

No. 673,312.

Patented Apr. 30, 1901.

H. F. BECHMAN.  
PAPER FOLDING MACHINE.

(Application filed May 1, 1900.)

(No Model.)

Fig. 1.

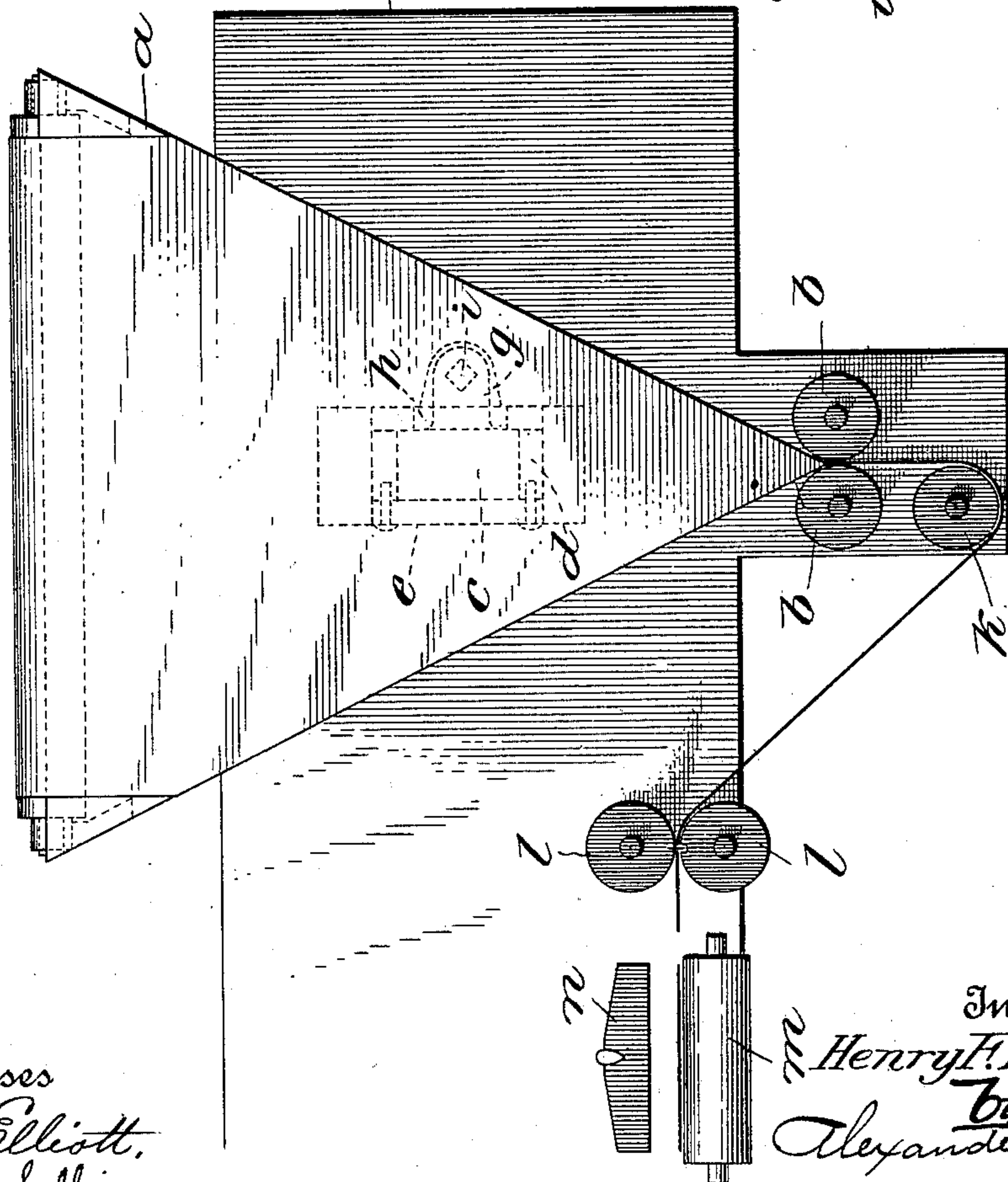
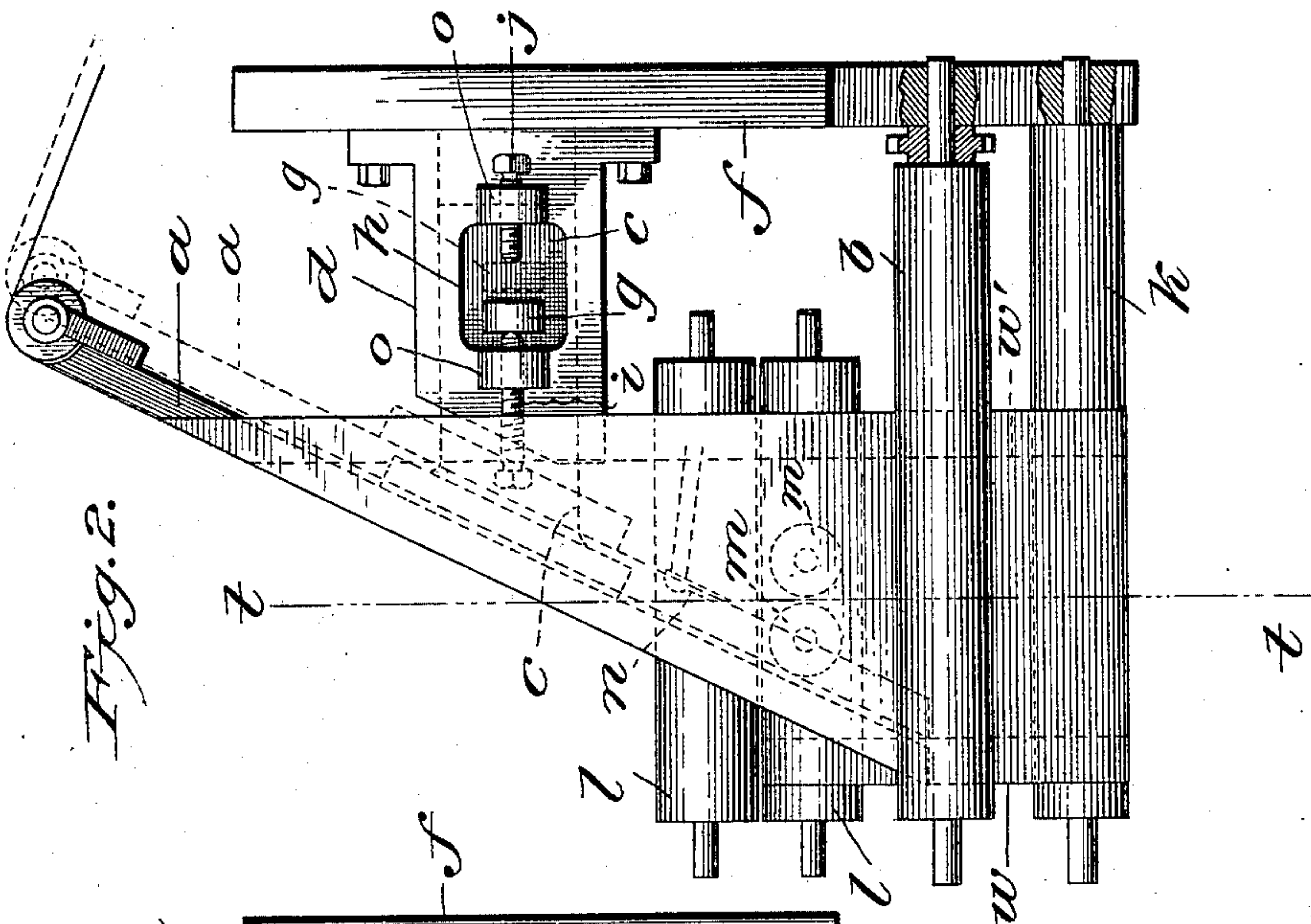


