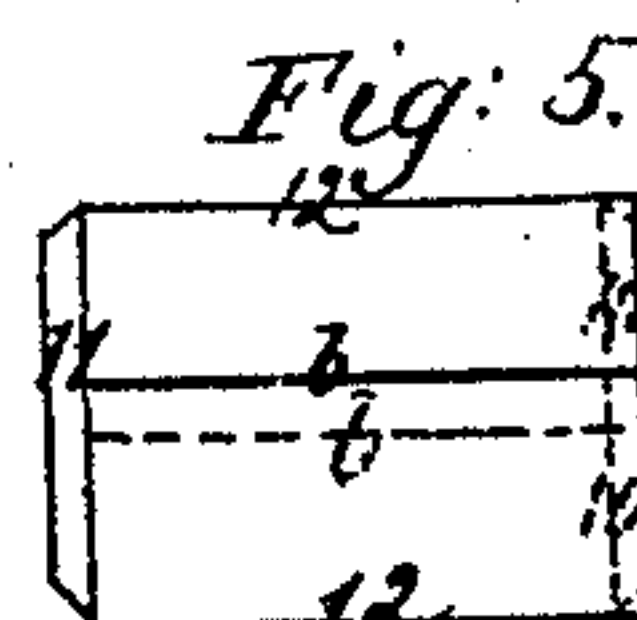
