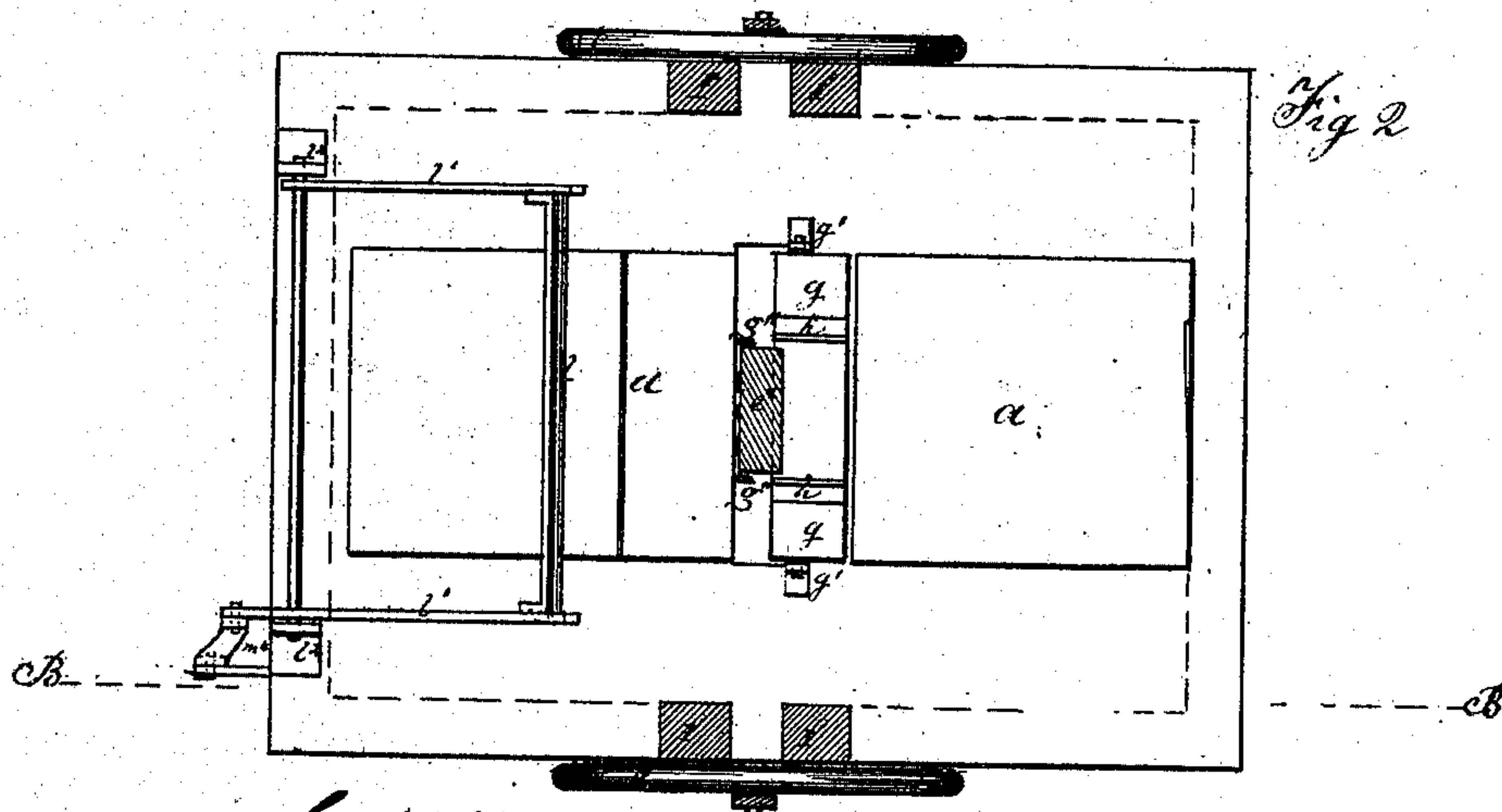
