

(No Model.)

M. MARQUES.
PAPER BOX MACHINE.

No. 305,830.

Patented Sept. 30, 1884.

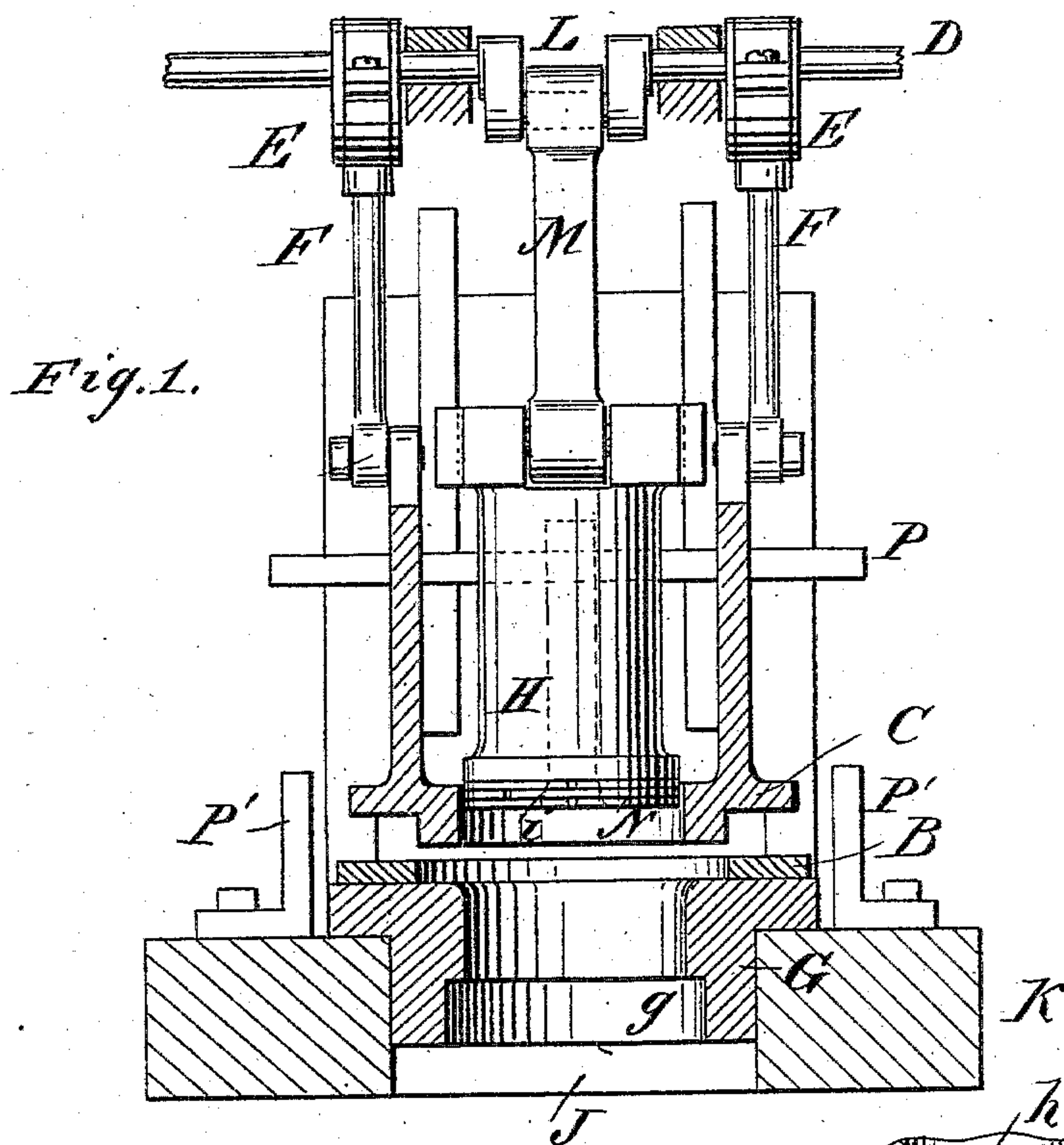


Fig. 1.

