

C. CHAMBERS, Jr.

Machines for Folding, Pasting, and Insetting Paper.

No. 141,488.

Patented August 5, 1873.

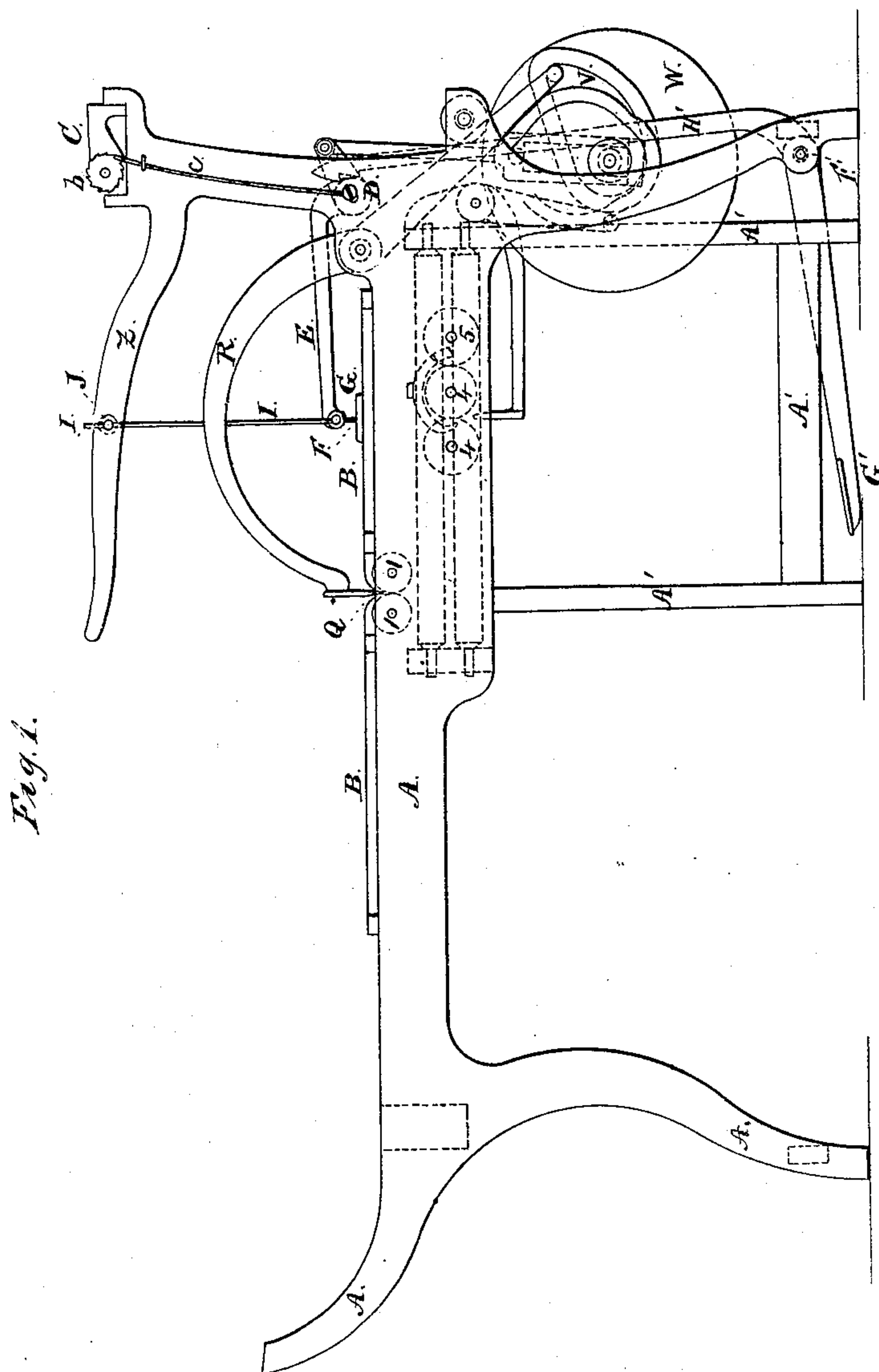


Fig. 1.

