No. 677,107. Patented June 25, 1901.

H. E. THOMAS.

MACHINE FOR CUTTING CLOTH.

(Application filed May 22, 1900.)

(No Model.)

Fig. 2.

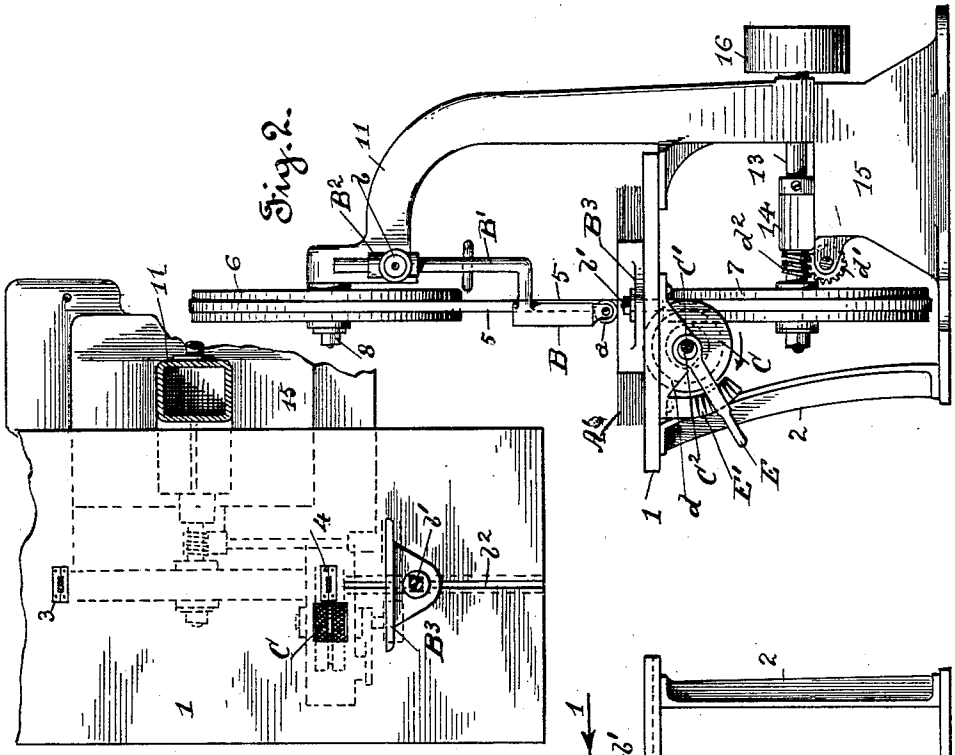


Fig. 3.