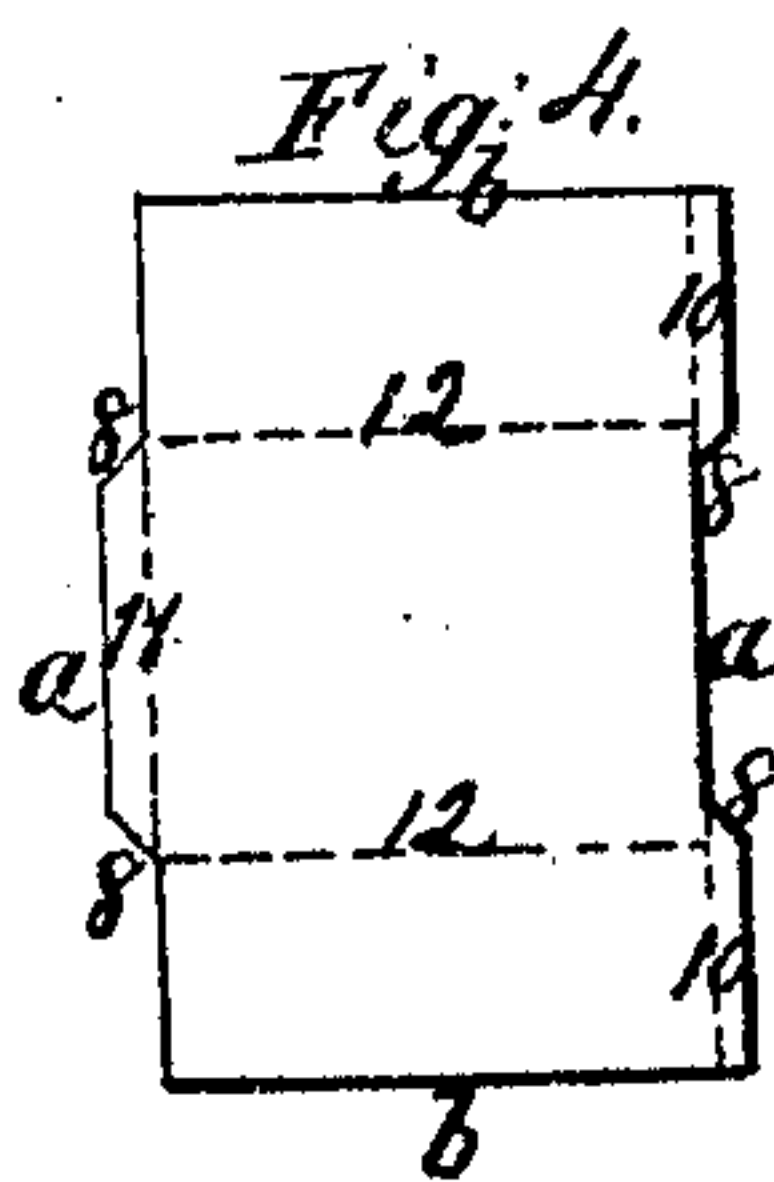
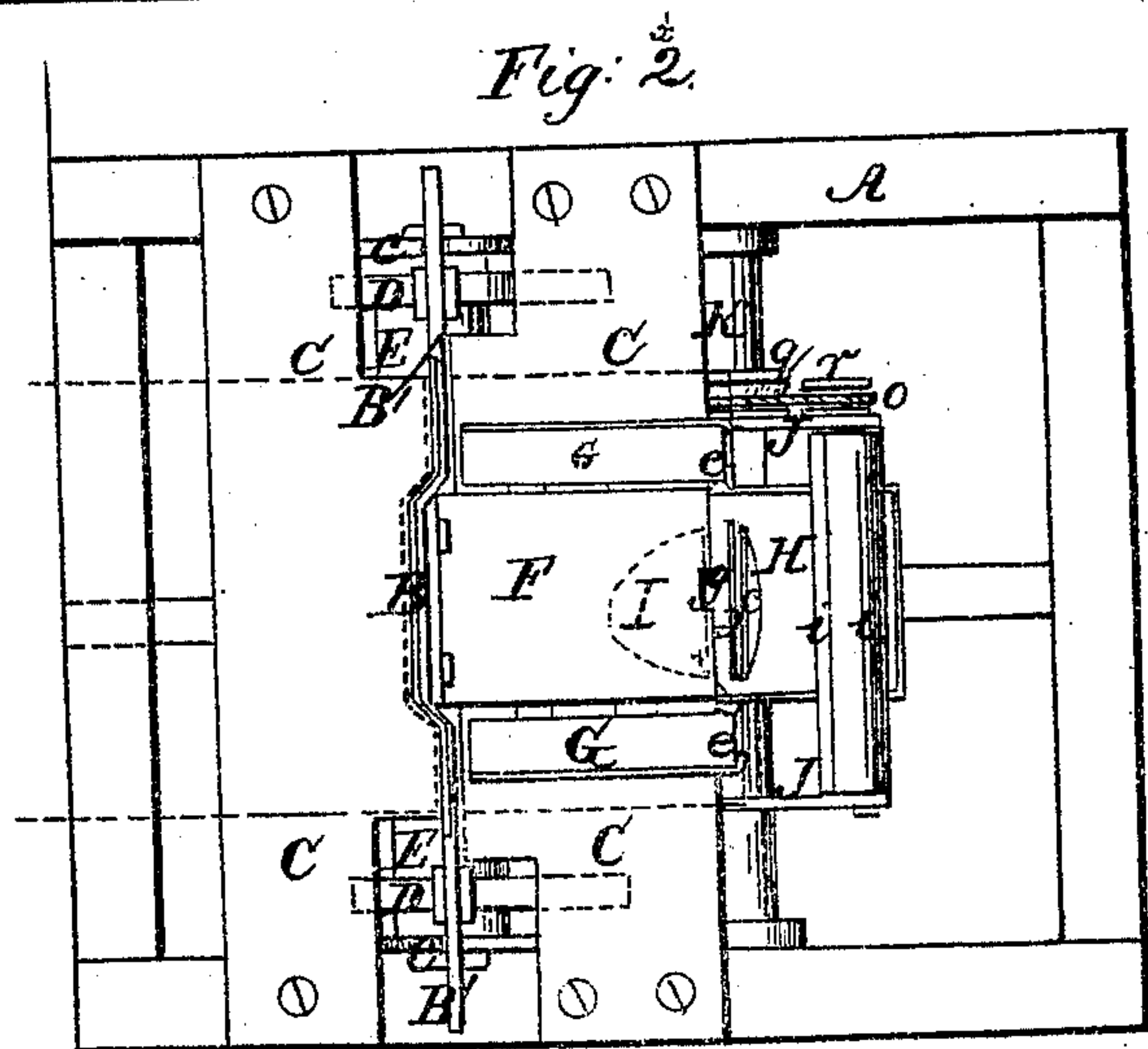
