2 Sheets—Sheet 1.

C. CHAMBERS, Jr. & W. MENDHAM.

Paper-Folding Machine.

No. 216,598. **Patented June 17, 1879.**

Fig 1.

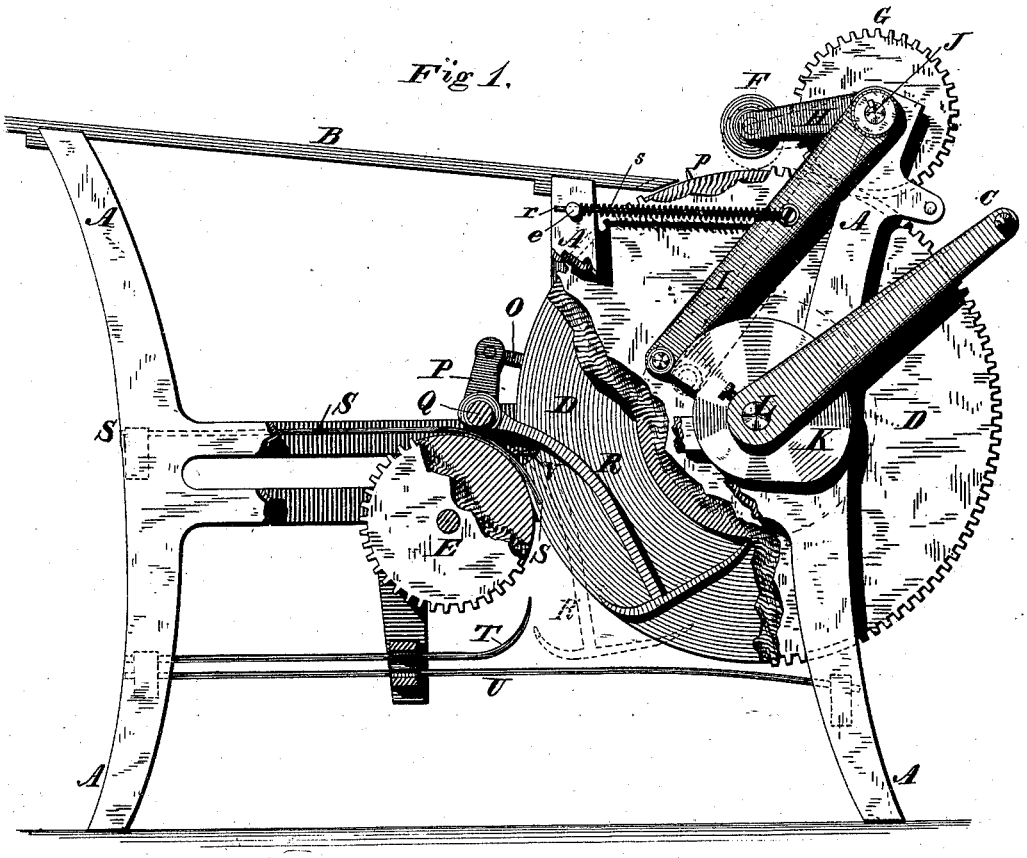
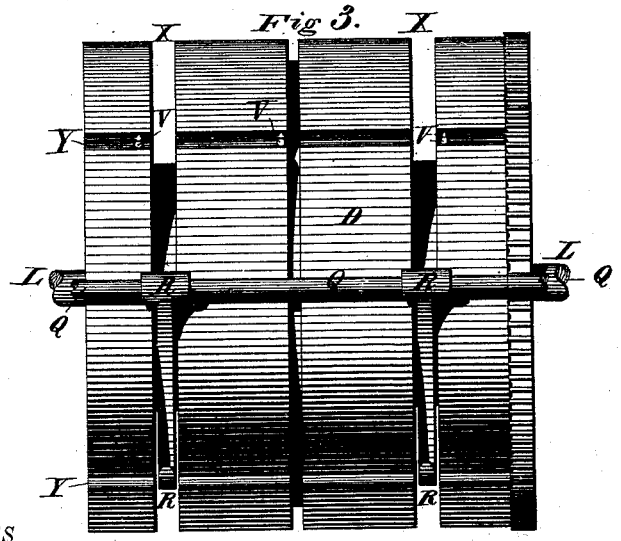


Fig 3.



WITNESSES

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2 Sheets—Sheet 2.

C. CHAMBERS, Jr. & W. MENDHAM.

Paper-Folding Machine.

