

(No Model.)

3 Sheets—Sheet 1.

T. C. DEXTER.
PAPER REGISTERING MACHINE.

No. 567,564.

Patented Sept. 8, 1896.

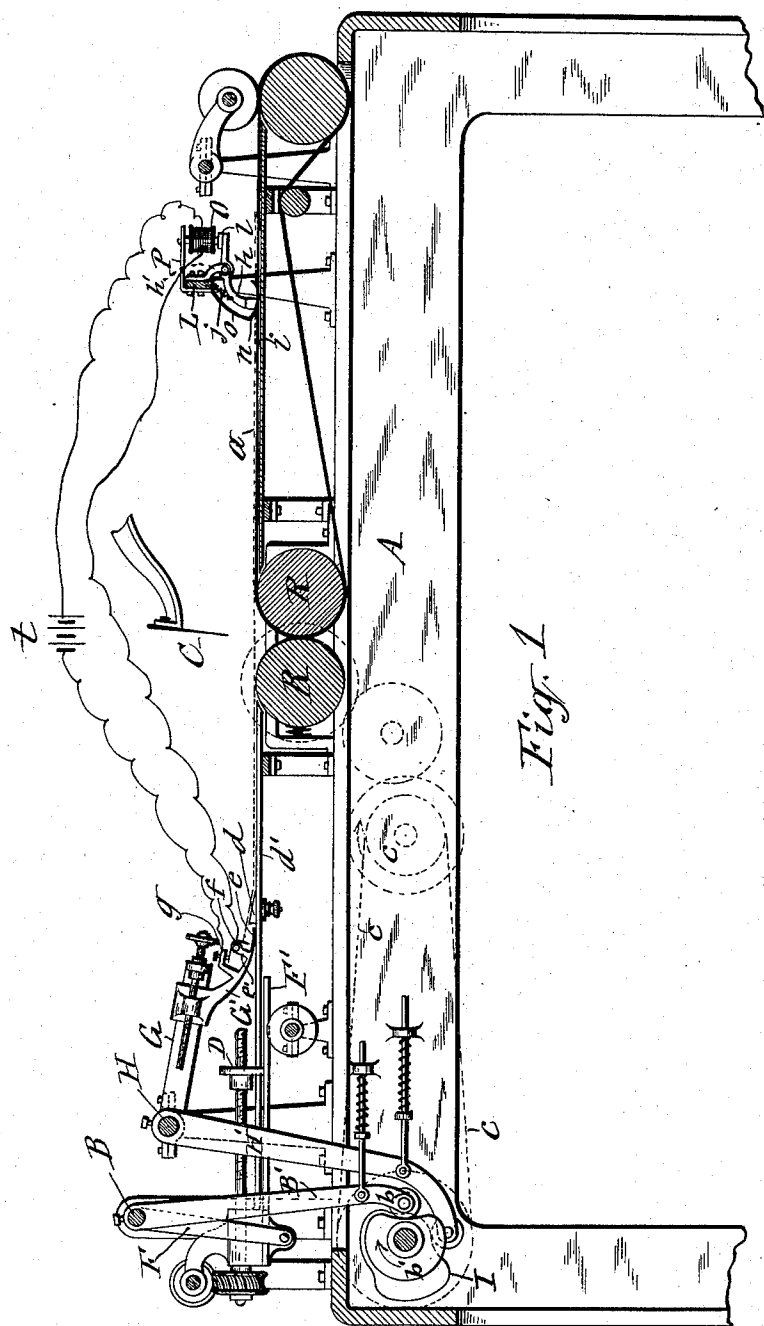


Fig. 1

WITNESSES:

