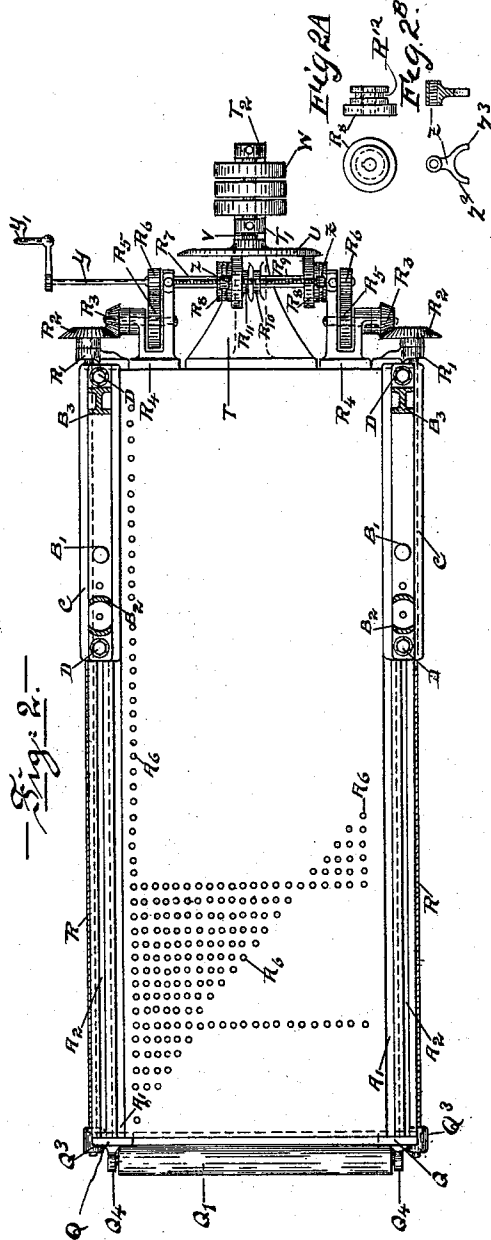
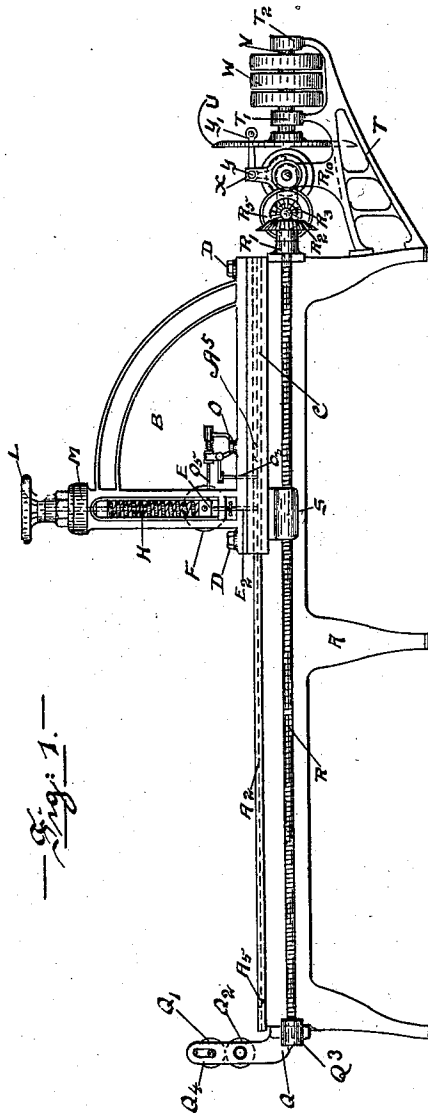


P. L. CRON.
CLOTH CUTTING MACHINE.

No. 549,900.

Patented Nov. 19, 1895.