No. 216,598. Patented June 17, 1879.

Fig 2.

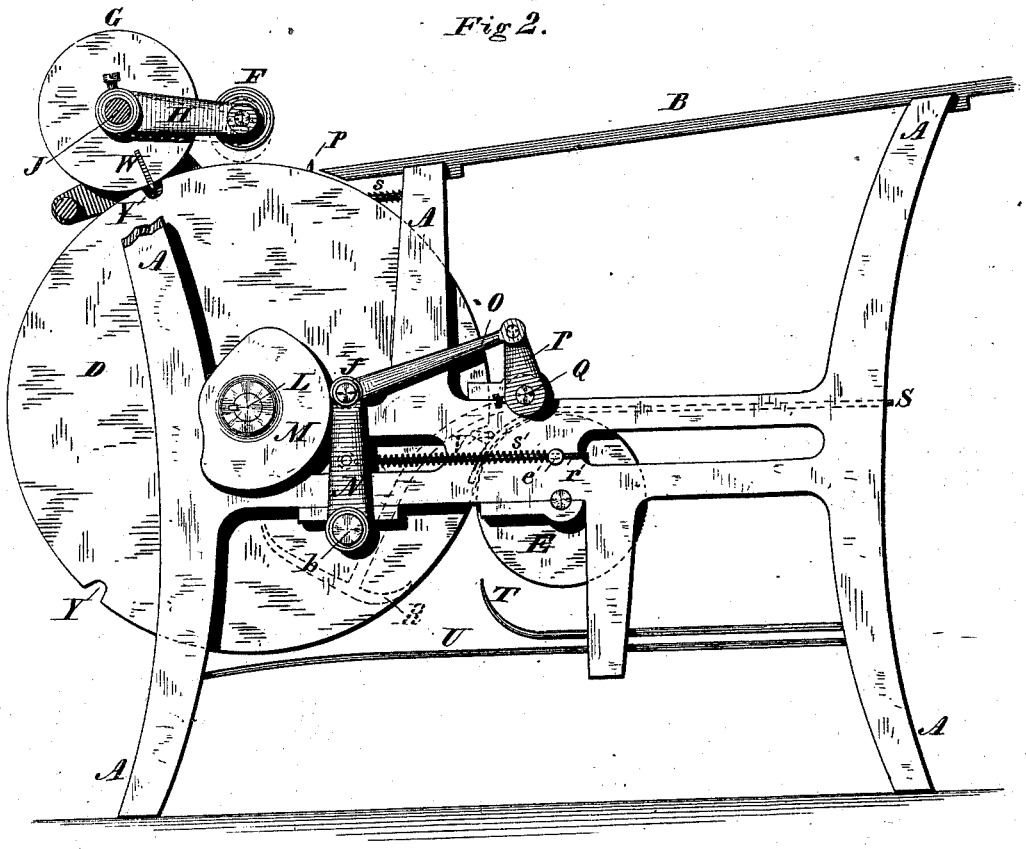
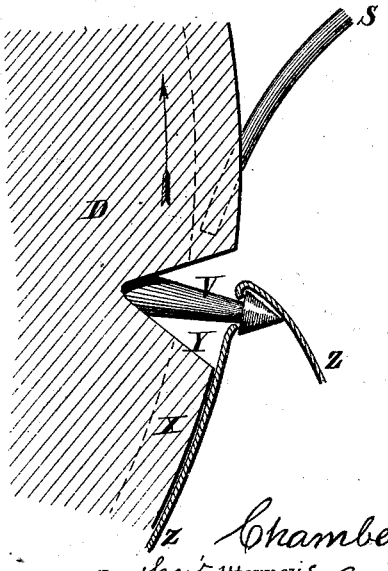


Fig 4.



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UNITED STATES PATENT OFFICE.

CYRUS CHAMBERS, JR., AND WILLIAM MENDHAM, OF PHILADELPHIA, PA.

IMPROVEMENT IN PAPER-FOLDING MACHINES.

Specification forming part of Letters Patent No. **216,598**, dated June 17, 1879; application filed January 12, 1877.

To all whom it may concern:

Be it known that we, CYRUS CHAMBERS, Jr., and WILLIAM MENDHAM, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Paper-Folding Machines; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a side elevation of the machine, parts being cut away to show the interior structure of the drum and roll. Fig. 2 is an elevation of the opposite end of the machine to that shown in Fig. 1. Fig. 3 is a back view of the main drum. Fig. 4 is an enlarged sectional view of a part of the main drum, showing the sheet engaged by the acorn-pins and the curved rods for releasing the sheet.

