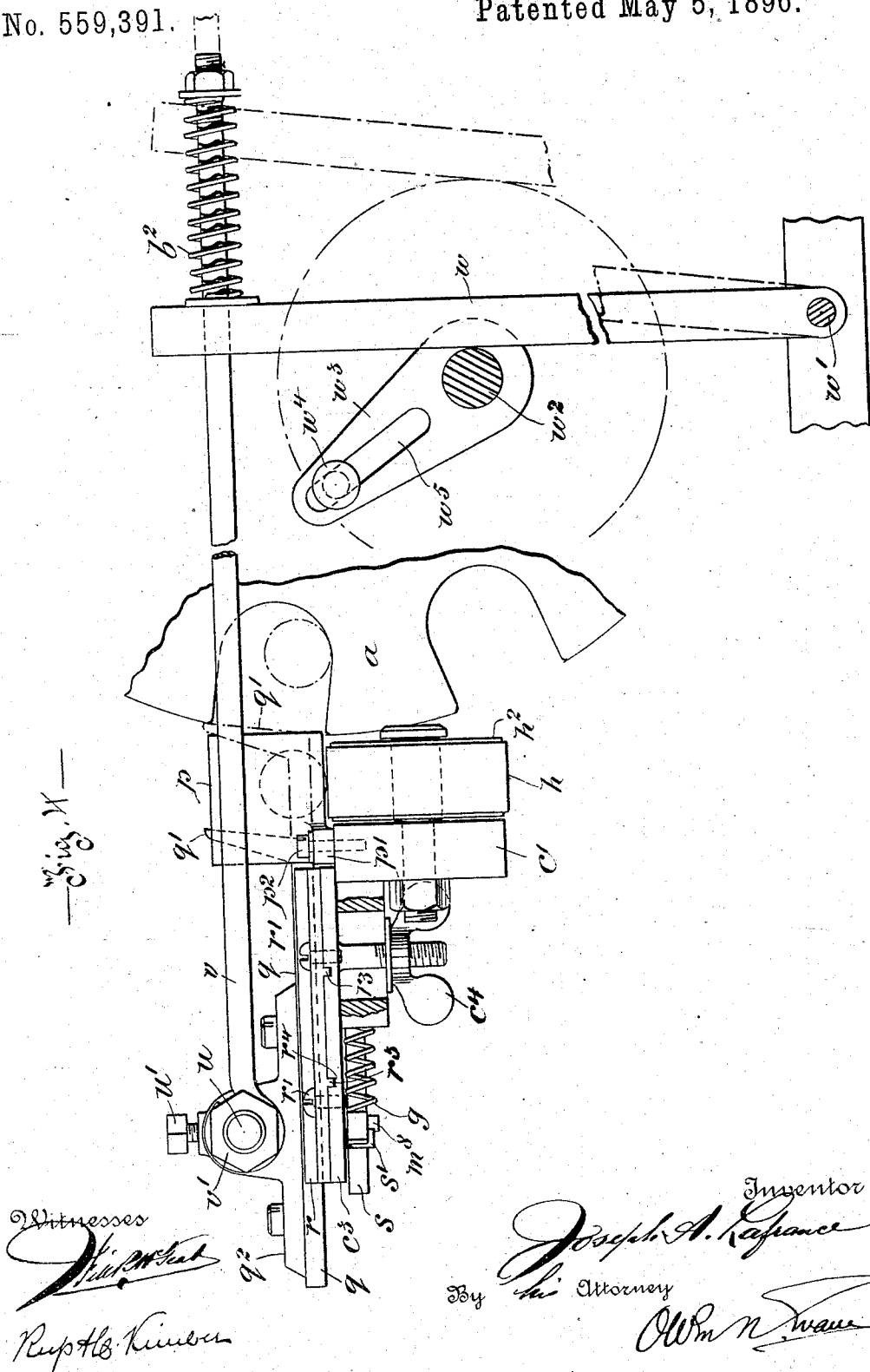
4 Sheets—Sheet 4.

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UNITED STATES PATENT OFFICE.

JOSEPH ADELARD LAFRANCE, OF MONTREAL, CANADA.

FEED MECHANISM FOR CORK-CUTTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 559,391, dated May 5, 1896.

Application filed January 26, 1895. Serial No. 536,332. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH ADELARD LAFRANCE, of the city of Montreal, in the district of Montreal and Province of Quebec, Canada, have invented certain new and useful Improvements in Feed Mechanism for Cork-Cutting Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention has for its object to provide means for automatically placing in the usual receiver of a cork-cutting machine the individual corks in the same manner as now performed by hand, thus dispensing with the services of a separate attendant for each machine.

