No. 860,530. PATENTED JULY 16, 1907.

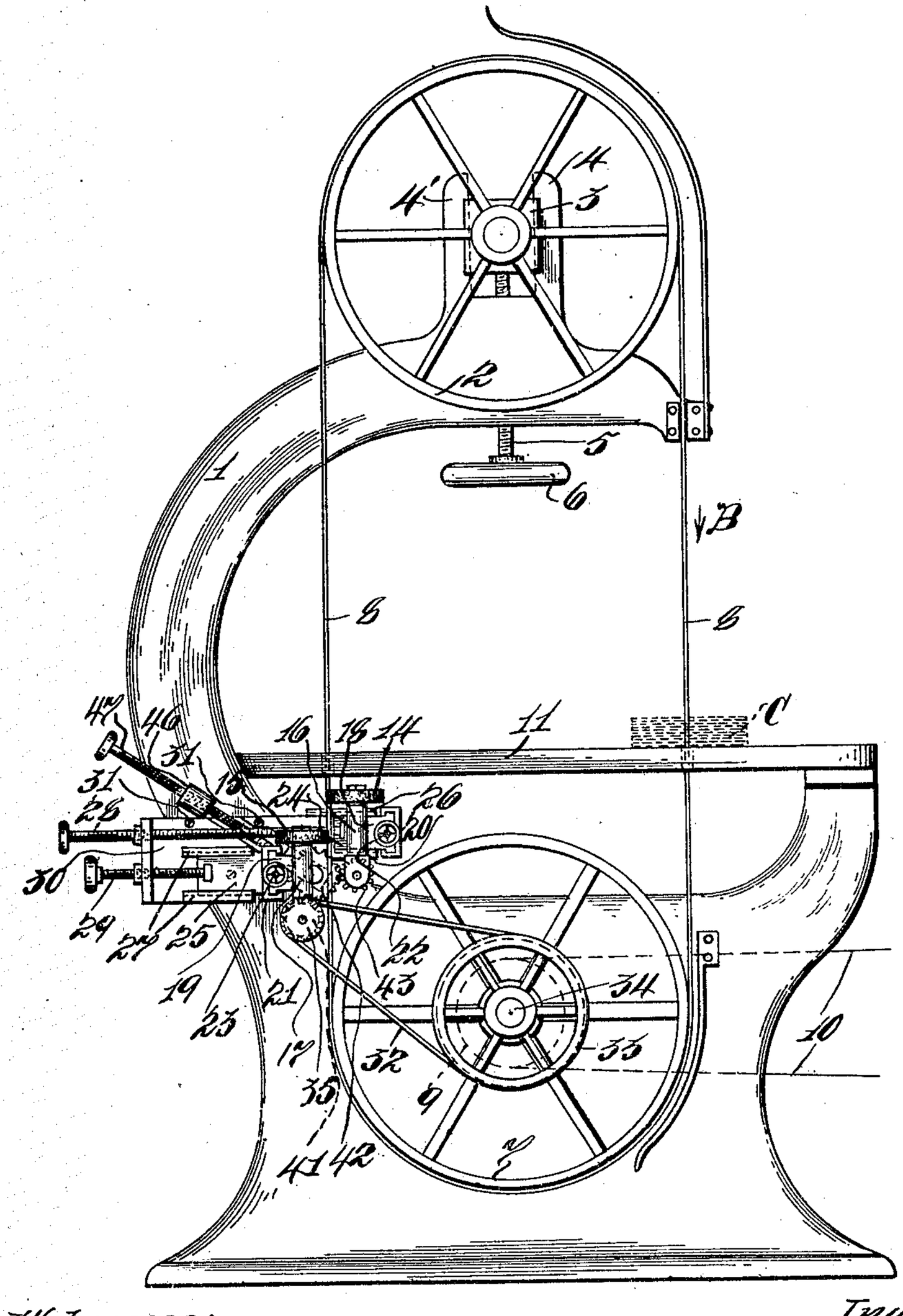
W. CORMANY.

MACHINE FOR CUTTING FABRICS.

