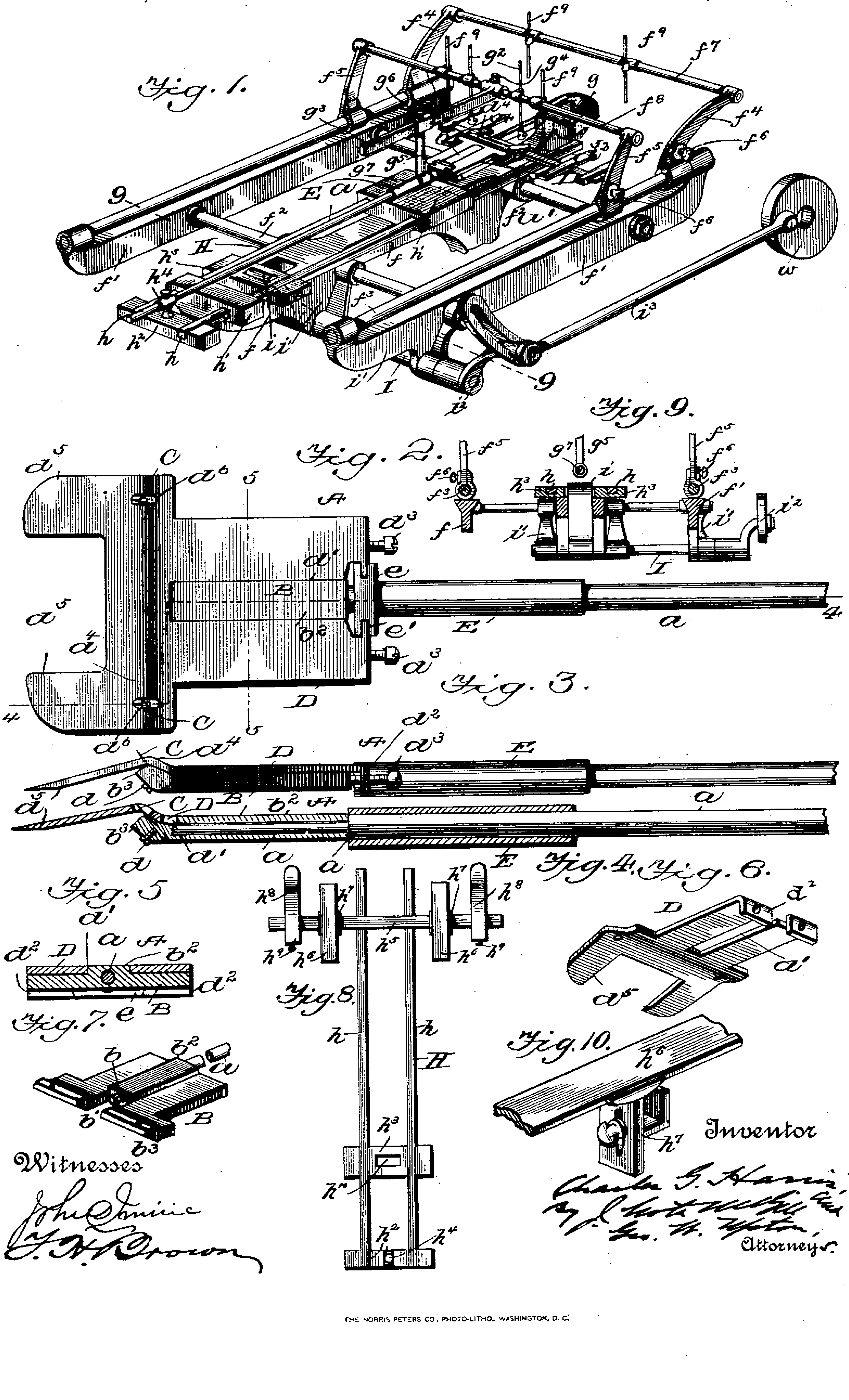
(No Model.) 2 Sheets—Sheet 1.

C. G. HARRIS.

FEED TABLE AND FEEDER FOR PRINTING PRESSES.