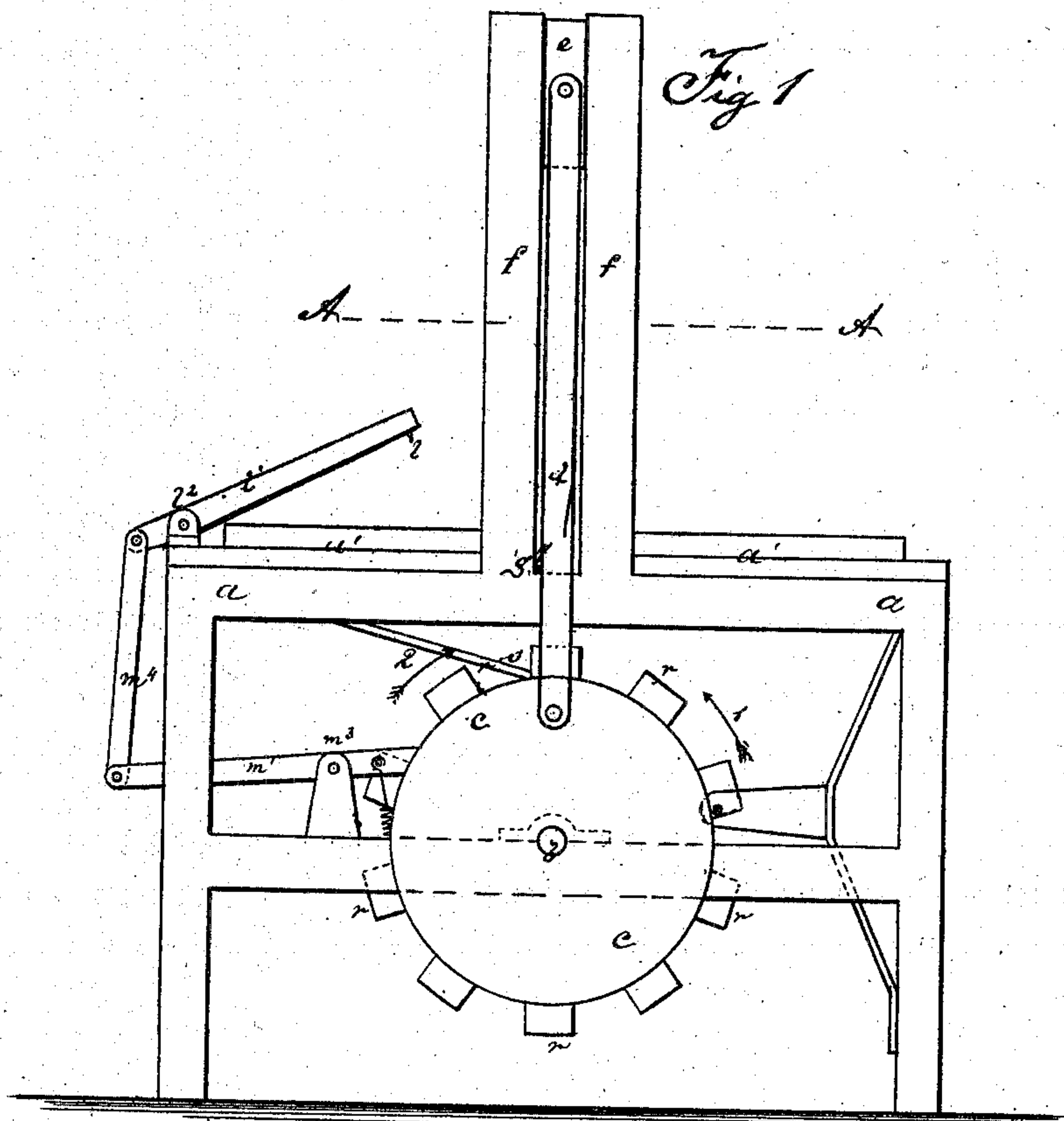


