

F. M. SPURR.
FEEDING MECHANISM FOR CARDS OR SHEETS.
APPLICATION FILED FEB. 8, 1910.

978,231.

Patented Dec. 13, 1910.

2 SHEETS—SHEET 1.

FIG 1

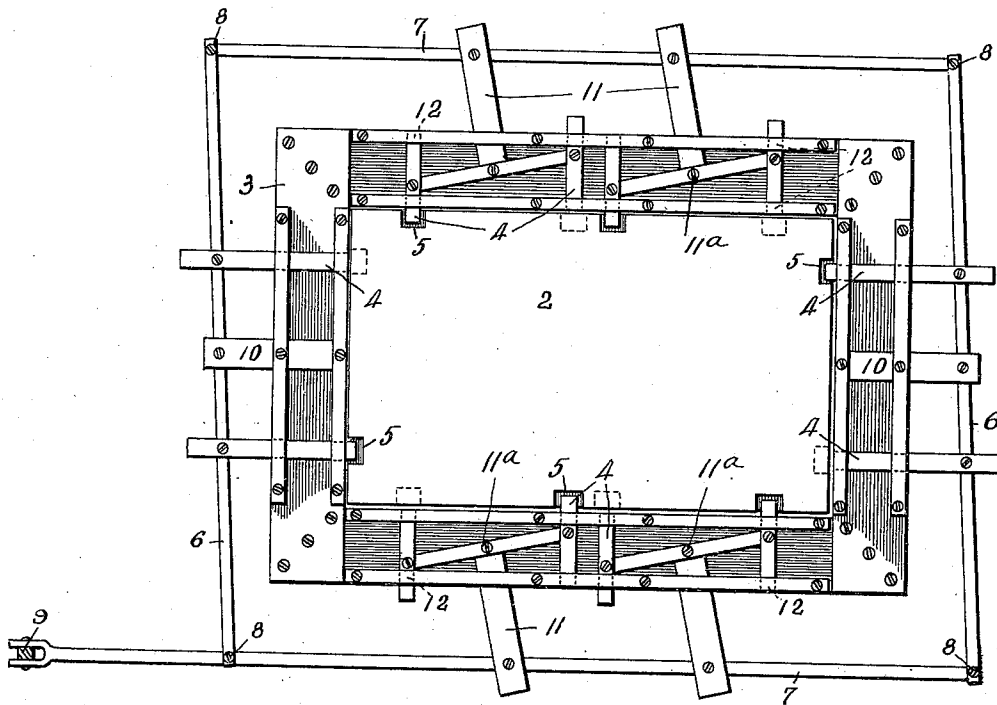
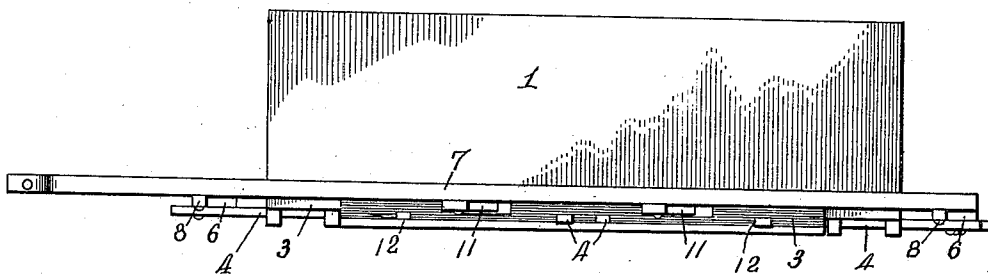


FIG 2



Inventor
Foster M. Spurr

Witnesses
H. A. Robinson
L. H. Bickerton

By Meyers, Cushman & Lea

Attorneys

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2 SHEETS—SHEET 2.

