(No Model.) 3 Sheets—Sheet 1.

T. C. DEXTER.

PAPER REGISTERING MECHANISM.

No. 561,937. Patented June 9, 1896.

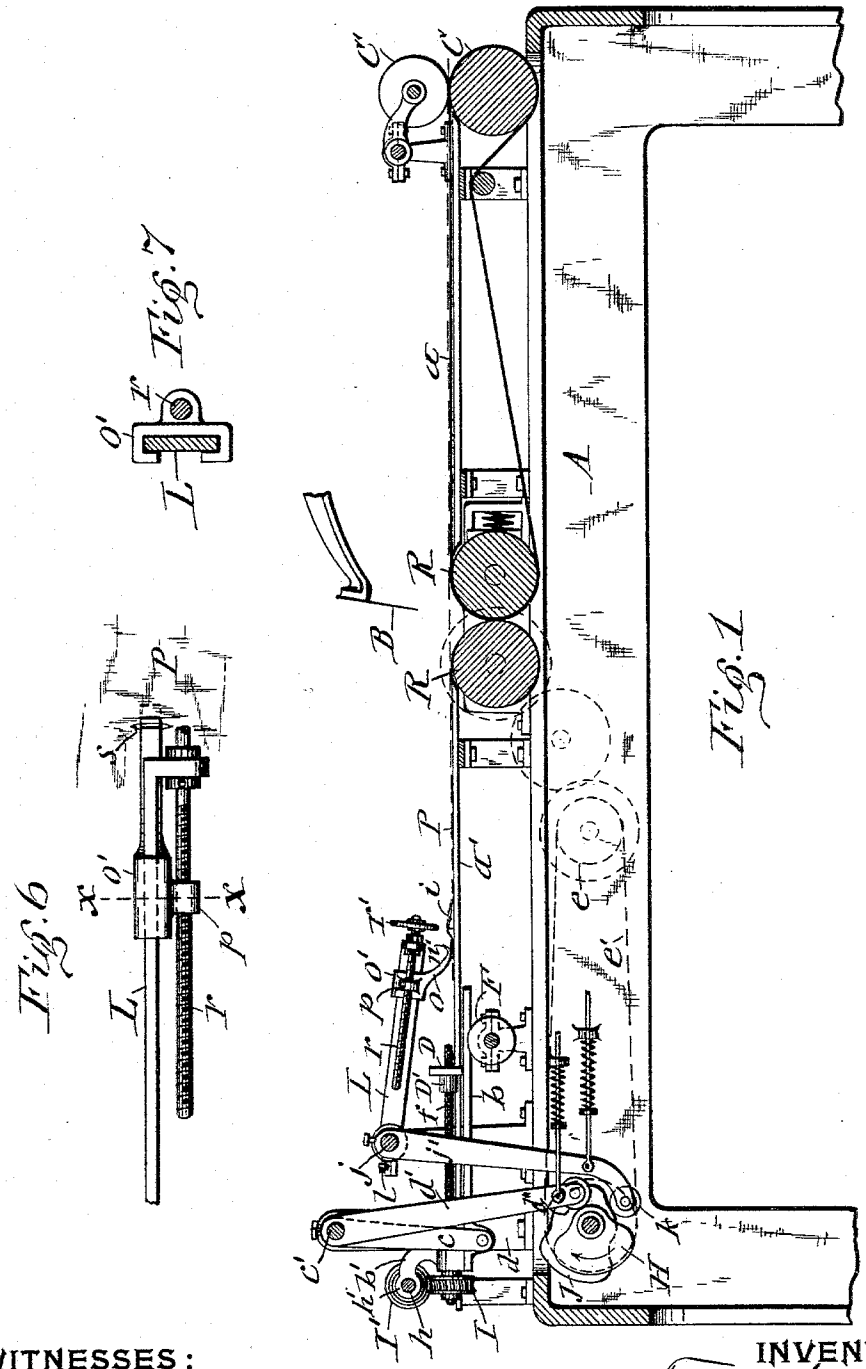


Fig. 1

Fig. 6

Fig. 7

WITNESSES:

C. L. Bundy

C. E. Tomlinson

INVENTOR:

Talbot C. Dexter

By E. Laass

his ATTORNEY

ANDREW B. GRAHAM, PHOTO-LITHO. WASHINGTON, D.C.