No. 591,648. Patented Oct. 12, 1897.



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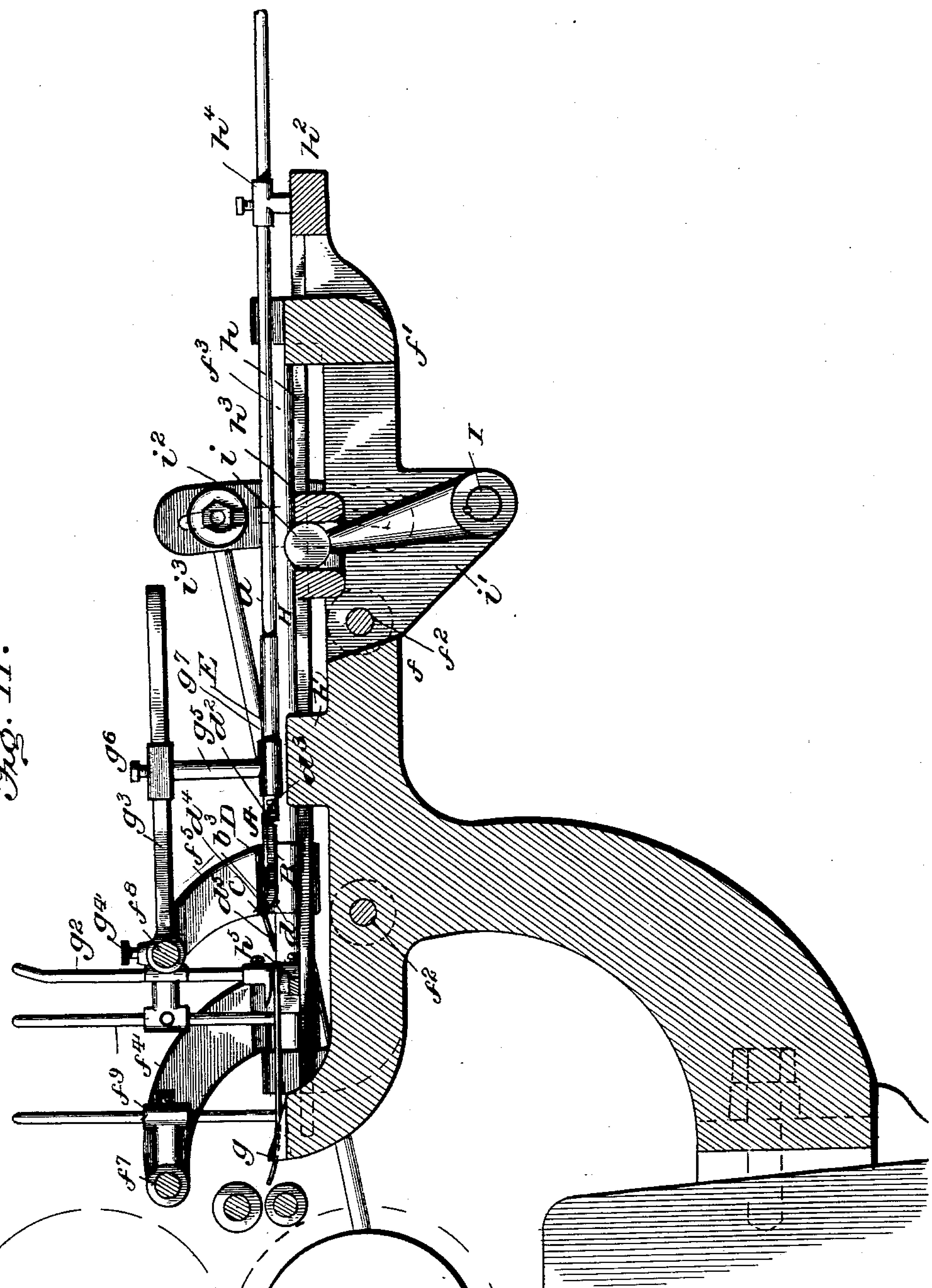

Fig. 11.

