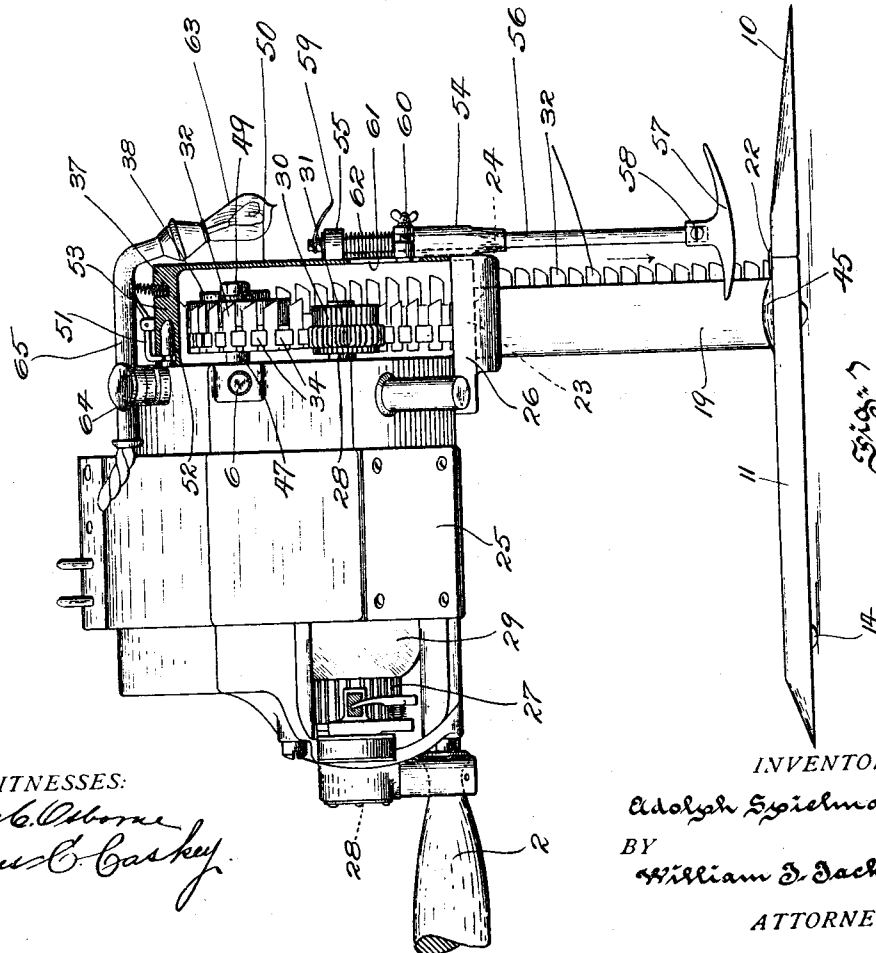
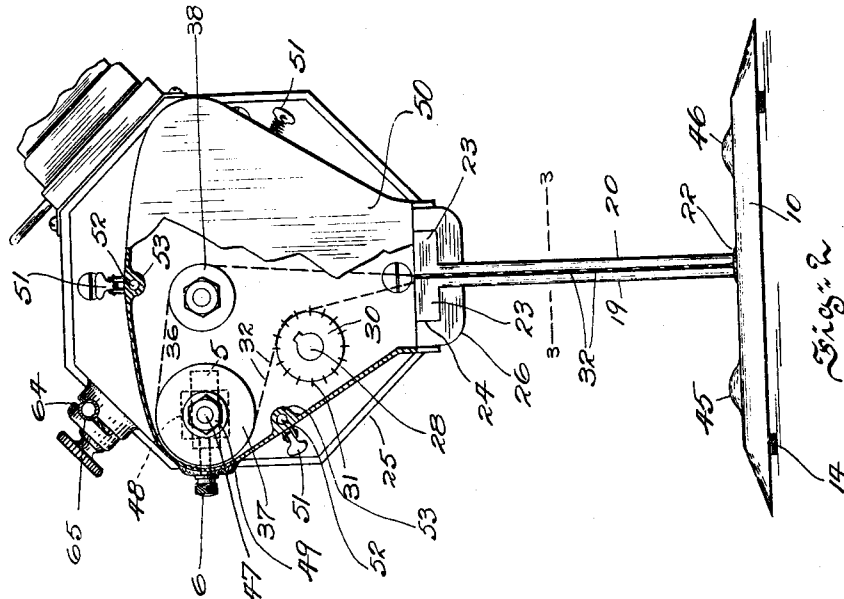


A. SPIELMAN.
CLOTH CUTTING MACHINE.
APPLICATION FILED DEC. 29, 1910.

1,050,307.

