J. THOMASON.

VELVET, CORD, AND LIKE PILE CUTTING DEVICE.

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1,222,495. Patented Apr. 10, 1917.

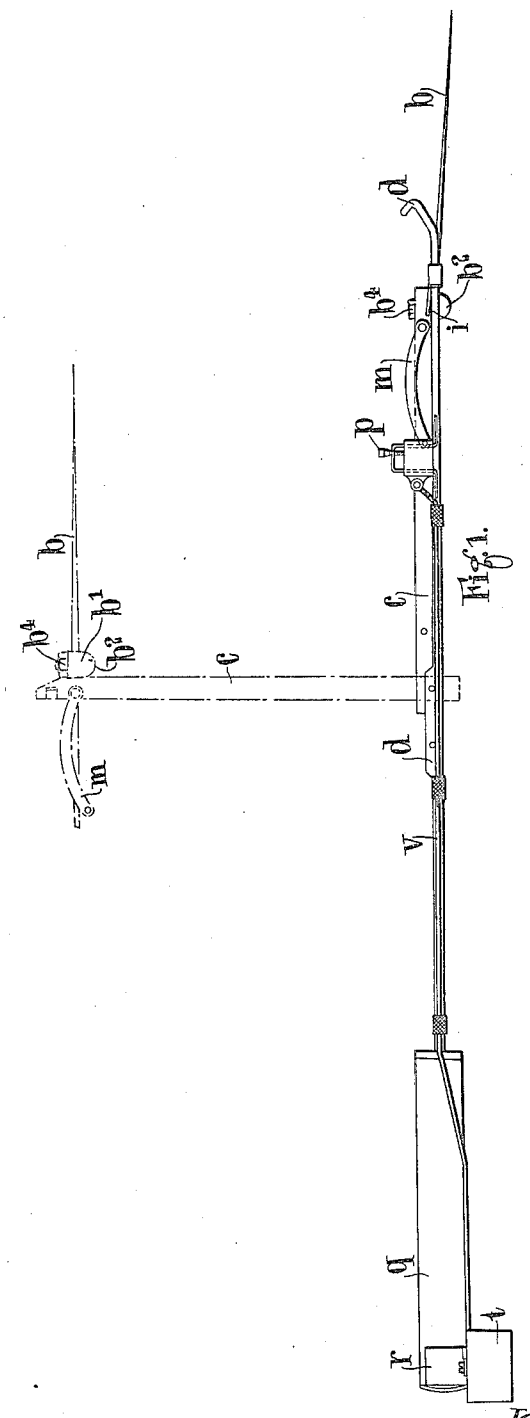


Fig. 1.

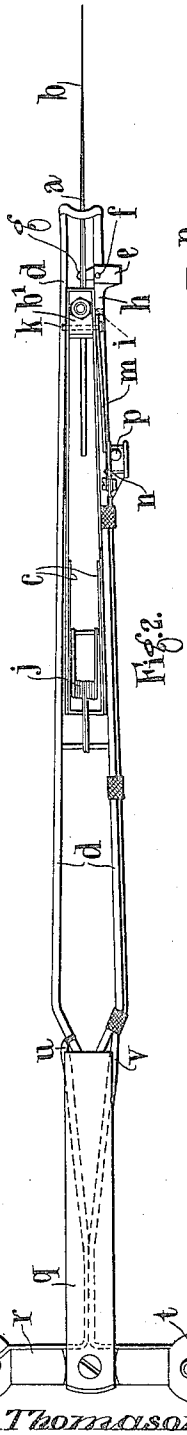


Fig. 2.

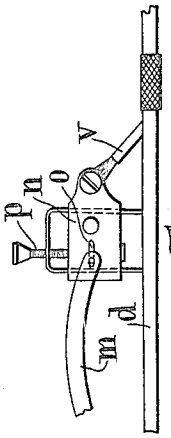


Fig. 4.

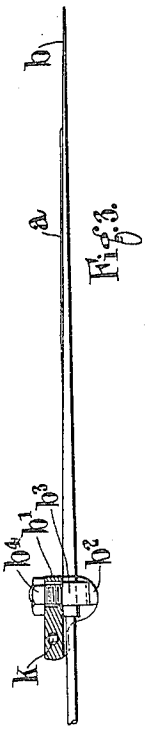


Fig. 3.

