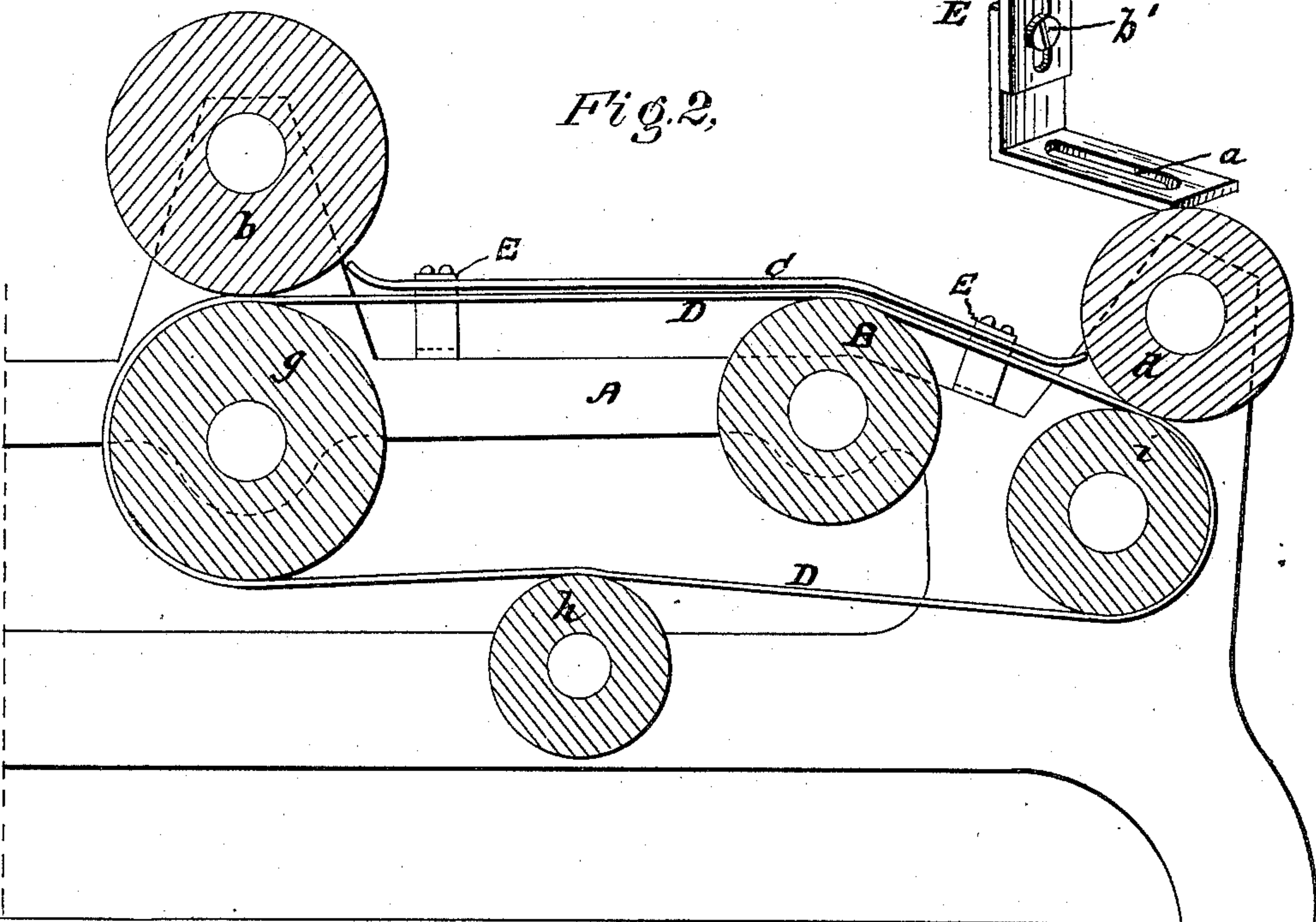
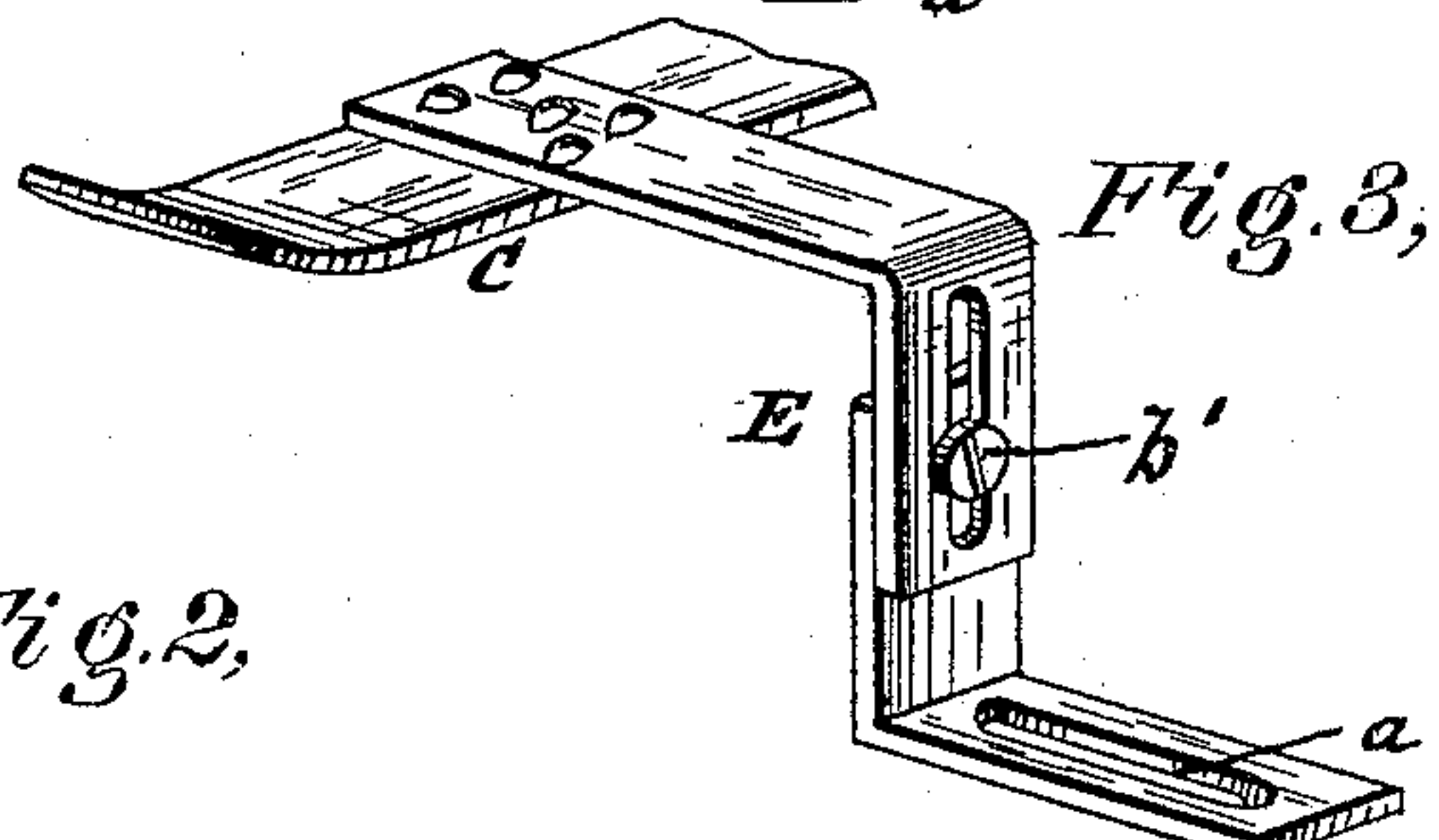
