

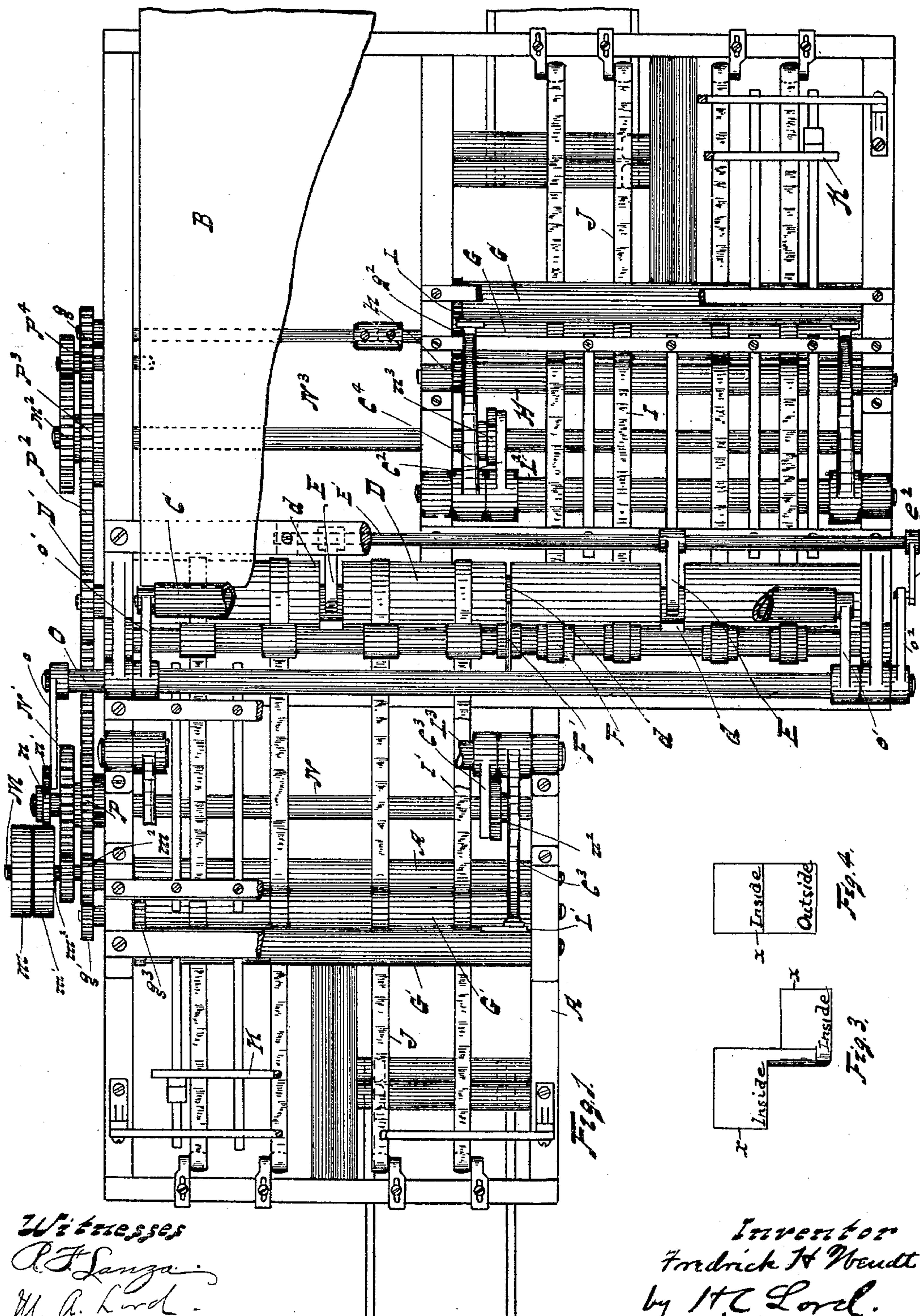
No. 713,726.

Patented Nov. 18, 1902.