Fig 3

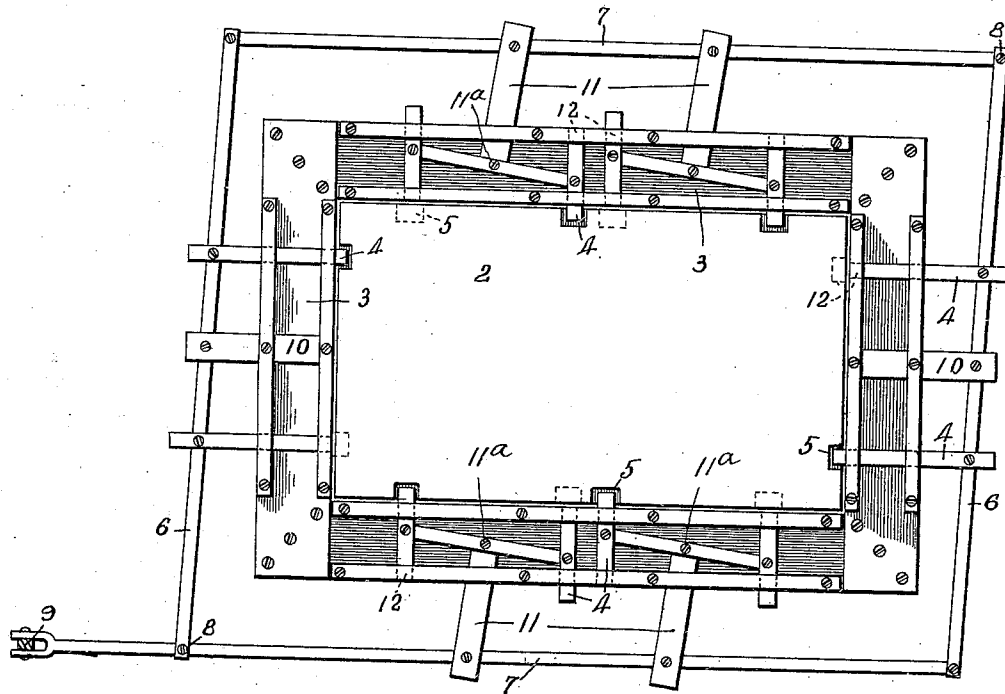
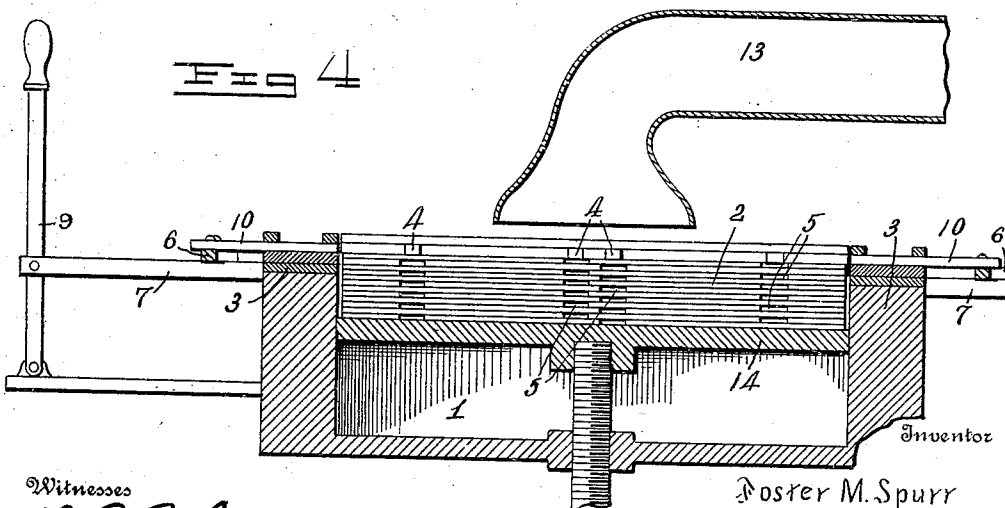


Fig 4



Witnesses
H. A. Robinson
E. H. Bickerton

Foster M. Spurr
By Meyer, Cushman & Lea

Attorneys

UNITED STATES PATENT OFFICE.

FOSTER M. SPURR, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO SPURR ADDRESSING MACHINE COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

FEEDING MECHANISM FOR CARDS OR SHEETS.

978,231.

