Oct. 27, 1931. J. H. SCHELL 1,829,679

CUTTING, SAWING, SLOTTING, AND SIMILAR APPARATUS

Filed Feb. 21, 1929 2 Sheets-Sheet 1

Fig. 1.

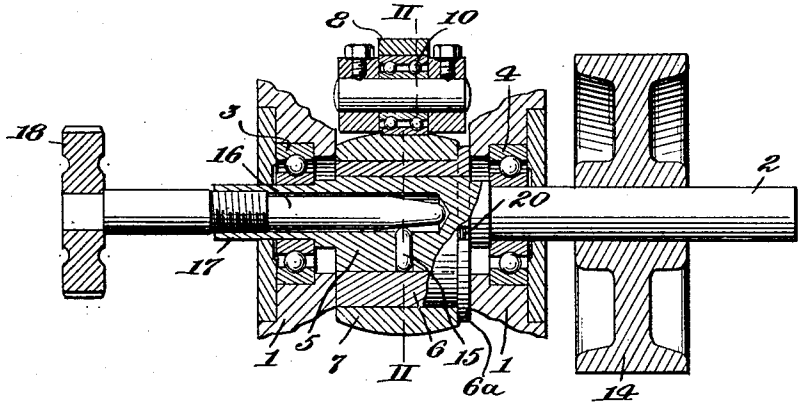
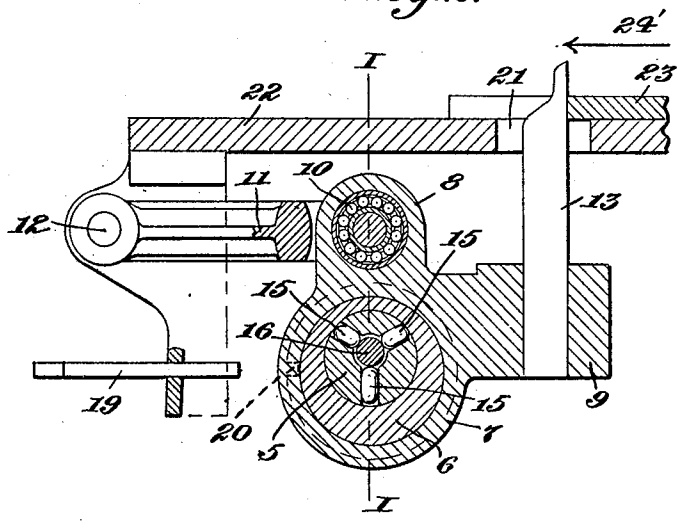


Fig. 2.



Inventor:
Johan H. Schell,
by Laugner, Parry, Card & Laugner
Att'ys.

Oct. 27, 1931. J. H. SCHELL 1,829,679

CUTTING, SAWING, SLOTTING, AND SIMILAR APPARATUS

Filed Feb. 21, 1929 2 Sheets-Sheet 2

Fig. 3.

