

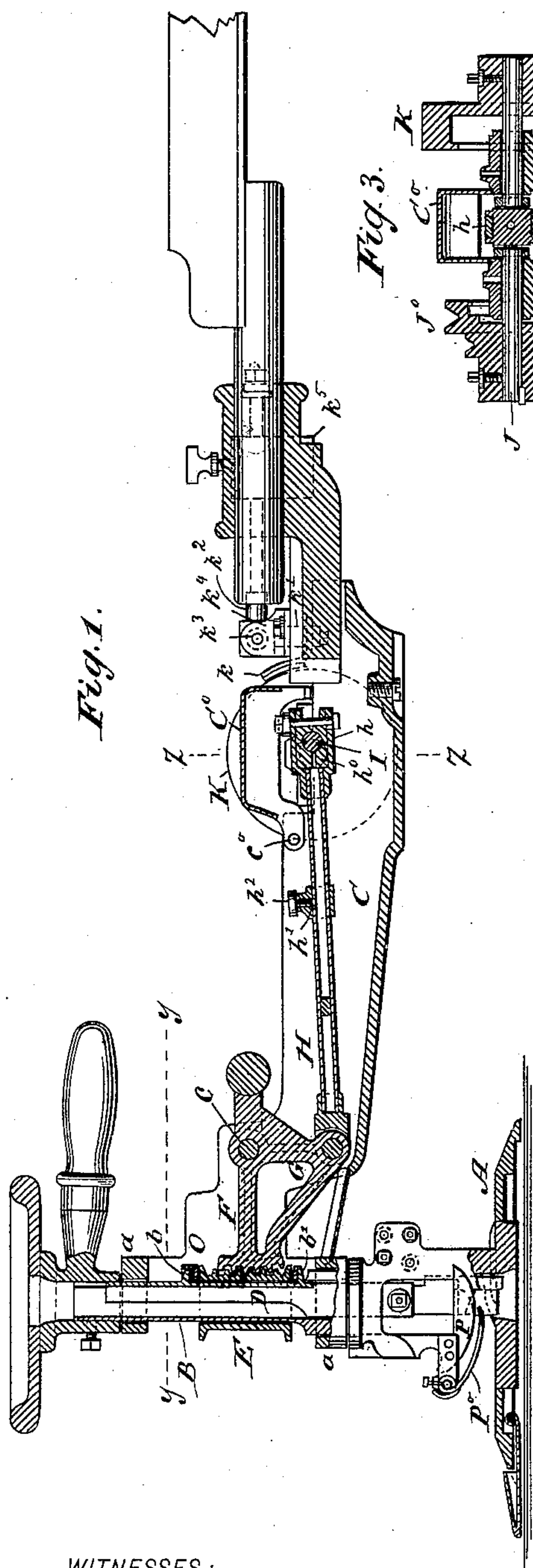
(No Model.)

