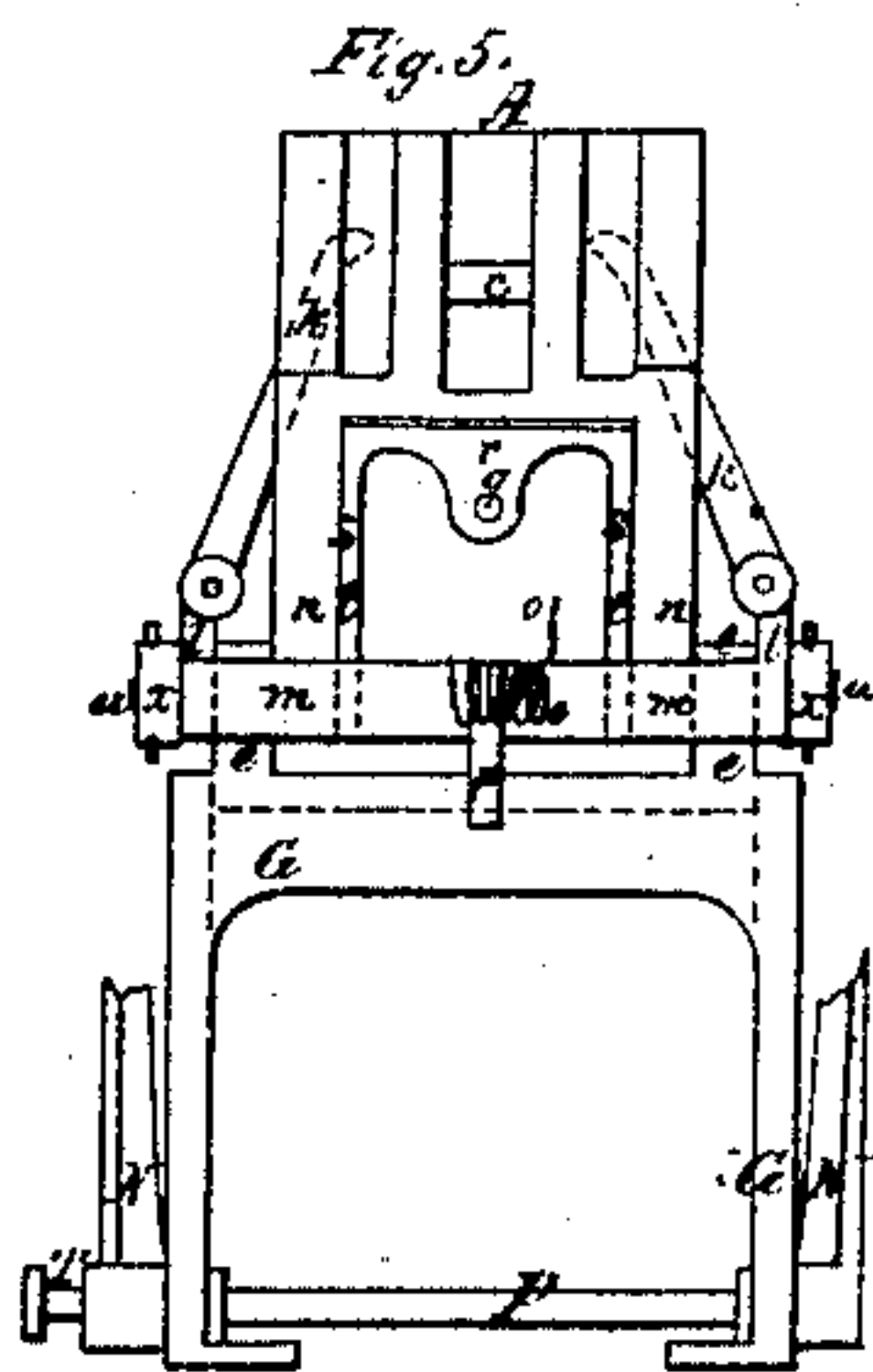