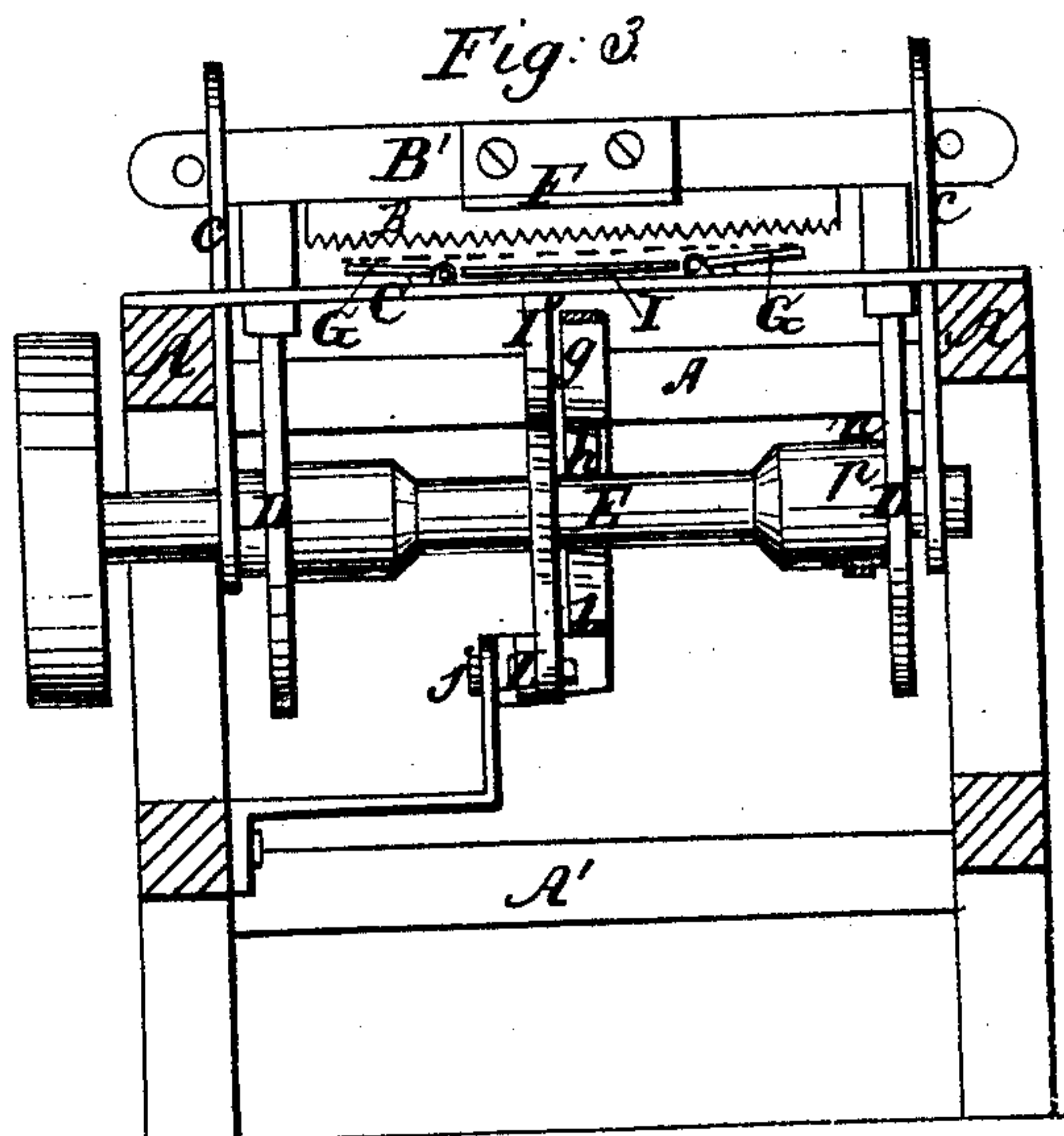