Witnesses.
Avel Becken
August M. Fredschow

Inventor
Peter L. Cron
by his Attorneys
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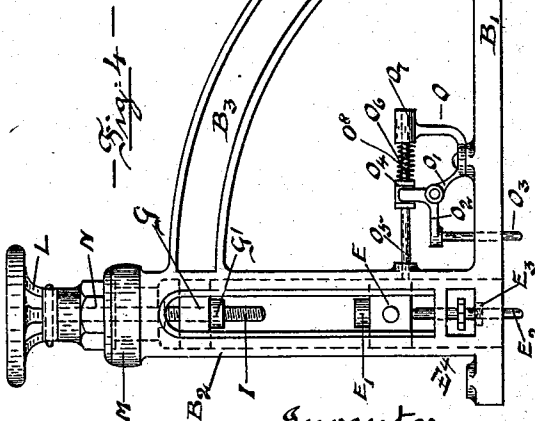
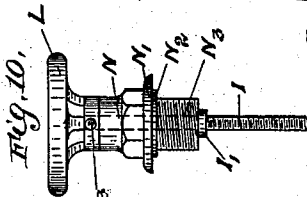
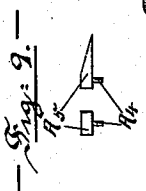
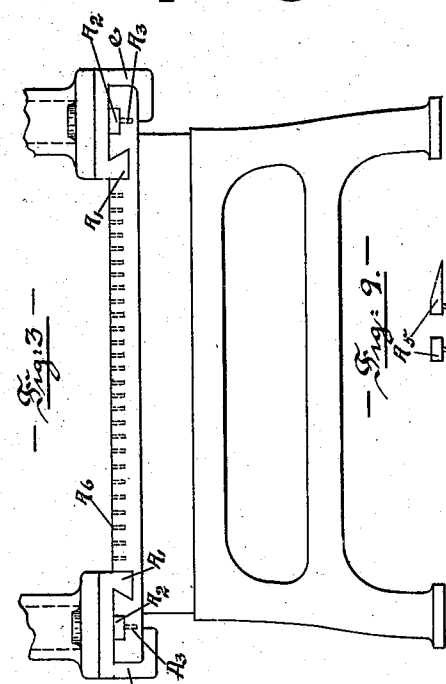
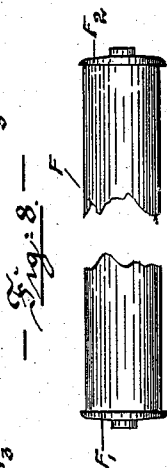
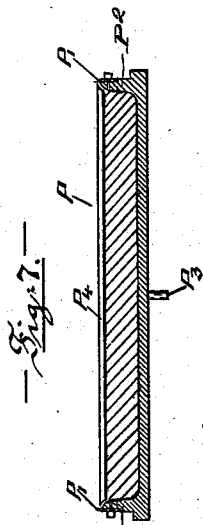
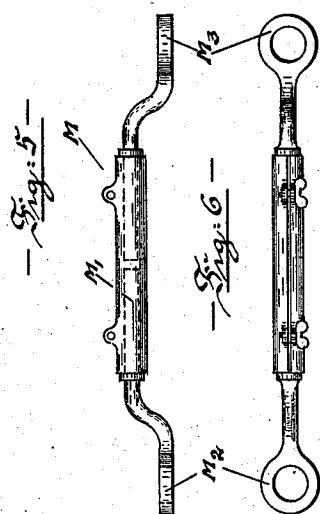
(No Model.)

4 Sheets—Sheet 2.

P. L. CRON.
CLOTH CUTTING MACHINE.

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Patented Nov. 19, 1895.



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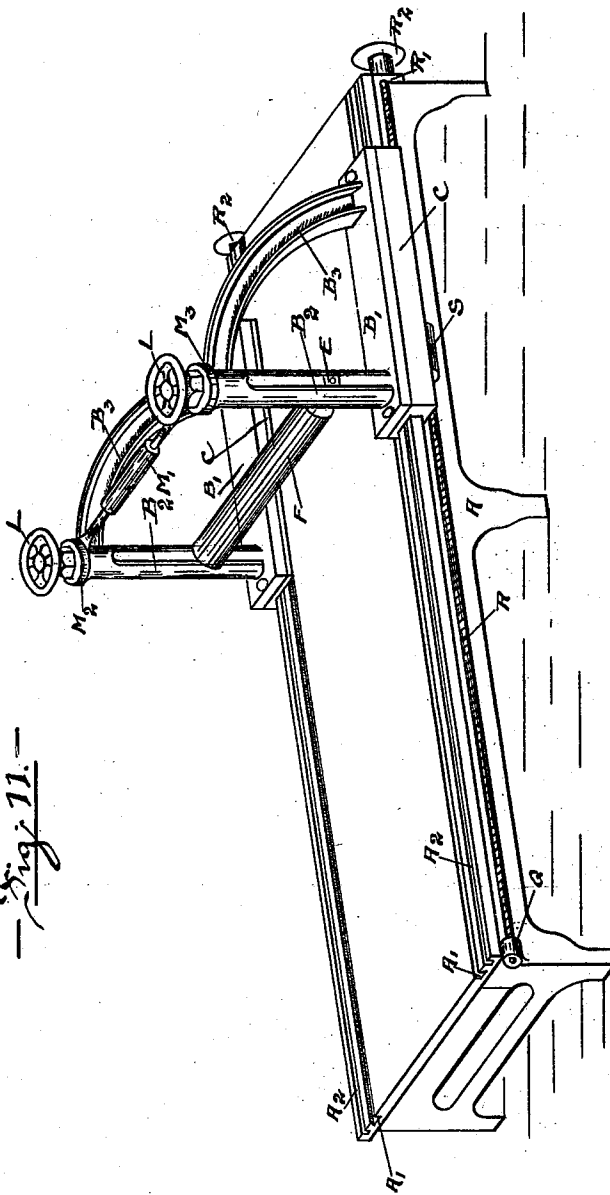
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P. L. CRON.
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—Fig. 11.—

