J. E. WILLIAMS.

CLOTH CUTTING MACHINE.

APPLICATION FILED JUNE 30, 1919.

1,375,989. Patented Apr. 26, 1921.

Fig. 1.

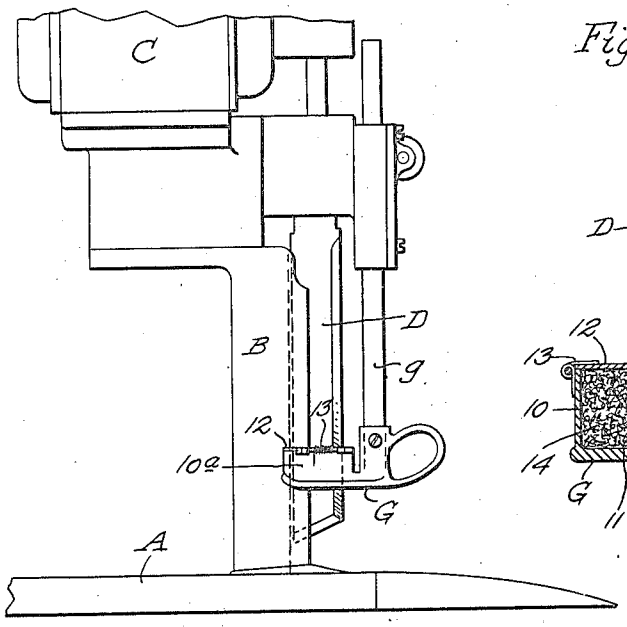


Fig. 3.

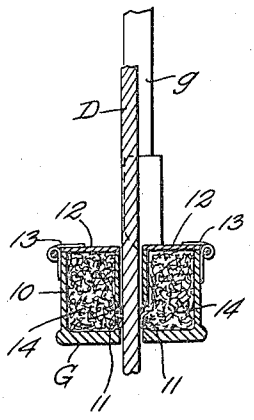


Fig. 4.

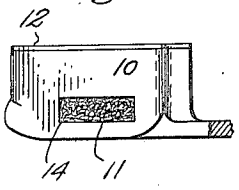


Fig. 2.

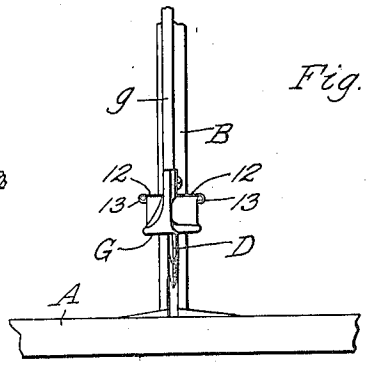
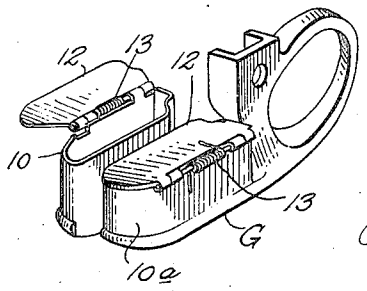


Fig. 5.



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UNITED STATES PATENT OFFICE.

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CLOTH-CUTTING MACHINE.

1,375,989. Specification of Letters Patent. Patented Apr. 26, 1921.

Application filed June 30, 1919. Serial No. 307,823.

To all whom it may concern:

Be it known that I, JAMES EARLE WILLIAMS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Cloth-Cutting Machines, of which the following is a specification.

This invention relates to improvements in portable cloth cutting machines of the kind that are adapted to be moved about by hand on a cutting table, and particularly to cloth cutting machines that have a motor-driven vertically reciprocating knife. In these machines, as ordinarily constructed, the knife reciprocates in a vertical groove or guide at the front of a standard by which the motor is supported from the base of the machine, and the knife projects forwardly beyond said standard. The friction between the knife and the material being cut is so great in cutting some kinds of materials as to materially impede the operation of the machine unless the knife is lubricated to reduce the friction. In cutting some kinds of material, also, such for instance as rubberoid, the knife becomes sticky or gummed by contact with the material and this greatly increases the friction of the knife in the material and in the knife guide and makes the efficiency of the machine much less than if the surfaces of the knife were kept clean and smooth.

One object of this invention is to provide means of simple and practical construction for application to cloth cutting machines for applying to the surfaces of the knife a thin film of a suitable lubricant which will facilitate the movement of the knife through the material. Other objects are to construct the lubricating device so that it will wipe the exposed surfaces of the knife and keep them clean and free from foreign substances at the same time that the lubricant is applied to the knife; and also to construct the device so that it will lubricate the knife guide as well as the exposed or protruding portions of the knife.

In the accompanying drawings:

Figure 1 is a fragmentary side elevation of a cloth cutting machine provided with knife lubricating means embodying the invention.

Fig. 2 is a partial front elevation thereof.

Fig. 3 is a sectional elevation, on an enlarged scale, on line 3—3, Fig. 1.

Fig. 4 is a longitudinal sectional elevation through the lubricating device.

Fig. 5 is a perspective view of the lubricating device detached.

With the exception of the means hereinafter described for cleaning the knife and lubricating the same and its guide, the machine may be of any suitable construction, and an electric cloth cutting machine of well known construction is illustrated in the drawings.

