

3 Sheets—Sheet 1.

No. 447,012.

Patented Feb. 24, 1891.



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Wm. J. Fleming

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(No Model.)

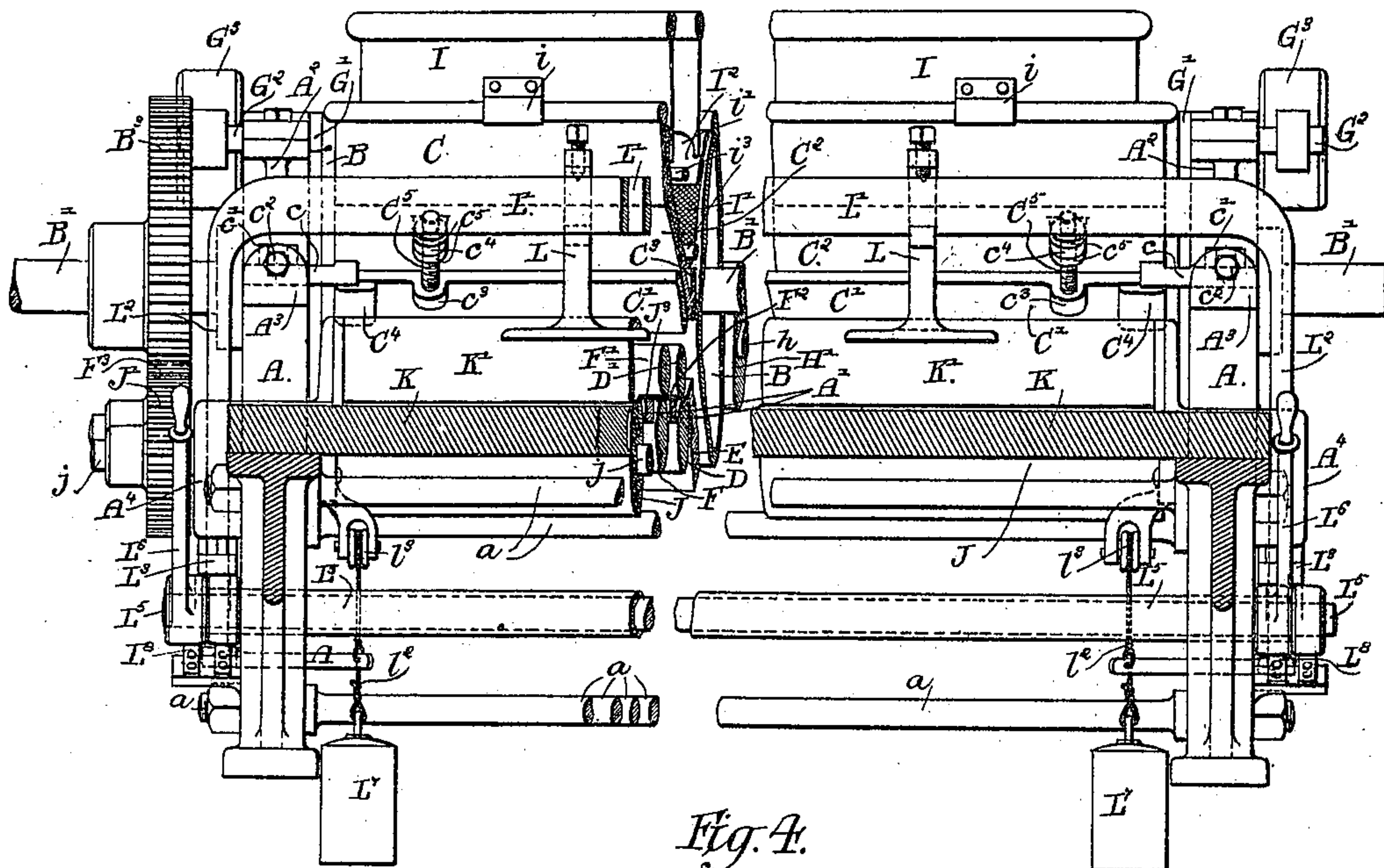
3 Sheets—Sheet 2.

