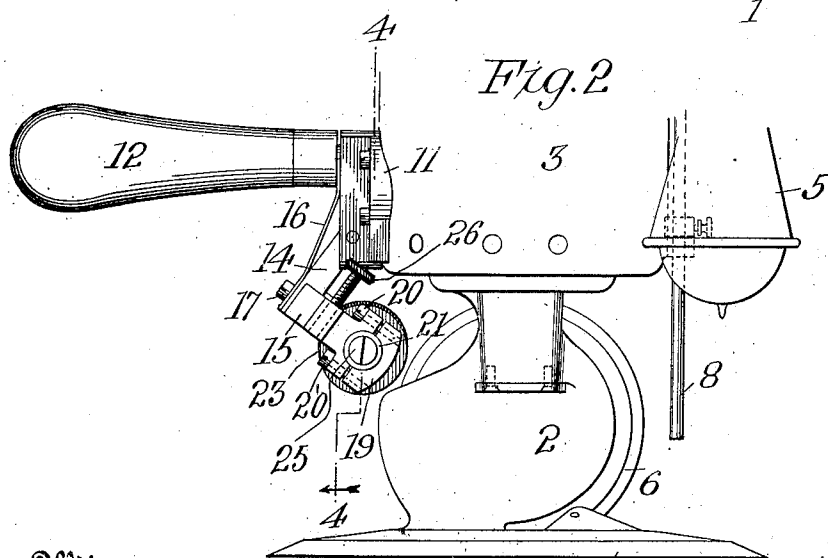
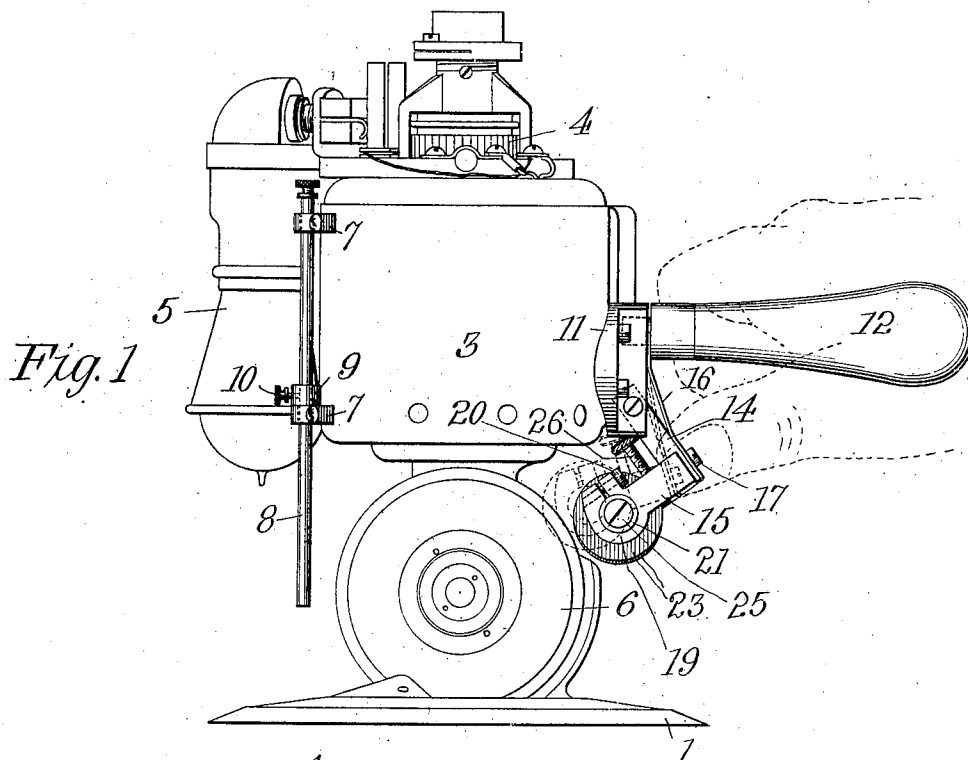


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CLOTH CUTTER.
APPLICATION FILED OCT. 12, 1911.

1,047,429.

Patented Dec. 17, 1912.