The same part is indicated by the same letter of reference in the several figures where it occurs.

Our invention consists in improvements in the devices for securing the sheet of paper to the creasing and carrying drum, and delivering it, creased for the first fold, to the bite of the drum and first folding-roller, all as hereinafter more particularly set forth.

The machine is clearly represented in the accompanying drawings.

Upon a strong frame, A, is supported a large table, B, to receive the bank of sheets to be folded. From this table they are fed in by the operator to the folding mechanism. C marks a winch, representing the power by which the machine is driven.

D is the main drum, formed in sections, as shown in Fig. 3, and co-operating with roller E in giving the first fold to the sheet. Drum D is furnished with pins or plain points *p*, which receive and hold the forward end of the paper. They pass into grooves in the drop-roller F and carrying-roller G. The drop-roller F turns on journals in the ends of arms H H, fixed to the shaft J of roller G. To one end of the same shaft is fixed the lever I, in the free end of which is a friction-roller running on the face of cam K, fixed on one end of the shaft L of drum D. A rod, *r*, is pivoted to this arm, passing through the eye *e*, turning in the frame, and has a spiral spring, *s*, surrounding it, the reaction of which keeps the friction-roller in contact with the face of cam K. This cam controls the movements of the drop-roller F, causing it to drop when the sheet fixed upon pins *p* passes under it, and keeping it in contact with the drum D until the acorn-headed pins V have passed the line of contact between rollers G and D, then raising it until the succeeding sheet is fed in.

The creasing-roller G is provided with a creasing-blade, W, as shown in Fig. 2. This roller turns three times to each revolution of the drum D, and the creasing-blade is received into three grooves or recesses in drum D, two of which are blank, and the third provided with acorn-headed pins V. (Shown in enlarged view in Fig. 4.) The groove armed with these pins follows under the drop-roller the line of pins *p p* at the distance required to cause the acorn-pins V to perforate the sheet in the line of the first fold. The sheet is driven upon the pins V by the action of the creasing-blade W, entering the recess in which those pins are located.

On the opposite end of main shaft L to that on which cam K is fixed there is attached a cam, M. Lever N, pivoted at *b* to the frame, has a friction-roller, *f*, in its end, running in contact with the face of cam M, to which it is held by spiral spring *s'*, wound around the rod *r'*, which passes through swiveling-eye *e'*, the spring reacting to throw lever N toward cam M. To the end of lever N is pivoted rod O, connecting with crank-arm P on the end of shaft Q, to which the switches or fingers R are attached. (See Fig. 3.) The cam M, by its rotation, controls the movements of the switches R, throwing them out of drum D at the proper time to strip off the forward end of the sheet from the plain pins *p*, and guide it between the rods T U, and retracting them in time to allow the portion of the sheet held by the acorn-headed pins V to be carried up into the bite of drum D and roller E to receive the first fold.

S marks the supporting-rods, passing from the rear of the frame over roller E, and hav-

ing their curved ends received into recesses X in the drum D. The curved ends of these rods (see Fig. 4) strip the sheet Z from the acorn-pins V as it passes into the bite of the rollers D and E, and carry it into position to receive the succeeding fold. The folds following the first are made in the usual manner.

We do not claim, broadly, the combination of a mechanism for automatically controlling the leading end of a sheet and delivering it within the range of action of the folding mechanism with a rotating folding mechanism; but

What we claim is—

1. In combination with the sheet-carrying drum of a folding-machine, the acorn-headed pins V, located in a creasing-groove, and operating to deliver the fold-line of the sheet to the folding mechanism, substantially in the manner set forth.

2. In combination with the drum D, the plain pins *p* and acorn-headed pins V, arranged to receive, carry, and deliver the sheet, as described.

3. The combination of the creasing-roller G, provided with the blade W, with the main drum D, furnished with grooves Y, points *p*, and pins V, all as and for the purposes described.

4. The combination, with the drum D, provided with the points *p* and acorn-pins V, of vibrating fingers R, operating in the manner described, for the purposes stated.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

CYRUS CHAMBERS, JR.
WILLIAM MENDHAM.

Witnesses:
S. BERNARD CHAMBERS,
J. HOWARD CHAMBERS.