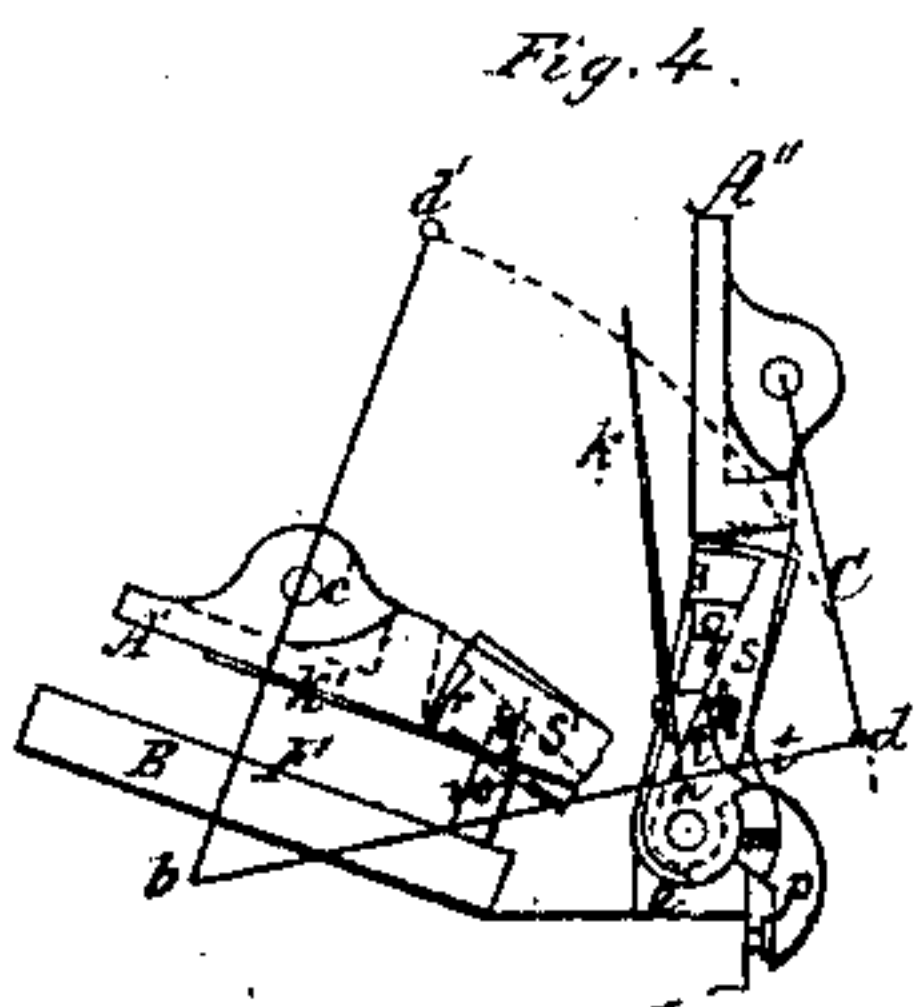