(No Model.) 3 Sheets—Sheet 2.

T. C. DEXTER.

PAPER REGISTERING MECHANISM.

No. 561,937. Patented June 9, 1896.

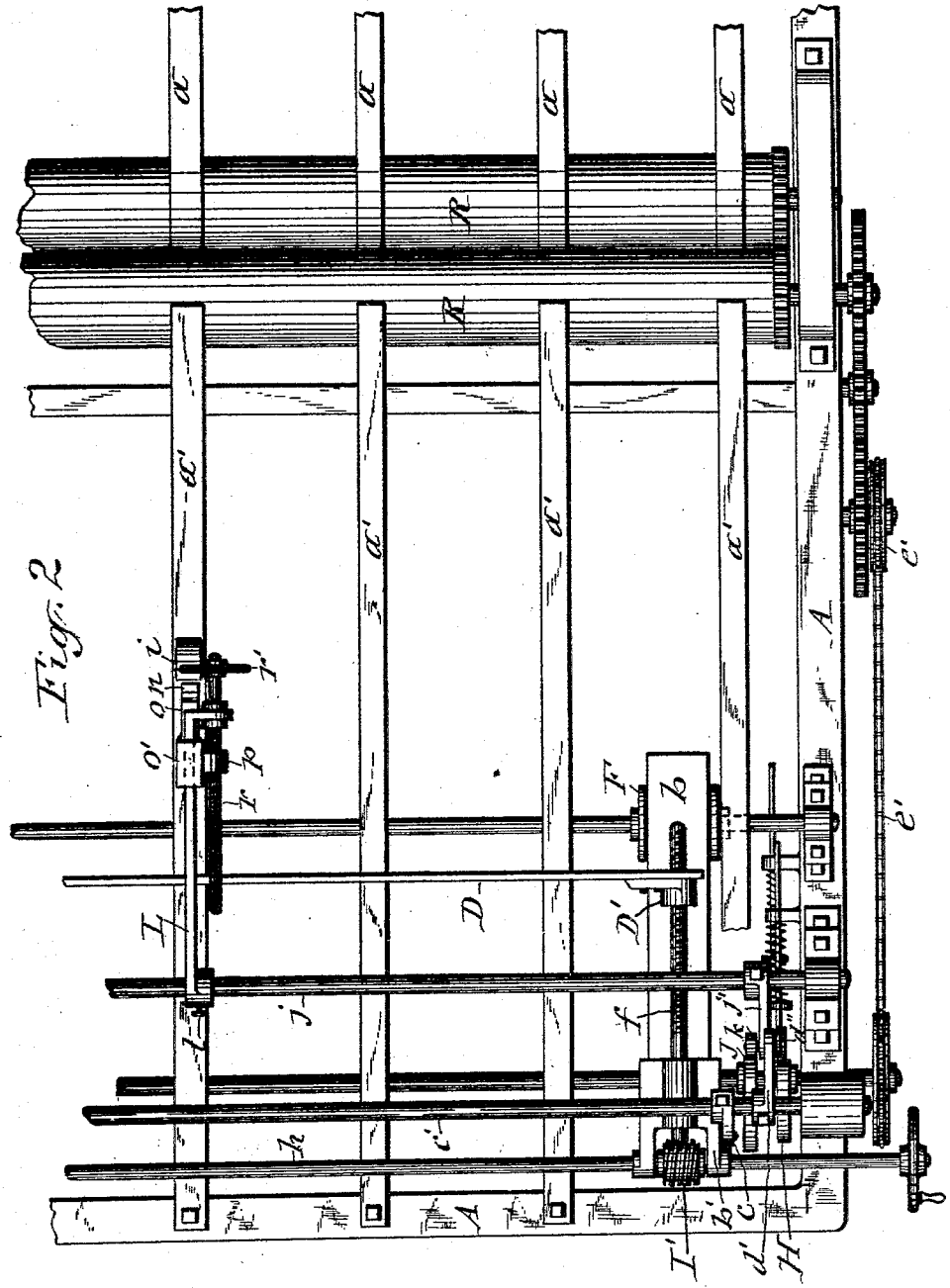


Fig. 2

WITNESSES:

C. L. Bendixon

J. J. Laass.

INVENTOR:

Talbot C. Dexter

By E. Laass

his ATTORNEY

ANDREW B. GRAHAM, PHOTO-LITHO, WASHINGTON, D.C.

(No Model.) 3 Sheets—Sheet 3.

T. C. DEXTER.

PAPER REGISTERING MECHANISM.

No. 561,937. Patented June 9, 1896.

