

June 28, 1927.

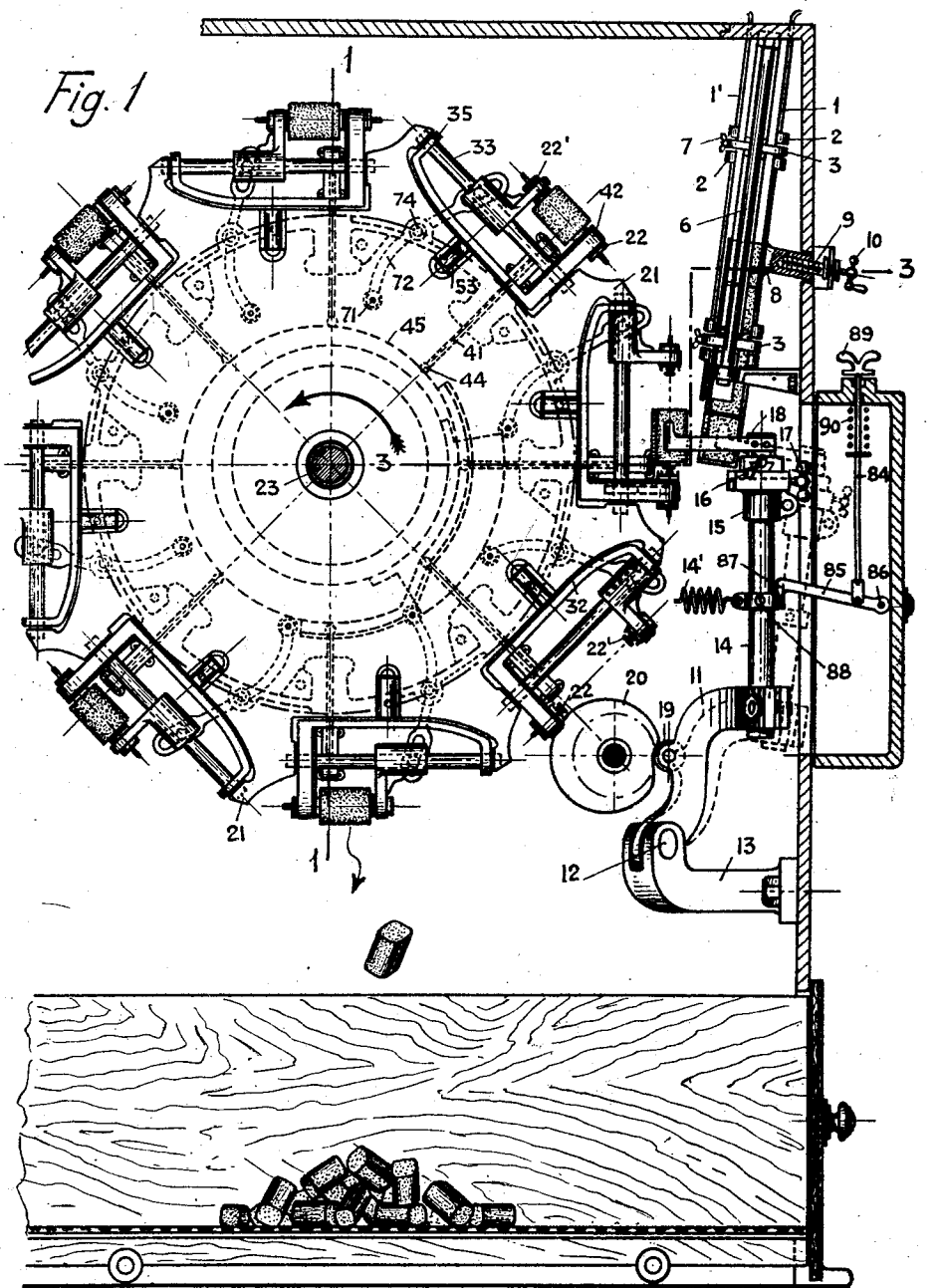
A. PARENTI ET AL

1,634,040

MACHINE FOR THE MANUFACTURE OF CORK TAPS

Filed Aug. 29, 1924

4 Sheets-Sheet 1