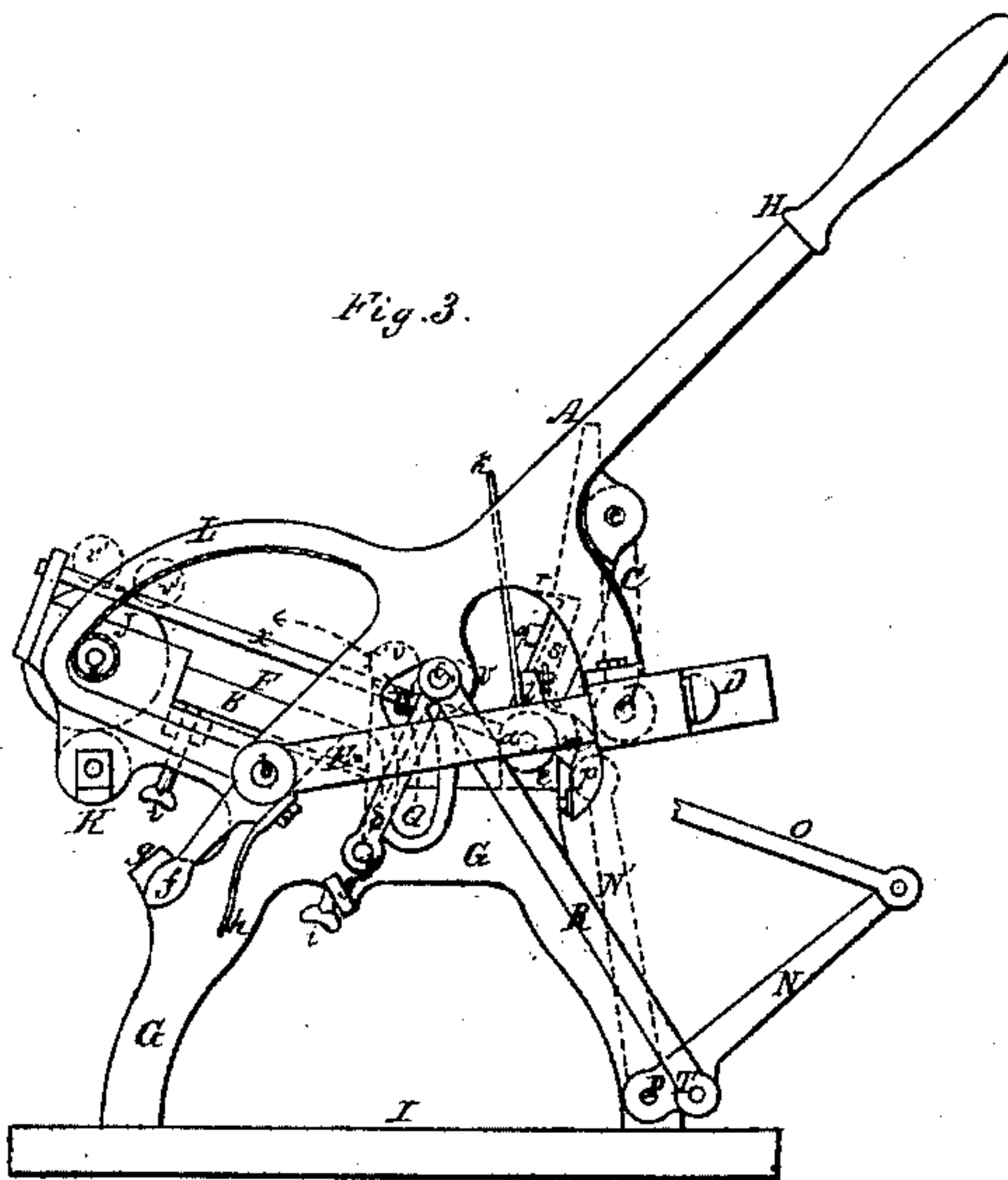
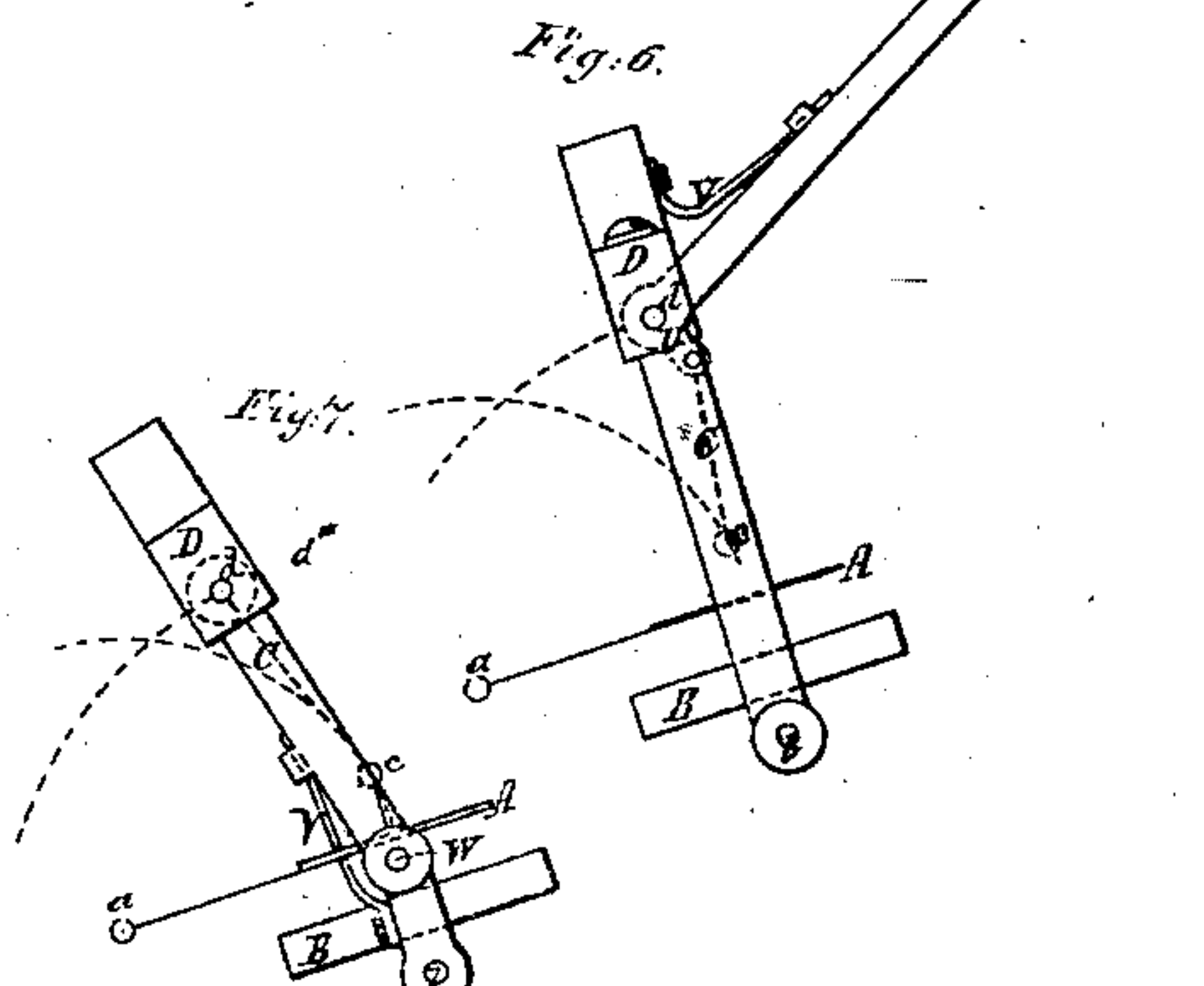
