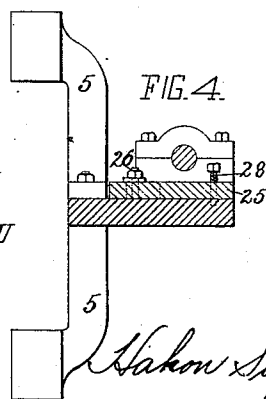
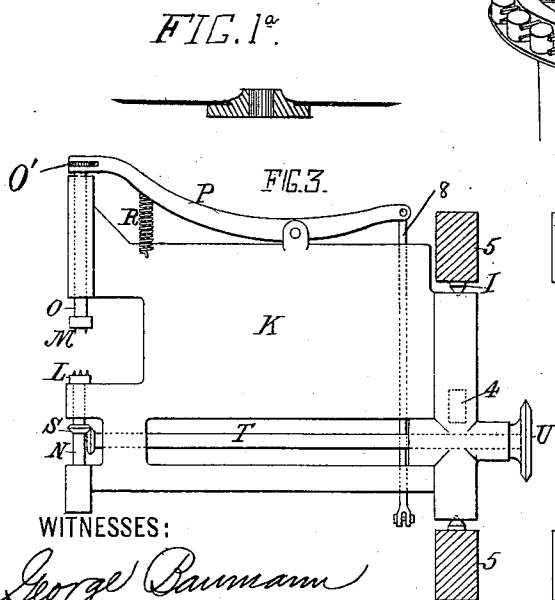
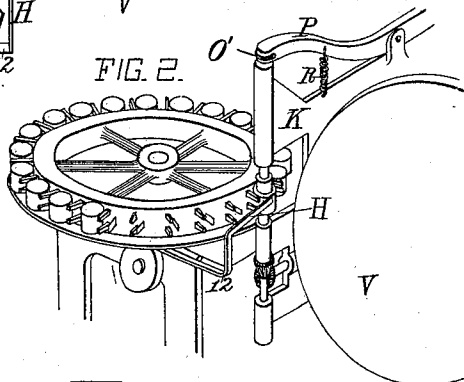
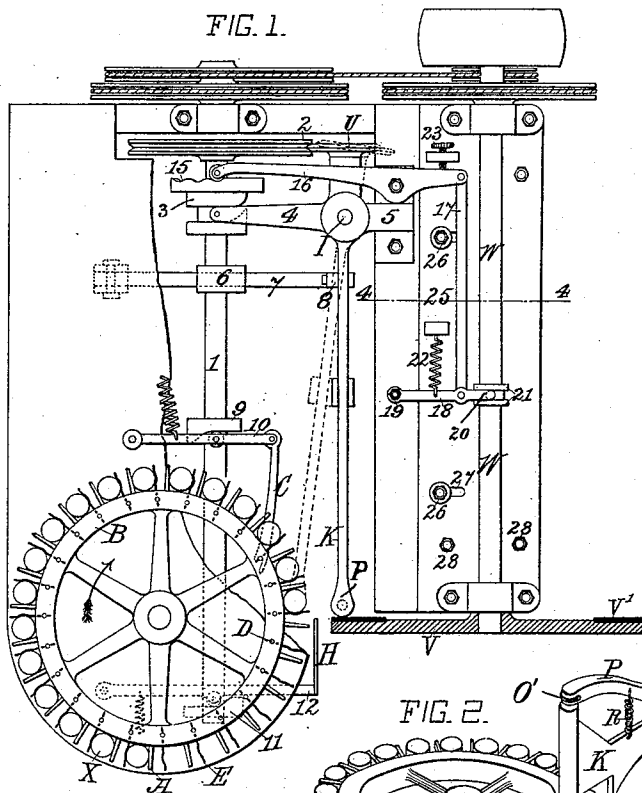


(No Model.)

H. S. LARSEN.
CORK CUTTING AND GRINDING MACHINE.

No. 565,285.