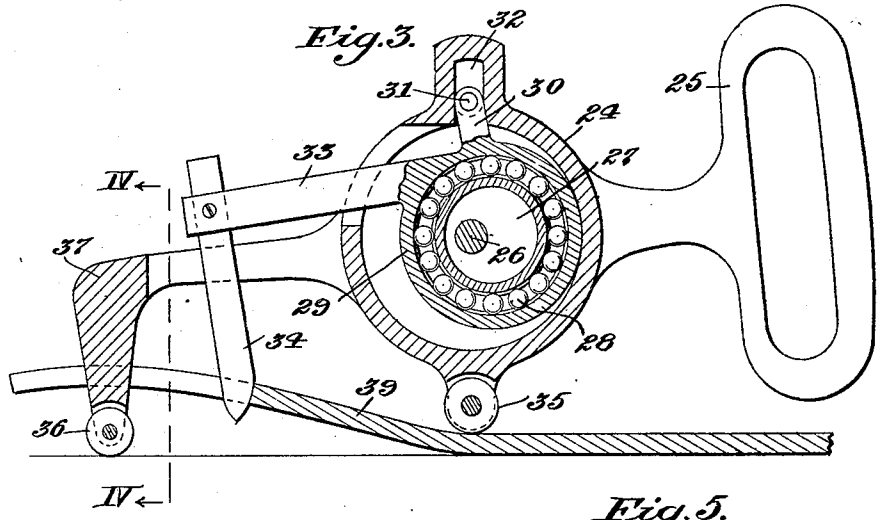


Fig. 5.

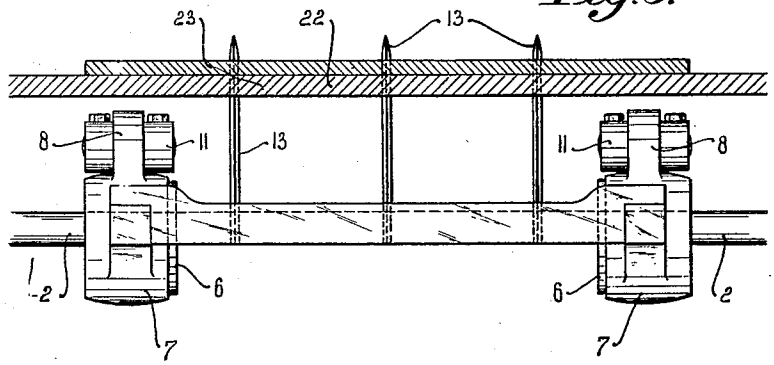
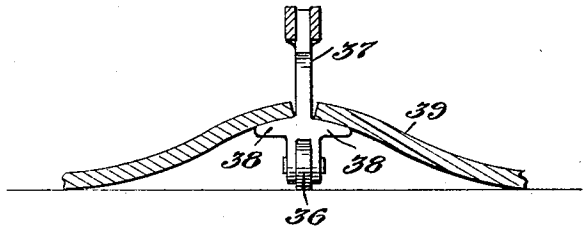


Fig. 4.



Inventor:
Johan H. Schell,
by
Langner, Parry, Card & Langner
Attys

Patented Oct. 27, 1931 1,829,679

UNITED STATES PATENT OFFICE

JOHAN HENDRIK SCHELL, OF ROTTERDAM, NETHERLANDS

CUTTING, SAWING, SLOTTING, AND SIMILAR APPARATUS

Application filed February 21, 1929. Serial No. 341,785.

My invention relates to cutting apparatus and has for its object an apparatus of great capacity and adapted to cut widely different materials, more especially rubber, leather, wood, linoleum, etc., but also adapted, when fitted with a suitable tool or tools in place of the knife or knives, to be used for other operations such as sawing, slotting, etc.

With this object in view, my novel apparatus comprises a shaft having an eccentric, the strap of which is engaged in one point by a member mounted for reciprocation along a rectilinear or curved path, and in another point carries the knife or another tool. Said apparatus is mounted on, or below, at all events on one side of the table or other base for supporting the material to be cut or otherwise worked.

Dependent upon the properties of the material to be cut or otherwise worked, it may be desirable for the length of stroke of the knife or other tool to be varied. In accordance with my present invention, this can be realized by the provision of means whereby the eccentric can be adjusted in a simple manner.

The drawings illustrate, by way of example, two embodiments of my invention, both fitted with one knife having an adjustable length of stroke.

Fig. 1 is a sectional view along the line I—I in Fig. 2.

Fig. 2 is a sectional view along the broken line II—II in Fig. 1.

Fig. 3 is partly a sectional view, partly a side elevation of a manually operated apparatus.

Fig. 4 is a cross section along the line IV—IV in Fig. 3.

Fig. 5 is a rear elevational view of a modification.