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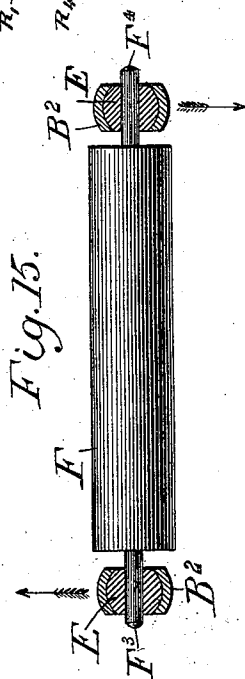
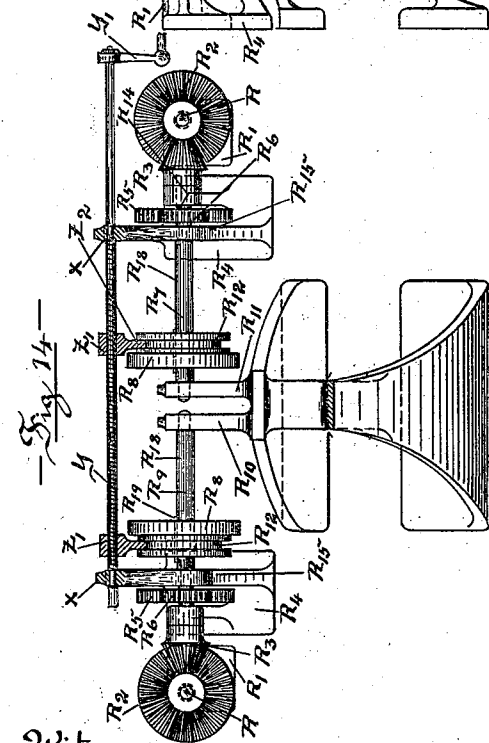
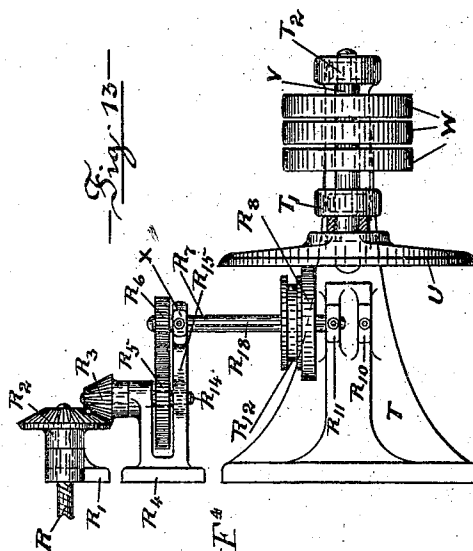
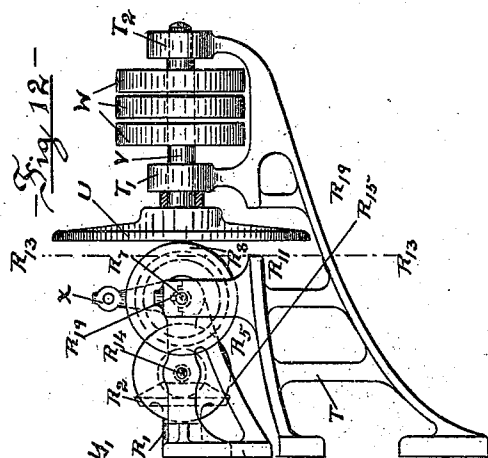
(No Model.)

