

No. 649,822.

Patented May 15, 1900.

T. C. DEXTER.
PAPER REGISTERING INSTRUMENT.

(Application filed June 5, 1899.)

(No Model.)

3 Sheets—Sheet 1.

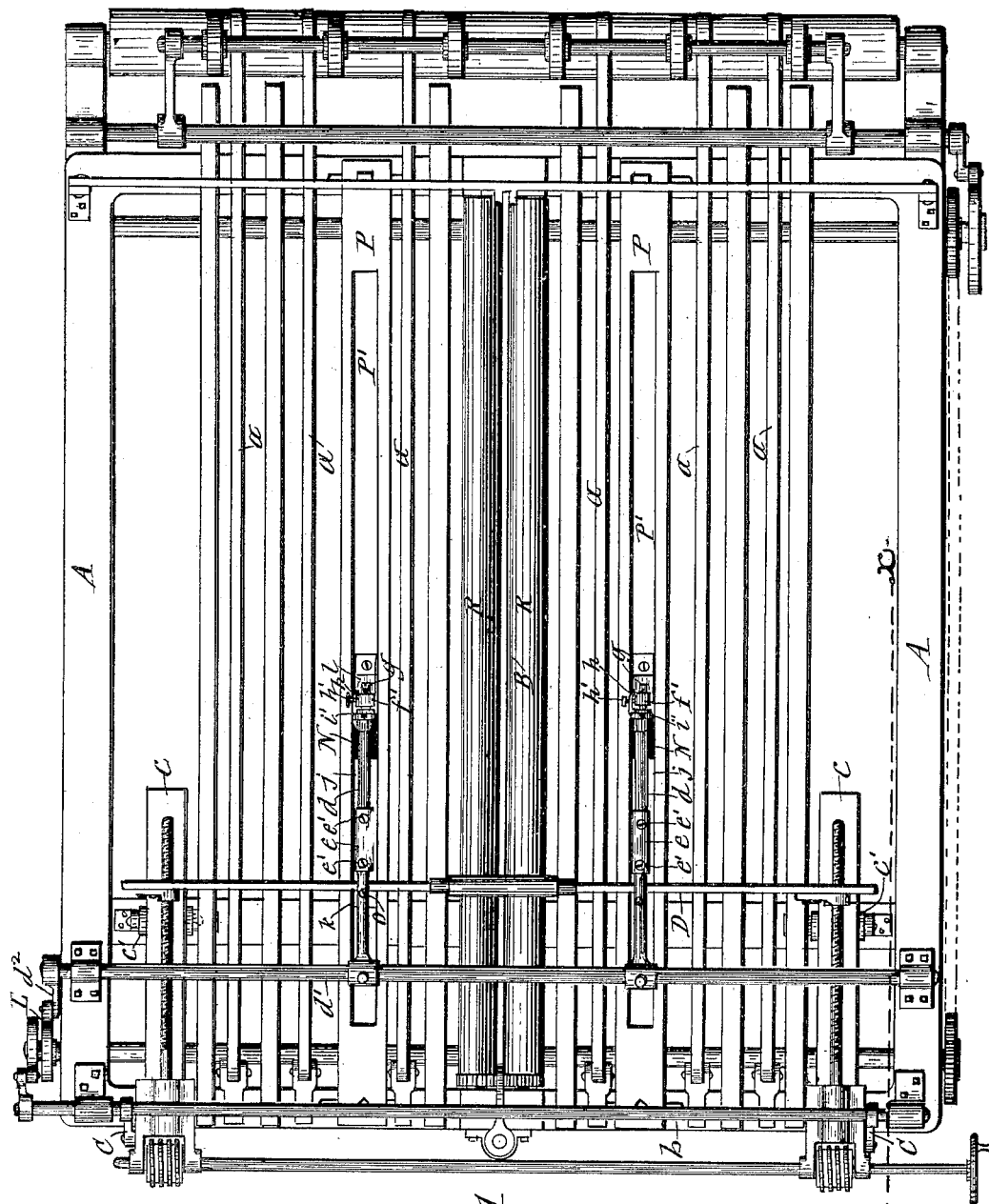


Fig. 1

WITNESSES:

J. J. Laury

Chas. H. Lilley

INVENTOR

Talbot C. Dexter

By E. Laury

his ATTORNEY

No. 649,822.