2 SHEETS—SHEET 1.



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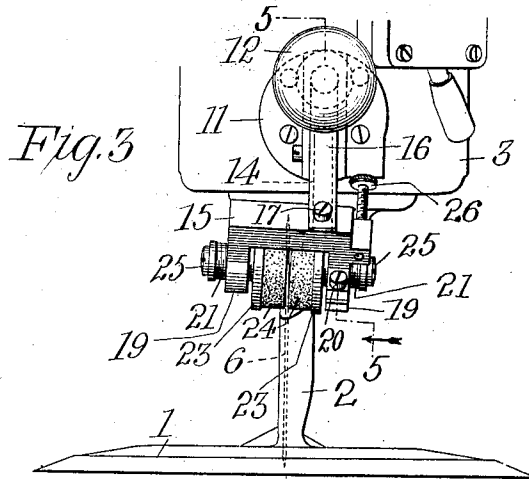


Fig. 4

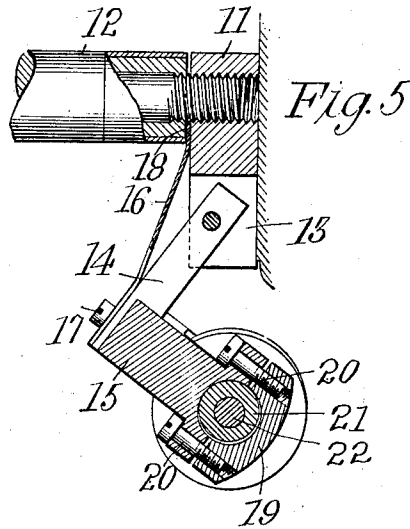
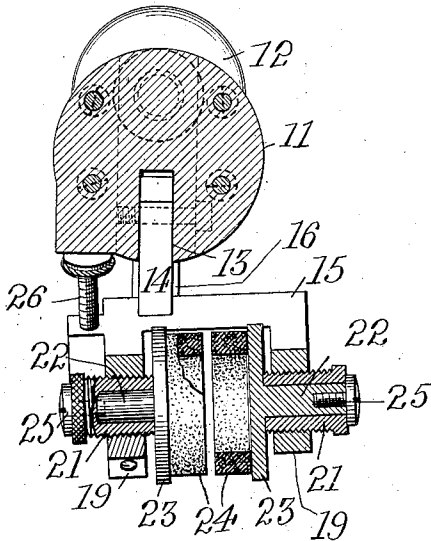


Fig. 6

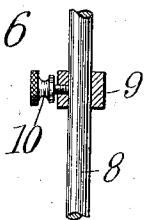
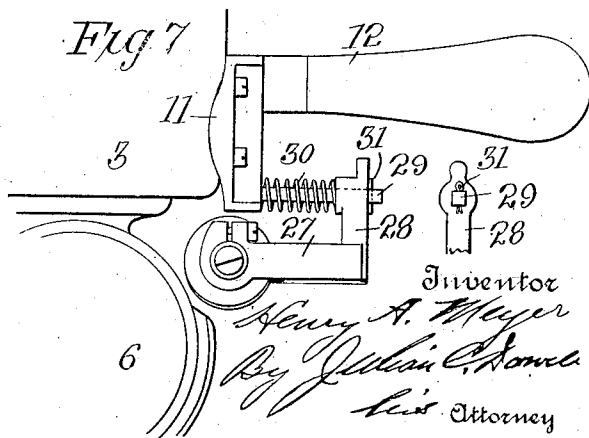


Fig. 7



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UNITED STATES PATENT OFFICE.

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CLOTH-CUTTER.

1,047,429.

Specification of Letters Patent.

Patented Dec. 17, 1912.

Application filed October 12, 1911. Serial No. 654,395.

To all whom it may concern:

Be it known that I, HENRY A. MEYER, a citizen of the United States of America, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Cloth-Cutters, of which the following is a specification.

This invention relates to cloth-cutters of that type in which a power-driven blade or knife is mounted in a hand-propelled carriage and works through several layers or plies of material as the carriage is caused to travel.

It is customary for the workman to push the carriage to the work with one hand while his other hand is pressed upon the cloth to prevent it being merely pushed aside by the advancing tool.

An object of this invention is to provide simple and efficient means to prevent injury to the hand by contact with the knife through carelessness or accident.

The work required of the knife is so heavy that it quickly becomes dull in use and one object of my present invention is to provide improved means for sharpening the knife without stopping the operation of the cutter.

The invention is illustrated in the accompanying drawings and is hereinafter fully described, the novel features being particularly pointed out in the claims at the end of the description.

In the said drawings, Figure 1 is an elevation of the complete cutter, Fig. 2 is an elevation of the lower portion of the device, showing the side opposite to that appearing in Fig. 1; Fig. 3 is a rear elevation, Fig. 4 is an enlarged detail section taken on the line 4—4 of Fig. 2, Fig. 5 is a similar view taken on the line 5—5 of Fig. 3, Fig. 6 is a detail view of the stop for limiting the play of the guard, Fig. 7 shows a modification.

The carriage comprises a base 1, a hollow standard 2 rising from the base, and a body or casing 3 on the upper end of the standard. A motor, the upper part of which is seen at 4, is housed within the body or casing and a lamp 5 is mounted on the body to throw light upon the cloth in advance of the knife, while the gearing which connects the motor with the rotary knife 6 is housed within the standard, the knife being immediately adjacent one side of the standard and all the parts so far mentioned being well-known.