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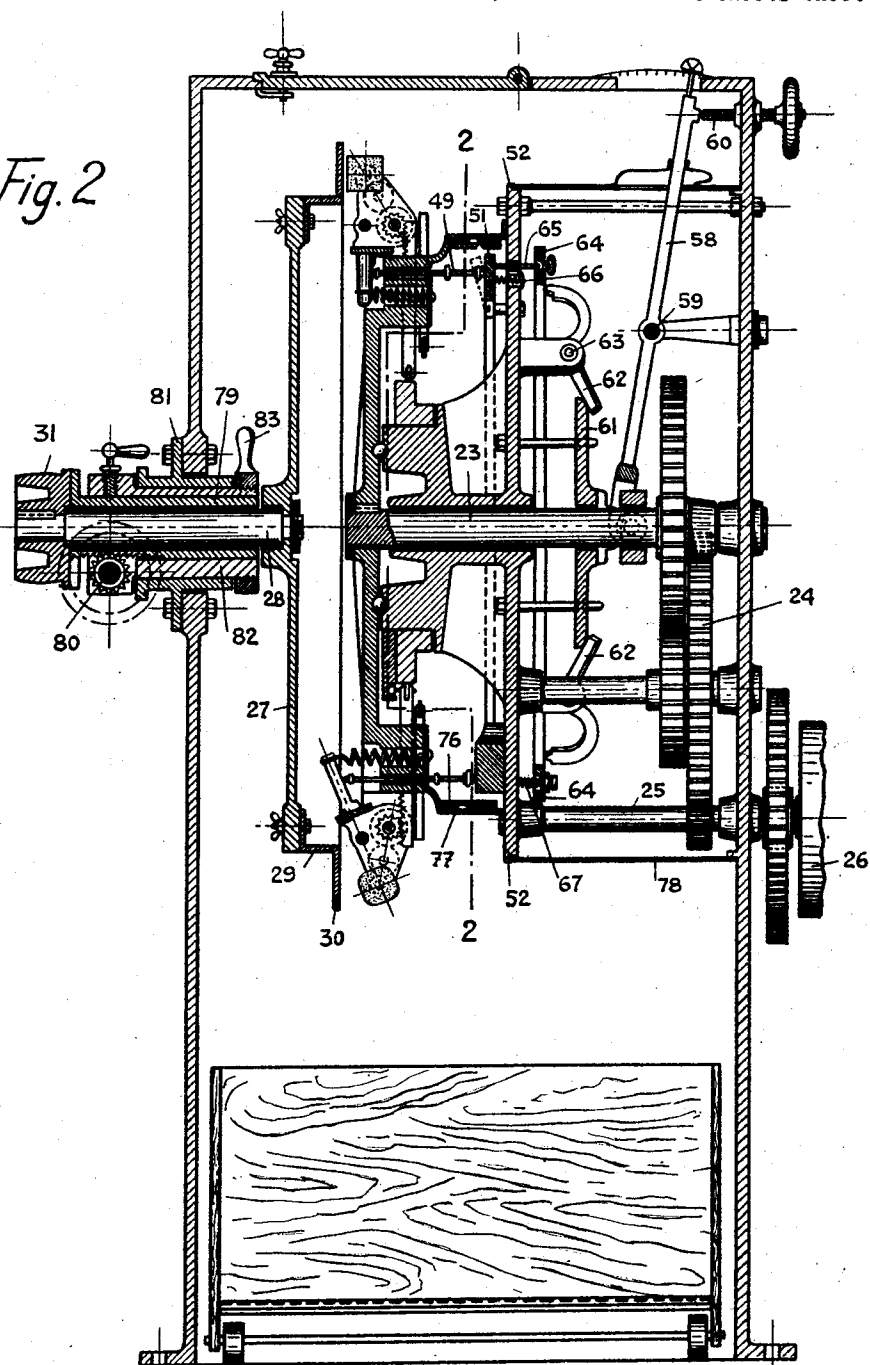
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Fig. 2



