

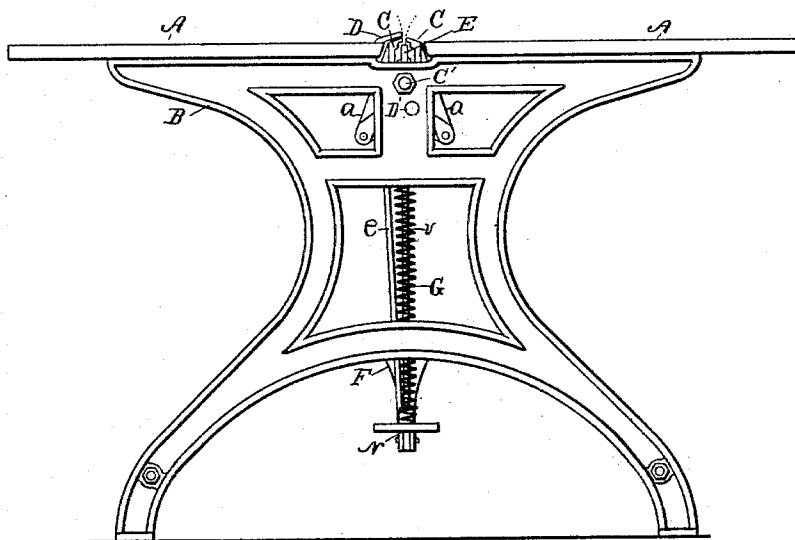
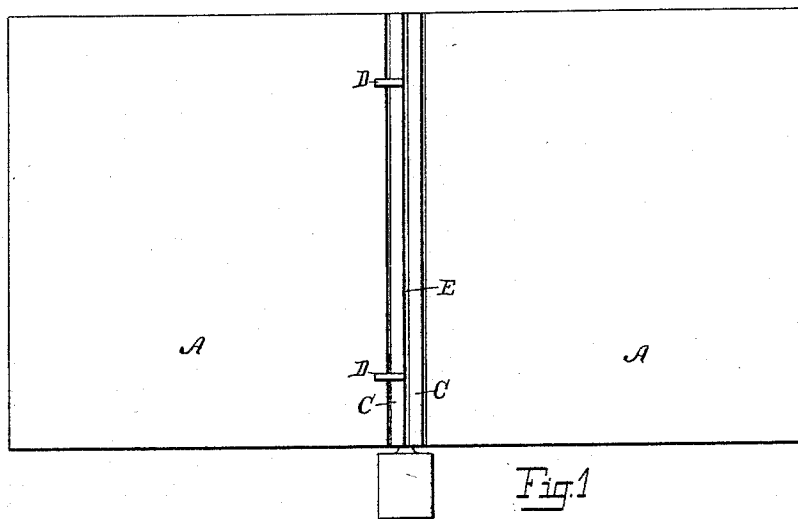
(No Model.)

2 Sheets—Sheet 1.

C. ERLING.
PAPER FOLDING MACHINE.

No. 548,608.

Patented Oct. 22, 1895.



Witnesses:

Walter S. Woods
Vice Earl C. Lippell

Inventor,

Carl Erling
By Fred L. Chappell
Att'y.

C. ERLING.
PAPER FOLDING MACHINE.

No. 548,608.

Patented Oct. 22, 1895.