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VELVET, CORD, AND LIKE PILE CUTTING DEVICE.

1,222,495. Specification of Letters Patent. Patented Apr. 10, 1917.

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To all whom it may concern:

Be it known that I, JOHN THOMASON, a subject of the King of Great Britain and Ireland, and resident of 45 Priestley street, Warrington, in the county of Lancaster, England, have invented certain new and useful Improvements in Velvet, Cord, and like Pile Cutting Devices, of which the following is a specification.

The invention relates to the class of pile fabric or velvet, cord or like cutting devices of the type in which the cutter is automatically thrown to inoperative position when said cutter enters the body of the fabric instead of acting only upon the pile thereof, and it is my object to provide a simple and effective construction to accomplish the automatic throwing out of the cutter, and another object of my invention is to control the operation of the machine from the movement of the cutter holder, this control being exerted through an electric make and break device with which the holder is combined.

My invention comprises the improved combination and arrangement of parts hereinafter described.

Referring to the accompanying sheet of explanatory drawings:—

Figure 1 is an elevation and Fig. 2 a plan view of a pile cutting device constructed in accordance with my invention.

Fig. 3 is a detail view of the cutting blade and its supporting parts.

Fig. 4 is a detail view of the make-and-break device for an electrically controlled machine.

The same reference letters in the different views indicate the same parts.

The cutting blade a is mounted in a suitable guide b and holder b', the latter being pivotally secured in a frame or member c, hereinafter termed a carrier, which is itself pivotally mounted in the arm or stationary frame d which is manipulated by the operator. The said carrier c is held in its service position by a locking clip e pivoted at f upon the arm and having a portion g which extends behind the cutting blade in the path of the portion of the fabric being operated upon. Another portion h of said clip acts as a locking piece for the carrier by passing over a projecting piece i thereon, so holding the carrier in its operative position against the action of the spring j which tends to swing it into the position shown in dotted lines in Fig. 1.

Should a fault occur which results in the blade piercing the fabric, the latter will move against said clip e and turn it about its pivot, so releasing the carrier c which is swung by the spring j into its out-of-service position (see Fig. 1) with the cutting blade quite clear of the fabric. With this arrangement, the blade does a minimum of damage to the fabric.

The cutting blade a is detachably secured within the guide b which is itself held in the pivotally mounted holder b'. Such holder is preferably disposed eccentrically with relation to its pivotal point and in such a manner that during normal working, a cam-like portion b^2 thereof rides upon the surface of the fabric which tends to so turn or tilt the holder as to move the blade a clear of the fabric. It follows, therefore, that should the blade move clear of the race in which it is cutting, no damage will be done to the material. The holder has an aperture or slot therethrough to receive a slotted stud-like part b^3 through which the blade and its guide are passed. By tightening up the nut b^4 on the stud, the blade and guide are firmly secured in place. This arrangement greatly facilitates the removal or examination of the blades and guides and is economical in that different sized guides may be used in the one holder, and, further, the blade may be removed from the guide for grinding or other purposes without disturbing the setting of the guide in the holder.

My improved arrangement aforesaid is readily adaptable for use in an electrically controlled machine in which electrical means are employed for traversing the fabric over the blades. For this purpose, I mount the blade holder b' upon a squared stud or short spindle k or in a manner so that all rotary movements of the holder b' are communicated to the said stud or spindle. Upon the latter, I mount an arm m which forms one element of a make-and-break device for controlling the machine. The said make-and-break device serves to bring the machine to rest both when the cutter blade a is moved clear of the fabric with the car