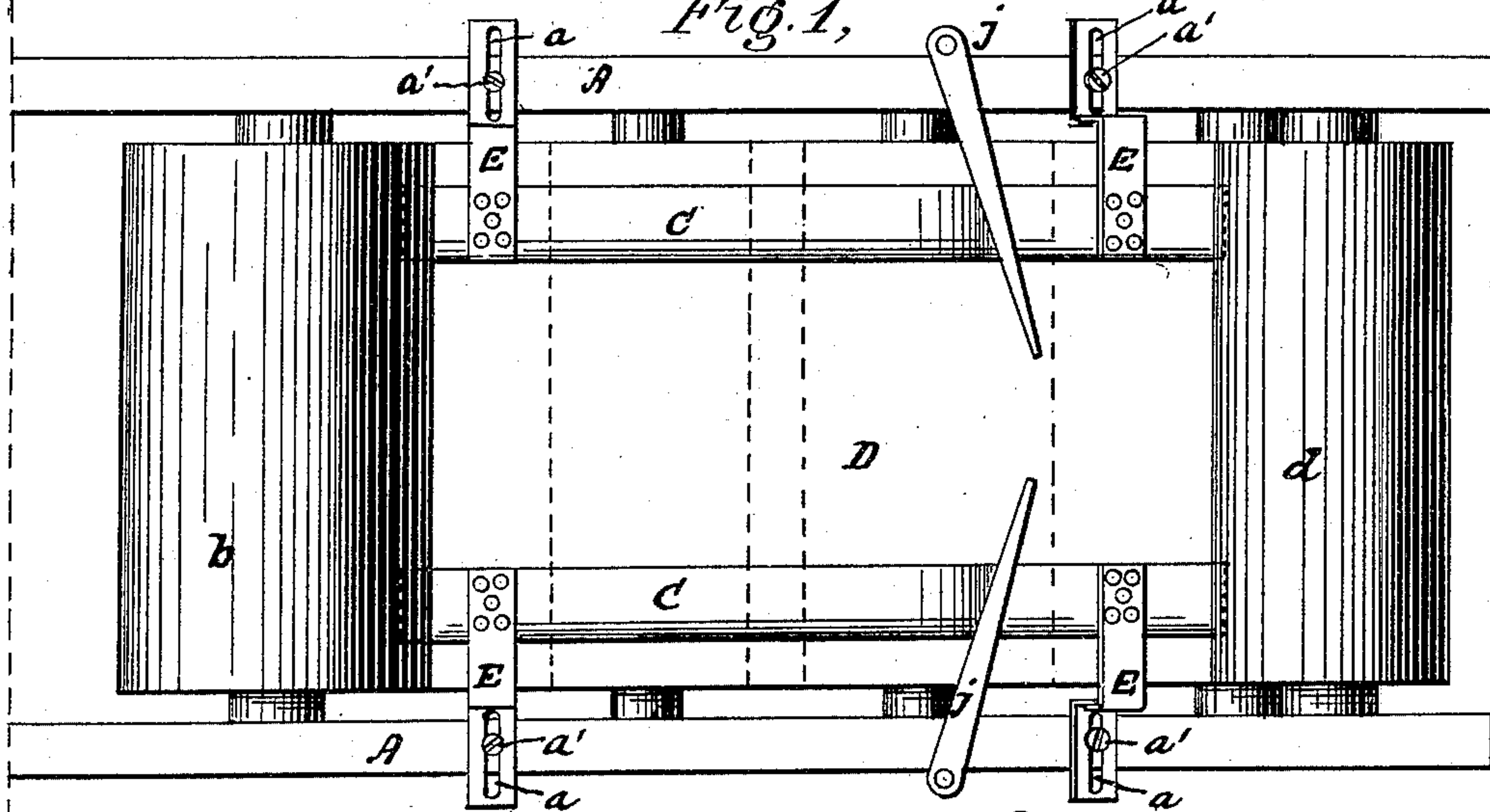