2 Sheets—Sheet 1.

A. WARTH.
CLOTH CUTTING MACHINE.

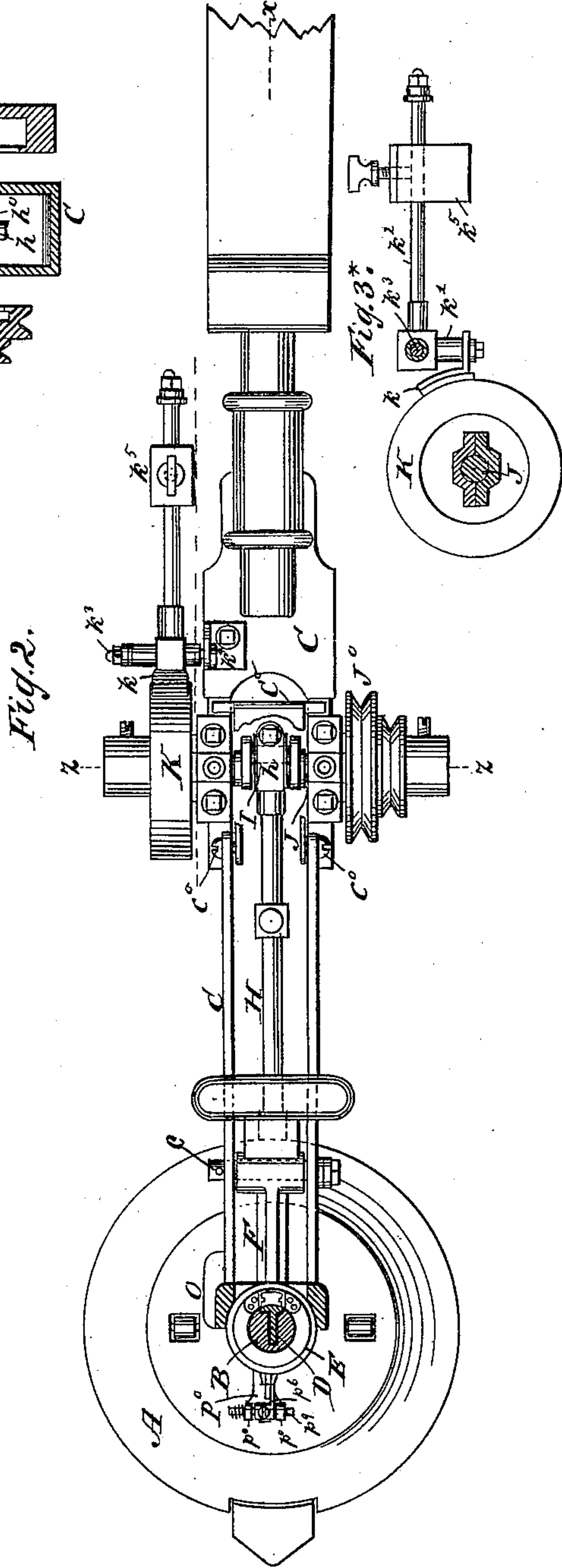
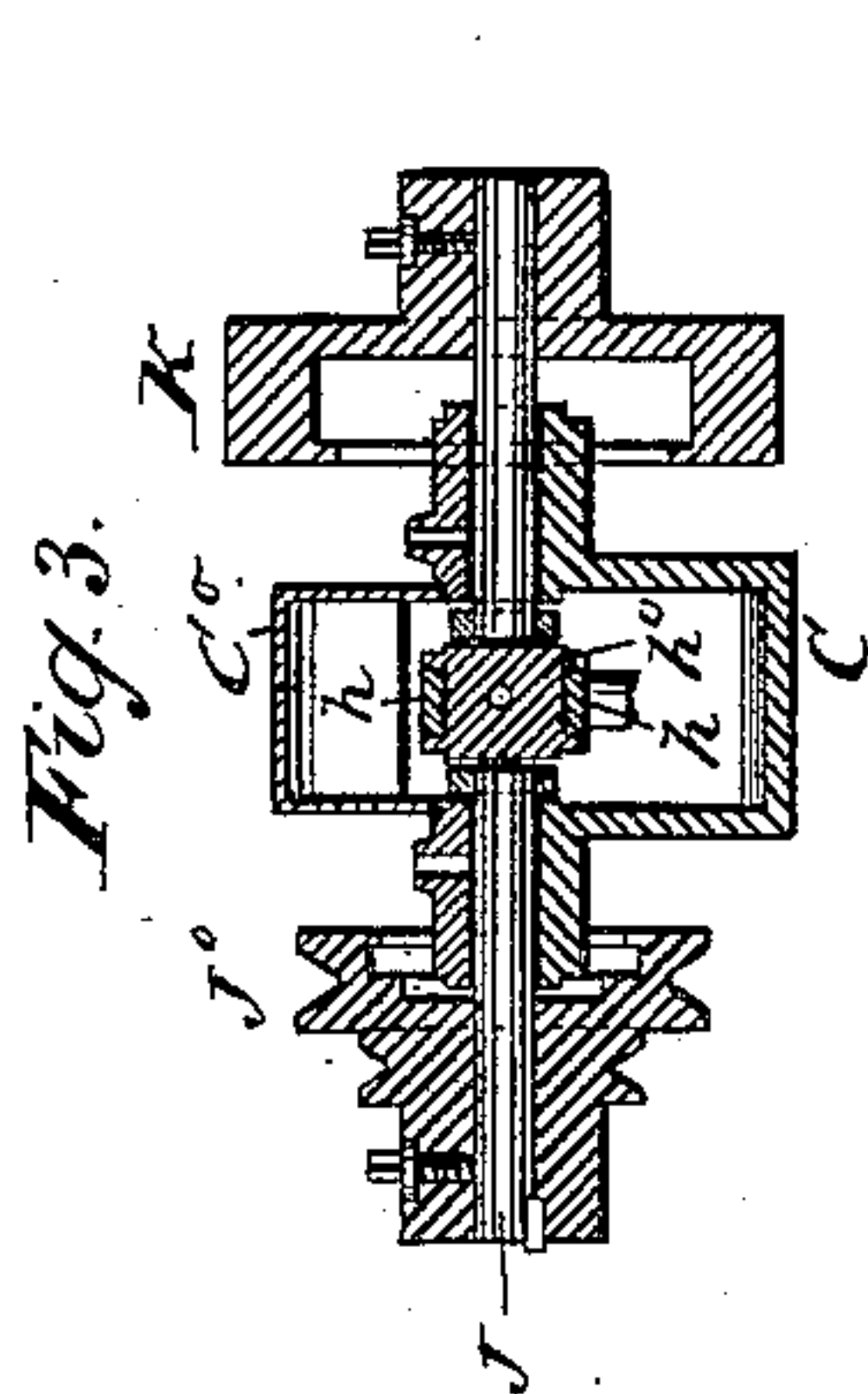
No. 444,282.

Patented Jan. 6, 1891.



WITNESSES:

Edward Wolff.
William Miller



INVENTOR:

Albin Warth.

BY

Van Gantvoord & Hauff

ATTORNEYS

(No Model.)

