H. FABIAN.

CLOTH CUTTING MACHINE.

APPLICATION FILED OCT. 24, 1913. RENEWED MAR. 14, 1916.

1,195,569. Patented Aug. 22, 1916.

Fig. 1.

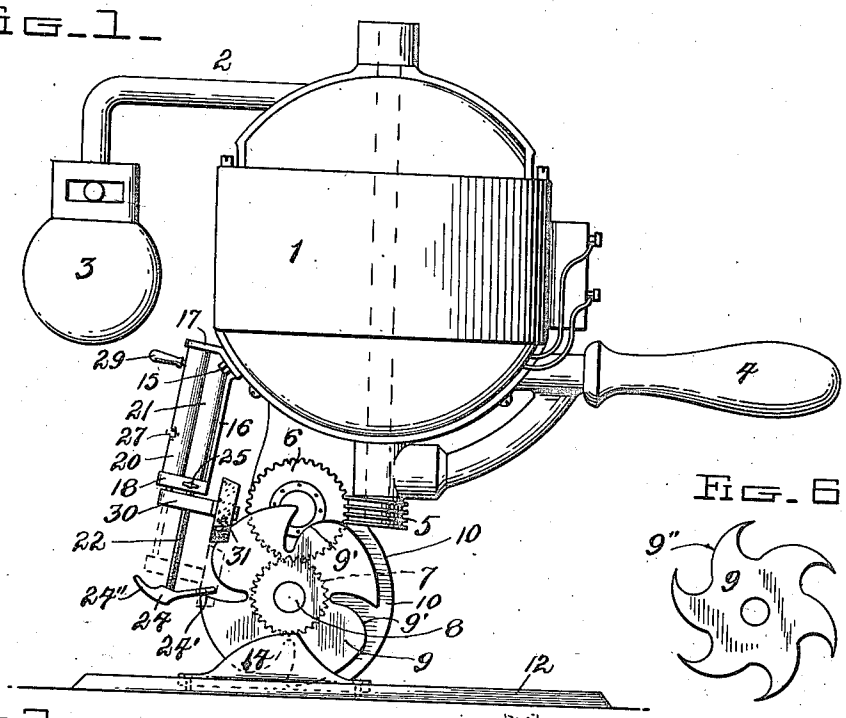


Fig. 6.

Fig. 2.

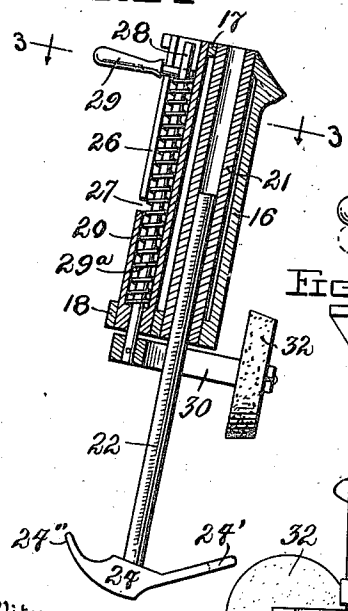


Fig. 3.

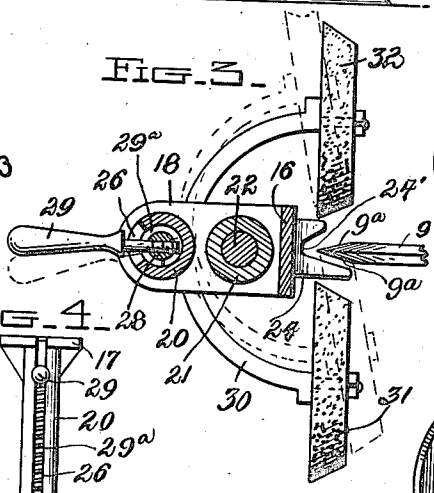


Fig. 7.

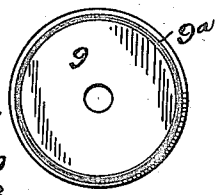


Fig. 4.

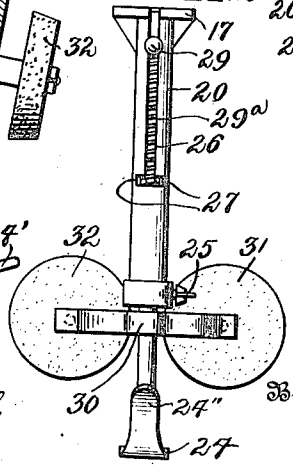
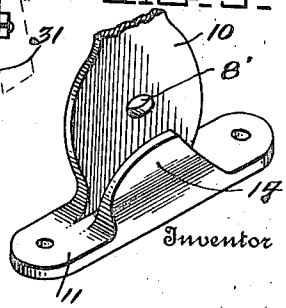


Fig. 5.



