

(Model.)

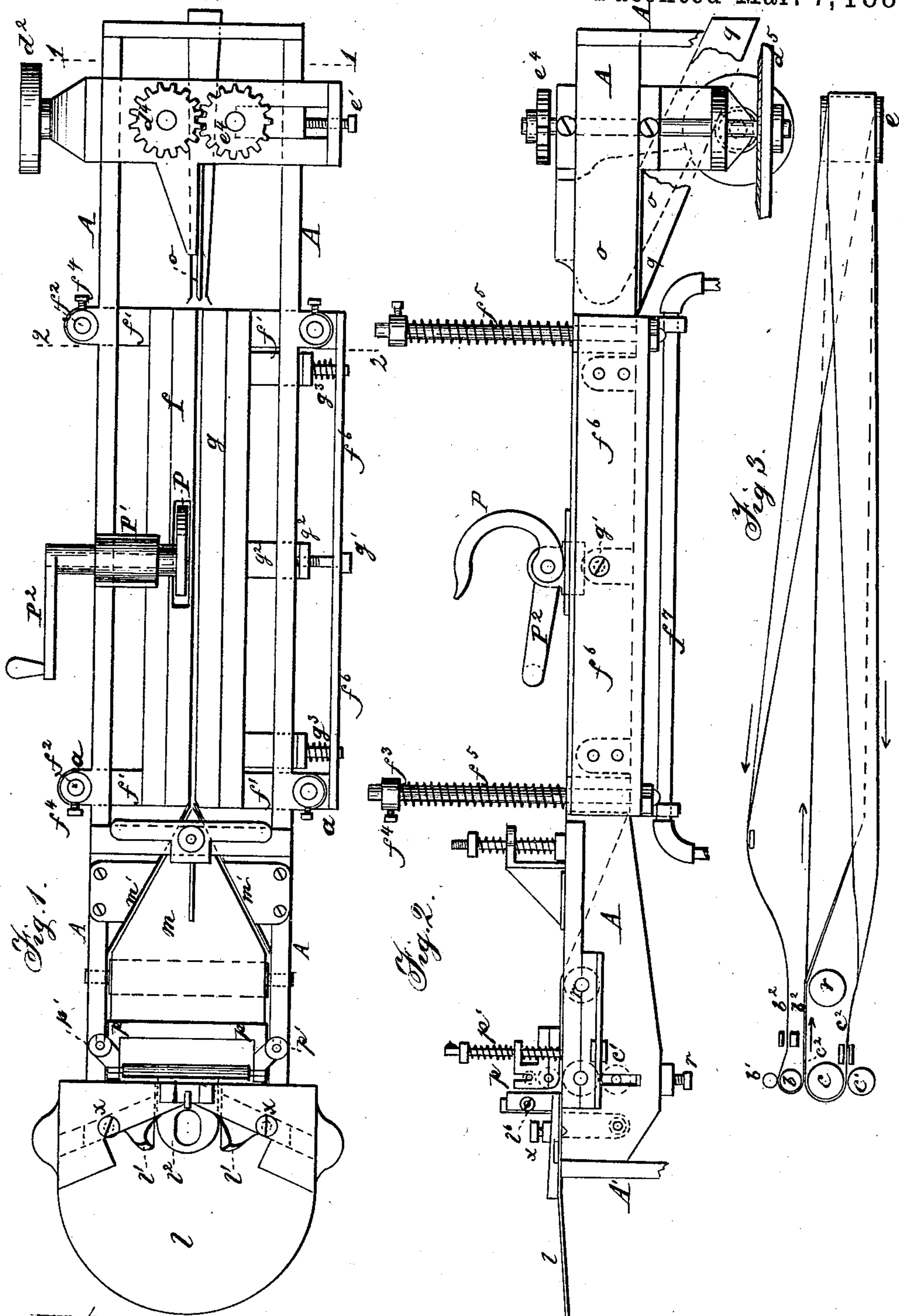
3 Sheets—Sheet 1.

M. STEINBOCK.

MACHINE FOR FOLDING AND PRESSING NECKTIES.

No. 254,576

Patented Mar. 7, 1882.



Witnesses:
Albert H. Hook.
B. Kumbägel

Inventor.
Morris Steinbock

(Model.)