Fig. 3

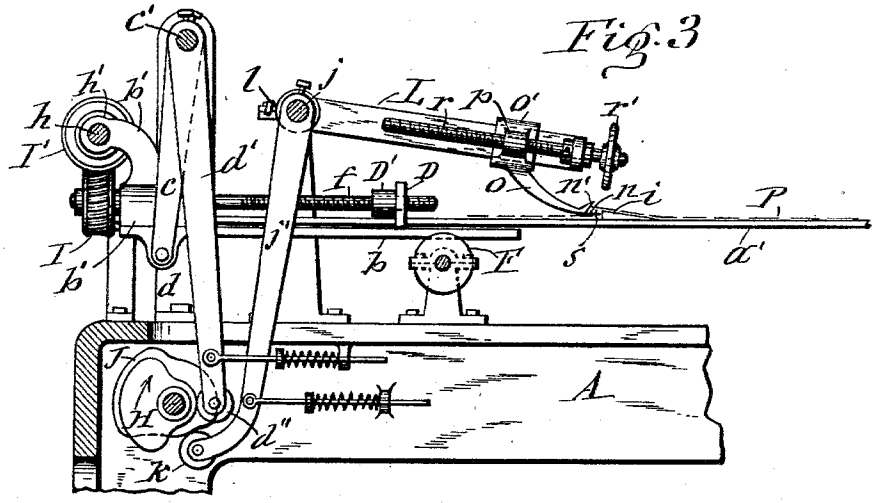


Fig. 4

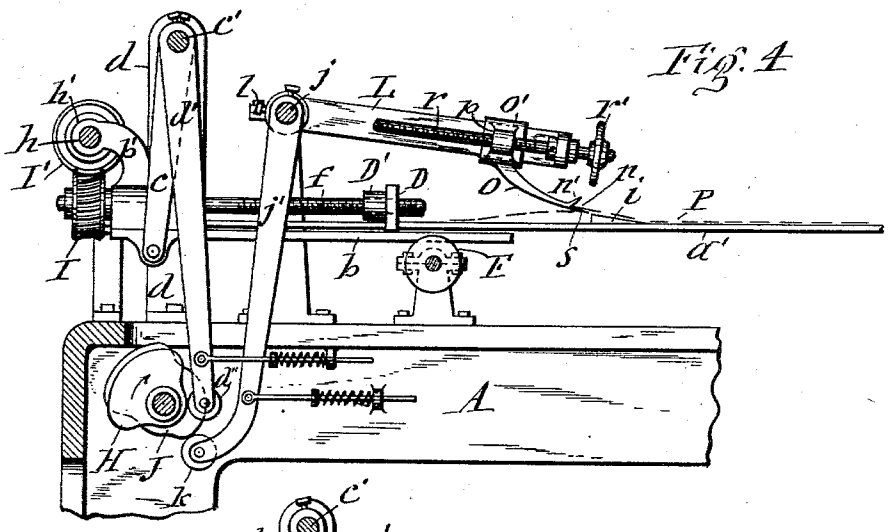
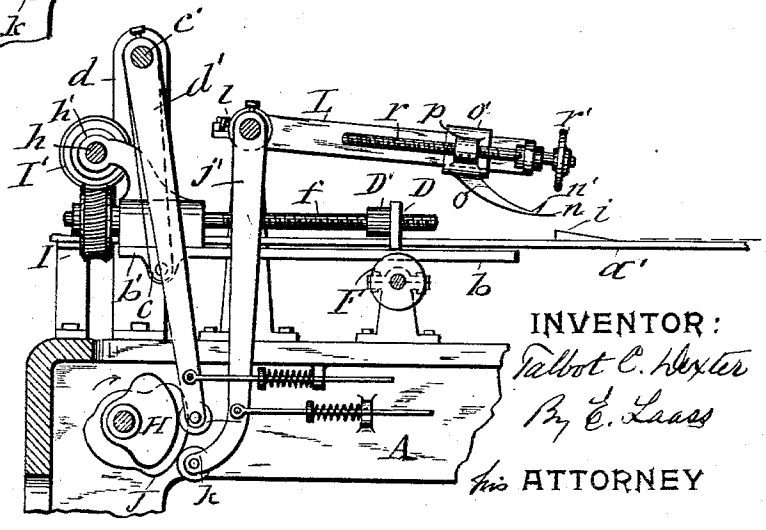


Fig. 5



WITNESSES:
C. E. Tomlinson
C. L. Bendixon

INVENTOR:
Talbot C. Dexter
By E. Laass
his ATTORNEY

ANDREW B. GRAHAM, PHOTO-LITHO. WASHINGTON, D. C.

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 MECHANISM.

SPECIFICATION forming part of Letters Patent No. 561,937, dated June 9, 1896.

Application filed November 4, 1895. Serial No. 567,798. (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 Mechanism, 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 which are usually designated "point-feed registering," and in which a point or suitable attenuated instrument is located in the plane of the sheet-carrying table or tapes to enter a slit made on the sheet simultaneously with its passage through the printing-press, from which the sheet is fed to the paper-folding machine equipped with said registering devices. The slit being thus made in precisely the same position in each sheet, insures uniform registering of all the sheets preparatory to being folded.

The object of my present invention is to provide a registering instrument of the aforesaid class in which shall be combined simplicity of construction with great efficiency and reliability of operation; and to that end the invention consists in the novel construction and combination of parts hereinafter described, and 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 registering devices. Fig. 2 is partly a plan view of said devices. Figs. 3, 4, and 5 are enlarged detail views showing the registering devices in their different operative positions. Fig. 6 is an enlarged detached plan view of the supporting-arm of the registering instrument, and Fig. 7 is a transverse section on line $x\,x$ in Fig. 6.

Similar letters of reference indicate corresponding parts.

A denotes the main supporting-frame of the paper-folding machine. R R represent the folding-rolls; B, the blade which tucks the paper between said rolls; C, the feed-roller or tape-carrying roller, upon which run the endless tapes a, which convey the paper to the folding-rolls; and C', one of the drop-rollers which intermittently rise and fall to receive the sheet under it and subsequently press it onto the tapes running on the revolving lower feed-roller C. All of said parts are arranged in the usual manner.

D represents the first-fold gage, by means of which the movement imparted to the paper by the tapes a is arrested preparatory to introducing said paper between the folding-rolls R R. Said gage rides on a bar b, which extends part way toward the folding-rolls and is supported at one end on a roller F and has fastened to its opposite end a bracket b', which is pivotally connected to the end of an arm c, secured to a rock-shaft c', extending across the machine and mounted on suitable supports d on the sides of the frame A. Said rock-shaft receives its motion by means of a lever d', which is fastened to said shaft and has pivoted to its free end a roller d'', by which it bears on the periphery of a rotary cam H, which may be driven either by sprocket-wheels and chains, as indicated by dotted lines at e, e', and e'', or a train of gears, which will readily suggest itself to any mechanic familiar with this class of machines.

