

J. J. RALYA.
Stave-Jointers.

No. 138,762.

Patented May 13, 1873.

Fig 1.

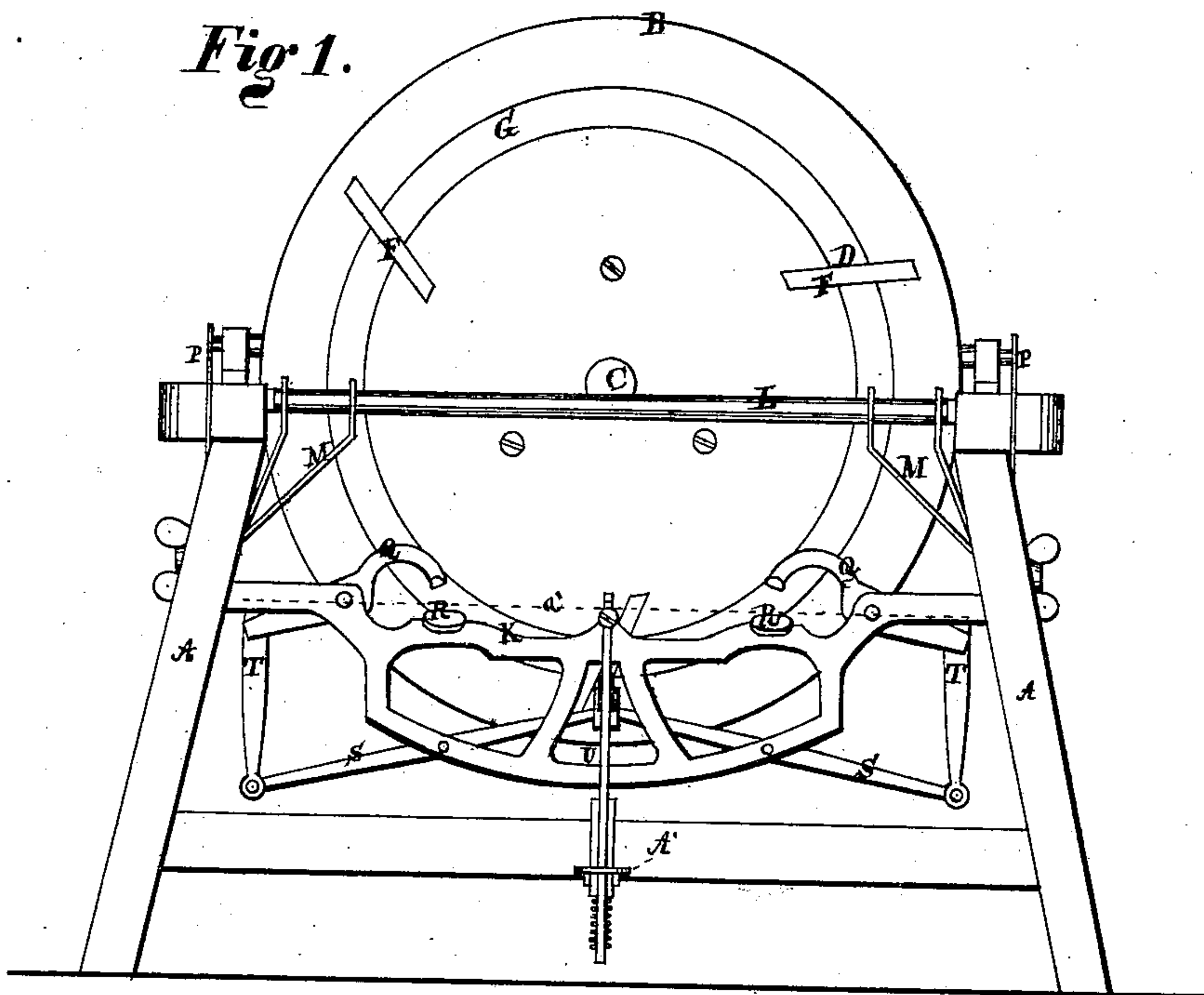
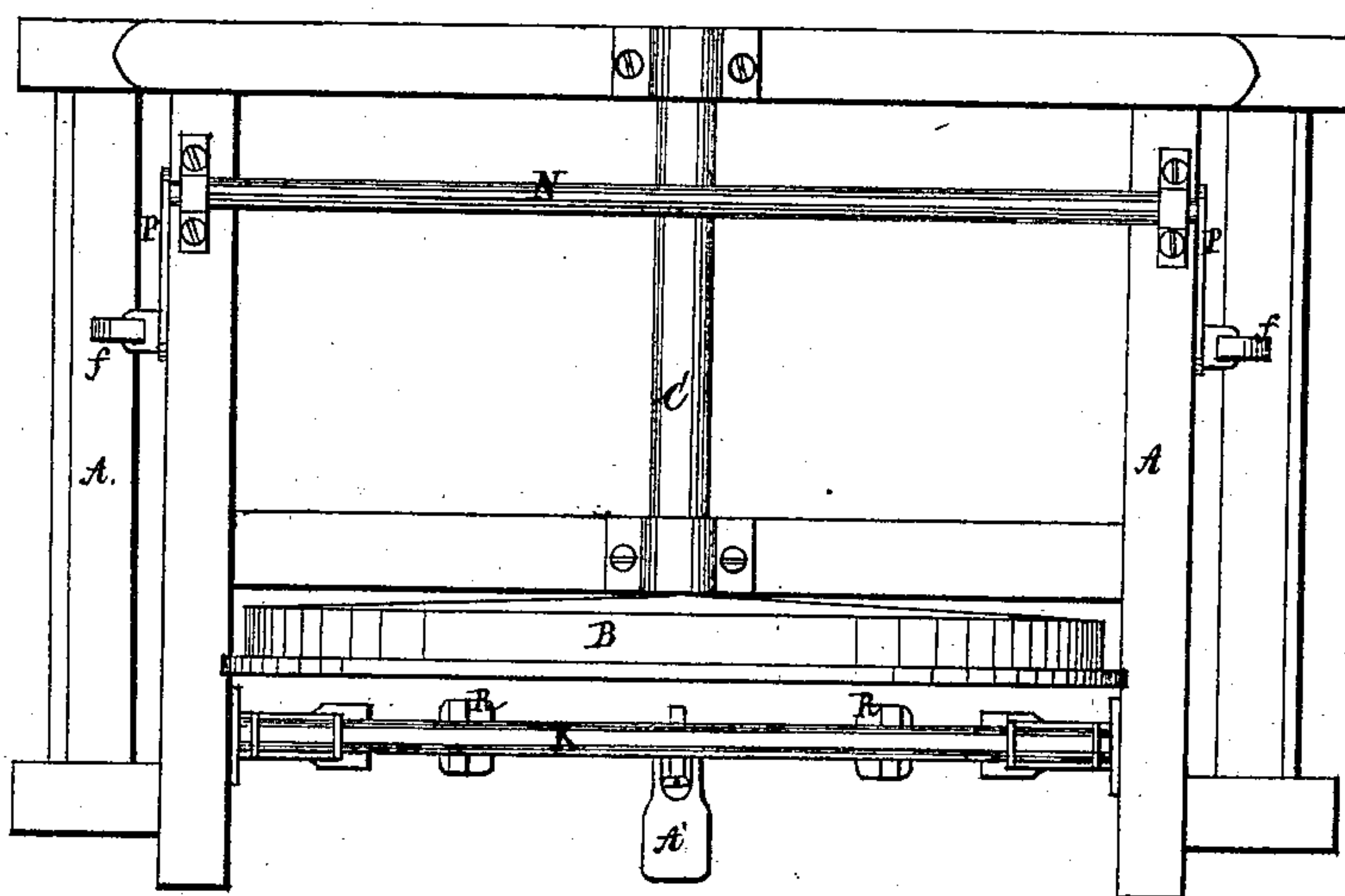


Fig 2.