C. A. MAXFIELD.
PAPER BOX MACHINE.

3 Sheets—Sheet 1.

No. 104,477.

Patented June 21, 1870.



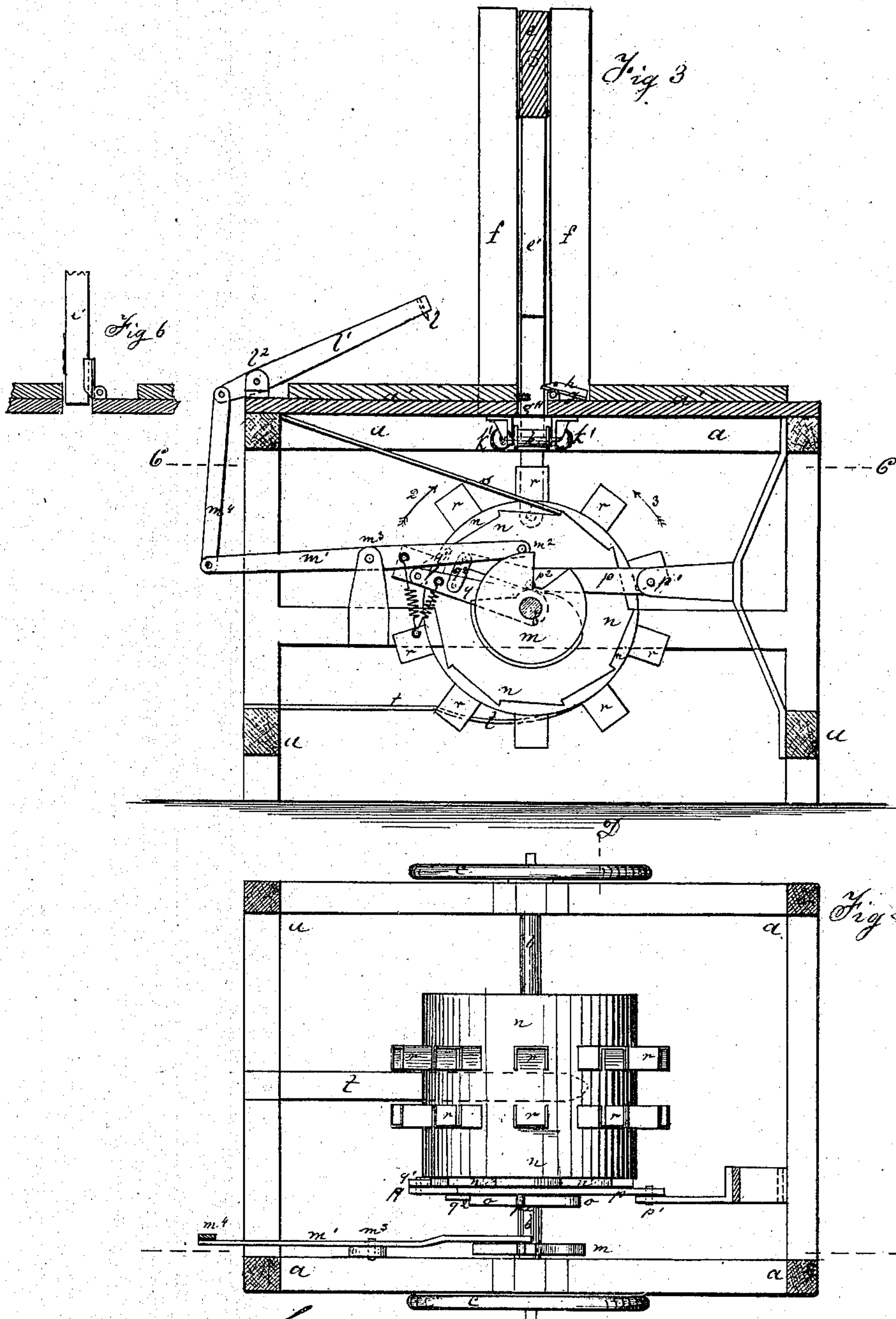
Witnesses: *Chas. A. Briggs*
Edw. C. O'Brien *Chas. A. Maxfield* Inventor

C. A. MAXFIELD.
PAPER BOX MACHINE.

3 Sheets—Sheet 2.

No. 104,477.