APPLICATION FILED JULY 7, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



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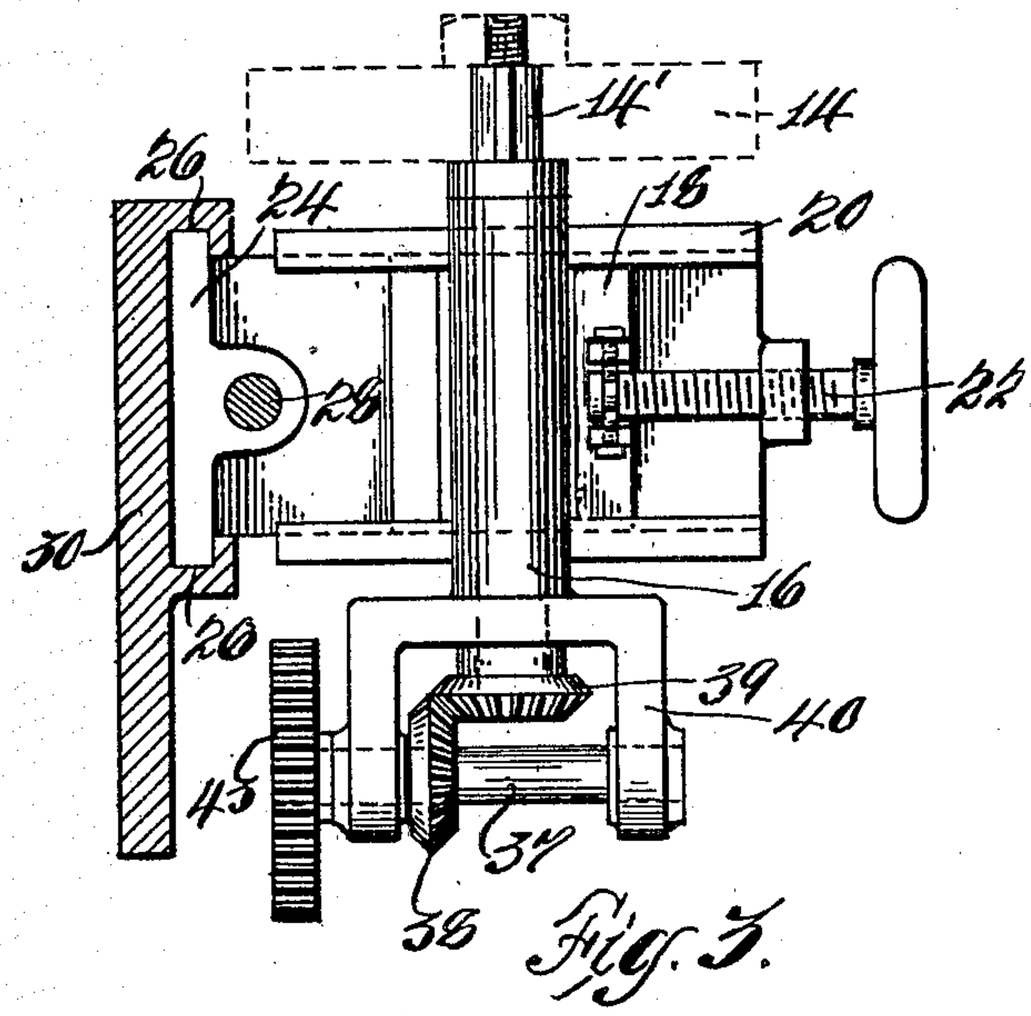


Fig. 3.

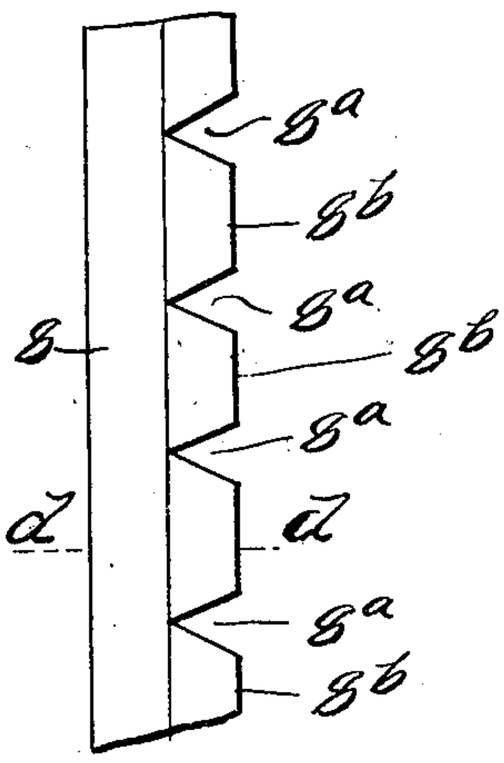
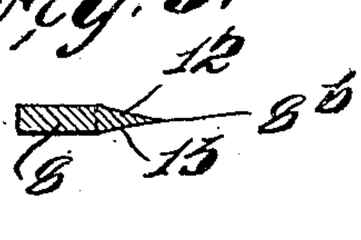


Fig. 4.

