A. BOGDANFFY.

CORK DISK CUTTING MACHINE.

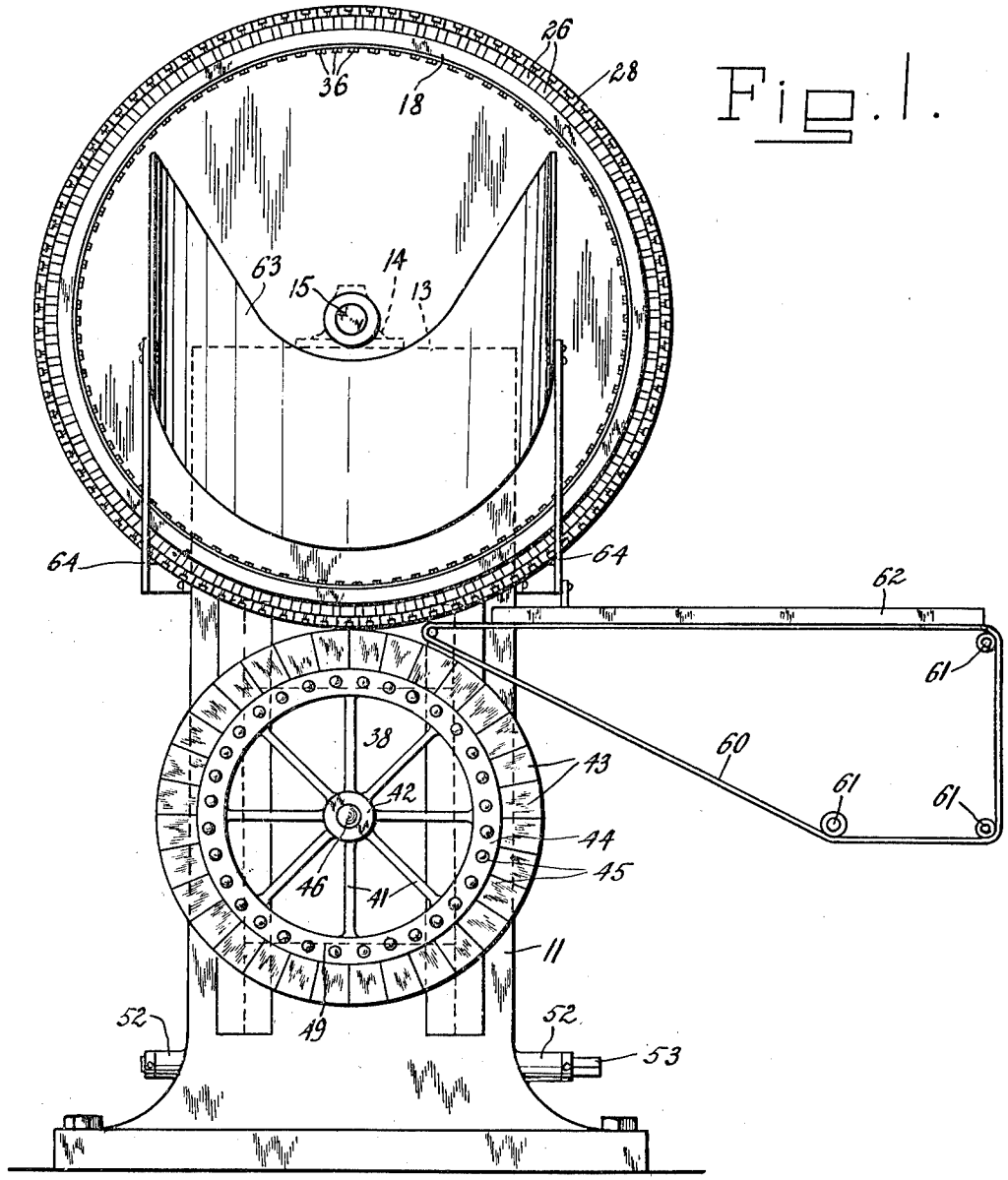
APPLICATION FILED OCT. 3, 1912.

1,066,986.

Patented July 8, 1913.

5 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

S. Birnbaum

Wm. Klink.

