

(No Model.)

2 Sheets—Sheet 1.

B. A. HICKOX.
PAPER MAKING MACHINE.

No. 259,391.

Patented June 13, 1882.

Fig. 1.

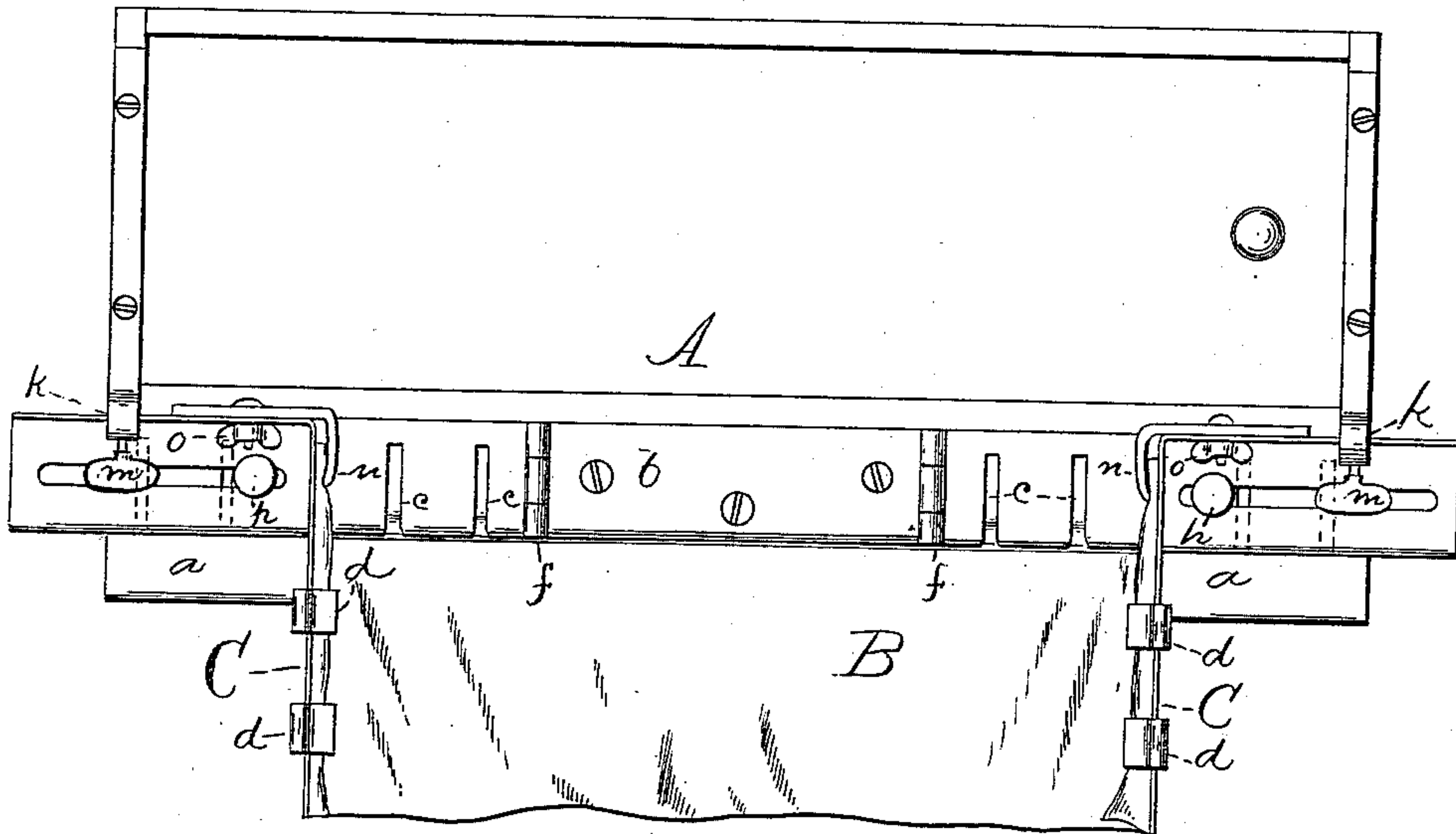


Fig. 2.