The gage D is adjustably attached to the bar b by means of a screw-rod f, which is parallel with said bar and passes with one end through a nut D', attached to the gage. The opposite end of said screw-rod is journaled in the bracket b' and is prevented from moving longitudinally. A pinion I, attached to the outer end of the screw-rod, meshes with a worm-gear I', attached to a shaft h, which is journaled in a bearing h', secured to the bracket b'. To the end of said shaft is attached a hand-wheel g or other suitable device by which to turn the shaft, which by means of the worm I' and pinion I turns the screw-rod f, so as to move the gage D back or forth on the bar b, and thereby adjust said gage for different lengths of paper fed to the machine.

The gage D receives intermittent forward and rearward motion by the hereinbefore-described connection of the bar b to the rock-shaft c'. Between said gage and the folding-rolls R R is located the bridge i, which projects above the usual paper-carrying bars a' and has its top inclined to rise gradually above the plane of said bars toward the gage and is terminated abruptly at its highest point, as

more clearly shown at i' in Figs. 3, 4, and 5 of the drawings.

Over the plane of the paper-carriers a' is an arm L, attached to a rock-shaft j, extending across the machine and journaled in posts mounted on the sides of the frame A. Said rock-shaft is actuated by a lever j', attached thereto and provided on its free end with a roller k, by which it bears on the periphery of a rotary cam J.

The arm L is adjustably secured to the rock-shaft by means of a set-screw l, which permits said arm to be set at different angles of inclination toward the bridge i. On the free end of said arm is rigidly sustained the paper-registering instrument, consisting of the point or tongue n and upwardly-projecting shoulder n', operating on the paper, as hereinafter described.

In order to allow the registering instrument n n' to be properly adjusted in its position in relation to the bridge i, said instrument is formed on the end of a finger o, extending from a shoe o', which is mounted longitudinally adjustable on the arm L and has attached to it a nut p, which is axially parallel with the arm and has passing through it a screw-rod r, journaled on the arm, so as to prevent it from sliding longitudinally thereon and provided with a hand-wheel r', by which to turn said rod, and thereby move the shoe o' back or forth on the arm. The cam J, from which the arm L derives an intermittent oscillatory motion in a vertical plane, has three successive cam-faces different distances from the axis of the cam, so as to lift the free end of the arm L twice in succession with increased heights from the bridge i, for the purpose hereinafter explained.

In the operation of the folding-machine the sheet of paper is carried over the folding-rolls R R by means of the tapes a a in the usual way until said sheet is brought in contact with the gage D, which temporarily arrests the motion of the sheet. The arm L, which has in the meantime been lifted to its extreme elevation by the cam J, as represented in Fig. 5 of the drawings, then descends to bring the tongue n to bear on the sheet sufficiently to strain the paper slightly downward in front of the high end of the bridge i. Then the gage D is made to recede from the edge of the sheet by the cam H, and the sheet is thus relieved from said obstruction and is only subjected to the slight bearing of the tongue n, which does not exert sufficient friction on the paper to overcome the sheet-propelling power of the carrying-tapes a. The result is that as soon as the gage D has receded the tapes start the sheet forward again, and in this movement the slit s in the sheet P is carried directly over the bridge i, and by the upward pressure of said bridge against the under side of the sheet and downward pressure of the tongue n upon the sheet in front of the bridge the slit s is opened, so as to allow said tongue to readily enter said slit, as illustrated in Fig. 6 of the drawings. The forward movement of the sheet is subsequently positively arrested by the edge of the slitted portion of the paper abutting against the rigidly-sustained shoulder n' of the registering instrument, as illustrated in Fig. 3 of the drawings, said shoulder constituting the registering device proper. When the sheet is thus arrested, it is adjusted to perfect position in relation to the folding-rolls R R to insure accuracy in the fold of the sheet. The aforesaid effect of the registering instrument is insured by the adjustment of the attaching-shoe o' on the arm L, as hereinbefore described.