(No Model.)

W. C. CROSS.
Paper Bag Machine.

No. 232,947.

Patented Oct. 5, 1880.



Witnesses:

M. Georgi.
E. A. Rick

Inventor

Wm. C. Cross
by *W. Daily*
his Atty.

UNITED STATES PATENT OFFICE.

WILLIAM C. CROSS, OF BOSTON, MASSACHUSETTS.

PAPER-BAG MACHINE.

SPECIFICATION forming part of Letters Patent No. 232,947, dated October 5, 1880.

Application filed September 4, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. CROSS, of Boston, Suffolk county, Massachusetts, have invented certain new and useful Improvements in Machines for Making Satchel-Bottom Paper Bags, of which the following is a specification.

The improvement about to be described has been designed with special reference to blank-carrying and fold-determining mechanism, substantially such as described in my Letters Patent No. 222,465, of December 9, 1879. Its object is to dispense with the carrying-tapes shown in said patented mechanism, retaining only the traveling apron, on which the blank rests and with which it moves, and using, instead of the upper carrying-tapes, stationary strips, termed by me "presser-guides," which, while they hold the blank down on the moving apron and determine the line of fold, do not partake of the movement of the apron, but remain fixed and at rest.

The nature of my improvement and the manner in which the same is or may be carried into effect will be understood by reference to the accompanying drawings, in which—

Figure 1 is a plan, and Fig. 2 a longitudinal vertical central section, of mechanism embodying my invention. Fig. 3 is a perspective view, on enlarged scale, of one of the brackets.

In the drawings, A is the frame; *g* B *i*, the rolls on which the apron D runs, and *h* the apron tension-roll. The oscillating folding-fingers, which sweep over the folding-roll B on a line tangential, or substantially so, to said folding-line, are marked *j*, and are shown in Fig. 1, being omitted from Fig. 2, in order to show more clearly the parts to which my present improvement relates.

The parts above named are organized and arranged for operation as described in my aforesaid Letters Patent, and require no further description here.

