

(No Model.)

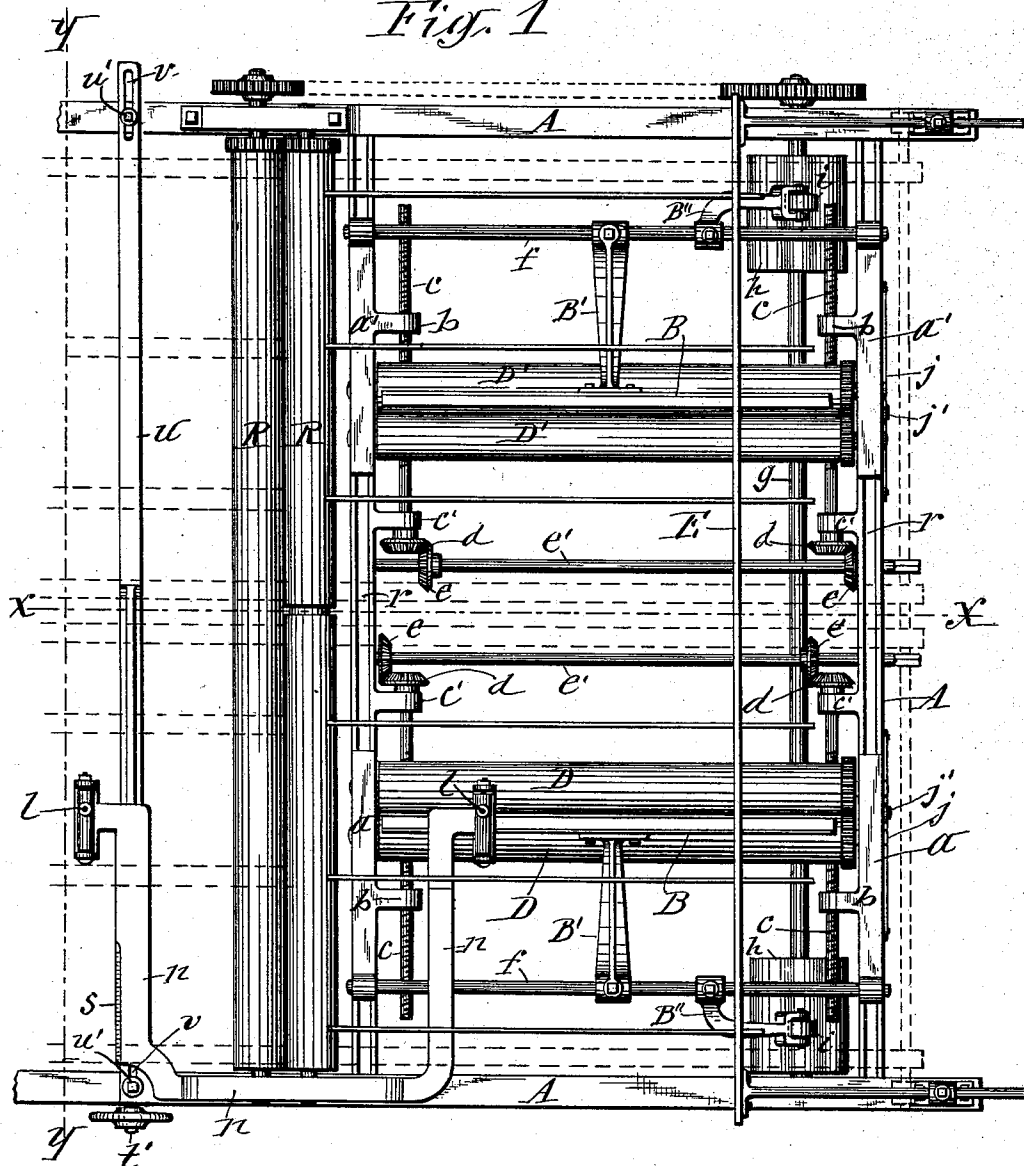
4 Sheets—Sheet 1.

T. C. DEXTER.
PAPER FOLDING MACHINE.

No. 567,301.