M. D. KNOWLTON & C. F. PEASE,  
GLUE APPLYING MACHINE.

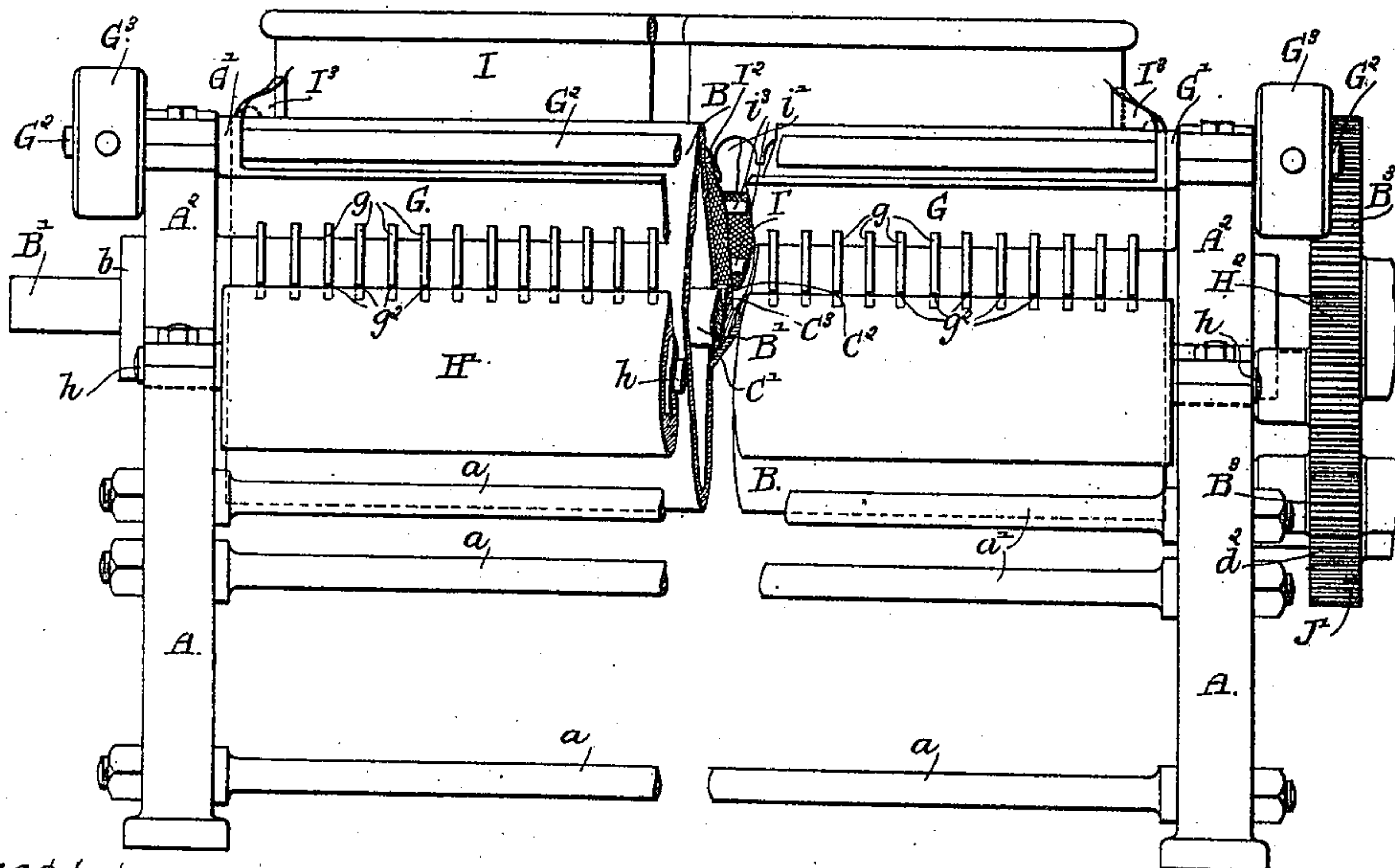
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*Fig. 3.*



*Fig. 4.*



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(No Model.)