Fig. 2.



Witnesses  
G. S. Elliott,  
W. Henry Sullivan

Inventor:  
Henry F. Beckman,  
by  
Alexander & Dowell  
Attorneys



# UNITED STATES PATENT OFFICE.

HENRY F. BECHMAN, OF BATTLECREEK, MICHIGAN, ASSIGNOR TO THE  
DUPLEX PRINTING PRESS COMPANY, OF SAME PLACE.

## PAPER-FOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 673,312, dated April 30, 1901.

Application filed May 1, 1900. Serial No. 15,079. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY F. BECHMAN, of Battlecreek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Paper-Folding Machines; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is an improvement in paper-folding machines especially designed for use in connection with web-printing newspaper-presses; and its object is to insure folding of papers always upon median lines whether the page be narrow or wide and whether the fold be parallel with or transverse to the running web or sheet.

As ordinarily constructed the folders of web-printing newspaper-presses will after the web has left the triangular former only fold upon median lines when the fold is made transverse to the moving web or sheets. If it be desired, as it often is, to make a fold parallel with the moving web or sheets or parallel with the line or path of movement of such web or sheets, the median line, if the width of page be varied, will not coincide with the folding-line. Various attempts have been made to remedy this defect by more or less cumbersome or troublesome appliances; but I have found that this median fold of papers can be obtained by making the triangular former adjustable longitudinally of the guiding or folding rolls at its apex, so that the median line of the folded web after the first fold thereof may be made to coincide with the folding-line of folding-rolls located transversely to the line of the first fold, as will be hereinafter more fully explained. By this simple method and means I am enabled to quickly adapt the folder mechanism to various widths of webs and always fold the papers uniformly on the median line. Again, the ordinary folders on newspaper web-printing presses may fold webs of different widths well enough, but they are not adapted to centrally folds webs of varying widths if folds be desired parallel with the running web. The great object secured by my invention and

not heretofore attained in the art is that I may produce a central fold parallel with the running web after the first fold, even though the width of the page be changed. This cannot be done in other machines, and this fact limits them either to a single fold after the one made by the triangular former, or if it be desired, as it generally is, to fold the newspaper to quarter-page size then they are limited to one width of page.

In the accompanying drawings, Figure 1 is a conventional front elevation, and Fig. 2 a side elevation, of part of the folding apparatus of a web-press embodying my invention.

*a* designates the former, which is of ordinary triangular shape and located above a pair of rolls *b*, as usual, which, in conjunction with the former, give the first fold to the web as it leaves the former. The former is provided on its under side with a substantially central horizontally-projecting arm *c*, which telescopes into a slotted bracket *d*, attached to part *f* of the main frame of the folder or of the press-frame to which the folder is attached. The arm *c* can be inserted into the slot in the bracket *d* through an opening in the side of the bracket, which is closed by a removable plate *e*, secured to the bracket by screws, as shown. Arm *c* is provided with a lug *g*, which extends through a slot *h* in the side of the bracket *d*. This lug *g* is adapted to connect with bolts *i* or *j*, tapped through opposite ears *o* on the side of the casting *d*, as shown, which bolts can be adjusted so as to regulate the position of the "former." The former is thus adjustable in a horizontal plane and longitudinally of the rolls *b*. In practice it is found unnecessary to have the screws *i j* bear against the lug *g*; but they may do so, if it is desired. Usually these screws are adjusted so as to serve as regulating-stops for the lug *g* when folding wide or narrow webs.

The web is led from the former and rolls *b*, by which it is given the first fold, down under a roll *k*, up to and between cutting-cylinders *l l*, and to and over the transversely-arranged second folding-rolls *m*, between which the severed papers may be tucked by the blade *n*. The means for operating the



several folding rolls and blades are so well known that further description and illustration thereof are unnecessary.

The full lines in Fig. 2 show the position of the parts when folding a wide web *w*. The dotted lines show the position of the former when folding a narrow web *w'*. It will be seen that the former is adjustable longitudinally of the rolls *b*, so that the median line of the folded webs *w w'* after they receive their first fold shall always coincide with the vertical line *tt*, which indicates the line of the fold of the web made by the rolls *m*.

By having the former adjustable longitudinally of the rolls *b* and providing the adjustable stops *ij* for the former the only change necessary in order to adapt the machine to operate and properly fold various widths of web is simply to adjust the former longitudinally, and thus I accomplish in the most simple manner the median or central folding of papers of different sizes in one machine.

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

1. In web-folding machinery, the combination of a pair of folding or guiding rolls extending and operating transversely of the web, a pair of folding-rolls extending and operating longitudinally of the web, and the triangular former located above the first pair of rolls, and bodily adjustable longitudinally thereof so as to cause the median line of the folded web, after passing the triangular former to coincide with the folding-line of the folding-rolls which extend longitudinally of the web, substantially as and for the purpose described.

2. In web-folding machinery, the combina-

tion of a pair of folding or guiding rolls extending and operating transversely of the web, a pair of folding-rolls extending and operating longitudinally of the web, and cutting-cylinders interposed between said sets of rolls; with a triangular former located above the first pair of rolls and bodily adjustable longitudinally of these rolls so as to cause the median line of the folded web to coincide with the folding-line of the folding-rolls which extend longitudinally of the web whereby the papers severed by the cutting-cylinders shall be folded centrally, substantially as and for the purpose described.

3. In a folding-machine, the combination of the former, a fixed slotted bracket provided with stops, and an adjustable arm telescoping into said bracket and supporting the former and provided with a lug adapted to engage the said stops to limit the adjustment of the former, for the purpose and substantially as described.

4. In a folding-machine, the combination of a former, the slotted bracket provided with stops and the adjustable arm telescoping into said bracket and supporting the former, said arm being provided with a stud projecting laterally through the opening in the casting, and adjustable stop-bolts tapped through ears on the casting and adapted to engage the lug on said arm to adjust the former, for the purpose and substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

HENRY F. BECHMAN.

Witnesses:

R. L. STONE,

CHAS. GRAMES.