rier c (which is called flying out), and when the pressure upon the blade exceeds a predetermined amount, due to the guide entering the slip race or due to dullness of the cutting edge or other cause. It also brings the machine to rest when the blade moves out of its race. For example, the arm aforesaid may form one contact and move over the surface of block n (see Fig. 4) having its mid-portion o only of conducting or of non-conducting material, according as the machine is brought to rest by the breaking or by the closing of a circuit. In the former case, when the blade is in its proper cutting position the circuit is closed, but should the blade be moved to one or other side of its working position, due to excess of pressure on the blade or to the blade rising clear of its race, or should the blade and carrier be swung into the out-of-service position, then the circuit will be broken and the machine brought to rest. The position of the stationary contact surface of block n may be adjusted by the screw p to suit the working position of the cutting blade for any particular fabric. The block n is fixed to one arm of the stationary frame d and the arm m which is carried by the holder b' and partakes of all the movements thereof, is arranged to move along the surface or side face of the said block n, and when the arm m is in normal position it is in engagement with the contact portion o mounted on the side face of the block n. As soon as the blade holder b' moves from normal position, whether this be by turning on its own pivot or by being carried by the movement of the carrier c, the arm m will move from contact with the part o and the circuits will be controlled. The circuit from the block n is completed through the connection V. The arm m is not connected to the block n but simply bears laterally against the part o thereon, and it is, therefore, free to move away from the block when carrier c rises.

The complete device or arm is preferably mounted in a wooden or non-conducting handle or holder q having a portion r with two sockets or the like s, t which, when the cutter is in the operative position, can be placed on two terminals of the electrical controlling circuit. The electric wires from the sockets are shown at u, v, one wire being connected to the arm d and the other to the contact surface n. The socketed portion of the handle is preferably arranged to allow of limited cross-wise or lateral movement of the cutting blade so that the latter may follow its race.

In practice, the operator sets the blade in the race by hand while controlling the electric circuit of the machine by a pedal or other means. The device is then positioned upon the contact pieces and the work proceeds under automatic control. It will be seen therefore that one operator may satisfactorily control a plurality of machines, so insuring high economy of production.

My improved device may be employed as a hand traversed cutter, when the electrical fittings are dispensed with or in an electrically controlled machine. I may modify the details of same to meet any particular requirements.

I am aware that pile cutting devices have heretofore been proposed in which the blade is given a compound movement for withdrawing it from the fabric and in which a locking clip is released by needle points or spikes engaging the fabric when a fault occurs.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent is:—

1. In velvet, cord and like pile cutting devices, in combination, a stationary frame, a carrier pivotally mounted in the latter, a blade holder pivotally mounted in said carrier, a blade in said holder, a locking clip pivoted upon said stationary frame and having one portion extending in a direction transversely to and behind and clear of the blade in the path of the portion of the fabric being operated upon and having another portion at right angles to the first portion and extending rearwardly alongside of the carrier and over a part of the said carrier, and a spring acting to raise the carrier when released by said clip, as set forth.

2. In velvet, cord and like pile cutting devices, in combination, a stationary frame, a carrier pivotally mounted in the latter, a blade holder pivotally mounted in said carrier, a blade in said holder, the said holder being eccentrically disposed with relation to its pivot and having a downwardly projecting cam-like portion in front of its pivot riding normally upon the surface of the fabric and tending to move the blade clear of the latter, a locking clip pivoted upon said stationary frame and having one portion extending behind and clear of the blade in the path of the portion of the fabric being operated upon and having another portion extending over a part of the carrier, and a spring acting to raise the carrier when released by said clip, as set forth.

3. In velvet, cord and like pile cutting devices, in combination, a stationary frame, a carrier pivotally mounted in the latter, a blade holder pivotally mounted in said carrier, a blade, a guide for said blade, a slotted stud adapted to pass through an aperture in said holder and to receive said guide and blade, a nut on said stud for locking it in the holder and clamping the guide and blade in position, a locking clip pivoted upon said stationary frame and having one portion extending transversely to and behind and clear of the blade in the path of the portion of the

fabric being operated upon to be moved by contact with said fabric and having another portion extending over a part of the carrier, and a spring acting to raise the carrier when released by said clip, as set forth.

4. In velvet, cord and like pile cutting devices, in combination, a stationary frame, a carrier pivotally mounted in the latter, a blade holder pivotally mounted in said carrier, a blade in said holder, an electrical make-and-break device, one member of which is on the fixed frame and the other member of which is on the pivoted holder to move therewith when the holder turns about its pivot and also when the holder moves bodily with the carrier to thereby control the circuit, locking means to hold the carrier to its work, said locking means being operated to release the carrier by the contact of the fabric therewith and means for throwing the carrier to inoperative position when released by the locking means, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN THOMASON.

Witnesses:
HILDA HUGHES,
ARTHUR HUGHES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."