INVENTOR

Alexander Bogdanffy

BY

Sigmund Herzog

his ATTORNEY

A. BOGDÁNFFY.

CORK DISK CUTTING MACHINE.

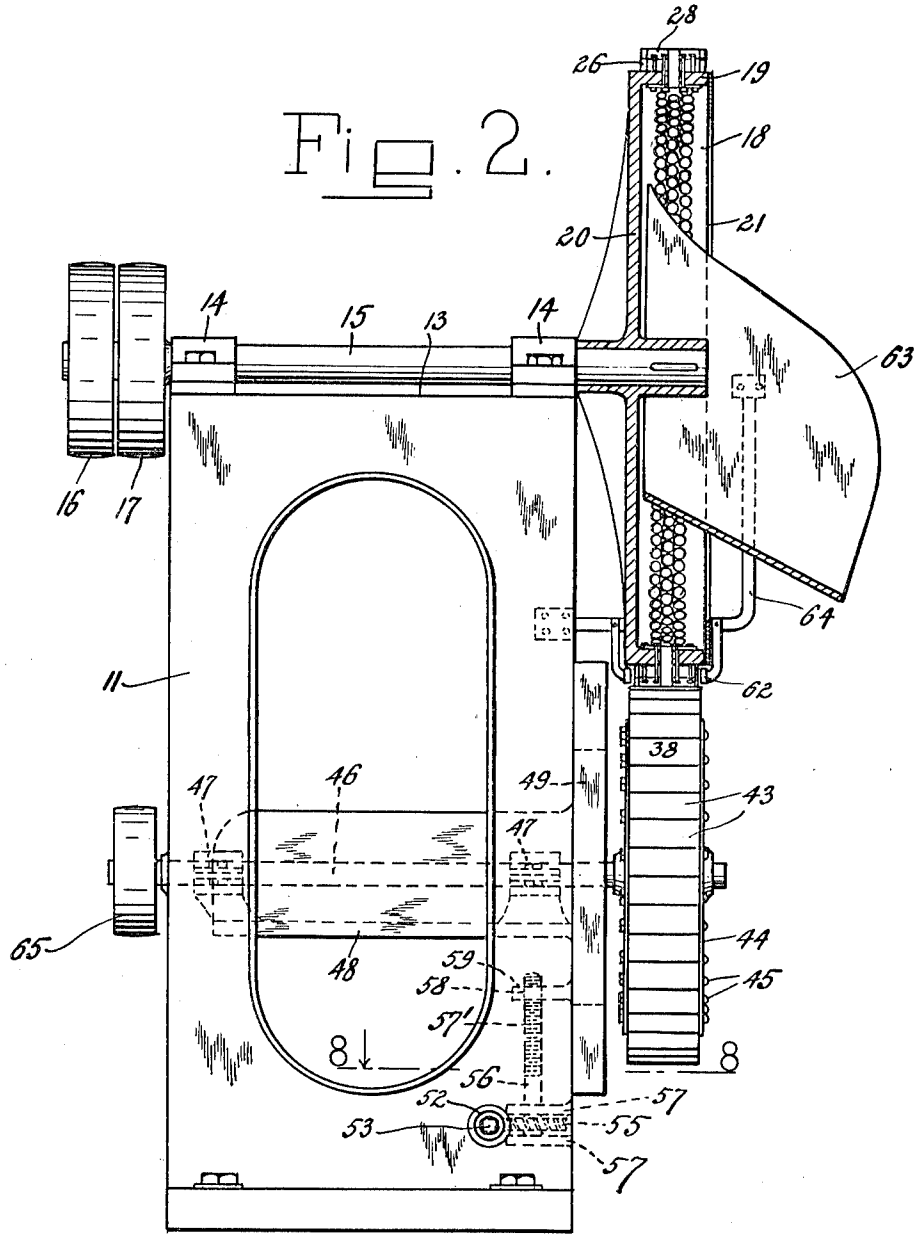
APPLICATION FILED OCT. 3, 1912.

1,066,986.

Patented July 8, 1913.

5 SHEETS—SHEET 2.

Fig. 2.



