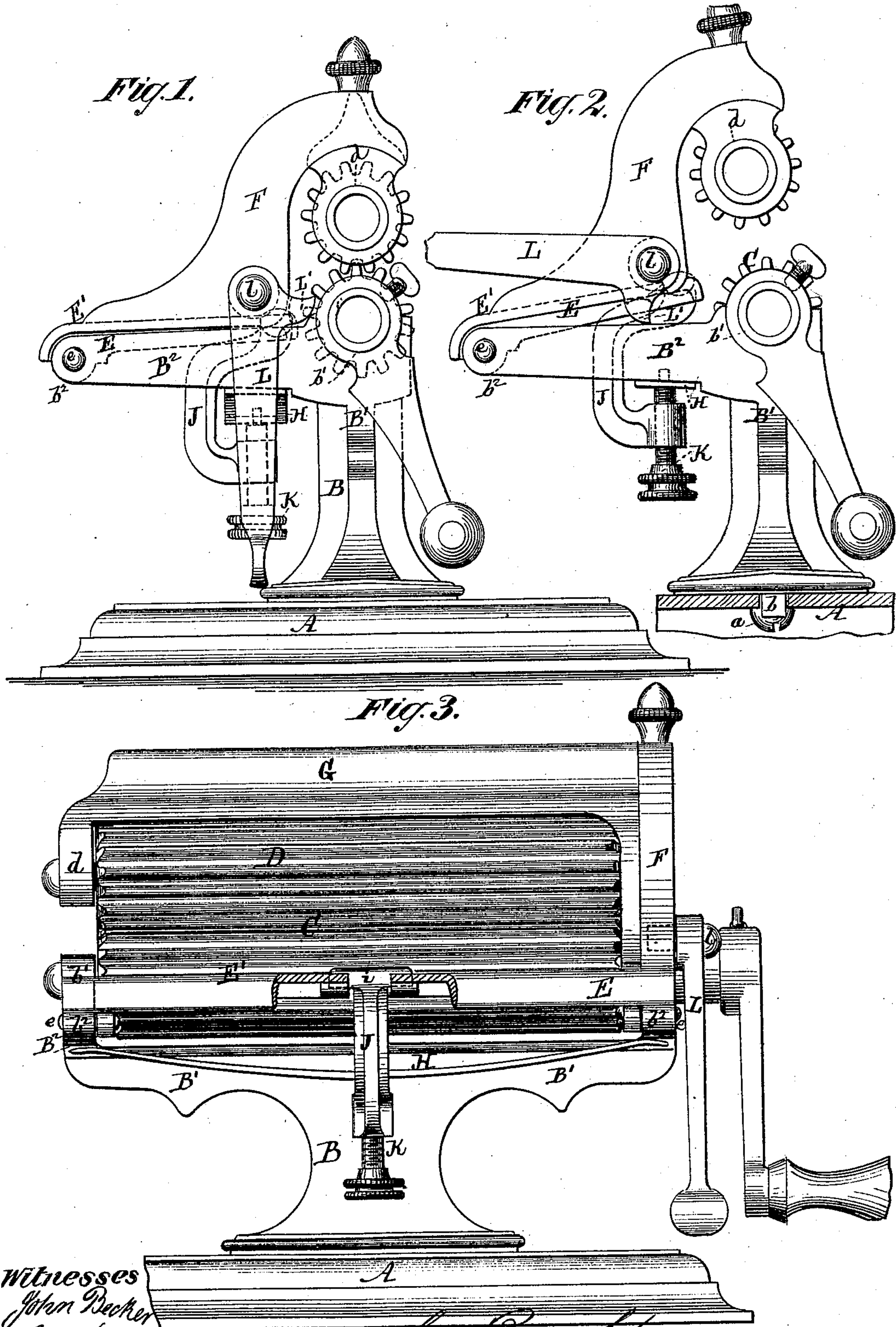


J. BROUGHTON.  
FLUTING-MACHINE.

No. 174,772.

Patented March 14, 1876.



Witnesses  
John Becker  
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John Broughton  
by his Attorney Brown & Allen.