The main feature of the invention consists in the combination of a receiving-hopper, a conveyer for the corks between such hopper and the receiver of the cutting-machine, and means for conducting each cork from the conveyer to the receiver, other features of the invention embodying devices in the receiving-hopper for adjusting the corks to the required position relatively to the conveyer, and devices for controlling the movement of the corks by the conveyer, as well as arrangements for securing the adjustment of the several parts.

Having thus referred to the principle and the main features of my invention, I will now describe what is considered to be the best embodiment thereof in an operative feed mechanism, and although details of construction are specified I do not limit myself thereto.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of the feeding mechanism and part of the receiver of the cork-cutting machine, the receiving-hopper and agitating-drum mounted therein being shown in section; Fig. 2, a detail plan view of the hopper; Fig. 3, an enlarged detail plan view of the devices for controlling the movement of the corks by the conveyer and for transferring them from the latter to the receiver of the machine; Fig. 4, an end elevation of the delivery end of the conveyer; Fig. 5, a plan view of the under side of the supporting-plate.

a is a portion of the usual intermittently-rotating receiver of the cork-cutting machine, the remainder of the machine being omitted,

since it forms no part of my invention and is not necessary to the illustration of the operation thereof.

c is the receiving-hopper of my feed mechanism. It is situated over the receiving end of the conveyer, being supported on the framing *c'* of the feed mechanism and provided with devices for adjusting the corks to the required position on the conveyer, such devices preferably consisting of a rotating agitator-drum *d*, the periphery of which is hollowed somewhat centrally of its length for guiding purposes, and has projections or nail-heads *d'*, adapted to toss the corks about, and a guiding-groove *e* in the inclined bottom of the hopper, which groove is slightly larger than the diameter of the corks that it guides, and consequently they can only enter the groove with their longitudinal axes lengthwise of the groove.

In order to feed corks of a larger or smaller diameter, the guiding-groove *e* is preferably formed in a strip *f*, which is interchangeable with other strips having wider or narrower grooves, either of which strips can be fitted in a groove *g*^x in the floor of the hopper to receive it.

The conveyer is preferably in the form of a traveling endless belt *h*, mounted on rollers *h'* *h''*, having their bearings in the frame *c'*, and has stationary side guards or walls *k* arranged above the belt with their lower edges in close proximity to the surface thereof for the purpose of securing the travel of the corks endwise or in the position in which they reach the belt from the receiving-hopper. The walls *k* are supported by lateral wing projections *k'*, which bear on similar projections *c''* from the framing *c'*, and they are rendered adjustable to accommodate different sides of corks laterally through the slots *k''* in the horizontal portion of the wing projections *k'* and set-screws *k'''* and longitudinally through slot *k''''* in the vertical portion of such wing projections and screws *k'''''*.

The belt *h* is driven in the direction indicated through any suitable band and pulley or other driving connection with the spindle of roller *h'* at the receiving end thereof, the agitating-drum *d* of the receiving-hopper being rotated from the same source.

At the delivery end of the conveyer the

several devices for controlling the movement of the corks by the conveyer are situated, being carried by an adjustable supporting-plate c^3 , connected with the framing c' by thumb-screw c^4 , and the first of these to act upon the corks is the "holder," in the form of an adjustable transversely-operating finger m , adapted to be adjusted to work through any one of a series of slots m' in one of the walls of the conveyer and to bear against the side of a cork and hold it stationary by forcing it against the opposite wall of the conveyer.

The next controlling device is the "gate," also in the form of an adjustable transversely-operating finger n , adapted to be adjusted to work through any one of a series of slots n' in the wall of the conveyer, so as to be located in the path of the corks. The purpose of the two controlling devices just mentioned is to prevent more than one cork at a time passing into a position to be moved from the conveyer to the usual rotary receiver a of the cutting-machine, while each cork is finally arrested by means of an adjustable stop in the form of a plate p , extending transversely of the belt h and having a slotted extension p' , through which it is secured to the framing c' by set-screw p^2 .

The finger m constituting the holder is carried by an arm m^2 , that is adjustable in a line parallel with the conveyer, so that the finger can be arranged to work through either of the slots m' , according as the corks are longer or shorter, the arm being slotted and set in position by screws m^3 , entering an upward projection m^4 from a reciprocating slide or carrier m^5 , supported by the bed-plate or framing c' and held in place by retaining-plates m^6 , which also form guides for same.