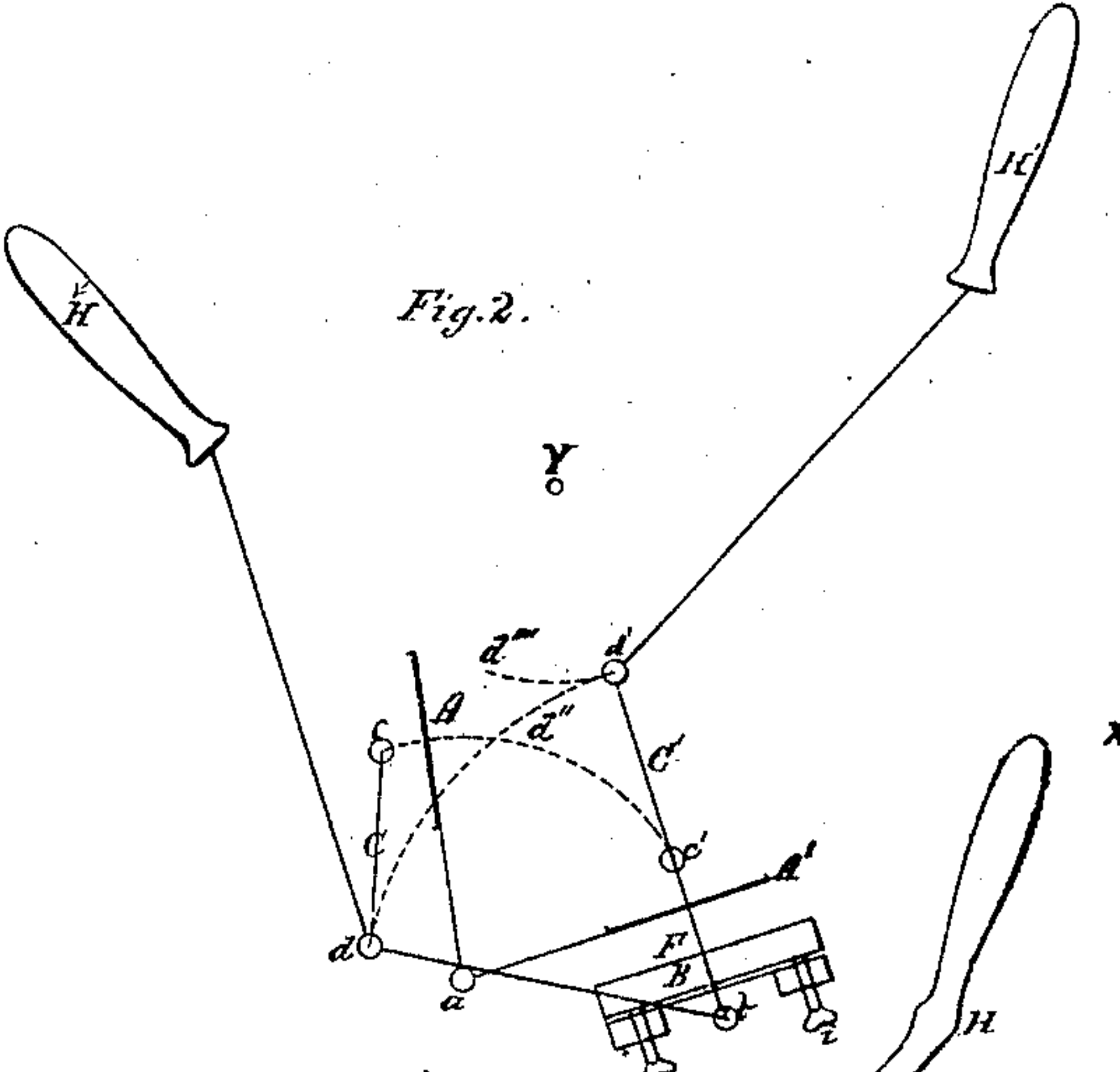