Witnesses

L. B. James

C. M. Havell.

Inventor

Harry Fabian

By Walter W. Calmore Attorney

UNITED STATES PATENT OFFICE.

HARRY FABIAN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO PEERLESS BELT LACING MACHINE COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

CLOTH-CUTTING MACHINE.

1,195,569. Specification of Letters Patent. Patented Aug. 22, 1916.

Application filed October 24, 1913, Serial No. 796,989. Renewed March 14, 1916. Serial No. 84,243.

To all whom it may concern:

Be it known that I, HARRY FABIAN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Cloth-Cutting Machines, of which the following is a specification.

The object of the invention is to provide a power operated cloth cutter, including an inclosed motor, and gearing for transmitting motion therefrom to the cutter, which latter may be of various types.

A second object is to provide a guard to prevent injury to the hand of the operator by contact with the cutter through accident or carelessness.

A further object is to provide improved means for sharpening the cutter while in operation during the cutting of a pile of cloth.

With these and other objects in view, reference will be had to the accompanying drawing forming a part of this specification and wherein like numerals of reference designate corresponding parts throughout the several views, in which:

Figure 1 is a side elevation of the complete invention, Fig. 2 is a vertical sectional view through the sharpening means and guard means detached and enlarged, Fig. 3, is a transverse sectional view through Fig. 2 on the line 3—3, and enlarged, Fig. 4, is a front elevation of Fig. 2, Fig. 5, is a perspective view of the throat plate, and Figs. 6 and 7 are elevations of other styles of cutters.

In the drawing, reference numeral 1 indicates an electric or other motor, incased against the entry of dirt or water and to prevent the flying of sparks from the brushes, and similar undesirable and dangerous features. Extending horizontally in advance of the motor is an arm 2, provided with an electric light lamp 3, and extending horizontally from the opposite or rear side of the motor is a handle 4, and by means of this handle, the operator guides the cutter in its proper path of movement through a pile of cloth to be cut. The lower end of the vertical shaft of the motor, seen in dotted lines in Fig. 1, is equipped with a worm gear 5, meshing with a worm gear 6, which in turn meshes with a gear 7. These two gears 6 and 7 are much in the nature of what is known in the trade as silent spur gears, *i. e.* spur gears with pitched teeth. Hence, in addition to the silent action between the gears 6 and 7, the pitch of the teeth of the gear 6 accommodates said gear 6 for proper coöperation with the worm gear 5. This gearing, however, is not an essential of the invention and is subject to modification. Upon the shaft 8, of the gear 7, is arranged a cutter or rotary knife 9, said shaft 8 being mounted in the opening 8′ of the motor supporting standard 10, as seen in Fig. 5.

The standard 10, is a part of the throat plate 11, though, obviously, it may be part of or attached to the base plate 12. This throat plate 11, is removably secured to the base plate, and is provided with a sharpened shear lip 14 which coöperates with the cutter 9 to cut the cloth. In Fig. 1, it will be noted that the cutter is substantially propeller shaped and that the notches therein afford walls 9′ which co-act with the shear lip 14 of the throat plate; while in Figs. 6 and 7, other forms of knives or cutters are shown. The Fig. 6 form is quite similar to that of Fig. 1, except that the cutting action of the blades or teeth 9″, being greater in number, is more rapid. These two cutters of Figs. 1 and 6 are sharpened only on one side, while the disk cutter of Fig. 7, is sharpened on both sides as at 9^a, (see Fig. 3.)

Secured rigidly to the motor casing 1, by screws 15 is a bracket 16, having a top plate 17 and bottom plate or collar 18, and extending through the top plate and said collar are two parallel tubes 20 and 21. Within the tube 21, is slidably arranged a rod or stem 22 provided on its lower end with a guard or presser foot 24, the inner or rear end of which is preferably bifurcated as seen in Fig. 3, and indicated by numeral 24′. The cutter 9 operates within the crotch of this bifurcated end of the guard foot. The front or outer end of the guard foot 24 is provided with an upwardly bent toe 24″. By loosening the set screw 25, which extends through the said bottom plate or collar 18, the said stem 22 with its presser or guard foot 24 may be lowered to cause the said foot to engage the upper layer of the pile of cloth,

and in this position, the hand of the operator is prevented from coming into contact with the knife.

The tube 20 is provided with a vertical slot 26, extending from the upper end of the tube to a point below its middle portion, where said slot is extended laterally on both sides forming locking pockets 27. Within this tube 20, is arranged a rod 28, to the upper end of which is secured a handle 29 which operates in said slot 26, and between this handle and the bottom plate or collar 18 is a coil spring 29ª surrounding said rod 28. The lower end of this rod 28 extends through the bottom of said tube 20 and is provided with a yoke 30, the legs of which straddle the rod 22 and each of which legs is equipped with a grinding wheel, indicated by numerals 31 and 32.