Patented Jan. 14, 1913.

3 SHEETS-SHEET 1.



WITNESSES:
Frank C. Osborne
Agnes C. Caskey

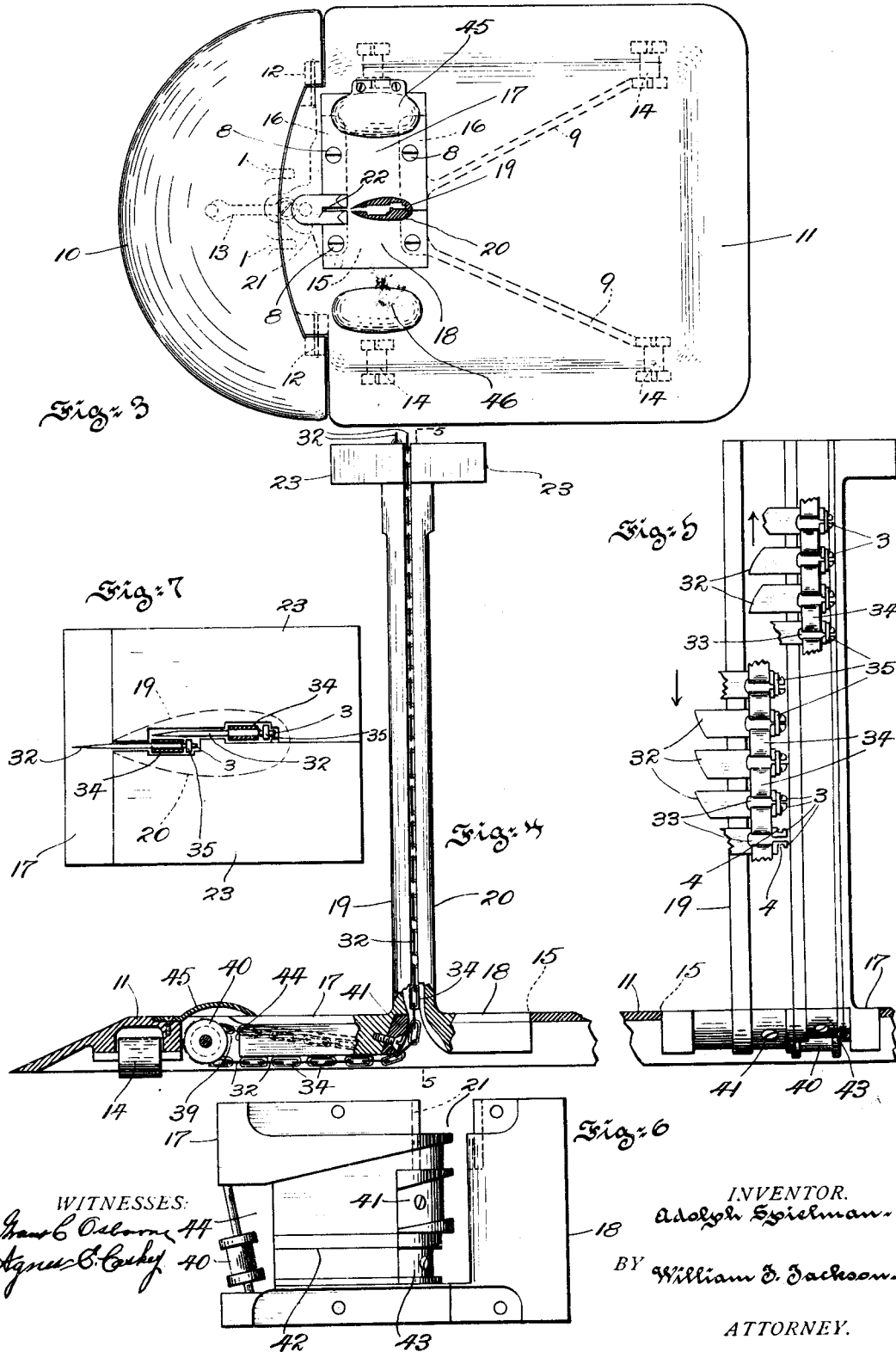
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