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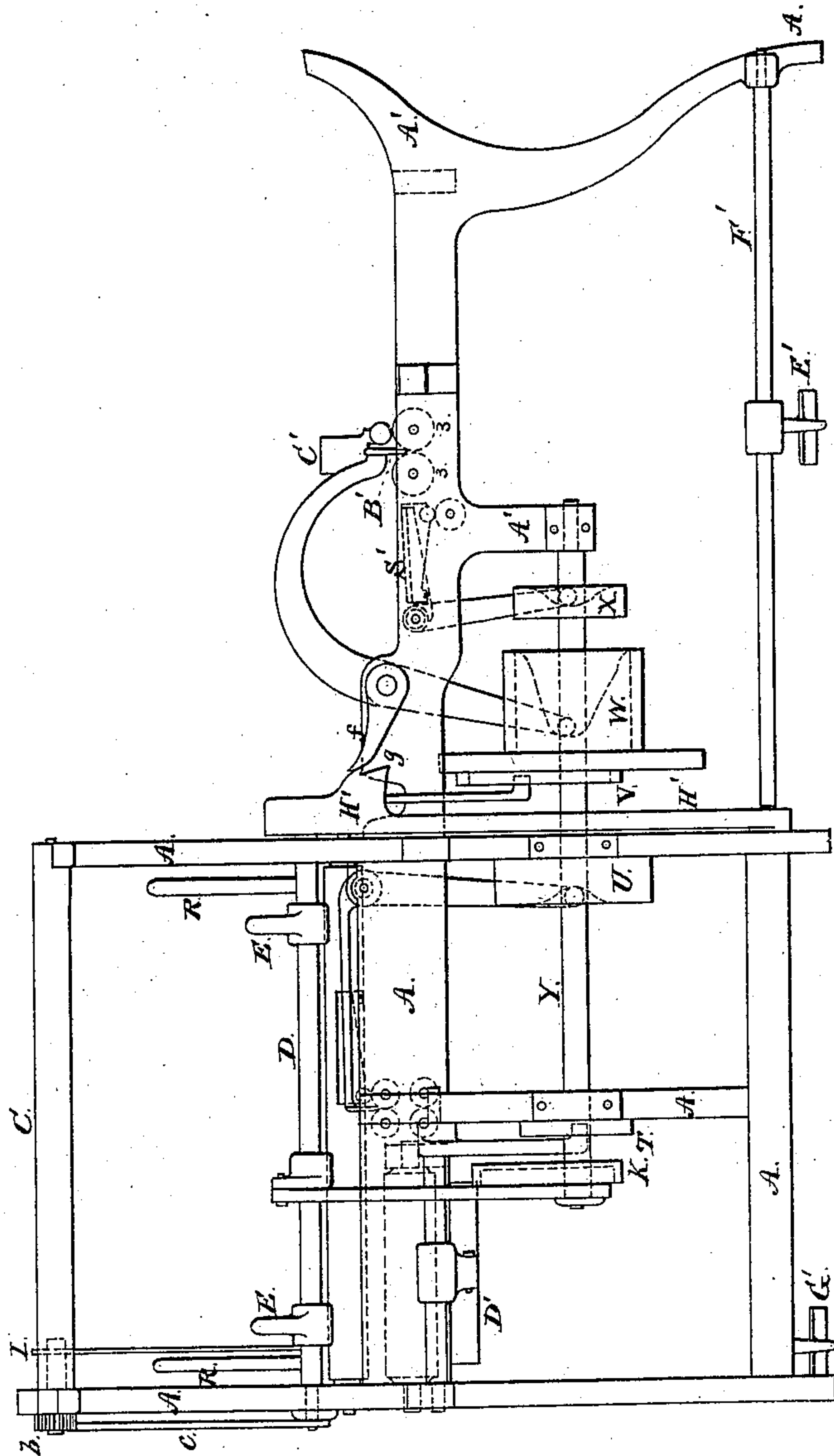
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Fig. 2.