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P. L. CRON.
CLOTH CUTTING MACHINE.

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—Witnesses—

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Fig. 15.

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UNITED STATES PATENT OFFICE.

PETER L. CRON, OF ELIZABETH, NEW JERSEY.

CLOTH-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 549,900, dated November 19, 1895.

Application filed December 28, 1894. Serial No. 533,158. (No model.)

To all whom it may concern:

Be it known that I, PETER L. CRON, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Cloth-Cutting Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to an improved construction of the machines used for cutting cloth and linen, generally known as "cloth-cutting machines," said improvements being embodied in the supports for the roller, in my description known as the " housings," these being constructed so as to carry the roller more efficiently over the die-plates, and being furnished with means to throw the said roller out of action and support it in inactivity on its return movement until its action commences again. I furthermore move the housings over the bed-plate by a system of friction and cog-wheel gearing and furnish a special mechanism which, acting in combination with said system, makes it possible for the operator to control the individual speed of the housings in their course over the bed-plate, and as a consequence regulates the roller as it is carried by the housings over the bed-plate and the thereon fixed die-frames, so that it does not encounter a die-knife laterally parallel with it, all of which improvements I shall now proceed to describe, and finally embody in the claim hereunto attached.

In the drawings accompanying this specification, like letters of reference indicate corresponding parts, and in them Figure 1 presents a side view of my improved cloth-cutting machine; Fig. 2, a plan view of Fig. 1 showing the foot-pieces to which the housings are bolted, with the hollow stems and double T-shaped ribs broken off; Fig. 2^A, a front and side view of one of the small friction-disks R⁸, and Fig. 2^B, a front and side view of one of the forks working in the rill R¹² of said disks. Fig. 3 is an end view of the bed A, showing how the pieces C, whereon the foot-pieces

B' of housings are bolted, rest on and are guided over such bed-plate by means of the grooves shown therein. Fig. 4 is a side view of one of the housings. Fig. 5 is a side view of the telescopic guide for the housings. Fig. 6 is a top view of Fig. 5. Fig. 7 is a section of a die-plate. Fig. 8 is a side view of the roller. Fig. 9 is a front and side view of the elevating-wedge. Fig. 10 is a side view of the hand-wheel unscrewed from the top of the housing. Fig. 11 is a perspective view of the bed-plate, showing the housings secured thereto. Fig. 12 is a detailed side view of the brackets, friction, and cog-wheel gearing, omitting the screw-cut speed-regulating rod and its forks, showing, however, only the gearing needed to move one housing. Fig. 13 is a top view of Fig. 12. Fig. 14 is a front view of Fig. 12 after a section on line R¹³, but showing the gearing for both housings; and Fig. 15 is a top view showing the bearings for the roller and the stems for the housings in sections with the roller-supports resting therein.

In describing my invention I have in Figs. 1 and 2 depicted a cloth-cutting machine as a whole, for the purpose of more plainly illustrating how my improvements affect the machine in its entirety.

Acknowledging that the idea of cutting out patterns in cloth, linen, &c., embodied in a bed-plate carrying die-frames with a roller supported in bearings passing over said die-frames and cutting the material into required patterns has been patented, I claim in my device to have brought such mechanical parts into a more perfect working order, into a greater harmony with each other, and more especially to have reconstructed the housings and connected them with the motive-power by means whereby they can be made to move down over the bed-plate at different rates of speed entirely novel and unknown to this class of machinery, rendering thus the whole machine more perfect and proving itself a great saving in the time, labor, and skill which is now expended in cutting out patterns.

In Fig. 1 A represents the bed-plate of my improved machine, having on each side grooves A', running the entire length of the bed-plate, for the purpose of guiding housings

B. It is furthermore furnished with slots A², which slots, also running the whole length of bed-plate, and have holes A³ drilled into them throughout their length to admit pins A⁴ on
 5 wedges A⁵, of which there are four—two at each end of bed-plate A. The function of same will be described in connection with the housings.

A⁶ indicates holes drilled throughout the
 10 whole length and breadth of bed-plate for the purposes of admitting pins P³ on die-frames, thus securing the frames and permitting them to be placed anywhere on the bed-plate.