WITNESSES

S. Birnbaum

Jno. Klein

INVENTOR

Alexander Bogdánffy

BY

Sigmund Herzog

his ATTORNEY

A. BOGDÁNFFY.

CORK DISK CUTTING MACHINE.

APPLICATION FILED OCT. 3, 1912.

1,066,986. Patented July 8, 1913.

5 SHEETS—SHEET 3.

Fig. 3.

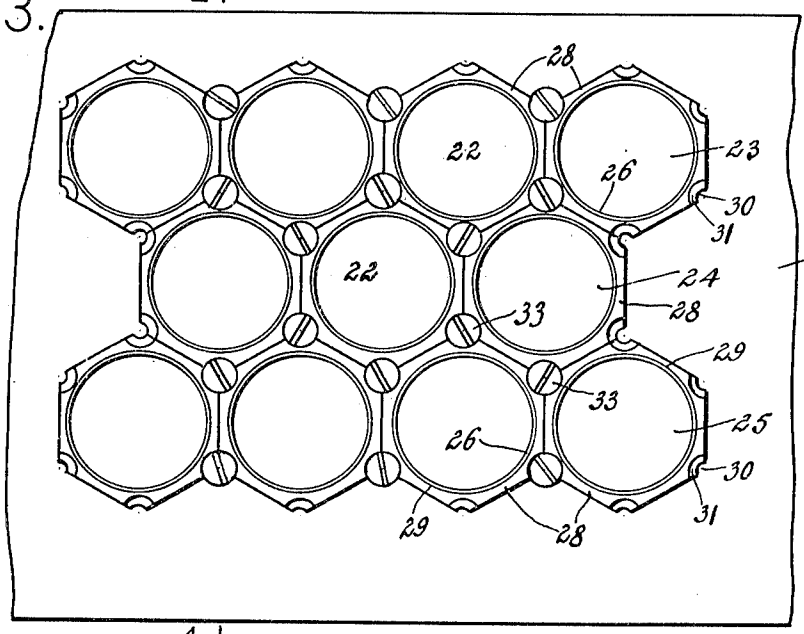


Fig. 4.

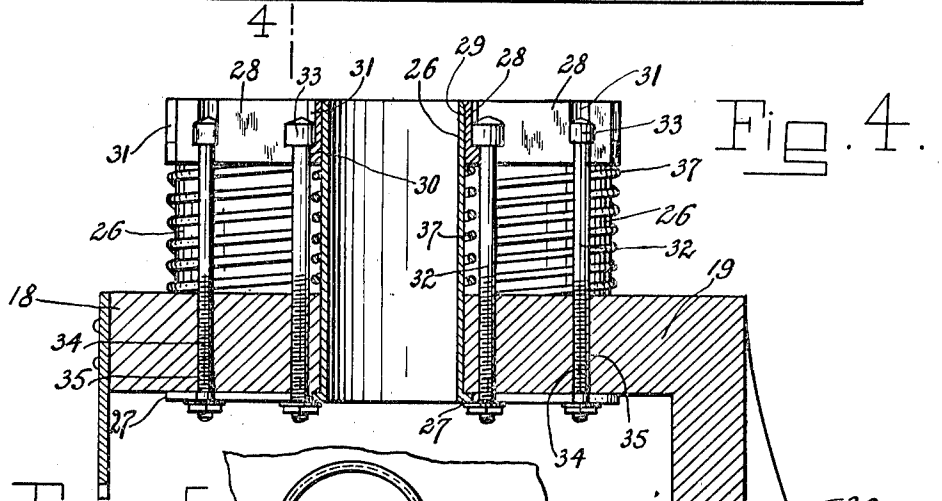
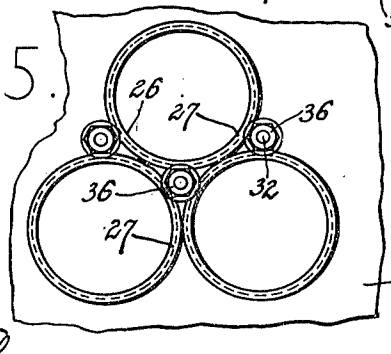


Fig. 5.