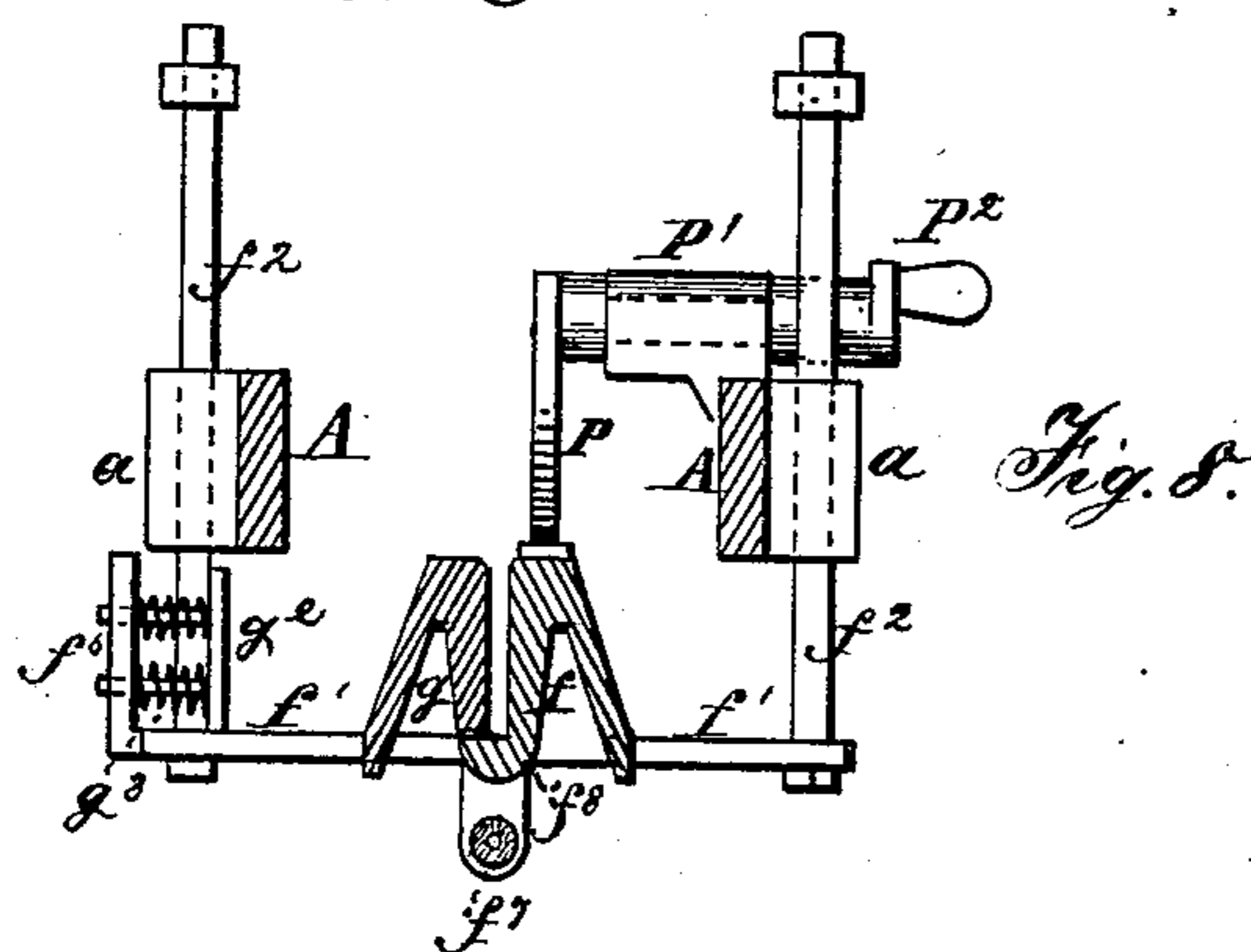
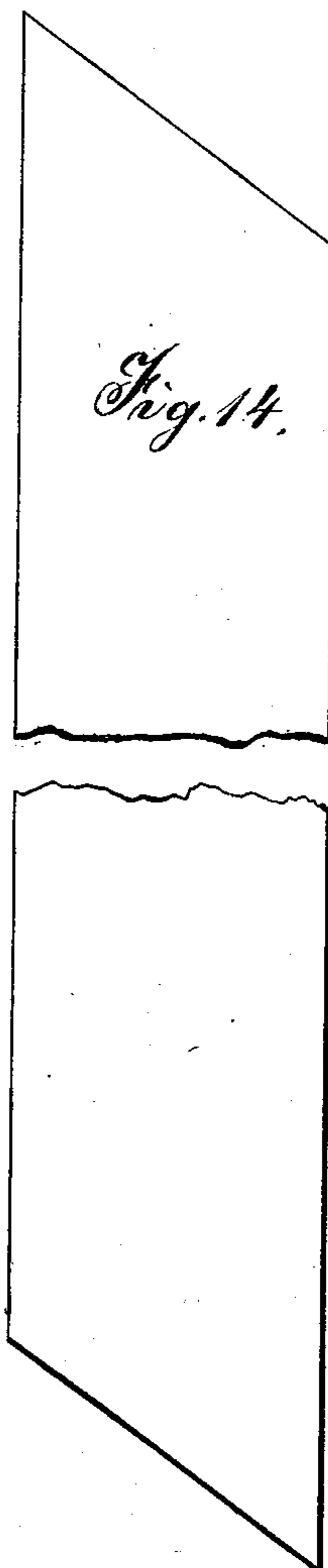