F. H. WENDT.
PAPER FOLDING MACHINE.
(Application filed Jan. 24, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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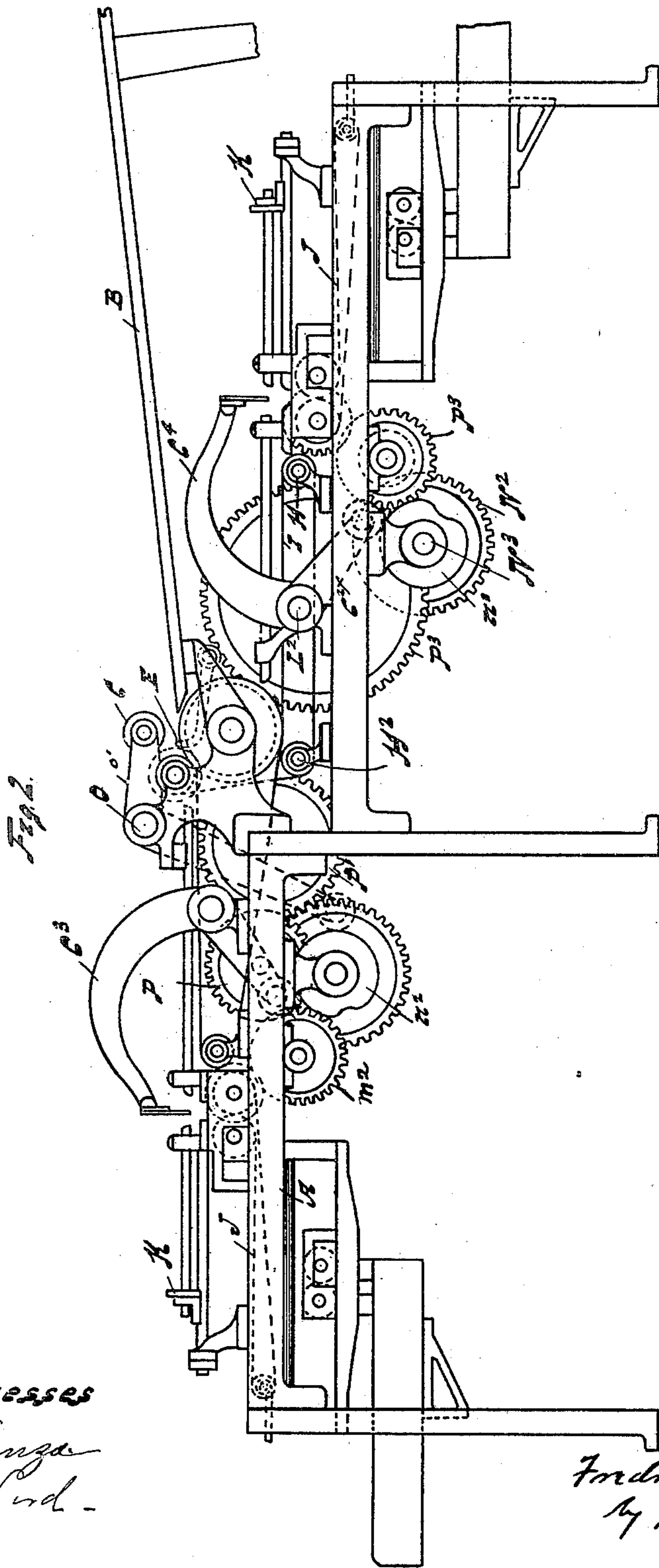
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UNITED STATES PATENT OFFICE.

FREDRICK H. WENDT, OF ERIE, PENNSYLVANIA, ASSIGNOR TO THE BROWN FOLDING MACHINE COMPANY, OF ERIE, PENNSYLVANIA.

PAPER-FOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 713,726, dated November 18, 1902.

Application filed January 24, 1901. Serial No. 44,622. (No model.)

To all whom it may concern:

Be it known that I, FREDRICK H. WENDT, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Paper-Folding Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to folding-machines; and it consists in certain improvements in the construction thereof, as will be hereinafter fully described, and pointed out in the claims.

More particularly the invention relates to that class of folding-machines wherein a double sheet is fed into the machine and cut in the operation of the machine, each of the parts being folded separately. Heretofore in this class of folding-machines both parts have been carried into the machine and over the folding-rolls with the same side up and folded by practically duplicate mechanisms. In the printing of these sheets two forms were required—one for the outside form and one for the inside form—that is, the outside forms of both parts were printed in one operation and the inside forms of both parts in another operation.

The purpose of this machine is to enable double sheets to be printed on the same form and to fold both parts of the sheet so printed in the same manner.

The machine is illustrated in the accompanying drawings, as follows:

Figure 1 shows a plan view of the machine. Fig. 2 shows a side elevation. Figs. 3 and 4 show outlines of sheets, showing the manner of printing and feeding into the machine.

The sheets as arranged for operation in my machine have an outside and inside form printed on the sheet on one side and are then turned and printed with an outside and inside form on the opposite side, the outside form on one side covering the part opposite the inside form on the other side of the sheet, as shown in Figs. 3 and 4.

With my machine the sheet is fed into it, the sheet cut, as shown in Fig. 3, and one part is then turned over, reversing its sur-

face, so that as the parts are brought over the folders they are both in the same position. With this understanding of the purposes and general scheme of operation the machine is thought to be readily understood.

In the machine, A marks the frame; B, the feed-board; D, the feed-roll; C, the drop-roll. The feed-roll has the usual groove *d*, in which operates the cutter F', the cutter F' being carried by the roll or shaft F. Two grooves *d d* are arranged in the feed-roll, and in these grooves are arranged the stops E, the depth of groove being sufficient to allow the stops to drop below the surface of the feed-roll in the groove. The stops E extend from the rock-shaft E'. Arranged at one side of the feed-rolls are the folding-rolls G G, and at the opposite side are the folding-rolls G' G'. These sets of folding-rolls form independent systems, each operating upon one of the parts of the severed sheet. These rolls are also arranged in line with the opposite ends of the feed-roll D, one being at each side of the cutter F'. Extending around the roll F and the tape-roll H are the tapes I, and extending around the feed-roll D and the tape-roll H' are the tapes I'. The usual tapes J J' extend from the folding-rolls. The stops K K' are arranged over the tapes J J' in the usual manner, and the folders are provided with the usual starting-blades L L'.

