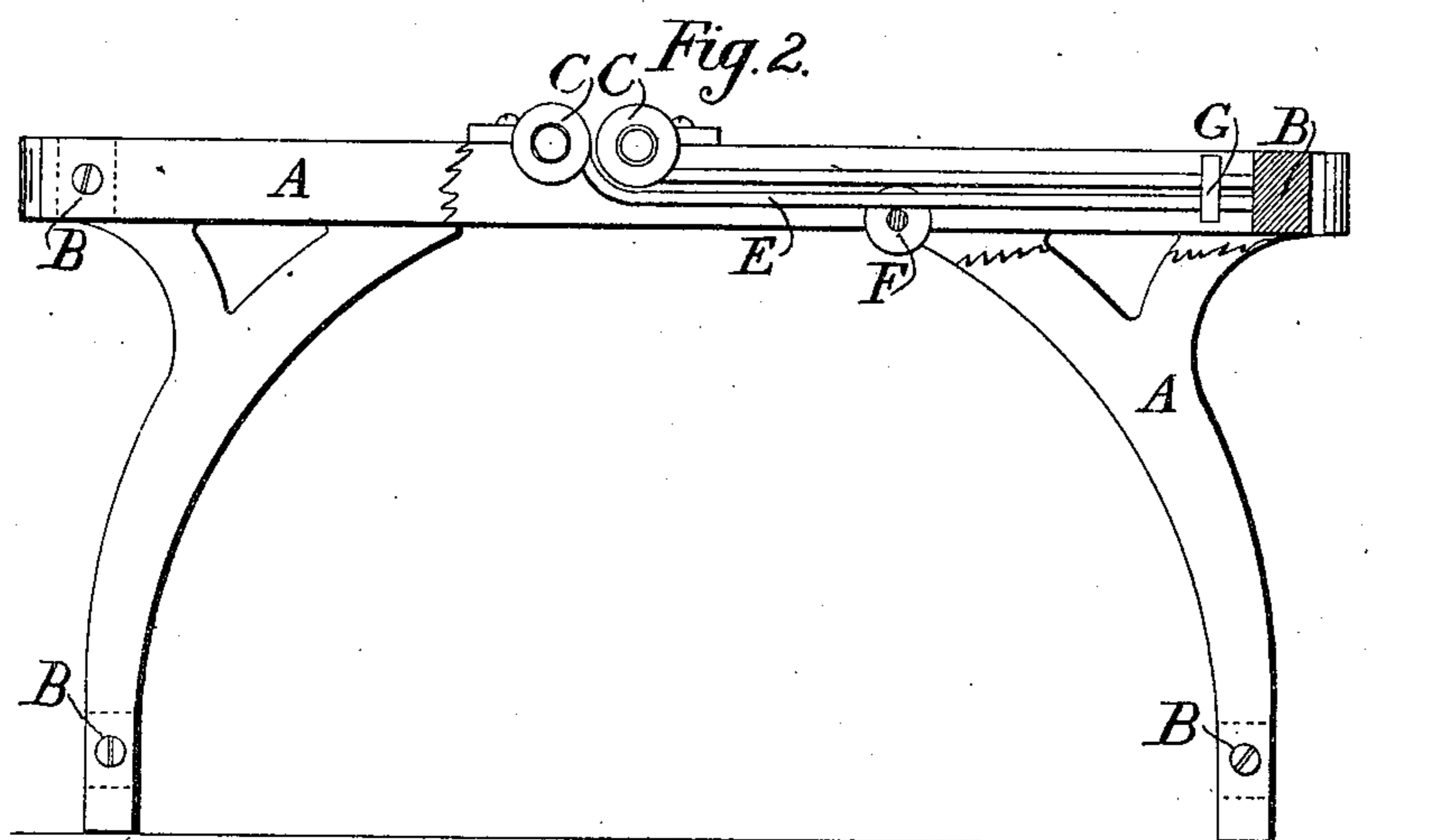
