Nov. 3, 1925. 1,559,871

J. HEYMAN

FABRIC CUTTING MACHINE

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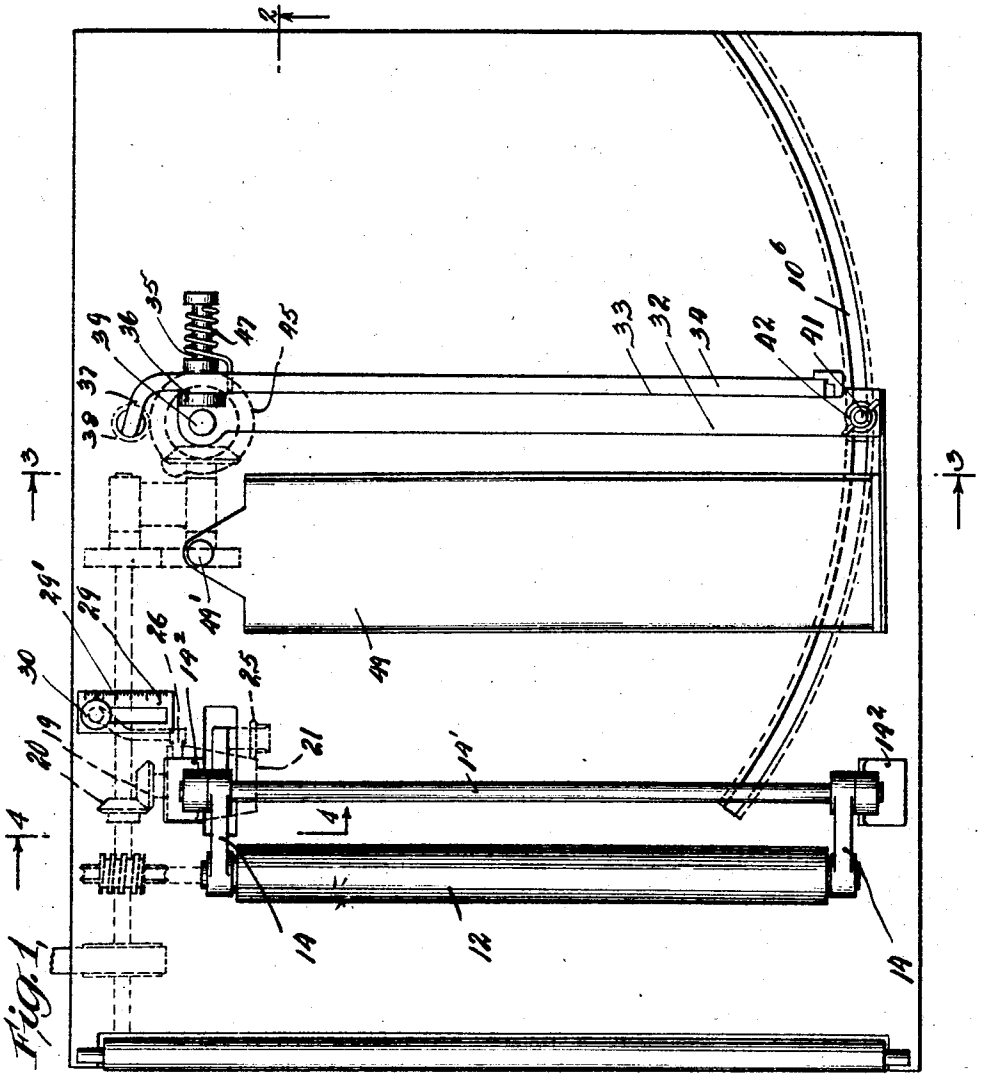


Fig. 1.



Fig. 5.