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Fig. 3

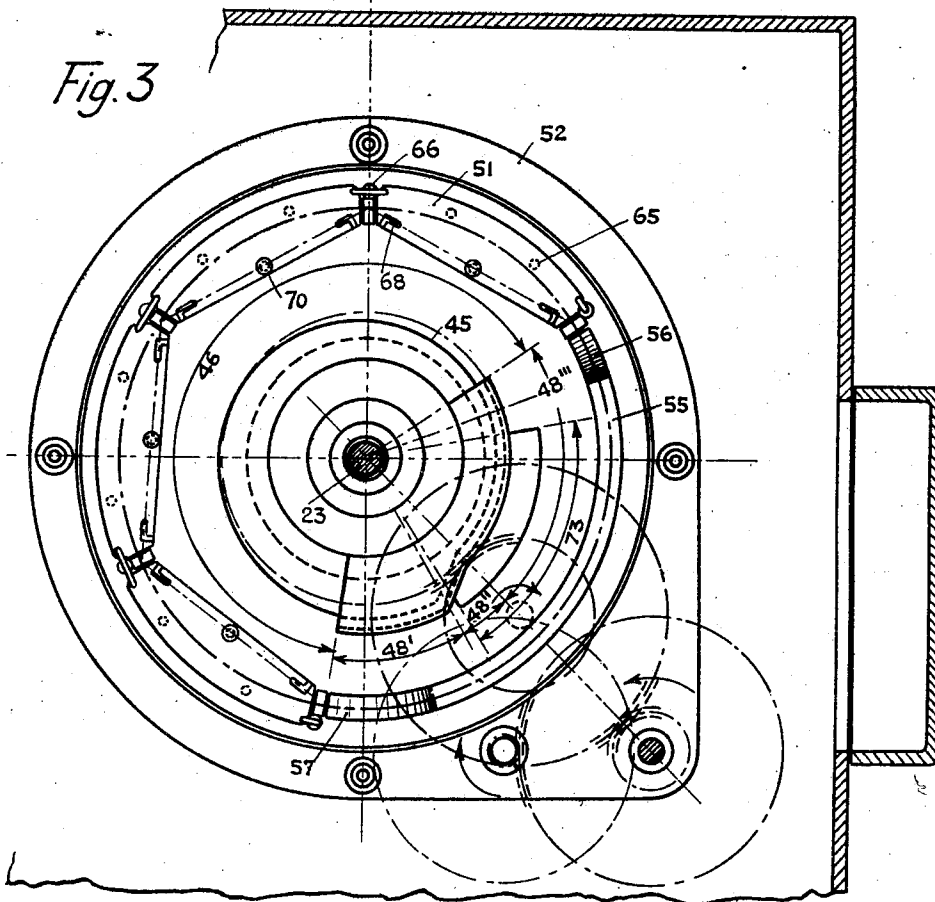
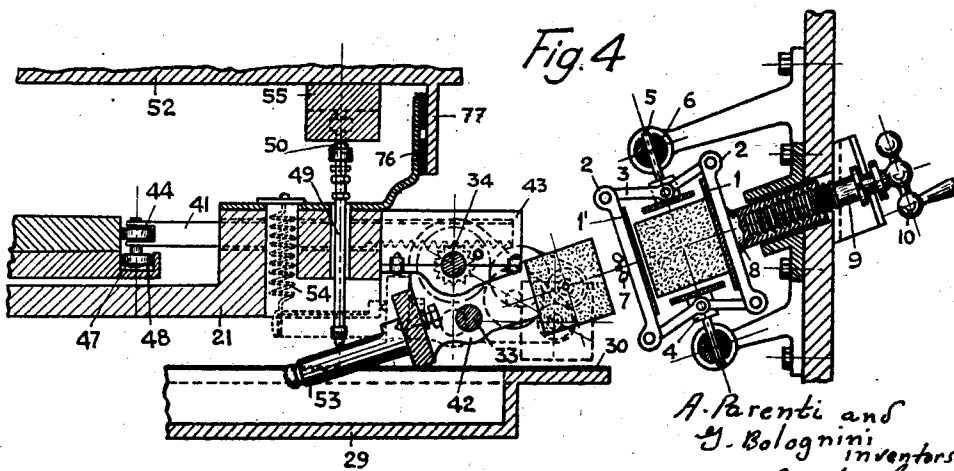