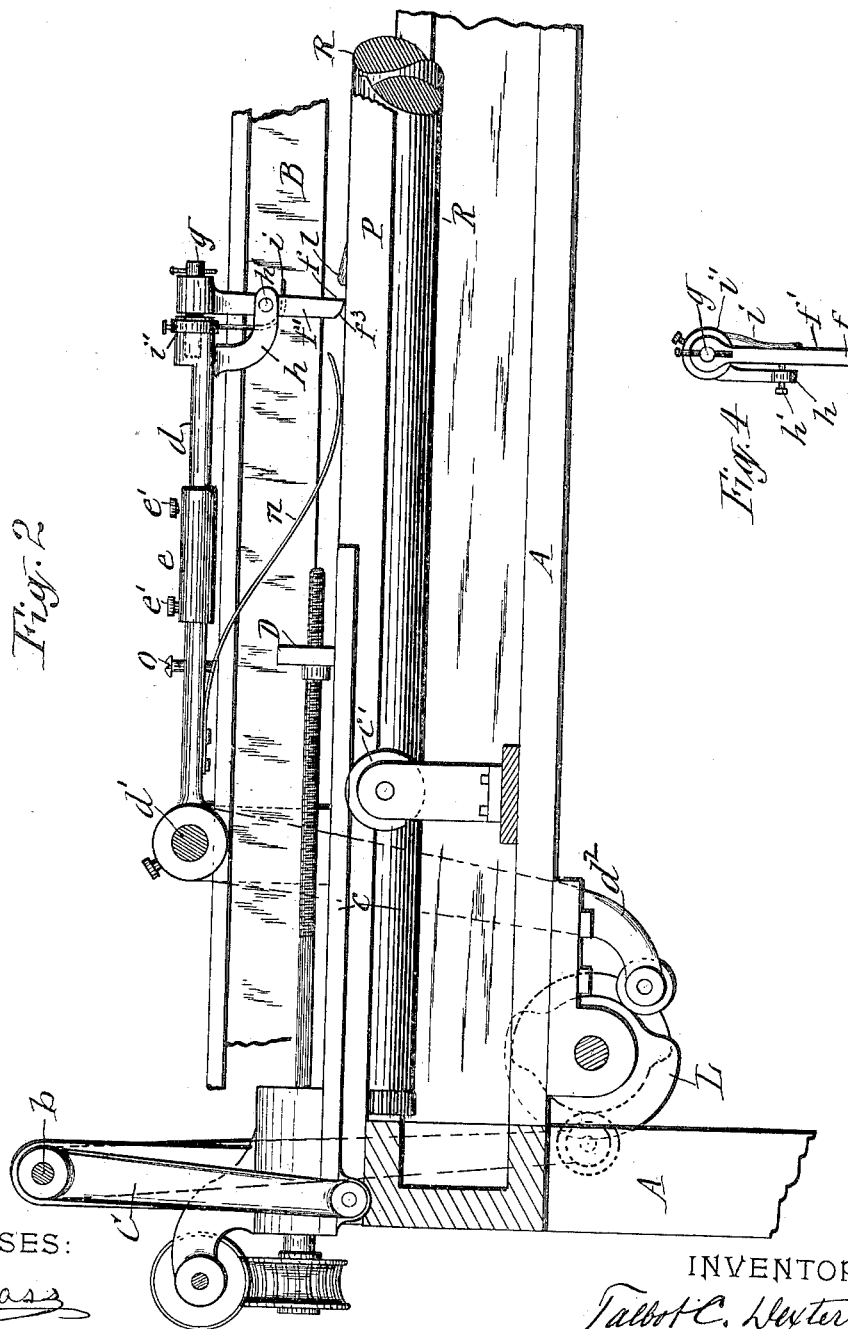
Patented May 15, 1900.