WITNESSES

S. Birnbaum

Wm. Klinck

INVENTOR

Alexander Bogdánffy

BY

Sigmund Herzog

his ATTORNEY

A. BOGDANFFY.

CORK DISK CUTTING MACHINE.

APPLICATION FILED OCT. 3, 1912.

1,066,986.

Patented July 8, 1913.

5 SHEETS—SHEET 4.

Fig. 6

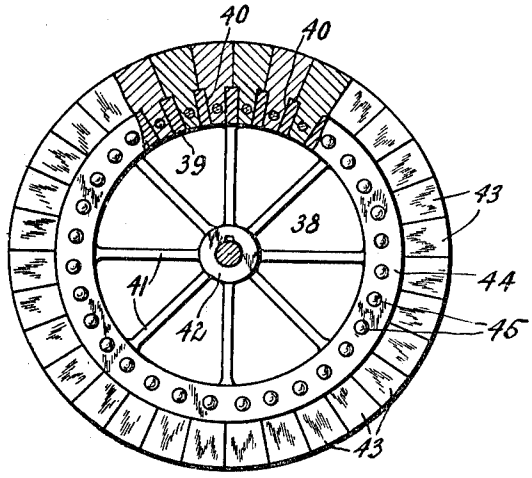


Fig. 7.

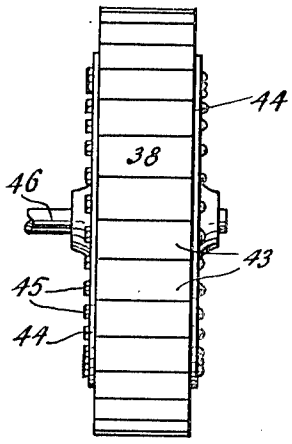
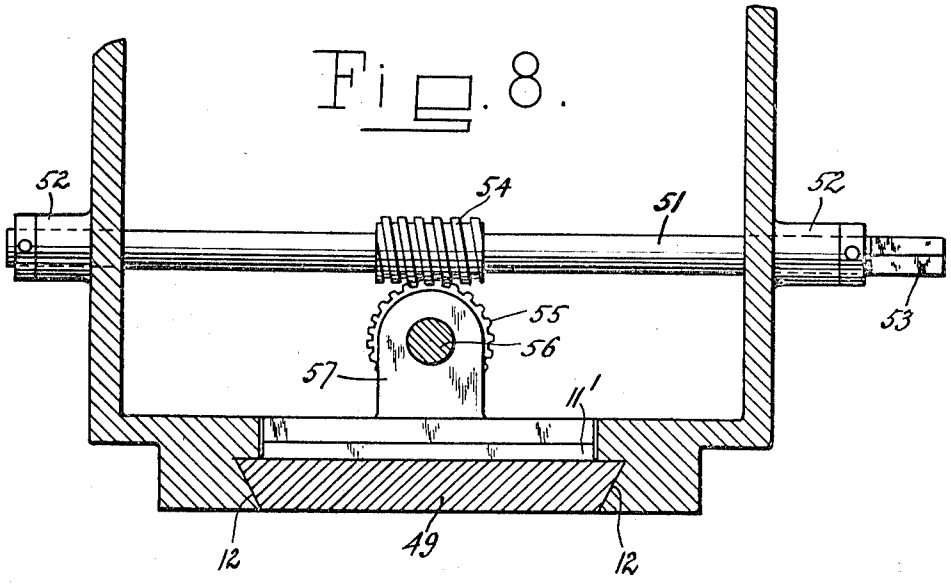


Fig. 8.



WITNESSES

S. Birnbaum

Wm. Klink.

Alexander Bogdanffy INVENTOR

BY Sigmund Herzog his ATTORNEY

A. BOGDÁNFFY.

CORK DISK CUTTING MACHINE.

APPLICATION FILED OCT. 3, 1912.

1,066,986.

Patented July 8, 1913.

6 SHEETS—SHEET 5.

Fig. 9.