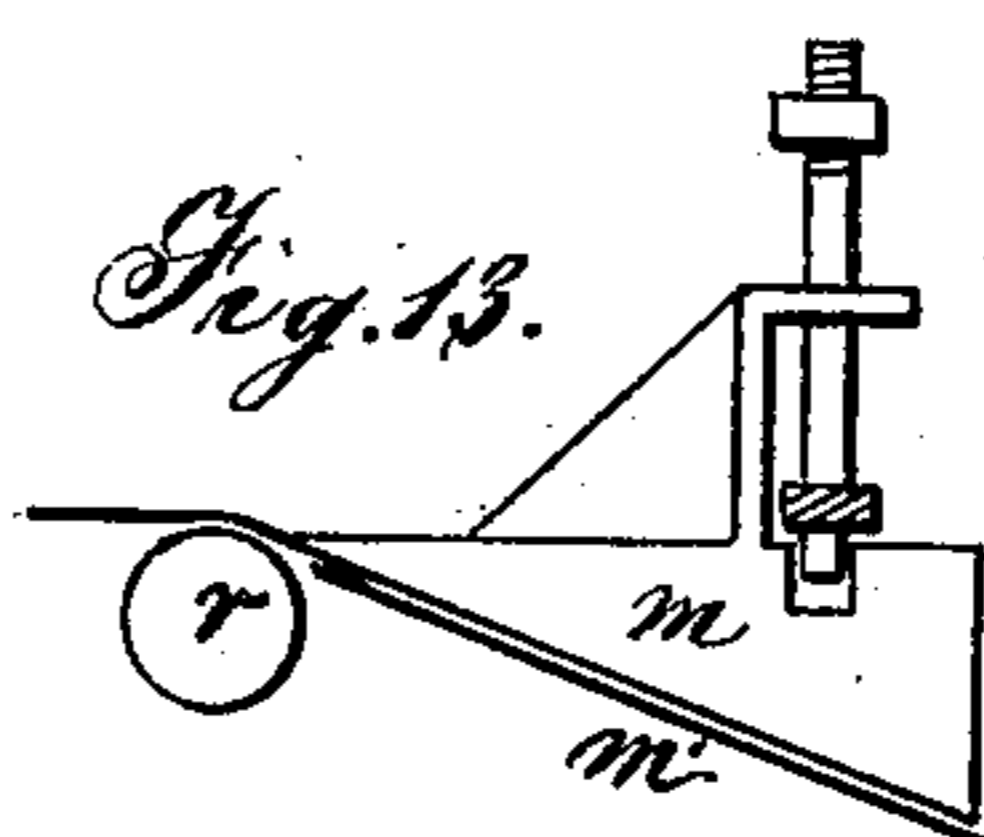
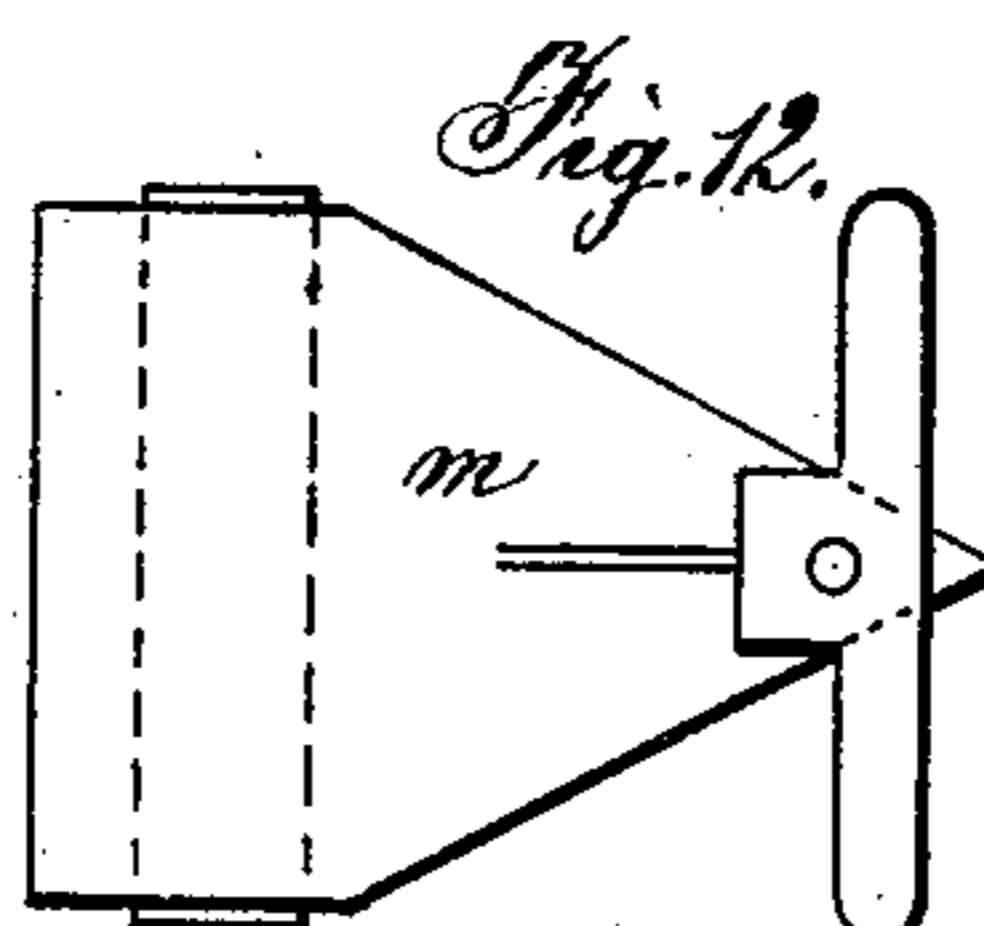
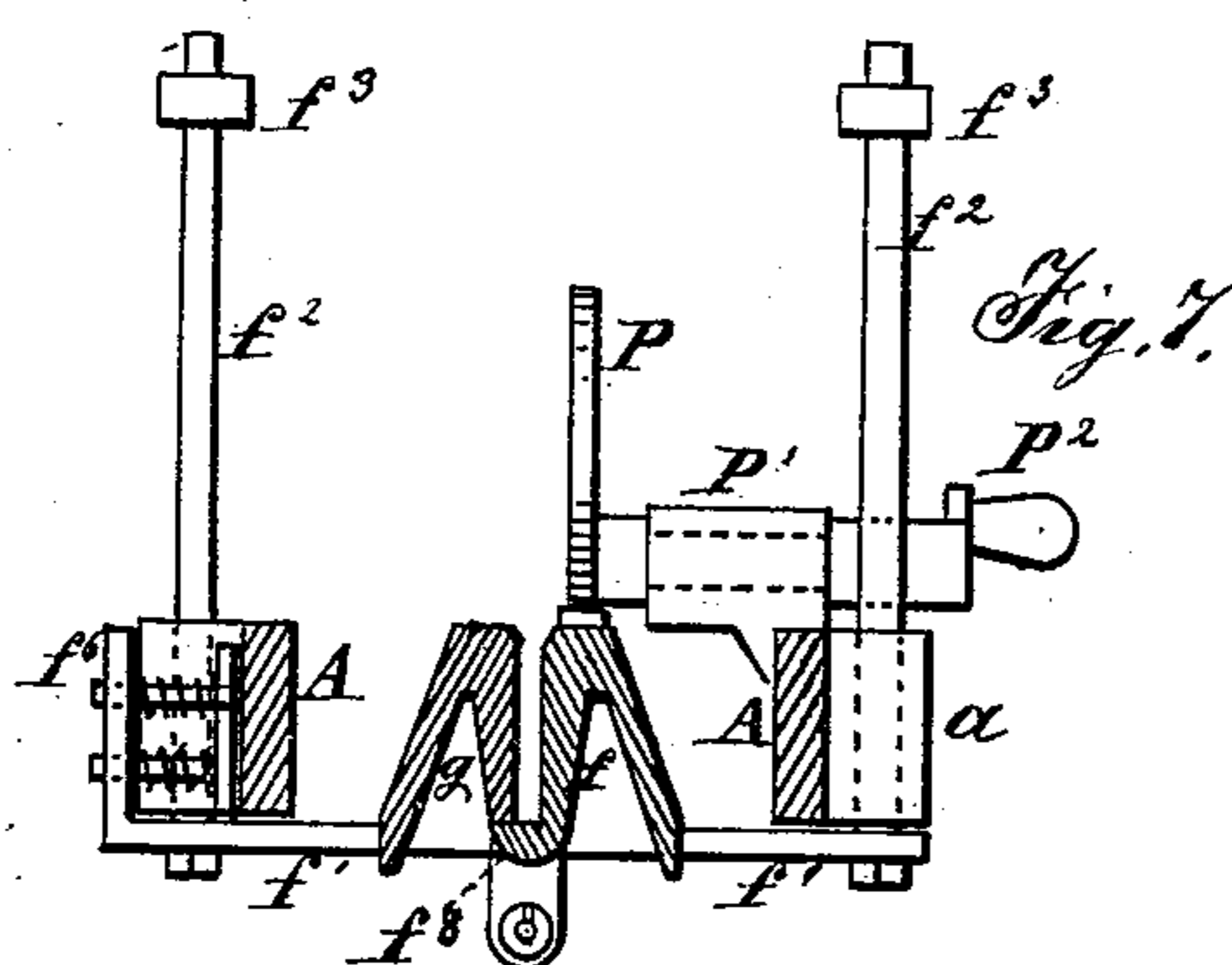