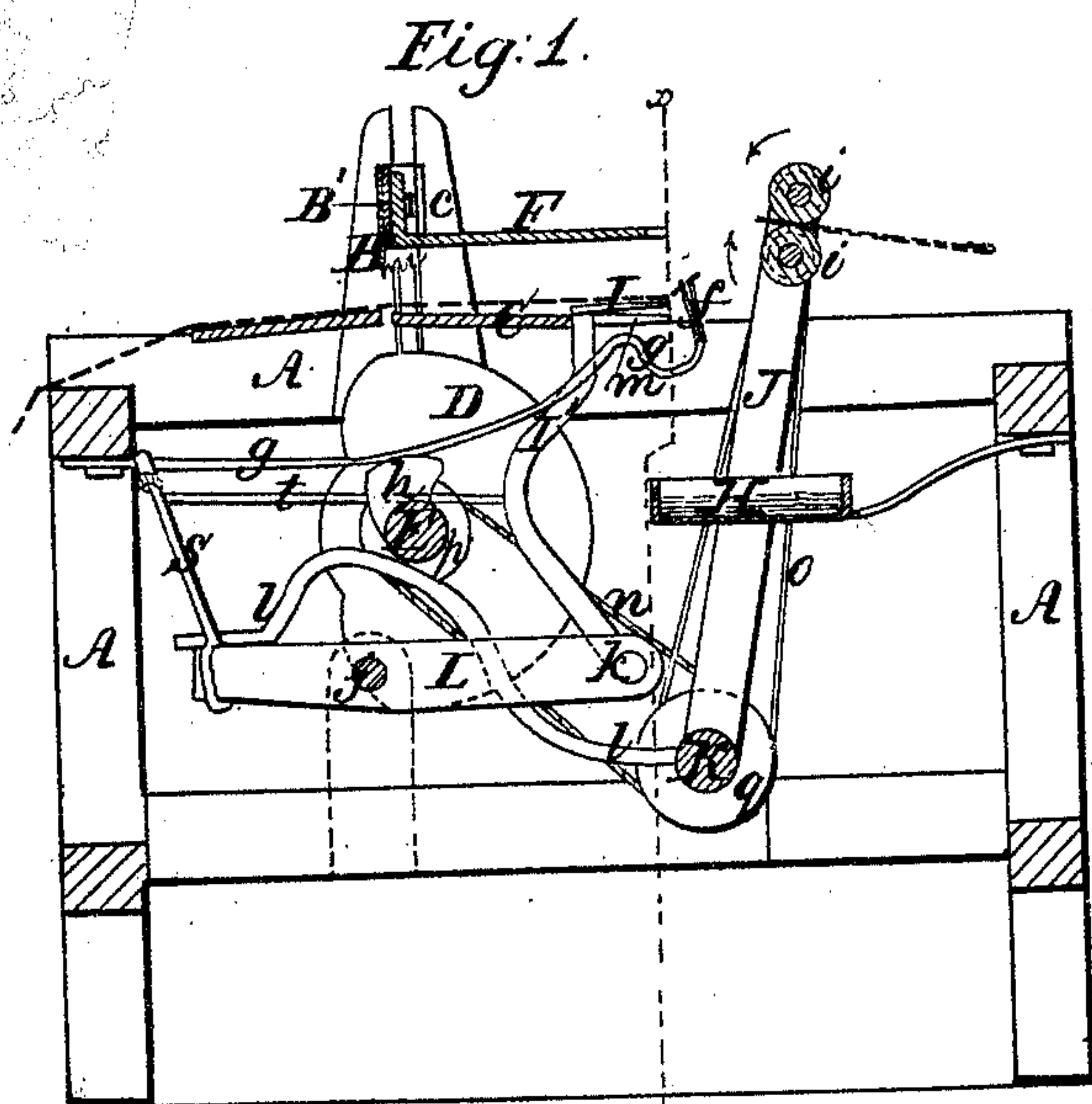