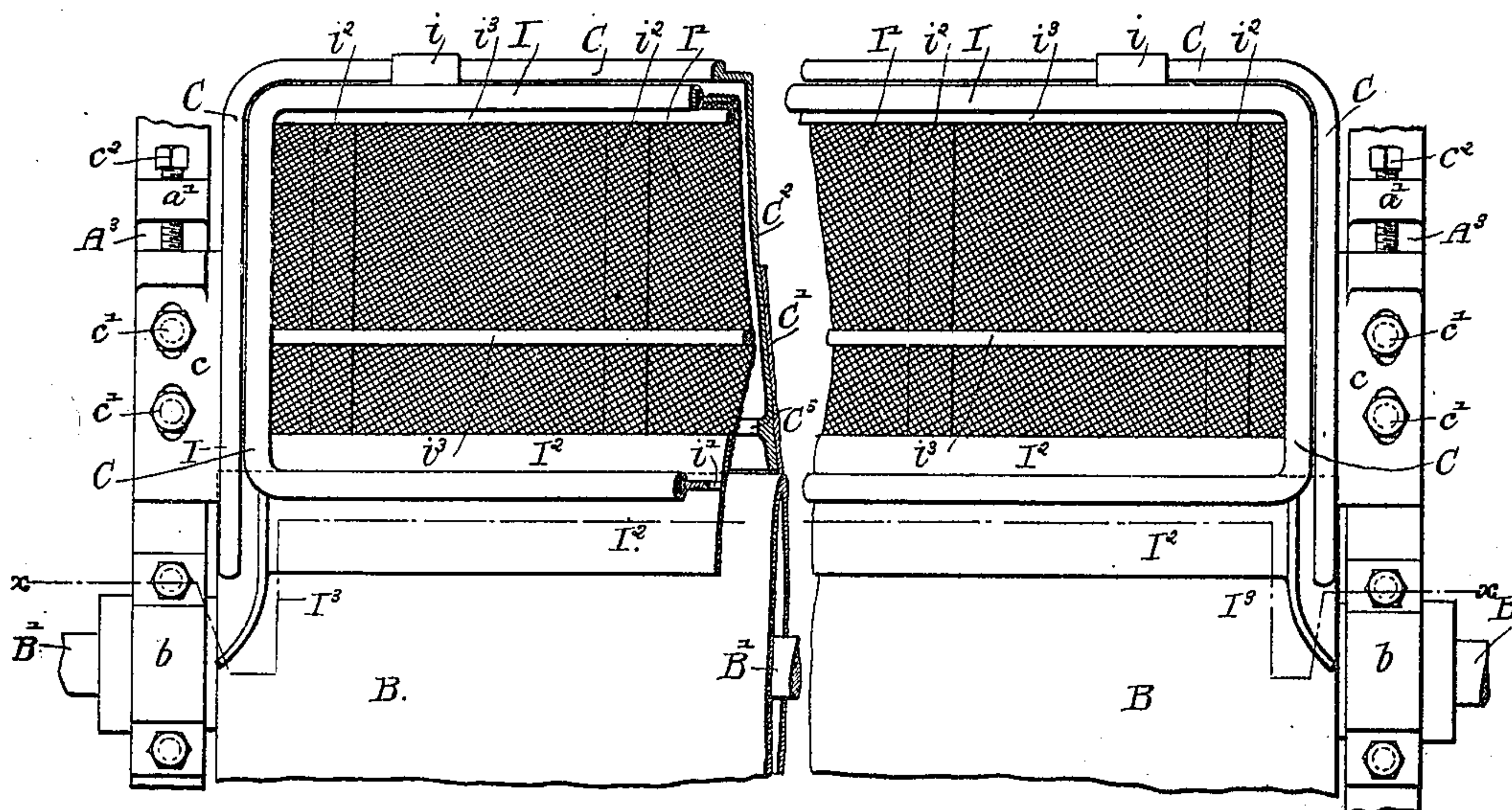
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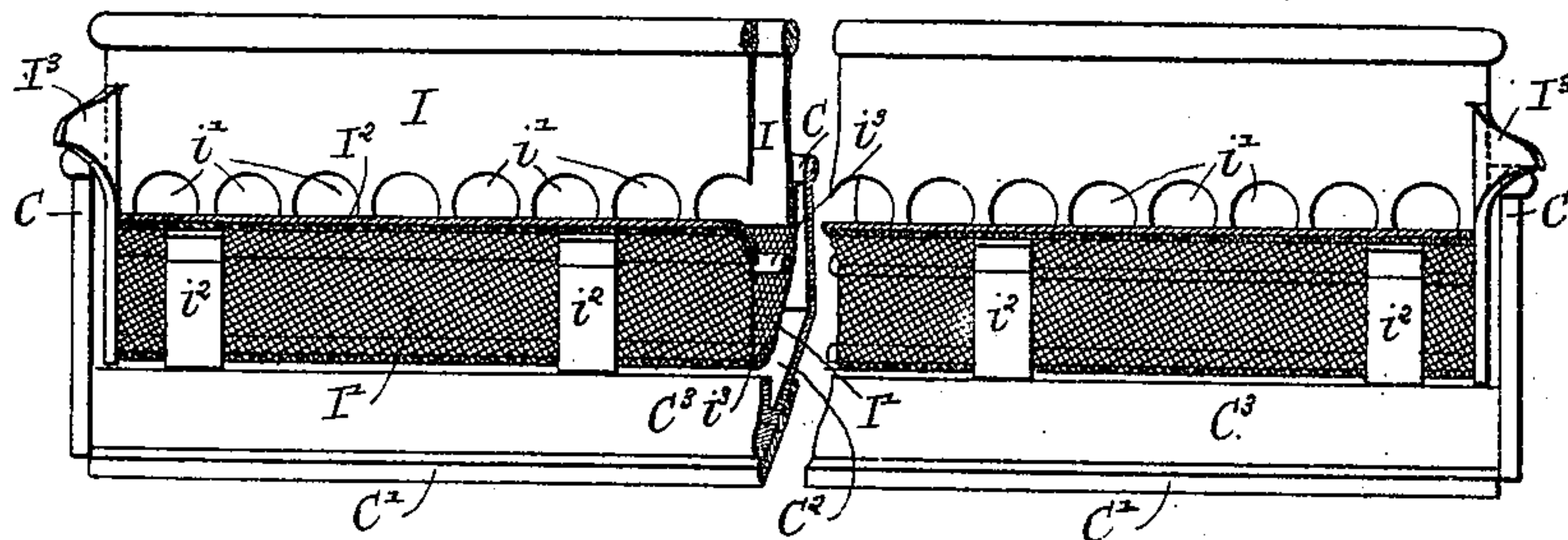
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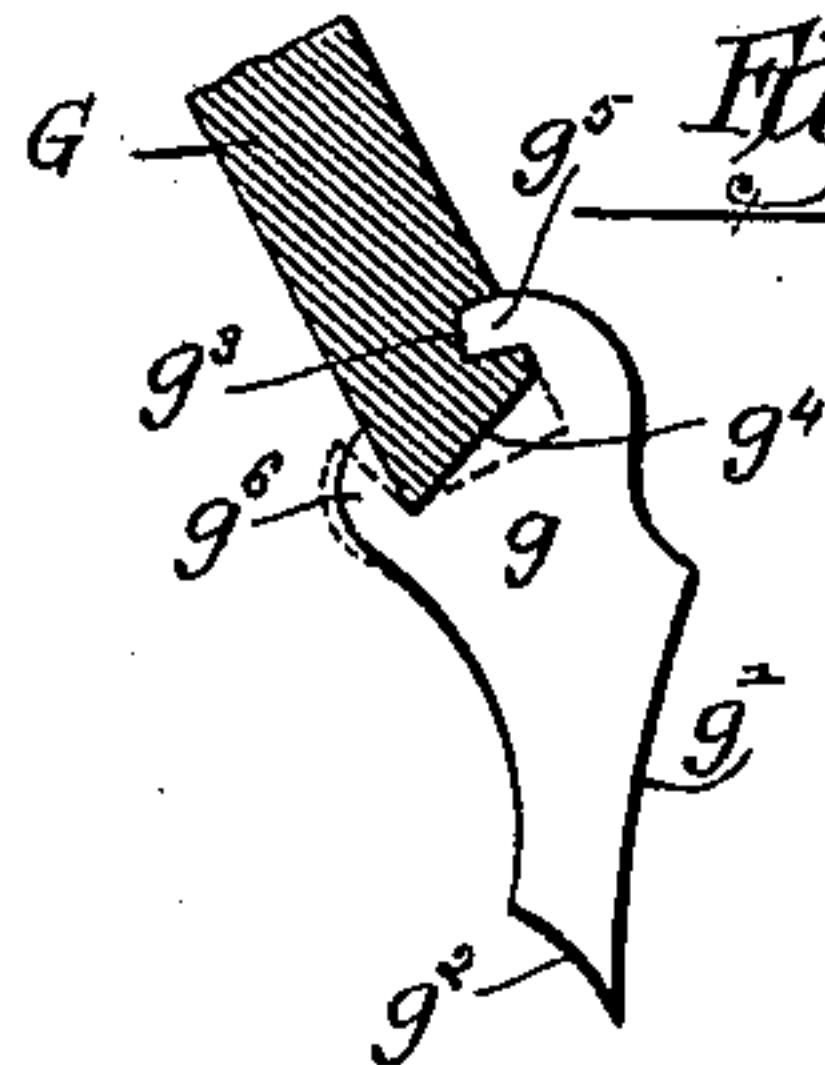
*Fig. 5.*