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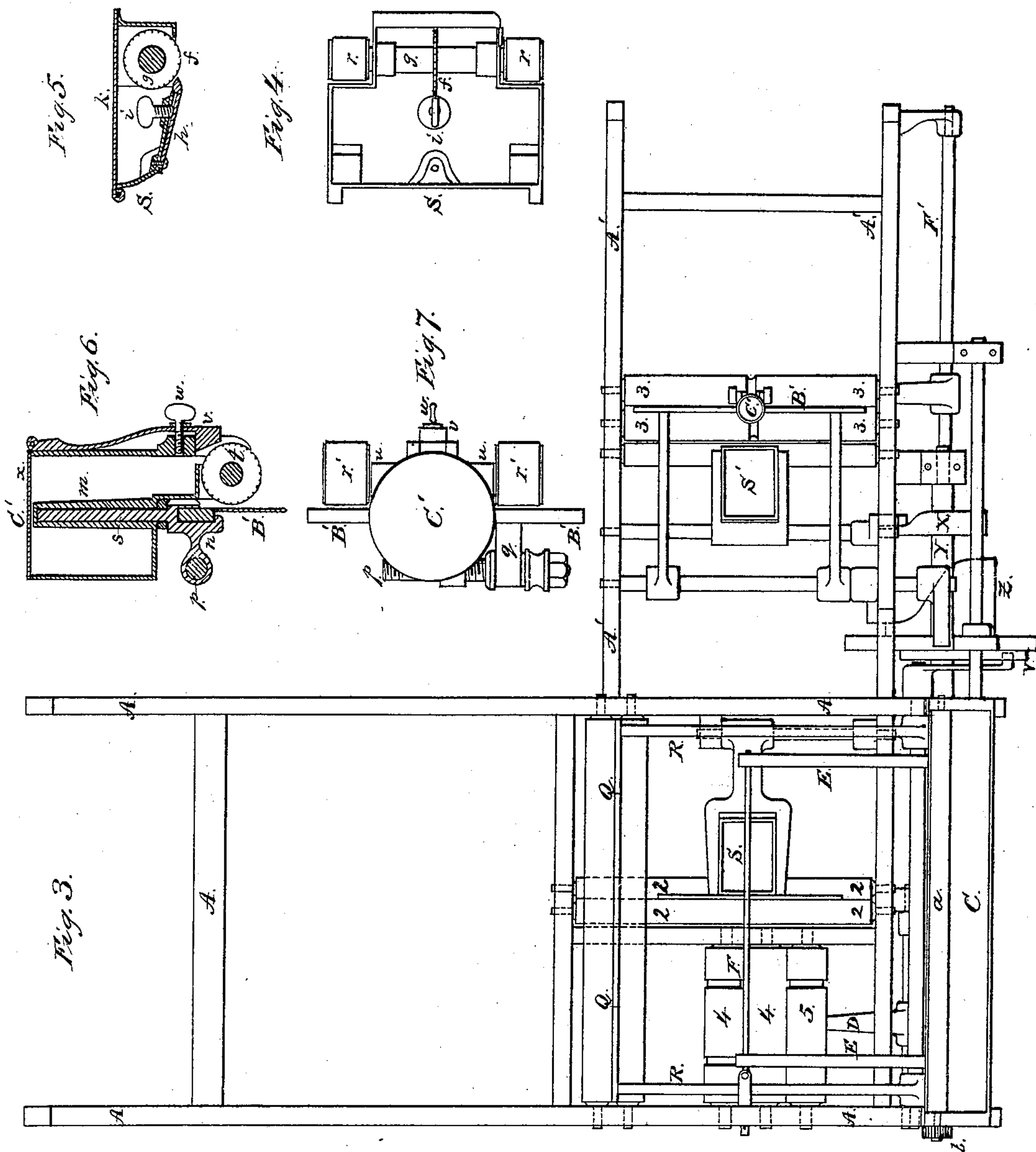
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UNITED STATES PATENT OFFICE.

CYRUS CHAMBERS, JR., OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR FOLDING, PASTING, AND INSETTING PAPER.

Specification forming part of Letters Patent No. **141,488**, dated August 5, 1873; application filed June 11, 1873.

To all whom it may concern:

Be it known that I, CYRUS CHAMBERS, JR., of the city and county of Philadelphia, Pennsylvania, have invented a Machine for Folding, Pasting, and Insetting Paper; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the machine. Fig. 2 is an end elevation. Fig. 3 is a top view or plan. Fig. 4 is a top view, and Fig. 5 is a vertical section, of the oblong paste-box. Fig. 6 is a vertical section of the round paste-cup, and Fig. 7 a top view.

The same part is marked by the same letter of reference wherever it occurs.