T. C. DEXTER.
PAPER REGISTERING INSTRUMENT.

(Application filed June 5, 1899.)

(No Model.)

3 Sheets—Sheet 2.



WITNESSES:

J. J. Laass

Chas H. Tilley

INVENTOR

Talbot C. Dexter

By E. Laass
his ATTORNEY

No. 649,822.

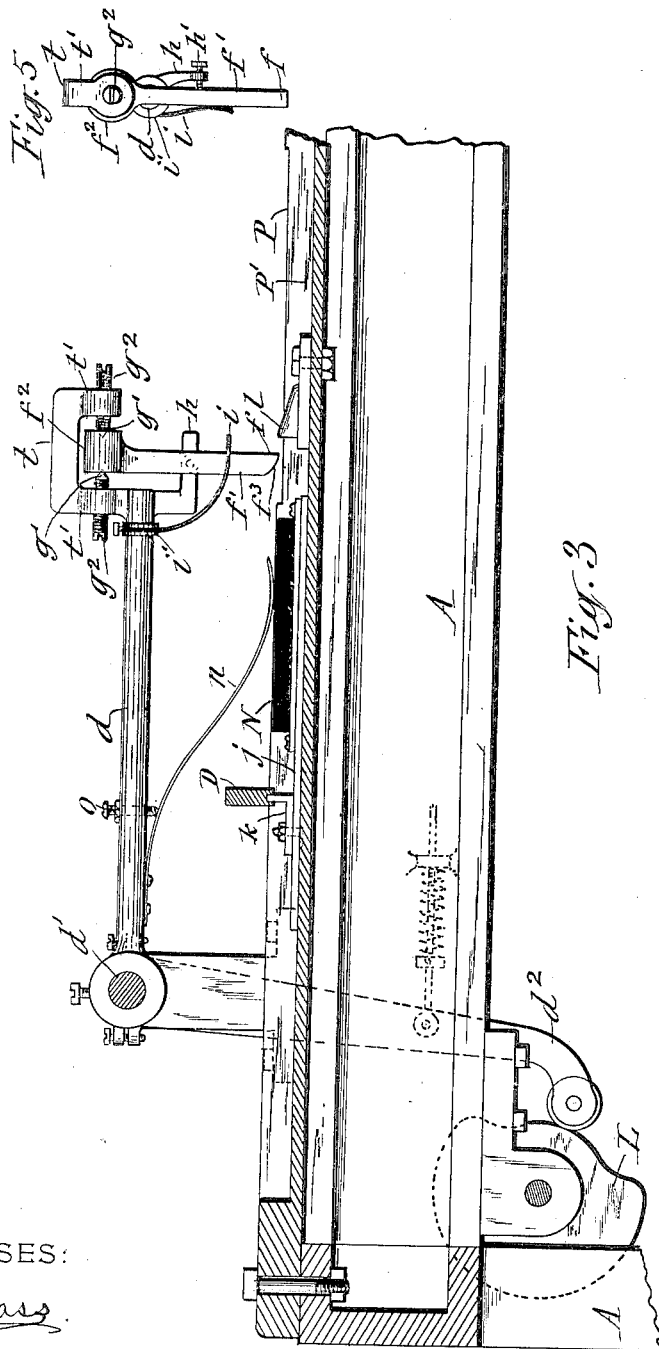
Patented May 15, 1900.

T. C. DEXTER.
PAPER REGISTERING INSTRUMENT.

(Application filed June 5, 1899.)

(No Model.)

3 Sheets—Sheet 3.



WITNESSES:

J. J. Laass.
Chas. H. Liley

INVENTOR

Talbot C. Dexter

By E. Laass

his ATTORNEY

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 INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 649,822, dated May 15, 1900.

Application filed June 5, 1899. Serial No. 719,411. (No model.)

To all whom it may concern:

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

This invention relates to a paper-registering instrument designed to be used on a paper-folding machine having the folding-rollers parallel with the tapes which deliver the paper to be folded or on other machines equipped with paper-delivering tapes and with means for withdrawing the delivered paper laterally from said tapes.