In lieu of the folding-fingers *j* any other appropriate devices for making the second and final fold, or for making the final fold in case the diamond and second fold have been made before the blank reaches the apron, may be employed—such devices, for instance, as are shown and described in my two applications

for Letters Patent now pending in the United States Patent Office, filed August 30, 1880.

Above the roll *g* (which is power-driven) is a like roll, *b*, which may be cut away so as to serve as a paste-roll, if desired, and which bears on the apron D, the entering blank being caught between this roll and the apron, and thus carried forward into the machine. At the other end of the machine, above the terminal roll *i*, is roll *d*, these two rolls serving to press the folds and to discharge the completed bag.

Between the rolls *b* *d*, and taking the place of the upper traveling tapes, (shown in my aforesaid Letters Patent,) are the presser-guides, in which my improvement consists. These devices consist, in the present instance, of their parallel strips C, of metal or other hard smooth material, but preferably metal, which are stationary or fixed, in the sense that they do not partake of or follow the movement of the blank-conveying apron. They are carried by brackets fixed to the frame A of the machine, and are so arranged as to bear down upon the apron, being placed at such distance apart as circumstances may require, the distance between their interior opposite parallel edges determining the size or width of fold. Each strip is carried by two end brackets, E, each of which is made adjustable laterally or crosswise of the machine by a slot, *a*, in its base, through which passes the set-screw *a'*, by which the bracket is held to the frame A. By this means the metal strips can be set nearer together or farther apart, according to the size of blank operated on and the width of fold desired.

In order to obtain vertical adjustability of the strips for the purpose of varying their pressure on the apron, the upright portion or stem of each bracket is divided into two parts adapted to slide vertically on one another, and held together by a set-screw, *b'*, as shown.

It is, of course, manifest that many other mechanical expedients for making the strips capable of vertical and lateral adjustment may be employed. One or both of each pair of brackets may also be made longitudinally adjustable, so as to keep the strip taut.

The stationary strips being of metal or other

hard material, with smooth contact-surfaces, exercise no retarding effect on the blank, which they press and hold down upon the feed or carrying apron. The latter has a surface
5 which, by frictional contact with the blank, carries the latter along with entire certainty and uniformity.

From the foregoing description the operation of the machine will be readily understood.
10 The diamond-folded blank—diamond fold foremost and uppermost—enters between the rolls *g b*, is carried along by the apron under the pressure-strips *C*, is there acted on by the appropriate folding devices, the points at which
15 the sides of the blank are held by the strips determining the lines of fold, and finally passes out a complete bag from between the terminal or delivery rolls *i d*.

I remark that instead of using separate and
20 independent strips as presser-guides, I can connect them so that they shall be as one, or form them out of a sheet of metal cut out in the center, so as to leave the metal at the sides and ends only, said sheet constituting a
25 frame having an opening in the center through which the folders can work, and provided with parallel interior opposite side edges, the whole frame serving as a presser and the sides serving as fold-guides.

30 In case of employing instrumentalities such as just described, I have one set of presser-guides for each size of bag or fold required.

I also remark that small friction-rolls may be mounted in the strips, or their substitute,
35 back of the folding-point, to help feed along the blank by diminishing the friction between it and the stationary guides.

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

40 1. The combination, with the blank-feeding

apron or carrier, of parallel stationary presser-guides, substantially as and for the purposes hereinbefore set forth.

2. The combination, with the blank-feeding apron or carrier, of parallel stationary presser-guides and folders, substantially as and for
45 the purposes hereinbefore set forth.

3. The combination, with the traveling apron, of the stationary independent strips of metal or other hard smooth material which press the
50 blank upon the apron and determine the line of fold, substantially as hereinbefore set forth.

4. The combination, substantially as hereinbefore set forth, of the front feed-rolls, the traveling apron, the stationary presser-guides,
55 which hold the blank on said apron and determine the line of fold, and the terminal or delivery rolls.

5. In combination with the blank-conveying apron, the independent stationary strips, adjustable laterally or to and from one another
60 to vary the size of fold, substantially as and for the purposes set forth.

6. In combination with the blank-conveying apron, the presser-guides, adjustable vertically
65 or toward and away from the blank-bearing face of the apron, substantially as and for the purposes hereinbefore set forth.

7. In combination with the blank-conveying apron, the independent stationary strips adjustable both vertically and laterally, substantially as and for the purposes hereinbefore set
70 forth.

In testimony whereof I have hereunto set my hand this 2d day of September, 1880.

WILLIAM C. CROSS.

Attest:

GEORGE S. LITTLEFIELD,
MONTRESSOR J. ALLEN.