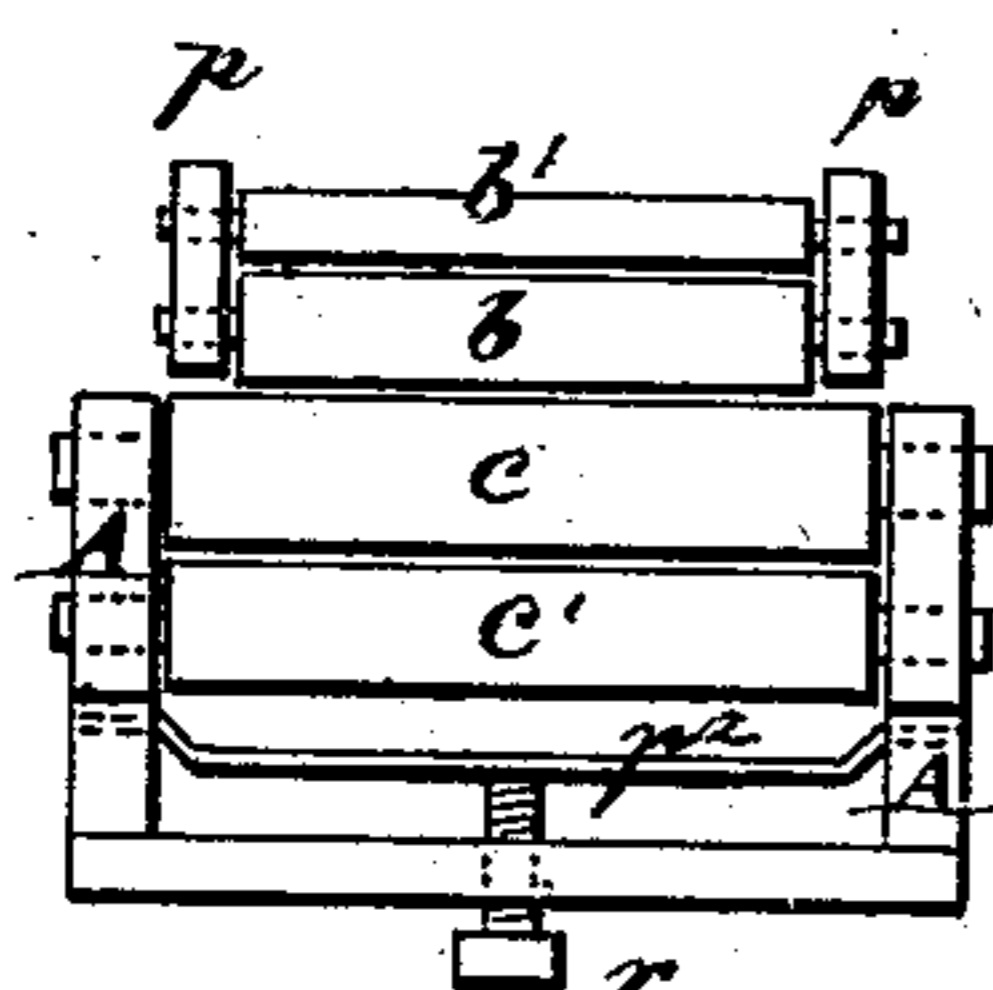
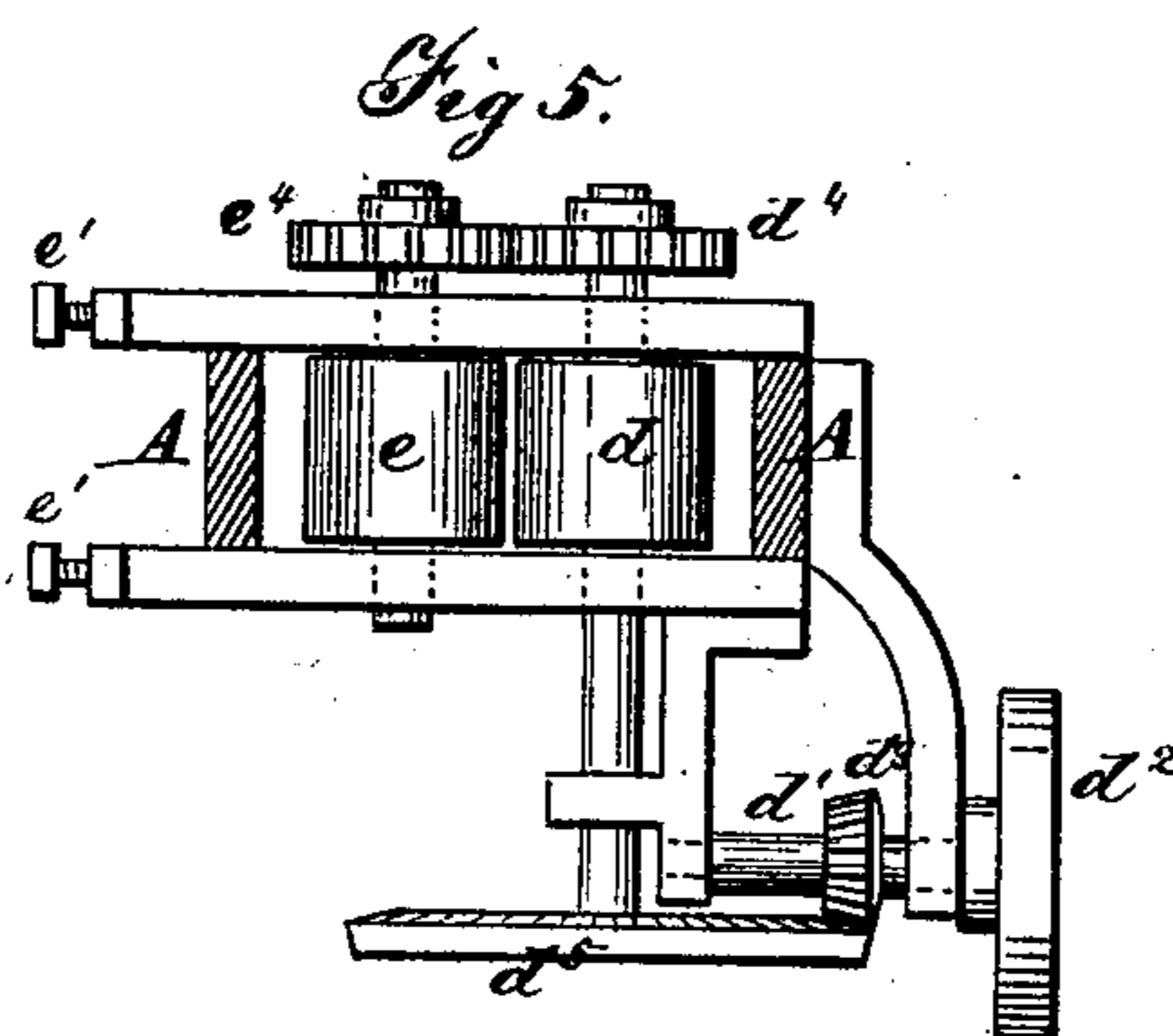