Fig. 4



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Fig. 5

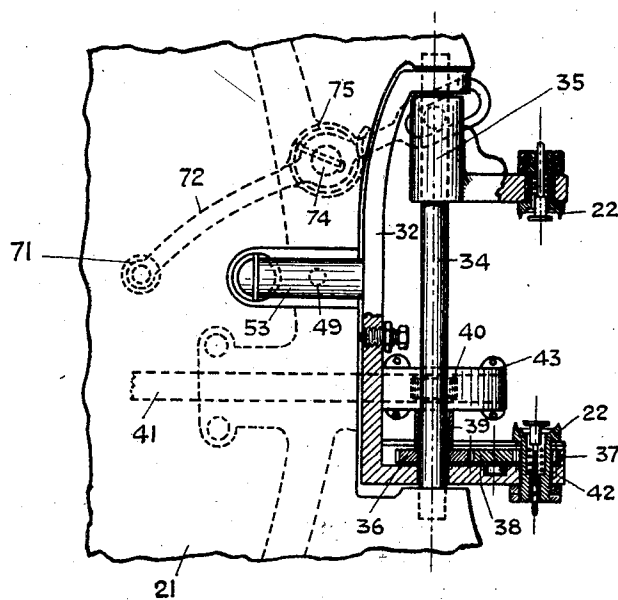


Fig. 6

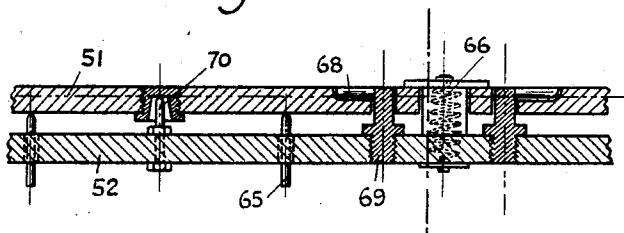
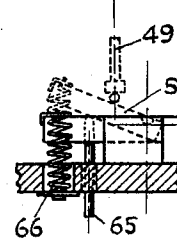


Fig. 7



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UNITED STATES PATENT OFFICE.

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MACHINE FOR THE MANUFACTURE OF CORK TAPS.

Application filed August 29, 1924, Serial No. 734,971, and in Italy September 6, 1923.

The present invention refers to improvements in machines for the manufacture of cork taps and has for its object to provide a machine by means of which the cork blocks of parallelopiped form, and of different lengths and sections are automatically machined upon the four faces of the quadrangular section and its corners rounded as desired so that a cork stopper may be produced either with a perfect circular or a quadrangular section or any combination of circular and rectangular section and with any desired curvature of the corners.

The invention will now be described with reference to the form of execution illustrated in the drawings:

Fig. 1 is a vertical sectional view of the improved machine;

Fig. 2 is a vertical sectional view of the machine seen at a right angle with respect to Fig. 1 taken on the line 1—1 of Fig. 1;

Fig. 3 is a partial sectional view of the machine taken on the line 2—2 of Fig. 2 illustrating the detail of the stationary platform with operating surfaces which control the displacement of the cork block to and from the emery disk and its rotation around its axis;

Fig. 4 is a partial sectional view taken on the line 3—3 of Fig. 1;

Fig. 5 is a detail of the clamp bearing articulated bracket on the rotatable platform;

Figures 6 and 7 are two partial sectional views of the detail of the fastening of the operating surfaces on the stationary platform.

In these figures in which similar numbers indicate the same parts, the cork blocks are introduced by hand from the outside in the quadrangular steeply inclined feed conduit. The sides of the feed conduit are articulated at its four corners so as to allow the adjustment of its four sides for different sizes of cork blocks to be machined. For this purpose the conduit provides two opposite walls 1—1' fastened to hinges 2 which connect by means of pivoted arms 3 with blocks 4 movably guided by pins 5 with respect to the columns 6 which are rigidly fastened upon the casing of the machine. Whilst the hinges 2 are rigidly connected with the wall 1, these hinges are adjustably connected by means of set screws 7 with the opposite wall 1'. In this manner the wall 1' by means of these

