

(No Model.)

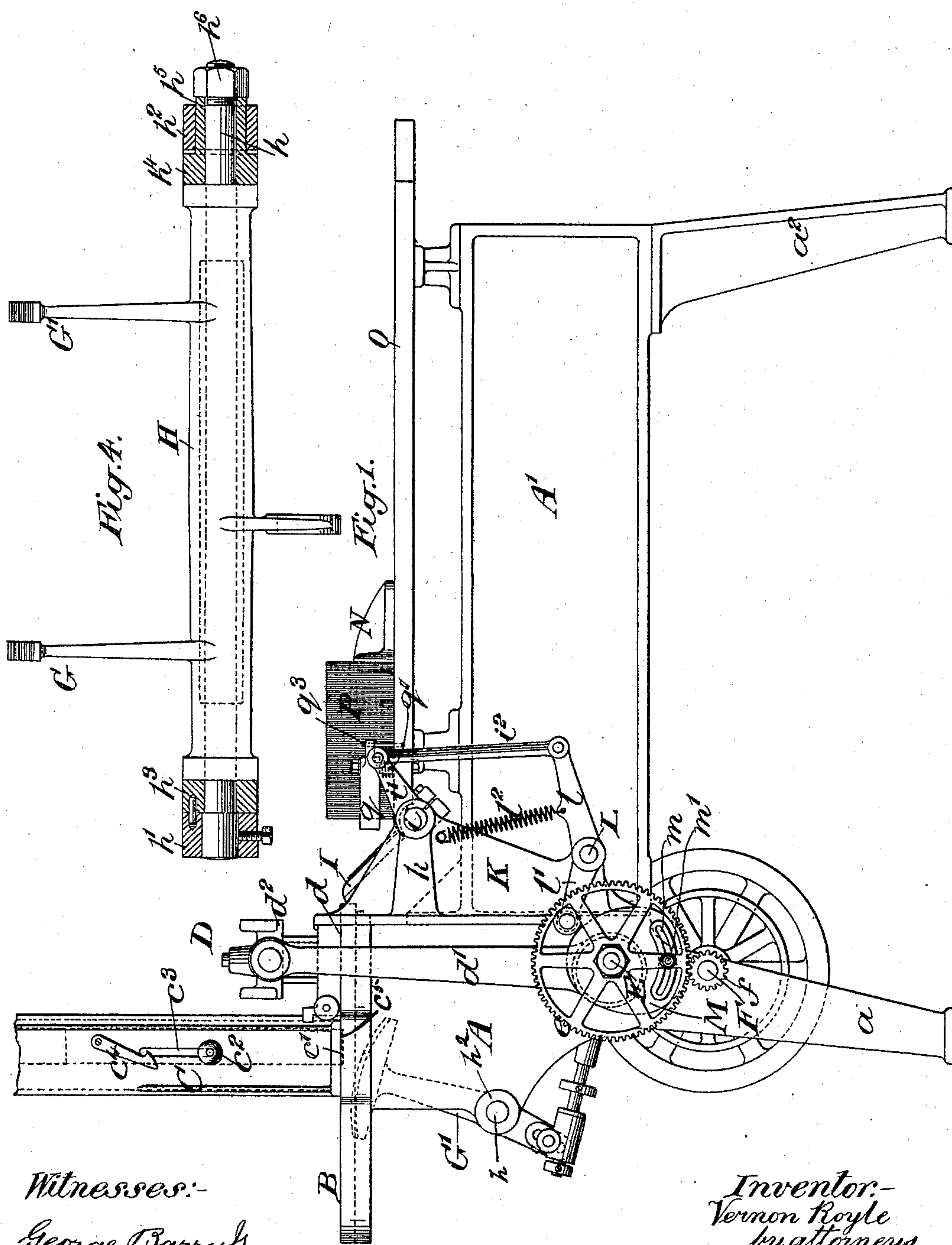
3 Sheets—Sheet 1.

V. ROYLE.

MACHINE FOR PUNCHING AND STACKING JACQUARD CARDS.

No. 585,876.

Patented July 6, 1897.