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UNITED STATES PATENT OFFICE.

CHARLES G. HARRIS, OF NILES, OHIO.

FEED-TABLE AND FEEDER FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 591,648, dated October 12, 1897.

Application filed July 30, 1896. Serial No. 601,064. (No model.)

To all whom it may concern:

Be it known that I, CHARLES G. HARRIS, of Niles, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Feed-Tables and Feeders for Printing-Presses; 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.

This invention relates to certain new and useful improvements in feed-tables and feeders or pushers for cards, envelops, or papers, being specially designed for use in connection with printing-presses, although applicable to ruling or other machines in which the feed is to be from the bottom of a pile or stack of such cards, envelops, or paper.

The primary object of this invention is to provide a simple feeder in which pointed projections will engage the bottom member of such pile or stack in the forward movement of the feeder, forcing the lowermost card or envelop forward and be withdrawn from such engagement in the rearward or return movement of the feeder.

A further object is to provide simple and effectual means for holding the stack or pile and mounting the feeder and imparting thereto a reciprocating longitudinal movement.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of a feed-table showing my improvements. Fig. 2 is a detached plan view of the feeder. Fig. 3 is a side view thereof. Fig. 4 is a longitudinal sectional view on the line 4 4, Fig. 2. Fig. 5 is a cross-sectional view on line 5 5, Fig. 2. Figs. 6 and 7 are details. Fig. 8 is a plan view of the feeder-carriage. Fig. 9 is a cross-sectional view on line 9 9, Fig. 1. Fig. 10 is a detail perspective view. Fig. 11 is a central longitudinal sectional view of the parts shown in Fig. 1.

Referring to the drawings, A designates the feeder as an entirety; a, a rod, and a' a feed-table.

B is a plate having a central longitudinal hole through which is passed the forward reduced end or rod a, a pin b, extended through said rod and movable in a front recess b' of said plate, serving to hold the latter on the rod, but sufficiently loose to allow the plate to turn thereon. On the upper surface of this plate is a central longitudinal rib or raised portion b^2. The front end b^3 of plate B is slightly raised and inclined and in openings therein are located engaging-pins C, which are adjustably and firmly held by small screws d. The upper forward ends of these pins project above the inclined ends b^3.

D is an upper second plate loosely mounted on plate B, but in such relation thereto as to allow the latter to have a limited longitudinal movement independent thereof. It is formed with a central opening d' to accommodate rib b^2. At its rear end the plate D has two downwardly-bent flanges d^2, through holes in which are passed adjusting-screws d^3, working in threaded holes in the end of plate B. The upper plate is limited in its movement by the heads of these screws. The plate D has a forward raised portion d^4 to correspond with the raised or inclined end b^3 of plate B, against which it normally rests, and from said raised portion d^4 extend two spaced-apart inclined or tapered extensions d^5. In the raised portion d^4 are formed two parallel slots d^6 to accommodate the pins C. The forward movement of plate B, independent of plate D, will cause the points of pins C to project above plate D sufficiently to contact with the bottom card or envelop of a stack thereof, but in the rearward or return movement the points of pins C will be retracted beneath the surface of plate D. This plate, being tapered or inclined at its forward portion, will easily move beneath the pile or stack, and in the reverse movement or withdrawal of the feeder it forms a shield for the points of the pins.

E is a sleeve loosely mounted on rod a and provided at its forward end with a block e, the ends of which are grooved, as at e', to engage the opposite edges of flanges d^2, and thus allow of a limited independent movement of plate B. This sleeve, in practice, is engaged by a suitable collar, the friction of which serves to hold said sleeve sufficient to permit of the limited independent movement of plate B.

The feed-table comprises a central bar f, two parallel side bars f', and cross-rods f^2.