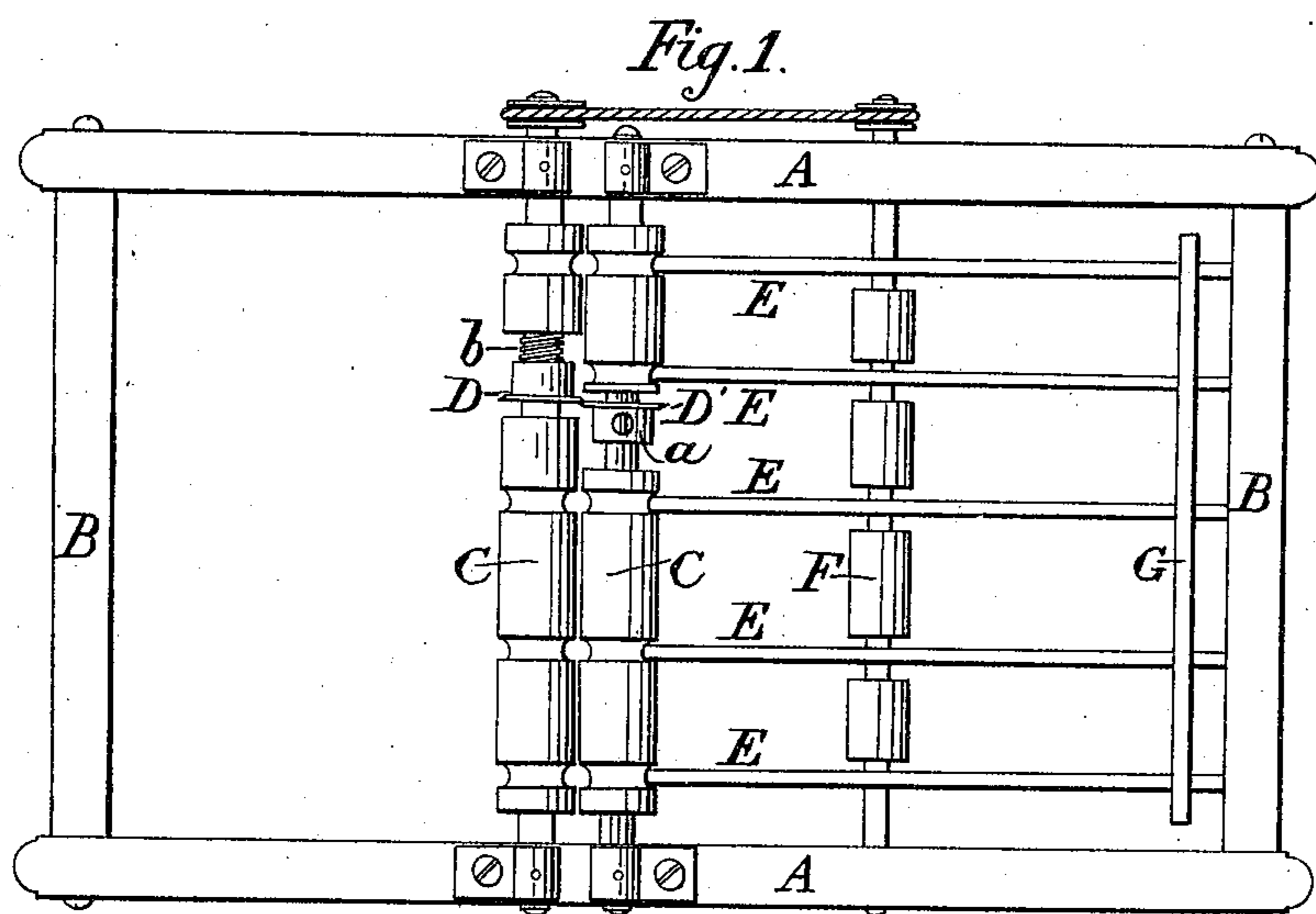