Witnesses:-

George Barry Jr

C. C. Combs.

Inventor:-  
Vernon Royle  
by attorneys

Brown & Ward

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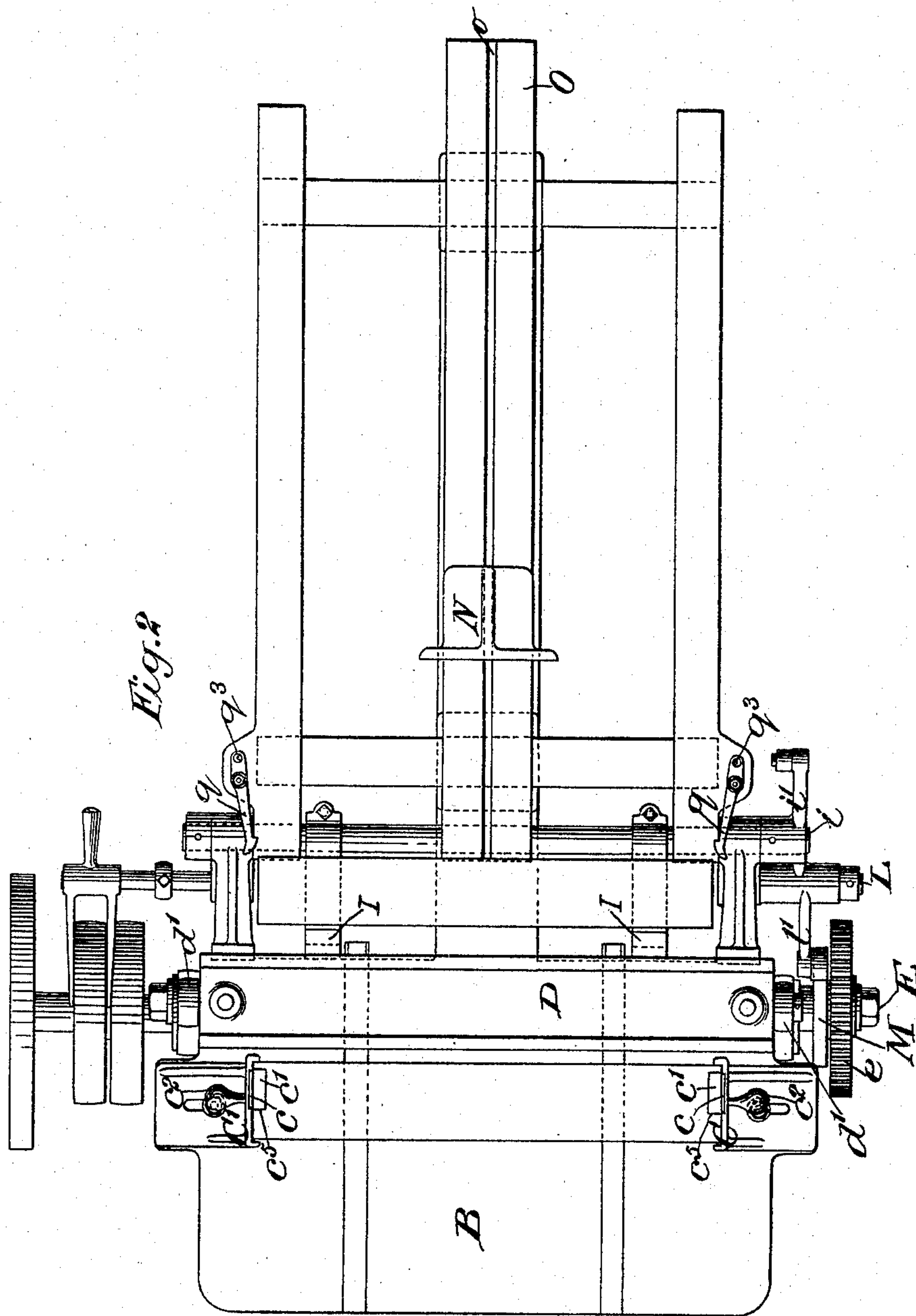