Patented June 21, 1870.

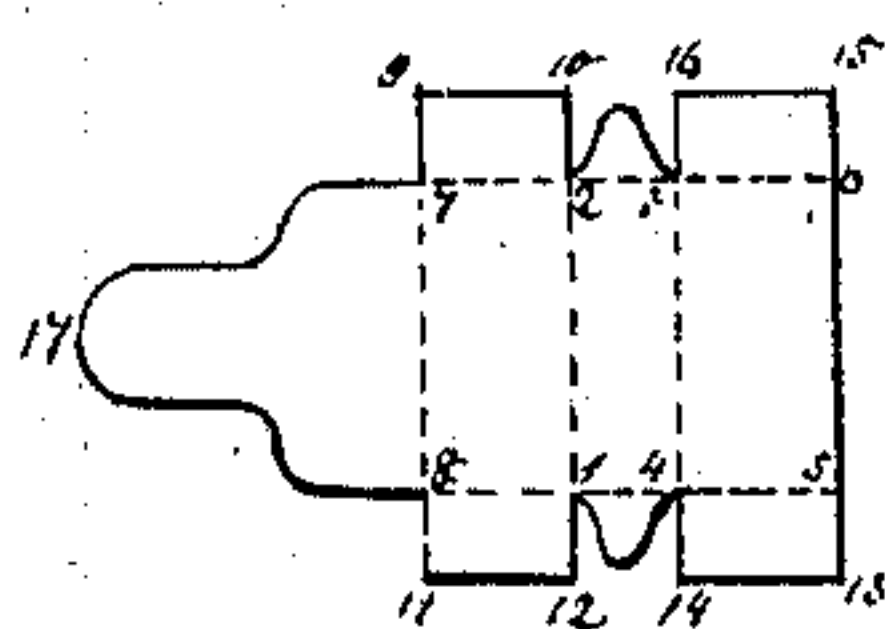
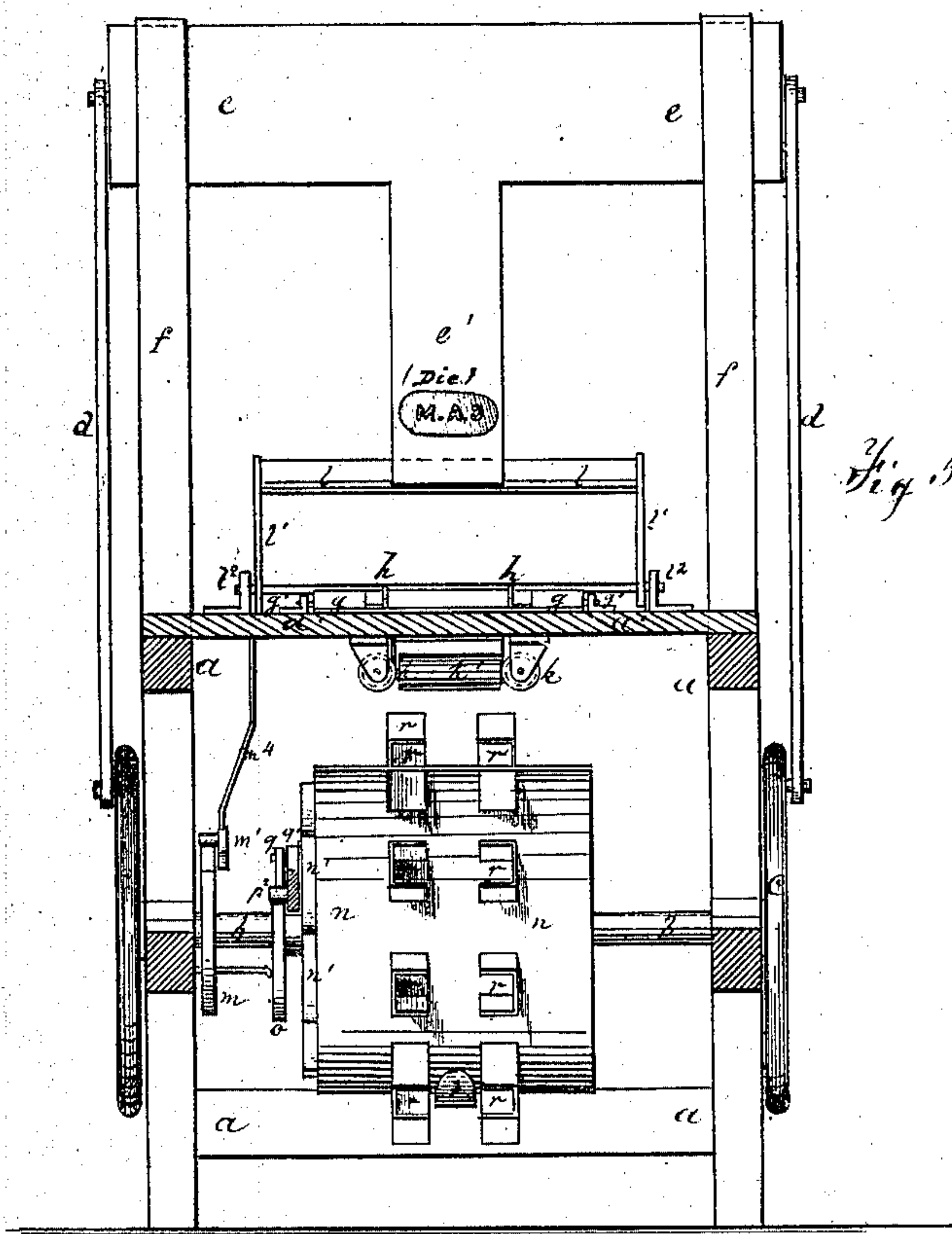