*Fig. 6.*



*Fig. 7.*



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# UNITED STATES PATENT OFFICE.

MARK D. KNOWLTON AND CHARLES F. PEASE, OF CHICAGO, ILLINOIS; SAID  
PEASE ASSIGNOR TO WILLIAM C. RITCHIE, OF SAME PLACE.

## GLUE-APPLYING MACHINE.

SPECIFICATION forming part of Letters Patent No. 447,012, dated February 24, 1891.

Application filed March 16, 1888. Serial No. 367,323. (No model.)

*To all whom it may concern:*

Be it known that we, MARK D. KNOWLTON and CHARLES F. PEASE, of Chicago, in the county of Cook and State of Illinois, have  
5 invented certain new and useful Improvements in Glue-Applying Machines; and we do hereby declare that the following is a full, clear, and exact description thereof, reference  
10 being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to a novel machine for applying an adhesive substance, as paste or glue, to sheets of paper or other material.  
15 The invention consists in the matters hereinafter described, and pointed out in the appended claims.

In the accompanying drawings, illustrating our invention, Figure 1 is a side view of a machine embodying the same. Fig. 2 is a  
20 central vertical longitudinal section thereof. Fig. 3 is a sectional elevation of the same, taken upon line *x x* of Fig. 1. Fig. 4 is an end elevation of the same, showing that end  
25 of the machine which is opposite to that appearing in Fig. 3. Fig. 5 is a detail plan view of the glue-tank. Fig. 6 is a detail sectional elevation of the same, taken upon line *x x* of  
30 Fig. 5. Fig. 7 is an enlarged detail section showing the separating or guide fingers and the bar for supporting the same.

As illustrated in the said drawings, the main frame of the machine embraces two side  
35 frame plates or castings A A, which afford bearings or supports for the several movable and stationary parts of the machine, which are connected with each other by a plurality of cross-girts *a a*.

B is the pasting or gluing roller, to the surface of which the glue or other semi-fluid  
40 adhesive substance is applied and from which said glue or adhesive substance is transferred to the paper sheets brought into contact with the said roller by the devices hereinafter described. Said roller B is mounted upon a  
45 shaft B', having bearings at *b b* upon the frame-plates A A. Said roller is driven continuously during the operation of the machine by a suitable driving-belt placed over  
50 a drive-pulley B<sup>2</sup>, attached to the shaft B'.

The feeding apparatus for the fluid adhesive

substance embraces a tank or receptacle C, which is located at the downwardly-moving side of the roller B, and is provided at its bottom with a sliding valve C', which may be  
55 adjusted to a greater or less distance from the said roller B, as may be necessary for feeding a desired quantity of the adhesive substance to the roller. The details of construction in the said feeding apparatus illustrated  
60 will be hereinafter more specifically set forth.

D D' are two opposing feed-rolls for carrying the paper sheets toward or into contact with the roller B, said feed-rolls being located adjacent to the surface of said roller B,  
65 preferably at a point near the discharge-opening of the feed-tank C. The said feed-rolls are located beneath and close to the said tank C, and the lower feed-roll D is provided at its ends with journals *d d*, mounted in  
70 bearings *d'* upon the machine-frame, and is positively actuated or driven by means of a pinion *d<sup>2</sup>*, connected with the journal *d* at one end of the roll and intermeshing with a gear-wheel B<sup>3</sup> upon the shaft B' of the roller  
75 B. The upper feed-roll D' is located over and rests upon the roll D, said upper feed-roll being provided at its ends with journals *d<sup>3</sup> d<sup>3</sup>*, which engage vertically-slotted standards *d<sup>4</sup> d<sup>4</sup>* upon the machine-frame. Said  
80 standards *d<sup>4</sup> d<sup>4</sup>* hold the said upper roll in position over the lower roll, but afford free vertical movement in the said upper roll. The weight of the upper roll D' in this construction insures contact of the paper sheets with  
85 the lower positively-actuated feed-roll D. This particular construction in the feed-rolls D and D', although a desirable one, is obviously not essential, inasmuch as the upper feed-roll may be also positively driven, or the  
90 rolls may be held together by springs, or other well-known or preferred construction in said rolls may be employed.