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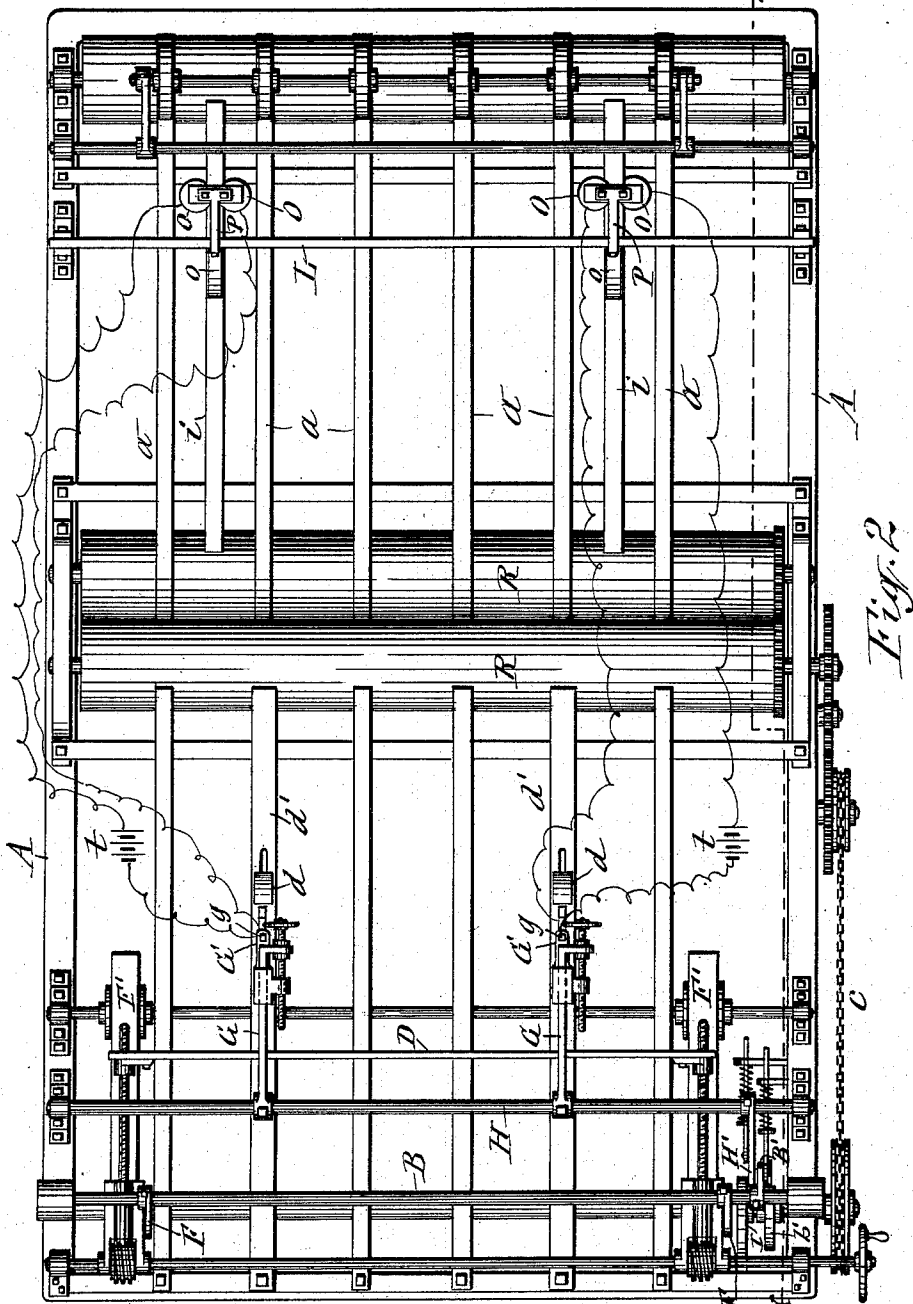
(No Model.)

3 Sheets—Sheet 2.

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3 Sheets—Sheet 3.