Patented Aug. 4, 1896.



WITNESSES:

George Baumann
S. C. Connor

INVENTOR

INVENTOR
Hakon Sigvart Larsen
BY
Howson and Howson
his ATTORNEYS.

UNITED STATES PATENT OFFICE.

HAKON SIGVART LARSEN, OF CHRISTIANIA, NORWAY.

CORK CUTTING AND GRINDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 565,285, dated August 4, 1896.

Application filed May 7, 1895. Serial No. 548,426. (No model.) Patented in Norway June 30, 1892, No. 3,056; in Germany July 18, 1892, No. 68,664; in France December 30, 1892, No. 226,810, and in Sweden January 31, 1893, No. 4,960.

To all whom it may concern:

Be it known that I, HAKON SIGVART LARSEN, a subject of the King of Sweden and Norway, residing in Christiania, Norway, have invented certain Improvements in Machines for Cutting and Grinding Corks, (for which I have obtained Letters Patent in Norway, No. 3,056, dated June 30, 1892; in Sweden, No. 4,960, dated January 31, 1893; in Germany, No. 68,664, dated July 18, 1892, and in France, No. 226,810, dated December 30, 1892,) of which the following is a specification.

This invention relates to machines for cutting and grinding corks, the machine in question being of the automatic type in which the cork pieces are automatically fed to the tool by means of which the corks are cut or ground to the desired form.

My improved machine is shown in the accompanying drawings, which illustrate the machine in its form as a grinding-machine.

Figure 1 is a plan view of the machine, the frame-table being partially broken away to show parts below the same. Fig. 1^a is a sectional view of a cutting-disk. Fig. 2 is a perspective view of part of the machine. Fig. 3 is a detail of the swinging frame, Fig. 1; and Fig. 4 is a section on line 4 4, Fig. 1.

The rough cork pieces are marked X. A A are radial teeth on the periphery of a horizontal wheel B, between which teeth and springs E the corks are put by the operator. The wheel B is moved step by step forward in the direction of the arrow by means of pawl C, that engages with pins D, projecting on the bottom side of the wheel, and is moved to and fro by a mechanism of well-known construction presently to be described. K is a swinging arm or frame movable in the horizontal plane between the position shown in full lines in Fig. 1 (the working position) and the one shown in Fig. 2, (the cork-catching position, indicated in dotted lines, Fig. 1.) This swinging arm, which is pivoted between the centers I, serves as frame or carrier for the spindles N and O, by means of which the corks are caught and made to rotate.

O is the catch-spindle, which is free to rotate in its bearing, and at its lower end has a pointed disk M, and above the bearing by

means of a collar O' it is connected to and journaled in the forked end of a lever P on top of the arm K, said lever serving to move the spindle O axially at certain intervals. A spring R keeps the lever and the spindle in its downmost position. The turning spindle N has also a pointed disk L and is provided with a bevel-wheel S, meshing with a similar wheel on a shaft T, journaled in the swinging arm and carrying on its other end a beveled friction-wheel U.

V is the grinding-disk, mounted on the driving-axle W. The grinding-surface V', which is on the inside of the disk, may be prepared in any well-known manner.

The several parts receive motion by means of the following mechanism:

1 is a shaft journaled underneath the frame-table and driven from the driving-axle W by means of endless cord and pulleys, as shown, or in any other suitable way. The axle W makes several revolutions for each revolution of the shaft 1. The latter carries a friction-wheel 2, corresponding with the wheel U on the shaft T of the swinging frame K. It will be seen that the wheel U is only in contact with the wheel 2 when the frame or arm K has the position shown in full lines, Fig. 1. When in the dotted position, that is to say, the catching position, the shaft T will therefore not be rotated. The shaft 1 also carries the groove-cam 3, in the groove of which the end of the arm 4 projects. This arm extends from the frame K, which latter, as previously stated, is pivotally mounted on centers I, these being fitted in a bracket 5. The cam 3 will move the arm 4 sidewise and thereby cause the aforesaid rocking movement of the spindle holder or frame K. The raising of the catch-spindle O, when the turning or grinding operation has been finished, is performed by the cam 6, acting on the lever 7, which is connected with the rod 8, hanging down from the lever P, and the feeding movement of the aforesaid pawl C is performed by the cam 9, acting on the lever 10.