The operation of the machine is as follows: The sheets are fed from the feed-board B against the stops E E. The stops E E are depressed into the grooves *d d*, and the drop-roll starts the paper. The cutter F' parts the sheet as it passes over the roll. One part of the sheet is carried by the tapes I over the rolls G G. This sheet in passing around the feed-roll D is turned over. The other sheet passes under the roll F and by the tapes I' and J' over the rolls G'. The folding operation is the usual one. It will be noted, however, that with paper printed as shown in Fig. 4 the two parts of the sheets are brought both with the inside form up, as shown in Fig. 3, so that both parts are folded similarly, and both sides of the sheet may be printed on the same form.

The detailed mechanisms for effecting the operation as above described are as follows:

The drive-shaft M is provided with the loose and tight pulleys m and m' . On it is arranged the gear M. This gear meshes the gear g' on the end of one of the rolls G' . The second roll is driven from gears g^3 . There is also arranged on the drive-shaft M the gear M^3 . This meshes a gear M' on the cam-shaft N. At the outer end of the cam-shaft is arranged a cam n . The cam-roller n' rides the cam n and is carried by a rock-arm o . The rock-arm o is fixed on the rock-shaft O. Arms o' o' , extending from the rock-shaft O, carry the drop-roll C. An arm o^2 extends from the end of the rock-shaft O and is connected with a rock-arm e , extending from the shaft E' . It will readily be seen that as the drop-roll is brought to position by the movement of the rock-shaft O the stops E are depressed through the action of the arm o^2 and e . Meshing the gear m^2 is an intermediate gear P, and this in turn meshes a second intermediate gear P' . The gear P' meshes a gear D' on the feed-roll shaft, so that the feed-roll is driven in this manner. Meshing the gear D' is an intermediate gear P^2 . This gear meshes a second intermediate gear P^3 , and the gear P^3 meshes a gear g . The gear g is secured to the roll-shaft of the roll G. This drives the folding-rolls G G. The tape-roll is driven through the gears g^2 and h . Arranged on the same shaft with the gear P^3 is a gear P^4 , and meshing this gear is the gear N^2 . The gear N^2 is secured on the shaft N^3 . This shaft has secured to it the cam n^3 . The cam-lever l^2 is arranged over this cam and extends to the rock-shaft L^2 . The arms l^4 , extending from the rock-shaft L^2 , carry the starting-blade L. Arranged on the cam-shaft N is also the cam n^2 . A lever l^3 is arranged to operate on this cam and is secured to the rock-shaft L^3 . The arm l^5 , extending from the rock-shaft L^3 , carries the blade L' . The cams l , n^2 , and n^3 are timed to operate in proper succession. The mechanisms operate in the usual manner and, it is thought, need no further description.

What I claim as new is—

1. In a paper-folding machine, the combination of means for cutting a sheet into two parts; means for turning over one part of the sheet; and means for folding the parts of the sheet similarly and with an equal number of folds.

2. In a folding-machine, the combination of means for cutting a sheet into two parts; means for carrying the parts of the sheet in different directions; means for turning one of

the sheets over in this movement; and means for folding the parts of the sheet similarly and with an equal number of folds.

3. In a folding-machine, the combination of means for cutting a sheet; means for moving a part of the sheet forward to the front of the machine; means for turning the other part over and moving it to the rear of the machine; and means for folding the parts of the sheet in these positions.

4. In a folding-machine, the combination of the feed-roll; a cutter arranged to operate upon the sheet as it is fed into the machine; means for conveying the parts of the sheet as cut, one around the feed-roll and the other forward from the feed-roll; and separate folding mechanisms for folding the parts of the sheet so moved.

5. In a folding-machine, the combination of the feed-roll D; the shaft, F; the tapes, I, arranged under the folding-roll and extending to a folding system, G G; the tapes, I', extending over the feed-roll and arranged to convey paper over the independent folding-roll system, G' G'; and said folding systems.

6. In a folding-machine, the combination of the feed-roll, D; the cutter, F', arranged to operate upon said feed-roll; of means for conveying one part of the sheet around the feed-roll toward the rear of the machine; and means for conveying the other part of the sheet over the feed-roll toward the front of the machine.

7. In a folding-machine, the combination of the feed-roll, D; the stops, E E, arranged over the feed-roll; mechanisms for carrying the stops in and out of the path of the sheet; the drop-roll, C; mechanisms for operating said drop-roll to bring it into and out of operative position in relation to the feed-roll; the cutter, F'; the roll, F; the tapes, I, extending around the roll, F, under the feed-roll and to a roll system, G G; the folding-rolls, G G; of mechanisms for completing a fold through the rolls, G G; the tapes, I', extending around and over the feed-roll, D, and arranged to convey paper over the rolls, G' G'; mechanisms for forming a fold through the rolls, G' G'; and driving mechanisms for operating the several parts.

In testimony whereof I affix my signature in presence of two witnesses.

FREDRICK H. WENDT.

Witnesses:

JUSTIN P. SLOCUM,
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