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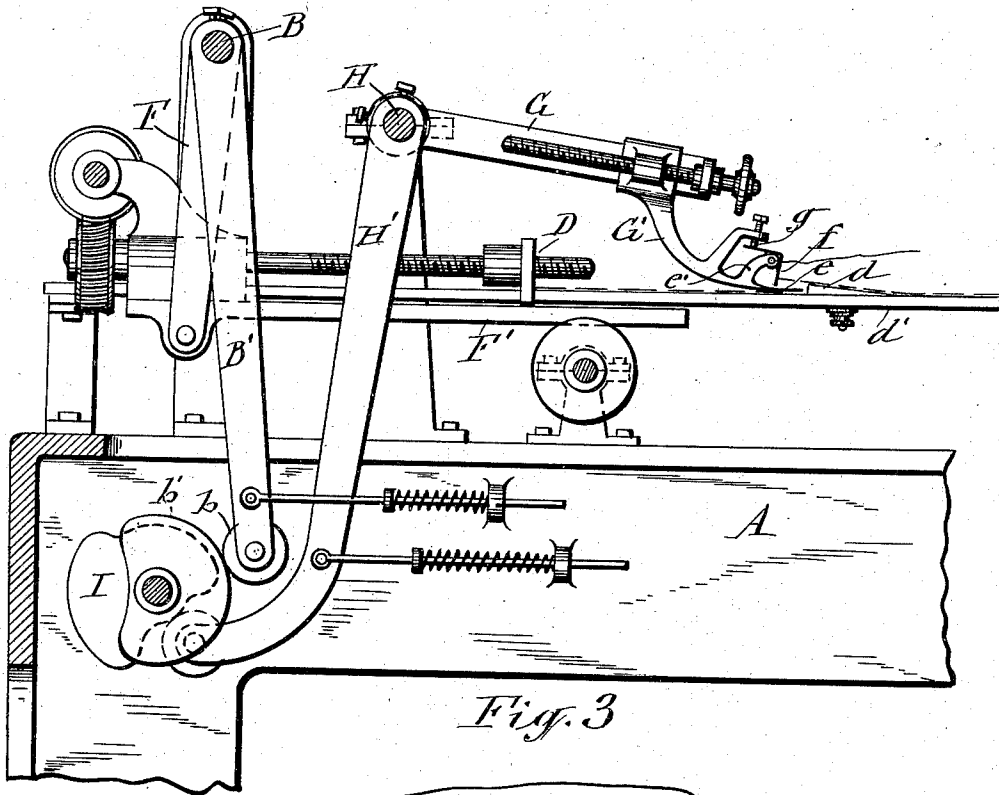


Fig. 3

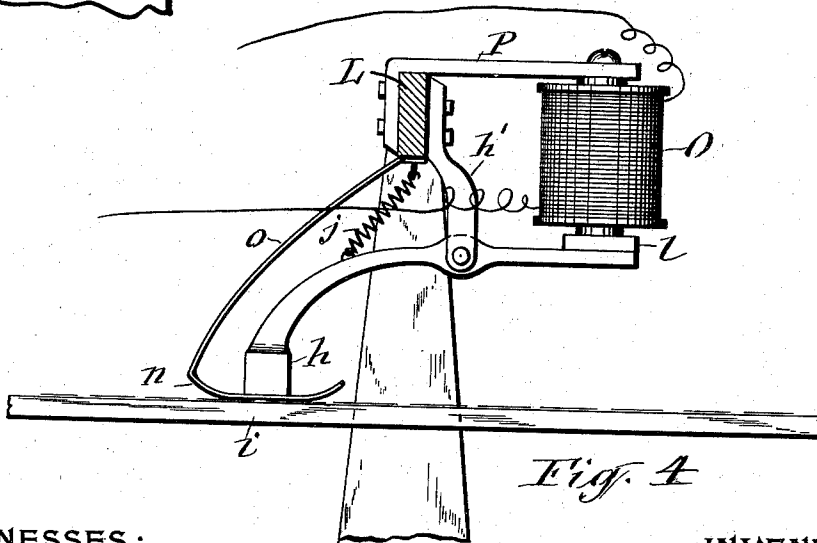


Fig. 4

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UNITED STATES PATENT OFFICE.