2 Sheets—Sheet 2.

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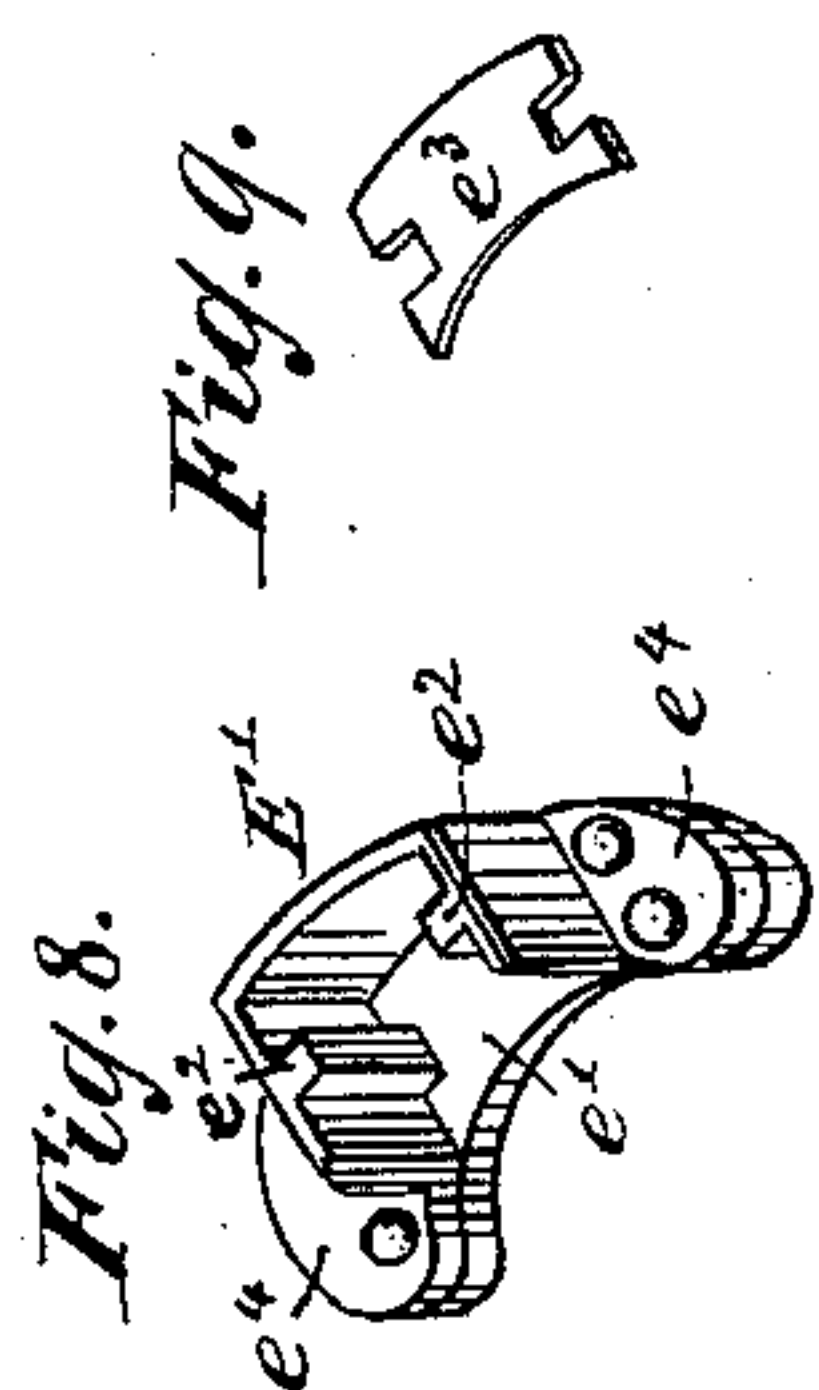


Fig. 8.



Fig. 9.

Fig. 7.

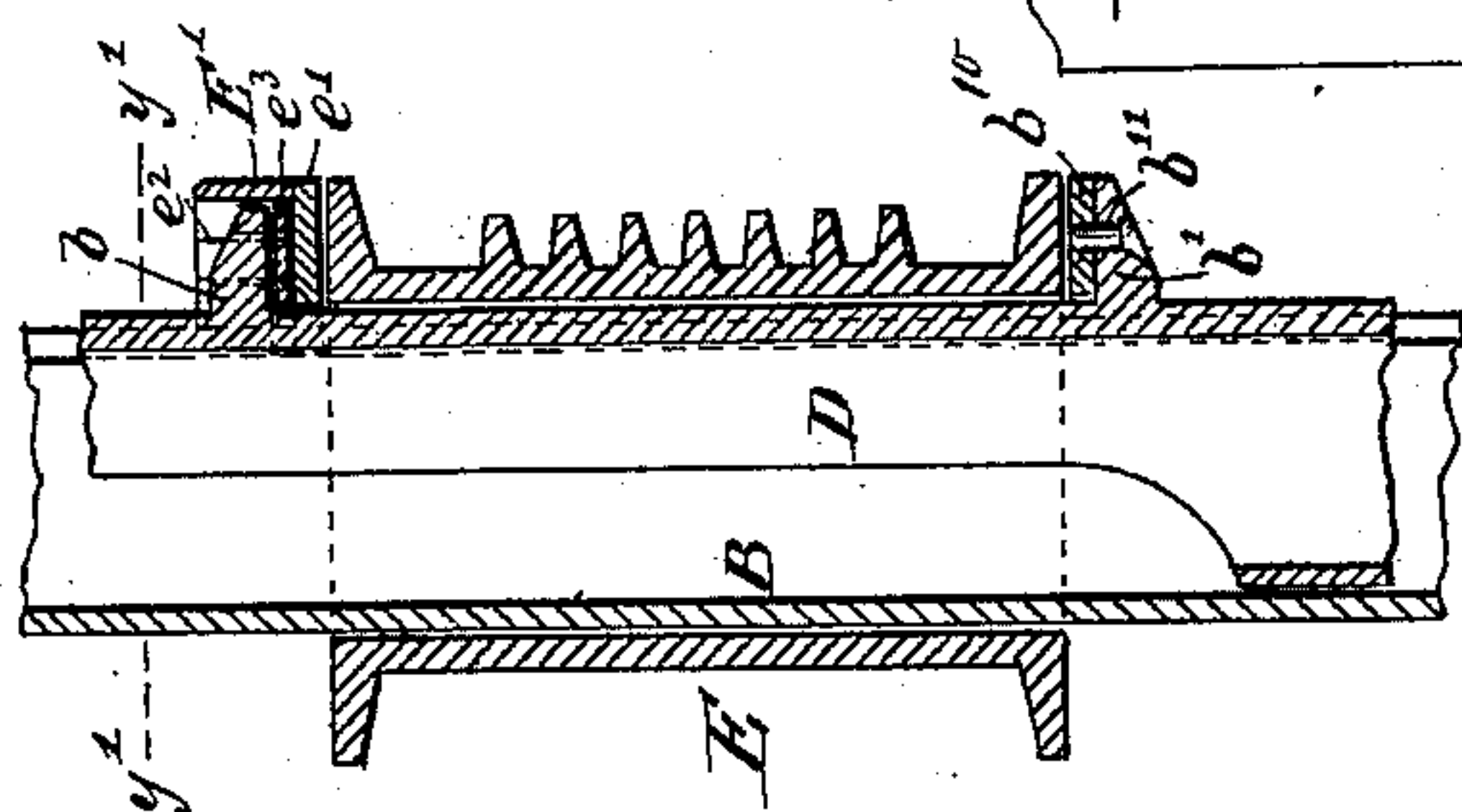


Fig. 10.