Inventor
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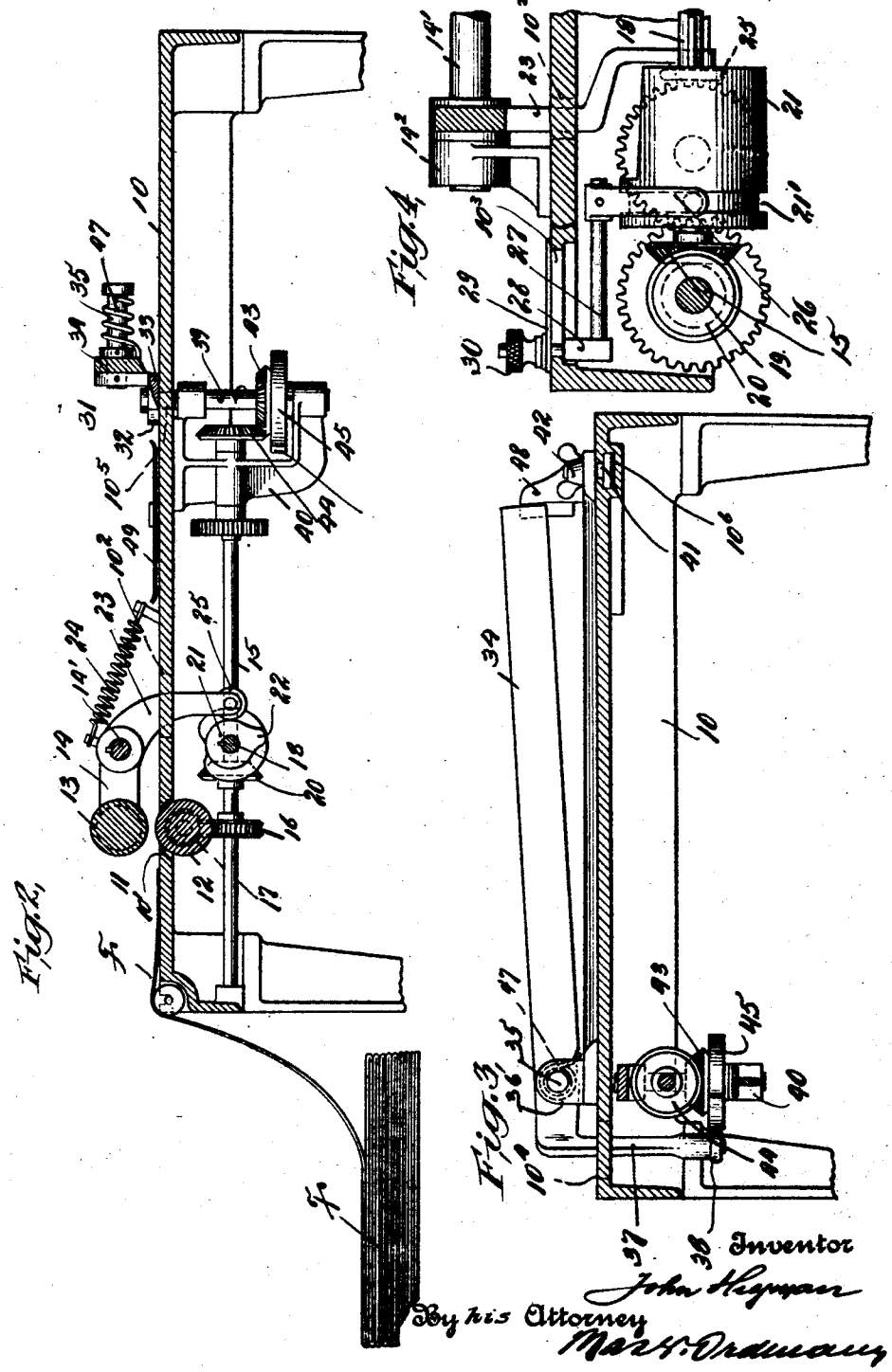
By his Attorney
Mack Ordeman

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FABRIC CUTTING MACHINE

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UNITED STATES PATENT OFFICE.

JOHN HEYMAN, OF NEW YORK, N. Y.

FABRIC-CUTTING MACHINE.

Application filed March 29, 1924. Serial No. 702,760.

To all whom it may concern:

Be it known that I, JOHN HEYMAN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Fabric-Cutting Machines, of which the following is a specification.

This invention relates to power driven fabric cutting machines and has for its principal object to provide a machine, whereby a piece of fabric can be cut to strips of predetermined size and bias.

Another object of this invention is to provide means for facilitating and simplifying the adjustment of the machine for different sizes to be cut.

Other objects will appear from the detailed description of my invention.

In the accompanying drawing, in which similar reference characters denote corresponding parts, Fig. 1 is a top plan view of my fabric cutting machine; Fig. 2 is a vertical longitudinal section on line 2—2 of Fig. 1 thereof; Fig. 3 is a vertical horizontal cross section on line 3—3 of Fig. 1 thereof; Fig. 4 is a similar section to that of Fig. 3 on line 4—4 of Fig. 1 and Fig. 5 is a perspective view of a detail.