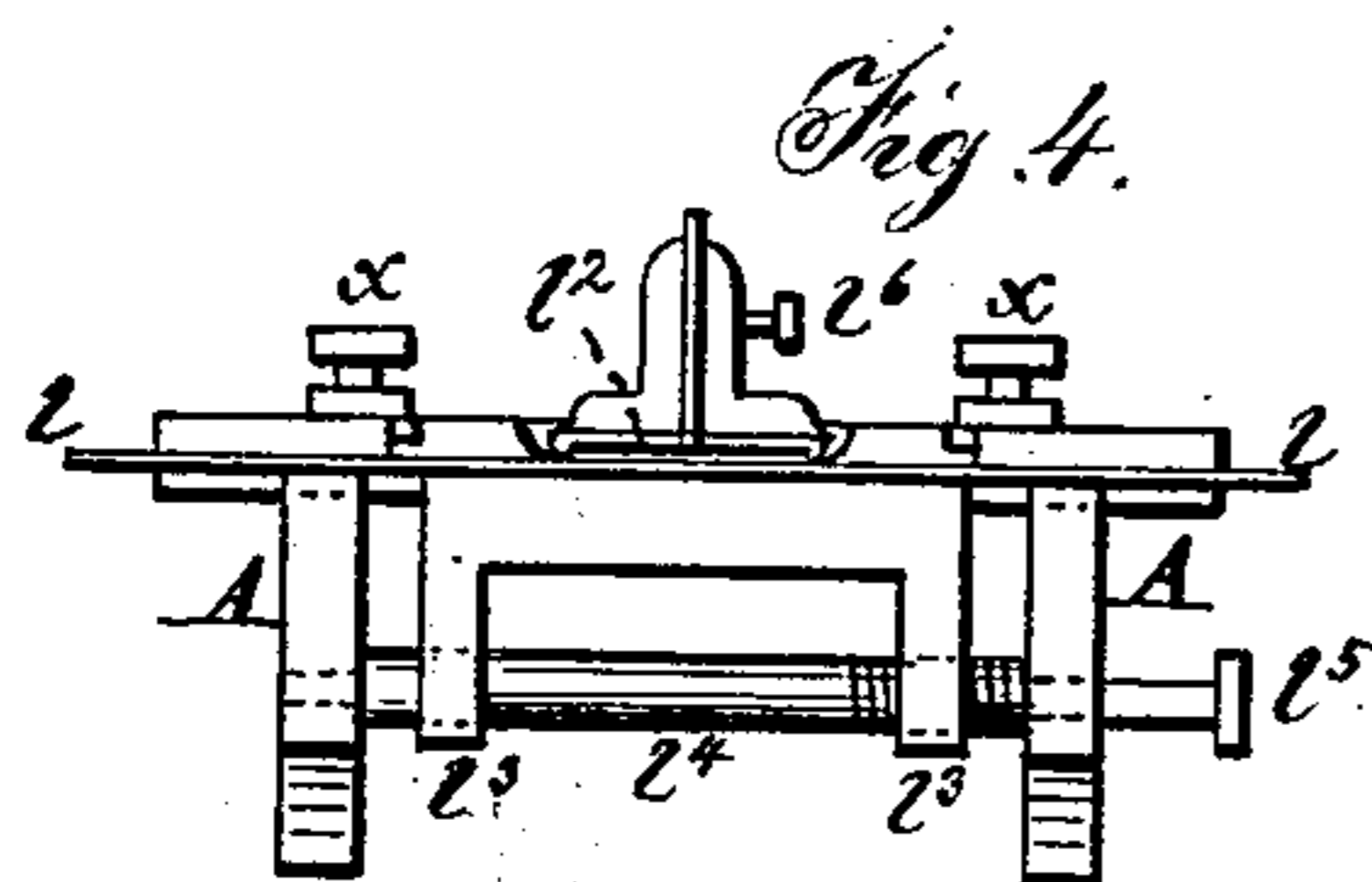
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