Witnesses: *John A. Dargatzis*
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C. A. MAXFIELD.
PAPER BOX MACHINE.

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Witnesses: *Charles Englehardt, A. Maxfield* Inventor
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United States Patent Office.

CHARLES A. MAXFIELD, OF NEW YORK, N. Y.

Letters Patent No. 104,477, dated June 21, 1870.

IMPROVEMENT IN PAPER-BOX MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

I, CHARLES A. MAXFIELD, of the city, county, and State of New York, have invented certain new and useful Improvements in Machines for Making Boxes and Box-Envelopes, or receptacles of paper, pasteboard, &c., of which the following is a specification.

Nature and Objects of my Invention.

My invention consists in certain novel combinations and arrangements of parts for creasing, embossing, forming and uniting the blanks from which the envelopes or boxes are made, and for holding them in shape while they are drying; and it has for its object the production of envelopes, &c., at a less cost than formerly, by facilitating the operation of making them.

A caveat, No. 2,560, was filed for this invention on the 27th day of August, 1868.

Description of the Drawing.

Figure 1 is a side elevation of my improved machine.

Figure 2 is a horizontal section through the line A A of fig. 1.

Figure 3 is a vertical longitudinal section through the line B B, fig. 2.

Figure 4 is a horizontal section through the line C C, fig. 3.

Figure 5 is a vertical transverse section through the line D D, fig. 4.

Figure 6 is a detached sectional view, showing the position of the "former" *e'* at the time it is commencing to fold the blank.

Figure 7 is a view showing the shape of the blank from which the boxes are made.

General Description.

The main shaft *b* is provided with suitable bearings in the frame *a*, and has a crank-wheel, *c*, secured upon each end, which gives motion to the cross-head *e* through the medium of the connecting-rods *d d*.

The cross-head *e* slides in the vertical guides *f f*, secured to the frame of the machine, and reciprocates the "former" *e'* secured to it.