set screws 7 can be adjusted in its height upon the hinges 2 to regulate the height of the lower opening (Fig. 1) through which the cork block leaves the feed conduit. Integral with the wall 1 is a threaded socket 8 constituting the female part for the screw 9 supplied with hand wheel 10. In rotating the hand wheel 10 in one sense of rotation the two walls 1—1' will be separated on account of the simultaneous separation of the blocks 4; while upon rotation of the hand wheel 10 in the opposite direction the walls are moved together. 11 is a bell crank lever having one end hinged at 12 to the bracket 13 fastened to the casing of the machine and having the other end fastened to a substantially vertical rod 14 which carries at its upper end a head which can be adjusted on this rod 14 circumferentially as well as in its height. This head is formed of two carriages arranged angularly to each other which permits by respectively operating the hand wheels 16 and 17 to regulate the position of a spring clamp 18 with respect to the position of the lowest block in the feed conduit for the transfer of this block from this conduit to the rotatable platform. This spring clamp in its backward position indicated in dotted lines in Fig. 1 grips the lowest block in the feed conduit between two springs and in its forward position indicated in full lines Fig. 1 brings this cork block into line with a pair of clamps on the rotatable platform. In order to impart to the spring clamp this oscillating movement the bell crank lever 11 is provided with a roller 19 which on account of the tension of the spring 14' is kept in contact with the cam disk 20 which at each revolution effects oscillation of the spring clamp 18. The cam 20 has a cam surface consisting in a notched portion and in a regularly curved portion and is adapted to effect by means of the notch portion a partial quick return movement of the spring clamp from the position of the clamps on the rotatable platform and is further adapted by means of one part of the regularly curved portion to effect a further back movement in which position the spring clamp embraces the next cork block to be advanced. By means of a second part of the regularly curved portion of the cam a gradually proceeding forward movement of the cork block to the axis of the clamps of the rotatable platform is effected.

The rotatable platform 21 carries upon its circumference eight oscillating brackets 32 each of which is provided with a pair of clamps 22—22' for gripping and holding the cork blocks. This platform is keyed on the shaft 23 coupled by the interposition of gear wheels 24 with the motor shaft 25 provided with belt pulley 26. 27 is a disk mounted upon the shaft 28 which carries on its circumference a ring 29 having a face 30 faced with emery. The shaft 28 and therefore the disk 27 is rotated by belt pulley 31 in a direction opposite to that of the rotation of the shaft 23. During one revolution of the platform 21 each cork block accomplishes a complete rotation around its axis and four movements approaching and receding from the face 30 of the emery disk 27 by which operations the cork block is machined. The brackets 32 are of U shape and on the web portion of each is rigidly fastened a pin 33. The bracket 32 is besides rotatably supported on pin 34 on the rotatable platform 21. The clamps 22—22' are arranged on the brackets 32 as follows: The clamp 22 is fastened on one shank of the bracket 32 and the other clamp 22' is arranged upon a bearing 35 slidably arranged upon the pin 33. The shank of the bracket 32 which carries the clamp 22 is hollowed out as at 42 and encloses three toothed wheels: a wheel 36 loose on pin 34, a wheel 37 integral with clamp 22 and an intermediate wheel 38. The wheel 36 is formed with a sleeve 39 carrying a toothed wheel 40 meshing with the rack 41 and this toothed wheel 40 and the rack 41 are enclosed within a casing 43. The rack 41 by the interposition of a roller 44 slides upon the cam surface of the stationary cam disk 45. This cam disk presents a circumferential portion 46 of such conformation and shape that the rack 41 sliding upon this portion is subjected to a radial displacement towards the outside by which displacement through the toothed wheels 40, 36, 38 and 37 the cork block between the clamps 22—22' is turned a complete rotation around its axis. A roller 47 coaxially arranged with the roller 44 is obliged to travel within a cam guide way 48 causing the rack 41 to be displaced radially inwardly. This guide way 48 presents three portions 48', 48'' and 48'''. Of these portions, 48' is perfectly concentric with the shaft 23 so as to prevent the rotation of the cork block in its outward movement from the emery disk during the discharge operation; 48'' is a portion by which the rack is displaced inwardly and 48''' is again a portion concentric with 23 so as to prevent the rotation of the cork block during the period in which a block is inserted between the clamps 22—22'.