The object of the invention is to provide an instrument which shall register the paper accurately upon the tapes by the engagement of said instrument with a slitted portion of the paper and to permit the subsequent lateral withdrawal of the registered paper from the tapes without danger of tearing the paper or throwing it out of register; and to that end the invention consists in the improved construction and combination of parts hereinafter described and claimed.

In the annexed drawings, Figure 1 is a plan view of a paper-folding machine provided with my improved paper-registering instrument. Fig. 2 is an enlarged vertical longitudinal section on line X X in Fig. 1. Fig. 3 is a vertical longitudinal section of a modification of my invention; and Figs. 4 and 5 are end views of the registering instruments shown in Figs. 2 and 3, respectively.

A represents the main frame of a paper-folding machine.

a a denote the usual tapes which carry the paper into the machine, and R R are the paper-folding rollers, which in this case are disposed parallel with the aforesaid tapes.

B is the blade, which tucks the paper into the bite of the folding-rollers in the usual and well-known manner, and D is the front stop, which temporarily arrests the movement of the paper preparatory to registering the paper and properly alining it in relation to the folding-rollers, into which the registered pa-

per is subsequently introduced. Said front stop is made to alternately advance and recede to and from its paper-arresting position by means of arms C C, fixed in pendent positions to an intermittently-operating rock-shaft *b* and connected at their lower ends to longitudinal bars *c c*, which ride on rollers *c' c'* and have secured to them the said front stop.

The instruments which register the paper are located at opposite sides of and equidistant from the folding-rollers and are connected to vertically-movable bars which carry the registering instruments to and from the paper to be registered. I preferably connect said instruments to the free ends of arms *d d*, which are fastened to a rock-shaft *d'*, extending across the machine and mounted in suitable supports on the frame A. Said shaft receives motion from a lever *d²*, attached to the end of the shaft and bearing on a rotary cam L, which imparts oscillatory motion to said lever. I preferably form each of said arms *d* of two end sections, which are adjustably united by means of a sleeve *e*, embracing the adjacent ends of said sections and clamped thereon by set-screws *e' e'*. Said arms are thus adjustable to carry the registering instruments a greater or less distance from the receiving end of the machine, according to the position of the registering-slit in relation to the advance edge of the paper to be registered. Said instruments are also adjustable in relation to their distance from the folding-rollers R R, which adjustment is obtained by loosening the set-screws which fasten the arms *d* to the rock-shaft, and after shifting said arms longitudinally on the shaft again fastening the arms by tightening the set-screws.

The registering instrument proper consists of a vertical breast or face *f* on the free end of an arm *f'*, which is suspended from a pivot *g*, projecting from the free end of the arm *d* and axially parallel with the tapes *a* and folding-rollers R R, as shown in Fig. 2 of the drawings. Said registering instrument is thus capable of swinging in an arc at right angles to the travel of the tapes and toward and from the folding-rollers to freely yield to the

lateral draft exerted on the paper in the operation of the blade B tucking the paper into the bite of the folding-rollers.

The return movement of the registering instrument is arrested at its requisite registering position by means of a suitable stop on the arm *d*. This stop I preferably form of a rigid limb *h*, extending from the arm *d* and having its free end in the path of the registering instrument and provided with an adjustable set-screw *h'*, which by its contact with said instrument determines its registering position. A spring *i*, attached to a collar *i'* on the arm *d*, holds the registering instrument yieldingly in contact with the set-screw *h'*. The collar *i'* is adjustably connected to the arm *d* to permit the tension of the spring to be regulated.