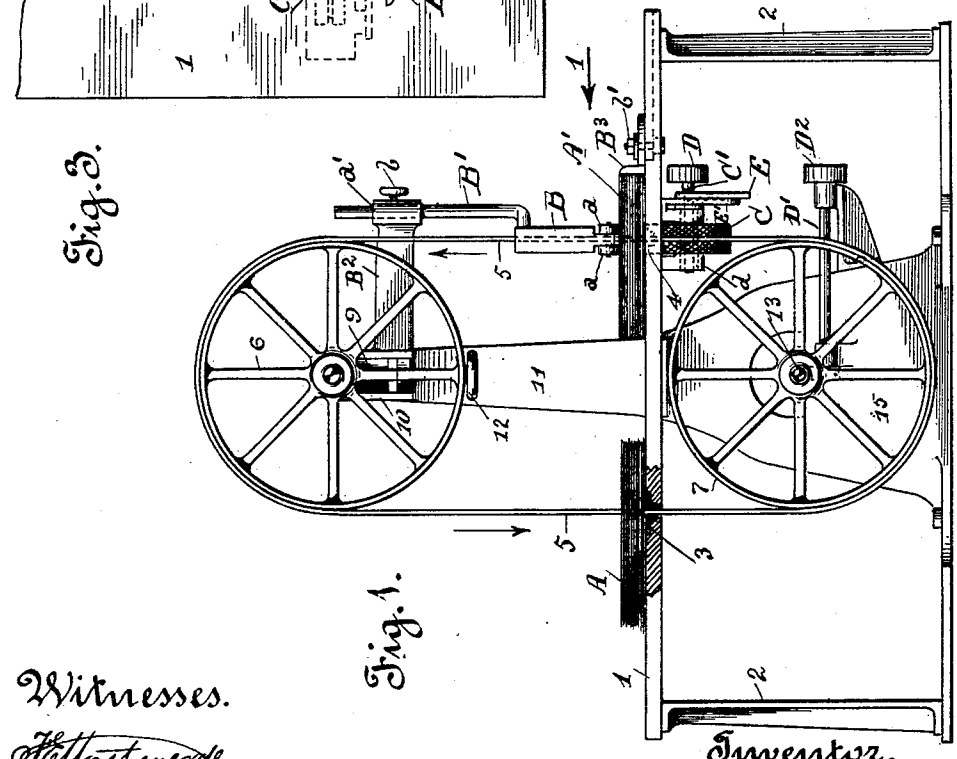


Fig. 1.

Witnesses.

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MACHINE FOR CUTTING CLOTH.

SPECIFICATION forming part of Letters Patent No. 677,107, dated June 25, 1901.

Application filed May 22, 1900. Serial No. 17,536. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. THOMAS, a citizen of the United States, residing at the city and county of San Francisco, in the State of California, have invented certain new and useful Improvements in Machines for Cutting Cloth; and I do hereby declare the following to be a full, clear, and exact description of the same.

The object of the present invention is to provide a machine wherein a knife in the form of an endless band is utilized for cutting a multiple of pieces having a common design at the same time from a given pattern, whether of cloth, canvas, leather, or other flexible material, whereby the output of the factory may be considerably increased, the expense attached to cutting of the goods materially lessened, and the handling of the goods during the operation of cutting expedited, the machine being designed to permit of straight cutting or the goods being cut upon curves, thus enabling the machine to be employed in connection with any desired pattern, while at the same time permitting of one or more bundles, piles, or stacks of material to be cut at the same time.

In order to comprehend the invention, reference should be had to the accompanying sheet of drawings, wherein—

Figure 1 is a side view of the machine, the band-knife being illustrated as cutting into two bundles, piles, or stacks of material. Fig. 2 is a front view of the machine viewed in direction of arrow 1; and Fig. 3 is a cross-sectional top plan view, the position of the mechanism below the table or platform being indicated in dotted lines.

The numeral 1 is used to indicate the cutting table or platform, which is supported by the uprights 2. Within the table are fitted the guides 3 4, through which works the endless-band knife 5, which knife works over the band-wheels 6 7. The upper band-wheel 6 is mounted upon a stud 8, outwardly projecting from slide-block 9, which block works in guideway 10 of arm or supporting-post 11 and is raised or lowered by means of adjusting-screw or tension-regulating device 12. Band-wheel 7 is secured to cross-shaft 13, working in bearings 14 of base or frame 15. This shaft serves as a drive-shaft and is driven in any suitable manner, preferably through the medium of a power-belt (not shown) working over belt-wheel 16, secured to the outer or projecting end of shaft 13. The tension of the band-knife upon the band-wheels is regulated by raising or lowering the slide-block 9.

In Fig. 1 of the drawings the band-knife is illustrated as working upon two distinct piles or stacks A A′, which may consist of piles of cloth, canvas, leather, or other flexible material, from which a number of pieces are to be cut at the same time from the given pattern. In the present case the pile or stack A is indicated as being cut upon the downstroke of the endless-band knife, while the pile or stack A′ is arranged at the opposite end of the table or platform and is acted upon during the upstroke of the knife.

Inasmuch as the resistance offered to the knife is considerable during the operation of cutting there is a tendency during the upstroke of the knife to lift the pile or stack A′ away from the platform or table. To provide against the displacement of the goods acted upon during the upstroke of the knife, I provide an adjustable holddown B. In the present case this holddown is made to partly embrace the knife-blade, and to its lower end two rollers *a* are secured, which rollers bear upon the pile or stack A′ and hold the same firmly down upon the table or platform. The holddown B is attached to the lower end of the arm B′, which arm works through a guide-opening *a′* of bracket B^2, projecting from arm or supporting-post 11, and is secured in position by means of set-screw *b*.

The pile or stack of goods A′ is held square by means of the guide-plate B^3, which plate is held up to its position by set-screw *b′*, by means of which it is attached to the table or platform. This set-screw works through the guide-plate and within a slot b^2, cut in the table or platform. Consequently by simply loosening the set-screw the guide-plate may be moved toward or from the goods. This guide-plate as a rule is only employed when the material is to be cut in a straight line—as, for instance, in the making of suspenders for overalls.