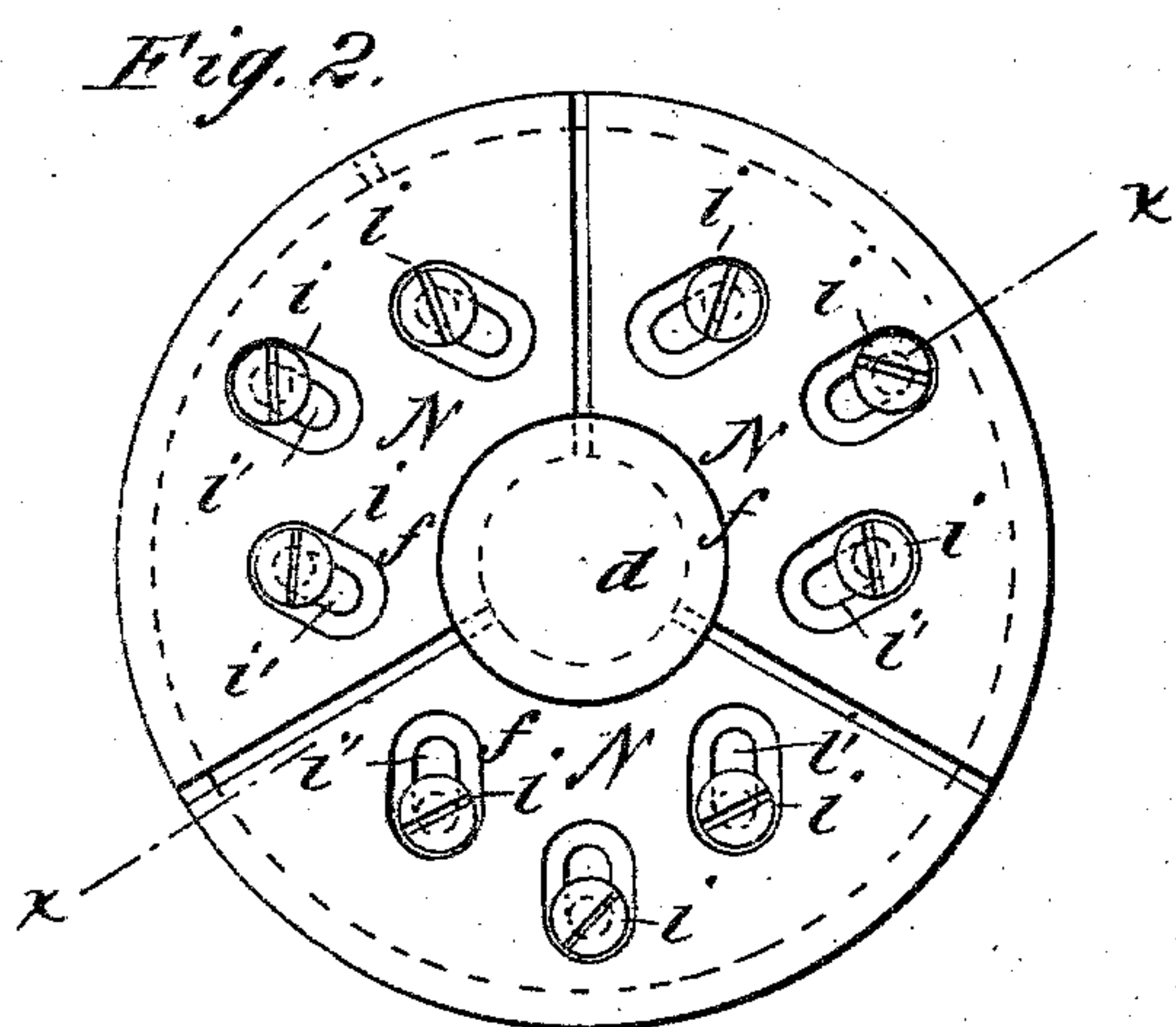


Fig. 2.