10 denotes a base or table over which the fabric F is adapted to be fed from a pile resting on the floor or a suitable support. Extending across the base or table 10, is the fabric feeding mechanism 11. The latter comprises two superposed rollers, one being a continuously and uniformly driven roller 12, which is adapted to project slightly over the upper face of the base through a slot 10′, and the other an idle roller 13, carried by rock arms 14 and adapted to be periodically brought into frictional engagement with said driven roller 12 and when the fabric F is passed between said rollers to feed the same. These rock arms are fixed to the ends of a cross spindle 14′ suitably supported in bearings 14^2 fixed on the base 10. The roller 12, which may be journalled in suitable bearings (not shown) is adapted to be driven through suitable transmission means from a power driven shaft 15 extending longitudinally near one side of the base 10. In the present embodiment, the shaft 15 carries a worm gear 16, which meshes with a worm 17 formed on the corresponding end 12′ of the roller 12. Extending transversely of the base and parallel to the roller 12, but in the plane of the driving shaft 15, is a shaft 18 suitably supported in the base 10 and which is adapted to be continuously driven with uniform speed from the shaft 15 through bevel gears 19, 20 or the like. Near the driven end of this shaft 18, I provide means for periodically actuating the rock arms 14 of the roller 13, whereby the latter will be brought into and out of engagement with the roller 12, so as to feed the fabric intermittently towards the cutting mechanism to be described. These means comprise a cylinder or drum 21 mounted on the shaft 18, so as to be adjustable longitudinally thereon and provided with a cam 22 actuating an arm 23 fixed on the spindle 14′ of the rock arms 14 and projecting downwardly through a recess 10^2 in the base 10. A spring 24 fixed at one end to the base and at the other to the spindle 14′ has the tendency to normally swing the roller 13 into elevated or open position. The cam 22 extends throughout the length of the cylinder or drum 21 and gradually increases in width from one end toward the other. The drum 21 is so mounted on the shaft 18, that while it will revolve with the latter, it can be shifted in longitudinal direction thereon, so that the roller 25 carried by the lower end of the arm 23 may be brought into contact with a wider or narrower portion of the cam 22 and thereby vary the period of engagement of the two rollers 12, 13 and consequently the extent of the feed desired. At its outer end, the drum 21 is formed with an annular circumferential groove 21′ in which is engaged a vertically extending forked lever 26 fixed to the end of a rod 27 extending transversely of and below the base 10 and connected at its opposite end to a pin 28. The latter is slidably guided in a cross slot 10^3 of the base and projects upwardly through a graduated slotted plate 29 fixed to the base 10. The upper end of the pin 28 carries a knob 30 formed with an index finger pointing toward the graduations 29′ of the plate. These graduations may denote in inches the adjustments desired for cutting the fabric in different widths.

In front of and at a suitable distance away from the feeding mechanism, I provide the cutting mechanism 31. The latter comprises a transversely extending bar 32

formed with a stationary cutting jaw 33 and a vertically swinging cutting jaw 34, both extending longitudinally of the bar. The movable jaw 34 is fulcrumed on a horizontal pivot 35 borne in a bracket 36 projecting from the fulcrumed end of the bar 32. This movable jaw has a bent tail extension 37, which projects downwardly through a recess 10^4 of the base 10, and carries at its free end a roller 38.

In order to enable the cutting on a bias, the cutting mechanism can be adjusted to different angles relative to the direction of feed. To this end, the bar 32 is fulcrumed on a pin 39, which extends downwardly through a hole 10^5 of the base and is rotatively borne in a bracket 40 fixed to the base. The bar 32, at its free end, is provided with a member 41, which slidably bears in a circularly curved guide groove 10^6 in the base having as center the pivot 39. This member may be in form of a headed screw bolt, which, on the threaded portion, carries a nut 42, whereby the bar 32 and the jaws 33 and 34 on being turned around the pivot 39 along the curved guide groove 10^6 can be fixed in the desired position. The pin 35 is continuously driven from the main shaft 15 through bevel gears 43, 44 or the like and carries a cam disc 45 adapted to actuate the tail 37 through the medium of the roller 38 carried by it and cooperating with said cam 45. The latter is so shaped that it will operate the movable jaw synchronously with the operation of the roller 25 by the cam 22 and the periods between successive downward strokes of the movable jaw will be the same as the maximum period of feed occasioned by the widest part of the cam 22. As a result thereof, when the drum 21 is adjusted so that a narrower portion of the cam 22 is in range with the roller, the fabric will be intermittently fed shorter distances, while the movable jaw will descend and cut at the end of each maximum feeding period. The opening or upward movement of the jaw 34 will be effected automatically through a spring 47 acting on the jaw and suitably mounted on the pin.