# UNITED STATES PATENT OFFICE.

JOHN BROUGHTON, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN FLUTING-MACHINES.

Specification forming part of Letters Patent No. 174,772, dated March 14, 1876; application filed December 7, 1875.

*To all whom it may concern :*

Be it known that I, JOHN BROUGHTON, of Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Fluting-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same:

My invention relates to fluting-machines, in which the axes of the rollers are in or near the same vertical plane, the lower roller being stationary and the upper one adjustable, and it consists, first, in a novel construction of a standard rising from the base and supporting the bearings for the lower roller and the pivot-bearings for a vibrating frame; also, in a novel construction of said vibrating frame, whereby it is made to support the bearings for the upper roller, and at the same time to serve as a feed table or bed for the work; and further, in a novel arrangement, in connection with the vibrating frame and rigid standard of an adjustable spring and swinging stirrup for regulating the pressure of the upper roller, and a cam-lever for raising and lowering the vibrating frame.

In carrying out my invention, the standard (rising directly from the center of the base) is so constructed as to furnish both the journal-bearings for the lower roller and the pivot-bearings for the vibrating frame which carries the upper roller, without being itself extended upward above the axis of the lower roller. The vibrating frame is so constructed that, while it carries or supports an adjustable roller, which, in its normal position, is directly over or above the stationary roller, yet the axis of vibration of the frame itself is at a point below the upper surface of the lower roller, thus leaving a clear and unobstructed passage for the fabric, both to and from the rollers. The top of the vibrating frame forms a horizontal feed table or bed, (occupying a position in front of the lower roller,) on which the first portion of the damp and wrinkled fabric to be operated upon may be laid and smoothed out when being presented to the rollers, and afterward be guided, controlled, or manipulated with the left hand while passing between the rollers, while the crank of the machine is being turned with the right hand. An adjustable spring is arranged under the

table with its ends under two arms projecting from the standard. The swinging stirrup is suspended by its upper end from the table, and its lower end is provided with a set-screw bearing against the spring. The tendency of the spring is to hold the upper roller in contact with the lower one; and the set-screw serves to hold the spring in place and to regulate its tension. The cam-lever has its fulcrum on the vibrating frame, and the cam portion works between the frame and the standard, and is provided with a stop for limiting its motion. The vibrating frame carrying the upper roller is raised or lowered by elevating or depressing the lever. The movement of the frame in opening or closing the rollers preserves the parallelism of their axes.

The accompanying drawing illustrates the manner of carrying out my invention.

Figure 1 is a side or end view of the machine with the rollers closed. Fig. 2 is a similar view, partly in section, with the upper roller raised. Fig. 3 is a front view.

The base A may be of any suitable construction. The standard B may be in one piece with the base, but is here shown as a separate piece, provided with lugs *b* fitting in sockets in the base and secured by a screw, *a*. From the standard B two arms *B*<sup>1</sup> *B*<sup>1</sup> extend laterally in opposite directions, and carry at their ends the bearings *b*<sup>1</sup> *b*<sup>1</sup> for the lower roller C. From the arms *B*<sup>1</sup> *B*<sup>1</sup>, and about at right angles therewith, two other arms *B*<sup>2</sup> *B*<sup>2</sup> extend horizontally and carry at their ends the bearings *b*<sup>2</sup> *b*<sup>2</sup> for the pivots *e e* of the vibrating frame E. The top of this frame is flat and smooth, and serves as a feed table or bed, *E'*, for the fabric which is to be operated upon by the rollers. One end, *F*, of the frame E is extended upward and forward to a point immediately over one end of the lower roller C, from which point it extends horizontally in a direction parallel with the lower roller, as shown at *G*, and carries the bearings *d d* for the upper roller D. The bearings may be formed in one piece with the arm or standard, or attached in any suitable manner. A flat spring, *H*, is arranged under the table, with its ends bearing against the under sides of the rigid arms *B*<sup>2</sup> of the standard B. A swinging stirrup, *J*, is suspended by its upper end