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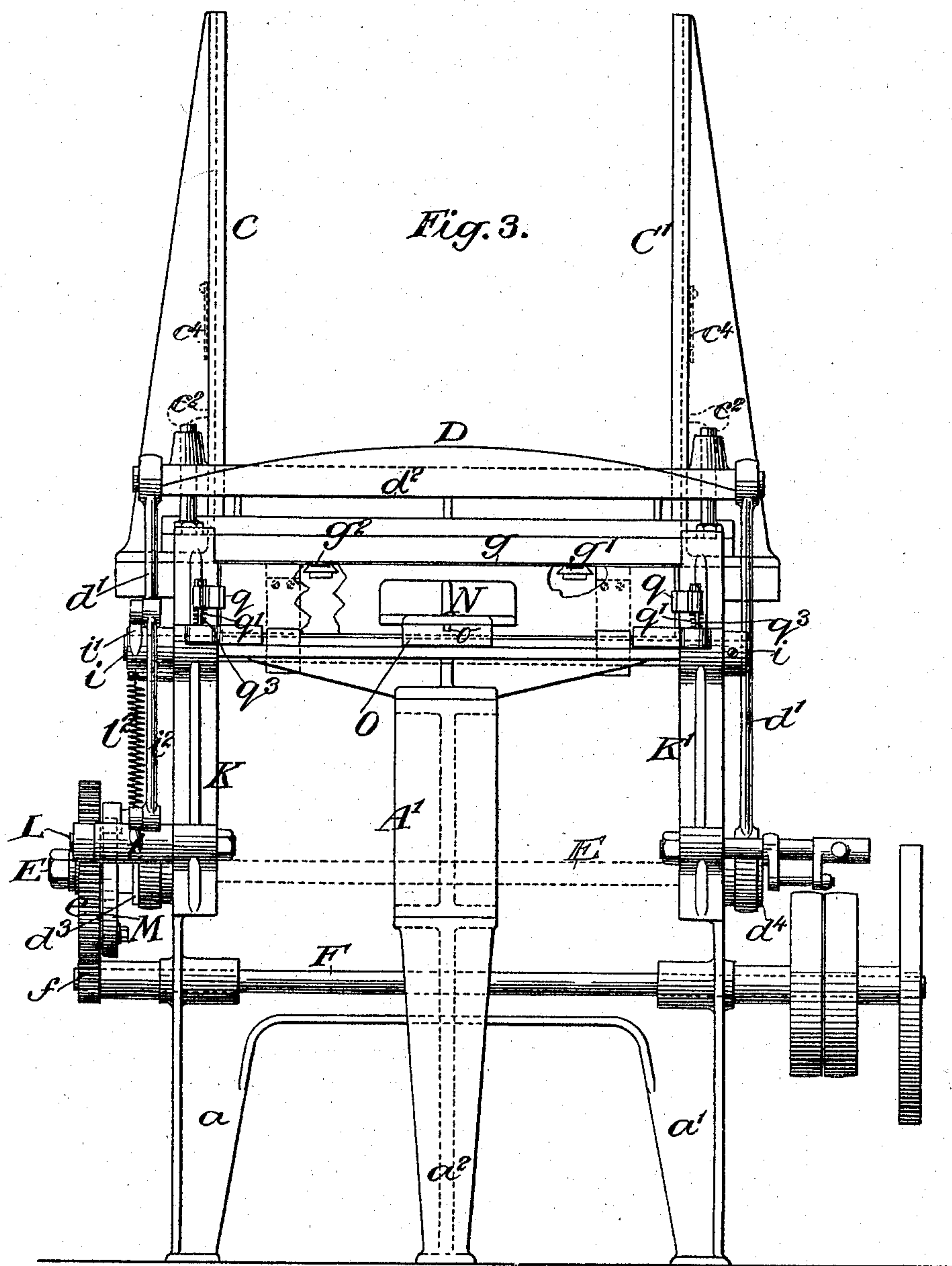
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# UNITED STATES PATENT OFFICE.

VERNON ROYLE, OF PATERSON, NEW JERSEY.