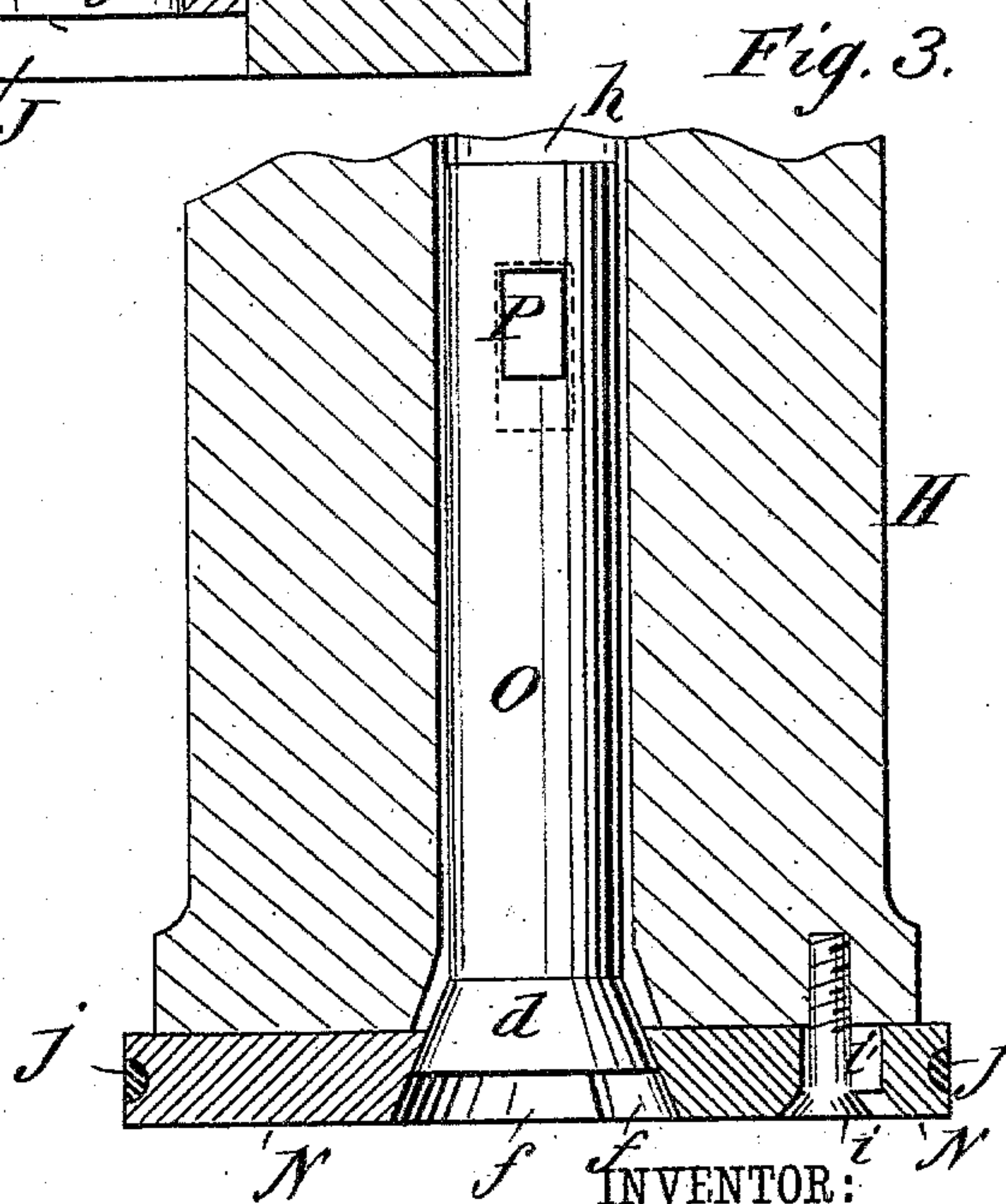
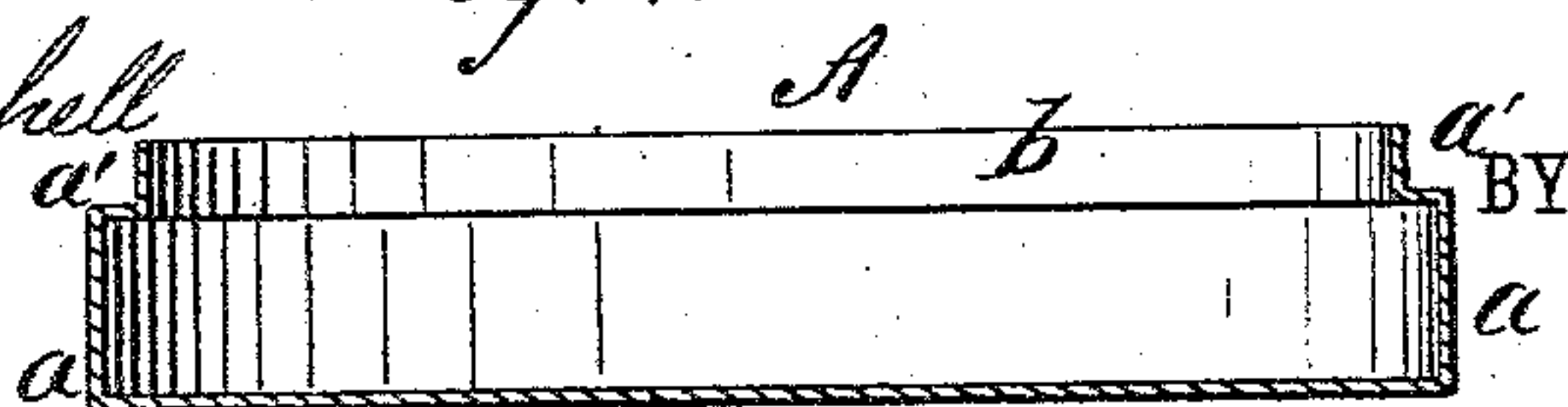