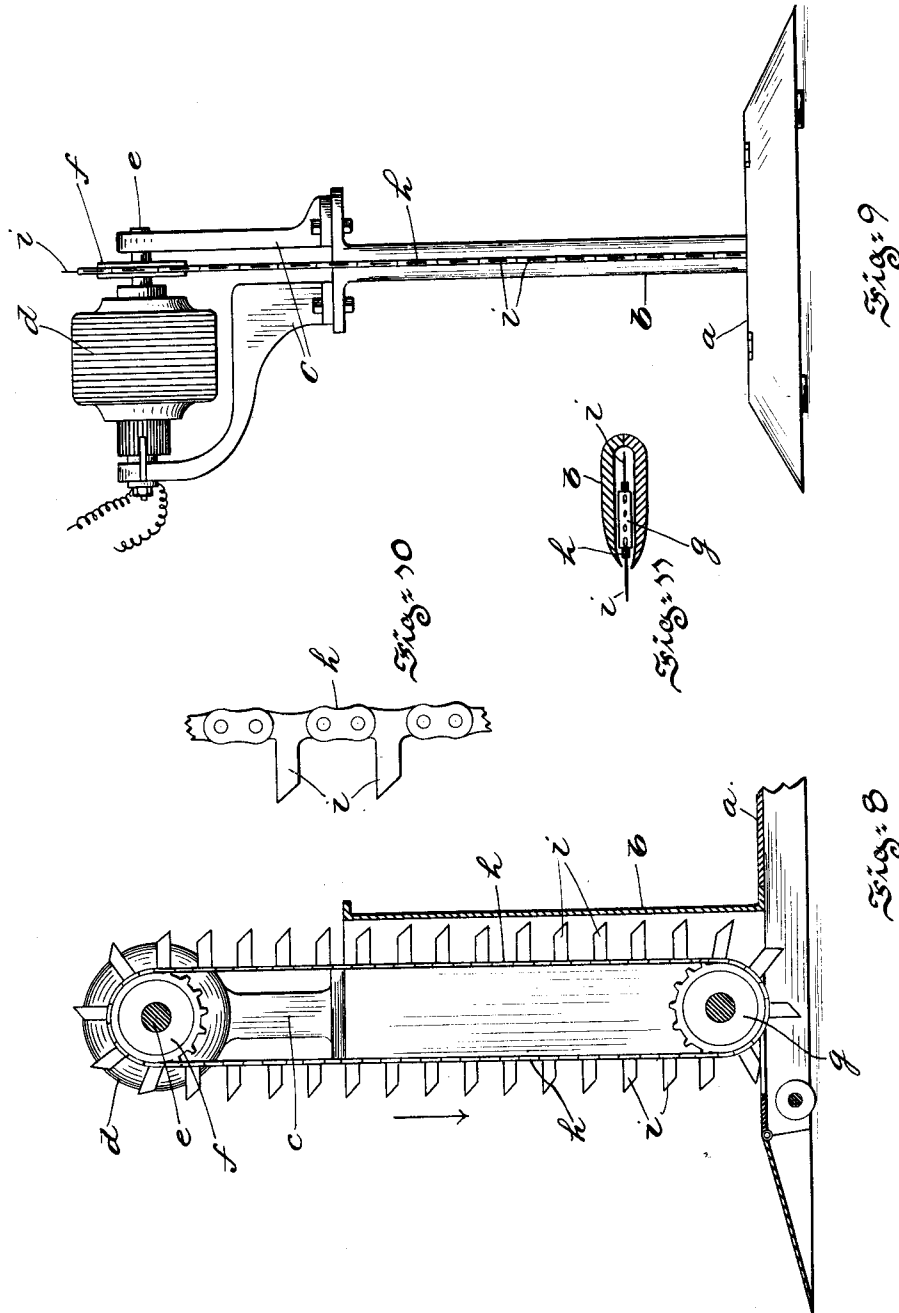


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WITNESSES:

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UNITED STATES PATENT OFFICE.