Patented Sept. 8, 1896.

Fig. 1



WITNESSES:

C. L. Burdison
J. J. Laasy

INVENTOR:

Talbot C. Dexter
By E. Laasy
his ATTORNEY

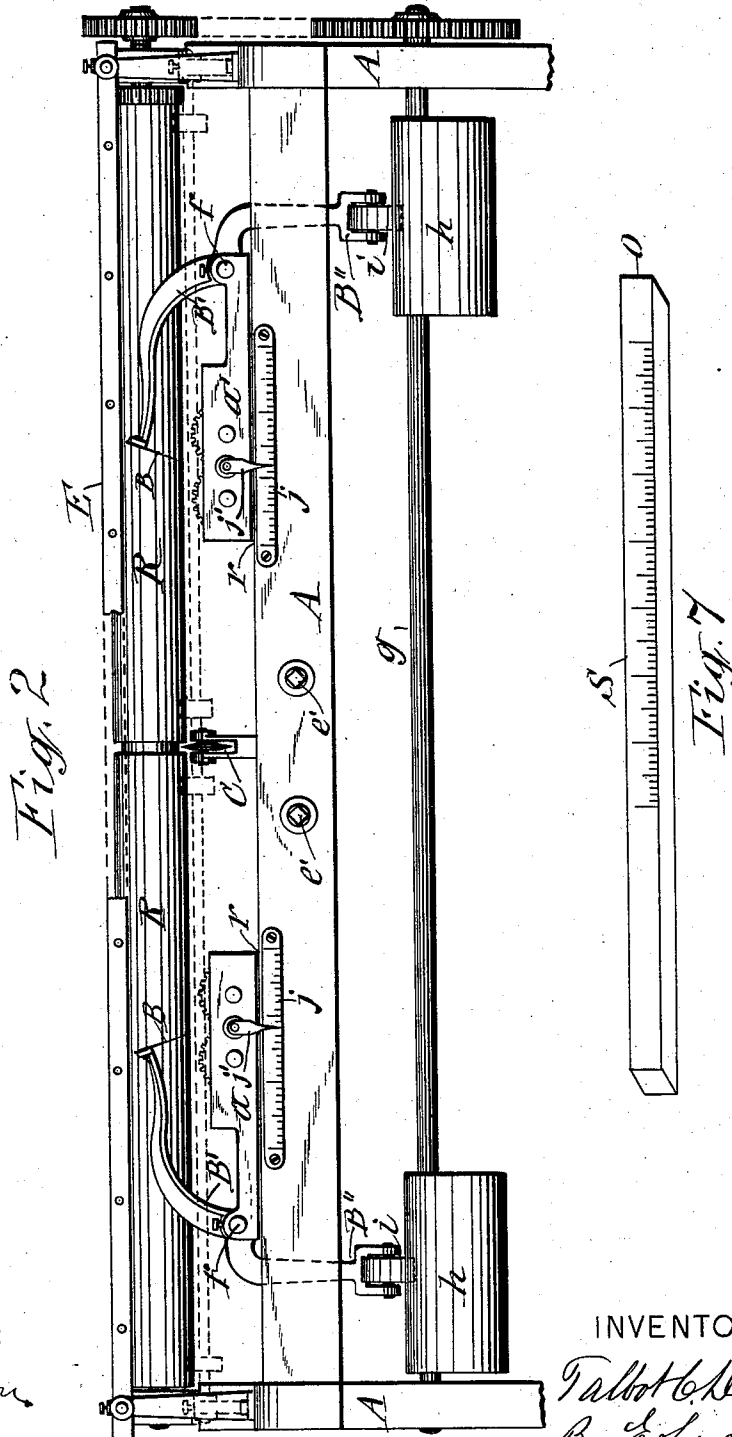
(No Model.)

4 Sheets—Sheet 2.

T. C. DEXTER.
PAPER FOLDING MACHINE.

No. 567,301.

Patented Sept. 8, 1896.



