(No Model.) 2 Sheets—Sheet 2.

T. C. DEXTER.

PAPER FOLDING, PASTING, AND TRIMMING ATTACHMENT FOR PRINTING PRESSES.

No. 287,422. Patented Oct. 30, 1883.

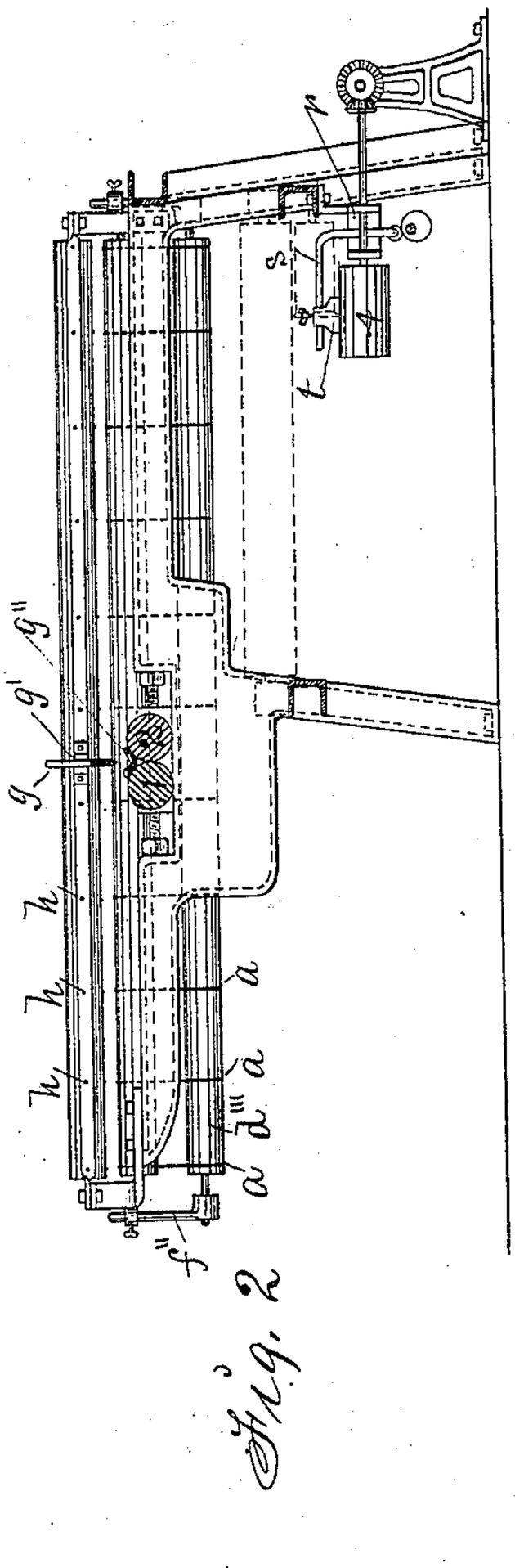

Fig. 2

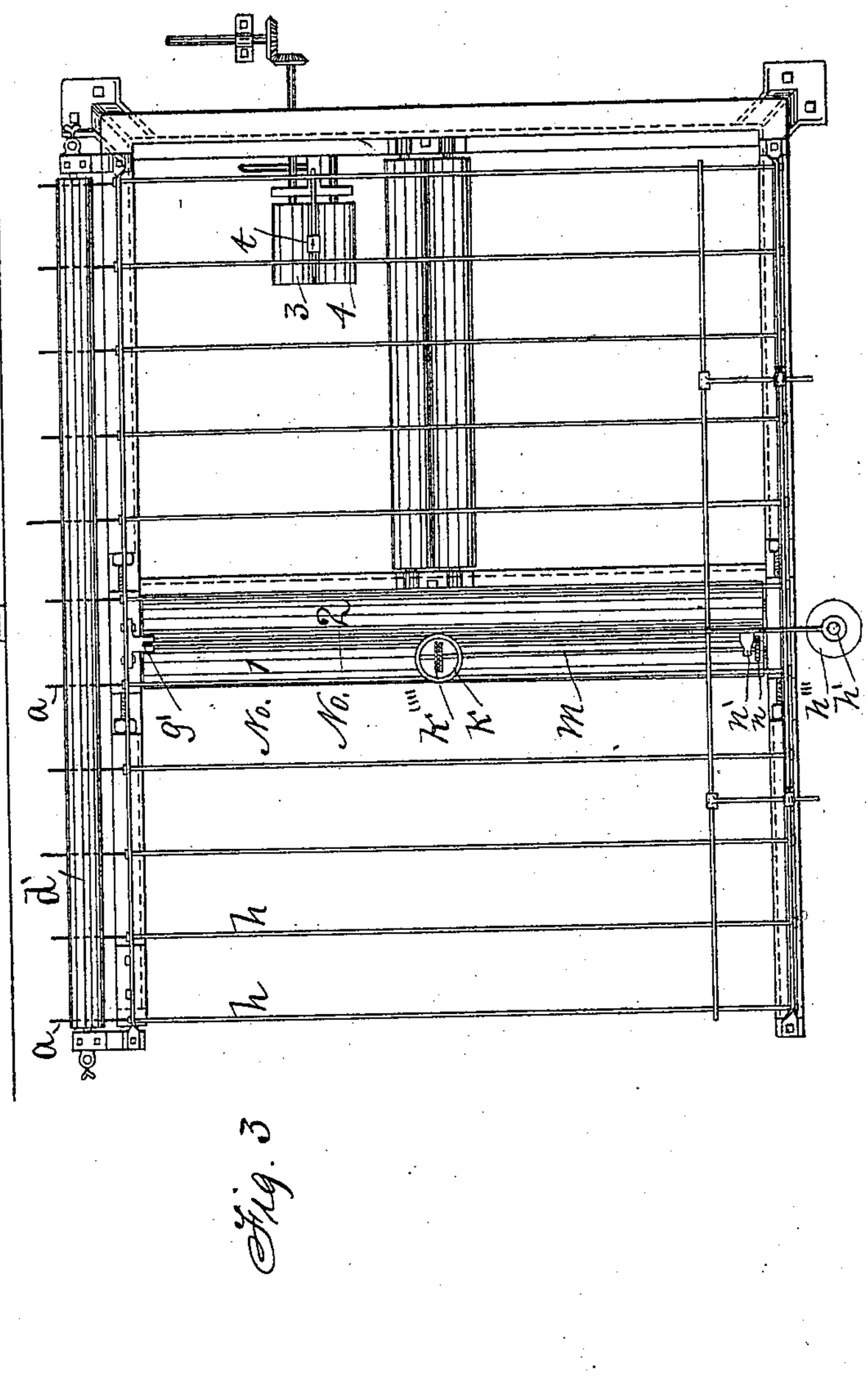

Fig. 3

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R. R. Peters.

Inventor:
Talbot C. Dexter,
By Thomas G. Orwig, Attorney.

(No Model.) 2 Sheets—Sheet 1.

T. C. DEXTER.

PAPER FOLDING, PASTING, AND TRIMMING ATTACHMENT FOR PRINTING PRESSES.