E is a guide located between the feed-rolls D D' and the roller B and operating to direct  
95 or guide paper sheets passing from the feed-rolls D D' toward and against the surface of the roller B. Said guide E is constructed to direct the paper against the surface of the roller B approximately at right angles with  
100 said surface at the point of contact. This construction is desirably used in order to in-



sure that the paper shall be brought into close or intimate contact with the coated surface of the roll and will adhere thereto; but the guide may be placed at any angle found desirable, in accordance with the particular circumstances of the case. The location of the guide close to the surface of the roller B is desirable, however, in order that the forward or advance edge of the paper may be carried with such force or pressure as may be produced by the stiffness of the paper against or into contact with the coated surface of the roll, thereby insuring the application of the glue or adhesive substance to the extreme forward or advance edge of the paper sheet. The surface of the roller B is desirably made to move a very little faster than the feed-roll D, so that after the front edge of the sheet has adhered to the roll and the sheet has been carried partially around the said roller the strain upon the paper caused by the greater speed of the roller as said paper is drawn over the surface of the roller will bring or wrap the main part of the paper sheet closely against or about the roll, and thereby insure an application of coating of adhesive substance to the entire surface of the paper. The frictional resistance caused by the drawing of the paper over the edge of the guide E will, however, retard the paper, so as to aid in straining it over the surface of the roller B, and the frictional resistance thus produced may be relied upon as the sole means of bringing the paper closely into contact with the roller. The said guide, located in the position described, may be constructed and supported from the machine-frame in any manner found convenient or desirable. As herein shown, the guide consists of a metal bar located between the feed-roll D and the roller B in such manner that its upper narrower edge or face forms the guide-surface over which the paper passes, the bar being hollowed out or concaved, as indicated at *e*, at its side adjacent to the roll D in order that the guide-surface of the bar may come close to the upper part of said feed-roll D.

The auxiliary feed-rolls F F', constructed and supported on the machine-frame in the same manner as the rolls D D', are preferably located at a point somewhat distant from and horizontally in alignment with the rolls D D', the space between the rolls D D' and F F' being filled by a horizontal support or guide-plate F<sup>2</sup>, attached to a cross-bar A' of the machine-frame. We have also herein shown as located in advance or in front of the feed-rolls F F' a delivering mechanism for delivering the sheets one by one to the feed-rolls, as will be hereinafter fully described.

For removing or separating from the surface of the roller B as the latter revolves the paper sheets adhering thereto by reason of the coating of adhesive substance thereon we provide devices as follows: G is a horizontal bar arranged at the side of the roller B remote from the feeding devices and sustained

upon the machine-frame in such manner that it may be swung toward and from the said roller. Said bar G is provided with a series of scrapers or fingers *g g*, the points of which are directed toward the approaching ends or margins of the sheets carried forward by or upon the surface of the roller. Said fingers rest in contact with the roller B and act to deflect or throw outwardly from the surface of the roller the sheets adhering thereto. Said fingers, as more clearly shown in Figs. 2 and 7, consist of flat pieces of metal arranged vertically side by side, and are provided with pointed ends which rest against the surface of the roller. The edges *g'* of the fingers in contact with the roller are inwardly curved or concaved to fit the surface of the same, while the lower ends of the fingers are beveled or inclined upwardly and outwardly, as indicated at *g*<sup>2</sup>, in such manner as to deflect or guide the edges of the paper sheets striking the points of the fingers outwardly and away from the roller. The said beveled or inclined end surface *g*<sup>2</sup> of each finger is so shaped as to form an angle with the outer edge of the finger or that opposite the inner edge *g'* thereof, as well as with the said inner edge. This construction is employed in order to insure that the advance edges of the sheets shall pass from the end surface *g*<sup>2</sup> and clear of the finger without liability of following along the outer edge of the finger to the supporting-bar, it being found in practice that unless the said oblique end surface *g*<sup>2</sup> terminates in an angle, as described, the advance edges of the sheets, owing to the capillary action of the adhesive substance thereon, will adhere to and follow along the edge of the finger if the same is at all curved or rounded, and will only leave the finger on reaching an abrupt angle or corner, such as is herein especially provided. The said bar G is movably sustained in such manner as to allow the said bar and the fingers to be swung away from and toward the roller by means of transversely-arranged arms G' G' at the ends of said bar, which arms are attached to a rock-shaft G<sup>2</sup>, mounted in the upper ends of standards A<sup>2</sup> A<sup>2</sup> upon the machine-frame. The fingers *g g* may be held in contact with the surface of the roller B either by the gravity of the parts alone or by means of a suitably-applied spring or weight. A weight G<sup>3</sup> is attached to a lever-arm G<sup>4</sup>, which latter is arranged horizontally and rigidly secured to the rock-shaft G<sup>2</sup> in such manner that the gravity of the weight tends to hold the fingers in contact with the roller in the manner clearly illustrated in the drawings. The construction shown by which the fingers are attached to the said bar G is novel and has special features rendering it of importance and value. Such construction is as follows: The said bar G is provided in one of its sides, near its lower edge, with a longitudinal groove *g*<sup>3</sup>, and in its lower edge, adjacent to the said longitudinal groove, with a series of transverse notches or grooves *g*<sup>4</sup>. The fingers *g* are cut or stamped



out of sheet metal and provided each with a prong  $g^5$ , adapted to enter the groove  $g^3$ , and with a prong  $g^6$ , adapted for engagement with the face of the bar G opposite the said groove.