The finger n constituting the gate is secured to an upward projection n^2 from a second reciprocating slide or carrier n^3 , and its adjustment is secured by withdrawing its retaining-screw and adding or removing washers, such as n^{12} . The carrier n^3 is supported and held in place similarly to the slide m^5 , and each of these slides carries adjustable stops, the slide m^5 having one, m^7 , and the slide n^3 having two, n^4 and n^5 , through which and other mechanism to be presently described they are operated. The means for conducting each cork from the conveyer to the receiver is in this case shown as a "pusher" in the form of a slide q , operating transversely of the bearing-plate c^3 in a guide-plate r , adjustably secured to said bearing-plate c^3 by means of set-screws r' and slots r^2 , said guide-plate r being further insured against displacement by the operation of pusher q , by means of downwardly-projecting ribs r^3 , which take into corresponding recesses r^4 in the bearing-plate. This pusher-slide has a bearing-head q' , carrying an adjustable connecting or bearing plate q^2 , through which it

is connected with the operating mechanism, which latter I will now describe.

The holder is moved in the direction to engage the corks by means of a retractile spring g beneath the adjustable supporting-plate c^3 of the framing and having one end connected to such plate and the other end connected with a pin m^8 , projecting from the under side of the slide m^5 , through a slot in the plate c^3 . The pusher is moved in the direction to transfer the cork from the conveyer to the rotary receiver by means of a bent expansion-spring s , one end of which is secured to the framing c' and the other bears behind a pin s' , projecting from the under side of the slide q through a slot in the plate r , and an opening c^6 in plate c^3 , large enough to allow of the lateral adjustment of such plate r and the movement of pin s' with pusher-slide q' , and these parts are returned in the opposite direction and the gate operated both in the direction to obstruct the corks and to allow of their passage by the following means, forming another part of the operating mechanism: A lever t is fulcrumed at t' upon the plate c^3 and one end of it extends in front of the stop m^7 on the holder-slide m^5 , while the other end is pivotally secured at t^2 to the gate-slide n^3 between the stops n^4 n^5 thereon. A cross-bar u is rigidly connected with the pusher-slide q , through the connecting or bearing plate q^2 and a set-screw u' , and one end of this bar extends between the stops n^4 n^5 of the gate-slide above the end of the lever t , secured to such slide, while the other end of the cross-bar has connected with it the end of a connecting-rod v , (held in place by nuts v'), leading from the free end of a lever w , fulcrumed at w' to any convenient stationary part of the machine, and in such a position relatively to any continuously-rotating shaft, such as indicated at w^2 , as to be borne upon and be moved to the dotted position shown in Fig. 4 by a rotating arm or cam-piece w^3 on such shaft, its movement in the opposite direction being secured by the expansion-spring s acting on the pusher-slide.

To regulate the throw of the lever by the arm w^3 , the portion coming in contact with the lever is made in the form of a stud w^4 , adjustable in a radial slot w^5 in the arm, and in order also to accommodate the stroke of the connecting-rod v , and consequent thrust of the pusher-slide, the conducting-rod passes loosely through an eye in the end of the lever and carries a yielding cushion in the form of a coiled expansion-spring b^2 , encircling the rod between and bearing against the lever at one end and at the other end against a nut v^3 on the end of the rod.

The operation of the feeding mechanism is as follows: The corks are fed from the hopper individually and so as to be carried endwise by the conveyer. Before each cork finally reaches the position shown in Fig. 3 between the pusher and rotary receiver and

bearing against the stop p it is in turn held by the holder and arrested by the gate, so as to effectively prevent a second or following cork or the end portion of one approaching and entering the space between the pusher and rotary receiver until the required time for it to do so, and to such end the holder, gate, and pusher operate relatively to each other as follows: As the pusher is moved forward to transfer the cork in front of it to the rotary receiver, and when it has about half completed its thrust, the cross-bar u engages the stop n^5 on the gate-slide, and so causes the finger n to be projected across the conveyer to the position shown by dotted lines in Fig. 3, and simultaneously with this movement of the gate the holder-slide is withdrawn by the lever t , thus freeing the cork held by its finger m , with the result that such cork is carried forward by the conveyer until arrested by the gate-finger, when it in turn arrests the following cork at a point opposite the holder-finger, and before the gate-finger is totally withdrawn by the cross-bar acting on the stop n^4 to allow the first cork to be carried forward the holder-finger is released by lever t and projected by the spring g , acting on its slide m^5 , to engage the second cork.