H is the forwardly-projecting arm of a lever 12, which is actuated by a cam 11 on the shaft 1. When the arm H is in its foremost position, which occurs each time a cork has

been finished, and the swinging frame K is about to shift from the position drawn in full lines to the dotted position, it will be struck by the cork and the latter loosened from the points on the disk M of the spindle, so that it can fall down.

When the machine is used as a grinding-machine, it is sometimes preferable that the corks may be ground to an oval cross-section. The corks are then cut from a piece of cork having a rectangular cross-section, so that there remains a small flat surface on two sides of the cork.

To enable the machine to grind such oval corks, the shaft W, carrying the grinding-disk V, is made to move longitudinally to and fro twice for each revolution of the cork. This reciprocating movement of the shaft is performed by the following means: 15 is a cam on the shaft 1, and 16 a lever, one end of which is in contact with the cam-surface, while its other end, through the rod 17, is connected with a lever 18, which is pivoted at 19. This lever has a fork-shaped end 20, and the shaft W has collars 21, between which the fork end 20 passes. A spring 22 holds the arm and thereby the shaft W in its innermost position, and by means of the set-screw 23 the backward movement of the shaft W may be regulated at will, according to the desired difference between the smaller and the greater diameter of the cork. As will be seen, the cam 15 has a wave-shaped surface, so that the lever 16 during the corresponding part of the revolution of the shaft 1 is moved several times to and fro, in which movement the grinding-disk must partake in the just-described manner.

The shaft W has its bearings mounted on a separate plate 25, which is adjustably secured to the frame-table of the machine by means of screw-bolts 26, passing through oblong holes 27 in the plate 25. The plate and the grinding or cutting disk may thereby be adjusted horizontally. By means of a number of set-screws 28 the plate may be adjusted in the vertical plane and thereby the disk, if desired, given an inclined position, so that conical corks may be produced.

Fig. 1^a shows the construction of a circular

cutting-disk, which may be placed on the shaft W instead of the disk V.

It will be understood that in my claims I use the term "rotary cutter" in a sufficiently general sense to include both kinds of disk hereinbefore described for operating on the corks, namely, that which has been specifically termed a "grinding-disk," as well as that which has been specifically termed a "cutting-disk."

I claim as my invention—

1. In a machine for cutting or grinding corks, the combination of a rotary cutter and a rotatable holder or carrier for the rough cork pieces, with means for catching the cork pieces while they are held by said carrier, transporting them in front of the tool, and rotating them while they are treated by the latter, said means consisting in a pair of spindles adapted to be rotated at certain intervals and carried by a swinging frame, the axis of oscillation of which is parallel with the axis of the said carrier.

2. In a cork cutting or grinding machine, means for holding and automatically feeding the corks, consisting of a wheel having on its periphery radial teeth and springs between which the cork pieces are placed, in combination with means for moving the wheel step by step and a swinging frame provided with spindles between the ends of which the corks are adapted to be caught, substantially as described.

3. In a machine for cutting or grinding corks, the combination of a rotary cutter, with a holder and carrier for the rough cork pieces, said carrier consisting of a rotatable wheel, the plane of rotation of which lies substantially in the same horizontal plane as the axis of the said disk, and a swinging frame adapted to swing in the same horizontal plane, between the holder and the rotary cutter, substantially as and for the purpose set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

HAKON SIGVART LARSEN.

Witnesses:

ALFRED S. BRYN,
JOB VASLER.