W. Goodale.

Mach. for Making Paper Bags.
 N^o 24734. Patented Jul. 12. 1859.



Witnesses;
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 H. T. Goodale

Inventor;
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UNITED STATES PATENT OFFICE.

WM. GOODALE, OF CLINTON, MASSACHUSETTS.

MACHINE FOR MAKING PAPER BAGS.

Specification of Letters Patent No. 24,734, dated July 12, 1859.

To all whom it may concern:

Be it known that I, WILLIAM GOODALE, of Clinton, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Machinery for Making Paper Bags; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is a central longitudinal section of a machine with my improvements. Fig. 2, is a plan of the same. Fig. 3, is a transverse vertical section of the same in the line x, x , of Fig. 1. Fig. 4, exhibits the shape of the paper blank of which the bags are formed by the machine, before it is folded. Fig. 5, exhibits the bag folded.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists firstly in making the cutter which cuts the paper from the roll or piece, of the peculiar irregular form hereinafter described, whereby it is caused by the operation by which it cuts the paper from the roll or piece, to give it the form hereinafter specified which permits it without further cutting out to be folded into a bag.

It also consists in the attachment of the former around which the paper is folded to form the bags, to the cutter which cuts it from the roll or piece.

It also consists in a certain mode of applying and arranging a paster in combination with the former attached to the cutter, for the purpose of pasting the lap which closes the bottom of the bag.

It also consists in a certain construction of two side lappers operating in combination with the former to fold the bag, whereby the bottom lap is partly folded by the act of folding the side laps.

It also consists in a contrivance applied and operating as hereinafter described to start the folded or partly folded bag from the former.

It also consists in a pair of rollers arranged in a vibrating frame and operating as hereinafter described to remove the bag from the former, close the laps and discharge the bag from the machine. And it further consists in the general arrangement

and combination of the several parts of the machinery to operate substantially as hereinafter described.

To enable others to make and use my invention I will proceed to describe its construction and operation.

A, is a square framing which supports all the working parts of the machine.

B, is the cutter which cuts the paper from the roll or piece to the required form for the bags, which is exhibited in Fig. 4, said cutter cutting directly across the roll or piece and producing the edges a, a , of the blank. The edges b, b , are not cut at all as the blank, between those edges, is the full width of the paper.

Before proceeding further with the description of the machine it will be well to explain how the bag is produced from this blank represented.

The cutting of the edges a, a , with two jogs 8, 8, provides a lap 10, 10, to close the bottom and one 11, to cover the mouth of the bag, when the blank has been folded in the dotted lines 12, 12. These lines 12 are so situated that the edges b, b , will lap each other as shown in Fig. 5, to form a seam down the middle of one side of the bag. The two parts 10, combine to form a lap for the bottom when the blank has been folded, in the lines 12, 12, and this lap is to be folded in the opposite direction to the fold in the lines 12, 12, that is to say if the side parts outside the lines 12, 12, are folded over on the top of the central portion the parts 10, are to be folded under the central portion as illustrated in Fig. 5.

The cutter B, is of the form of the edges a, a , shown in Fig. 4, as may be seen by reference to Fig. 2, where its back is represented. This cutter has a serrated edge which works through a narrow slot d , of corresponding form in a table C, upon which the paper is deposited in proper lengths for the blanks, from a roll or direct from a paper making machine, by suitable intermittently operating feed rollers, which I have not thought it necessary to represent as such rollers are used in most paper bag machines, the front edge of the said table C, being also, like the cutter, of the form of the edges a, a . The cutter is attached to a horizontal bar B', which works within vertical guides c, c , erected on opposite sides of the machine

and which derives an upward vertical movement from two cams D, D , on a constantly rotating horizontal main shaft E , and then descends by its own weight which is sufficient to cause the cutting of the paper by the cutter, the descent taking place during the intermissions between the feeding movements of the paper.

F , is the former consisting of a plate of metal of a width and length equal to the desired width and length of the bag, secured to the cutter bar B' , so as to rise and fall with the cutter, said plate occupying a horizontal position and coming down close upon the table C , at the back of the cutter as the cutter completes its descent and cuts off a blank from the piece or roll of paper, the side edges of the said former coming on the lines $12, 12$, of the blank. The cutter and former remain stationary after their descent long enough to permit the operation of the side lappers G, G , which are hinged to the table C , one on each side of the former and which are thrown quickly over the former to fold over the side portions of the blanks from the lines $12, 12$, and as quickly thrown back again to permit the rising of the cutter and former; one of the said lappers operating slightly in advance of the other to permit one edge b , of the blank to be lapped over the other without any danger of their meeting. I have not represented in the drawing any mechanism for operating these lappers as they may be operated in the same manner as the lappers in other paper bag and envelop making machines. The said lappers however differ in their construction from the lappers in other machines in one particular, viz in having the ends which are next the extremity of the former, bent at a right angle or nearly so as shown at e, e , in Fig. 2, so that as they fold the sides of the blank they will also partly fold the bottom lap that is to say will turn it down at right angles to the body of the bag. The parts e, e , of the lappers may be attached to the other parts by hinge joints and be operated so as to complete the folding of the bottom lap.

