2 Sheets—Sheet 1.

G. E. JONES.

Machines for Folding and Cutting Paper and other Materials.

No. 196,021. Patented Oct. 9, 1877.

Fig. 1.

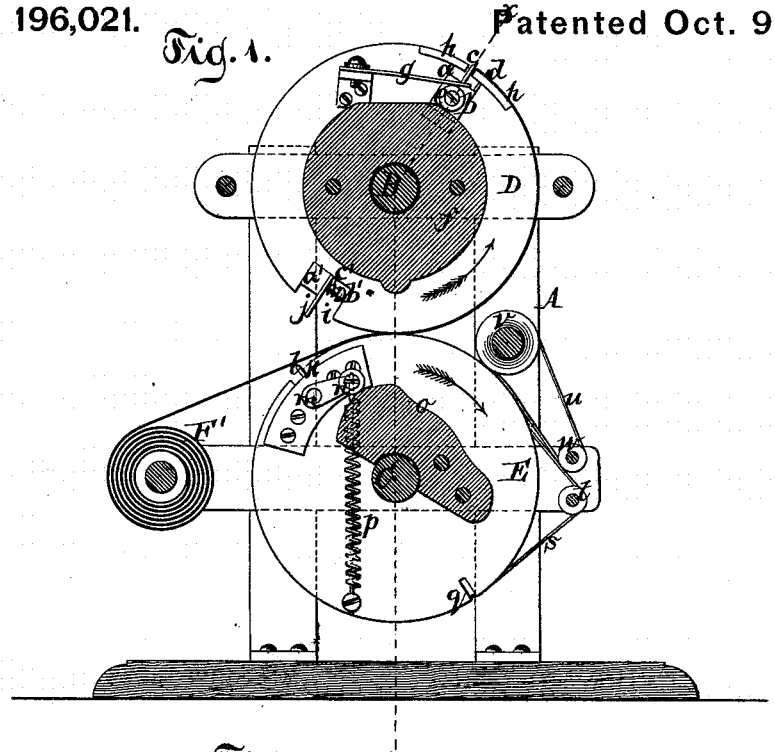
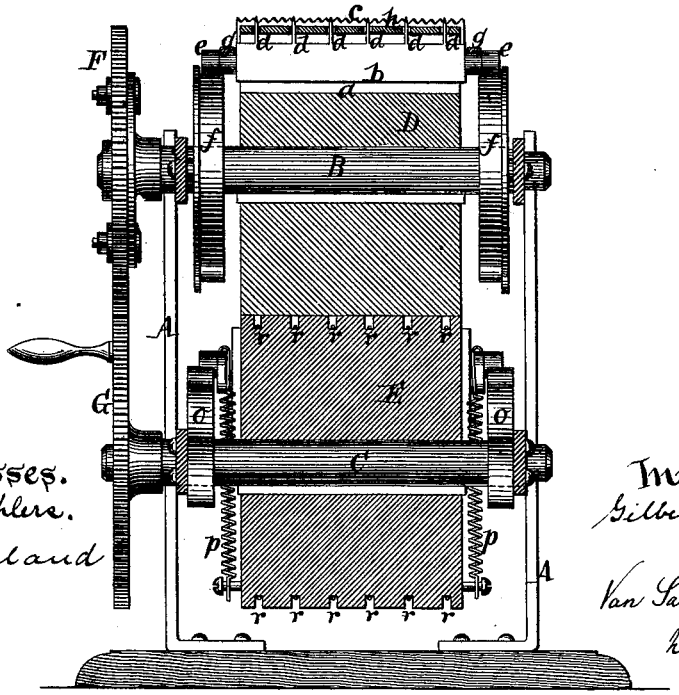


Fig. 2.



Witnesses.
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Otto Hufeland

Inventor.
Gilbert E. Jones
by
Van Santvoord & Hauff
his attorneys

2 Sheets—Sheet 2.

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Fig. 3.

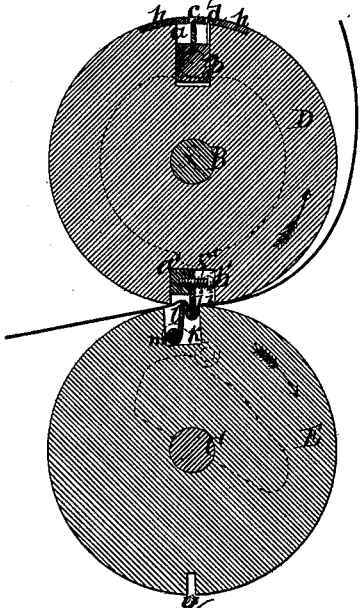
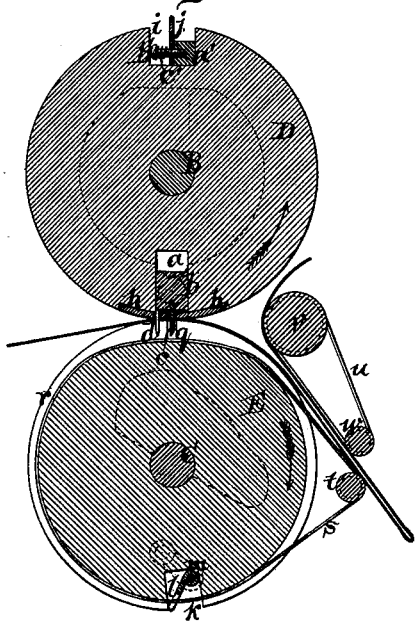


Fig. 4.