Fig. 5.



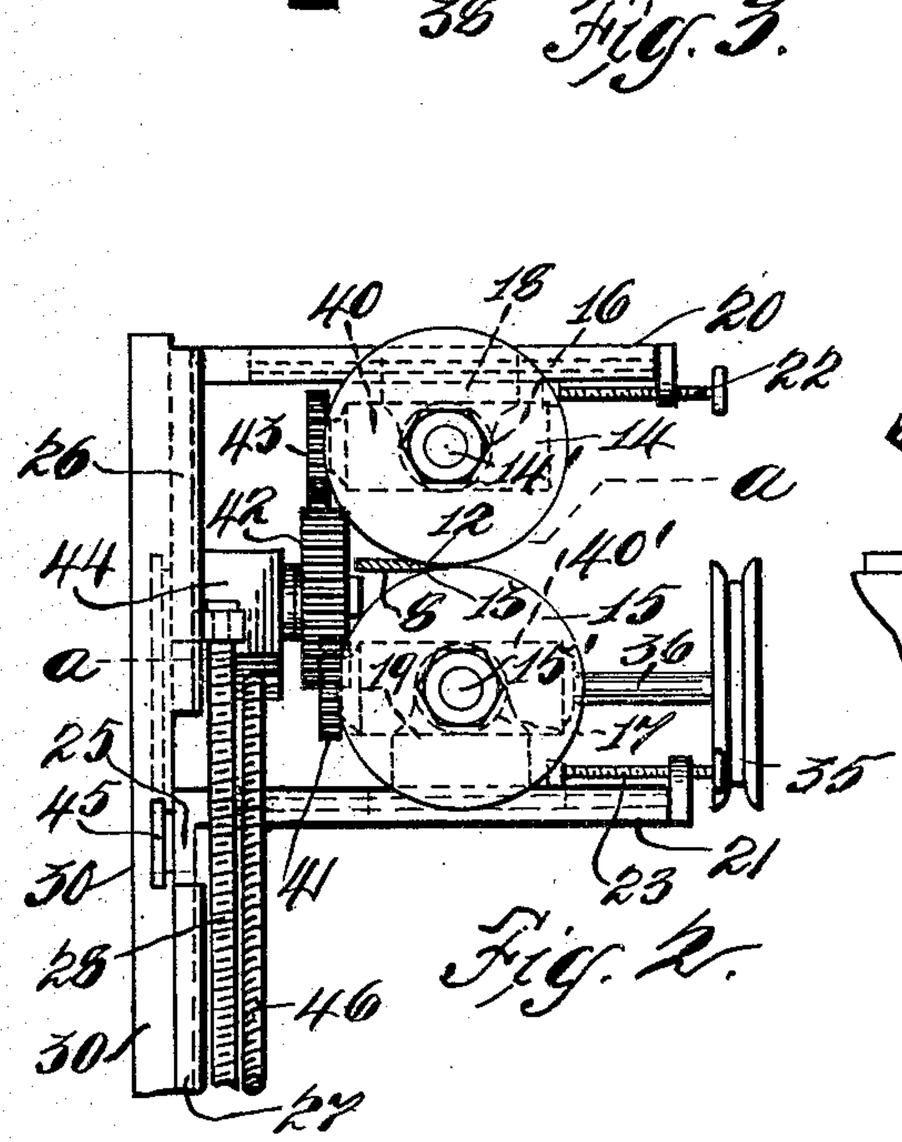


Fig. 2.