I denominate this machine a two-sheet folder and paster. It is designed expressly for folding and pasting large twenty-four-page periodicals composed of two separate sheets. It folds one sheet of sixteen pages and another of eight pages, insets the eight pages within the sixteen, and pastes and trims all, delivering a complete copy of twenty-four pages, folded, pasted, and trimmed ready for reading. By modifications and adjustments within the control of the operator it can be made to fold eight pages alone or sixteen pages alone, with or without pasting, or will fold, paste, and trim the sixteen pages, and fold, paste, and trim the eight pages, and inset the latter with or without pasting it in, as may be preferred.

The general construction of the machine is that of the well-known book and paper folding machines patented by me, and is so familiar to persons acquainted with the art of folding paper that it need not be described in detail. It has the common features of a feed-table, folding-blades, and folding-rollers, pins for registering the sheet, tapes and rods for guiding and conveying it from one pair of rollers to another, and an arrangement of folding-rollers, &c., for folding the inset inside of the outset, all of which elements perform their proper functions in the usual manner.

To these ordinary features I have, in this machine, added a supplemental attachment designed to fold and inset the eight-page sheet, and have made some modifications of the past-

ing and carrying devices to adapt the machine to the purposes hereinbefore indicated.

In the drawings, A marks the frame of the machine by which the operative parts are supported. B is the table on which the sheet is registered under the first folding-blade, and directly over the line of contact of the first pair of folding-rollers. 1 1, 2 2, 3 3, &c., indicate the successive pairs of folding-rollers. The sheet on its course through the machine is carried on tapes and guided by rods not represented. The first line of paste is to be applied on the line of the back fold of the paper, which occupies a position on the table B directly under the paste-blade F.

To the frame of the machine I attach, on suitable brackets, a long paste-fountain, C, which is adjustable in the brackets and receives the supply of paste intended for the service of the paste-blade F. This fountain has on the inner side a roller, Fig. 3, on the end of which is a ratchet-wheel, *b*, operated by a pawl, *c*, driven by a crank-pin in the end of the shaft D of the paste-blade F. Each throw of the paste-blade turns the paste-roller one tooth of the ratchet, causing it to present a new surface of paste to the blade. To shaft D are attached the arms E E, in the free ends of which is hung the paste-blade F. The edge of this blade is finely serrated to enable it to take up the paste from the roller, and its back is attached to a rod or arm, I, which works through a rotating guide or eye, J, pivoted on an arm, Z, projecting horizontally from the main frame, as shown in Fig. 2. It results from this construction that when the arms E E are down in a horizontal position the paste-blade is vertical and its serrated edge applied to the sheet lying on table B, but when the arms E E are in their highest position the blade is nearly horizontal, and its serrated edge is brought into contact with the surface of the paste-roller *a* and receives a supply of paste therefrom.

At the line where the line of the back fold of the sheet comes upon the table B there is placed a long slotted strip, G, adjustable on the frame to the exact line required. The paper is laid on this strip, and forms an elastic bridge, on which the paste-blade descends directly over the slot. The paper yields slight-

ly as the blade strikes it, and thus perfect contact is insured and a continuous line of paste deposited. The fountain, slotted strip, and paste-blade are all adjustable to the extent required to adapt them to the various sizes of sheets upon which the machine is designed to operate. After the line of paste has been applied to the sheet in the proper position the first folding-blade descends, and the folding of the sheet takes place in the ordinary manner.

Motion is imparted to the paste-blade shaft by means of the link operated by cam K, Fig. 2. The shaft carrying the first folding-blade is operated by means of an arm, actuated by cam V. Cam T actuates the arm of folding-blade D', which effects the insetting of the sheet. Cam U, Fig. 2, actuates the folding-blade to which the paste-box S is attached. Cam W actuates the folding-blade which folds the inset, and cam X operates the paste-box S'. All of these cams are attached to the main shaft Y, to which the driving-power of the machine is applied.

A' marks the frame of the supplemental attachment on which the eight-page inset is folded preparatory to being inserted in the sixteen-page outset. This is provided with a feed-table, on which the insert-sheet is registered, directly under the folding-blade B' and over the line of contact of the rollers 3 3.