Through an opening in the table or platform works the feed-rolls C, which rolls are secured upon a shaft C′. This shaft works

in eccentric-cam journals C^2, mounted to swing in bearings d, attached to the under face of the table or platform. To one end of the shaft C′ is secured a belt-wheel D. This shaft is driven from the drive-shaft 13 through the medium of the counter-shaft D′, which shaft at one end carries the worm-pinion d', which meshes with the worm d^2 upon the drive-shaft 13. At the opposite end of the counter-shaft is secured the belt-wheel D^2, the motion of said counter-shaft being transmitted to the shaft C′ by means of a belt (not shown) working over belt-wheels D and D^2.

The rolls C are raised or lowered by means of the handle E, projecting from the cam-journals C^2. This handle as thrown up or down raises or lowers the feed-rolls C, so as to place the same into or out of contact with the bundle, pile, or stack A′ of material to be cut. When placed in contact with the under face of the bundle, the rotation of the rolls will feed the entire bundle of material crosswise of the table. As a general proposition it may be stated that the feed mechanism and guide are only made use of in connection with straight cutting.

It will be understood that, if so desired, the feed and guide mechanism may be made use of at each end of the table. However, I prefer to use the same at only one end and preferably at that end at which the cutting is done upon the upstroke of the knife. By this arrangement an operator may manipulate one bundle of material—say A—so as to cut from a curved-line pattern, while an operator stationed at the opposite end of the table may employ the upstroke of the endless-band knife to cut the second bundle of material, as A′, into narrow strips or for straight cutting.

When only one bundle, pile, or stack of material is to be cut, I prefer to operate at that end of the table which enables the downstroke of the knife to be utilized. The opposite side of the knife is at such times covered by lowering the casing B until its lower end rests upon the upper surface of the table or platform, thus eliminating danger of workmen passing around the machine being cut, which would be liable to occur provided the unused portion of the band-knife be exposed. It will thus be observed that the casing B not only serves as a holddown for the material acted upon by the upstroke of the knife, but also as a protecting-shield for the workmen, and for this reason I shall hereinafter designate this part as an "adjustable holding-sleeve." If so desired, a similar sleeve may be made use of to protect the opposite side of the knife.

The handle E, projecting from the eccentric-cam journals, may be held in adjusted position by any suitable means; but I deem the quadrant E′ sufficient for this purpose.

The endless-band knife 5 is made of thin steel, the cutting edge of which is formed into a knife-edge; but, if so desired, each edge of the knife may be so sharpened, so as to permit of the knife cutting with either edge.

Inasmuch as the cutting-knife consists of an endless band it is obvious that its cutting edge may be sharpened during the movement of the knife, thus obviating necessity of the machine being stopped and the work delayed for this purpose.

The hereinbefore-described machine is mainly designed for use in factories devoted to the manufacture of ready-made clothing or for use in connection with that class of work which requires the cutting at one time of a multiple of designs from a common pattern.

Any suitable form of a knife-edge may be given to the cutting edge or edges of the endless-band knife. I do not wish, however, to be understood as claiming or attempting to claim an endless-band saw for the purpose of cutting cloth. Such is not my intention, for I am well aware that such an idea has heretofore been patented. The use of a band-saw will not serve the purpose for which my invention is designed, for inasmuch as the cutting edge of a saw-blade is composed of a series of independent cutting edges or points it would tear the cloth and for such reason could not successfully be utilized as a cutting medium for cloth.

Having thus described the invention, what I claim as new, and desire to secure protection in by Letters Patent, is—

1. In a machine of the character described, the combination of a cutting-table, a band-wheel above said table, a band-wheel below said table, an endless cutting-band running on said wheels, a combined guide and presser above the table partly surrounding said cutting-band and adapted to press down the work on the table, and feed-wheels below said table opposite said combined guide and presser and on opposite sides of the cutting-band, substantially as described.

2. In a machine of the character described, for operating upon two distinct pieces or piles of material, the combination of a cutting-table having two guide-openings for a cutting-band, a standard located at one side of the table between said guide-openings, a band-wheel journaled on said standard above said table, a band-wheel journaled on said standard below said table, a cutting-band running on said band-wheels and through said guide-openings, means for operating said cutting-band, an arm projecting from said standard above said table, and a combined guide for said cutting-band and presser for the work located above the guide-opening through which the cutting-band moves upwardly, substantially as described.

In witness whereof I have hereunto set my hand.

HENRY E. THOMAS.

Witnesses:
D. B. RICHARDS,
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