On the front of the body or casing substantially in the vertical plane of the knife, are alined guides, brackets or perforated lugs 7 in which a freely slidable guard 8 is mounted, the said guard preferably consisting of a cylindrical rod having its lower portion immediately in advance of the knife. Between the guides, a stop collar or ring 9 is fitted on the guard and is secured at any desired height thereon by a thumb screw 10 mounted in the collar and bearing against the rod, as shown most clearly in Fig. 6. It will be readily seen, on reference to Fig. 1, that the stop rests upon the lower guide 7 and thereby supports the guard at the height to which it may be adjusted. By shifting the stop along the rod, the guard may be adjusted to the thickness of the body of cloth being cut so that its lower end will rest on the cloth and thereby prevent the passage of the operator's hand to the knife. When the cutter advances through the cloth on a straight line, the surface of the cloth remains level and the guard is at rest relative to the other parts of the apparatus. When, however, the cutter is turned so that the cut will describe a curve, the cloth will be raised at one side of the cut by the changing of the angle of the blade to the cloth. Under such conditions, the fixed guards heretofore employed frequently became entangled with the cloth so as to bar the progress of the machine and damage the cloth but my guard, being freely slidable vertically, will automatically rise so as to ride over any bunching of the cloth while remaining in contact with the surface thereof so that while it effectually holds the operator's hand out of contact with the knife, it avoids injury to the cloth.

Cloth-cutters have heretofore been equipped with knife-sharpeners which have been mounted on the front of the carriage and could be brought into contact with the edge of the knife so that the knife could be sharpened without dismantling the machine. It was necessary, however, to stop the machine while the grinder was being adjusted to its working position and the hand was frequently cut by contact with the knife through accident or carelessness on the part of the operator. To prevent injury to the operator from this source, and to facilitate the application of the grinder to the knife, I mount the grinder on the back of the car-

riage adjacent the handle. To this end, in the preferred arrangement, an enlargement or boss 11 is provided on the body and the handle 12 is threaded into said boss. A notch or open slot 13 is formed in the lower edge of the boss and in this notch is pivoted the upper end of the lever arm 14 rising from a yoke or carrier 15. The arm 14 and yoke 15 constitute an angular grinder-carrying arm, the angle of which is adapted to be engaged by the operator's hand which grasps the handle, as hereinafter more fully explained, for actuating the grinder simultaneously with the guiding of the cutter. A leaf spring 16 has its lower end secured to the carrier by a set screw 17 and its upper end held between the boss 11 and an annular shoulder 18 on the handle when the handle is threaded into the boss as will be readily understood on reference to Fig. 5. The action of the spring is to hold the carrier normally away from the cutter but a light pressure applied to the carrier will overcome the resistance of the spring and force the grinder against the knife, the upper end of the spring sliding upon the boss sufficiently to follow the movement of the carrier while at the same time the tension of the spring will be increased. To the ends of the yoke 15 are secured clamp members or cap plates 19 by bolts or screws 20 and in the opposed faces of these members and the carrier are recesses or grooves with which sleeves or bushings 21 have a threaded engagement, said sleeves or bushings receiving the journals 22 projecting from the heads or plates 23 to each of which an emery ring or other abrading element 24 is secured. It will be noted that the inner end of the bushing 21 bears against the head 23 and a screw 25 tapped into the end of the journal has its head in engagement with the outer end of the bushing so that the bushing is fixed between said screw and the head and rotation of the bushing will effect a longitudinal travel of the same and the grinder head to adjust the abrading elements to and from each other, as will be readily understood. It will also be observed that when the grinder is in engagement with the knife, the frictional contact between them tends to draw said grinder more firmly against the knife, rather than throw the grinder off of the knife as in previous constructions. This drawing of the grinder to the knife under frictional engagement between them is due to the fact that the distance from the pivotal axis of the arm 14 to the farthest point on the knife-engaging portion of the grinder is greater than the distance from said axis to the nearest point on the periphery of the knife, and also to the fact that the grinder is arranged at the side of an imaginary line, connecting said axis and nearest point on said periphery, toward

which line the knife revolves. As illustrated, the grinder is mounted behind the knife and extends below the imaginary line connecting the pivotal axis of the grinder-carrying arm and the nearest point on the periphery of the knife. It will thus be seen that the point of contact between the grinder and knife is so disposed with respect to the axis and direction of rotation of said knife and the direction of movement of said grinder that the frictional engagement of the grinder and knife tends to draw the former more firmly against the latter. The strain upon the thumb or finger used to advance the grinder, due to the tendency of said grinder to move away from the knife in previous constructions, is, therefore, entirely obviated when the present improvement is employed.