The simple construction of the registering instrument, consisting of the plain vertical face *f*, dispensing with the tongue or point usually attached to the bottom of the registering-arm *f'* to depress the paper and subsequently enter into a slit in the paper, is one of the important features of my present invention in that it reduces the cost of construction and guards more effectually against the straining and tearing of the slitted portion of the paper. Said plain registering face or breast *f* is formed on the arm *f'* at the side presented toward the paper-receiving end of the machine and extends directly from the bottom of the arm, which bottom is sloped upward to the back of the arm, as shown at *f''* in Figs. 2 and 3 of the drawings, and merely serves to depress the paper directly in front of the bridge *l*, and thereby raise the rear edge of the slit in the paper, so as to insure the abutting of said edge against the breast *f*, and thereby accurately register the paper. The bridge *l* is adjustably secured to a stationary longitudinal bar *P*, which is provided with a longitudinal groove *P'*, in which slides a bar *j*, connected to the alternately advancing and receding front stop *D*, so as to move in unison therewith. The connection of the bar *j* to the front stop is illustrated in Fig. 3 of the drawings and consists of an L-shaped plate *k*, secured to the top of the bar *j*, adjustable lengthwise thereof and interlocked with a notch in the under side of the front stop.

N represents a pad of rubber or leather or other suitable material affording a frictional hold on the overlying paper. This pad is firmly secured to the top of the sliding bar *j* and is thus carried back and forth simultaneously with the movement of the front stop *D*. In connection with said pad I employ suitable means for pressing the paper onto the pad with sufficient force to cause the pad to obtain a frictional hold upon the paper and thereby compel the same to move with the pad. One of said means for obtaining the desired effect is shown in the annexed drawings of the form of a spring *n*, which is connected at one end to the arm *d*

and has its free end over the pad *N*, onto which it is made to press when the arm *d* has descended to carry the registering-arm *f'* into its requisite position for registering the paper. Said spring then presses the paper onto the pad *N* sufficiently to cause the frictional hold of said pad to move the paper forward while the registering instrument is in position to engage the slitted portion of the paper.

In order to allow the tension of the spring *n* to be adjusted to exert the required pressure on the paper lying upon the pad *N*, I adjustably attach to the arm *d* a set-screw *o*, which bears on top of said spring.

My invention admits of several modifications of its detail construction. One of said modifications is illustrated in Fig. 3 of the drawings and consists in the manner of pivoting the registering-arm *f'* to the oscillatory arm *d*. In this case the arm *f'* is suspended from two pivots *g'*, disposed axially parallel with the tapes *a* and bearing on the front and rear of the hub *f''*, formed on the upper end of the arm *f'*. Said pivots are formed on the ends of screws *g'' g''*, which pass through screw-threaded eyes in vertical portions *t' t'* of a bracket *t*, fixed to or formed on the free end of the arm *d*. These screws permit the registering-arm *f'* to be adjusted to register sheets having the registering-slits different distances from the advance edge of the sheets. Hence by the use of said screws *g'' g''* adjustment of the length of the oscillatory arm *d* may be dispensed with.

In the operation of the paper-folding machine the paper is carried into the machine by the tapes *a a* in the usual manner. During this travel of the paper the registering instruments *f* are lifted by the oscillatory arms *d* to allow the paper to freely pass under them. At the same time the front stop *D* is in its innermost position to arrest the travel of the paper in an approximately-proper position to be folded. Then the arms *d d* descend and cause the registering instruments *f f* to depress the paper in front of the bridges *l l*, and at the same time the springs *n* are caused to press the paper into frictional contact with the pads *N N*. Then the front stop *D* moves forward, and thereby recedes from its aforesaid position and draws forward with it the two pads *N N*, which by their frictional hold on the overlying paper cause said paper to move with the pads. In this movement the slitted portions of the paper are drawn over the bridges *l l*, which by the aid of the downward pressure of the registering instruments open the slits in the paper and lift the rear edges of the slits, so as to cause said edges to abut against the breasts *f* of the registering instruments. This abutment prevents further advance movement of the paper and causes the advance portion of the paper to be withdrawn from the farther-advancing pads *N N* and relieve the paper from the forward-propelling force of said pads. This leaves the paper in its registered position. The blade *B* then de-

scends and tucks the paper into the bite of the folding-rollers R R, which withdraw the paper laterally from the tapes *a a*. In this lateral draft of the paper the registering-arms *f' f'* yield in the direction of the movement of the paper by swinging in an arc at right angles to the tapes *a a* and toward the folding-rollers R R. As soon as the paper has thus been withdrawn from the tapes the arms *d d* rise and lift the registering instruments from the path of the next incoming sheet, and at the same time the springs *i* restore the registering-arms *f'* to their normal position for subsequently registering said incoming sheet.