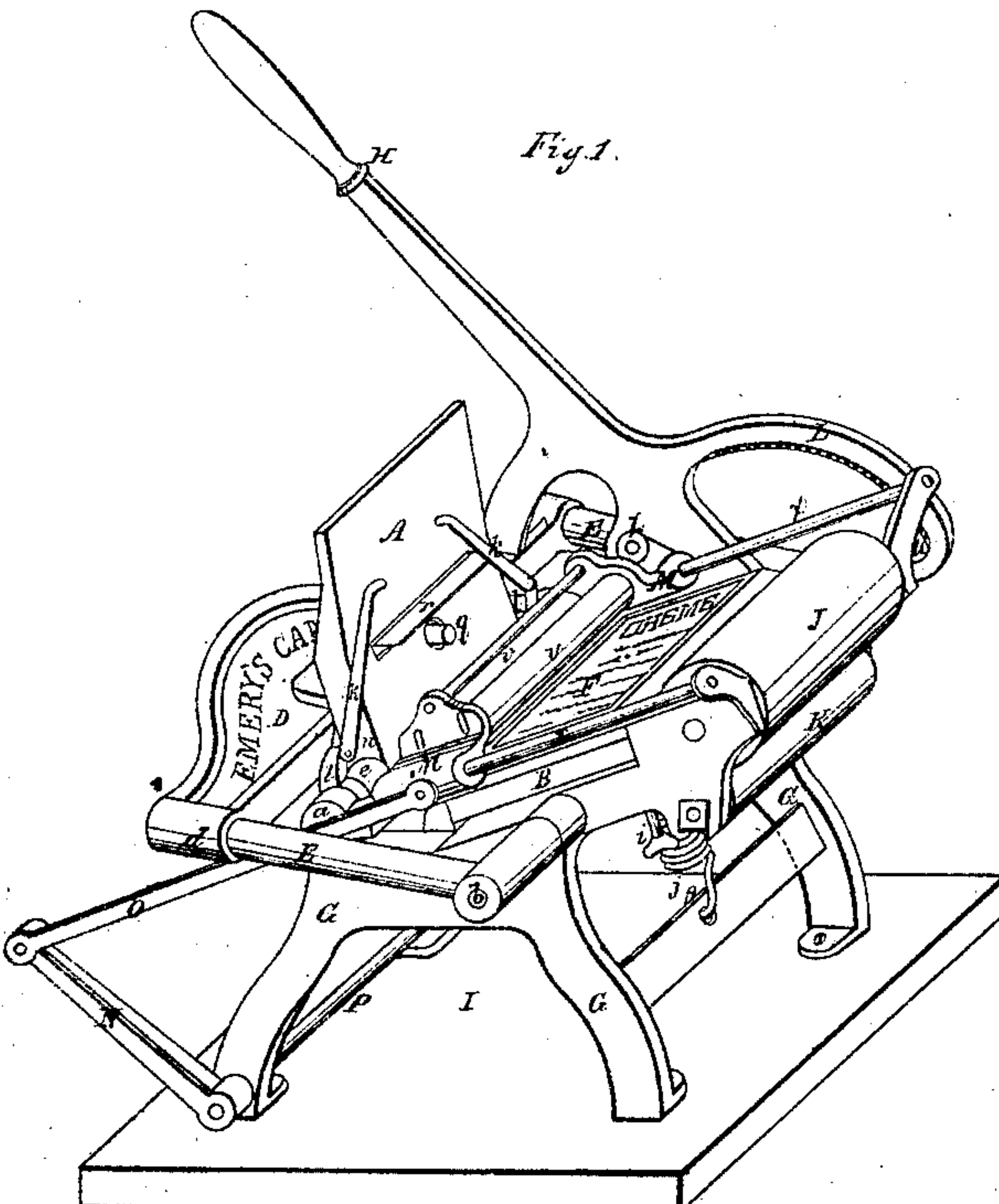