To vary the extent of travel of pusher q , gate-carrier n^3 , and holder-carrier m^5 , it is only necessary to adjust the connecting-plate q^2 and stops n^4 , n^5 , and m^7 .

What I claim is as follows:

1. In feed mechanism for cork-cutting machines, the combination of a receiving-hopper, a conveyer for the corks between such hopper and the receiver of the cutting-machine; adjusting devices comprising a removable grooved guide-strip contained in, and an agitator-drum operating in said receiving-hopper for adjusting the corks to the required position relatively to said conveyer, means for controlling the movement of the corks produced by the conveyer, and means for conducting the corks individually from the conveyer to the receiver for the purpose set forth.

2. In feed mechanism for cork-cutting machines, the combination of a receiving-hopper, a conveyer having adjustable side guards for the corks between such hopper and the receiver of the cutting-machine, adjusting devices comprising a grooved guide-strip contained in, and an agitator-drum operating in said receiving-hopper, for adjusting the corks to the required position relatively to said conveyer, means for controlling the movement of the corks produced by the conveyer, and means for conducting the corks individually from the conveyer to the receiver for the purpose set forth.

3. In feed mechanism for cork-cutting machines, the combination of a receiving-hopper, a traveling conveyer having stationary adjustable side guards for the corks between such hopper and the receiver of the cutting-machine, adjusting devices comprising a

grooved guide-strip and an agitator-drum in said hopper, the guide-strip being interchangeable with other guide-strips and detachably set in a groove in the floor of the hopper, devices for controlling the movement of the corks produced by the conveyer, and means for conducting the corks individually from the conveyer to the receiver, for the purpose set forth.

4. In feed mechanism for cork-cutting machines, the combination of a receiving-hopper, a traveling conveyer having stationary adjustable side guards, for the corks between such hopper and the receiver of the cutting-machine, adjusting devices comprising a grooved guide-strip and an agitator-drum in said hopper, the guide-strip being interchangeable with other guide-strips and detachably set in a groove in the floor of the hopper and the agitator-drum being hollowed centrally of its length and having an uneven or studded surface; devices for controlling the movement of the corks produced by the conveyer, and means for conducting the corks individually from the conveyer to the receiver for the purpose set forth.

5. In feed mechanism for cork-cutting machines, the combination of a receiving-hopper, a conveyer for the corks between such hopper and the receiver of the cutting-machine, means for controlling the movement of the corks produced by the conveyer, a longitudinally and laterally adjustable pusher moving transversely of the conveyer for conducting the corks individually from the conveyer to the receiver, and means for operating such pusher for the purpose set forth.

6. In feed mechanism for cork-cutting machines, the combination of a receiving-hopper, a conveyer for the corks between such hopper and the receiver of the cutting-machine, alternately-reciprocating slides and means for operating same for controlling the movement of the corks produced by the conveyer, a pusher moving in a horizontal line transversely of the length of the conveyer for conducting the corks individually from the conveyer to the receiver, and means for operating such pusher for the purpose set forth.

7. In feed mechanism for cork-cutting machines, the combination of a receiving-hopper, a conveyer for the corks between such hopper and the receiver of the cutting-machine adjustable alternately-reciprocating slides and means for operating same for controlling the movement of the corks produced by the conveyer, a pusher moving transversely of the conveyer for conducting the corks individually from the conveyer to the receiver, and means for operating such pusher for the purpose set forth.

8. In feed mechanism for cork-cutting machines, the combination of a receiving-hopper, a conveyer for the corks between such hopper and the receiver of the cutting-machine, alternately-reciprocating slides and means for operating same for controlling the

movement of the corks produced by the conveyer, a longitudinally and laterally adjustable pusher moving transversely of the conveyer for conducting the corks individually from the conveyer to the receiver, and means for operating such pusher for the purpose set forth.

9. In feed mechanism for cork-cutting machines, the combination of a receiving-hopper, a conveyer for the corks between such hopper and the receiver of the cutting-machine, adjustable alternately-reciprocating slides and means for operating same, for controlling the movement of the corks produced by the conveyer, a longitudinally and laterally adjustable pusher moving transversely of the conveyer for conducting the corks individually from the conveyer to the receiver, and means for operating such pusher for the purpose set forth.

10. In feed mechanism for cork-cutting machines, the combination of a receiving-hopper, a conveyer for the corks between such hopper and the receiver of the cutting-machine, adjustable alternately-reciprocating slides and means for operating same, for controlling the movement of the corks produced by the conveyer a longitudinally and laterally adjustable pusher moving transversely of the conveyer for conducting the corks individually from the conveyer to the receiver, and means comprising a rotating cam piece or arm, a lever, a connecting-rod and cushion-bearing between said rod and lever, with connections for operating such pusher for the purpose set forth.