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UNITED STATES PATENT OFFICE.

GILBERT E. JONES, OF NEW YORK, N. Y.

IMPROVEMENT IN MACHINES FOR FOLDING AND CUTTING PAPER AND OTHER MATERIALS.

Specification forming part of Letters Patent No. **196,021**, dated October 9, 1877; application filed August 22, 1877.

To all whom it may concern:

Be it known that I, GILBERT E. JONES, of the city, county, and State of New York, have invented a new and useful Improvement in Machines for Folding and Cutting Paper and other Materials; which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a sectional side view. Fig. 2 is a longitudinal vertical section in the plane *x x*, Fig. 1. Fig. 3 is a transverse section, showing the folding mechanism in operation. Fig. 4 is a similar section, showing the cutting mechanism in operation.

Similar letters indicate corresponding parts.

This invention consists in the combination, in a machine for folding and cutting paper and other materials, of a set of retaining-pins and a knife, both secured to a common stock contained in a revolving cylinder, a cam or equivalent device for imparting a reciprocating motion to the said stock, a folding-blade secured to the same cylinder, and a griper-cylinder, provided with a folding recess, and with a knife-receiving socket, so that the web on being passed between the two cylinders is pierced by the retaining-pins, and each time a folded sheet has been cut from the web the end of said web is carried up by said retaining-pins, and the operation of folding and cutting the web is carried on in a simple and effective manner. The folding-blade is yielding, so that it readily releases the bight of the web or sheet.

In the drawing, the letter A designates a frame, which forms the bearings for the shafts B C of the two cylinders D E, which run in close contact with each other, their shafts being geared together by cog-wheels F G, so that they revolve in opposite directions, as indicated by arrows in Figs. 1, 3, and 4.

In the cylinder D is a recess, *a*, into which is fitted a stock, *b*, that carries a cutting-blade or knife, *c*, and a series of pins, *d*. On the ends of the stock *b* are secured roller-studs *e*, which bear on cam-plates *f* secured to the main frame A, said roller-stud being held in contact with the cam-plates by springs *g*. The mouth of the recess *a* is partly closed by stripping-plates *h*, Fig. 1, which leave a narrow space for the knife, and one of which is perforated with a number of holes for the pins *d* to work in. When the stock *b* recedes, neither the cutting-edge of the knife nor the points of the pins *d* project beyond the outer surfaces of the stripping-blades, which outer surfaces are flush with the surface of the cylinder D.

In the cylinder, and diametrically opposite to the recess *a*, is a second recess, *i*, in which is situated the folding-blade *j*. The edge of this folding-blade projects beyond the surface of the cylinder D, and as the two cylinders revolve it extends into a recess, *k*, formed in the cylinder E. In this recess is situated the griper *l*, which is mounted on a rock-shaft, *m*, and operated by cranks *n*, and fixed cam-plates *o*, the crank-pins being depressed upon the faces of said cam-plates by springs *p*. In the cylinder E is a second recess or socket, *q*, for the reception of the cutting-edge of the knife during the time of its action on the web, and in the surface of said cylinder are a series of circular grooves, *r*, Fig. 2, in which work a series of tapes, *s*, and which also receive the points of the retaining-pins as the same are being forced out beyond the surface of their cylinder D. The tapes *s* extend round a roller, *t*, and they co-operate with a second series of tapes, *u*, extending round rollers *v w*.

The web is taken from a reel, F′, and as the same is passed in between the two cylinders, its end is pierced by the retaining-pins *d* and carried up to the position shown in Fig. 1. As the motion of the cylinders progresses the pins *d* recede, and at the same time the folding-blade begins to act, producing in the web a bight, as shown in Fig. 3. At the moment the folding-blade is withdrawn from this bight the griper takes hold and delivers the folded web to the tapes *s* and *u*, which carry the same out away from the cylinder E, as shown in Fig. 4, and when the folded sheet has been drawn out to the desired length, it is cut off from the web by the knife *c*, and at the same time the end of the web is caught by the pins *d*, and the former operation is repeated.

By combining the retaining-pins *d* with the knife *c*, I am enabled to cut the folded sheet completely from the web without losing the hold of the end of said web, and the opera

tion of folding and cutting is effected by a comparatively simple mechanism and without fail.

The folding-blade *j* is secured in its recess by means of a block, *a'*, and a screw, *b'*, a spring, *c'*, being interposed between this screw and the blade, so that the latter is capable of yielding, and thereby the operation of releasing the bight of the web or sheet is facilitated.

What I claim as new, and desire to secure by Letters Patent, is—

The combination, in a machine for folding and cutting paper and other materials, of a set of retaining-pins and a knife, both secured to a common stock contained in a revolving cylinder, mechanism, substantially as shown, for imparting a reciprocating motion to the said stock, a folding-blade secured to the same cylinder, and a griper-cylinder provided with a folding recess and with a knife-receiving socket, all adapted to operate substantially in the manner and for the purpose herein shown and described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 15th day of August, 1877.

G. E. JONES. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.