Specification of Letters Patent. . . Patented Dec. 13, 1910.

Application filed February 8, 1910. Serial No. 542,682.

To all whom it may concern:

Be it known that I, FOSTER M. SPURR, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Feeding Mechanism for Cards or Sheets, of which the following is a specification.

This invention relates to improvements in feeding mechanism for cards or sheets, and is particularly, though not exclusively, intended to feed perforated controller-cards to printing machines, such for example as shown in Letters Patent granted me November 21, 1899, No. 637,359, in which perforated controller cards coöperate with a stack of gravity pins to position characters upon type-bars in a composed printing line.

It is one object of the present invention to provide novel and efficient mechanism for feeding such controller-cards one at a time to such general character of machine; my improvements may be useful in other relations and for other purposes, and I mention this use as illustrative merely and do not limit the invention thereto.

The invention is fully described in the following specification and clearly illustrated in the accompanying drawings.

That which is new is set forth in the claims.

In the accompanying drawings,—Figure 1 is a bottom view, showing a stack of perforated controller cards, and the feeder mechanism therefor, for releasing the cards one at a time from the stack. Fig. 2 is a side elevation of the same; Fig. 3 is a view similar to Fig. 1, but with the operative parts in reversed position; and Fig. 4 is a vertical sectional view showing a modification of the card feeding mechanism, illustrating means for removing the controller cards from the top of the card stack.

In said drawings, the reference numeral 1, designates a boxing to contain a stack of cards 2, and the lower, open end thereof is fitted with the feeding mechanism by which the stack is supported and from which the cards are released one at a time.

The feeding mechanism comprises an open frame 3 which may consist of the walls of the box 1, through which the cards discharge, provided with a plurality of pairs of associated movable fingers 4 and means for moving the associated fingers, alter-

nately, into and withdrawing them from the card-discharge opening of the frame 3.

The cards 2 are of suitable body and stiffness, for example of cardboard, and are provided with marginal recesses 5, corresponding in number and location to one finger of each pair of associated fingers employed, and, as shown the recesses in alternate cards are out of register, so that a solid part of one card is exposed across the recesses of the adjacent card. When the cards are to be used in a printing machine of the general character disclosed in my said patent, they are provided with perforations as described in said patent.

In the illustrated example of the invention six associated pairs of supporting and releasing fingers are shown, two pairs at each side of the frame and one pair at each end; but it is obvious that as many or as few pairs may be used, dependent generally upon the area of the cards, as desired, or as may efficiently perform the intended function.

Suitable mechanism is provided for projecting, alternately, the fingers of associated pairs of fingers, into the open space of the frame beneath the stack of cards to release the lowermost one and support the superposed cards of the stack. The mechanism shown consists of a parallelogram of levers and links 6, 7, the members of which are pivotally connected together at 8, and one member of which is connected to a suitable lever actuating device. This device may be a manually operable lever 9, as shown, or some moving part (not shown) of the machinery in connection with which the feeder is to be used, so that the release of the cards may be in timed relation to the operation of the other parts of the machine. The levers 6 are pivoted intermediate their ends to arms 10 projecting from the frame 2 and carry fingers 4 at opposite sides of the pivots, and the links 7 are connected to pivoted cross-heads 11 which carry fingers 4 at opposite sides of the pivots 11^a. The fingers preferably work through guides 12, so that they are caused to reciprocate accurately in a common plane.

As thus far described the mechanism is organized so that, when released, the lowermost card is fed by gravity to the place desired. Obviously, the frame 3 could be arranged, as shown in Fig. 4 at the top of

the stack-box 1, and the cards removed from the top of the stack, one by one, as released by the fingers, by any suitable or well known suction device 13, a suitable or well known follower 14 being employed to feed the stack up as cards are removed from the stack.