ADOLPH SPIELMAN, OF PHILADELPHIA, PENNSYLVANIA.

CLOTH-CUTTING MACHINE.

1,050,307.

Specification of Letters Patent. Patented Jan. 14, 1913.

Application filed December 29, 1910. Serial No. 599,936.

To all whom it may concern:

Be it known that I, ADOLPH SPIELMAN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Cloth-Cutting Machines, of which the following is a specification.

This invention relates to devices of that class used for cutting various kinds of materials especially cloth or other textile materials in the manufacture of clothing and other goods or fabrics and has more particular relation to improvements upon the cloth-cutting machine shown and described in Letters Patent granted to me under date of July 7, 1908, and numbered 892,460.

The principal object of the present invention is to provide a cloth-cutting machine which shall be practically efficient for the purposes intended and which shall possess certain advantages over machines of like character now in use.

A further object of the present invention is to provide a machine having interchangeable cutting devices of an improved and novel character, whereby substitution of cutting devices may be effected when desired more readily than upon machines of like character now in use.

A still further object of the present invention is to provide certain novel features of construction and combinations of parts whereby the cutting machine is rendered simple and inexpensive in nature, compact in form, durable in construction and calculated to be practically free from vibration in operation.

Other objects of the invention will appear hereinafter.

The invention consists in the novel construction and arrangement of parts whereby the above results as well as others are obtained as will be hereinafter fully described, reference being had to the accompanying drawings in which:

Figure 1 is a view in side elevation partly sectioned of a cloth-cutting machine embodying the invention, Fig. 2 is a view in front elevation partly in section of the same, Fig. 3 is a sectional view taken upon the line 3—3 of Fig. 2, Fig. 4 is a fragmentary

view drawn to an enlarged scale, partly in elevation and partly in section, of the lower portion of Fig. 2, Fig. 5 is a view in section taken on the line 5—5 of Fig. 4, Fig. 6 is a view of the underside of the sectional standard shown in Figs. 4 and 5, Fig. 7 is a view in plan, drawn to an enlarged scale, of the standard shown in Figs. 4 to 6, inclusive, Fig. 8 is a view in side elevation, principally in section, of a somewhat modified form of cutting machine, Fig. 9 is a front view thereof, Fig. 10 is a detail view of the cutting device used in connection therewith, and Fig. 11 is a view in cross-section of the standard used in connection with the foregoing cutting machine and its complemental cutting devices.

Referring to the drawings, the improved cutting machine is provided with a base plate of generally rectangular form provided with side walls that incline downwardly in order to permit the base to be readily slipped beneath the material to be cut. As shown in the drawings, the base plate is made up of sections 10 and 11, having hinged relation with each other as at 12, a centrally arranged single leaf spring 13, being present between said sections for supporting in a relatively yielding position, the forward section 10. Lugs 1, carried by the section 10, abut against the underside of the section 11, to limit the downward movement of the aforesaid forward section. The base plate is provided on its underside with a compartment adapted to house these parts as well as traction rollers 14, and other parts hereinafter referred to. The traction rollers are preferably of roller bearing construction, the peripheries of which extend slightly below the underside of the inclined walls of the base plate. The section 11, of the base plate is provided adjacent its forward portion with a rectangular openings 15, provided with inwardly extending ledges 16, for receiving the feet 17 and 18, of sections 19 and 20, of a vertical standard, grooved or channeled for the passage therethrough on an endless cutting band. As shown in Fig. 3, the feet 17 and 18 are secured to the ledges 16, by screws 8, and the tops of said feet come flush with the upper surface of the section 11 of the base

plate, in order that the cloth being cut may lie flat at the point of presentation to the cutting band. As shown in Fig. 3, ribs 9 extend from the rear ledge 16, to a point adjacent the rear rollers 14, in order to provide strength and rigidity to the base plate. The forward ledge 16, as well as a portion of the section 11 of the base plate is recessed as at 21, for the reception of a throat plate 22, which is slotted for the accommodation of the endless cutting band. The sections 19 and 20, of the vertical standard are each provided with a lateral extension 23, adapted to be fitted within the grooved portion 24 of a forwardly extending lug 26 of a motor 25. The motor 25 may be of any suitable type and comprises a field 29, and an armature 27, held upon a shaft 28, a handle 2, being present for guiding the cutter as a whole. The armature shaft 28, has keyed thereto at its forward end a main driving wheel 30, provided peripherally with teeth 31, for meshing with and exerting an upward pull upon the endless cutting band about to be described.