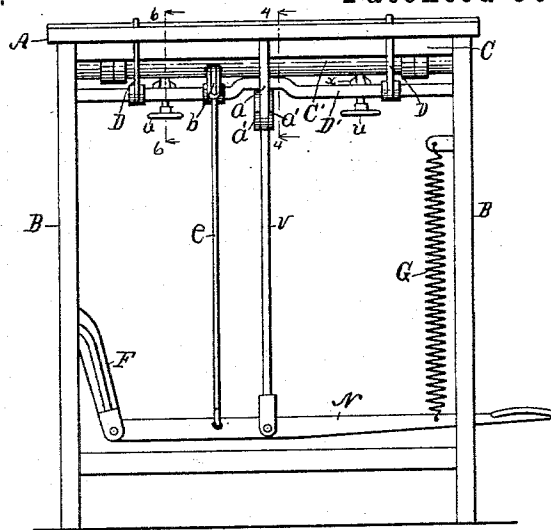


Fig. 3

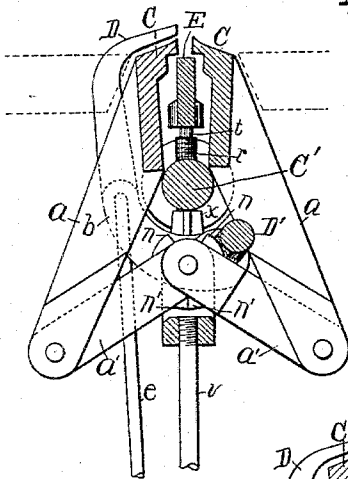


Fig. 4

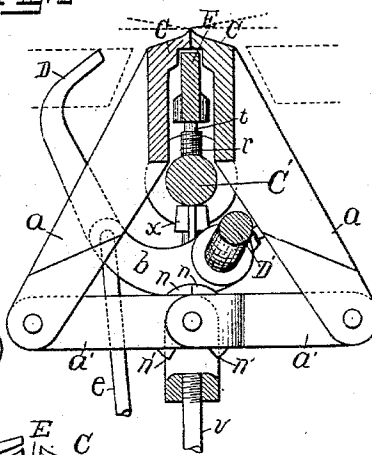


Fig. 5

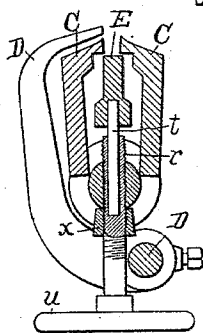


Fig. 6

Witnesses:

Walter S. Wood
Vine Earl & Lappell

Inventor,

Carl Erling
By *Fred L. Chappell*
Att'y.

UNITED STATES PATENT OFFICE.

CARL ERLING, OF KALAMAZOO, MICHIGAN.

PAPER-FOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 548,608, dated October 22, 1895.

Application filed July 14, 1894. Serial No. 517,617. (No model.)

To all whom it may concern:

Be it known that I, CARL ERLING, a citizen of the United States, residing in the city of Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented certain new and useful Improvements in Paper-Folding Machines, of which the following is a specification.

My invention relates to means for folding paper for forming flat-opening blank books, the object being to fold the paper so that it will form a book like those described in Letters Patent No. 379,334, to Michael Ryan, dated March 13, 1888, and No. 506,125, to J. W. Lewis and J. M. Irwin, dated October 3, 1893, for improvements in bookbinding.

The object of my invention is to provide a machine which shall accomplish this same result better and in a very much shorter time. I accomplish this result by the machine shown in the accompanying drawings, in which—

Figure 1 is a top plan view of the machine. Fig. 2 is a front end elevation of the same. Fig. 3 is a side elevation of the same. Fig. 4 is a sectional detail view on line 4 4 of Fig. 3. Fig. 5 is another view on the same line, showing the jaws of the machine closed, Fig. 4 showing them open. Fig. 6 is a sectional view on line 6 6 of Fig. 3, showing the means of adjusting the stop between the jaws.

In the drawings, A A represent the broad table-top to each side of the folding-jaws.

B represents the iron framework which supports the table-top and the remaining parts of the mechanism.

Across the center of the table are located two strong iron jaws C C, which are pivoted on the shaft or rod C'. Extending down from each side of the jaws C are arms a a. The lower ends of said arms are connected together by the toggle-joint, composed of arms a' a', pivoted together at the center and to each end of the arms a with stops n n and n' n' to regulate the motion of the arms. To the center of this toggle-joint is attached the rod v, which extends down and is connected to the lever N. The lever is pivoted to the arm F, to the back of the machine, and a spring G tends always to lift the lever up against any convenient stop. It will thus be seen that in operating the jaws alone when the

lever is left free the spring G will lift it up and so lift the toggle-joint up, as indicated in Fig. 4, when the jaws C will be opened. When pressure is applied at the end of the lever N it will be depressed and the toggle-joint will be pulled down, as indicated in Fig. 5, and will actuate the jaws C very powerfully. This points out the means of actuating the jaws C alone.