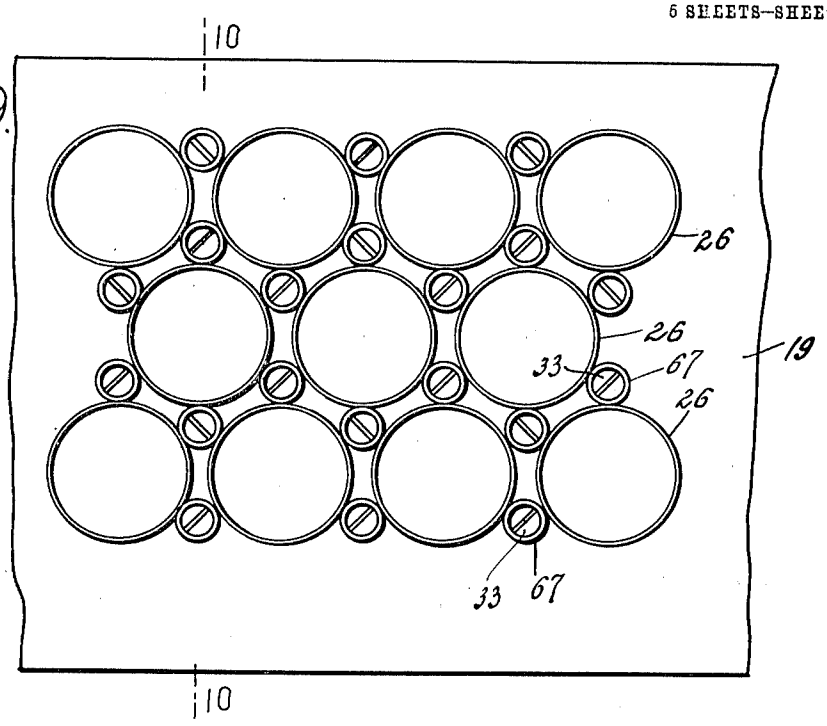
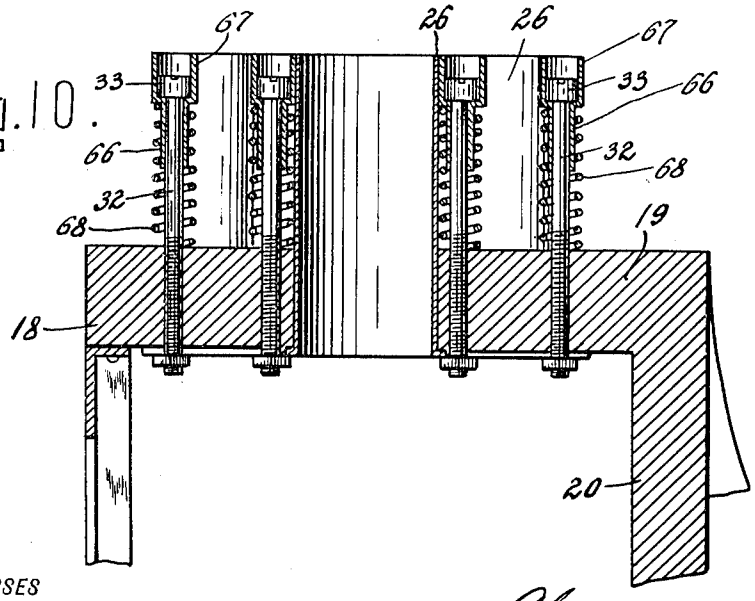


Fig. 10.



WITNESSES

S. Birnbaum

Wm. Kleiß

INVENTOR

Alexander Bogdánffy

BY

Sigmund Herzog

his ATTORNEY

UNITED STATES PATENT OFFICE.

ALEXANDER BOGDÁNFFY, OF NEW YORK, N. Y., ASSIGNOR TO INTERNATIONAL CORK CO., OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

CORK-DISK-CUTTING MACHINE.

1,066,986. Specification of Letters Patent. Patented July 8, 1913.

Application filed October 3, 1912. Serial No. 723,699.

To all whom it may concern:

Be it known that I, ALEXANDER BOGDÁNFFY, a subject of the King of Hungary, and resident of the city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Cork-Disk-Cutting Machines, of which the following is a specification.

The present invention relates to improvements in a machine for cutting cork disks for use in bottle caps of the crown cork type, and other purposes.