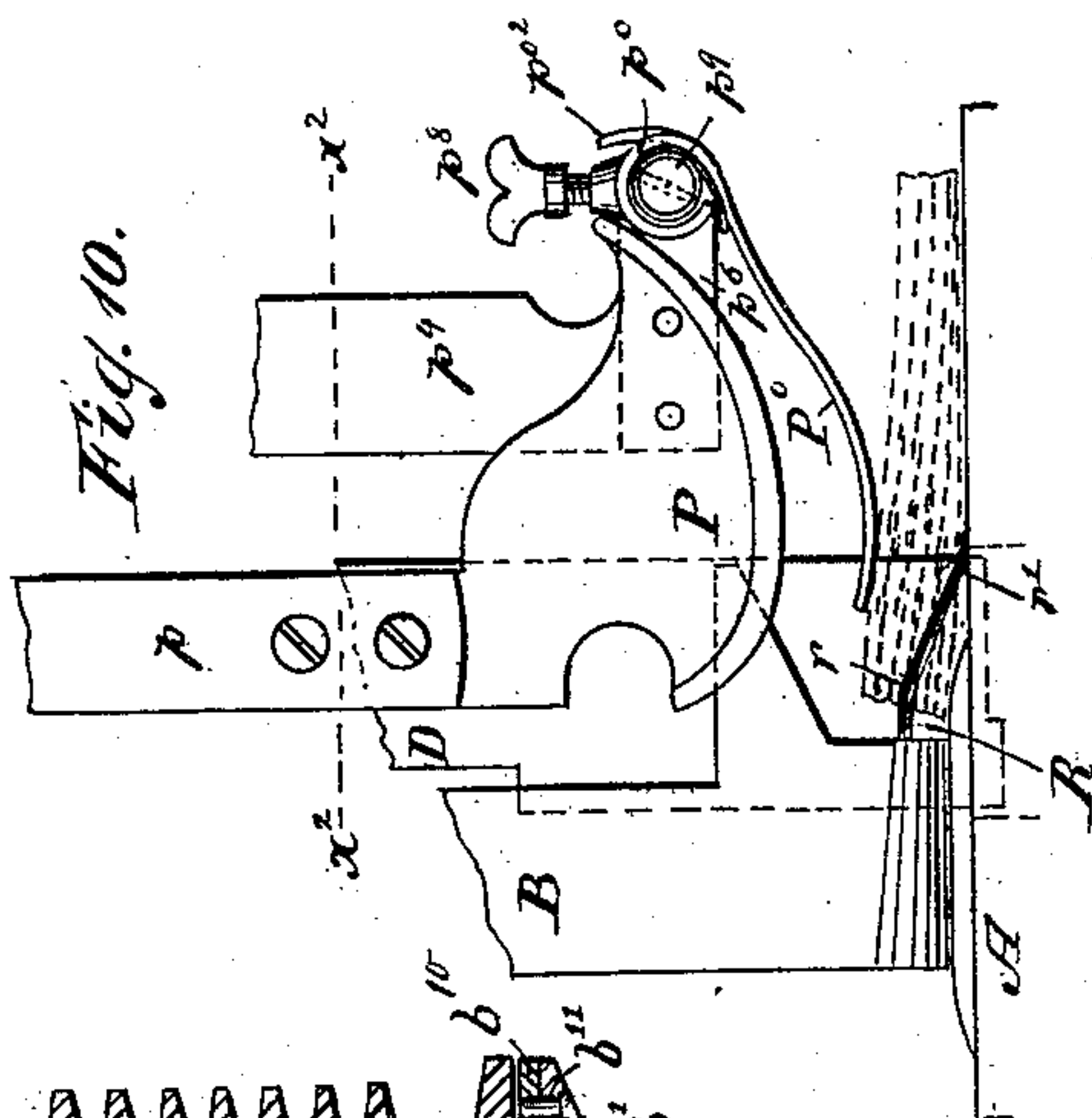


Fig. 6.