To the blade B' is attached a paste-cup, C', the construction of which is shown in detail in Figs. 6 and 7, and will be hereafter described. It is adjusted to any position of the blade, and held by a set-screw. Its paste-wheel, when the blade B' descends, comes into contact with the surface of the sheet in the line of the back fold, and applies a line of paste there as the sheet is running through between the rollers 3 3. The rollers are grooved below the paste-wheel, so as not to press upon and spread the paste or bruise the milled edge of the paste-wheel by striking against it. This grooving of the rollers also allows the paste-roller to be a little larger than the propelling-rollers, and to press the paper slightly into the grooves, thus insuring more perfect contact between the roller and paper and a continuous line of paste. It further prevents the paste from getting upon the rollers when the machine happens to be running without paper on it.

After receiving a single fold from the rollers 3 3 the inset is carried on long tapes below the rollers 4 4. While on the way there it passes below the paste-box S', and receives from its paste-wheel a line of paste. It arrives at the last folding-rollers 4 4 at the same time that the sixteen-page outset arrives there, the inset being below the outset, and in exact register with it. In receiving its second fold the outset has also received a second line of paste from the paste-box S. When both inset and outset arrive under rollers 4 4 the last folding-blade, D', rises and forces both sheets at the same time between said rollers, giving them their last fold and pasting them together,

so as to form a complete pamphlet or signature of twenty-four pages. As the sheet thus completely folded comes up between rollers 4 4 its back comes in contact with curved bars let into grooves in rollers 4 and 5, as shown in Fig. 1, and it is turned over and carried down between rollers 4 and 5 and delivered in the ordinary way beneath the machine.

Two forms of paste-cup are used in this machine. One form, marked S, is represented in plan and section in Figs. 4 and 5; and the other, marked C', is similarly shown in Figs. 6 and 7. S is a flat box, of irregular shape, having a slit in its bottom, in which runs the serrated disk or paste-wheel *f*, which is attached to a shaft, *g*, on the ends of which are attached the rubber-faced rollers *r r*. When these rollers turn, the disk *f* turns with them. The aperture in the bottom of the box through which the paste is drawn by the serrated disk is controlled by a spring-cover, *h*, attached to the bottom of the box, and reacting upward to close the aperture. It is counteracted, and the size of the opening regulated, by a set-screw, *i*, on the inside of the box. The box is closed by a cover, *k*.

Cup C' is a cylindrical vessel, with a tube or thimble, *m*, in its center, as shown in Fig. 6, for the reception of a spindle, *s*, by which the cup is supported on the folding-blade B'. The spindle is attached to a slide, *n*, which moves on the back of blade B'. Its position on the blade is regulated by an adjusting-screw, *p*, whose head is collared in an arm, *q*, projecting from blade B', as clearly shown in Fig. 7. A serrated disk or paste-wheel, *t*, is attached to a shaft, *u*, which has the rubber-covered rollers *r' r'* fixed to its ends. When these rollers turn, the disk turns with them. The escape of paste is regulated, as in box S, by a spring cover or gate, *v*, controlled by a set-screw, *w*. The cup is closed by a hinged cover, *x*.

The machine is attended by two operators, who feed the sheets—outset and inset—separately to the respective feed-tables. Two treadles, E' and G', are attached to the shaft F', both of which operate vibrating arm H', which has a number of teeth in its upper end, which, in a certain position of the treadle-shaft, engage with the hook *f*, Fig. 2, on the shaft of folding-blade B', and with similar teeth or hooks on the ends of the shafts of the paste-blade F and first folding-blade Q, so that all these blades may be arrested at will by either operator whenever, from any cause, it may be desirable to stop their movement.

The devices for trimming the sheet are not claimed in this application.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The supplemental attachment, consisting of the folding-blade B' with its paste-cup C', the grooved rollers 3 3, and paste-box S', arranged and operated as described, in combination with a two-sheet folding and pasting

machine, for the purpose of folding and pasting the inset ready to be delivered to the last folding device and folded within and pasted to the outset, all substantially in the manner set forth.

2. The paste-cup C', constructed as described, and attached to the folding-blade by means of the adjustable spindle, in the manner and for the purpose specified.

3. The combination of the spindle, slide,

screw, and arm with the folding-blade of a paper-folding machine, in the manner and for the purpose described.

The above specification of my said invention signed and witnessed at Philadelphia this 10th day of June, A. D. 1873.

CYRUS CHAMBERS, Jr.

Witnesses:

EDWIN CHAMBERS,
MAVIS CHAMBERS.