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Fig. 1

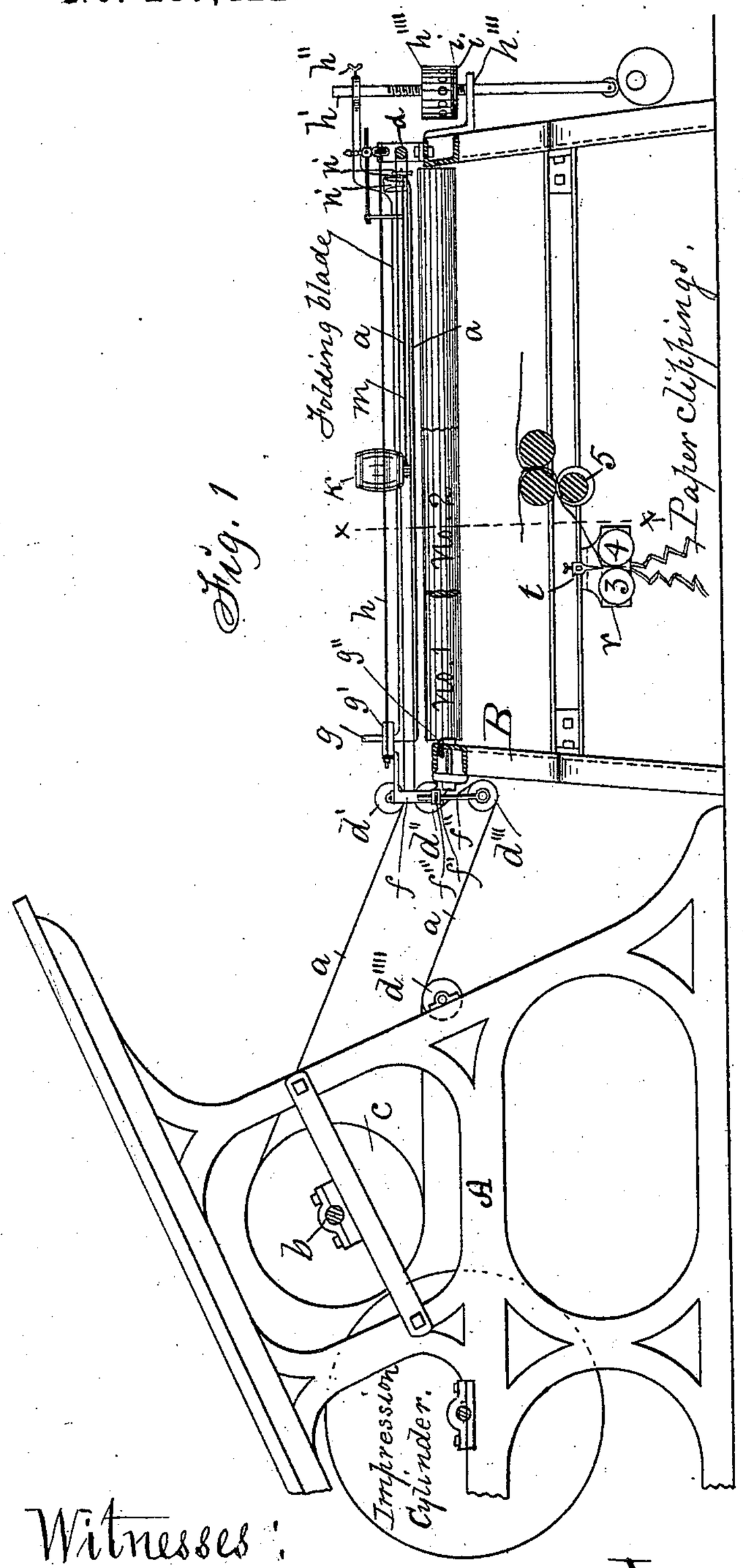


Fig. 8

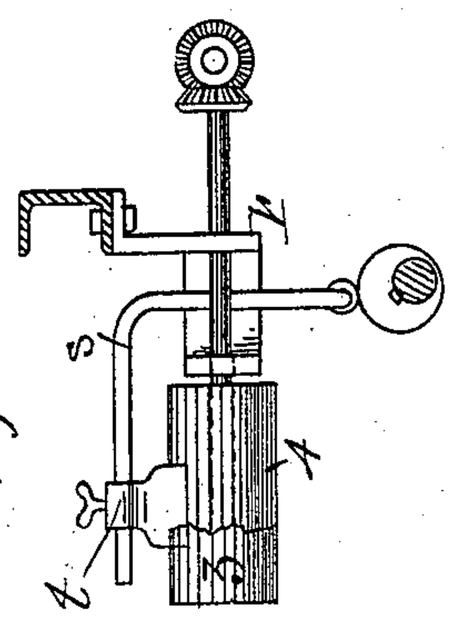


Fig. 6

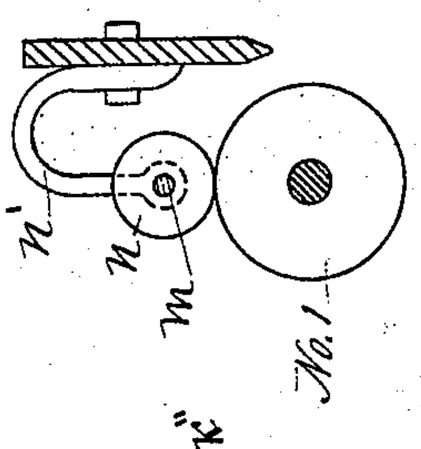


Fig. 5

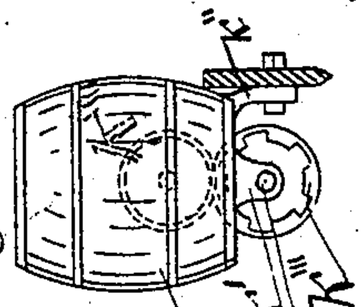


Fig. 4

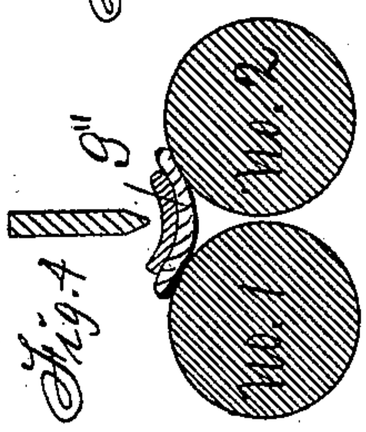
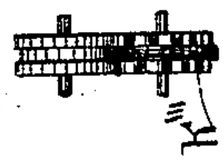


Fig. 7



Witnesses:
A. D. Pierce.
R. R. Peters.

Inventor:
Talbott C. Dexter,
By Thomas G. Orwig, Attorney.

UNITED STATES PATENT OFFICE.

TALBOT C. DEXTER, OF DES MOINES, IOWA.

PAPER FOLDING, PASTING, AND TRIMMING ATTACHMENT FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 287,422, dated October 30, 1883.

Application filed June 16, 1882. (No model.)

To all whom it may concern:

Be it known that I, TALBOT C. DEXTER, of Des Moines, in the county of Polk and State of Iowa, have invented an Improved Paper Folding, Pasting, and Trimming Attachment for Printing-Presses, of which the following is a specification.

My invention relates to the machines patented by me September 20, 1881, No. 247,178, and June 5, 1883, No. 279,083; and it consists, first, in combining a guide and stops with the free end of a folding-blade, to steady and restrict its movements relative to the folding-rollers and printed sheets doubled thereby; second, in combining an adjustable collar and cushioned stop with a folding-blade, to regulate and restrict its dropping or downward motion relative to the folding-rollers; third, in forming and combining toothed and grooved paste-distributing wheels with a paste-cup, to make lumps fine and apply paste evenly; fourth, in combining the paste-distributing wheel, a friction-wheel, and a spring, to co-operate with the folding-rollers and folding-blade in applying paste at regular intervals; fifth, in forming and combining rollers and a feed device with the trimming mechanism, to carry off the clippings as rapidly as the sheets are cut, to prevent the waste paper from clogging the machine, all as hereinafter fully set forth.