It might have been before observed that as the paper for the blank is fed on to the table C , it is pasted along one edge b , by passing over a paste roller, which I have not represented, as it constitutes no part of my invention and hence the lap of the two edges b, b , is caused to adhere to form the seam when the sides of the blank are folded over by the lappers. The bottom lap is pasted by means of a paster f , which is attached by a spring arm g , to the upper front rail of the frame. This paster is forced by the elasticity of the spring arm g , down into a paste box H , suitably arranged below the table C , but at the proper time, viz. after the operation of the side lappers

F, F , is raised to apply the paste to the overhanging lap $10, 10$ of the partly folded blank on the former, by the action upon the arm g , of a cam h , on the main shaft E .

I , is what I call the knock-off for starting the bag from the former and causing its entrance between the pair of rollers i, i , which are arranged at the back of the machine in the vibrating frame J , to take the bag and complete it by pressing the laps close together, and discharge it from the machine. The knock-off I , consists of a straight edged piece of plate arranged between the former, and the table C , and attached to a curved arm I' , which works through a slot m , in the back of the table and is pivoted by a pin k , to a lever L , which works on a fixed fulcrum j , below the main shaft E . The said lever L , is operated upon to raise the knock-off as or directly after the former F , rises, by the downward pressure upon its rear end, of an arm l , attached to the horizontal rock shaft K , of the vibrating frame J , the said arm being operated to throw forward the vibrating frame by the action upon it of the cam h . As the knock-off is thus raised, its curved arm I' , which is held in contact with the front end of the slot m , by a spring t , connecting it with the upper front rail of the frame is caused by the action of its curved front edge in the said slot, to move back and to cause the edge of the knock-off to strike the turned down lap 10 , of the bag and thus to start it from the former and cause it to enter between the rollers i, i , which are kept constantly revolving in the direction of the arrows shown upon them in Fig. 1, by two belts n, o , one of which runs from a pulley p , which is fast on the main shaft E , to a pulley q , which is loose on the rock-shaft K , and the other from the latter pulley to a pulley r , on the lower of the two rollers. The action of the cam h , upon the arm l , at the same time as it caused the knock-off to rise and strike the bag, brought forward the vibrating frame J , to meet the bag that the rollers i, i , might seize it, and this being done the cam allows the vibrating frame to be thrown back by the upward pull upon the arm l , of a spring s , connecting it with the upper front rail of the frame; and the frame thus moving back with its rollers i, i , in motion on their axes, draws the bag completely off the former F , and the whole length of the bag is caused to pass right through or between the said rollers and be discharged over the back of the machine, receiving such pressure from the rollers in passing between them as to flatten its folds and laps and cause the perfect adhesion of the laps. The spring s , above mentioned is connected with the rear end of the lever L , and at the same time as it draws up the arm l , to throw back the vibrating frame,

draws down the knock-off in advance of the descent of the former F, so that the feeding forward of the paper for the next bag may not be interfered with.

5 I will remark that the former F, applied attached as is described to the cutter so as to be operated by the same simple means, the bottom lap paster, the knock-off and the vibrating frame J, and its rollers *i, i*, may be
10 arranged in the same manner in combination with rollers for folding the sides of the bag instead of with lappers like G, G.

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

15 1. Making the cutter which cuts the paper from the roll or piece of the form herein described that in cutting off the paper it also cuts it to the required form to fold into a bag without further cutting out.

20 2. The attachment of the former F, directly to the cutter to operate in combination therewith and with a folding table C, substantially as herein described.

25 3. The within described mode of applying and arranging the paster *f*, to operate in

combination with the folding table C, and former F.

4. The construction of the side lappers with angular ends *e, e*, substantially as described for the purpose of partly folding 30 the bottom lap by the act of folding the sides of the bag.

5. The knock-off I, operating in combination with the former substantially as and for the purpose described. 35

6. The vibrating frame J, with its rollers *i, i*, operating in combination with the former and the knock-off substantially as and for the purpose herein described.

7. The arrangement of the table, the cutter, the former, the side lappers, the bottom paster, the knock-off and the vibrating frame J, to operate in relation to and in combination with each other substantially as described. 40

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Witnesses:

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