48 denotes a member projecting from the free end of the bar 32 and adapted to slidably engage the free end of the movable jaw 34 and to tightly hold the latter close to the stationary jaw. 49 denotes a suitable support for the goods at the rear of the cutting mechanism to prevent it from sagging. This support may be in form of a plate extending across the base 10 and fulcrumed at one end, as at 49′ and suitably connected to the bar 32 to swing with it in parallelism. when adjusting the cutting mechanism to cut on the bias.

The mode of operation is as follows:—

The goods F piled on the floor or on a suitable support is extended over the table to pass over the roller 12. Assuming it is desired to cut the fabric in straight strips of 1″ width, the cutter is adjusted to extend at a right angle to the feeding direction of the fabric and the cam drum 21 adjusted on its shaft 18, until the index points to the corresponding mark on the scale. As the cam 22 revolves, it will intermittently raise and lower the idle roller 13 from and onto the goods and during the periods of engagement of the two rollers 12 and 13, the fabric will be fed. The movable jaw 34 will be raised periodically by the cooperation of the cam 45 and the roller 38, the periods between successive downward strokes corresponding to the maximum periods of feed.

When it is desired to cut on a bias, the cutting mechanism is turned on the pin 39 and the cam disc 45 adjusted on the said pin 39, so that the relative position between the cam portion and the roller 46 remains unchanged.

Since various modifications may be made in the device without departing from the principle of my invention, I do not wish to restrict myself to the details described and shown.

What I claim is:—

1. In a fabric cutting machine, a fabric feeding mechanism including a feed roller, a cam for oscillating said roller, a cutting mechanism including a movable jaw and a cam for oscillating said jaw, both said cams being in such relation to one another that the periods between successive cutting actions will correspond to the periods of maximum feed of the fabric.

2. A fabric feeding mechanism, including an oscillating feed roller and an adjustable cam member actuating said roller and capable of varying the stroke of oscillation of the latter.

3. A fabric feeding mechanism, including an oscillating feed roller and a graduated adjustable cam member for actuating said roller with varying strokes.

4. A fabric feeding mechanism, including a continuously revolving feed roller, a continuously oscillating roller cooperating therewith and an adjustable graduated cam member capable of actuating said last named roller with varying strokes.

5. A fabric feeding mechanism, including a feed roller, a rocking arm carrying said roller and a longitudinally graduated and displaceable cam member acting on said arm and capable of transmitting rocking movement to said arm with varying strokes.

6. In a fabric cutting machine, the combination with a source of power, of a revolving feed roller, an idle feed roller, a rocking member carrying the latter, a graduated cam member acting upon said rocking mem-

ber, both said first roller and cam being continuously driven from said source of power and said cam member being adjustable relative to said rocking member to vary the stroke of the latter.

7. In a fabric feeding mechanism, a feed roller, a rocking member carrying the latter, a continuously revolving adjustable body formed with a graduated cam portion acting on said rocking member, a slidable member engaging said body and carrying adjustment indicating means.

8. In a fabric cutting machine, a feeding mechanism comprising a continuously driven means and a periodically operating means to cooperate with the latter to feed the fabric, adjustable cam operated means for varying the feeding periods, a cutting mechanism having an automatically oscillated jaw and means for synchronizing the operation of said jaw with the feed of the fabric.

9. In a fabric cutting machine, a feeding mechanism comprising a continuously driven means and a periodically operating means adapted to cooperate with the latter to feed the fabric, adjustable cam operated means for varying the feeding periods, a circularly adjustable cutting mechanism having an oscillating jaw and means for synchronizing the operation of said jaw with the feed of the fabric.

10. In a fabric cutting machine, a feeding mechanism, comprising a continuously and uniformly driven feeding roller and a periodically rocking roller to cooperate with the latter to feed the fabric, adjustment means for varying the feeding periods, said means including a continuously revolving adjustable cam and a member cooperating with the latter to transmit rocking movement to said second roller, a cutting mechanism including a vertically rocking cutting jaw and a cam for producing the rocking movement of said jaw, said two cams being in such relation that the periods between successive cutting actions will correspond to the periods of maximum feed of the fabric.

11. In a fabric cutting machine, a cutting mechanism comprising a horizontally pivoted member formed with a stationary jaw, a second jaw pivoted to said member to swing vertically, a continuously driven cam adjustably mounted on the pivot of said member and means on said second jaw cooperating with said cam and transmitting movement to said second jaw.

In testimony whereof I affix my signature.

JOHN HEYMAN.