The folding-blade rises immediately after it has performed its aforesaid function, and as soon as the paper is folded the front stop D is moved to its innermost position for arresting the incoming sheet.

It will be observed that by depriving the registering-arms *f'* of the usual tongue or point which enters into the slits and passes under the paper and by pivoting the arm *f'* in such a manner as to allow it to swing in an arc at right angles to the tapes *a*, and thus carry the free end of said arm upward in its said swinging movement toward the folding-rollers, the laterally-moving paper is entirely relieved from liability of being torn or injured or thrown out of register by the registering instrument during the process of folding the paper.

What I claim as my invention is—

1. In combination with paper-folding rollers and sheet-delivering tapes disposed parallel with said rollers, a paper-registering instrument consisting of an arm suspended from a pivot disposed axially parallel with the tapes and provided with a breast to engage a slit in the sheet while traveling in a direction parallel with the folding-rollers, and means for sustaining said arm normally in position to engage the aforesaid slit as set forth.

2. In combination with paper-conveying tapes, means for temporarily arresting the movement of the paper, and a registering instrument disposed to engage a slit in the paper, a frictional support for the arrested paper, means for moving said support parallel with the aforesaid tapes, means for pressing the paper onto said support and separate from the registering instrument and a slit-opening bridge facing said instrument as set forth.

3. In combination with paper-conveying tapes, means for temporarily arresting the movement of the paper, and means for withdrawing the arrested paper laterally from said tapes, a registering instrument pivoted to swing in an arc at right angles to the line of travel of the tapes, means for normally sustaining said instrument in its registering position, a frictional support for the arrested paper, means for pressing the arrested paper

onto said support, means for moving said support parallel with the tapes, and a bridge facing the registering instrument in its normal position and serving to open the registering-slit in the paper.

4. In combination with paper-conveying tapes, means for temporarily arresting the movement of the paper and means for withdrawing the arrested paper laterally from the tapes, a vertically-movable arm over the tapes, a registering instrument pivoted to said arm to swing in an arc at right angles to the line of travel of the tapes, means for normally sustaining said instrument in its normal position, a frictional pad in the plane of the tapes, means for pressing the paper onto the pad and actuated by the aforesaid arm, means for moving said pad parallel with the tapes, and a slit-opener facing the registering instrument in its normal position.

5. In combination with paper-conveying tapes, an alternately advancing and receding front stop and means for withdrawing the paper laterally from said tapes, a vertically-movable arm over the tapes, a registering instrument pivoted to said arm to swing in an arc at right angles to the line of travel of the tapes, means for normally sustaining said instrument in its registering position, a frictional pad in the plane of the tapes, means for moving said pad parallel with the tapes, and a spring attached to said arm and disposed to press the paper onto the aforesaid pad as set forth.

6. In combination with the paper-conveying tapes, an alternately advancing and receding front stop, and means for withdrawing the paper laterally from the tapes, a rock-shaft disposed transversely over the tapes, an arm fixed to said shaft, a registering instrument pivoted to the free end of said arm to swing in an arc at right angles to the line of travel of the tapes, means for normally sustaining said arm in its registering position, a frictional pad in the plane of the tapes and connected to the front stop to move in unison therewith, a spring attached to said arm and carried thereby to and from the pad, and a slit-opener facing the registering instrument in its normal position.

7. In combination with paper-conveying tapes, an alternately advancing and receding front stop, a vertically-movable arm over the tapes, a registering instrument carried on said arm, a frictional pad disposed to receive the paper upon it and connected to the front stop to move in unison therewith, a spring carried on said arm and disposed to press the paper onto the pad, and means for adjusting said spring.

TALBOT C. DEXTER. [L. S.]

Witnesses:

GEO. A. LETT, Jr.,
M. E. MORRISON.