Figure 1 of my accompanying drawings is a side view of a section of a printing-press and my sheet delivering, folding, pasting, and trimming mechanism. Fig. 2 is a vertical transverse section of Fig. 1, taken through the line *x x*, looking toward the rollers 3 and 4. Fig. 3 is a top view. Fig. 4 is a detail view of my guide and stops for steadying and restricting the movement of the folding-blade relative to the folding-rollers. Figs. 5, 6, and 7 are detail views of my paste-cup and distributing-wheels and the operating mechanism that transmits motion from the folding-rollers to the paste-wheels. Fig. 8 is a side view of my attachment or mechanism for carrying off the waste paper clippings cut from the sheets. Jointly considered, these figures clearly illustrate the construction and operation of my complete invention.

A represents the frame of a printing-press, and B the frame that supports my paper folding, pasting, and trimming mechanism.

Nos. 1 and 2 are a pair of folding-rollers, through which a doubled sheet is passed downward to produce the first fold and folio.

a is one of a series of endless sheet-carrying tapes, connected with the press by means of a rotating shaft, *b*, that is connected with the press-frame by means of bearings formed in or attached to the frame and a wheel or driver pulley, *c*, fixed to the shaft *b*, and connected with the folding mechanism by means of the directing-rollers, combined with the frame B.

d is a roller located at right angles to the rear end of the folding-rollers Nos. 1 and 2, to receive the endless tapes. *d'* is a roller located at the opposite ends of the folding-rollers, in such a manner that the tapes *a* passed under it will be directed thereby from the tops of the driver-wheels *c*, to pass backward and forward parallel to the folding-rollers Nos. 1 and 2 by the aid of a third roller, *d''*, located immediately underneath the roller *d'*.