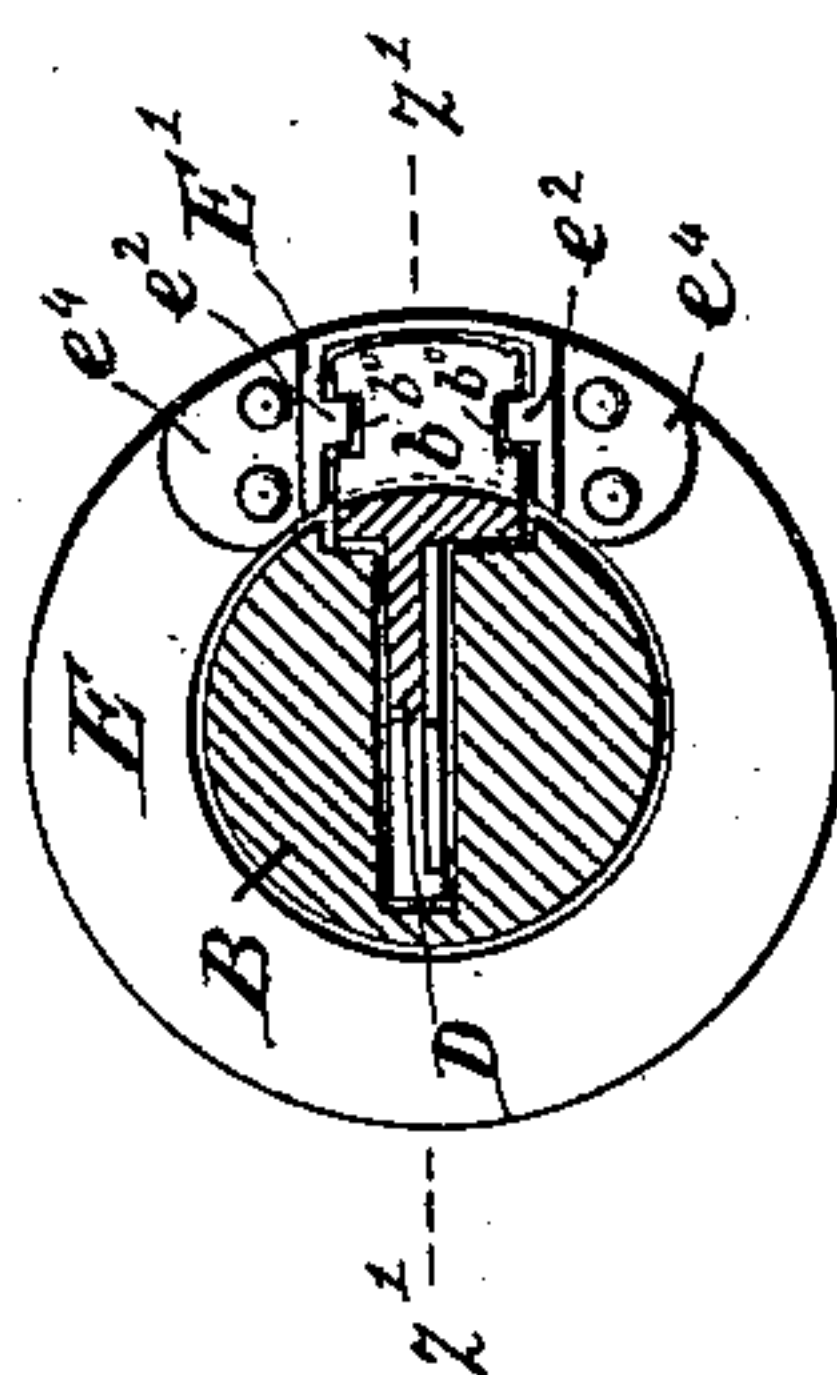


Fig. 4.