In order to obtain the approaching and

receding movement of the blocks towards and from the face 30 of the emery disk, the bracket 32 is subjected to an oscillating movement around the pin 34. This oscillation is obtained by an adjustable rod 49 carrying a ball 50 arranged to roll upon the faces of four similarly curved operating plates 51 situated in succession and concentrically about the shaft 23 and mounted upon the stationary platform 52 integral with the casing of the machine.

The other end of the rod 49 also supplied with a ball bears against an arm 53 of the bracket 32 which arm is also connected by a spiral spring 54 with the body of the rotatable platform 21. The rod 49, in sliding upon the faces of the inclined plates 51, pushes upon the arm 53 to move the bracket with the cork block away from the emery disk, while the cork is moved against the emery disk by the spring 54.

When the cork block is grasped by the clamps of the rotatable platform 21, the bracket 32 is in a position displaced from the emery disk so as to allow the fastening of the cork block in the clamps without subjecting the same to machining during this fastening operation. In this position the bracket 32 is held away from the emery face 30 by the rod 49 engaging a prominent part 55 of the plate 51. Afterwards the rod 49 slides upon the relatively low portion 56 and finally slides upon the four faces of the several plates 51 during which travel the cork block is subjected to four movements approaching and receding with respect to the emery face 30. The rod 49 subsequently slides upon a salient portion 57 adapted to displace the bracket 32 from the emery face 30 and to return the bracket to its original position for the discharge of the machined cork block.

If the cork block is rotated upon its axis without the intervention of the rod 49 the bracket 32 would remain at a determined constant distance from the emery disk 30 and the cork block would be machined cylindrically with a diameter corresponding with its distance from the emery disk. If however at each quarter of a revolution, the rod 49 encounters the inclined plate 51, the same effects the oscillation of the bracket 32 moving the block away from the disc 30 exactly at the moment in which the corner is being machined at which time the cork block begins rotating around its axis. According to the amount of this movement of the bracket will be the amount of material to be taken off the corners. By varying the inclination of the plates 51 it is possible to give to the corners any desired circular curvature as the rod 49 during its travel from one end to the other end on each plate describes two symmetrical portions of curves which determine, with the rotation of the

cork block around its axis, the extent of movement of the bracket. In order to regulate the inclination of the plates 51 a double armed lever 58 is provided the inclination of which around the fulcrum 59 can be regulated by adjusting the screw 60. The lever 58 is hinged with its lower fork shaped end to the disk 61 imparting to this disk according to its inclination an axial displacement to the left or towards the right (Fig. 2). Upon the circumferential edge of the disk 61 are engaged the arms of three double armed levers 62, which levers, arranged at equal distances along this edge, have their fulcrum at 63 in brackets integral with the stationary platform 52. The other arms of the levers 62 engage an annular piece 64 upon which also press rods 65 passing through the wall 52 and engaging the inclined operating plates 51, tension springs 66 being connected at one end with the wall 52 and at the other end with the plates 51. 67 are other tension springs arranged between the wall 52 and the annular piece 64 having for their purpose to normally maintain said annular piece spaced from the wall 52. The operating plates 51 are fastened upon the wall 52 by means of pins 68 integral with the shanks 69 (Figures 6 and 7) which pins are fitted in grooves situated endwise on these plates. Whilst these pins engage the plates on one side a pin 70 forms a supporting means from the other side situated centrally between the two pins 68. By threading the screw 60 within the wall of the casing the inclination of the operating plates 51 is increased or vice versa.

After the cork block has been machined on the four faces and on the corners a roller 71 situated on the end of a double armed lever 72 engages the edge of a cam surface 73 (Fig. 3). The lever 72 has its fulcrum at 74 and the other end is hinged to the bearing 35 carrying the slidable clamp 22'. The roll 71 in encountering this cam surface effects oscillation of the lever 72 around the fulcrum 74 and the opening of the clamps 22—22' and the discharge of the cork block. As soon as the roll 71 disengages the cam surface 73 the lever 72 under the action of the spring 75 closes the clamps 22—22' upon a new cork block.