One of the objects of the present invention is to provide a cork disk cutting machine which is entirely automatic in its operation, and which cuts the disks from cork strips of the required thickness.

Another object of the invention is to produce a machine of this type which is simple in construction, efficient in operation, and which can be operated without employing skilled labor.

A further object of the invention is to provide a cutting mechanism comprising a rotary drum having a plurality of tubular knives, by means of which a continuous operation is obtained.

A further object of the invention is to combine the cutting mechanism with stripping means which removes the waste from the knives in a positive and efficient manner.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and minor details of construction within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

Two of the many possible embodiments of the invention are illustrated in the accompanying drawings, in which:—

Figure 1 is a front elevation of a machine constructed in accordance with the present invention; Fig. 2 is a sectional side elevation of the same; Fig. 3 is a plan view of a cutting and stripping means; Fig. 4 is a section taken on line 4—4 of Fig. 3; Fig. 5 is a bottom plan view of a portion of the device shown in Fig. 3; Fig. 6 is a sectional front elevation of a detail of construction; Fig. 7 is a side elevation of the detail shown in Fig. 6; Fig. 8 is a section taken on line 8—8 of Fig. 2, on an enlarged scale; Fig. 9 is a plan view of a modified cutting and stripping means; and Fig. 10 is a section taken on line 10—10 of Fig. 9.

In the drawings, the numeral 11 indicates the frame of the machine, preferably, box-shaped and formed to support the different parts. This frame is provided in its front wall with an oblong opening 11′, the vertical edges 12, 12 of which are mortised, as clearly shown in Fig. 8 of the drawings, whereby an opening of dove-tail shaped cross-section is formed for a purpose hereinafter to be described. Upon the horizontal top portion 13 of the frame are mounted bearings 14, 14, in which is journaled a shaft 15, carrying a loose pulley 16 and a fixed pulley 17, by the intermediary of which rotation is imparted to the shaft in the well known manner. To the front end of the shaft is keyed, or otherwise attached, a drum 18, comprising a cylindrical portion 19, the rear end of which is closed, as clearly shown at 20, while its front end 21 is open to permit of access to the interior of the drum. In the cylindrical portion of the drum are formed all around a plurality of rows of apertures 22, 22, in the case shown in the drawings three rows, indicated by the numerals 23, 24 and 25. The adjoining apertures of each row are arranged equidistantly, and the apertures of the row 24 are staggered relative to those of the rows 23 and 25 in such a manner that a hexagonal configuration is formed, as will be clearly seen in Fig. 3 of the drawings. In each aperture is arranged a tubular cutter or knife 26. These cutters or knives are provided each with a flange 27 which abuts against the inner face of the cylindrical portion of the drum, the cutting edge, that is the outer end of each cutter, projecting a substantial distance beyond the periphery of the drum. The means for fastening the cutters to the drum will be described hereinafter.

Upon each cutter is slidably mounted a stripper 28, consisting of a hexagonal block having a cylindrical bore 29, snugly fitting

the outer diameter of the tubular cutter. Owing to the peculiar location of the rows of knives and the formation of the strippers, adjoining strippers contact with each other, and are thus guided mutually in their movements upon the cutters. At the meeting edges of the sides of the strippers there are formed in said strippers arc-shaped recesses 30 extending throughout the heights of said strippers, and being enlarged in arc-shaped form at their upper ends, as clearly shown at 31. When the strippers are placed in position upon the knives, three recesses of three adjoining strippers meet, forming thereby, as it were, cylindrical holes, the upper ends of which are enlarged. Into the meeting recesses of each three adjoining strippers is seated a bolt 32, the head 33 of which snugly fits the enlargements 31 of the three meeting recesses; the diameter of each bolt corresponding to the diameter of the hole formed by three meeting recesses 30. The lower portion 34 of each bolt is screw threaded, said threads meshing with those of the holes 35, leading through the cylindrical portion of the drum. The lower end of each bolt projects beyond the inner face of the cylindrical portion of the drum, and its screw threads mesh with those of a nut 36, which bears against the flanges 27 of three adjoining cutters 26, holding thereby said cutters securely in place upon the drum. A spring 37 is wound around each cutter and bears against the periphery of the drum and against the lower face of the corresponding stripper. The formation of the recesses is such that the upper faces of the strippers are flush with the cutting edges of the cutters, the springs 37 forcing the same always into such positions, the heads 33 upon the bolts 32 preventing a further outward movement of said strippers. It is obvious that the strippers are adapted to move independently one of another, and each is guided in its movement by its bolts 32 and so also by the adjoining strippers.