WITNESSES:

C. L. Bindixon
J. J. Laasy

INVENTOR:

Talbot C. Dexter
By E. Laasy
his ATTORNEY

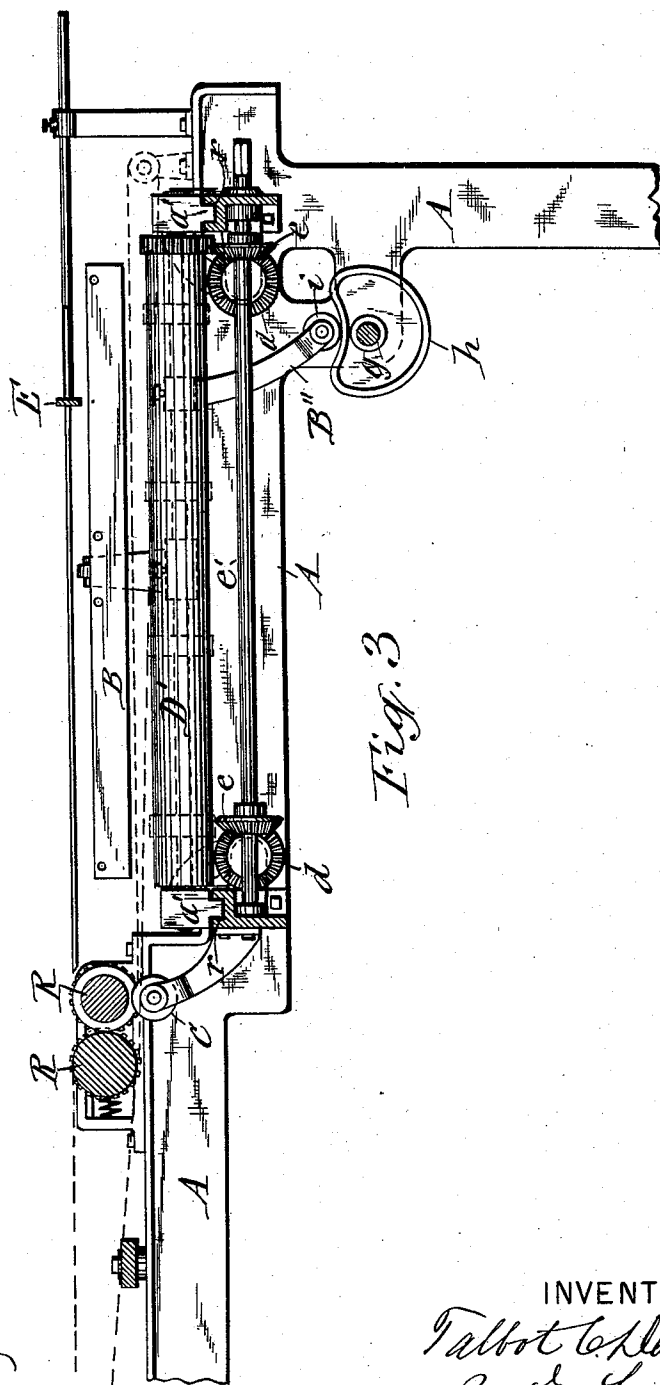
(No Model.)

4 Sheets—Sheet 3.

T. C. DEXTER.
PAPER FOLDING MACHINE.

No. 567,301

Patented Sept. 8, 1896.