5 The fingers are originally cut or stamped with the prong  $g^6$  bent slightly outward, so that the fingers may be readily engaged with the bar by first inserting the prong  $g^5$  into the groove  $g^3$  and then bringing that part of the edge of the finger which is between the prongs into the notches or cross-grooves  $g^4$ . The prong  $g^6$  may be then bent or closed down against the rear surface of the bar, when the fingers will be rigidly and strongly secured in place.

10 The construction of the bar and fingers is more clearly shown in Fig. 7, wherein the position of the prong  $g^6$  before it is bent into engagement with the bar is shown in dotted lines.

20 H is a carrier-belt arranged in position to receive the paper sheets as the latter are removed from the roller B by the action of the fingers  $g$ . Said belt is placed about a roller  $H'$ , mounted at its ends in the frame-plates A A, adjacent to the said roller B, the supporting-roller for the opposite end of the carrier-belt H not being shown. For actuating the belt a pinion  $H^2$  is attached to the end of the shaft  $h$  of the roller  $H'$ , said pinion inter-

25 meshing with the spur-wheel  $B^3$  of the roller B.

30 The receptacle or tank C, hereinbefore described, is constructed in detail as follows: Said tank is made of cast metal, and is sustained at its ends by means of arms or flanges  $c$  upon the tank, which rests upon rigid arms  $A^3$ , forming part of the side frame-plates A A. The tank is held immovably upon the frame-arms  $A^3$   $A^3$  by bolts  $c'$   $c'$ , passing through the said arms or flanges  $c$   $c$  into the arms  $A^3$   $A^3$ ,

35 the entire tank being adjustable toward and from the roller B by elongating the apertures in the arms or flanges  $c$   $c$ , through which the bolts  $c'$   $c'$  pass. To provide for the accurate adjustment of the tank with relation to the roller, set-screws  $c^2$   $c^2$  may desirably be inserted through lugs  $a'$   $a'$  upon the outer ends of the arms  $A^3$   $A^3$  in such manner as to bear against the rear ends of the arms or flanges  $c$   $c$ . The lower or bottom wall  $C^2$  of the tank

40 C is desirably inclined downwardly toward the roller B, and is also desirably provided with a transverse flange  $C^3$  near its lower edge, adjacent to the roller B, which flange forms a shallow basin to retain heavy impurities, bits of metal, &c., which may enter the tank, and thus prevent the same from passing the roller B.

45 The guide  $C'$  for controlling the flow of adhesive substance to the roll is located in contact with the under surface of the lower wall  $C^2$  of the tank, being held against the same by means of inwardly-extending flanges  $C^4$   $C^4$ , which extend around the ends of the gate  $C'$  at opposite sides of the tank. Said gate

50 is constructed to fit and slide closely against the lower surface of the wall  $C^2$  in order to prevent backward flow of the adhesive sub-

stance between said parts. As a means of adjusting the gate  $C'$  and holding it in its changed position, the machine is provided with two adjusting-screws  $C^5$   $C^5$ . Said screws have screw-threaded engagement with lugs  $c^3$   $c^3$  upon the gate  $C'$  and are adapted to turn, but are held from endwise movement in lugs or bearings  $c^4$   $c^4$  upon the said tank. Said

70 screws  $C^5$   $C^5$  are provided with stationary collars or shoulders  $c^5$   $c^5$ , whereby the shafts are held from endwise movement within the bearings  $c^4$   $c^4$ . By turning the adjusting-screws  $C^5$   $C^5$  the front edge of the gate  $C'$  may obviously be adjusted accurately to a distance from the surface of the roller B required for delivering the adhesive material from the tank to the roller in a desired quantity. The lower end of the said gate or that

75 adjacent to the roller B is located slightly below the axis of the roller, while the upper edge of the tank C is arranged approximately in the same plane with the top of the roller, the roller obviously in this construction forming one of the walls of the tank.

It is entirely obvious that in the use of a tank C, arranged and operating in the manner above set forth, the surplus glue or adhesive substance which is not removed from the roll by the paper, together with any particles of paper which may adhere to the roll, will, unless provision is made to prevent such result, be returned to the tank and again delivered to the roller, or, in the case of adhering fibers or particles of paper, will remain continually upon the surface of the roller or accumulate in the narrow space between the gate  $C'$  and the roller, and thus prevent the proper feeding of the adhesive substance.

80 To avoid these and other undesirable results I provide a scraper at the upper part of the roller to remove all adhesive material and foreign substances from the roll, together with a strainer, into which the material flows from the scraper, and through which the fluid substance is returned to the tank, said strainer being adapted to retain and hold any particles of paper or other foreign material that may be scraped from the roll.

85 As illustrated in the drawings, I is an open frame or box supported upon edges of the tank C by clips  $i$  or otherwise, and provided with a perforated bottom  $I'$ , made of wire-cloth or other suitable material. At or upon the front edge of the wall of the frame I, or that nearest the roller B, is located a scraper  $I^2$ , consisting of a flat metal plate having a sharp or thin edge resting against the surface of the roller and inclined downwardly or away from the roller and toward the tank, as clearly shown in Fig. 2. Said front wall of the frame I, to which the scraper  $I^2$  is attached, is provided with a series of openings  $i'$   $i'$ , Fig. 6, located above the scraper  $I^2$ , through which

90 openings the fluid material scraped from the roller may flow into the space within the said frame and above the perforated bottom  $I'$  thereof. Said perforated bottom  $I'$  when



made of wire-cloth in the manner shown may be conveniently supported upon metal strips  $i^2$ , attached to the front and rear walls of the frame I, said strips being additionally braced by cross-rods  $i^3$ , connected with the end walls of the frame and located above the perforated bottom I', in the manner clearly shown in the drawings, Fig. 2. The frame I' is desirably provided at each end with a flaring deflector or wiper I<sup>3</sup>, Fig. 5, connected with the ends of the scraper I<sup>2</sup> and extending forward of said scraper over the surface of the roller B and having its extreme end bent outwardly to the end surface of the roller in order to gather in and deliver to the scraper all of the material upon the end portions of the roller.