TALBOT C. DEXTER, OF PEARL RIVER, NEW YORK, ASSIGNOR TO THE
DEXTER FOLDER COMPANY, OF NEW YORK, N. Y.

PAPER-REGISTERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 567,564, dated September 8, 1896.

Application filed March 13, 1896. Serial No. 582,999. (No model.)

To all whom it may concern:

Be it known that I, TALBOT C. DEXTER, of Pearl River, in the county of Rockland, in the State of New York, have invented new and useful Improvements in Paper-Registering Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of paper-registering devices in which a pin or point enters a slit made in the paper for that purpose.

My present invention is designed more particularly for registering thin and flimsy paper fed to paper-folding machines for the purpose of folding said paper. In practice it is found very difficult to register such paper by means of points automatically entering slits made in the paper during its passage through the printing-press from whence the paper is delivered to the folding-machine. Said difficulty is due to the rapid motion imparted to the paper by the traveling tapes which carry the paper across the folding-machine and to a position to cause the registering-points to enter the slits in the paper, which points are necessarily very narrow, and therefore the thin flimsy sheet is liable to buckle against said registering-points and the entire sheet is liable to be thrown into an undulating plane by the continuous propulsion received from the tapes after the aforesaid engagement of the registering-points.

The purpose of this invention is to overcome the aforesaid difficulties so as to accurately register such thin and flimsy paper; and to that end my present invention consists, essentially, in the combination with the sheet-conveying tapes and an automatic point-feed instrument, a sheet-restraining brake normally in position to release the sheet and engaging the sheet to check the motion thereof in time to retain said sheet in its registered position; and the invention also consists in certain novel features of the details of construction, all as hereinafter fully described and specifically set forth in the claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of a paper-folding machine equipped with my improved paper-registering devices, taken on the line

xx in Fig. 2. Fig. 2 is a plan view of the same. Fig. 3 is an enlarged side elevation of the paper-registering mechanism, and Fig. 4 is an enlarged side view of the sheet-restraining brake.

Similar letters of reference indicate corresponding parts.

R R denote the paper-folding rolls, C is the knife which tucks the sheet between said rolls, and aa are the endless tapes which convey the paper to a position to be registered in relation to the folding-rolls preparatory to being folded.

D represents the front stop, against which the front edge of the sheet is caused to abut, and said sheet is thus arrested in its movement received from the tapes aa . Said front stop is made to intermittently recede from its normal position for the purpose hereinafter explained. Said movement is produced by means of a rock-shaft B, extending across the machine and mounted in suitable supports on the sides of the main frame A. An arm B' is fastened to the end of said shaft and has pivoted to its free end a roller b , by which it bears on a rotary cam b' , which receives motion from the actuating-gears of the folding-machine by any suitable mechanism, an exemplification of one of which is indicated by the dotted lines c in Fig. 1 of the drawings. To the aforesaid rock-shaft are attached two other suitable depending arms F F, the free ends of which are connected to bars F' F', which carry the aforesaid front stop. Back of this front stop are the bridges d , which are secured to longitudinal stationary bars d' , arranged with their tops even with the usual paper-supporting bars, which are parallel with the bars d' , as shown in Fig. 2 of the drawings. Said bridges are in the paths of the slitted portions of the sheet and rise gradually toward the front stop D to lift said portions of the sheet in its transit over the bridges. In front of each of said bridges is a sheet-depressor, consisting of a supplemental arm G', secured longitudinally adjustable to a rock-arm G, which is fastened to a rock-shaft H, extending across the machine and actuated by a lever H', attached to the end of the shaft and having its free end held in contact with a rotary cam I, which imparts an

oscillatory motion to said lever. By the motion of this lever the arm G receives its rocking motion, which causes the supplemental arm G' to move toward and from the paper immediately in front of the bridge. The free end of said supplemental arm is provided with a tongue *e*, extending toward the bridge, and back of said tongue is a lug *e'*, rising from the said arm and having a finger *f* pivoted to it, so as to render the movement of said finger very sensitive. One end of this finger is in a pendent position and in proximity to the top of the tongue. Said finger constitutes the movable terminal of an electric-circuit maker and breaker. The other terminal *g* of said circuit is supported on the supplemental arm in such a position as to be in proximity to the upper end of the finger *f*, but out of contact therewith when said finger is in its normal position.