WITNESSES:
C. L. Bendixon
J. J. Laury

INVENTOR:
Talbot C. Dexter
By *E. Laury*
his ATTORNEY

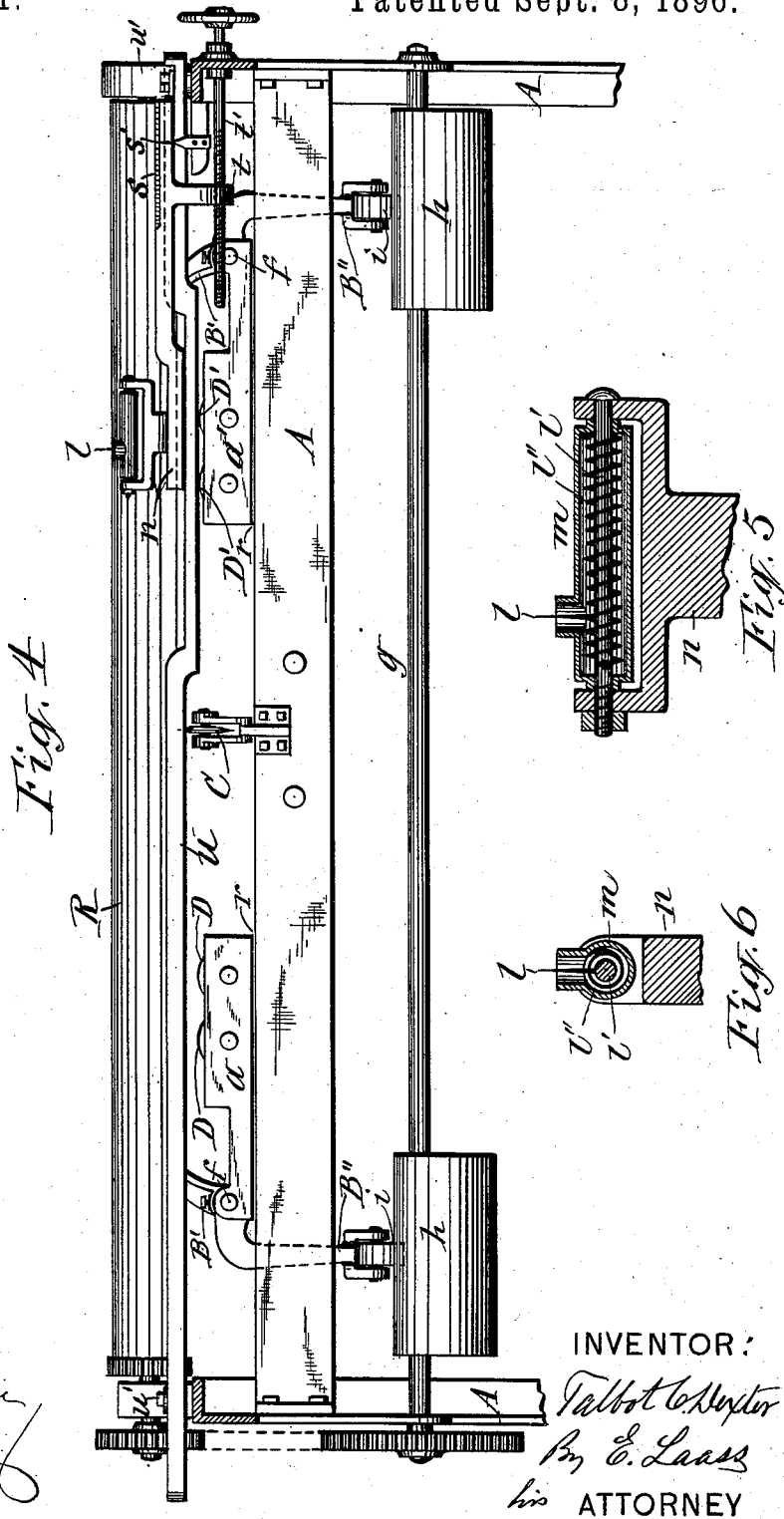
(No Model.)

4 Sheets—Sheet 4.

T. C. DEXTER.
PAPER FOLDING MACHINE.

No. 567,301.

Patented Sept. 8, 1896.



WITNESSES:

C. L. Rindison
J. J. Laess

INVENTOR:

T. C. Dexter
By E. Laess
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-FOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 567,301, dated September 8, 1896.

Application filed October 15, 1894. Serial No. 525,888. (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-Folding 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 machines known to those conversant with the art as "double book-folding machines," which are designed to receive sheets of paper, each of which contains duplicates of printed matter, and to sever each sheet into two parts, each of which contains one of said printed matter, and to fold each of said parts separately.