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L. D. Roberts

Inventor,
J. J. Ralya
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Fig 3.

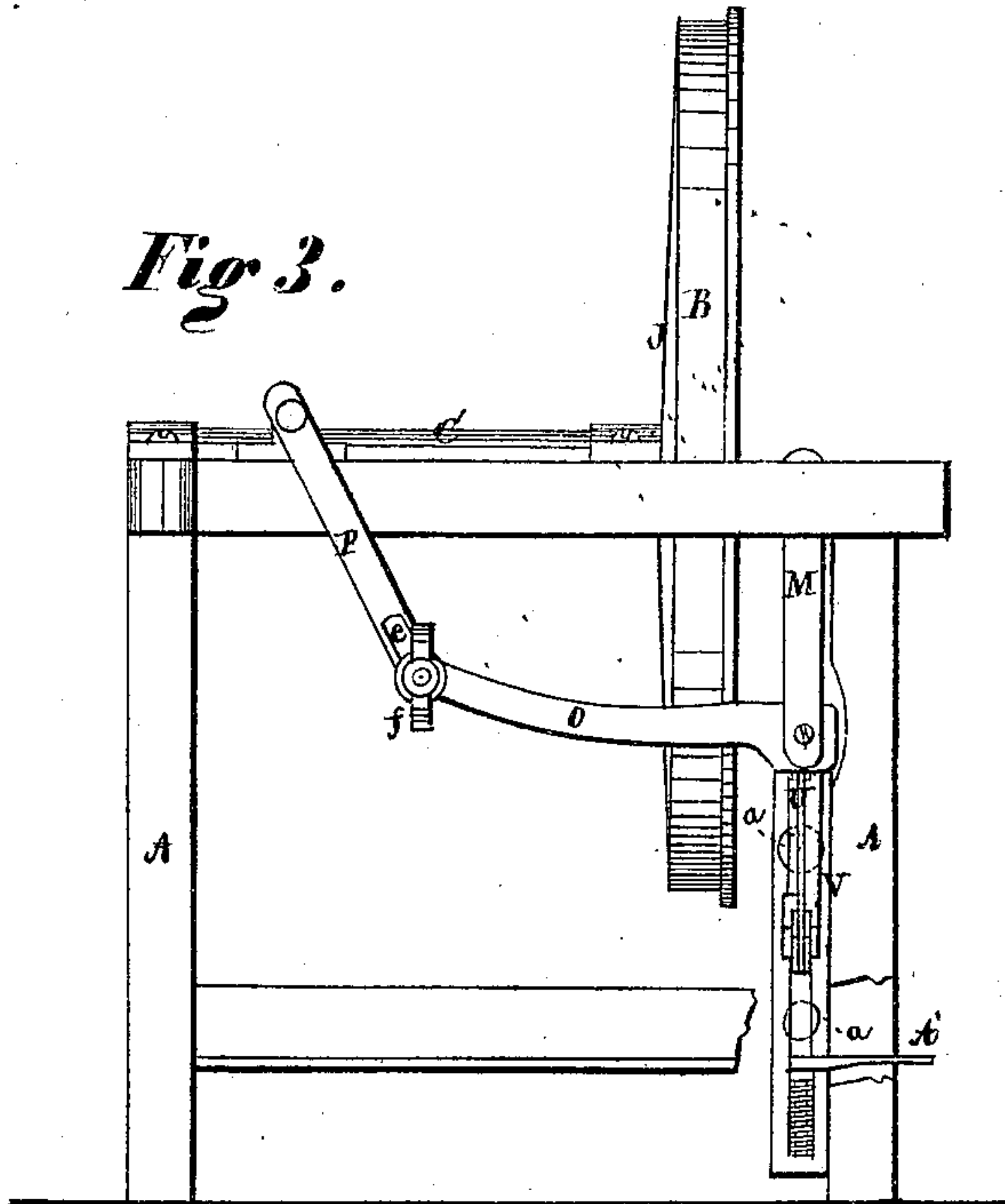


Fig 4.