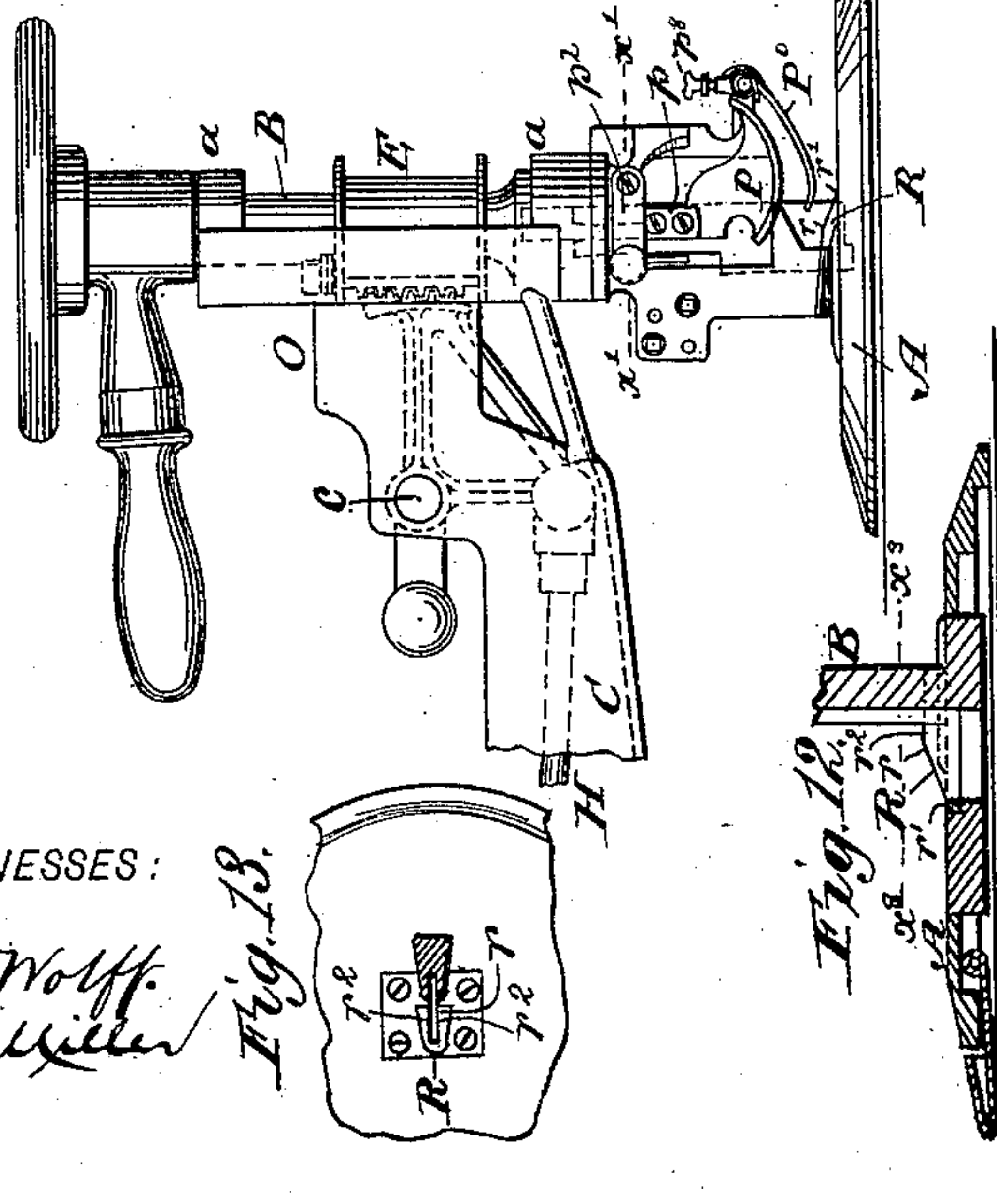
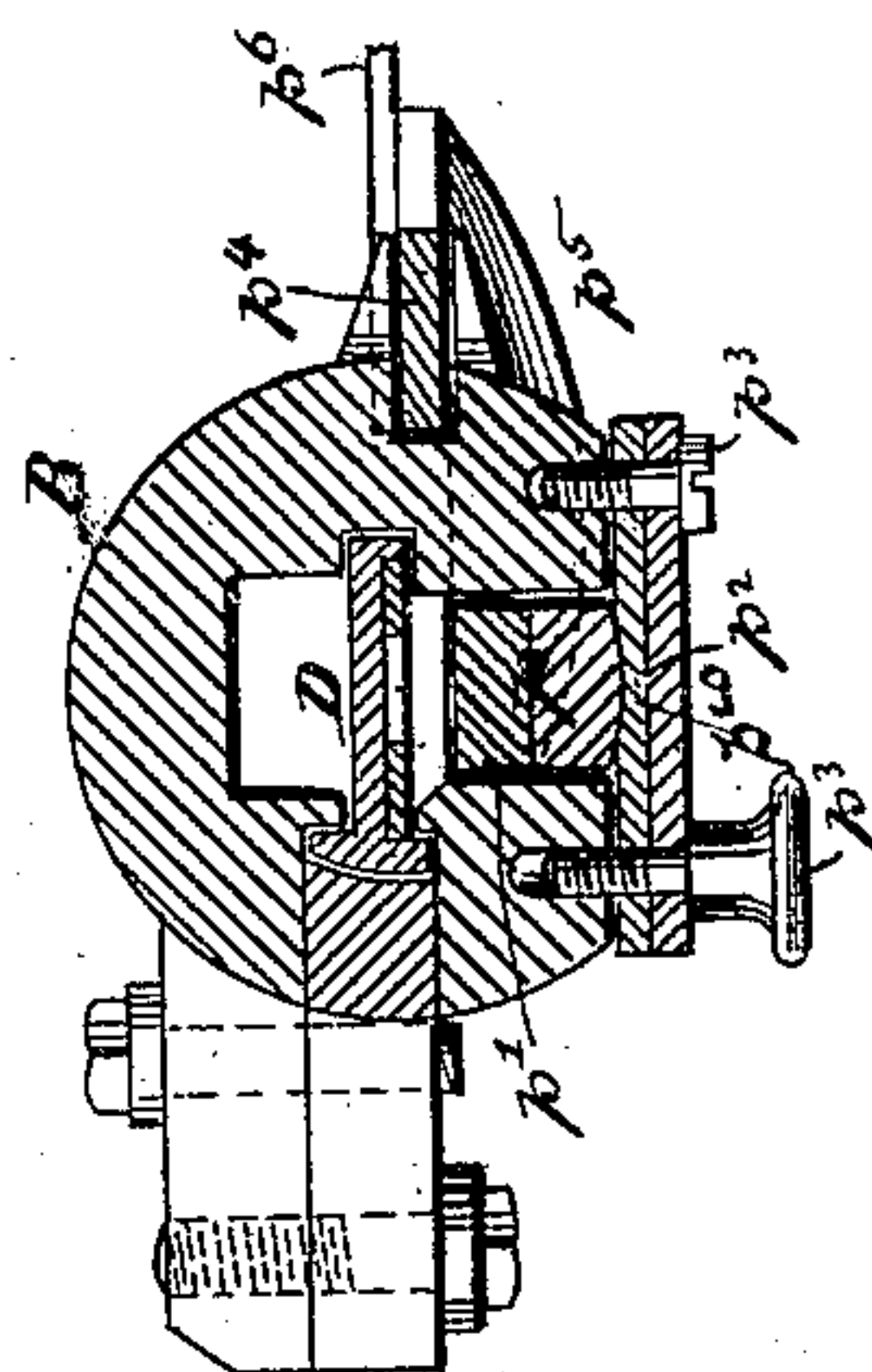


Fig. 5.



WITNESSES:

Edward Wolff.
William Miller

Fig. 13.

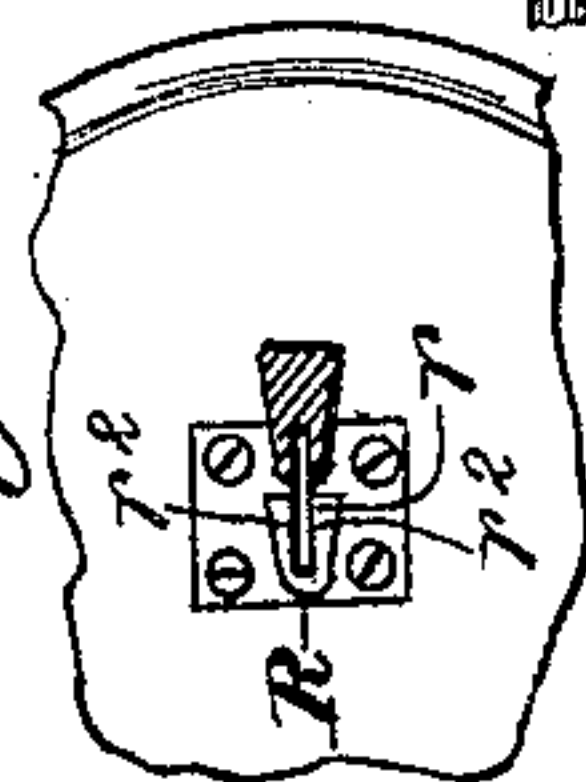


Fig. 12.



INVENTOR:

Albin Warth.

BY
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ATTORNEYS

UNITED STATES PATENT OFFICE.

ALBIN WARTH, OF STAPLETON, NEW YORK.

CLOTH-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 444,282, dated January 6, 1891.