The ends of the side bars are upturned and form the bearings for two rods f^3, extended longitudinally over the top surfaces of said side bars. Upon each of these rods f^3 are secured the lower tubular ends of two curved arms f^4 f^5, which may be held at any point on said rods by thumb-screws f^6. The forward arms f^4 support a cross-rod f^7 and the rearward arms a similar rod f^8. On these rods f^7 and f^8 are adjustably mounted upright guide-rods f^9, which serve as guides for holding in position a pile or stack of cards or envelops, the latter resting in part on seat g and angular shoes g', fast on the lower ends of rods g^2, also adjustably secured on rod f^8. The seat g is on the forward end of the central bar f. The supporting-arms of the guide-supporting rods being adjustable on the parallel rods f^3 can be easily positioned to accommodate piles or stack of different widths or lengths and the guide-rods can be moved accordingly. From the center of rod f^8 extends an arm g^3, held fast by a screw g^4, said arm extending rearward over the central bar f, and from it depends a post g^5, which is adjustable and may be held by a screw g^6. A tubular collar g^7 on the lower end of post g^5 is designed to accommodate the sleeve E of the feeder and exert sufficient friction thereon to allow of the independent movement of one of the plates of said feeder, as above set forth.

H designates a carriage mounted on bar f and capable of being reciprocated longitudinally thereon. It has two movable side rails h, extended through openings in two stationary cross-blocks h' of bar f, and to these rails are secured two cross-blocks h^2 h^3, movable with said rails. From the block h^2 projects a short post h^4, in which is rigidly held the bar a of the feeder. To the rails h, in advance of the forward block h', is secured a transverse bar h^5, upon which are mounted, so as to be adjustable, two horizontal flat plate-bars h^6, which extend on either side of bar h^5, parallel with the rails h. These plate-bars aid in supporting the pile or stack of cards or envelops, and they may be held at any point on bar h^5 or raised and lowered by clamps h^7. Beyond each of these plate-bars are two flat plate-fingers h^8, which extend forward beyond the ends of plate-bars h^6. They are adjustably held by screws h^9. These plate-fingers are thin and pliable and aid in feeding to the press. When envelops are to be fed to the latter, they may take the place of the feeder A, which can then be removed, if desired, said plate-fingers in the forward movement of the carriage engaging each envelop between the body of the latter and the flap, which is on the under side.

In the cross-block h^3 is an oblong opening h^{10}, in which fits the upper end of a crank-arm i, fast at its lower end on a shaft I, mounted in depending portions i' of bar f and one of the side bars f', beyond which latter it is extended. On this extended end is secured an arm i^2, having a slotted portion to which is connected one end of a pitman i^3, the other end of which operatively engages any rotary disk or wheel of the press, as shown at w. The revolution of the latter imparts a reciprocal motion to shaft I, and the crank-arm of the latter causes the carriage to travel back and forth. The rod of the feeder being fast to this carriage a reciprocating movement is imparted thereto, causing the forward portion thereof to travel back and forth beneath the pile or stack of cards or envelops positioned for being fed to the press. The slot in the arm i^2 enables the pitman to be connected at different points, so as to regulate the extent to which the carriage can be moved.

In practice the forward end of the feeder is located beneath or covered by the pile or stack of cards or envelops, and as the carriage is moved forward the plate B first moves independent of plate D, which is for the time being held by the collar g^7. The projected ends of the pins C, engaging the bottom of the stack, will feed forward the lowermost member thereof. The projection of these pins is only sufficient to effect this forward feeding and does not in the slightest injure or deface the card or envelop. As the latter is fed to the press carrying-tapes or the like (not shown) the feeder is moved rearward, and the direct pull of rod a being on plate B the latter is first moved independent of plate D, withdrawing the pins beneath the upper surface of the latter, thus avoiding disturbing any of the members of the pile or stack. Hence it will be seen that by reason of this limited longitudinal movement and the contact of the inclined portions of plates B and D the contacting pins are projected above the latter plate in the forward movement of the feeder and withdrawn as the latter is moved rearward.

The advantages of my present invention are apparent. It will be specially noted that the two plate-bars h^6 of the carriage not only form rests or supports for the pile or stack of envelops, but as an envelop is being fed to the press they move forward with the latter. Thus by moving with each envelop a portion of its seat or support friction is reduced to a minimum. The means shown and described for feeding cards or envelops are exceedingly simple and inexpensive and not liable to readily get out of order.