The paper-sheet-feeding devices for delivering the sheets one at a time to the feeding-rolls DD' and FF' are constructed as follows:

J is an elastic feed-roll made of rubber or other similar material, arranged with its upper surface approximately in the same plane with the meeting parts of the feed-rolls DD' and FF'. Said roller J is driven by means of a gear-wheel J', mounted upon the central shaft  $j$  of the roll, which gear-wheel is engaged by an idler J<sup>2</sup>, driven from a gear-wheel F<sup>3</sup>, attached to one of the journals of the feed-roll F. Said feed-roll F is actuated by means of an idler F<sup>4</sup>, located between and intermeshing with the gear-wheel  $d^2$  and the said gear-wheel F<sup>3</sup>.

J<sup>3</sup> is a guide-plate located between the feed-roll J and the feed-roll F and supported upon a cross-bar A' of the frame.

K is a feed-table arranged exterior to the feed-roller J and sustained upon the machine-frame with its upper surface in alignment with the top of the said roller J.

K' is a stationary gate consisting of a flat metal plate arranged vertically over the roller J, with its horizontal lower edge in contact with the top surface of said roller, said gate, as herein shown, being attached at its ends to vertical guide-blocks A<sup>4</sup> A<sup>4</sup>, which are attached to the frame-plates A A at each end of the roller J. Said gate K' is desirably arranged slightly in advance of a vertical line passing through the center of the feed-roller J, and the pile of sheets to be delivered to the machine when placed upon the table K is arranged with its front edges over the roller J and in contact with the said gate K'.

LL are pressers arranged over the advance margins of the paper above the feed-roller J and adjacent to the gate K'. Said pressers are severally attached to transversely-arranged horizontal vertically-movable bars L' L', which are attached to the ends of vertically-sliding rods L<sup>2</sup> L<sup>2</sup>, passing at their lower parts through the guide-blocks A<sup>4</sup> A<sup>4</sup> of the frame. Said bars L<sup>2</sup> L<sup>2</sup> extend at their lower ends to a point below the said guide-blocks A<sup>4</sup> A<sup>4</sup>, and upon the lower parts of the bars are placed vertically-sliding clutch-blocks L<sup>3</sup> L<sup>3</sup>, connected with the arms L<sup>4</sup> L<sup>4</sup> upon rock-shafts L<sup>5</sup> L<sup>5</sup>, which rock-shafts are actuated by hand-

levers L<sup>6</sup> L<sup>6</sup>, one of which is located at each side of the machine-frame. Said clutch-blocks L<sup>3</sup> are so constructed that they will slide freely upward upon the rods L<sup>2</sup>, but when drawn downwardly will engage the same. Said blocks for this purpose are connected with the lever-arms L<sup>4</sup> by links  $l$   $l$ , located at one side of the rods, the holes within the clutch-blocks being made slightly larger than the rods and shaped in such manner that the blocks will engage or bite the rods when the blocks are moved downwardly. The engagement of the blocks with the rods when said blocks are moved upwardly is prevented by means of springs  $l'$   $l'$ , attached to the connecting-links  $l$   $l$  and pressing upwardly upon the under surfaces of the blocks at the parts of the latter remote from the links. Said springs sustain the blocks in a horizontal position, so that they will slide freely upward upon the rod, in a manner heretofore well known and understood.

L<sup>7</sup> L<sup>7</sup> are counterbalance-weights, which are attached to the ends of cords  $l^2$   $l^2$ , which pass over pulleys  $l^3$   $l^3$  and are attached to the lower ends of the rods L<sup>2</sup> L<sup>2</sup>. Said counterbalance-weights serve to sustain the rods and pressers, so that the latter act upon the paper only when depressed by the action of the hand-levers and connected devices.

A spring L<sup>8</sup>, attached to the machine-frame and acting upon the under surface of the lever-arm L<sup>4</sup>, serves to sustain said arm at the upper limit of its movement and the block L<sup>3</sup> in contact with the guide-block A<sup>4</sup>. Said block L<sup>3</sup> and the lever are thus always retained in position for action, and a slight movement of the hand-lever L<sup>6</sup> in a direction to carry the arm L<sup>4</sup> downwardly is all that is necessary to cause the presser actuated thereby to be forced into contact with the pile of paper beneath it. One of the levers L<sup>4</sup> is shown in the drawings in its position when being moved downwardly, as indicated by the arrow, Fig. 2, the block L<sup>3</sup>, connected therewith, being below and free from the guide-block A<sup>4</sup>.