Between the jaws C is an adjustable bar E, situated in a suitable recess, and this bar E is adjustable by the screw r and rod t, which revolves in the screw r or in the bar E, the screw being turned by a hand-wheel u under the table, two of the screws being necessary. The jam-nut x is located to be turned tight against the rod or shaft C', through the center of which the screw r passes. The object of the bar E is to act as a gage.

Extending along substantially parallel with the shaft C' is the rock-shaft D'. To the rock-shaft D' is rigidly attached two arms D D, which project up through suitable recesses in the table and come even with one of the jaws C when the jaws are open. The rod e connects with an arm b on said rock-shaft and with the lever N below, and it will be seen from this that whenever the lever N is depressed it will pull down the rod e, which will rotate the rock-shaft and spring the arms D around into the position indicated in Fig. 5. The relation of the stop-arms D and jaws C C appears more clearly in Fig. 6, which also shows the relation of the gage-bar E.

In using my new machine the leaves of the book to be folded are placed in sections on the table A and the folded edge of each section is put against the stops D, which bring it to the right position when the section is tipped up on the edge and allowed to rest on the gage-bar E between the jaws C C. When it rests evenly and squarely there, the lever N is depressed, which acts on the toggle-joint and brings the jaws E together very powerfully and at the same time swings the stops D down below the top of the table, and the operator, with his foot still on the lever, then takes a bone folder or any other suitable folding device and folds the leaves first in one direction and then in the other, pressing them down tight to the jaws with the folder,

giving them a fold in each direction, as indicated by dotted lines from the jaws in Fig. 5, so that the paper shall be properly limbered at that point, and when the book shall be opened it shall lie perfectly flat for each of the sections.

I desire to say that my folding-machine can be greatly varied in its construction without departing from my invention. I have shown it constructed in the form preferred. I have heretofore constructed it in other forms. The jaws can be actuated by any suitable means that will give them sufficient power, and other varieties of gages can be used than the bar E, and the stops D can be dispensed with, although they are a great convenience, and the construction I have here shown I believe to possess great merits over any other construction which I have ever made use of.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a paper folding machine, the combination of the frame B, supporting the table portions, A, A, separated from each other at the center; jaws, C, C, near the center and between said table portions pivoted on the rod, C', with downwardly projecting arms, a, a, connected together at the bottom by the toggle joint composed of links, a', a', with suitable stops; a lever, N, connected by the rod, v, to said toggle joint to actuate said jaws; a bar, E, suitably supported in recesses between said jaws and adjustable up and down by the screws, r, operated by hand wheels, u, u; and stops, D, attached to the rock shaft, D', and adapted to come up over the jaws and even with one of the jaws when said jaws are open; and connecting rod, E, connected to an arm on said rock shaft and to the lever, N, below so that the stops shall be drawn below

the top of the table, when the jaws shall be actuated by the lever, all substantially as described for the purpose specified.

2. In a paper folding machine, the combination of the frame, B, separated table sections, A, A; jaws, C, C, between said table sections and pivoted on the rod, C', below arms, a, a, extending down from said jaws and connected together by a toggle joint; a lever, N, connected by the rod, v, to said toggle joint; and a vertically adjustable bar, E, in suitable rests between the said jaws to adjust the depth to which the paper shall be inserted, all substantially as described for the purpose specified.

3. In a paper folding machine, the combination with the frame, B, the table top sections, A, A, supported by said frame, B, jaws, C, C, between said table top sections, said jaws being pivoted on the rod, C'; arms, a, a, projecting down from said jaws and connected by a toggle joint composed of links, a', a', suitably connected; a rod, v, connecting from said toggle joint to a lever, N, below; a lever, N; and spring, G, for raising said lever, N, up to throw the jaws normally open all co-acting together substantially as described for the purpose specified.

4. In a paper folding machine, the combination of parallel jaws; a suitable depressible guide stop above said jaws; a suitable gage between said jaws; and a lever to actuate the same in the manner described, for the purpose specified.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

CARL ERLING. [L. S.]

Witnesses:

MARIAN I. LONGYEAR,
VENE E. CHAPPELL.