f is an auxiliary frame fixed to the end of the frame B, to support the rollers *d'* and *d''* in bearings formed in or attached thereto.

d''' is an adjustable roller, connected with the auxiliary frame *f* by means of projections *f'*, that extend at right angles from the ends of the frame, and are perforated to admit the top ends of roller-bearers *f''* to be passed through upward and adjustably fastened by means of set-screws *f'''*.

d'''' is a tape-directing roller, that has its bearings fixed to the frame A of the press in such a manner that the tapes *a* passed under the adjustable roller and tape-tightener or tension-regulator *d'''* will extend over it, and from thence under and around the driver-wheels *c*.

g is a vertical extension formed on or fixed to the front end of the folding-blade.

g' is a guide fixed to the frame, to extend horizontally and at right angles to the blade-extension *g* in such a position relative to the blade and the folding-rollers Nos. 1 and 2 that it will touch the extension *g* and steady its up and down motions.

g'' is a V-shaped and cushioned stop fixed to the journal boxes or bearings of the rollers Nos. 1 and 2 in such a manner that the descent of the front and free end of the folding-blade will be restricted thereby, and prevented from striking and damaging the rollers and the

sheets of paper doubled downward between the rollers by the action of the blade.

h is one of a series of rods spanned across the top of the folding mechanism, and supported by bars fixed to the frame B in such positions relative to the folding-rollers Nos. 1 and 2, the folding-blade, and the tapes *a* that they will protect the sheets as they are being doubled by the blade, and also prevent them from turning upward at their edges and corners, to avoid irregular creases being made in the sheets as they pass through between the rollers.

h' is a blade-operating post or arm, by means of which the folding-blade is lifted at regular intervals to allow the printed sheets to be carried under it by the tapes *a* and placed in proper position relative to the rollers Nos. 1 and 2, as required, to be doubled in their centers by the descent of the folding-blade. The folding-blade is adjustably connected with the top portion of the arm *h'* by means of a perforation in the blade and a set-screw, *h''*, and the arm *h'* is supported in a vertical position by a bearing, *h'''*, that is fixed to the frame B. A section of the arm *h'* has a screw-thread, upon which section is placed a nut or collar, *h''''*, in such a manner that it can be readily raised or lowered relative to the folding-blade and the stop and bearing *h'''*, as required to regulate and restrict the stroke of the blade relative to the folding-rollers Nos. 1 and 2, by simply turning it on the arm *h'*. Leather washers *i i*, or other suitable cushioning devices, are fixed to the lower side of the collar *h''''*, to engage the top surface of the bearing and stop *h'''*, to prevent noise and concussion.

k is a paste-cup, preferably in the form of a miniature keg, cast complete in one piece. It has a slot in its bottom and wheel-bearings *k'* projecting downward on each side of the slot in the bottom. *k''* is an arm formed on or fixed to the bottom of the paste-cup, to adapt the cup to be detachably fixed to the folding-blade by means of a screw or bolt, as clearly shown in Fig. 5.

k''' is a metal wheel fixed to a shaft that extends through the bearers *k'* in such a manner that the top portion of the wheel will project up into the paste-cup through the slot in the bottom of the cup. This wheel is made of cast metal, and has a continuous groove in the center of its periphery and notches to produce toothed edges at the sides of the continuous annular groove in the periphery. A cord or other suitable paste-absorbing material is placed in the continuous groove, to apply the paste to the sheets as they are being folded into folios. The toothed periphery of the wheel, when revolved, will cut and disintegrate lumps that may be in the paste-cup, and thereby prevent the irregular distribution of paste and imperfect pasting incident to the use of paste that may become stiff and lumpy in the cup.

k'''' is a feed-wheel journaled in the paste-cup in such a manner that it will engage the toothed wheel and be revolved thereby, to stir the paste and aid in keeping the paste in a proper consistency for even distribution to the printed sheets. It also has a continuous groove in its plain periphery, as clearly shown in Fig. 7. This second wheel, *k''''*, may be dispensed with, or the relative positions of the two wheels may be changed to accomplish the results contemplated.

m is the shaft to which the paste-wheel *k'''* is fixed. It extends from the paste-cup parallel with the folding-blade to the end of the folding-roller No. 1.

n is a friction-wheel fixed to the end of the shaft *m*.

n' is a spring-bearer, (clearly shown in Fig. 6,) by means of which the shaft *m* is detachably fixed to the folding-blade by means of a screw or bolt. When the folding-blade descends to double a sheet between the folding-rollers, the paste-distributing wheel *k'''* will engage the printed sheet and the friction-wheel *n* will engage the surface of the roller No. 1 to be actuated thereby, to rotate the shaft *m* and the paste-wheels at regular intervals, as required to place a line of paste on each folio that is formed by means of the reciprocating folding-blade and the rotating folding-rollers Nos. 1 and 2.