The severing of the sheet is usually effected during the process of passing the sheet through the first-folding rollers, from whence the severed sections of the sheet pass to supplemental folding-rollers, which fold said sections separately.

Said machines are usually provided with pins or points projecting upward from beneath the plane of the paper in transit to the first-folding rollers, the sheet being provided with slits and placed in position to receive the aforesaid pins or points in the slits and thereby become registered so as to bring the lines of foldings of the sheet in range with the bites of the second-folding rollers. To insure accuracy in said folding, the registering-pins and supplemental folding-rollers have been arranged adjustable in relation to the position of the slit, which separates the sheet preparatory to passing the same to the two sets of folding-rollers which fold the two sections of the sheet separately.

It is the object of my present invention to facilitate and expedite the aforesaid adjustment and render the same accurate; and to that end the invention consists in the combination with the aforesaid adjustable folding-rollers and registering-pins of a system of scales and indicators employed to determine the position of the registering-pins and to conform the position of the supplemental folding-rollers thereto, as hereinafter more fully described and set forth in the claim.

Reference is to be had to the annexed drawings, in which—

Figure 1 is a plan view of that part of a paper-folding machine to which my invention is applied. Fig. 2 is a rear end view of the same. Fig. 3 is a vertical longitudinal section on line X X in Fig. 1. Fig. 4 is a vertical transverse section on line Y Y in Fig. 1. Fig. 5 is an enlarged vertical longitudinal section of one of the paper-registering points. Fig. 6 is a transverse section of the same, and Fig. 7 is a perspective view of the hand-scale which is employed in the process of adjusting the supplemental folding-rollers.

Similar letters of reference indicate corresponding parts.

A denotes the main frame of the folding-machine.

R R are the primary folding-rollers, which impart the first fold to the paper.

E designates the front stop or end gage, which arrests the forward movement of the sheet preparatory to passing said sheet between said folding-rollers.

C represents the slit, which may be of any suitable or well-known form, to slit and divide the paper into two parts during its passage between said primary folding-rollers, and D D and D' D' designate, respectively, the two sets of supplemental folding-rollers which receive the two divided sections of the sheet and fold the same separately.

To render the two sets of supplemental folding-rollers adjustable independently of each other, as hereinbefore stated, I mount said rollers on two separate supplemental frames *a a'*, which are seated on suitable ways *r r* on the main frame and are both movable in directions parallel with the primary folding-rollers R R. Each of said supplemental frames has affixed to it nuts *b b*, which are axially parallel with each of said frames, and in each of said nuts works one of the four screw-rods *c*, by which the supplemental frames are adjusted independent of each other. Said screw-rods are journaled in stationary bearings *c'*, attached to the main frame. To corresponding ends of each pair of said rods are attached miter-pinions *d d*,

which mesh with similar pinions *ee*, attached to manually-controlled shafts *e' e'*, disposed at right angles to the screw-rods and journaled in the frame A. The outer ends of each shaft is squared or otherwise adapted to receive a suitable wrench by which to turn it by hand. The turning of the shaft causes the pinions *d* and *e* to transmit rotary motion to the screw-rods *cc*, which by means of the nuts *bb* move one of the supplemental frames longitudinally or parallel with the primary folding-rollers R R.

The supplemental folding-rollers on said moving frames are thus shifted laterally to their desired position. In order to move the folding-blade B simultaneously with the said folding-rollers, I mount on the supplemental frames the rock-shafts *f*, to which the arm B' of the blade is attached, and extend across the frame A a rotary-shaft *g*, to which are fastened the two cams *hh*, against which bear the rollers *ii*, pivoted to the lower ends of the arms B'', which are attached to and extend downward from the shaft *f*. To maintain said rollers in contact with the cams during the adjustment of the frames *aa'*, I elongate said cams, as shown in Figs. 1, 2, and 4 of the drawings.