Application filed June 19, 1890. Serial No. 355,965. (No model.)

To all whom it may concern:

Be it known that I, ALBIN WARTH, a citizen of the United States, residing at Stapleton, in the county of Richmond and State of New York, have invented new and useful Improvements in Cloth-Cutting Machines, of which the following is a specification.

This invention relates to certain improvements in that class of cloth-cutting machines which I have described in Letters Patent No. 151,456, granted to me on May 26, 1874, and also in Letters Patent No 165,636, granted to me July 13, 1875.

The improvements which form the subject-matter of my present application for a patent are pointed out in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 represents a longitudinal vertical section in the plane xx , Fig. 2. Fig. 2 is a horizontal section in the plane yy , Fig. 1. Fig. 3 is a transverse vertical section in the plane zz , Figs. 1 and 2. Fig. 3* is a side view of the brake mechanism detached. Fig. 4 is a side elevation. Fig. 5 is a horizontal section in the plane $x'x'$, Fig. 4, on a larger scale than the previous figures. Fig. 6 is a transverse section of the pillar which carries the knife in the plane $y'y'$, Fig. 7. Fig. 7 is a vertical section in the plane $z'z'$, Fig. 6. Figs. 8 and 9 are details, which will be referred to as the description progresses. Fig. 10 is a side elevation illustrating the action of the knife and of the presser-foot. Fig. 11 is a horizontal section in the plane x^2x^2 , Fig. 10. Fig. 12 is a detached section of the support which carries the knife-receiving socket or receiver. Fig. 13 is a horizontal section in the plane x^3x^3 , Fig. 12.

In the drawings, the letter A designates the support, from which rises a pillar or standard B, the upper portion of which is round and made to extend through eyes aa , formed on a bracket O, which is secured to the outer end of an arm C. Into the interior of the pillar B is fitted the knife-bar D, which is provided with two lugs $b b'$, which extend beyond the surface of the pillar, Figs. 1, 6, and 7, and between these lugs is placed the sleeve E, which fits the pillar, so that said pillar, together with the knife-bar, can be easily turned

round in the sleeve, while the sleeve can be freely moved up and down on the pillar. By moving the sleeve up and down a reciprocating movement is imparted to the knife-bar D, and the knife is caused to cut through the material situated upon the support A. When the sleeve B fits snugly between the lugs $b b'$ of the knife-bar, the motion of the latter takes place without noise or blows; but as the lugs $b b'$ are liable to wear in a short time the sleeve has a dead motion between the same, and it produces disagreeable blows, which are detrimental to the correct action of the machine. For the purpose of reducing the wear of the lug b , a box E' is provided, (see Fig. 8,) which is made, by preference, of cast metal and provided with outwardly-projecting flanges e^4 , by means of which it is secured to a base e' , made of steel and extending beyond the body of the box on each end in order to obtain an increased surface to bear upon the sleeve E, Fig. 6.

In order to retain the box E' in position, it is provided with internal ribs $e^2 e^2$, which engage recesses $b^0 b^0$, formed in the sides of the lug b . By these means the box is retained in position by the lug itself, and no screw or other device is required for this purpose, and, furthermore, the box is left free to adjust itself upon the sleeve. Since the base e' of the box E' presents an extended surface it is less liable to wear than the limited surface of the lug b ; but if said base does wear an inlaying plate e^3 , Fig. 9, of sheet-steel or of any other suitable material, may be placed beneath the lug b (see Fig. 7) to make up for the wear of the base e' . The wear of the bearing-surface of the lug b' may also be made up by an inlaying plate b^{10} , of steel or any other suitable material, which is held in place by a pin b^{11} .

The sleeve E receives its motion by means of a bell-crank lever F G, which swings on a pivot c , and one arm F of which engages with the sleeve, while its other arm G is attached to the outer end of the connecting-rod H, the inner end of which is secured to a journal-box h , which embraces an eccentric wrist-pin I, secured to the transverse arbor J. (Best seen in Fig. 2.) The connecting-rod is hollow and provided with an opening h' , through which the hollow space can be supplied with

a lubricant. The opening h' can be opened or closed by a screw h or by any other suitable stopper. In the journal-box h is formed a small channel h^0 , through which the lubricant contained in the interior of the connecting-rod can pass to the eccentric wrist-pin I. By making the connecting-rod II hollow its weight is diminished and its momentum during the motion of the machine is correspondingly reduced, so that the machine can be run very rapidly without being liable to jump.

On the arm C is secured a cap C^0 , which swings on pivots c^0 c^0 . When this cap is turned down to the position shown in Figs. 1, 2, and 3, it prevents the lubricating material from flying out.

The arbor J receives its motion by a belt running over the pulley J^0 , which is situated on one side of the arm C. On the opposite side of this arm is situated a brake-pulley K, which is firmly mounted on the arbor J, and which is exposed to the action of a brake-shoe k . This brake-shoe is secured to the end of the arm k' , Fig. 3*, of a bell-crank lever $k' k^2$, which has its fulcrum on a pin k^3 , secured in a bracket k^4 , which is firmly attached to the arm C, Figs. 1 and 2. On the arm k^2 of the bell-crank lever $k' k^2$ is fitted a weight k^5 , which produces a yielding pressure upon the brake-shoe k , and which can be adjusted so as to exert more or less pressure. It is obvious that a spring may be substituted for the weight k^5 . The object of this brake mechanism is to retard the velocity of the cutting mechanism, as may be desirable.