11. In feed mechanism for cork-cutting machines, the combination of a receiving-hopper, a conveyer for the corks between such hopper and the receiver of the cutting-machine, adjusting devices in said receiving-hopper, for adjusting the corks to the required position relatively to said conveyer, a holder and an obstructing-gate moving transversely and adjustable longitudinally of the conveyer, and a stop, for controlling the movement of the corks produced by the conveyer, means for operating and securing the adjustment of such holder and gate, and means for conducting the corks individually from the conveyer to the receiver for the purpose set forth.

12. In feed mechanism for cork-cutting machines, the combination of a receiving-hopper, a horizontal conveyer for the corks between such hopper and the receiver of the cutting-machine, adjusting devices in said receiving-hopper for adjusting the corks to the required position relatively to said conveyer, a holder and an obstructing-gate moving transversely of the conveyer, and an adjustable stop, for controlling the movement of the corks produced by the conveyer, means for operating such holder and gate, and for securing the adjustment of such stop and means for conducting the corks individually

from the conveyer to the receiver for the purpose set forth.

13. In feed mechanism for cork-cutting machines, the combination of a receiving-hopper, a horizontally-traveling conveyer for the corks between such hopper and the receiver of the cutting-machine, adjusting devices in said receiving-hopper, for adjusting the corks to the required position relatively to said conveyer, a holder and an obstructing-gate moving transversely of the conveyer, and an adjustable stop, for controlling the movement of the corks produced by the conveyer, means for operating such holder and gate, and for securing the adjustment of such stop and means for conducting the corks individually from the conveyer to the receiver for the purpose set forth.

14. In feed mechanism for cork-cutting machines, the combination of a receiving-hopper, having an agitator-drum, and a strip with a guiding-groove, said strip being interchangeable with other strips having guiding-grooves, a horizontally-traveling conveyer-belt with adjustable stationary walls, means for operating such belt, controlling devices consisting of an adjustable holder and its carrier; an adjustable gate and its carrier, and an adjustable stop, an adjustable pusher, an adjustable stop on the carrier of the holder, adjustable stops on the carrier of the gate, all suitably guided and supported, and means for securing the adjustment and operation thereof, for the purpose set forth.

15. In feed mechanism for cork-cutting machines, the combination of a receiving-hopper, a conveyer for the corks between such hopper and the receiver of the cutting-machine, adjusting devices in said receiving-hopper, for adjusting the corks to the required position relatively to said conveyer, a holder and an obstructing-gate moving transversely and adjustable longitudinally of the conveyer, and an adjustable stop, for controlling the movement of the corks produced by the conveyer, means for operating and securing the adjustment of such holder and gate and for securing the adjustment of such stop, and means for conducting the corks individually from the conveyer to the receiver for the purpose set forth.

16. In feed mechanism for cork-cutting machines, the combination of a receiving-hopper, having an agitator-drum, and a strip with a guiding-groove, said strip being interchangeable with other strips having guiding-grooves, a conveyer composed of a traveling endless belt with adjustable stationary walls, means for operating such belt, controlling devices consisting of an adjustable holder and its carrier; an adjustable gate and its carrier, and an adjustable stop; an adjustable pusher, an adjustable stop on the carrier of the holder; adjustable stops on the carrier of the gate all suitably guided and supported, and means for securing the ad-

justment and operation thereof, for the purpose set forth.

17. In feed mechanism for cork-cutting machines, the combination of the receiving-hopper, *c*, having agitator-drum *d* and guiding-groove *e*; the conveyer composed of traveling endless belt *h* and adjustable walls *k*; with means for operating such belt; the controlling devices consisting of the holder *m* and its carrier; the gate *n* and its carrier, and the stop *p*; the pusher *q* and the adjustable stop *m'* on the carrier of the holder; the adjustable stops *n'* *n''* on the carrier of the

gate and the connecting-plate *q'* on the pusher-slide; all suitably guided and supported, and together with the operating-lever *t*, springs *g* and *s*, cross-bar *u*; a main shaft and intermediate cam-lever and rod operative connections and means of adjustment, all substantially as and for the purpose set forth.

Montreal, December 19, 1894.

JOSEPH ADELARD LAFRANCE.

In presence of—

WILL P. MCFEAL,
FRED. J. SEARS.