C. E. Emery.
Card Printing Press.

N^o 17.499.

Patented Jun. 9, 1857.



UNITED STATES PATENT OFFICE.

CHARLES E. EMERY, OF CANANDAIGUA, NEW YORK.

CARD-PRINTING PRESS.

Specification of Letters Patent No. 17,499, dated June 9, 1857.

To all whom it may concern:

Be it known that I, CHARLES E. EMERY, of Canandaigua, in the county of Ontario and State of New York, have invented a new and useful Card-Printing Press; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a perspective view; Fig. 2, a view of the centers and center lines showing how the platen is operated; Fig. 3, a side view with dotted sections showing the opposite side of the machine to that shown in Figs. 1 and 2; Fig. 4, a side semi-sectional view of the platen, and Fig. 5, a back view of the same. The other figures will be explained as needed.

The same letters in all the figures refer to like parts.

The object of this invention is to have a hand card press which will do as good work as the power presses of the same size, used for the same purpose, and hence have all their movements, and yet be worked by a lever standing in such a position and which has so little movement that it is convenient to work. The operator works the press with one hand and feeds the cards with the other. The motion of the lever inks the form, distributes the rollers, and allows the card to drop out of the machine, so that another may be put in its place. Paper may be printed on it as well as cards, though not always as rapidly, and it may be used for all the purposes card presses usually are, such as bill-heading and the like. The machine is simple and is a combination of simple devices which in and of themselves are perhaps well known, but in their construction and operation as applied and combined in this machine, they make a new machine fulfilling the purpose intended and containing some new features.

The operator stands from the machine in the direction X.

G, is the frame of the press.

A is the face of the platen which receives the card to be printed. It faces the operator when thrown back as represented.

B is the bed, with the form F resting on it within a chase. The arms *n*, *n*, (back view in Fig. 5), extend from the sides of the platen to the pin *a*, which passes

through ears *e*, *e*, on the frame, on which pin as a center, the platen turns to and from the bed. The platen is moved in the following manner: A head or beam D, extending across the machine, is attached to the arms E, E, on the sides, which arms extend to a pin *b*, which passes through the frame directly under the bed. This makes the head D, movable about the center *b*. This head is connected by a link C (not seen in Fig. 1) to the platen. The link works in a notch in the head on the pin *d*, and between ears on the platen on the pin *c*, around which pins as centers it is movable. The head is moved by a handle H, fastened to it, and of course partaking of its motion around the center *b*. The handle is (with these proportions of parts) set at an angle with the centers in the head in order that it may be in a convenient position to operate. Fig. 2, shows, by means of centers and center lines, how the platen is operated. The handle H, is connected with the center *d*, by a straight line merely to show that it moves with it. Upon pulling H, forward to H', *d*, moves in the dotted line to *d'*, and the link C, causes the center *c*, to move in the dotted line to *c'*, the face of the platen A coming to A'. Then the three centers *d'*, *c'*, *b*, will be in one line and the card upon A, will be pressed upon the form F. The return of the handle throws the platen back to its first position, and then it is ready to have another card placed upon it. The lower part of the lever or handle H, is extended below the center *b*, forming an arm *f*, (seen only in Fig. 3,) which strikes against ears *g*, *g*, on the frame when the lever shall have moved sufficiently in either direction. The spring *h*, coming between *f* and *g*, just before the time of the impression checks the motion and helps throw the lever back from the impression. The bed B is set upon screws *i*, *i*, to regulate the amount of impression given the type. It is held upon them by a spring *j* (Fig. 1).

The card is held upon the platen by the grippers *k*, *k*, which are adjustable to suit the form, by means of screws in the ears *l*, *l*, to which they are attached. These ears turn on the pin *a*, (see Fig. 5), just outside of the ears *e*, *e*, on the frame, and are connected together by a bar *m*, (Figs. 3, 4, 5) passing across back of the stationary ears *e*, *e*, and the arms of the platen

n, n. A coiled spring *o* on the pin *a* presses against the bar *m* and tends to keep the grippers *k, k*, tight against the face of the platen which causes the grippers *k, k*, and ears *l, l*, to move with it. But from the bar *m*, an arm *p*, projects, which strikes a screw in the frame when the face of the platen, as it rises from the impression, gets near a perpendicular line. This causes the grippers to stand still, and the platen keeps on to the limit of its motion, so that they are separated as in Fig. 3, and a card being now placed upon the platen, it will be caught and held by the grippers as soon as it moves with the platen up to them.