It is believed the operation of the mechanism is obvious from the foregoing description thereof, but it may be briefly referred to with advantage. A stack of cards is arranged in the stack box 1 with the marginal recesses of adjacent cards out of register, so that the solid portion of one card is exposed across the recesses of the alternate or adjacent card. Initially, the lowermost card of the stack, or the top card thereof, according as the cards are to be released from the bottom or top of the stack, is held by one of the fingers 4 of each associated pair of fingers employed, which engages the body of the card. When the mechanism is actuated to withdraw the said retaining fingers, the other fingers of associated pairs of fingers are projected into register with the marginal recesses in said lowermost or top card, so that it may be fed by gravity, if from the bottom, or by suitable transferring devices, if from the top. The fingers which released the card referred to extend across or engage the solid body of the next card and hold it in the stack. On the next actuation of the release mechanism, these fingers are withdrawn and the opposite fingers of each pair are projected across the recesses of the next card, releasing it, and so on throughout the stack.

The invention provides a new simple and very efficient card release for card feeding mechanisms, insuring that the cards will be released and fed one at a time.

Having thus described the invention, what I claim is,—

1. Means for releasing cards one at a time from a stack of cards having marginal recesses, the recesses of adjacent cards being out of register, comprising a plurality of associated pairs of fingers, pivoted elements carrying said fingers at opposite sides of the pivotal axes of said elements, and means for actuating said pivoted members to project the fingers of each associated pair of fingers alternately into register with the recesses of said cards.

2. Means for releasing cards one at a time from a stack of independent cards having marginal recesses, the recesses of adjacent cards being out of register, comprising a plurality of associated pairs of fingers distributed around the margins of said card stack, and means for projecting one of the fingers of each pair alternately into register with the marginal recesses of the cards and withdrawing the other fingers of the several pairs from beneath the card stack to release the previously supported card.

3. Means for releasing cards one at a time from a stack of disconnected cards having marginal recesses, the recesses of adjacent cards being out of register, comprising a frame having an opening for guiding the passage of the cards therethrough, pairs of associated fingers supporting said stack of cards arranged about said frame, and means for simultaneously actuating said fingers to project a finger of each pair alternately into the card passage opening of said frame in register with the marginal recesses of the lowermost card and withdrawing the other finger of each pair to release said card.

4. Means for releasing cards one at a time from a stack of cards having marginal recesses, the recesses of adjacent cards being out of register, comprising a frame having an opening for the passage of the cards, pairs of associated fingers arranged about said frame, and a lever and link parallelogram connected with said fingers for projecting the finger of each associated pair of fingers alternately into the card passage opening of the frame in register with the marginal recesses of said cards.

5. Means for releasing cards one at a time from a stack of cards having marginal recesses, the recesses of adjacent cards being out of register, comprising a frame having an opening for the passage of the cards, pairs of associated fingers arranged about said frame and slidable thereon, guides for said fingers, and means for simultaneously actuating said fingers to project a finger of each pair alternately into the card passage opening of said frame in register with the marginal recesses of said cards.

6. Means for releasing cards one at a time from a stack of independent cards having marginal recesses, the recesses of adjacent cards being out of register, comprising a frame having an opening for guiding the passage of the cards therethrough, pairs of associated fingers arranged about said frame and movable longitudinally into and out of the card passage opening, and means connected to the fingers for simultaneously actuating said fingers to project a finger of each pair alternately into the card passage opening of said frame in register with the marginal recesses of said cards and withdrawing the other finger of each pair to release the outermost card of the stack.

7. Means for releasing cards one at a time from a stack of cards having marginal recesses, the recesses of adjacent cards being out of register, comprising a frame having an opening for the passage of the cards, pairs of associated fingers arranged about said frame, a rocking lever pivotally connected to each pair of fingers for projecting them into and out of said card passage opening, and means for simultaneously actuating said rocking levers to project a finger of

each pair alternately into the card passage opening of said frame in register with the marginal recesses of said cards.

8. Means for releasing cards one at a time
5 from a stack of cards having marginal recesses, the recesses of adjacent cards being out of register, comprising a frame having an opening for the passage of cards, a plurality of fingers arranged around the margins of said card stack, and means for projecting a certain number of said fingers into

register with the marginal recesses of the cards and withdrawing other fingers from beneath the card stack to release the previously supported card.

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

FOSTER M. SPURR.

Witnesses:

L. J. CARR,

PAUL M. HUBBARD.