Over the rear portion of the folding-machine and in position to engage the rear end portion of the sheet in transit are two electrically-controlled sheet-restraining brakes *h*, which are directly over stationary bars *i* arranged between the tapes *a a*, and with their tops even with the plane of said tapes.

I prefer to form the brake *h* of a small lever pivoted intermediate its length to a hanger *h'* attached to a bar L, which extends across the machine and is fastened to suitable supports on the sides of the main frame A. The sheet-restraining end of the said brake-lever is normally lifted from the path of the sheet by means of a suitable spring *j* connecting said portion of the brake-lever either to the cross-bar L, as shown, or to the hanger *h'*. To the opposite end of the brake-lever is attached the armature *l* of the magnet O, which latter is supported on a bracket P attached to the cross-bar L, as more clearly shown in Fig. 4 of the drawings. Under the brake *h* is a shoe or guard *n*, which is curved upward in front and rear of the brake to prevent the sheet in transit from becoming caught and torn while moving under the brake. Said guard may be either attached directly to the brake or supported independently thereof by means of a spring-arm *o* connecting the guard to the cross-bar L, as shown. The magnet O is in circuit with the circuit maker and breaker *f g*, hereinbefore described, and the battery or generator of said circuit is represented at *t* in Fig. 1 of the drawings.

The operation of my described paper-registering devices is as follows: The sheet is fed onto the folding-machine by the sheet-conveying tapes *a a* in the usual manner. In said movement the front edge of the sheet is brought in contact with the front stop D and at the same time the slitted portions of the sheet are carried onto the bridges *d*. Then the rock-arms G descend and cause the tongue *e* thereof to slightly depress the sheet immediately in front of the bridges *d*, and thereby open the slits in the sheet. Then the front stop D recedes and allows the traveling tapes *a a* to

start the sheet forward. In this latter movement the raised edges of the slitted portions of the sheet come in contact with the free ends of the depending fingers *f*, which are thereby tilted so as to bring the opposite ends of said fingers in contact with the electric terminals *g*, and thereby close the circuit. The magnets O, which are thereby energized, attract the armatures *l*, and thus press the brakes *h* onto the top of the sheet in transit and arrest the movement thereof and retain the sheet in its registered position. The brakes retain their hold on the sheet until the knife C descends and tucks the sheet between the folding-rollers R R. This impact of the knife draws the sheet from the fingers *f*, which then immediately resumes its normal position, and thereby breaks the electric circuit. The magnets O being deprived of energy, they release their armatures *l* and allow the brakes *h* to be drawn up and out of contact with the sheet by the spring *j*. The sheet is thus free to be drawn into the bite of the folding-rollers. Simultaneously with the aforesaid breaking of the circuit the rock-arm G rises and by means of the tongues *e*, which have entered into the slits in the sheet, it lifts the slitted portions of the sheet so as to prevent said portions from catching on the bridges and tearing the sheet during the draft thereof into the bite of the folding-rollers.

Having described my invention, what I claim is—

1. In combination with the sheet-conveying tapes, a sheet-restraining brake movable to and from the rear end portion of the sheet in transit, an electromagnet controlling said brake, mechanisms automatically opening the slits in the opposite end portion of said sheet, and an electric-circuit making and breaking finger in circuit with the aforesaid magnet and actuated by the edge of the slitted portion of sheet as set forth.