In one end of the yoke or carrier which supports the grinder, is a gage 26 which is shown in the form of a headed screw or bolt threaded into the carrier and projecting toward the body or casing so that, when the carrier is moved toward the knife, the head of the gage will come into contact with the lower edge of the boss 11 and thereby limit the movement of the carrier. It will be obvious that the screw may be adjusted to project more or less toward the body and will come into contact with the body, sooner or later according to its adjustment, so that the throw of the carrier may be accurately regulated and the abrasive elements permitted to extend more or less over the face of the knife to compensate for wear and other conditions. It will be observed, more particularly upon reference to Fig. 3, that the grinder is disposed somewhat obliquely to the knife in order that the abrading elements, will not lie flat against the face of the knife but will work across the same at an angle thereto and will, therefore, grind a bevel on each side of the edge. It will also be noted that the grinder is located at the junction of the handle and the body where it may be conveniently reached by the thumb or fingers of the hand grasping the handle 12, as shown by dotted lines in Fig. 1. The grinder may thus be readily applied to the knife so as to sharpen the same without stopping the operation of the machine or exposing the hand to contact with the knife.

In Fig. 7, I have illustrated a modified arrangement of the grinder in which the carrier 27 is provided with a vertical arm 28 slidably and non-rotatably mounted on a guide or supporting pin 29 projecting horizontally from the body or casing below the handle. A spring 30 is coiled around the pin 29 between the body and the arm 28 to hold the arm and the carrier normally away from the body, a pin or other stop 31 being provided to prevent the spring throwing

the arm off its support. The operation is thought to be obvious. When the knife is to be sharpened, the operator presses upon the arm 28 in opposition to the spring 30 and pushes the grinder into position to act upon the knife. When the grinding is completed, the pressure of the fingers upon the arm 28 is removed and the spring 30 then at once returns the parts to their normal positions.

My improvements are simple in their distinguishing characteristics and do not add to the present weight of the machines nor to the cost of production while they increase the efficiency and lessen the danger of injury from the use of the cutters.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. The combination with a body and a rotary knife carried thereby, of a pivoted arm adapted to swing toward and away from the knife in the plane of the latter, a grinder mounted on said arm, the distance from the pivotal axis of said arm to the farthest point on the knife-engaging portion of the grinder being greater than the distance from said axis to the nearest point on the periphery of the knife, and said grinder, when in contact with the knife, being arranged at the side of an imaginary line, connecting said axis and nearest point on said periphery, toward which line the knife revolves, whereby the frictional engagement of the grinder and knife tends to draw the former more firmly against the latter.

2. In a cloth-cutter, the combination with a body and a rotary knife carried thereby, of a grinder mounted on said body to be moved toward and away from the knife in the plane of the latter, said grinder comprising two elements adapted to simultaneously engage opposite sides of the knife, and the points of contact of said grinder elements with the knife being so disposed with respect to the axis and direction of rotation of said knife and the direction of movement of said grinder that the frictional engagement of the grinder and knife tends to draw the former more firmly against the latter.

3. The combination with a body and a rotary knife carried thereby, of a pivoted arm adapted to swing toward and away from the knife in the plane of the latter, a grinder mounted on said arm, the distance from the pivotal axis of said arm to the farthest point

on the knife-engaging portion of the grinder being greater than the distance from said axis to the nearest point on the periphery of the knife, and said grinder, when in contact with the knife, being arranged at the side of an imaginary line, connecting said axis and nearest point on said periphery, toward which line the knife revolves, whereby the frictional engagement of the grinder and knife tends to draw the former more firmly against the latter and means to limit the movement of the grinder toward the knife.

4. The combination with a body and a rotary knife carried thereby, of an arm pivoted on the body in rear of the knife, a grinder mounted on the arm, the distance from the pivotal axis of said arm to the farthest point on the knife-engaging portion of the grinder being greater than the distance from said axis to the nearest point on the periphery of the knife, and said grinder being arranged below an imaginary line connecting said axis and nearest point on said periphery, whereby the frictional engagement of the grinder and the knife tends to draw the former more firmly against the latter.

5. In a cloth-cutter, the combination with a body, a handle and a knife on the body, of an angular arm pivoted on said body, and a grinder mounted on said arm and adapted to be moved thereby into engagement with the knife, the angle of said lever being arranged adjacent the handle and adapted to be engaged by the operator's hand, which grasps said handle, for actuating said grinder simultaneously with the guiding of the cutter.

6. The combination of a body, a knife carried thereby, a handle secured to the body, a grinder pivoted on the body and adapted to engage the knife, and a leaf spring normally holding the grinder out of engagement with the knife, said spring being rigidly secured to the grinder and confined but adapted to slide between the handle and body to allow the spring to follow the movement of the grinder.

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

HENRY A. MEYER.

Witnesses:

O. E. SCHULTE,
JOHN R. LEWIS.