The operation of a feeding device constructed as above set forth is as follows: When a pile of sheets of paper is resting upon or over the elastic feed-roller J while the latter is being revolved in such direction that its upper surface moves toward the pasting or gluing roller B, said elastic feeding-roller will tend to thrust or carry the lowermost sheet of the paper forward; but any forward movement of such sheet will be prevented by its contact with the gate K'. If, however, while the lowermost sheet is being thrust or pressed forward against the gate K' in this manner the entire pile of sheets is pressed downwardly by the action of one or more of the pressers L, actuated through the medium of one of the hand-levers and connecting devices above described, the upper surface of the compressible feeding-roller J will be pressed downwardly away from the gate K',



thereby leaving a narrow space or opening through which the lowermost sheet of paper may pass. After the front edge of the said lowermost sheet of paper has advanced into the said opening the said sheet of paper will continue to move forward by the action of the roll, even though the pressure upon the pile of paper is released, the pressure of the elastic roll acting upon the sheet tending to carry it forward past the lower surface of the gate, and the upward pressure of the said feeding-roller against the paper between it and the lower edge of the gate tending to increase the hold of the roll upon the paper and the certainty of the feeding action of the elastic roller. As soon as the lowermost sheet of paper has been passed beneath the gate and has been gripped by the feeding-rolls F F' the presser may again be pressed down upon the pile of sheets, when the lowermost sheet will be again carried forward in the same manner as before described.

I have found in practice that unless the pile of paper placed over the roller J is sustained free from said roller up to a point near the forward edges of the sheets the weight of the paper itself is liable to bring the lower sheets into such forcible contact with the roller as to cause the lowermost sheets to be fed forward. I therefore attach to the table K a plate K<sup>2</sup>, which extends over the roller to a point over or nearly over the center of said roller. Said plate sustains the weight of that part of the paper immediately over the roller, while at the same time it leaves the advance edges of the sheet unsupported, so that they may be easily depressed into contact with the roller by the action of the presser in the manner described.

The two pressers L L and their actuating devices are entirely separate from each other and operate independently, two of said parts being employed in order to enable separate piles of small or narrow sheets to be simultaneously fed to the machine by operators standing at opposite sides thereof. It will of course be understood, however, that the main features of the invention, as far as the sheet-delivery apparatus is concerned, are embodied in a single presser; but two or more pressers may be mounted upon one of the bars I', so as to operate together upon a pile of sheets placed beneath them. For convenience of construction I have herein shown one of the rock-shafts as made hollow and the other rock-shaft located inside of it; but said shafts may be separately mounted upon the machine-frame, if found convenient or desirable.

A plurality of pressers acting together will commonly be required for feeding large or wide sheets to the machine.

By the use of the feeding devices described and shown the paper sheets may be delivered one by one to the machine by moving one of the hand-levers L<sup>6</sup> without other attention upon the part of the operator, excepting to

renew the pile of sheets when the same is exhausted.

As hereinbefore stated, the bar forming the guide E is concaved at its side nearest the feed-roll D in order to allow the upper surface of the guide to come close to the said feed-roll, and in practice the edge of the guide adjacent to the said feed-roll will be arranged nearly if not quite in contact with the latter, or at any rate so near the surface of the roll as to prevent the passage of the edge of a sheet being fed over the roll between the latter and the guide and to scrape from the roll any adhering particles. It is found in practice that the sheets are liable to be carried or wrapped around the feed-roll, especially if a little glue is thrown by accident upon the surface of the roll or upon the paper, and the object of placing the edge of the guide close to the feed-roll is to prevent the wrapping of the sheets being fed about the roll under any circumstances.

It will of course be understood that when the guide E is made otherwise than is shown the edge thereof may be brought into contact with or adjacent to the roll D with the same result as hereinbefore set forth.

We claim as our invention—

1. The combination, with a revolving roller and means for feeding and carrying sheets to be operated upon against the surface of the said roller, of a glue-tank discharging by gravity upon the surface of the said roller, a scraper acting upon the surface of said roller, and a strainer receiving the substance from said scraper and discharging it into the said tank, substantially as described.

2. The combination, with the roller B and tank C, of the box or frame I, provided with a perforated bottom, and a scraper attached to one side of said box and acting upon the roller, said box or frame being sustained within the said tank, substantially as described.

3. The combination, with the roller B and tank C, of the box or frame I, provided with a perforated bottom, a scraper attached to one side of said box or frame and acting on the roller, and deflecting plates or wipers located at the sides of the scraper and fitted to the ends of the roller for directing the material upon the latter inwardly to the scraper, substantially as described.

4. The combination, with the bar G, provided with a longitudinal groove and transverse grooves or notches, of fingers g, provided with prongs engaging the said longitudinal groove and with prongs engaging the side of the bar opposite the groove, substantially as described.

5. A pasting or gluing machine comprising means, substantially as described, for applying paste or glue to paper sheets, an elastic feed-roller, a gate located in contact with the same, a presser acting in opposition to the roller, a vertically-movable bar sustaining the presser, vertically-movable rods sustaining



said bar, clutch-blocks mounted upon the rods, and means connected with said clutch-blocks for actuating the same to depress the bar and presser, substantially as described.

- 5 6. The combination, with a pasting or gluing roller, means for feeding adhesive substance thereto, and means for directing sheets against and into contact with the said roller, of a series of fingers for separating adhering  
10 sheets from the roller, said fingers being provided with concave inner edges resting in contact with the surface of the roller and with

oblique end surfaces forming angles both with the said concave inner edges and with the opposite or outer edges of said fingers, substantially as described. 15

In testimony that we claim the foregoing as our invention we affix our signatures in presence of two witnesses.

MARK D. KNOWLTON.  
CHARLES F. PEASE.

Witnesses:

M. E. DAYTON,  
TAYLOR E. BROWN.