No. 30,910.

PATENTED DEC. 18, 1860.

C. CHAMBERS, JR.
MACHINERY FOR CUTTING AND FOLDING PAPER.



Witnesses:

John H. Cooper.
C. D. Williams.

Inventor:

Cyrus Chambers Jr.

UNITED STATES PATENT OFFICE.

CYRUS CHAMBERS, JR., OF PHILADELPHIA, PENNSYLVANIA.

PAPER-FOLDING MACHINE.

Specification of Letters Patent No. 30,910, dated December 18, 1860.

To all whom it may concern:

Be it known that I, CYRUS CHAMBERS, JR., of the city and county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Machinery for Cutting and Folding Paper; and I do hereby declare that the following is a correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1, is a plan of the improved machinery and Fig. 2, is a side elevation of the same, part of the frame being removed to show the parts more clearly.

My invention consists, first, in sliding or moving the paper on or between bars, to present it properly to the stops, ready for the action of the next folding knife, by means of revolving wheels, or rollers, whose surfaces come into contact with the surface of the paper; second, in the combination of revolving surfaces with bars and stops, for carrying paper from one folding apparatus, and presenting it for the action of another, as will be hereafter more fully set forth.

To enable others to make and use my improved cutting and folding machine, I will proceed to describe its construction and operation, referring to the drawings, where the same part is marked by the same letter in both figures.

A marks the main frame; B, the cross bars which are attached to frame A by bolts.

C, C, mark two folding rollers placed in the usual position, and turning in suitable bearings on the main side frames.

D, D', mark two adjustable circular cutters, placed on the same axes as the rollers C, but of greater diameter than these, so that their edges will project a little beyond the surface of the rollers, and overlap each other as shown. The cutter D' is made fast to its axis by a set screw *a*, but the cutter D, is free to move laterally on its axis and is kept in contact with the cutter D' by a spiral spring *b*, so that the cutting edges of the two are always in contact, so as to cut the paper as it passes between the rollers.

I would state, as an obvious modification of my machine, that one of these cutters might be on an independent shaft, and so arranged with reference to the other, as to cut the paper as it passes from the rollers. Both cutters might, if preferred, be placed on independent shafts, and located any-

where along the path of the paper in its progress from the folding apparatus. Such an arrangement would be required in a machine in which rollers are not employed to make the folds.

In machines making the folds by means of plates as described in a patent granted to George K. Snow on the 10th day of October 1850, it would be necessary to have a slot in the plate to clear the cutters and allow them to pass through the paper.

E, E, &c. are bars so arranged as to guide the paper horizontally from the rollers, and to allow room for the passage of the paper between them, as more fully described and shown in a patent granted to me on the 7th day of October 1856. In that machine the paper is moved forward after it leaves the folding rollers, by means of tapes. In the present machine, I replace these tapes by the friction of rotating wheels, or rollers, such as that marked F, in the drawing. These wheels, or rollers, are placed between the folding rollers, C, and the stops, G, and so that their surfaces shall come in contact with the paper, and continue its motion after it leaves the folding rollers, until it comes in contact with the stop.

To secure the required amount of friction between the paper and the rollers, the latter may be covered with rubber cloth, leather, or other suitable material. They may receive motion from any part of the machine, in any convenient manner, either, for example, by outside belting, or by cords, or tapes, direct from one of the folding rollers, as shown in Fig. 1, of the drawing. Their surface should have about the same velocity as that of the folding rollers, to insure the sheet being carried square against the stop.

Operation: The operation of the machine is as follows: The paper is forced by the folding knife between the revolving rollers C, C, which seize it and carry it through, the cutters D D' cutting it on its passage, and the bars E, guiding it out horizontally. After leaving the rollers, the further progress of the paper is kept up and regulated by the action of the friction surfaces of the wheels or rollers F, until the folded edge of the now divided sheet, strikes against the stop G and is thereby arrested. By the combined action of the revolving surfaces, the bars, and the stop, the sheets are held in a position to be subjected to the further operation of the machine.

Having thus fully described my improvements, what I claim and desire to secure by Letters Patent is—

1. Sliding or moving the paper on or between bars, or their equivalents, by means of revolving wheels, or rollers, whose surfaces come in contact with the paper, as and for the purpose specified.

2. The combination of revolving surfaces with bars and stops, or their equivalents, arranged substantially as and for the purpose described.

CYRUS CHAMBERS, JR.

Witnesses:

W. K. ENTWISTLE,

D. S. VAUGHAN.