The machine has the usual base A adapted to rest and move about on the cutting table or support, beneath the material to be cut, a vertical standard B which rises from the base and supports an electric motor C, and a knife D which is reciprocated by suitable driving connections (not shown) with the motor. The knife, as usual, reciprocates in a vertical guide or slot in the front edge of the standard B. G is the usual presser foot which is secured to the lower end of a presser bar *g* that extends vertically in front of the knife and is mounted on the machine in any usual or suitable way so that the presser foot can be adjusted vertically as may be required by the thickness of the lay of material being cut. The presser foot shown is of well known construction, having a finger loop at its front end by which it can be moved up and down, and being slotted or bifurcated so as to straddle the exposed portion of the knife and the front portion of the standard or knife guide. The presser foot may, however, be of any other suitable construction and it can be mounted on the machine in any usual or suitable way.

The preferred construction of the lubricating device is as follows:

10 and 10^a represent two lubricant receptacles or holders which are disposed at opposite sides of the knife close to the opposite faces thereof, and are adapted to hold a suitable lubricant and apply the same to the opposite faces of the knife through suitable slots or openings 11 in the inner walls of the receptacles or containers, which walls are disposed close to the opposite faces of the exposed or projecting portion of the knife. These lubricant receptacles or holders may be of any suitable construction and

they may be mounted in the relation to the knife explained in various ways, but preferably they are mounted, supported or formed on the bifurcated portion of the presser foot which straddles the knife and its guide. In the construction shown in the drawings, the lubricant receptacles or holders are soldered or otherwise permanently secured on the upper face of the bifurcated portion of the presser foot, and are provided with hinged covers 12 for closing the receptacles. These covers are preferably closed by suitable springs 13 and can be readily opened for introducing or changing the lubricant. Preferably suitable porous or absorbent material 14 is placed in the lubricant receptacles and is saturated with a suitable oil or liquid lubricant. The filling or material 14 protrudes through the openings 11 in the inner walls of the receptacles so as to contact with and wipe, or clean, the opposite faces of the knife as it reciprocates between the receptacles, thus keeping the surfaces of the knife clean and free from the accumulation of material and at the same time applying a thin film of the lubricant to the surfaces of the knife. The saturated or absorbent material preferably contacts with the opposite surfaces of the knife throughout the portion thereof which is exposed or projects in front of the knife guide. Thus the entire exposed surface of the knife is properly cleaned and lubricated and at the same time the lubricant tends to work into the knife guide and lubricate this as well as the exposed portions of the knife.

The lubricating device constructed and arranged as described is located where it will not obstruct the operator's view in following the pattern, or be in the way so as to interfere in any manner with the ordinary manipulation of the machine. Since the device is mounted on the presser bar, no additional or special support for it is necessary, and the presser bar being, as usual, removable from the machine, the lubricating device can be readily removed when using the machine to cut material which does not require lubrication of the knife, or when for any reason a lubricant on the knife would be objectionable.

I claim as my invention:

1. In a cloth cutting machine, the combination with a base, a standard which rises from said base, a driven knife, and a presser foot for engaging the material being cut adjacent to the knife, of means carried by said presser foot for applying lubricant to the knife.

2. In a cloth cutting machine, the combination with an upright standard, a vertically reciprocating knife which is guided by said standard and projects in front of the same, and a presser bar arranged in front of the knife, of a lubricating device supported by said presser bar and arranged to apply lubricant to the knife.

3. In a cloth cutting machine, the combination with a base, a standard which rises from said base, a driven knife, and a presser foot for engaging the material being cut adjacent to the knife, of a lubricating device on said presser foot, said lubricating device having parts formed with openings through their inner sides, a hinged cover on each of said lubricating parts, said parts being adapted to contain absorbent material and a lubricant, whereby a portion of the saturated absorbent material projects through the side openings to wipe and lubricate the sides of the knife.

4. In a cloth cutting machine, the combination with a base, a standard which rises from said base, a driven knife, and a presser foot for engaging the material being cut adjacent to the knife, of a lubricating device on said presser foot, said lubricating device having lubricant containing parts formed with openings through their inner sides whereby the sides of the knife may be wiped and lubricated.

5. In a cloth cutting machine, the combination with a driven knife, and a detachable presser foot for engaging the material being cut adjacent to the knife, of lubricant receptacles projecting from said presser foot and straddling said knife, said lubricant receptacles having openings through their inner side faces and being adapted to contain absorbent material and a lubricant, whereby a portion of the saturated absorbent material projects through the side openings to wipe and lubricate the knife.

6. In a cloth cutting machine, the combination with a driven knife and a readily detachable presser foot for engaging the material being cut adjacent to the knife, of a lubricating device mounted on said presser foot and having parts arranged to lubricate and wipe the sides of said knife.

7. In a cloth cutting machine, the combination with a base, a standard which rises from said base, a driven knife, and a support arranged adjacent said knife, of a lubricating device mounted on said support, said lubricating device comprising a pair of receptacles arranged to straddle said knife, said receptacles being adapted to contain a lubricant and absorbent material and having openings through their inner sides adjacent the sides of said knife, whereby the sides of said knife are wiped and lubricated.

Witness my hand, this 21st day of June, 1919.

JAMES EARLE WILLIAMS.

Witnesses:
T. GOLDSTEIN,
D. J. ELSON.