It is to be noted that, while herein the strippers have been described as hexagonal, they might be of any other polygonal configuration, depending upon the arrangement of the knives upon the drum.

The work, that is to say, the cork sheets or strips are supported by a drum 38, comprising a rim 39, provided with radial apertures 40, said rim being connected by spokes 41 with a hub 42. In the apertures 40 are located the reduced inner ends of wooden blocks 43, the outer ends of which form a continuous cylindrical surface. Rings 44, 44 are held upon the ends of the drum by screws 45, 45, which extend through the blocks, and thereby serve to fasten the latter to the drum. The hub 42 is fixedly attached to a shaft 46, which is rotatably mounted in bearings 47, 47, the latter being carried by a trough-shaped support 48, which is cast integral with or attached to an oblong dove-tailed plate 49, fitting the dove-tailed opening in the front wall of the frame. To vary the position of the drum upon the frame, an actuating mechanism is provided, comprising a shaft 51, rotatably mounted in bearings 52, 52, which are, preferably, formed integral with the sides of the frame, said shaft being provided with a squared end 53 to be engaged with a crank handle or similar actuating means. Upon the shaft is formed a worm 54, meshing with a worm gear 55, which is attached to a spindle 56, said spindle being rotatably mounted in supports 57, 57 upon the frame. These supports serve at the same time to prevent a movement of the worm gear 55 in the direction of the longitudinal axis of the spindle 56. The spindle is provided with screw threads 57′, in mesh with a screw threaded hole 58 in a lug 59, which is attached to, or made integral with, the oblong plate 49. It is obvious that, by rotating the shaft 51 in one or the other direction, the plate 49 and the parts carried thereby will be lowered or raised, as the case may be. In the normal positions of the parts, the cutting edges of the cutters or knives above described contact with the wooden blocks 43 upon the work support. As the wooden blocks have to be reduced in size from time to time, as they wear by reason of the cutters acting upon the same, the work support must be raised after each such operation.

The cork strips or sheets are fed within the reach of the knives by a conveyer, for instance a belt 60, running over a plurality of rollers 61, 61, one of which is driven in any suitable manner known in the art. The knives bring the cork strips or sheets onto the supporting drum 38. Side guards 62, 62 are attached to the frame of the machine, which serve to bring the cork strips or sheets in the proper positions on the support.

The cork disks issue, as will be hereinafter described, through the tubular cutters into the drum 18, are carried along by the same to fall into a chute 63, which extends into the drum and is attached by brackets 64, 64 to the sides of the frame 11.

The operation of the device is as follows: The cork sheets are placed upon the belt 60 of the endless conveyer, which transports them within the reach of the tubular knives upon the drum 18. The knives feed the strips onto the supporting drum 38, to which motion is imparted by the rotary drum 18. Since the knives contact with the wooden blocks 43 upon the drum 38, they will be lowered into the material of the cork sheets, cutting thereby disks from said sheets. By the same operation the strippers 28 are forced, against the action of the springs 37, toward the periphery of the drum 18 a dis-

tance which corresponds to the thicknesses of the cork sheets. As soon as a knife is disengaged from the drum 38, its corresponding spring 37 will be left free to act, removing thereby the corresponding portion of the waste, or in other words the strip, from the knife. The waste material falls into a receptacle placed in proximity to the drum 38. The disks cut from the strips by means of the knives are forced by those subsequently cut into the interior of the drum 18, to be carried by the same upward until they fall into the chute 63, on which they slide into a receptacle placed on the ground in proper relation to the chute.