from the table or frame E by means of a cross-head, *i*, engaging with a socket or recess in the table, or in any other suitable manner. At the lower end of the stirrup is an internally-threaded eye, through which passes a set-screw, K, the point of which bears against the under side of the spring H, so as to keep its ends closely in contact with the arms B<sup>2</sup>; and, if desired, the point of the screw may enter a recess or opening in the spring. Thus arranged, the spring has a tendency to hold down the upper roller in contact with the lower one, but at the same time allows it to yield to the passage of the fabric; and the set-screw serves to hold the spring in place and regulate its tension, and the consequent pressure of the upper roller. A swinging cam-lever, L, has its fulcrum *l* in the forward part of one end of the vibrating frame E, the cam portion L' working between the lower side of the frame and the upper side of one of the arms B<sup>2</sup> of the standard, and the lever oscillating in a direction transverse to the axes of the rollers. When the lever is elevated the cam serves to raise the frame E to the position shown in Fig. 2; and when the lever is depressed the spring H, together with the weight of the frame, forces it down to the position shown in Fig. 1. The cam L' may be of approximate rounded-triangular shape in its cross-section, and it serves as a stop to limit the motion of the lever, and also maintains the frame in its raised position. The lever, thus arranged, presents no obstruction to the operation of any of the parts.

In fluting-machines, as heretofore constructed with separating rollers, the axes of which are in a vertical plane and remain parallel with each other in the separating and closing motion, the upper roller, or the frame or yoke which carries it, is suspended from or pivoted to a rigid arm or support located above the rollers, such rigid arm or support being the horizontal continuation or prolongation of a rigid vertical standard which rises from the base of the machine to a point above the rollers. The principle is that of suspension from a fixed point above the rollers. And to obtain such fixed point for suspension or pivoting without obstructing the passage of the fabric to or from the rollers, the location of the rigid standard must necessarily be at one end of the rollers and correspondingly at one side of the base. In a machine constructed according to my invention the principle is reversed. Instead of suspending the upper roller, or the frame which carries it, from a fixed point located above the horizontal plane of contact between the rollers, it is supported from below, its support being furnished by a rigid standard, which is located directly in the center of the base of the machine, and restricted in its height to a point which is below

the horizontal plane of contact between the rollers. As no part of this rigid supporting standard is so high as the horizontal plane of contact between the rollers, it is obvious that, however located relatively to the rollers and the base of the machine, the said standard could in nowise obstruct the passage of the fabric to and from the rollers. The central location of the standard relatively to the base and the rollers gives equal strength to the laterally-extending arms, which carry the journal-bearings of the lower roller.

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

1. In a fluting-machine, the rollers of which are in separate frames or supports with their axes in, or nearly in, the same vertical plane, and arranged to separate with a parallel motion, the rigid frame or standard B, containing the journal-bearings for the lower roller, and the pivot-bearings for a vibrating frame carrying the upper roller, and having its height restricted to a level below the horizontal plane of contact between the rollers, substantially as and for the purpose herein described.

2. The combination, with a frame or standard supporting the lower roll, of a vibrating frame constructed and arranged to support or carry an adjustable roller, the axis of which is above the stationary roller, while the axis of vibration of the frame itself is below the horizontal plane of contact between the rollers, substantially as herein described.

3. The combination of the standard B and its arms B<sup>1</sup> B<sup>2</sup>, the vibrating frame E and its extensions F and G, and the rollers C D, substantially as shown and described.

4. The feed table or bed E', in combination with the upper roller frame or support E, substantially as herein described.

5. The combination, with the standard and vibrating frame, of the spring H, swinging stirrup J, and set-screw K, arranged substantially as shown and described.

6. The combination, with the standard and vibrating frame, of the cam lever L L', constructed, arranged, and operating as herein shown and described.

7. The combination, with the supporting base of a fluting-machine and the vibrating frame carrying the upper roller, of a single supporting-standard, located centrally in relation to the base and length of the rollers, and extending laterally in both directions from the center, to form and carry the journal-bearings of the lower roller, substantially as herein shown and described.

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