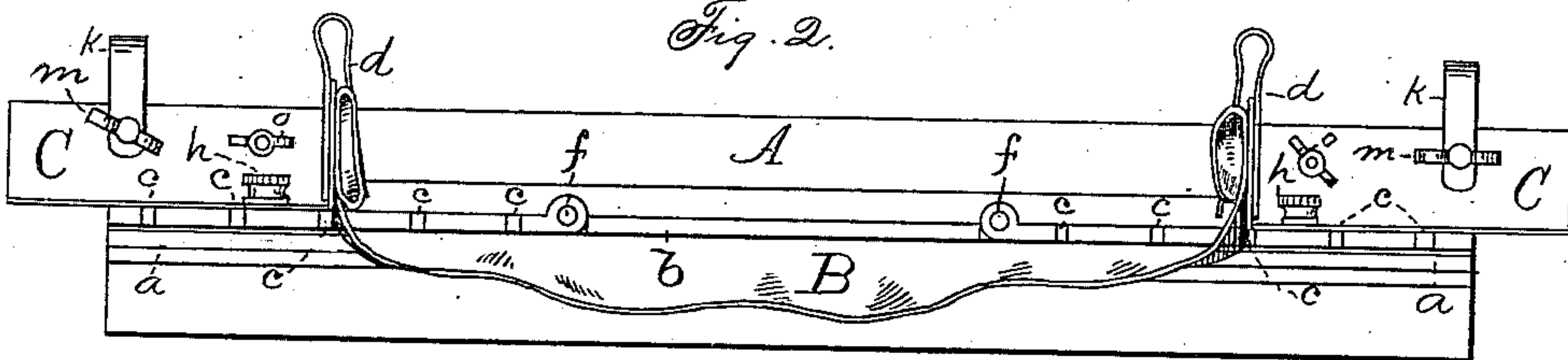
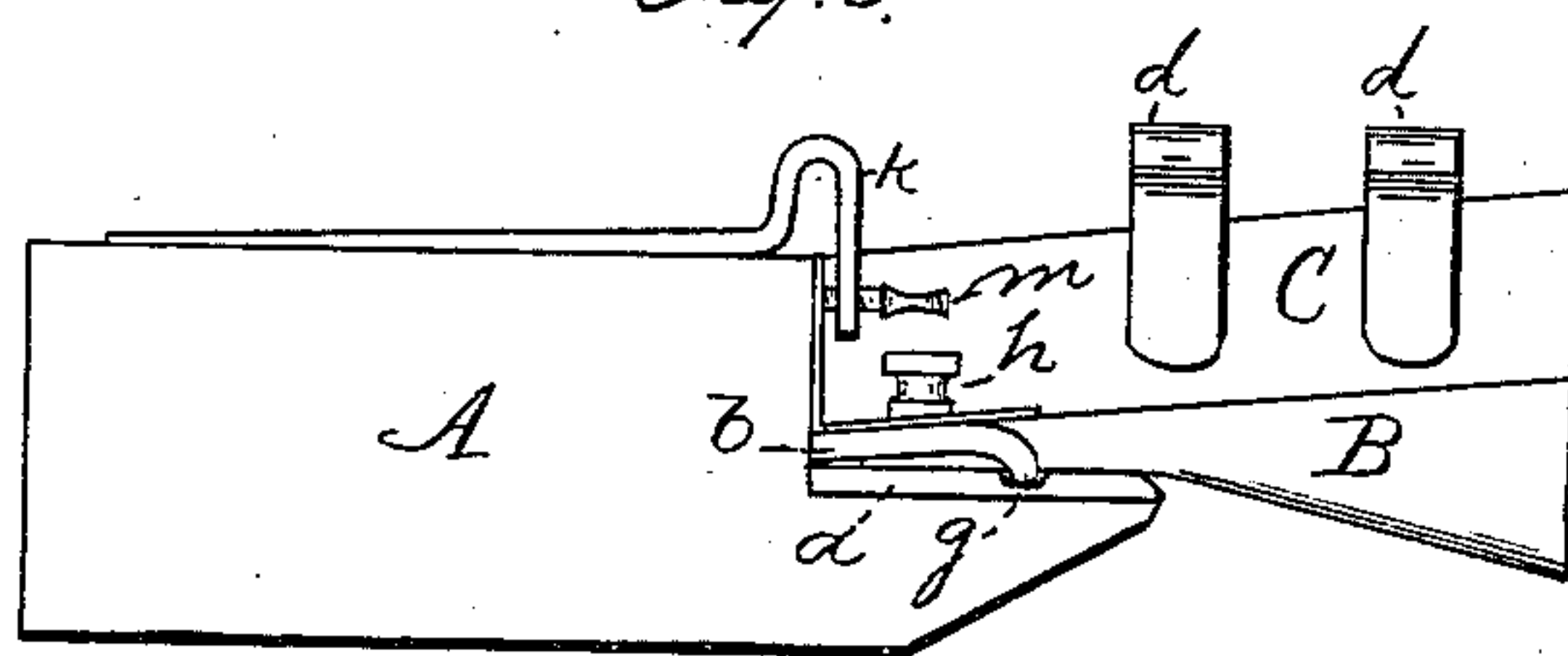


Fig. 3.