Nos. 3 and 4 (clearly shown in Fig. 8) are two short rollers placed in parallel position relative to each other and the cutting-roller No. 5 by means of an auxiliary frame, *r*, in such a manner that the edges of the sheets, as they are moved by the carrying-tapes, will pass over them while being trimmed, and the waste paper strips that are cut off will follow in the same direction; but to get the clippings out of the way, to prevent them from clogging the machine, I carry them off downward by means of the rollers Nos. 3 and 4 and a feed device adapted to press the clippings downward into the bite of the rollers, which are revolved toward each other by means of gearing connected with the driving mechanism of the machine.

s is an elbow-shaped arm connected with the driving mechanism by means of a cam at its lower end, in such a manner that it will rise and fall at regular intervals, and will, by means of an adjustable plate or pushing device, *t*, carried on its horizontal portion, strike and press downward on the strips of paper clippings to start them in passing through between the rollers and down out of the way of the folding mechanism, to drop into a pit or suitable receptacle, from whence they can be removed at convenience. The sheets are carried through the machine successively by means of endless tapes, as shown in my prior patent referred to, and the clippings are projected by the motion of the rotary cutter toward and over the rollers Nos. 3 and 4, to be passed downward by the joint action of the said short rollers and the feed device *s t*.

From the foregoing detailed description of the construction and function of each element and sub-combination of my invention, their unitary actions and the practical operation of my

improved machine will be obvious to any one familiar with my previously-patented machine designated in the preface of this specification.

I am aware that a paste-roller has had ratchet-teeth on its periphery and cavities in its side faces; but forming notches and teeth in the opposite edges of the periphery and a continuous groove in the center of the periphery is novel and greatly advantageous in making paste fine and distributing it in straight lines across a sheet by means of an elastic paste-absorbing material secured in the continuous groove.

I claim as my invention—

1. The folding-rollers Nos. 1 and 2, the folding-blade having an extension, *g*, the fixed guide *g'*, and a fixed stop, *g''*, arranged and combined as and for the purposes set forth.

2. A folding-blade carrier, *h'*, having a screw-threaded section, a fixed bearer and stop, *h'''*, and an adjustable nut or collar on said screw-threaded section of the vertical arm and carrier *h'*, arranged and combined relative to a pair of horizontal folding-rollers substantially as shown and described, to operate in the manner set forth, for the purposes specified.

3. A paste or brush wheel formed of metal, and having notches or teeth in its periphery and on opposite sides of a continuous annular groove filled with a flexible cord or other suitable elastic and paste-absorbing material, substantially as shown and described, and adapted to be used in combination with a paste-cup to distribute stiff and lumpy paste evenly and continuously while said wheel is revolved upon a passing sheet.

4. The paste-cup *k k' k''*, the wheel *k'''*, the shaft *m*, the friction-wheel *n*, the spring and shaft-bearer *n'*, a folding-blade, and a pair of folding-rollers, arranged and combined substantially as shown and described, to operate in the manner set forth, for the purposes specified.

5. The attachment for carrying off waste paper strips or cuttings from the line of advance of a moving sheet in a paper folding and trimming machine, and which consists of an auxiliary frame, *r*, an elbow-shaped arm, *s*, and an adjustable pushing or feeding device, *t*, in combination with a pair of folding-rollers and the trimming-roller No. 5, substantially as set forth.

6. The rollers Nos. 3 and 4, the elbow-shaped arm *s*, having an adjustable feed device, *t*, on its horizontal portion, arranged and combined relative to a driving-shaft having a cam to engage and lift the arm at regular intervals, and a pair of paper-trimming rollers, substantially as shown and described, to operate in the manner set forth, for the purposes specified.

TALBOT C. DEXTER.

Witnesses:
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W. L. DEWEY.