2. In combination with the sheet-conveying tapes, a sheet-restraining brake movable to and from the rear end portion of the sheet in transit, an electromagnet controlling said brake, a tongue entering the slit in the opposite end portion of the sheet, and an electric-circuit maker and breaker in circuit with the aforesaid magnet and actuated by the edge of the opened slit of the paper as set forth.

3. In combination with the sheet-conveying tapes, a sheet-restraining brake movable to and from the rear end portion of the sheet in transit, an electromagnet controlling said brake, a bridge under the path of the slit in the opposite end portion of the sheet, a sheet-depressor immediately in front of said bridge to open the slit, and an electric-circuit making and breaking finger in circuit with the aforesaid magnet and pivoted to the sheet-depressor in position to be actuated by the edge of the slitted portion of the sheet as set forth.

4. In combination with the sheet-conveying tapes, a sheet-restraining brake movable to

and from the rear end portion of the sheet in transit, an electromagnet controlling said brake, a bridge under the path of the slit in the opposite end portion of the sheet, an arm movable to and from the sheet in front of the bridge, a tongue on said arm entering the slit and lifting the sheet from the bridge, and a circuit making and breaking finger pivoted to the arm and actuated by the edge of the slitted portion of the sheet as set forth.

5. In combination with the sheet-conveying tapes, an intermittently receding front stop, a sheet-restraining brake movable to and from the rear end portion of the sheet, an electromagnet controlling said brake, a bridge under the path of the slit in the opposite end portion of the sheet, an arm movable to and from the sheet in front of the bridge to open the slit and an electric-circuit maker and breaker having one of its terminals pivoted to the aforesaid arm and the free end of said terminal in the path of the edge of the opened slit to be actuated thereby as set forth.

6. In combination with the paper-folding rolls and knife and sheet-conveying tapes, an electrically-controlled sheet-restraining brake over the rear end portion of the sheet in transit, a tongue entering the slit in the opposite end portion of the sheet, and an electric-circuit maker and breaker in circuit with the aforesaid brake and having one of its terminals sensitively supported over the aforesaid tongue to be actuated by the edge of the slitted portion of the sheet and resume its normal position by its release from said edge incident to the impact of the folding-knife upon the sheet as set forth.

7. In combination with the sheet-conveying tapes, an intermittently receding front stop, a sheet-restraining brake over the rear end portion of the sheet in transit, an electromagnet controlling said brake, a sheet-lifting bridge in the path of the slit in the opposite end portion of the sheet, a rock-arm movable

toward and from said portion of the paper, a supplemental arm connected longitudinally adjustable to said rock-arm, a sheet-depressing tongue carried on the supplemental arm in front of the aforesaid bridge, and a circuit making and breaking finger in circuit with the aforesaid magnet and pivoted to the supplemental arm to carry the free end of said finger in the path of the edge of the slitted portion of the sheet as set forth and shown.

8. In combination with the sheet-conveying tapes and front stop, a rigid plate disposed between said tapes and even with the plane thereof, a brake-lever over said plate and movable to and from the same, a spring lifting the brake-lever, a guard supported yieldingly under the brake, an electromagnet depressing said brake-lever, and a circuit maker and breaker actuated by the sheet in transit and controlling the aforesaid magnet as set forth.

9. In combination with the sheet-conveying tapes, intermittently receding front stop, sheet-restraining brake over the rear end portion of the sheet in transit and an electromagnet controlling said brake, a sheet-lifting bridge back of the front stop, a rock-arm movable toward and from the sheet in front of said bridge, a tongue on said arm entering the slit in the sheet, a lug rising from the arm in proximity to the tongue, and a circuit making and breaking finger in circuit with the aforesaid magnet and pivoted to the aforesaid lug to carry the free end of said finger in proximity to the front of the bridge, substantially as described and shown.

In testimony whereof I have hereunto signed my name this 8th day of November, 1895.

TALBOT C. DEXTER. [L. S.]

Witnesses:

JAS. A. WHITLOCK,
J. LOHMANN.