P is the presser-foot, the shank p of which fits into a recess p' in the lower portion of the pillar B, Fig. 5, and extends up a little above the lower eye a of the bracket O. Just below this eye the pillar is flattened, as seen in Fig. 5, and to this flattened portion is secured a clamping-plate p^2 by means of screws p^3 . One of them is a thumb-screw. The face of the shank p is convex, and to the inner face of the clamping-plate p^2 is secured an elastic packing p^{20} , so that when the screws p^3 are tightened the clamping-plate bears upon the shank of the presser-foot with an elastic pressure and the screws p^3 are not liable to work loose by the jar of the machine when the same is in operation. At the same time the shank p of the presser-foot terminates in the lower eye a , so that its weight is reduced and the presser-foot is less liable to work loose than it is if its shank extends clear up to the top of the pillar. It must also be remarked that the thumb-screw p^3 , which serves to tighten and to release the clamping-plate p^2 , and which must be actuated very frequently when the machine is in operation, is situated beneath the lower eye a , where it can be conveniently reached at all times and where it is not liable to be covered up by the handle which serves to turn the pillar B. When these screws are released, the presser-foot can be raised, and by tightening said screws the presser-foot can be adjusted according to the thickness of

the material to be cut. From the front end of the presser-foot rises a guide-bar p^1 , which engages a groove p^5 in the pillar B, Fig. 5, and to the lower end of the guide-bar is firmly secured an arm p^6 , Figs. 10 and 11, on the outer end of which is formed an eye p^7 , in which is secured a set-screw p^8 . Through this eye passes a pintle p^9 , which supports the presser-toe P^0 , which is provided with two eyes p^0 to receive the pintle p^9 . The presser-toe P^0 is subjected to the action of a spring $p^{0'}$, which has a tendency to force said toe down upon the material to be cut and the tension of which can be increased or decreased by turning the pintle p^9 and then securing the same in the required position by the set-screw p^8 . A lip p^{02} , which extends from the presser-toe, Fig. 10, forms a stop which prevents said toe from moving down beyond the desired limit. By means of this presser-toe I am enabled to cut materials the thickness of which changes—as, for instance, a pile formed of several layers of material, the thickness of which is increased by plaits formed in certain portions thereof.

On the support A is formed the knife-receiving socket or receiver R. This receiver consists of two plates r^2 r^2 , provided with flanges, the edges of which rise above the surface of the support, so that its edges form the support for the material at the cutting-point. In the machines as constructed up to the present time the top edges of the receiver R are parallel with the surface of the support A, and during the operation of cutting in a curve or in a sharp angle the knife-plate is liable to spring laterally, and the cutting-edge being forced against one or the other edge of the receiver is liable to become dull in a short time. This difficulty I have overcome by making the top edges of the receiver R to slope downward from the point r to the point r' , while that portion of said top edges which extends from the point r to the lower portion of the pillar B is parallel with the surface of the support A. By the sloping portion $r r'$ of the receiver R the cutting-edge of the knife when strained laterally is gradually brought back into the receiver from the inner end outward, and the cutting-edge of the knife is not liable to become injured or dulled by striking either one or the other edge of the receiver.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the support A, the pillar B, the knife-bar D, fitted into the pillar, and the sleeve E, fitting on the pillar, of lugs $b b'$, extending from the knife-bar, one above and the other below the sleeve, and a box E' , provided with internal ribs e^2 e^2 to engage recesses b^0 b^0 in the sides of the lug b , substantially as described.

2. The combination, with the support A, the pillar B, the knife-bar D, fitted into said pillar, the sleeve E, which fits the pillar and engages the knife-bar, and the arm C, which

embraces said pillar, of the arbor J, the eccentric wrist-pin I, the journal-box *h*, embracing this eccentric wrist-pin and provided with a channel *h*⁰, and the hollow connecting-rod
 5 H, having a supply-opening *h*' and extending from the journal-box *h* and geared together with the sleeve E, substantially as described.

3. The combination, with the movable support A and with the knife carried by the same, of the arbor J, geared together with the knife, the belt-pulley J⁰, and the brake-pulley K, mounted on said arbor, and a brake-shoe held in contact with the brake-pulley by a yielding pressure, substantially as described.
 15

4. The combination, with the support A, the pillar B, the knife-bar D, fitted into the pillar, the sleeve E, fitting on the pillar and engaging the knife-bar, the arm C, having
 20 eyes *a a*, which embrace the pillar, and means for imparting to the sleeve a reciprocating motion, of a presser-foot P, the shank of which extends up into the pillar and terminates at the lower eye *a* of the arm C, a clamping-plate *p*², secured to the pillar beneath the
 25 lower eye by screws *p*³, and an elastic packing *p*²⁰, interposed between the clamping-plate and the shank of the presser-foot, substantially as described.

30 5. The combination, with the support A, the pillar B, the knife-bar D, fitted into the pillar, the sleeve E, fitting on the pillar and engaging the knife-bar, and means, substantially as described, for imparting a reciprocating

motion to the sleeve, of the pintle *p*⁹, 35 the arm *p*⁶, provided with an eye *p*⁷ for supporting said pintle, the set-screw *p*⁸, the presser-toe P⁰, made to swing on the pintle, and the spring acting on the presser-toe, substantially as described. 40

6. The combination, with the support A, the pillar B, the knife-bar D, fitted into the pillar, the sleeve E, fitting on the pillar and engaging the knife-bar, and means, substantially as described, for imparting a reciprocating motion to the sleeve, of the knife-receiving socket or receiver R, formed with sloping edges rising above the support A, substantially as described. 45

7. The combination, with the support A, 50 the pillar B, the knife-bar D, fitted into the pillar, the sleeve E, fitting on the pillar and engaging the knife-bar, and the arm C, which embraces the pillar, of the arbor J, mounted in said arm, the eccentric wrist-pin I, the 55 journal-box *h*, embracing the wrist-pin, the connecting-rod H, extending from the journal-box *h* and geared together with the sleeve E, and the oil-protecting cap C⁰, hinged to the arm C and swinging in a plane at right angles to the arbor J, substantially as described. 60

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALBIN WARTH.

Witnesses:

WM. C. HAUFF,
 E. F. KASTENHUBER.