The endless cutting band is made up of a multiplicity of knives, interlocked one with another to form an endless band of linked cutters having a continuous cutting edge and calculated to have its opposite sides or runs to travel endwise in reverse directions at the point of presentation of work to be done, the cutting edge of one of said sides or runs being to the rear of and out of alinement with the other of said sides or runs of the band. In practice best results have been obtained by constructing the endless band of knives 32, the rear ends of which are provided with small knobs 3, having recessed portions 4, and are slotted as at 33, for insertion of links 34. The links 34, which are of unsplit tubular form connect the knives and may be readily placed in proper position over the adjacent slotted ends of the knives. When the links 34, are in position between said knives, washers 35, may be snapped over the knobs 3, of each knife, into the recessed portions 4. In this connection, it may be remarked that in snapping the washers 35, to place the slotted ends of the knives are squeezed together which will readily permit the washers to be passed over the said knob 3, and when said ends are released the washers are maintained in place in the recessed portions thereof by the spring-like character of said knife ends. By this arrangement and construction of parts, it will be readily apparent that in the case of breakage of one or more knives, the same may be readily and conveniently replaced without in any way affecting the usefulness of the remaining knives. Further such replacement of knives may be effected in a few moments' time, thereby eliminating the necessity of the

cutter as a whole being out of operative position for long periods of time. The upper bight 36, of the endless cutting band extends above the main driving wheel 30, and is adapted to pass over idler sheaves 37 and 38, of which the idler 37 is considerably larger in diameter than is the idler 38. The lower bight 39, of the endless cutting band in turn passes over the idler sheave 40, which is journaled within the foot 17 of the section 19 of the vertical standard. In order to accomplish the shifting out of alinement of the opposite sides or runs of the cutting band, it is essential that the downward moving cutting edge extend or project without the channeled standard and that the upwardly moving or opposite side or run of the cutting band extend wholly within the said standard. To accomplish this shifting with the least possible friction of parts, and to provide sufficiently tight tension to the downwardly moving run of the cutting band, the above-described arrangement of the driving wheel and idler sheaves has been devised. As shown in Fig. 1, the driving wheel 30 is immediately adjacent the outer face of the motor frame and the idler sheave 37 is removed for a greater distance therefrom and may be arranged somewhat at an angle. The idler sheave 38 in turn may be likewise arranged at an angle and still farther removed from the outer motor frame face. Thus, as the upwardly moving side or run of the cutting band passes up wholly within the channeled standard, see Fig. 7, and over the driving wheel 30, the teeth 31 of which mesh with the slotted portions 33 of the knives 32, between the links 34, the said endless band passes over the idler sheaves 37 and 38, and the cutting edge is gradually shifted forward until as it passes downward through the channeled standard it projects therefrom as clearly illustrated in Figs. 1, 5, and 7. Upon passing the point of presentation to work to be done, the downwardly moving band passes around a generally curved bearing plate 41, detachably secured to the foot 17 of the channeled standard. From this point, the band passes at an angle over the base of the foot and upwardly around the idler sheaves 40, which is arranged at an inclination, from which point it is guided in a straight line slightly downwardly through the grooved portion 42 of the foot 17, and around the detachable guide plate 43, and thence upwardly through the channeled standard and over the operating wheel 30, as described. In this connection, it may be remarked, that by providing detachable guide plates, as 41 and 43, good results have been obtained in that when said bearing points become worn, the same may be readily replaced, which obviously is advantageous.