Fig. 4 shows a side view of one of the housings, and as they are both constructed alike, only one need be described.

Rising perpendicular from the foot B' is a hollow stem B², supported or braced by a double T-shaped rib B³. The foot B' of housing B, as can be seen in Fig. 3, is fastened by means of bolts D to a piece C, planed and fitted so as to run smoothly in one of the grooves A' on bed-plate A. The hollow stem B² contains bearing E, supporting one end of cylinder or roller F. Said bearing E is constructed so as to yield slightly in order to prevent the shaft end it holds from being bent in case said bearing E should be elevated sooner than its companion bearing in the
 30 other housing, and as will be seen in Fig. 15 the stems B² are cylindrically shaped on the inside and have the bearings E fitted inside of them similarly shaped, so that any movement made in either of the two directions
 35 indicated by the arrow-heads, the bearings E will turn in their respective stems and the two supports F³ and F⁴ will, as a consequence, yield and be subject to no strain, and as they are prolonged outside of the face of bearings
 40 will not, by being drawn apart, disappear inside of the bearings and cause uneven wear or indenting in the bearings, but will always have their full length supported, and as the bearing E is shaped in conformity with the inner shape of stem B², which is cylindrical,
 45 it will be seen that the bearings will yield to a forward or backward movement on the part of the roller. Stem B², furthermore, contains a nut G, having a smaller projection G', around
 50 which lies coiled the top of a spring H, the bottom of said spring H resting on bearing E, being held in position by a projection E'. Passing through nut G is a screw I, manipulated by a hand-wheel L, and the top of the hollow stem
 55 B² is constructed so as to have one collar of the telescopic guide that connects and steadies the movement of the two housings at the top fitted smoothly around it. Fitted on top of the collar, screw-cut in order to bear on this collar with its flange N', is a hexagonal nut N,
 60 having an offset N², bearing inside of the eye M', and a screw-cut part N³, which fits in the neck or top of stem B², as indicated by the dotted lines in Fig. 4. Screw I is screw-cut
 65 up to collar I' in order to give an up-and-down movement to nut G, which compresses spring H, the rest of it being turned smooth, and pass-

ing through nut N is secured to hand-wheel L by pin I³. The bearing E rests on a pin E², screw-cut on the portion passing through a
 70 nut E³, and can, by an octagonal-shaped collar E⁴, be screwed up and down, thus raising or lowering bearing E. The lower part of pin E² passes through foot B' and slides in slot A² and will, when encountered by the elevating-
 75 wedge A⁵ at the feeding end of bed-plate, be thrown upward, and as bearing E rests on the top of it, said bearings, and speaking of both housings, said bearings will consequently be elevated, carrying the cylinder or
 80 roller F with them, which cylinder will consequently cease its pressure on the material in process of being cut and will, by the action of spring O⁸ continually pressing pin O⁵ against bearing E, and when this is thrown up-
 85 ward and pin O⁵ passes underneath it as a consequence, speaking of both the bearings, keep the roller F out of touch with material until it reaches its starting-point, where a device is provided for releasing it again. This consists
 90 of a fork-shaped bearing O, of which the shorter fork O' has a right-angled lever O² pivoted to it, the horizontal end of which rests on top of a pin O³ and the vertical embraces the head
 95 O⁴ of a pin O⁵. Head O⁴ has another pin O⁶ with a spring O⁸ coiled around, which bears against the face of a bush O⁷, through which the pin O⁶ passes. The action of this device is the following: The spring O⁸, being compressed between bush O⁷ and the head O⁴, will
 100 naturally push pin O⁵ inward, and as pin O⁵, passing through a hole in the stem B², is continually pressing against bearing E, it will, when E is by the action of pin E² pushed up-
 105 ward, pass underneath it and sustain it there until it is removed, which it will be when pin O³ on the return movement of housings comes in contact with the elevating-wedge A⁵, placed
 110 in slot A² at the starting-end of bed-plate, throwing pin O³ upward, which acts on lever O², throwing head O⁴, having pin O⁵, over toward spring-pin O⁵, consequently passing from underneath bearing E which then drops
 down on pin E² until the next movement.

The housings are connected at the top by
 115 the telescopic guide M. (Illustrated in Figs. 5 and 6.) Said guide consists of three parts—a hollow tube M', in which slide two pieces M² and M³. Each of these pieces has a collar which lies around the upper part of stem B²
 120 and is held fast by flange N', the tightening of nut N thus affecting guide M. The utility of this guide M consists, consequently, in binding the two housings together and
 125 steadying their movements, and being constructed in the manner described will, as the arms can be pushed into and drawn out of the tube M', permit housings to move ahead of
 130 each other, as the two arms M² and M³ will simply be drawn out of tube M', as described.