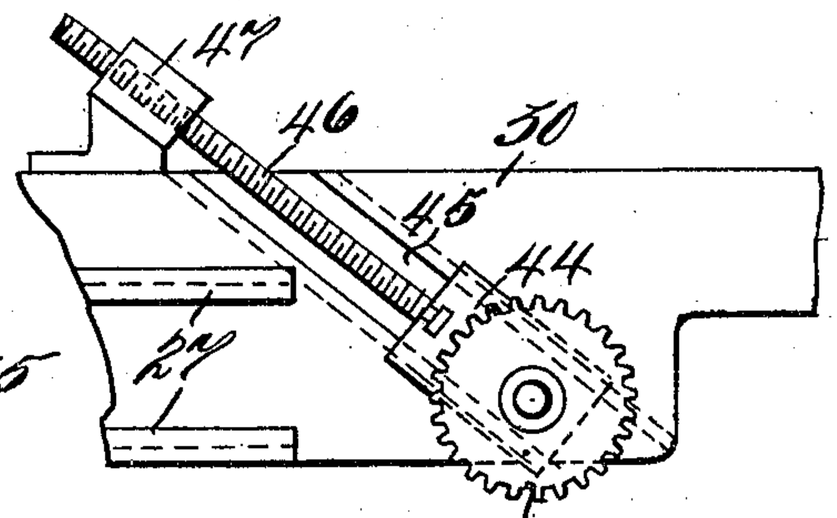


Fig. 6.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR CUTTING FABRICS.

No. 860,530. Specification of Letters Patent. Patented July 16, 1907.

Application filed July 7, 1906. Serial No. 325,069.

To all whom it may concern:

Be it known that I, WALTER CORMANY, a citizen of the United States, residing at New York city, borough of the Bronx, county and State of New York, have invented certain new and useful Improvements in Machines for Cutting Fabrics, of which the following is a clear, full, and exact description.

This invention relates to machines for cutting fabrics, one of the objects being to provide a positive cutting element of special design.

A further object of the invention is to provide certain improved automatic sharpening means for the cutting element.

The cutting element of my improved machine comprises a series of independent lineal cutting divisions, the said cutting divisions being of special shape.

One of the principal features of my invention is the form and action of these lineal cutting divisions, which are ground or beveled upon both sides starting from a point intermediate the edges of the blade containing these cutting divisions and meeting midway between the sides of the said blade, thus producing a cutting blade of an acute angular shape. It is due to this shape that I am enabled to keep the cutting blade in line or straight. I have found that if the said blade were ground or beveled upon one side only, or triangular, the action of the beveled side would lead the blade out of line in machines of this character.

Another feature of my specially constructed blade or band is that owing to the notches therein the cutting surfaces sever the fabric more easily, as when the said notches pass through the pile they tend to drive or compress the fabric toward the table of the machine, and hence, while there is a constant cutting action going on, there is also an action upon the part of the said notches to hold the pile of fabric down.

In order to sever the fabric clean, it is necessary to keep the cutting element perfectly sharp, and to attain this end and to obviate the necessity of taking the cutting-blade or band from the machine for such purpose, I have devised an automatic sharpening means which I attach to the machine convenient to the cutting-blade or band, as will be hereinafter described.

To these and other ends which will hereinafter appear my invention comprises the novel features of improvement and combination and arrangement of parts which I will now proceed to describe and finally claim, reference being had to the accompanying drawings, forming part of this specification, wherein—

Figure 1 is a side elevation of a machine embodying my improvements; Fig. 2 is an enlarged partial plan view of the sharpening device and shows the grinding elements in contact with the cutting-band; Fig. 3 is an enlarged detail view of one of the sliding heads which carries one of the grinding elements, the supporting plate being shown in section, the section being taken on a line *a—a* in Fig. 2; Fig. 4 is an enlarged side elevation of a fragment of the cutting-band; Fig. 5 is a cross-section thereof, the section being taken on a line *d—d* in Fig. 4; and Fig. 6 is an enlarged detail view of a portion of the supporting-plate for the sliding-heads, the heads being removed.

Similar letters or numerals of reference are intended to indicate corresponding parts in the several views.

Referring now to Fig. 1, the numeral 1 indicates the supporting-frame of my improved machine. Upon the top of the frame a band-wheel 2 is rotatably supported in a sliding box 3 which is fitted to the guides 4, 4′ and operated by the adjusting-screw 5 and hand-wheel 6. At the bottom of the frame a second band-wheel 7 is rotatably mounted. The band-wheel 7 constitutes the secondary driving-element for the flexible cutting-band 8. The wheel 7 is driven by means of a pulley 9 at the opposite side of the frame 1, which pulley in turn is driven by a belt 10 that connects with any suitable driving element (not shown). It will be seen that the band 8 is continuous and, as the wheels 2 and 7 are revolved, will travel at a high rate of speed, in the manner of a band-saw, the direction of travel being in the direction of the arrow B. When in operation a pile of fabric C will be placed upon the table 11 of the machine and fed against the band 8 in a manner well known in the arts.