In order to obtain ready access to the idler sheaves 40, just referred to, the foot 17 is slotted as at 44, and a removable generally curved plate 45 fitted thereover, see Figs. 3 and 4. In order to provide uniformity to the base plate, a protuberance 46 is formed integral therewith of a configuration corresponding with the removable plate 45. In this connection, it may be remarked that the plate 45 and protuberance 46 in practice constitute means for permitting material being cut to readily pass over the base plate in the operation of the machine. In other words, the protuberances serve to prevent the cloth from unduly adhering to the base plate. In order to provide adjustment of tension of the endless cutting band, the idler sheaves 37, may be moved laterally with respect to the motor frame. In this connection the motor frame is slotted as at 5, and the stud 47 of the idler 37 has fixed to its rear end a plate 48, and at its forward end is provided with a nut 49. Thus, the stud 47 may be securely clamped to place. A micrometer screw 6 is present for securing lateral adjustment of said idler sheaves 37, when desired, which may be accomplished by unloosening the nut 49, and moving the stud 47, with respect to the slot 5, to a position corresponding to the distance as regulated by the micrometer screw 6.

Detachably secured to the front of the motor frame is a casing or housing 50, in order to protect the hands of the operator from the rapidly moving knives and also to collect dust carried up by said knives. In order to readily remove the housing or casing 50, for the purpose of gaining access to the working parts or for the purpose of expelling dust from within the housing or casing, it is essential that the same be quickly accomplished. To this end, spring-controlled clasps or detents 51 are employed. As shown these detents 51 are pivotally supported at three points upon the housing or casing exterior and the hook-like ends thereof, see Fig. 1, are adapted to pass through the slotted walls of the housing or casing 50, and engage notched pins 52, which project from the motor frame and penetrate apertured lugs 53, formed integral with said housing or casing 50. Thus to remove the housing or casing the operator may by the use of one hand conveniently clasp the pivotal detents 51, and by exerting pressure thereon, compress their complementary springs and permit the hook-like extremities of said detents to be disengaged from the notches of the pins 52, whereupon the casing as a whole may be readily detached. Obviously, the replacement of the housing or casing may be just as conveniently effected.

Having fixed relation with the housing or

casing 50, are apertured sleeves adapted for the passage therethrough of the stem 56 of the presser foot 57, which may be secured to said stem by means of a screw or the like 58. The stem 56 is free to move vertically but is locked against rotary movement with respect to the sleeves 54 and 55, and carries at its upper end a finger piece 59, whereby the presser foot as a whole may be lifted when desired. Clamped with respect to the stem of the presser foot as at 60, is a collar guided in a slot 61 in the housing or casing 50, and a coiled spring 62, is present between said collar 60 and the sleeves 55. The purpose of this construction is to provide a tension device for the presser foot, the regulation of which is governed by the clamp 60.

The cutting machine is provided with an incandescent light 63, said light being capable of universal movement, by virtue of the clamping device 64, carried by the motor frame. As shown in the drawings, the incandescent lamp 63 is carried by a tubular member 65, which is free to pass either backwardly or forwardly through the clamp 64, when the adjusting screw thereof is loosened, or it may be rotated around its own axis.

Referring now to the modified form of cutting machine in Figs. 8 to 11, inclusive, the base plate *a*, is provided with a sectional and channeled standard *b*, surmounting which is a motor frame *c*, which in turn supports a motor *d*, and its complementary driving shaft *e*. Mounted upon the driving shaft *e*, is a sprocket wheel *f*, for driving an endless cutting band *h*. Suitably mounted within the standard *b*, and at the base thereof is another sprocket wheel *g*. Connecting the sprocket wheels *f* and *g*, and running thereover are the links of the endless cutting band *h*. As shown in the drawings the alternate links of the endless cutting band have formed integral therewith the cutting knives *i*.

It is thought the operation of the cutter will be readily apparent without resorting to further description other than to say that as the cutting knives *i*, complete their work on the downward movement of the endless band, they move backward and out of alignment with the downward moving cutting edge of the endless band.

What I claim is:

1. In a machine of the class described, the combination of a multiplicity of knives inter-linked with one another to form a relatively flat endless knife-chain having a continuous cutting edge, means for causing the opposite sides or runs of said knife-chain to travel endwise in reverse directions at the point of presentation of work to be done, the cutting edge of one of said sides or runs being to the rear of and out of

alinement with the other, and means for effecting the shifting of the cutting edges of said knife-chain, the knives of the respective bights of which are adapted to travel
5 upon their flat sides during such shifting.