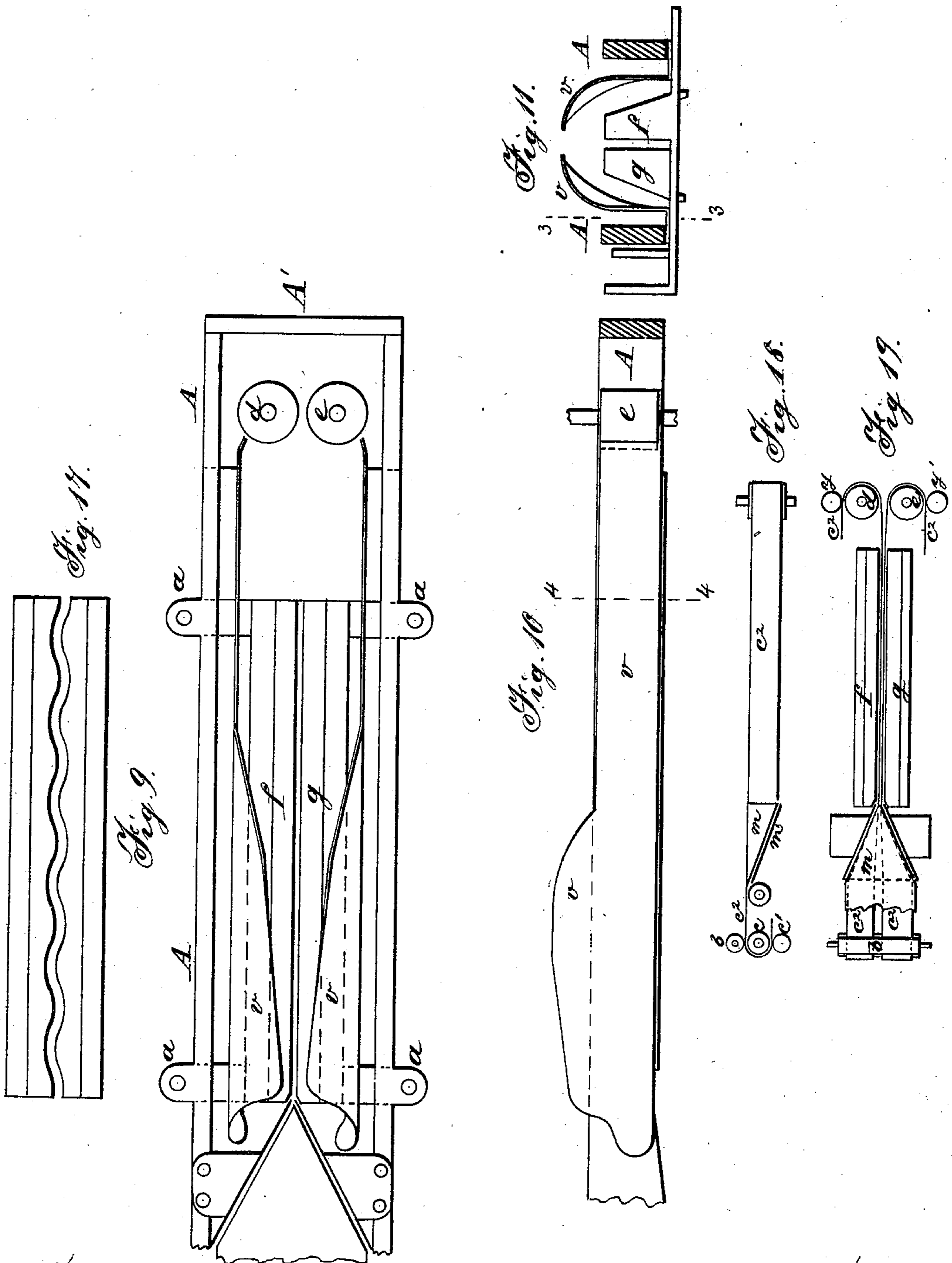
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M. STEINBOCK.