Fig. 3.

WITNESSES:

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Fig. 4.



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UNITED STATES PATENT OFFICE.

MAURICE MARQUES, OF NEW YORK, N. Y.

PAPER-BOX MACHINE.

SPECIFICATION forming part of Letters Patent No. 305,830, dated September 30, 1884.

Application filed June 14, 1883. (No model.)

To all whom it may concern:

Be it known that I, MAURICE MARQUES, of the city, county, and State of New York, have invented a certain new and useful Improvement in Machines for Making Paper Boxes, of which the following is a full, clear, and exact description.

The object of the invention is to improve paper-box machines, as hereinafter described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional elevation of the paper-box machine. Fig. 2 is a plan view of the male forming-die, showing the radially-sliding segmental plates for forming the offset in the box. Fig. 3 is a sectional elevation of the same, taken in the line *xx* of Fig. 2; and Fig. 4 is a sectional elevation of my new and improved paper box.

The paper box *A* is formed of a single blank cut from a sheet of pasteboard, straw-board, or other suitable material, and is enlarged at *a*, in the process of making, to form the offset or shoulder *a'* around the box, and also to form the upright portion *b*, which constitutes a flange or collar around the top of the box on which the cover of the box is placed, the shoulder *a'* serving to support the edges of the cover, so that when in place its outer surface will stand flush with the outside of the body of the box.