In operation, the base plate 12 is inserted beneath the pile of cloth, or other material to be cut, and the operator, grasping the handle 4 moves the machine into the pile of cloth, the rotating knife 9 meanwhile cutting the cloth as desired. Before the cutting operation, however, the guard or presser foot 24 is lowered to engage the upper layer of the pile of cloth, by loosening the set screw 25, pulling down the rod 22 from the tube 21 and then tightening the set screw. The toe 24'' in advance of the cutter pushes the hand of the operator away from the cutter and the furcations of the bifurcated rear or inner end of the foot surround and prevent contact of the hand with the cutter. This guard or presser foot may be adjusted to suit the thickness of the pile of cloth, its relation to the cutter edge being substantially the same in all of its adjusted positions. After constant use, the cutting edges of the knife or cutter become dull and it becomes necessary to resharpen the same. Instead of removing the cutter entirely from the machine, the incorporated grinding means is put into operation and acts upon the cutter during the cutting operation thereof, as follows: The handle 29 is depressed against the action of the spring 29ª, thereby lowering the grinding wheels to the dotted line position of Fig. 1. When the handle 29 engages the bottom of the slot 26, it is turned into one or the other of the transverse notches, thereby locking the handle and the grinding wheels in their lowered position. As to which of the notches 27 the handle is forced into, is determined by which side of the cutter is to be ground. If the cutter has two sides to be ground, the handle is moved first into one and then into the other of said notches 27, and if only one side of the cutter is to be ground, the handle is moved into only one of said notches 27 and there locked until the completion of the grinding operation. When the grinding operation is completed, the handle is merely turned into the main slot 26, and the coil spring then returns it and the grinding wheels to their normal or Fig. 1 position. Obviously, the grinding wheels may be of any desired shape to suit the contour of the cutters to be sharpened.

When one cutter is to be substituted for another, the set screw 25 is loosened and the guard foot 24 turned, the short furcation of the bifurcated end clearing the cutting edge of the cutter.

It will be noted that the guard foot 24 prevents contact of the operator's hands with the cutter and in addition thereto performs the function of preventing contact of the grinding wheels with the cloth, in holding the cloth away therefrom.

Having fully described the invention, what is claimed as new is:

1. In a cloth cutter, a rotating cutter, operating means therefor, a guide member mounted adjacent the cutter, a rod, grinding means carried thereby and engageable with opposite sides of said cutter, said rod being slidable in said guide to bring the grinding means into grinding relation to said cutter, said rod being rotatable within said guide to bring the grinding means into grinding contact with the cutter, and means for locking the rod against sliding movement when rotated in said guide.

2. In a cloth cutter, a rotating cutter, operating means therefor, a tube mounted adjacent said cutter and having a longitudinal slot having a transverse extension, a rod slidably and rotatably arranged in said tube, an operating member extending from said rod and movable in said slot and its extension, and grinding means carried by said rod and movable into grinding relation and grinding contact with said cutter by the said sliding and rotating movements of said rod.

3. In a cloth cutter, a rotating cutter, operating means therefor, a tube mounted adjacent said cutter and having a longitudinal slot having a transverse extension, a rod slidably and rotatably arranged in said tube, an operating member extending from said rod and movable in said slot and its extension, and grinding means carried by said rod and movable into grinding relation and grinding contact with said cutter by the said sliding and rotating movements of said rod, and a second tube on the mounting of the first tube adjacent to the latter, a rod slidably and swingably arranged in said second tube and adapted to bear against the cloth to be cut to keep the same away from the grinding means when the latter is in grinding position.

4. In a cloth cutter, a rotating cutter, operating means therefor, a tube mounted adjacent said cutter and having a longitudinal slot having a transverse extension, a rod slidably and rotatably arranged in said tube, an operating member extending from said

rod and movable in said slot and its extension, and grinding means carried by said rod and movable into grinding relation and grinding contact with said cutter by the said sliding and rotating movements of said rod, and a second tube on the mounting of the first tube adjacent to the latter, a rod slidably and swingably arranged in said tube, and a hand guard on the lower end thereof adjustable to a position adjacent the cutter and between the grinding means and the cloth to be cut.

5. In a cloth cutter, an incased motor, a cutter operated thereby, a pair of parallel tubular guides adjacent the cutter, rods slidable and rotatable in said guides, a yoke on one of said rods, a guard on the other of said rods, grinding means on the legs of said yoke and on opposite sides of the cutter, a longitudinal slot in one of said guides and having lateral extensions, a spring within said slotted guide surrounding the rod therein; a handle on said last mentioned rod movable in said slot to move the grinding means into grinding relation with the cutter, and movable into said slot extensions to move the grinding means into grinding contact with the opposite sides of the cutter and to lock the rod against sliding movement.

In testimony whereof I affix my signature in presence of two witnesses.

HARRY FABIAN.

Witnesses:
GEORGE KOPPENHOEFER, Jr.,
MARCUS E. LEVY.