In order to facilitate the adjustment of the supplemental folding-rollers, I employ for each set of said rollers a separate graduated gage or scale *j*, attached to the main frame A, and an indicator *j'*, attached to the adjacent supplemental frame, and to utilize the scales and indicators more readily I employ an additional scale S, which is carried by the hand of the person in charge of the machine and designed to be used in the following manner, to wit: A sheet of the same size as those designed to be folded is to be folded by hand into its requisite folded condition and then unfolded. Then the scale S is to be placed on the sheet so as to bring the end of said scale (marked O in Fig. 7 of the drawings) exactly onto the crease made by the folding nearest one of the side edges of the sheet. The scale lies from said crease outward over said edge of the sheet and at right angles thereto. Then by noting the number or mark on the scale corresponding to the edge of the sheet and turning the shafts *e' e'* until the indicators *j'* point to a corresponding number or mark on the scales *j*, the supplemental folding-rollers D and D' are adjusted to their required positions.

ll designate two points or pins by which to register the sheet preparatory to passing it to the primary folding-rollers. Said pins project from shafts *l'*, which are pivoted to the ends of the yoke *n*, hereinafter described. Said shafts are surrounded by spiral springs *l''*, which are fastened at one end to the shafts and at the opposite ends to a sleeve *m*, fastened to the aforesaid yoke in any suitable manner. The sleeve is provided with an opening through which the pin projects, as

shown in Figs. 5 and 6 of the drawings, and said opening is sufficiently large to allow the pin to vibrate. By means of the spring *l''* the pin is sustained normally in an upright position. In registering the sheet it is placed so as to cause the pins *ll* to penetrate perforations made in the sheet during the process of printing the same. Said perforations are always in one of the blank portions of the sheet or in one of the lines on which the paper is to be folded, and inasmuch as the folding-machine is designed for folding papers of different sizes and requiring the folding different distances from the side edges thereof I support said points or pins on a yoke *n*, which is mounted at its central portion on the frame A and has its end portions extending at right angles therefrom and rests with one of said end portions upon a cross-bar *u*, which is supported at opposite ends upon the frame A and adjustably secured thereto by means of the attaching-bolts *u'*, passing through longitudinal slots *v* in said bar, which slots allow the bar to be shifted longitudinally to properly support the aforesaid end portion of the yoke. This yoke is adjustably secured in its position by means of a screw *t'*, journaled in the side of the frame A and passing through a nut *t*, attached to the yoke, as shown in Fig. 4 of the drawings. By turning the screw *t'* the yoke is caused to move on lines at right angles to the second-fold rollers D D' and carry the pins *ll* to their requisite positions for registering the sheet for said second-fold rollers. To facilitate the adjustment of said yoke, I provide it with a scale *s*, which is graduated to correspond to the scales *j*, employed for the adjustment of the second-fold rollers D D'. An indicator *s'* is attached to the frame A and points to the scale *s*. By moving the yoke *n* until the indicator points to the mark on the scale *s* corresponding to the marks indicated on the scales *j*, the registering-pins are adjusted to positions in line with the bite of one of the pairs of second-fold rollers, which latter have been previously adjusted in the manner hereinbefore described. By mounting the registering-pins on a yoke or frame separate from the frames which carry the journal-boxes of the second-folding rollers and providing separate corresponding scales for the respective frames in the manner hereinbefore described the adjustments of the said pins and folding-rollers are rendered more convenient and accurate.

The means for transmitting motion to the described folding-rollers and folding-blades may be varied almost indefinitely, and suitable mechanisms for said purpose will readily suggest themselves to a person skilled in the art to which this invention pertains.

Having described my invention, what I claim is—

In combination with the main frame, first-fold rollers and sheet-cutter, the two pairs of second-fold rollers mounted on separate sup-

plemental frames movable independent of
each other, separate screws for adjusting said
latter frames, a yoke carrying the registering-
pins and detached from the said supplemental
5 frames, and sustained on the main frame ad-
justably along lines at right angles to the sec-
ond-fold rollers, and separate corresponding
scales and indicators for the latter frames

and yoke substantially as set forth and
shown.

In testimony whereof I have hereunto
signed my name this 6th day of July, 1894.

TALBOT C. DEXTER. [L. S.]

Witnesses:

J. J. LAASS,

C. L. BENDIXON.