The apparatus illustarted in Figs. 1 and 2 comprises a frame 1 with ball bearings 3, 4 for a shaft 2 having an eccentric central portion 5 enclosed by an eccentric sleeve 6 forming the bearing for a strap 7. Said strap has enlarged portions or projections 8 and 9. The enlarged portion 8 is engaged through a ball bearing 10 by a bifurcated rod 11 pivoted as at 12 to the frame 1, whereas the enlarged strap portion 9 carries the knife 13.

The shaft 2 is adapted to be driven by a motor through a belt pulley 14 keyed thereto. The eccentric portion 5 of the shaft engages sleeve 6 through pins 15 located in radial bore holes in said eccentric and in contact at their inward ends with a tapered rod 16, which projects into an axial bore hole of shaft 2 and is provided intermediate between its ends with screw thread cooperating with a female thread 17 on the inner wall of said bore hole. By means of a hand wheel 18 the rod 16 can be screwed into or out of its hole, whereby the pins 15 are forced outwards against the inner wall of sleeve 6 so as to clamp the latter, or are released, respectively.

When the pins 15 are released and, consequently, sleeve 6 is free to revolve on the eccentric portion 5, shaft 2 is turned until the desired eccentricity has been obtained. During this adjustment, sleeve 6 should be prevented from following the rotation of shaft 2, and for this purpose a bolt 19, which is slidably mounted within a hole of the frame, is adapted to be shot into a recess 20 of a flange 6a of said sleeve.

The knife 13 projects through a slot 21 of a table 22 which serves to support the material to be cut, said material being fed, by hand or by a feeding device not shown, in the direction of arrow 24'.

The very favorable action of knife 13 is to be attributed to the fact that during the cutting operation the direction of motion of said knife is continuously varied.

Obviously, the apparatus could be provided with a plurality of knives carried, for instance, by a cross bar connecting two axially spaced eccentric straps.

Figs. 3 and 4 illustrate a manually operated cutting apparatus having the same compact construction as has the apparatus shown in Figs. 1 and 2. In these figures, 24 is a casing provided with a handle 25 and enclosing a shaft 26 with an eccentric 27 on which is mounted, through a ball race 28, a strap 29. Said strap has a radially projecting arm 30 guided through an antifriction roller 31 by the walls of a slot 32 of casing 24, and a tan-

gentially projecting arm 33 for supporting the knife 34. The casing 24 is fitted with two guide rollers 35, 36, the one moutned directly on the casing, the other through an arm 37 having a guide piece 38 for the material 39 to be cut. Shaft 26 is adapted to be driven by a prime mover, such as an electric or pneumatic motor mounted thereon.

The apparatus shown in Figs. 3 and 4 is suitable for cutting similar materials as is the machine in accordance with Figs. 1 and 2. It can be used with special advantage for making straight cuts, whereas the machine illustrated in Figs. 1 and 2 can as well be employed for making curved cuts.

What I claim is:—

1. In cutting apparatus the combination of a support, a shaft having an eccentric thereon mounted in said support, a strap surrounding said eccentric, a cutting tool supported by said strap and guiding means cooperating with said strap and said support for guiding the said strap and the tool carried thereby.

2. In cutting apparatus the combination of a shaft having an eccentric, an eccentric sleeve revolvably mounted on said eccentric, said eccentric having a radial bore hole, a pin located within said radial bore hole, said shaft having an axial bore hole, a tapered rod located within said axial bore hole and adapted to engage the inward end of said pin, a cutting tool supported by said sleeve and means for axially adjusting said rod.

3. In cutting apparatus the combination of a support, a shaft mounted in said support, an eccentric upon said shaft, an eccentric sleeve mounted revolvably upon said eccentric, means for locking said eccentric and eccentric sleeve together, a strap carried by said sleeve, a pivoted link connecting said strap to said support and cutting means carried by said strap.

In testimony whereof I affix my signature.

JOHAN HENDRIK SCHELL.