The improved machine also provides means adapted to protect the moving parts, bearings, shafts and the like against the penetration of cork powder which would otherwise affect the operation of these parts. For this purpose the rotatable platform 21 slides by means of an annular piece 76 upon a corresponding annular piece 77 fastened upon the stationary platform 52 whilst packing means are introduced between these two annular pieces for assuring a perfect tightness. 78 is a casing extending from the stationary platform 52 to the wall of the machine, this

casing also serving for the purpose of preventing accumulation of cork powder in the toothed wheels 24 of the countershaft.

The shaft 28, which carries the emery disk 27 at one end and the pulley 31 at the other end, rotates within a sleeve 79 having rack teeth meshing with a toothed wheel 80 which permits the shaft 28 and the emery disk 27 to be displaced axially. Between the sleeve 79 and the bearing 81 fastened upon the wall of the casing is arranged an eccentric sleeve 82 which by means of the hand lever 83 can be circumferentially displaced and by this latter means the emery disk may be adjusted for the purpose of obtaining a uniform consumption of the emery surface 30.

84 is a rod coupled with a lever 85 having its fulcrum at 86 and a hook at 87 adapted to engage a pin 88 integral with the rod 14. In rotating the hand lever 89 for 90 degrees under the effect of the spring 90 the rod 84 drops the hook 87 so that the same is engaged with the pin 88 of the rod 14 for rendering the feeding device inactive if desired.

The cork blocks are generally of irregular form and not of right angular conformation on all the six faces. This circumstance has been considered in creating the present improved machine which only removes the minimum quantity of cork material of the three faces which normally present a good quality of material and takes off a bigger quantity from the two faces which always present a more deficient quality of material. It is also possible to introduce the cork block in the conduit in such position that, when it is embraced by the clamps, the cork material of the better grade is preserved while the less desirable material is removed in the formation of the tap.

We claim:—

1. In a cork machine, a rotatable support, a stationary support, pivoted brackets carried by the rotatable support, cork clamping means carried by the brackets, abrading means arranged adjacent the rotatable support, means normally tending to swing the brackets into a position for causing the corks held in the clamping means to engage the abrading means, and means for retracting the bracket to displace corks from the abrading means, said retracting means including a plurality of cam plates, rods engaging the cam plates and movable thereover and connected with the brackets, means connecting the cam plates with the stationary support, and means for adjusting the cam plates with respect to the stationary support.

2. In a cork machine, a rotatable support, a stationary support, pivoted brackets carried by the rotatable support, cork clamping means carried by the brackets, abrading means arranged adjacent the rotatable sup-

port, means normally tending to swing the brackets into a position for causing the corks held in the clamping means to engage the abrading means and means for retracting the bracket to displace corks from the abrading means, said retracting means including means normally tending to advance the brackets toward the abrading means, circularly arranged hinged cam plates carried by the stationary support, push rods engaging the cam plates and acting upon the brackets, an adjusting lever and means connecting said lever with the cam plates whereby the latter may be simultaneously adjusted with respect to the stationary support.

3. A machine as claimed in claim 1 characterized by the provision of means for turning the clamping means in the brackets for successively bringing different portions of a cork into position for engagement with the abrading means.

4. In a cork machine, a rotatable support, a plurality of brackets pivoted on said support, a guide rod carried by each bracket, a rotatable clamping member carried by the bracket, a slidable clamping member mounted on the guide rod and adapted to coast with the rotatable clamping member to clamp

a cork, a pinion rotatably mounted on the bracket, means for transmitting rotary movement of the pinion from the latter to the rotatable clamping member, a rack coacting with said pinion, a stationary cam coacting with said rack, a lever connected with the slidable clamping member, and means for effecting angular displacement of the lever incident to rotation of the rotatable support.

5. A cork machine as claimed in claim 4 characterized in that each bracket is substantially U-shaped and that the clamping members are located between the parallel portions thereof.

6. A machine as claimed in claim 4 characterized by the provision of means for swinging the bracket relative to the rotatable support, said last mentioned means including rods connected with the brackets, an annular cam plate formed of a plurality of segments, and means for simultaneously displacing the several segments.

In testimony whereof we have signed our names to this specification.

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