Witnesses:
John Edwards Jr.
Chas. B. Oldenham

Inventor:
Benjamin A. Hickox.
By James Shepard.

(No Model.)

2 Sheets—Sheet 2.

B. A. HICKOX.
PAPER MAKING MACHINE.

No. 259,391.

Patented June 13, 1882.

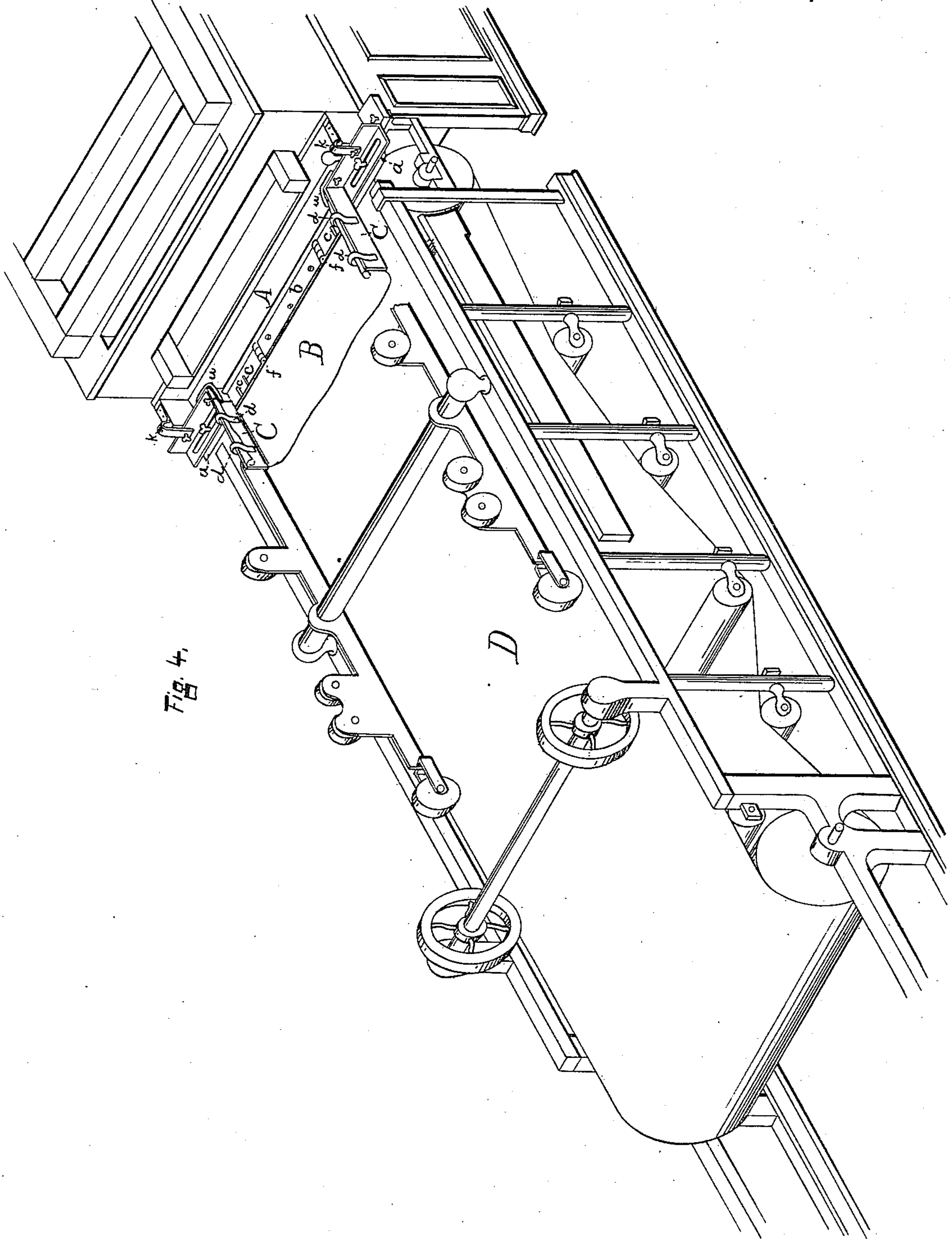


Fig. 4.

Witnesses.

John Edwards Jr.
Fred W. Morey

Inventor.

Benjamin A. Hickox
By James Shepard

att'y

UNITED STATES PATENT OFFICE.

BENJAMIN A. HICKOX, OF WINDSOR LOCKS, CONNECTICUT, ASSIGNOR OF ONE-HALF TO ARTHUR L. BEALS, OF SAME PLACE.