It will be observed from the foregoing that a continuous cutting operation is obtained by the machine now described, that the machine is entirely automatic in its operation, that it can be operated without employing skilled labor, and that the stripping means remove the waste from the knives in a quick and efficient manner. A large output can be obtained, and disks of uniform and high character can be cut. There are no gripping means needed for the cork strips while they are being acted upon by the knives, the latter serving as gripping and at the same time as feeding means. Disks of varying thicknesses can be cut without an adjustment of the parts of the machine.

As the wooden blocks upon the drum 38 wear, the said blocks must be smoothened, or in other words reduced in size. For this purpose the drum is lowered by the means above described, and rotated by the intermediary of a pulley 65, which is attached to the shaft 46. After the finishing operation is performed, the drum is moved into contact with the cutters or knives, whereby the machine is again ready for operation.

A modification of the invention is illustrated in Figs. 9 and 10 of the drawings, which differs from the one hereinbefore described in that the strippers are not arranged upon the knives, but upon the bolts 32 which hold the knives in proper positions upon the drum. The tubular cutters 26 are arranged in the same manner as those above described. Upon each bolt 32, which is provided with a head 33, is slidably mounted a tubular stripper 66, provided with an enlarged portion 67 which fits the head 33 of the bolt. Springs 68, bearing against the enlarged portions 67 of the strippers and against the periphery of the drum 18, tend to hold the said strippers in their outermost positions with their outer ends flush with the cutting edges of the knives 26. The strippers are guided in their movement by the bolts 32 and so also by the outer faces of the knives, and their operations are identical with those described in connection with Figs. 1 to 8, inclusive.

What I claim is:—

1. In a machine for cutting cork disks, the combination with a rotary drum having a plurality of apertures in its cylindrical portion, of a stationary tubular knife open at both ends arranged in each aperture with its cutting edge projecting a substantial distance beyond the periphery of said drum, a drum contacting in succession with said knives and rotated thereby for supporting sheets of cork, a stripping mechanism shiftably arranged outside of said knives upon said first named drum, and a stationary chute extending into said first named drum adapted to receive the cork disks issuing through said apertures into the interior of said drum.

2. In a machine for cutting cork disks, the combination with a rotary drum having a plurality of apertures in its cylindrical portion, of a stationary tubular knife open at both ends arranged in each aperture with its cutting edge projecting a substantial distance beyond the periphery of said drum, a drum contacting in succession with said knives and rotated thereby for supporting sheets of cork, and a stripping mechanism shiftably arranged outside of said knives upon said first named drum.

3. In a machine for cutting cork disks, the combination with a rotary drum having a plurality of apertures in its cylindrical portion, of a stationary tubular knife open at both ends arranged in each aperture with its cutting edge projecting a substantial distance beyond the periphery of said drum, a drum contacting in succession with said knives and rotated thereby for supporting sheets of cork, a stripping mechanism shiftably arranged outside of said knives upon said first named drum, a stationary chute extending into said first named drum adapted to receive the cork disks issuing through said apertures into the interior of said drum, and means for varying, at will, the distance between said two drums.

4. In a machine for cutting cork disks, the combination with a rotary drum having a plurality of apertures in its cylindrical portion, of a tubular knife arranged in each aperture with its cutting edge projecting a substantial distance beyond the periphery of said drum, each knife having a flange upon its opposite end abutting against the inner face of said drum, means bearing against said flange for fixing the positions of said knives upon said drum, and a stripping mechanism shiftably arranged outside of said knives upon said fixing means.

5. In a machine for cutting cork disks, the combination with a rotary drum having a plurality of apertures in its cylindrical portion, of a tubular knife arranged in each aperture with its cutting edge projecting a substantial distance beyond the periphery

of said drum, each knife having a flange upon its opposite end abutting against the inner face of said drum, means bearing against said flange for fixing the positions of said knives upon said drum, a stripping mechanism shiftably arranged outside of said knives upon said fixing means, and a stationary chute extending into said first named drum to receive the cork disks issuing through said apertures into the interior of said drum.

Signed at New York, in the county of Kings and State of New York, this 28th day of September, A. D. 1912.

ALEXANDER BOGDÁNFFY.

Witnesses:

JOHN ALBERTI,

SIGMUND HERZOG.