Though the platen is connected by the arms *n, n*, to the center *a*, yet the front side of these arms is covered by a thin partition shown in section in Figs. 3 and 4. Through this partition projects the plate *r*, and pin *q*, when the platen is thrown back. On the plate *r*, the edge of the card is laid, to insure its being placed accurately, the form being locked near enough to the lower side of the chase to suit the size of the card. This plate after passing through the partition bends around at right angles (see Fig. 5,) forming arms *s, s*, which go to the pin *a*, on which pin as a center the whole thing turns, though moving tightly in its place. When the platen goes down to the impression, the pin *q*, which is attached to an ear on the plate *r* (as shown in Fig. 5,) strikes a pin *w* (Fig. 4) which is attached to the bed, which pushes the plate *r* back inside of the partition, as shown with the platen at *A'* in Fig. 4, and it remains so in consequence of being stiff in its place. When the face of the platen has risen to *A''* near a vertical line, the grippers let go the card as before explained, the plate *r*, being out of the way behind the partition, there is nothing to hold the card, so it drops through the opening in the frame down upon the table *I*, and through that if desired upon the floor. Upon the arms *s, s*, of the plate, are raised projections *t, t*, (Figs. 4 and 5) which strike the bar *m*, after the card drops, thus causing the plate to stand still, though the platen keeps on to its extreme of motion and leaves the plate protruding again as in Fig. 3, ready to have another card placed on it.

If the operator desires to pick off the cards instead of having them drop, by removing the pin *w*, or its equivalent, from the bed, the plate *r*, will not be pushed up enough to discharge the card, it will therefore remain on the platen.

J, and *K*, are distributing rollers, which are hung in the frame, so as to roll against each other. The lower one *K* may have a screw upon its axis to vibrate it. The shaft or pin of the other roller *J*, is extended through the side of the frame and carries

on its end a small cog wheel or pinion *n*, which is worked by teeth on the inside of the segment *L*, which segment is attached to the main lever of the machine, so that its motion rotates the rollers first in one direction, then in the other.

M, M, (Fig. 1,) is the roller carriage containing the inking rolls *v, v*. This slides to and from the distributing rollers, over the form on guides *x, x*, being moved by arms *N, N*, on rock shaft *P*, by means of links *O, O*, one on each side of the machine. Fig. 3, shows how the rock shaft *P*, is operated. In the lower part of the main lever there is a slot *Q, Q'*. A portion of it, *Q*, is swung from the center *b*, but it turns up at *Q'* into a line with a radius. In this slot works a roller *z*, and to the same pin on which this roller turns, are connected two links *R*, and *S*. The other end of link *R*, is connected to a short arm *T*, on rock-shaft *P*, and the other end of link *S* to a stationary pin *y*, in the frame. Upon pulling the handle *H* forward, the short side of the radial slot *Q'* working against the roller *z* pulls the short arm *T* with it, by means of the link *R*. This turns the rock shaft *P*, and the long arms *N, N*, by means of the links *O, O*, and the roller carriage *M, M*, (shown in Fig. 1,) throw the rollers which ink the form from the position shown by the dotted lines at *v, v*, (Fig. 3) to *v', v'*, directly over the distributing rollers. By this time the center of roller *z*, (which must move in a circle about *y*, on account of link *S*), has moved to *z'* and is out of the radial slot *Q'*, into the circular slot *Q*, in which it remains stationary till the lever goes forward to its extreme, and comes back to the point where the long side of the radial slot strikes the roller *z*, and pushes the links and levers to the position represented, and the inking rolls to the dotted lines *v, v*. Thus it will be seen that the forward motion of the lever throws the rollers forward onto the distributing rollers and distributes them awhile, and that its back motion continues their distribution awhile and then throws them back over the form.

The operation of the press, then, is as follows: The operator having placed ink on the rollers and a form on the bed, and having adjusted the grippers and the "pull" grasps the lever with one hand and pushes it back. This throws the rollers over the form and inks it and throws the plate *v* out in view, and the grippers away from the platen into the position represented in Fig. 3. He now places a card with the other hand on the plate behind the grippers and pulls the lever forward. The grippers catch the card and hold it against the platen, while the rollers move back to the distributing roller, and are dis-

tributed; and by the time that the lever has arrived at its extreme of motion in a forward direction, the card is pressed upon the form, and the plate r pushed up inside the partition. Now by pushing the lever back, the rollers will be distributed awhile and then thrown over the form, the plate r being out, as soon as the grippers let go, the card drops down upon the table and when the lever is back as far as it will go, the plate has come out again and the operation may be repeated.

It is evident that the press may be worked by power, by connecting the lever or head with a crank or some equivalent mechanism, which will give it a reciprocating motion.