The table *a'* is to be provided with the necessary mechanism for feeding the blanks to the "former," and for gumming the edges of the flaps; but, as these are employed and embraced in the construction of all machines of this character, the same are not illustrated in the drawing, and a detailed description is deemed unnecessary.

The plate or table *a'*, has an opening in its center, immediately beneath the former *e'*, through which the latter descends in forming the blanks.

A folder, *g*, is pivoted upon the table at *g' g'*, in line with and projecting a little over the opening in the

table. It is provided with side wings *h h*, and is so arranged with relation to the "former" *e'* that the latter, in its descent, will strike against the inner edge of the folder *g* and turn it up, so that, as the "former" descends, the side wings *h* will turn up the end flaps of the blank, and the folder *g* will perform the same office for the side of the blank.

Upon the ascent of the "former" the folder is drawn back into place by a spring.

The creasing-knife *l*, pivoted to the frame *a*, performs the office of creasing that part of the blank forming the flap of the envelope. It is operated by the cam *m*, on the main shaft *b*, whose shape permits the knife *l*, at the proper time, to drop upon the blank and crease it by forcing into the groove in the table *a'*.

The parts which communicate motion to the knife from the cam *m* consist of the lever *m'* and connecting-rod *m''*.

Beneath the table *a'*, and around the opening in it, there are four rollers, *k*, composed of some material to give them a proper degree of elasticity, and held in bearings, one upon each side of the opening. They perform the office of creasing and pressing the gummed edges of the blanks together as the "former" descends between them.

The drum *n*, whose surface is provided with a series of receivers, *r*, is arranged upon the main shaft *b*, in such relation to the "former" *e'* that, at each time of its descent, a receiver is in position to take the completed box or envelope from the "former," and hold it during the process of drying.

The drum receives an intermittent rotary motion in a reverse direction from the main shaft upon which it is hung, through the medium of the cam *o*, on the main shaft, and the levers *p* and *q*, which operate the pawl *q'* in such manner that, at each revolution of the shaft, the pawl engages with a tooth of the ratchet-wheel secured to the side of the drum, and revolves it in the direction of the arrow 2, the distance necessary to bring a receiver into position beneath the "former."

The spring *u*, which engages with the ratchet-wheel, prevents the drum being moved otherwise than in the regular manner by the pawl *q'*, and the spring *t* performs the office of a discharger, to force the boxes or envelopes out of the receivers.

When it is desired to emboss or ornament the sides of the boxes or envelopes, the face of the "former" is made with the required figure, in relief, upon it, as represented in fig. 5, so that, as the "former" descends, the blank is pressed between the die on the "former" and the rollers *k*, and the design quickly embossed or printed upon the blank while it is being folded.

The die or figure to be embossed or printed may be

also arranged upon the surface of one of the rollers *k* instead of upon the "former;" in which case it would be necessary to substitute a roller with an unyielding surface; and the "former" and roller may also be so arranged that either may be changed at pleasure, whenever it is required to substitute another design or figure for the one in use.

The sides of the blank opposite those that the folder *g* turns, are creased and turned up by the pins *g'*; but a second folder, similar to *g*, may be employed in place of the pins, if preferred, or the "folders" described and embraced in the Letters Patent No. 77,502, granted to me May 5, 1868, may be employed instead.

Claims.

I claim as my invention—

1. The combination, with the "former" *e*, of the

folders *g*, for folding the flaps upon the "former," substantially as described and specified.

2. The combination, with the former, provided with a die, of the embossing-roller *k*, for embossing the boxes as they are formed, substantially as described and specified.

3. The receivers *r*, arranged to receive successively the boxes from the former, and hold them until dry, or sufficiently set to retain their form, substantially as described and specified.

4. The combination, with the receivers *r*, of the bar *t*, or equivalent device, for automatically discharging the boxes from the receivers, substantially as described and specified.

Witnesses:

CHAS. A. MAXFIELD.

C. A. DURGIN,

EDWARD E. OSBORN.