MACHINE FOR FOLDING AND PRESSING NECKTIES.

No. 254,576.

Patented Mar. 7, 1882.



Witnesses:
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UNITED STATES PATENT OFFICE.

MORRIS STEINBOCK, OF NEW YORK, N. Y.

MACHINE FOR FOLDING AND PRESSING NECKTIES.

SPECIFICATION forming part of Letters Patent No. 254,576, dated March 7, 1882.

Application filed April 7, 1880. Renewed December 21, 1881. (Model.)

To all whom it may concern:

Be it known that I, MORRIS STEINBOCK, of the city, county, and State of New York, have invented new and useful Improvements in Machinery for Folding and Hot-Pressing or Ironing Neckties, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings, of which—

10 Figure 1 represents a plan view of the main parts of the machine, the belts and their protecting-leaves not being shown. Fig. 2 is a front view thereof. Fig. 3 is a diagram showing the run of the belts. Fig. 4 is an end view of the feed-plate and its attachments. Fig. 5 is an end view of the rear end of the machine, or a cross-section in line 1 1 of Fig. 1. Fig. 6 is a view of the front end of the machine, the feed-plate being removed. Figs. 7 and 8 are 20 vertical sections of the machine in line 2 2 of Fig. 1, showing the heating-irons respectively in their raised and their lowered positions. Fig. 9 is a plan view of a portion of the machine, showing the heating-irons and their protecting-leaves. Fig. 10 is a vertical longitudinal section of the same part of the machine and for the same purpose, the section being taken in the line 3 3 of Fig. 11. Fig. 11 is a vertical transverse section of the machine in 30 line 4 4 of Fig. 10, showing an end view of the heating-irons and the curvature of the protecting-leaves. Fig. 12 is a plan view of the convex or upper part of the middle folder detached. Fig. 13 is a vertical section of the same and the lower part of the middle folder. Fig. 14 is a view of a strip of material of which a necktie is to be made. Fig. 15 is a cross-section of the strip after the first operation—that of bending over the edges—has been 40 performed on it. Fig. 16 is a cross-section of the finished necktie after the middle fold has been performed on it.

Letters A represent a frame so arranged as to support all the mechanism hereinafter to be 45 described, and itself supported by legs A'. (Not fully shown in the drawings.) This frame supports and affords bearings for four horizontal rollers—viz., b c b' c' . Two endless bands, b^2 , run over the roller b toward the rear end of 50 the machine, where they run over a pair of

vertical rollers, d e , and thence return to the horizontal roller b , and two other endless bands, c^2 , run over the roller c toward the rear of the machine, where they run over the same vertical rollers, d and e , each of these bands thus forming a "quarter turn" band, as it is technically called. The front end of the strip of material out of which the necktie is to be folded is introduced between these two sets of upper and lower bands, and is made to travel along when 60 said bands are set in motion in the direction of the arrows in Fig. 3 of the drawings. The two vertical rollers d and e at the rear end of the machine are the means to drive the said bands, they being geared together by cog-wheels d^4 e^4 . The motive power is attained by 65 a horizontal shaft, d' , which is fitted with a pulley, d^2 , at its outside end, and with a bevel-pinion at its inside, (marked d^3), which gears into a bevel-gear wheel, d^5 , attached to the shaft of the vertical roller d . The shaft d' , by its pulley d^2 , may be driven by steam or foot power, and thus give motion to the belts b^2 c^2 .

The vertical roller e is made with sliding bearings, and by means of two set screws, e' e' , 75 and springs (not shown in the drawings) an adjustable and yielding pressure can be produced between the vertical rollers e and d .

The heating-irons f and g , as represented in Figs. 1, 7, and 8, are made with parallel vertical sides, where the four belts or bands pass 80 through, carrying the necktie along. At the bottom they are made hollow. One of them is made stationary—that is, not movable laterally—and is furnished with two horizontal 85 arms, f' , on each side, each arm having a vertical rod, f^2 , fastened to it, which passes through a certain lug, a , cast onto the sides of the frame A, and receives a collar, f^3 , made adjustable up and down, and fastened by a set-screw, f^4 . 90 Between this collar and the top of the frame there is on each of the rods f^2 a spiral spring, f^5 , which has a tendency to keep the heating-iron f up in a raised position, as shown in Fig. 7. The other heating-iron, g , is made adjustable back and forth transversely by means 95 of a set-screw, g' , which passes through a bar, f^6 , which forms a connection between the two arms $f' f'$, and screws into an arm, g^2 , of the second heating-iron, g . By this set-screw 100

the iron g can be separated more or less from the iron f , while there are spiral springs g^3 , which have a tendency to force the two irons together, to exercise a yielding pressure against the belts and the necktie as they pass through between them. When the machine is not in operation, while the irons f and g are hot it is necessary to lower these irons to a position as shown in Fig. 8, so as to prevent the bands from getting burned unnecessarily by being in contact with those hot irons. When the bands are in motion there is no danger of their getting burned by those hot irons. This lowering of the irons is done by turning the eccentric P over, which bears upon the top edge of the iron f , or upon a strip of steel fastened thereto, thus depressing the whole system of heating-irons to a position as shown in Fig. 8. The shaft of this eccentric is supported in a bearing, P' , attached to the inner side of the frame A and worked by a handle, P^2 .

On the front end of the machine from which the strips to be made into neckties are entered there is a feed board or plate, l , upon which there is a pair of adjustable gages, $l'l'$, by which, in conjunction with a size-blade, l^2 , the turning over of the edges of the strips of material is done, from which the necktie is to be made. Now, the strip is of a sectional shape, as shown in Fig. 15. As the forward point of the strip is introduced between the gages it is taken hold of by the two upper and lower sets of belts and carried along, while the gages keep turning over and folding the edges of the strip. The bands then carry the strip into the middle folder, where the third fold of the strip, in the center thereof or somewhere near the center, is produced, and this folder consists of a convex triangular piece, m , which is made to almost fit a concave piece, m' , both of them pointing at the rear end to a vertical edge and entering the space between the two heating-irons f and g , for which purpose the forward edges of the irons are beveled off, as shown in Fig. 1. The convex or upper part of this middle folder is made with a mechanism so arranged as to afford a yielding pressure against the belts as they pass through between the upper and lower parts of the middle folder. The bands passing through this middle folder carry the necktie along, and in doing so it receives its final fold, and is of a sectional shape, such as shown in Fig. 16. From the middle folder the bands pass through between the two heating-irons f and g , where the now ready-made necktie becomes heated and pressed. On leaving the irons the necktie is pushed out gradually from between the bands by a thin blade of sheet metal, o , (see Figs. 1 and 2,) which is made fast to some convenient part of the frame of the machine, and enters the center fold of the necktie and forces the finished article as it passes on downward into the discharge-channel g , from which it leaves the machine.