## MACHINE FOR PUNCHING AND STACKING JACQUARD-CARDS.

SPECIFICATION forming part of Letters Patent No. 585,876, dated July 6, 1897.

Application filed September 25, 1895. Serial No. 563,591. (No model.)

*To all whom it may concern:*

Be it known that I, VERNON ROYLE, of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Improvement in Machines for Punching and Stacking Jacquard-Cards, of which the following is a specification.

My invention relates to an improvement in machines for punching and stacking jacquard-cards in which provision is made for automatically feeding the cards from a supply-stack to the punches and thence arranging them in a stack ready for convenient removal.

In the accompanying drawings, Figure 1 is a view of the machine in side elevation. Fig. 2 is a top plan view. Fig. 3 is a view in rear elevation, and Fig. 4 is an enlarged view in detail.

The supporting-frame of the machine consists of a head A and a backbone A', projecting at an angle to the head, the whole being supported upon three legs, two of them,  $a$   $a'$ , located at or near the extremities of the head A and the third,  $a^2$ , located at or near the extreme end of the backbone. This particular form of frame is light and at the same time affords a rigid stable support for the movable parts of the machine. The head A is surmounted by a table B, from which uprises a pair of end guides C C' for holding the supply-stack of blank cards to be fed to the punches.

The punching mechanism is located immediately to the rear of the stack-guides C C' and is denoted as a whole by D. As my present invention does not relate to the punching mechanism in detail, it will suffice for the purpose of understanding my present invention to say that the cards as they are fed rearwardly from the supply-stack are received upon a punch-bed  $d$  and that the punches are forced through them by means of connecting-rods  $d'$ , connected with the punch-carrying head  $d^2$  and actuated by eccentrics  $d^3$   $d^4$  on the shaft E, driven by the main drive-shaft F through the intermeshing gear  $f$  and  $e$ .

The means for accomplishing the feed is particularly shown and described in my pending application, Serial No. 563,590, filed September 25, 1895, and as it specifically forms no part of my present invention I will simply state that it is effected by a flat plate  $g$ , (see

Fig. 3,) fixed to a pair of rack-bars  $g'$   $g^2$ , mounted in suitable dovetailed grooves in the top of the table B and actuated by a pair of sector-bars G G', fixed to a rock-shaft H. The rock-shaft H is mounted on a spindle  $h$ , supported in suitable forwardly-extending portions  $h'$  and  $h^2$  of the head-frame A and provided with collars, one of them,  $h^3$ , being interposed between the bearing  $h'$  and the end of the sleeve H' and the other,  $h^4$ , being interposed between the bearing  $h^2$  and the opposite end of the sleeve H' and provided with an extended neck  $h^5$ , which extends through the bearing  $h^2$  into position to engage the nut  $h^6$ , screwed onto the projecting end of the spindle  $h$ .

By tightening on the nut  $h^6$  the washers  $h^3$  and  $h^4$  are forced into closer frictional contact with the opposite end of the sleeve H', so as to at all times prevent the pitching forward of the sleeve H' under the momentum of its throw. This is an important feature, inasmuch as the slightest pitch beyond the predetermined point will tend to advance the card slightly beyond the position where it should rest to be punched, and the holes in it are thereby made more or less out of adjustment, a feature which becomes objectionable when the cards are employed for determining the pattern.

For purposes of lifting the supply-stack of cards whenever from any cause an imperfect card becomes curled, split, or broken during the operation of feed I have provided the end standards C C' with vertical slides  $c$ , one on the inner face of each, the said slides being provided at their lower ends with offsets  $c'$ , adapted to take under the ends of the lowermost card and lift it, together with those above it, upwardly from the table. The slides  $c$  are provided with operating-handles  $c^2$ , which extend through elongated slots  $c^3$  in the standards C C' and bracket outwardly from the outer faces of the standards. Retaining-hooks  $c^4$  are pivoted to the outer faces of the standard C with their operating ends in position to hook under the handles  $c^2$  when the lifting-slides are elevated and retaining the supply-stack in the desired elevation while the defective card is being removed. As soon as the trouble is remedied the supply-stack may be again lowered by simply tripping the



retaining-hooks  $c^4$ . Offsets  $c'$  at the lower ends of the slides  $c$  are adapted to rest normally within recesses  $c^5$ , formed in the table, so as to form no obstacle to the free passage of the cards along the surface of the table.