To allow the slitted portion of the sheet to be subsequently drawn toward the folding-rolls R R by the folding-blade B, tucking the central portion of the sheet between said rolls, the arm L is lifted by the cam J sufficiently to cause the tongue n to raise the slitted portion of the sheet about one-eighth of an inch above the highest point of the bridge i before the blade B strikes the sheet to tuck it between the folding-rolls, as shown in Fig. 4 of the drawings. As soon as the sheet has passed between the folding-rolls, the second lift of the cam J raises the free end of the arm still higher, as represented in Fig. 5 of the drawings, to allow the next sheet to freely pass under it and receive the first check to its motion by coming in contact with the gage D, which is moved toward the bridge i simultaneously with the second lift of the arm L.

The described registering devices are designed for operating on paper of sufficient stiffness to prevent the edge of the slitted portion of the sheet from being crimped by its contact with the shoulder n' of the registering instrument.

What I claim as my invention is—

1. A point-feed-registering instrument moving automatically toward and from the plane of the sheet-carriers and provided with a rigidly-sustained shoulder engaging the edge of the slitted portion of the sheet to arrest the forward movement thereof and thereby register the same as set forth.

2. In combination with the folding-rolls, sheet-conveyers, sheet-carriers, sheet-arresting gage movable toward and from the folding-rolls to temporarily arrest the movement of the sheet, and a slit-opening bridge in the plane of the sheet-carriers, an arm movable toward and from the plane of said carriers, and a registering instrument sustained rigidly on said arm and provided with a shoulder in front of the bridge to positively arrest the movement of the sheet by the abutment of the edge of the slitted portion of the sheet against said shoulder as set forth.

3. In combination with the sheet-conveyers, sheet-carriers, intermittently-receding gage and the bridge in the plane of the sheet-carriers, a rock-shaft extending across the machine, an arm extending from said rock-shaft toward the bridge, and a registering in-

strument sustained rigidly on the free end of said arm and depressing the sheet in front of the bridge and provided with a shoulder to positively arrest the movement of the sheet by the edge of the slitted portion thereof abutting against said shoulder as set forth.

4. The combination with sheet-conveyers, sheet-carriers, intermittently-receding gage and the bridge in the plane of said carriers, a rock-shaft extending across the machine, an arm extending from said shaft toward the bridge and adjustable to different angles of inclination, a shoe connected to the free end of said arm adjustable lengthwise thereof and a registering instrument rigidly attached to said shoe and formed with a tongue depressing the sheet in front of the bridge and with a rigid shoulder to positively arrest the movement of the sheet by the abutment of the edge of the slitted portion thereof against said abutment, substantially as described and shown.

5. In combination with the sheet-conveyers, sheet-carriers, and sheet-registering instrument, the rock-shaft c', the arm c attached to said shaft, the bar b connected at one end to said arm, the roller F supporting the opposite end of said bar, and the gage D mounted on the bar as set forth and shown.

6. In combination with sheet-conveyers, sheet-carriers, and registering instrument, the rock-shaft c', the arm c attached to said shaft, the bracket b' connected to the free end of the arm, the bar b attached at one end to said bracket, the roller F supporting the opposite end of said bar, the gage D mounted on the bar and provided with the nut D' and the screw-rod f journaled in the aforesaid bracket and working said nut, substantially as described and shown.

In testimony whereof I have hereunto signed my name this 17th day of October, 1895.

TALBOT C. DEXTER. [L. S.]

Witnesses:

JAS. A. WHITLOCK,

V. E. MARSH.