By referring to Fig. 4 it will be seen that the band 8 is notched as at 8^a, thereby leaving independent lineal cutting surfaces 8^b, and by referring to Fig. 5 it will be seen that the said band is beveled at both sides, as at 12 and 13, said bevels meeting at the aforesaid point 8^b, all of which are for the purpose hereinbefore stated. In order to keep the lineal cutting edge 8^b up to the requisite degree of sharpness, I provide a plurality of rotary grinding elements 14 and 15 (Fig. 2) which are designed to contact the band 8 at the beveled portions 12 and 13, as shown. The grinding elements may be disks of emery or the like, and are suitably attached to spindles 14′ and 15′, which in turn are rotatably mounted in bearings 16 and 17, respectively, of the sliding-heads 18 and 19. Said sliding-heads 18 and 19 are mounted in guideways 20, 21, respectively, and are adapted for adjustment along said guideways or in parallelism with the sides of the band 8, by means of the adjusting-screws 22, 23, which are suitably mounted for the purpose, as shown in Fig. 3. The guides 20, 21 have extending therefrom slides 24 and 25, which are in turn carried by guides 26 and 27, the guides 20, 21 and slides 24 and 25 being in this instance integral. The slides 24, 25 are adapted for adjustment transversely of the band 8 in the guides 26 and 27 by means of the screws 28 and 29. The guides 26 and 27 are carried by a bracket-plate 30 which is attached to the frame 1, in

this instance, by screws 31 (Fig. 1). By the aforesaid means of transverse and parallel adjustment of the grinding elements I am enabled to graduate the grinding of the lineal cutting surfaces 8^b of the flexible band 8 to any degree. The carriers for the disks 14 and 15 are duplicates, one only being shown in Fig. 2 in detail. As hereinbefore stated, the disks 14 and 15 are rotatable, and in this instance I have chosen to show them as driven by a belt 32, which transmits movement from the belt-wheel 33, carried by the main shaft 34, to the belt-wheel 35, which is carried by the shaft 36 of the head 19. The shaft 36 corresponds to the shaft 37 of the head 18 and carries a bevel-pinion, similar to the pinion 38 of the shaft 37. The spindle 15′ carries a bevel-gear similar to the bevel-gear 39 of the spindle 14′, all of which are arranged in a fork 40′ similar to the fork 40 of the head 18, the said pinion and gear being in mesh. Upon the inner end of the shaft 36 a spur-pinion 41 is placed, which meshes with an idle spur-gear 42, which in turn drives a spur-gear 43 carried by the shaft 37. It is therefore obvious that the disks 14 and 15 are simultaneously operated through the said train of gears, the said gears being operated by the main shaft by means of the belt 32 and wheels 33 and 35. As shown in Fig. 6 the idle-gear 42 is adapted to be carried out of mesh with the pinion 41 and gear 43. The gear 42 is carried by a slidable box 44 which works in guides 45 formed in the plate 30, an adjusting-screw 46 being supplied for the purpose, said screw working within the hub 47 upon the plate 30. By this means I am able to throw the disk 14 out of operation and grind one side only of the band 8 by means of the disk 15.

My improved machine as hereinabove described is adapted to cut a pile of fabric to a pattern and is particularly adapted for cutting piles of thin fabric, which has heretofore been difficult of accomplishment by machine.

Instead of employing belt-driven grinding elements, such as shown and described, I may substitute a sprocket-chain or connect the grinding-elements with a geared counter-shaft.

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

1. In a machine for cutting fabrics, the combination of a continuous metal band having a cutting edge, means for operating same, a rotary grinding element on each side of said edge adapted to contact same, means for independently adjusting said grinding elements, a gear carried by each of said grinding elements, an idle gear in mesh with the gears carried by said grinding elements, said idle gear being slidably mounted, means adapted to throw said idle gear out of mesh with the gears carried by said grinding elements, whereby one grinding element only will operate, and means for driving one of said grinding elements, said idle gear being adapted to drive the other grinding element.

2. The combination of a traveling cutting band provided with a plurality of independent spaced lineal cutting edges in alinement, said cutting edges being separated by acute angular serrations, whereby a compressing edge is formed at the meeting points of said cutting edges and the sides of said angular serrations, a plurality of adjustable rotatable sharpening elements, carried by rotatable spindles, adapted to sharpen said cutting edges, gears carried by said spindles, an adjustable idle gear in mesh with the gears carried by said spindles, means adapted to bring said idle gear in and out of mesh with the gears upon said spindles, and means for connecting one of said spindles with a driving element.

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