The reason that the pinion u works inside the segment L instead of on the outside, as it might do, is that it is desirable that the top of the distributing roller should move in the same direction that the roller carriage does, in order that the "stick" of the rolls may help to pull them on the cylinder and to throw them off. This is a nicety not obtained in power presses for there the cylinder goes one way all the while.

If upon some sizes of machines it takes too much power upon the lever H to give the requisite impression on the form, I propose to increase the power of the arrangement in either of two ways. The particular change to be made in the first way is shown by Fig. 6. Instead of attaching the handle H'' directly to the swinging head or beam D , as it is in the other figures, I would let an arm project from it to the center d , in the place before occupied by the end of link C . From this arm I would project the short arm U , the end of which is connected with the link itself. The spring V keeps the lever in the position represented in the figure during its movement till it comes near the impression, when the stop connected with the head (seen in Fig. 3, at f) stops its motion, and the motion of the lever acting against the resistance of the spring gives the impression, as may be seen by viewing the figure. By the other method, the link is used in the same manner as in the other figures, but a joint is made in the arm E (shown at W , Fig. 7), its distance from the center d , being a little greater than the distance between the two centers d , and c , in the link. The spring V , holds the joint in the position represented till the lower part is stopped as before, then the head (which is connected with the handle as at first) moves to the impression on the center W , against the resistance of the spring, and the center W being nearer center d , than center b , is, the lever must move farther to give the same movement to the platen; there is therefore an increase of power. There will, however, I trust, be sufficient power to the simple arrangement itself in most cases. It is at least more pow-

erful than a toggle joint would be in the same place, for if, in Fig. 2, $T d'$ and $d' c'$ were toggles their relative motions when approaching their center would be in the lines $d^4 d'$ and $d^2 d'$, but these are much more diverging than the lines $d d'$ and $d^2 d'$, which show the relative movements of the parts in the arrangement I use. This arrangement is therefore more powerful because the platen moves slower than it does with a toggle joint. Both these principles are known and have been used for applying pressure, though the toggle joint, as it is commonly called, seems to be the most extensively used. I do not know but both arrangements may with propriety be called toggle joints. The distinguishing feature of the combination as I use it and that on which I base my claim is, that I have the movable part of the press (which is the platen A here) to which the link is connected at c , turn on a center a , the distance between the centers a , and c' , d , and b , and d , and c , being so proportioned to each other, that though the platen moves slowly at the time of the impression and the arrangement is a source of power, yet when the press is thrown open the arrangement rapidly changes into a source of motion, in consequence of the center d , coming very near to the center a , on which the platen turns. The effect of which is to cause the platen to turn rapidly about that center the same as if d were connected with a short arm fast to the platen at a . This arrangement changes so quickly from a source of power to a source of motion that the platen has actually more angular motion than the lever which moves it. The proportions of the parts vary the amount of this change considerably. In the drawings the parts are proportioned thus; from d to b in the head $7\frac{1}{2}$; from d to c in the link 4; and from c to a in the platen 5. With these proportions, 60 degrees of motion in the lever causes about 80 degrees of movement to the platen. By making the distance from d to b longer and from c to a or d to c shorter, the platen moves much farther in proportion.

If the operator desires to pick off the cards instead of having them drop, by removing the pin w , or its equivalent, from the bed, the plate r , will not be pushed up enough to discharge the card, it will therefore remain on the platen.

The principle of applying the power in this machine is in the manner in which the head D and link C cause the platen, which is the moving plate of the press, to be pressed upon the form. The terms platen and bed have in this specification been used only to represent the two bodies between whose surfaces the pressure was applied, so that the form may be placed on what has

been called the platen making that the bed, which would move to the card placed on what has been called the bed, making that the platen. This would not change the construction nor arrangement of the machine's parts, though it might change their position. The grippers and plate would remain on the platen, but would still be operated by a vibratory movement—that of the bed.

10 I do not claim as my invention the principle or manner described of applying the power, but—

I do claim as my invention, and wish to secure by Letters Patent,

15 1. The general construction of the machine and the arrangement and combination of its parts, said parts being arranged, combined, and operated, in a manner equivalent to that described, so as to accomplish the

object of the invention, the operation of each part being adapted to the vibratory movement by which the machine is operated, and the pressure, feeding and discharging contrivances of the machine being combined with the inking arrangement described or 25 with one equivalent to it.

2. The manner of adjusting and operating the grippers *k*, *k*, which hold the card, in combination with the manner of operating and stopping the operation of the plate *r*, upon which the card is laid, both being operated by the simple vibratory movement of the moving surface which gives the impression. 30

CHARLES E. EMERY.

Witnesses:

H. METCALF,

J. W. TAYLOR.