The roller F, Fig. 8, is made of wood, preferably, and rests between two flanges F' and F² and is turned to a diameter less than that of the flanges in order to admit of a covering

being drawn over it, made of rubber or any other material suitable to pass over the die-knives without dulling them and yet hard enough to insure material being cut clean through to the required pattern.

The die-frame P, as shown in a sectional view in Fig. 7, is made of cast-iron and is on the edge, following the shape of the pattern desired cut, milled down, leaving an offset for the band-knife blade P' to rest on. Said knife-blade P' is made of well-tempered steel about one-sixteenth of an inch thick, with as many holes as are required to bind it to cast-iron pattern-rim and is held there by screws screwed into said rim. The pattern-plate itself is on the bottom furnished with two pins P³, one in front and one in rear, said pins fitting in the holes A⁶ furnished in the bed-plate. The space between the knives contains a board P⁴ for material to rest on, and the space underneath the board P⁴ is filled with pieces or cork or any other soft springy material for said board to rest on during the process of cutting.

At one end of bed-plate A are two brackets Q, having bearings Q³ attached for the support of the two screws R, that passing through the nuts S, fastened on housings B, carry said housings over the bed-plate, and two bearings Q⁴ to support the two cylinders Q' and Q². These last supports have the holes containing the upper cylinder Q' cut out oblong in order to raise or lower said cylinder according to the quantity of material to be cut, and the cylinders are constructed hollow, so that they can either hold hot water or steam for a given length of time or can have hot water or steam conducted through them, the object in this being to subject material to a kind of mangling and ironing process, so as to keep the material passing between them perfectly straight and free from wrinkles.

At the end of bed-plate A, where the starting-point of housings is, and where gearing is located that establishes connection with the motive power, the ends of the screws R, passing through nuts S, attached to housings, are supported in bearings R' and are furnished with bevel-gears R². These gear into their respective pinions R³, that are keyed on the shafts R¹⁴, supported in brackets R⁴, said brackets R⁴ carrying each a shaft R¹⁴ with pinions R³ keyed on and having keyed on to them gear-wheels R⁵, gearing with their respective pinions R⁶, keyed, respectively, on the shafts R⁷ and R⁹. These shafts are furnished with a keyway R¹⁸, each throughout their entire length, and the friction-disks R⁸ are furnished with a tight-fitting key R¹⁹ fitting in said keyway and will, consequently, in revolving, carry the shafts with them, but can be moved laterally across their shafts, by what means and for what reasons will be described later on. Shafts R⁷ and R⁹ are supported at their outer ends by the extension-arms R¹⁵ on brackets R⁴ and at their inner ends by bearings R¹⁰ and R¹¹ cast on bracket T. Friction-

disks R⁸ receive their motion from the large friction-disk U which, being keyed on the same shaft V as pulleys W, receives its motion from them. Pulleys W and friction-disk U are supported in bearings T' and T² cast on bracket T, which latter is fixed on bed-plate A. Friction-disks R⁸, as formerly described by the key and keyway mechanism, can move laterally on their respective shafts, at the same time revolving with them, and the impetus to such lateral movement on their part is given by their individual construction and connection with the following mechanical elements: Brackets R⁴ are each furnished on their horizontal extension-arms R¹⁵ with a vertical upright arm X, having a bearing which supports a screw-cut rod Y. Said rod is smooth-turned on the part resting in bearings, but screw-cut on its entire length between inner faces of bearings x. On this screw-cut part it carries two forks Z, shown in detail in Fig. 2^B, each furnished with a screw-cut head Z, through which rod Y passes, and two prongs Z² and Z³, embracing a rill R¹² on friction-disks R⁸, as shown in Fig. 2^A. Rod Y is furthermore furnished with a handle Y', which will, when manipulated by operator, carry the two forks Z, and with them the two friction-disks, either to the right or the left, and said friction-disks R⁸ will, according to the position in which they may originally have been set, move simultaneously across the face of the large disk U, and having disk U pressed up against them by suitable means will revolve with it, and each disk, according to its position near to the center of disk U or toward its circumference, will be accelerated or retarded in its revolutions, and in transmitting this power to its individual shaft, and by the intervening gear-wheels to the housings, will accelerate or retard these. Having thus the disks R⁸ set to suit the occasion, the motive power, as transferred to the pulleys W, will transplant itself to the large friction-disk U, and from that go down on both sides of the machine through the two small friction-disks R⁸, moving on their respective shafts, said shafts having keyed on their ends pinions R⁶, these gearing into their respective gear-wheels R⁵, keyed on shafts R¹⁴, supported in brackets R⁴, said shafts R¹⁴, having keyed on their ends bevel-pinions R³, intermeshing with bevels R², that are keyed on the end of right and left screws R, supported by bearings R', same screws R passing through screw-cut nuts S fastened on housings will consequently move these. As formerly described, said housings support in the bearings E the roller F, and previous to starting the housings, when the material has been drawn over the die-frames a certain amount of pressure has to be given to the roller, which will insure the cutting of the material by the die-knives. This pressure is obtained by manipulating the hand-wheels L, which will compress the springs H between nuts G and bearings E, and bearings E, carrying roller F, roller F will, as a consequence,