The blank for forming the box *A* is cut from a sheet of straw-board, pasteboard, or other suitable paper material by the annular female cutting-die *B* and annular male cutting-die *C*, which latter is reciprocated for that purpose from the power-shaft *D* through the medium of the cams *E E* and connecting-rods *F F*. The female cutting-die *B* is placed upon the female forming-die *G*, and the cams *E E* are so formed and are so timed in their movement relatively to the movement of the reciprocating male forming-die *H* that they cause the male cutting-die *C* after cutting the blank to grasp it at its edges between the lower end of the said male cutting-die and the upper surface of the female forming-die *G*, and to hold the blank taut and properly centered over the passage through the female forming-

die. The blank will be held in this manner until the male forming-die *H* in its descent reaches the blank and forces it a short distance down into the female forming-die *G*. This will draw the edges of the blank from under the die *C*, which tends to cause the blank to wrinkle equally around its sides or edges. The female forming-die *G* is held in the opening *J* made in the bed-plate *K*, and is enlarged, as shown at *g*, in which enlargement the blank is compressed for enlarging the box at *a* for forming the offset *a'*. The male forming-die *H* is reciprocated for shaping the blank and forming the box *A* in the female die *G* from the shaft *D* through the medium of the crank *L* and connecting-rod *M*, and this die *H* is centrally recessed or made hollow, as shown at *h*, and to its lower end are secured, by means of the screws *i i*, the segmental expanding plates *N N*. The screws *i i* pass through the slots *i' i'*, so that the plates *N N* may be expanded or moved outwardly at the proper time for pressing the blank into the enlargement *g* for enlarging the blank and forming said offset *a'*.

O is the expander for expanding or moving outwardly the plates *N N*. It is placed in the recess *h* of the die *H* and is formed with the conical head *d*, in contact with which the inner conical and beveled edges of the plates *N N* are held by the clasp-spring *j*. At its upper end the expander is provided with the cross-bar *P*, which passes through the expander and through suitable slots made in the die *H*, and is adapted to come in contact with the stop-plates *P' P'*, secured upon the bed-plate *K*, for stopping the expander in its descent, and these stop-plates are so arranged that the descent of the expander will be stopped just at the time the upper edges of the plates *N N* pass the upper edge of the enlargement *g*, so that the downward movement of the die *H* from that point will force the plates *N N* downward upon the conical head *d*, and thus cause them to be forced outward into the enlargement *g*, causing them to press the blank into said enlargement and from the shoulder *a'* and collar or flange *b* of the box. Upon the upward movement of the male forming-die *H* the weight of the expander *O* and cross-piece *P* will cause them to descend to their normal positions in the recess *h* of the male forming-die

H, permitting the expanding plates N N to be forced inward upon the screws *i i* by the action of the surrounding clasp-spring *j*, so that the parts of the machine, (including the male cutting-die,) when the die H reaches the limit of its upward movement, will be in their original positions, ready for another operation. In this manner it will be seen that the attendant of the machine has simply to feed the sheets of material between the cutting-dies B C, the completed boxes being forced in succession out of the female forming-die G through the opening J through the bed-plate.

Although I have shown the box A and the cutting and forming dies of the machine round in form, it will be understood that I do not confine myself to such form, and instead of using the expander O, which has a stop motion, an inverted conical expander having a downward movement at the proper time might be used and not depart from the spirit of my invention.

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

1. In a paper-box machine, the combination, with female cutting and forming dies, of male cutting and forming dies, the latter being provided with expanding plates, and means, substantially as described, for operat-

ing the said cutting and forming dies and expanding the said plates, as and for the purpose set forth.

2. In a paper-box machine, the combination, with a female forming-die provided with an enlargement on its under side, of a male forming-die provided with spring-pressed expanding plates on its lower end, and means, substantially as described, for expanding said plates, as and for the purpose set forth.

3. In a paper-box machine, the combination, with the female forming-die G, provided with the enlargement *g*, of the male forming-die H, provided with the spring-pressed expanding plates N, the expander O, having the conical head *d*, and means, substantially as described, for operating the male forming-die and expander, as and for the purpose set forth.

4. The bed-plate K, having the stop-plates P' P' secured thereto, in combination with the male forming-die H and expander O, provided with the cross-bar P, substantially as and for the purposes set forth.

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Witnesses:

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