I claim as my invention—

1. A longitudinally-movable feeder or pusher designed to be moved back and forth beneath a pile or stack of cards, envelops or paper, having an inclined portion, and pointed projections designed to protrude above said inclined portion in the forward movement of said feeder, and to be covered by the said inclined portion in the rearward movement of the feeder, as set forth.

2. A longitudinally-movable feeder or pusher designed to be moved back and forth

beneath a pile or stack of cards, envelops or paper, having pointed projections designed to engage the bottom of such pile or stack in its forward movement, and a tapered shield carried by said feeder for engaging said pile or stack and designed to cover said pins in the rearward movement of said feeder, substantially as set forth.

3. A feeder of the character herein described having a longitudinally-movable rod, a plate having upwardly-inclined contacting pins, a second plate loosely mounted on said former plate and having a forward inclined end and openings for said pins, as set forth.

4. A feeder of the character herein described having a longitudinally-movable rod, two plates loosely mounted on said rod and independently movable, said plates having inclined contacting portions, in one of which are openings, and contacting pins extending from the other plate into said openings, as set forth.

5. A feeder of the character herein described having a longitudinally-movable rod, a plate loosely mounted thereon having upwardly-inclined contacting pins, a second plate loose on said former plate having an inclined portion provided with openings, and a connection between said rod and said second plate, substantially as set forth.

6. The combination with the rod, of the loosely-mounted plate having obliquely-arranged contacting pins, a second plate having a forward-inclined portion provided with openings for said pins, an inclined or raised portion for effecting the raising and lowering of said upper plate, screws carried by said former plate engaging said latter plate, and a sleeve on said rod engaging and holding said upper plate, substantially as set forth.

7. The combination with the rod, of the plate having a forward-inclined portion, contacting pins mounted thereon, a second plate loose on said former plate and also having an inclined portion and downwardly-inclined end, slots being formed in said inclined portion, said second plate also having apertured flanges, screws extending through said flanges, and a sleeve on said rod having a grooved block engaging said flanges of said second plate, substantially as set forth.

8. A feed-table comprising a central bar and a forward seat for a pile or stack of cards, envelops or paper, two parallel rods extending above said seat at the front and rear thereof, adjustable supports for said rods at the ends thereof, and a series of guide-rods adjustably mounted on said parallel rods in front and rear of said seat and at the sides thereof, substantially as set forth.

9. A feed-table having a longitudinally-reciprocating carriage, a seat at the forward end of said table, comprising a central support and flat plate-bars carried by said carriage, a feeder movable with said carriage, and means for reciprocating the latter, substantially as set forth.

10. A feed-table having a longitudinally-reciprocating carriage comprising movable rails, a cross-bar secured thereto, flat plate-bars mounted on said cross-bar and extended parallel with said rails, plate-fingers secured to said cross-bar and extended beyond the forward ends of said plate-bars, and means for reciprocating said carriage, substantially as set forth.

11. A feed-table comprising a central bar having a seat at its forward end, cross-rods, upright guide-rods supported by said cross-rods, a carriage movable on said central bar, an arm extending from one of said cross-rods, a post depending therefrom, a feeder extended over said central bar and having a rod secured to said carriage and supported by said depending post, substantially as set forth.

12. A feed-table having a central bar and two side bars, a carriage movable longitudinally over said central bar and comprising guide-rails, cross-pieces, and flat plate-bars, a crank-shaft engaging said carriage, and means for rocking said shaft, substantially as set forth.

13. The combination with a feed-table having a longitudinally-reciprocating carriage and a seat for a pile or stack of cards or envelops, a feeder movable over said seat having a rod held by said carriage, a plate on said rod having contacting pins, a second plate having slots to accommodate said pins, a sleeve on said rod engaging said second plate, a cross-rod supported by said feed-table, and a depending post extended from said cross-rod having a collar or tubular portion to accommodate said sleeve, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHARLES G. HARRIS.

Witnesses:
J. NOTA MCGILL,
JOS. H. BLACKWOOD.