As the punched card is pushed forward by the next succeeding card from the bottom of the supply-stack it is received upon a skeleton rest I, consisting of arms fixed to and radiating from a rock-shaft  $i$ , mounted in lugs  $k$ , projecting rearwardly from a pair of brackets K K', fixed in vertical adjustment by any well-known or approved means at the rear of the head-frame A. The shaft  $i$  is rocked by means of a crank-arm  $i'$ , connected by a rod  $i^2$  with the arm  $l$  of a vibrating lever pivoted at L to the bracket K, the opposite arm  $l'$  of said lever being in engagement with a cam M, secured to rotate with the gear-wheel  $e$ . The cam M is provided with an elongated slot  $m$ , through which the clamping-bolt  $m'$  extends for locking the cam to the wheel  $e$  in the desired rotary adjustment relative thereto in order to rock the shaft  $i$ , and hence the rest I, at the proper moment during the rotation of the wheel  $e$ . The vibrating lever pivoted at L is operated in a direction to return the rest I by means of a spring  $l^2$ , connected at one end with the arm  $l$  and at its opposite end with the supporting-frame.

After the punched card has fallen upon the rest I the shaft  $i$  is operated and the card is thrown over into an upright position, resting on its edge and supported against a traveling stop N, mounted to slide along a groove  $o$  in the upper face of a support O, mounted on the supporting-frame A'. It is intended that the stop N shall be sufficiently weighted or otherwise retarded by friction, so as to afford the necessary resistance to hold the stack of cards in an edgewise upright position against it, and yet so that it will yield step by step the distance of the thickness of a card under the pressure of each succeeding card which is forced by the rest I against it or the cards which have already been pressed against it.

As the cards approach their edgewise upright position to form the stack P their ends are caused to slip past a pair of spring-actuated retaining-hooks  $q$ , which swing outwardly as the card is pressed between them, and immediately the card has reached its upright position swing forwardly toward one another under the tension of light actuating-springs  $q'$ . Stops  $q^3$  are employed to limit the throw of the retaining-hooks  $q$ .

The operation as a whole may be briefly described as follows: The cards are fed one by one from the supply-stack beneath the punches and after having been punched are fed forward by the action of the next succeeding card, so that when one card is pushed forward from the bottom of the supply-stack in position to be punched it at the same time pushes a punched card onto the rest I. While the card is being punched the rest I is operated and the punched card thereon is forced rearwardly against the end of the stack P between the retaining-hooks  $q$  and is there held, while the rest I is returned to receive the next succeeding card from the punches.

It is obvious that the stack P may be continued to any desired length by simply extending the support O.

What I claim is—

1. The combination with the punching mechanism and means for moving the card in a horizontal plane away from the punching mechanism, of a rocking rest for receiving the card, and carrying it into an edgewise upright position, a stop for holding the card in one direction in its upright position and yielding retaining-hooks for holding the card in the opposite direction in its upright position during the return rocking movement of the rest, substantially as set forth.

2. The combination with the punching mechanism and standards or guides for retaining a supply-stack of cards in position to be fed to the punching mechanism, of lifting-slides engaged with the guides or standards of the supply-stack for elevating the supply-stack of cards at pleasure, substantially as set forth.

3. The combination with the punching mechanism and standards or guides for retaining a supply-stack of cards in position to be fed to the punching mechanism, of lifting-slides engaged with the guides or standards of the supply-stack for elevating the supply-stack of cards at pleasure and retaining devices for holding the stack of cards elevated, substantially as set forth.

4. The combination with a rocking sleeve for actuating the feed mechanism, of a washer in position to engage the end of the rocking sleeve and means for regulating the pressure of the washer against the end of the sleeve to retard it, substantially as set forth.

VERNON ROYLE.

Witnesses:

FREDK. HAYNES,  
GEORGE BARRY, Jr.