In order to make the feed-plate and its gages laterally adjustable, the said feed-plate is fur-

nished at its bottom side with two descending arms, l^3 , through which a round tube, l^4 , passes, the ends of which fit between and butt against the sides of the frame A . One end of this tube has a screw-thread cut upon it and fits into a female thread of the arm l^3 . By turning a rod, l^5 , which passes through this tube and through a corresponding hole in each of the sides of the frame A , the arms l^3 and the feed-plate, with its gages, can be shifted back and forth laterally for adjustment, as it is sometimes desired to place the middle fold of the necktie out of center, and, unlike the section shown in Fig. 16, in this case the feed-plate and its gages are shifted one side or the other, which is done by the described mechanism. The gages l' are made to slide in angular ways on the feed-plate for adjustment to the size-blade l^2 , which determines the size or width of the necktie before the middle fold is made, and over which the edges of the original strip are bent. There must be a separate size-blade for each size of necktie, each one being furnished with a vertical shank, which is inserted into a corresponding groove in an upright attached to the feed-plate, and a set-screw, l^6 , screws the size-blade in its proper position. The side gages, $l' l'$, are adjusted to the inner blade, l^2 , and fastened in the proper position by set-screws $x x$.

The roller b at the front end of the machine, which carries the two upper bands, runs in a separate small frame, p , the two sides of this frame being made with slots, in which the roller b' runs. This roller b' bears upon the roller b and the bands thereon and gives a slight tension to these upper belts. The roller b is given a yielding pressure upon the roller c , which carries the two lower bands, and the pressure is obtained by a pair of spiral springs, p' , one at each side of the frame, as clearly shown in Figs. 1 and 2. The rear end of this frame p is connected with the front end of the middle folder, m , by a piece of thin elastic sheet metal, which exercises a slight and yielding pressure upon another roller, r , over which all four bands run and carry the necktie-strips into the middle folder. To create a slight tension of the two lower bands and to make them adhere to the roller c , there is placed directly under it the tension-roller c' , which can be forced against the roller c and its bands by means of a set-screw, r , operating a spring, r^2 , the ends of which spring support the bearings of the roller c' , as clearly shown in Fig. 6.

The two irons f and g may be heated by gas-jets from a horizontal pipe, f' , attached to one of the irons; and to prevent the flames from direct contact with the bands and the necktie as they pass through between the hot irons, one of the irons is furnished with a flange, f^3 , which covers up the gap between the irons and permits the flames to strike into the hollow bottoms of the irons.

As the bands return from the vertical rollers e and d to the front of the machine, it is desirable to protect them from immediate contact with the hot irons, and this is done by the pro-

protecting-shields *v v*, one on each side, made of thin sheet metal, fastened to the sides of the frame, and so curved and shaped as to allow the return-bands a free passage away from the irons.

There are two advantages obtained by the use of the four bands to carry the strips of material of which the necktie is to be made through the operation of folding and ironing, viz: First, they carry the strip through without exposing it to the danger of being stretched, which it is apt to be, as the material is cut bias, and consequently more or less elastic; second, these bands—at least the outside ones—protect the necktie from immediate contact with the hot irons and prevent it from receiving a gloss. Several modifications of the machine are indicated in Figs. 17, 18, and 19 of the drawings.

Fig. 17 represents the two faces of the heating-irons between which the bands pass, instead of being straight, as having a corrugated or wave shape, by which a closer contact of the bands and goods with the heating-surfaces may be obtained. Fig. 18 is a vertical section of a machine in which the two upper bands, *b*², are discarded and only the lower endless bands, *c*², are used to carry the necktie through the middle folder, *m m'*, and the heating-irons *f* and *g*, in which the pulling of the bands is being done by the two vertical rollers *d* and *e*, which, however, both run in stationary bearings and exercise no pressure against each other; but the bands are made to adhere to these rollers respectively by pressure-rollers *y y'*. This is done for the purpose of avoiding the giving of an extra squeezing to the necktie as it passes through between these rollers and is discharged behind from the machine without the aid of a discharge-blade and funnel. The feeding in of the forward end of the necktie is assisted by a plain roller, *b*, bearing upon the roller *c* and its belts, by yielding pressure, similarly arranged as described before.

Fig. 19 is a plan view of this modified device, both Figs. 18 and 19 being shown on a smaller scale than the rest of the figures.

What I claim as my invention is—

1. In a machine for folding and hot-pressing neckties, the herein-described mechanism for carrying the four quarter-turn belts or bands, consisting of the two horizontal rollers *b* and *c*, with their tension-rollers *b'* and *c'*, and the two

vertical rollers *d* and *e*, substantially as specified.

2. In a machine for folding and hot-pressing neckties, the feed-board *l*, in combination with two adjustable gages, *l'* *l''*, and the size-blade *l*², for the purpose of turning over the edges of the strip, as described.

3. In a machine for folding and hot-pressing neckties, the feed-board *l*, with its side gages and size-blade, in combination with the mechanism for lateral adjustment, consisting of the two descending arms *l*³, the screw *l*⁴, and the rod *l*⁵, substantially as and for the purpose specified.

4. In a machine for folding and hot-pressing neckties, the middle folder, consisting of an upper convex piece, *m*, and a lower concave piece, *m'*, by which the four bands, in passing through, are converted from a horizontal position to a vertical one, or quarter-turned, and the strip of material is doubled up and receives its last fold.

5. In a machine for folding and hot-pressing neckties, a pair of stationary heated irons, *f* and *g*, between which the bands carry through the necktie for the purpose of hot-pressing it or ironing the same, one of the irons so arranged as to give a yielding and adjustable pressure to the other one, substantially as described.

6. In a machine for folding and hot-pressing neckties, the heated irons *f g*, substantially as shown and described, horizontal arms *f'*, vertical rod *f*², frame *A*, eccentric *P*, and crank and shaft *P*², as and for the purpose set forth.

7. In a machine for folding and hot-pressing neckties, the discharging-blade *o*, which enters the necktie in its center as the said necktie leaves the heating-irons and gradually forces it downward and from between the bands and deposits it in a discharge-funnel, from where it leaves the machine.

8. In a machine for folding and hot-pressing neckties, two or more endless bands for carrying the necktie-strip through the operation of folding and ironing, and protecting the said necktie from stretching and from receiving a gloss by rubbing.

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Witnesses:

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