be pressed down on the material. The housings having been set in motion by the screw-cut rods R, working in the nuts S, will then carry roller F at a preferably slow rate of speed over the die-frames, and roller F, in pressing material over the die-knives, will thus sever the material into the patterns formed by said die-knives and at the end of the bed where the wedges A⁵ are encountered by the elevating-pins E², described in connection with the housings, said pins, on account of the throw given them by inclined planes on wedges A⁵, will elevate bearings E, and consequently lift roller, and as pins O⁵, through the action of springs O⁸, are pressed in on bearings E, said pins O⁵ will, when bearings E are thrown upward, pass underneath them and support them there until the pins O³, on the return movement of housings, encounter the wedges A⁵ lying at the starting-point, and these wedges will act on pins O³, throwing them up, thereby removing pins O⁵ from underneath bearings E, as a consequence releasing said bearings E, and with them the roller F supported by them, which resumes its position on the material with the same pressure as given at the first instance ready for the next movement down over the die-frames.

The sum and substance of my invention will thus be seen to consist in, first, that as the housings supporting the roller travels slowly down over the bed-plate having the die-frames arranged on it the operator will be able to regulate the cutting angle of the roller—viz: avoiding the roller attacking a die-frame, one of whose knives, forming the pattern, lies exactly parallel with the roller. In other words, the roller must always attack a die-knife at one of its ends and pass down over its edge at a certain horizontal angle, and this is attained by the two small friction-disks moving across the face of the friction-disk by means of the forks Z, screw-cut to match rod Y, and supported on it, and these being once set on rod Y in a certain position will, when handle Y' is turned according to their individual distance from the center of the large disk, accelerate or retard one or the other of housings, as the case may require it. This the manipulator of the handle Y has it in his power to do during the movement of housings

over the bed-plate, as said movement is a very slow one, and it is in connection with this that the efficacy of the telescopic-guide M will be seen as binding the housings together and steadying them at the top, as the arms can be drawn out of and pushed into the tube M'. Secondly, the simple but practical method in which each die-frame containing a pattern by its two pins is held on the bed-plate, the holes in same spreading throughout the length and breadth of it, with only one-half of an inch between them either way. Thirdly, the mechanical elements relating to throwing the roller out of the position it occupies when pressing material down over die-knives at the terminus of its course over the bed-plate and those elements that release it at the starting point preparatory to its course over the die-frames, and, lastly, in the whole combination of the friction-disks and gearing from the large friction-disk to where the nuts are attached to housings, single elements of which may have been used heretofore, but not in this combination, nor relative to cloth-cutting machines, all of which having now been described I shall proceed to specify in my claim, and in so doing desire to secure Letters Patent for the following combinations.

I claim—

In a cloth-cutting machine of the character set forth the bed-plate having tracks, the housings guided in said tracks and having a telescopic guide connecting them at the top, the roller supported in said housings, said housings furnished with horizontally and vertically adjustable bearings supporting the roller, a catch and release device, with corresponding elevating wedges located in bed-plate tracks, acting on the adjustable bearings; in combination with means reciprocating the housings over the bed-plate in the manner described, for the purposes as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 21st day of December, 1894.

PETER L. CRON.

Witnesses:

AXEL V. BEEKEN,
AUGUST M. TRESCHOW.