2. In a machine of the class described, the combination of a base plate having an opening in the top thereof, a separable channeled standard the feet of which are fitted
10 within said opening flush with the top of said plate, one of said feet being longitudinally channeled, an idler sheave journaled in the channeled foot, an endless band having a continuous cutting edge adapted to
15 pass downward through the standard with the cutting edge exposed and thence beneath said foot around said idler sheave through said channel in the foot and upwardly through the standard with the cutting edge
20 wholly contained within the standard, and means for operating said band.

3. In a machine of the class described, the combination of a base plate, a sectional standard having a channel therein rising
25 from said base plate, a motor, an endless cutting band consisting of a multiplicity of knives having linked relation with one another passing through said channel, a toothed wheel operated by the motor for exerting an upward pull to said endless band,
30 a pair of idler sheaves arranged above said toothed wheel over which the upper bight of said band passes, and a single idler sheave journaled in the base of said standard around which the lower bight of the
35 endless band passes.

4. In a machine of the class described, the combination of a base plate, a sectional standard having a channel therein rising
40 from said base, detachable guide pieces fitted in said standard sections at the base thereof, an idler sheave arranged at an inclination to and journaled in the base of said standard, a motor supported by said standard,
45 a driving wheel operated thereby, a pair of idler sheaves arranged out of alinement above the driving wheel, and an endless cutting band operated by said driving wheel for passing over said idler sheaves
50 and guide pieces and through the channeled standard.

5. In a machine of the class described, the combination of a base and its complementary standard, a motor supported
55 thereby, a main driving wheel, and a pair of idler sheaves, an endless cutting band driven by said wheel and passing over the idler sheaves and through said standard and base, a hood or casing open at its back and
60 bottom portions removably engaging the motor and covering said wheel, sheaves, and the upper portion of the cutting band, and a presser-foot operatively mounted upon the front face of said hood or cover.

6. In a machine of the class described, the
65 combination of a base plate, a sectional standard having a channel therein, the feet of said standard being fitted within a recessed portion of said base plate, an endless band consisting of a plurality of knives hav-
70 ing linked relation one with another having a bight below the base plate and a bight above the standard, a motor, a toothed wheel driven by the motor and arranged below the upper bight of said band, and idler
75 sheaves for said bights whereof some of said sheaves serve to throw the cutting edge of said band into cutting position and whereof the remaining sheave serves to throw the cutting edge of said band out of cutting po-
80 sition.

7. In a machine of the class described, the combination of a base having an idler sheave operatively mounted therein, a channeled
85 standard rising therefrom, a motor including its complementary main driving wheel surmounting the standard, idler sheaves operatively mounted upon the motor casing adjacent said driving wheel, and a multiplicity of knives interlinked with one an-
90 other to form a relatively flat endless knife-chain having a continuous cutting edge, the bights of the knife-chain passing over the driving wheel and said idlers upon their flat sides and the runs of said knife-chain
95 passing through said channeled standard in reverse directions with their flat sides in parallelism with the standard.

8. In a machine of the class described, the combination of a base, a sectional standard
100 rising therefrom, each section being vertically and interiorly grooved, a multiplicity of knives having interlinked relation forming a relatively flat endless knife-chain having a continuous cutting edge, the runs of
105 which are adapted to travel endwise through the grooves in said standard in opposite directions and out of alinement with one another and the bights of which are adapted to travel upon their flat sides, and means for
110 operating said knife-chain.

9. In a machine of the class described, the combination of a supporting structure, a cutting device operatively mounted with respect thereto, a hood or cover open at its
115 back and bottom portions detachably engaging the supporting structure for covering the upper portion of the cutting device, said hood or cover being capable of removal from and replacement upon said struc-
120 ture without interference with the operation of the cutting device, and a presser-foot operatively mounted upon the front face of the hood or cover.

10. In a machine of the class described,
125 the combination of a supporting structure, a cutting device operatively mounted with respect thereto, a hood or cover open at its

back and bottom portions removably engaging said structure and covering the upper portion of said cutting device, said hood or cover being capable of removal from or replacement upon said structure without interference with the operation of said cutting device, a presser-foot operatively mounted upon the front face of the

hood or cover, and spring-actuated detents for retaining said hood or cover in place. 10

In testimony whereof, I have hereunto signed my name.

ADOLPH SPIELMAN.

Witnesses:

W. J. JACKSON,

AGNES E. CASKEY.