PAPER-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 259,391, dated June 13, 1882.

Application filed March 13, 1882. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN A. HICKOX, of Windsor Locks, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Paper-Making Machines, of which the following is a specification.

My invention relates to improvements in that class of paper-making machines which are known as "Fourdrinier machines," and relates particularly to the manner of and means for attaching the apron over which the pulp flows in its passage to the endless wire-cloth on which the paper is formed.

The objects of my invention are to more conveniently attach the apron and adjust it to different widths, and to dispense with the use of nails, tacks, or other fastening devices, which are liable to become detached and work injury to the machine. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the apron and box to which it is attached; Fig. 2, a front view; Fig. 3, a side view; and Fig. 4 is a perspective view of part of a paper-making machine, showing my improvement properly attached thereto.

A designates the box from which the pulp flows over the apron B to the endless wire-cloth D, on which the paper is formed, as in ordinary machines of this class. This box A is commonly called the "shoe" by the operatives in paper-mills, and the shoe and apron herein shown are substantially the same as those in common use, with the exception of those parts by means of which the apron is secured to the shoe. Upon the front side of the shoe A, I permanently affix a metallic bed, *a*. Over this bed I place an adjustable clamp-plate, *b*. This may be made all in one piece, with slots *c* at suitable intervals at both ends, and the whole of it be capable of being raised and lowered. Suitable screws pass into the bed, so as to clamp the apron B between the bed *a* and clamp-plate *b* to hold the middle portion of the apron to the shoe. The slots *c* are to admit the side edges of the apron when they are turned up and fastened to the ordinary side slips, C C, by means of spring-clamps *d*, as shown. I prefer, however, to make the plate *b* in three parts hinged together at *f f*, as shown, so that the

middle portion of the apron may be permanently clamped, and only the end portions of the plate and apron will require to be loosened when the apron is to be adjusted to different widths. The bed *a* may be made either with or without the grooves *g*, Fig. 3, to receive the front edge of the clamp-plate *b*; but with the groove it will hold the apron somewhat better. The side slips, C C, are angle-pieces attached to a slotted base-plate, which forms a part of said slips, and screws *h h* pass through the slots in said slips and through holes in the clamp-plate into the bed *a*. The side slips also pass under brackets *k k*, having set-screws *m m*. The slips and the manner of holding them thus far described differ from the ordinary construction only by the form of the brackets, which allows them to be elevated a little without removing them from under the brackets. I provide the side slips with additional clamps *n n*, in the form of angle-plates, for the purpose of clamping the ends of the rolls in the apron as rolled up upon the sides. These clamps are held in place by a bolt and nut, *o*, and either the side slips or the body of the clamps *n n* may be slotted.

In order to roll up or unroll the edges of the apron to adjust it to different widths, the clamps *n n* are loosened by turning the nut *o*, the spring-clamps *d d* are removed, and the screws *h m* loosened to release the slips and to allow them to be elevated a little. The slotted ends of the clamp-plate *b* can then be raised sufficient to place the desired portion of the apron under the clamp-plate and to bring the side edges up through the proper slots. These screws *h m* are then tightened to hold the side slips in place and to bind the apron firmly to the bed. The side edges are then rolled up and secured to the slips by the spring-clamps *d*, and the clamps *n* are forced up against the inner ends of the rolled-up portion of the apron and held in place by the nut *o*, as shown. Herefore it has been customary to secure this apron to the shoe by means of tacks or small nails. This necessitated so much renailing that the shoe soon became so perforated that the nails were liable to work loose, and new shoes were often required merely because they were so punctured as not to properly hold the nails. A single nail, when loosened and al-

lowed to come upon the endless wire-cloth, is often the cause of serious damage to the machine. My invention wholly overcomes these objections.

5 I claim as my invention—

1. In a paper-making machine, the combination of the apron, the shoe, and an adjustable clamp-plate, substantially as described, and for the purpose specified.

10 2. In a paper-making machine, the combination of the shoe, the transversely-slotted clamp-plate, and mechanism for fastening and unfastening said plate upon the shoe, substantially as described, and for the purpose specified.
15

3. In a paper-making machine, the combination of the shoe, the clamp-plate having a solid middle portion and slotted end portions hinged thereto, the side slips, and mechanism for fastening and unfastening the said end portions 20 and side slips, substantially as described, and for the purpose specified.

4. In a paper-making machine, the combination of the side slips and the adjustable angle-plate clamps *n n*, substantially as described, 25 and for the purpose specified.

BENJAMIN A. HICKOX.

Witnesses:

ALLEN PEASE,

ARTHUR R. BROOKS.