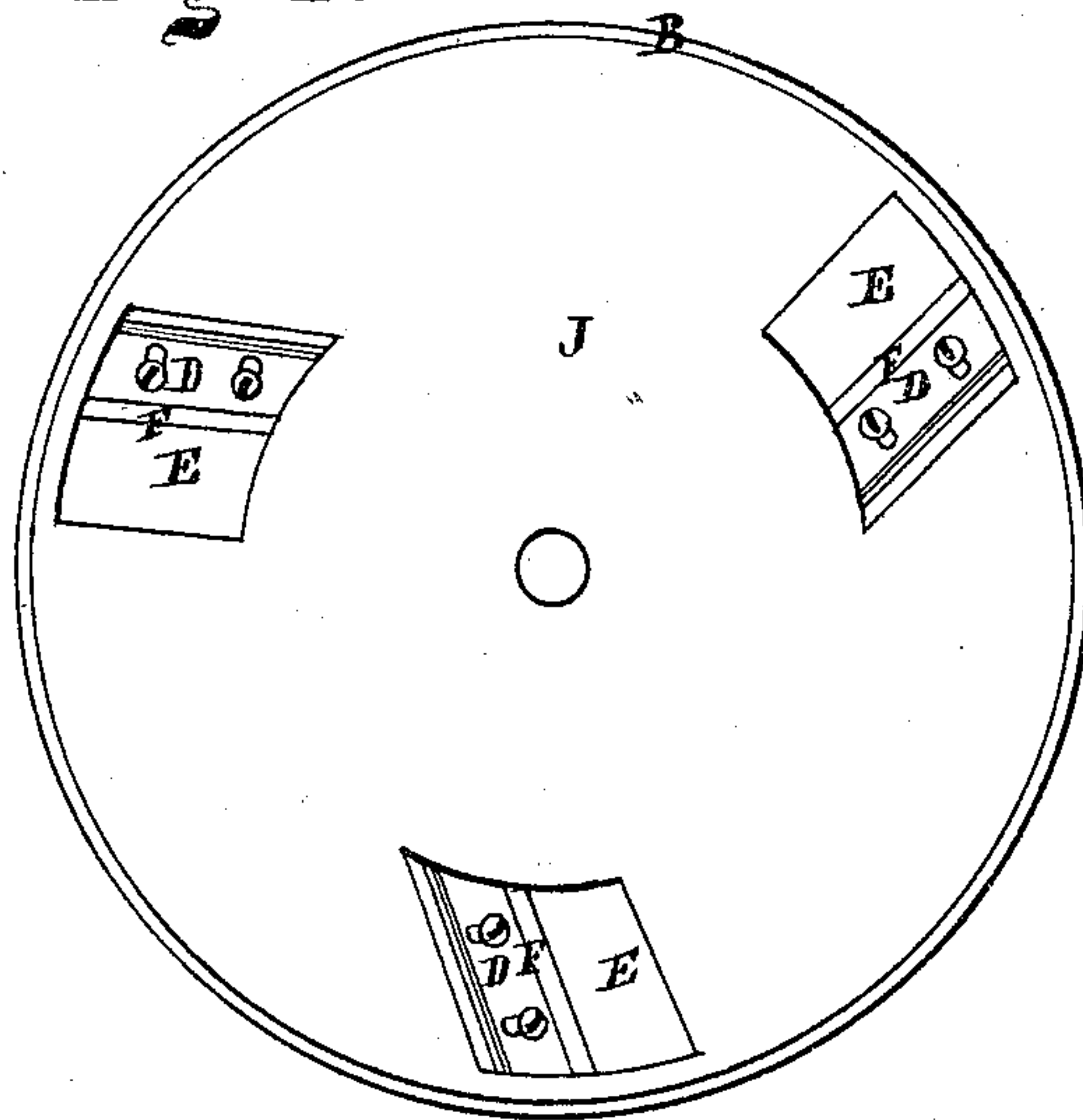
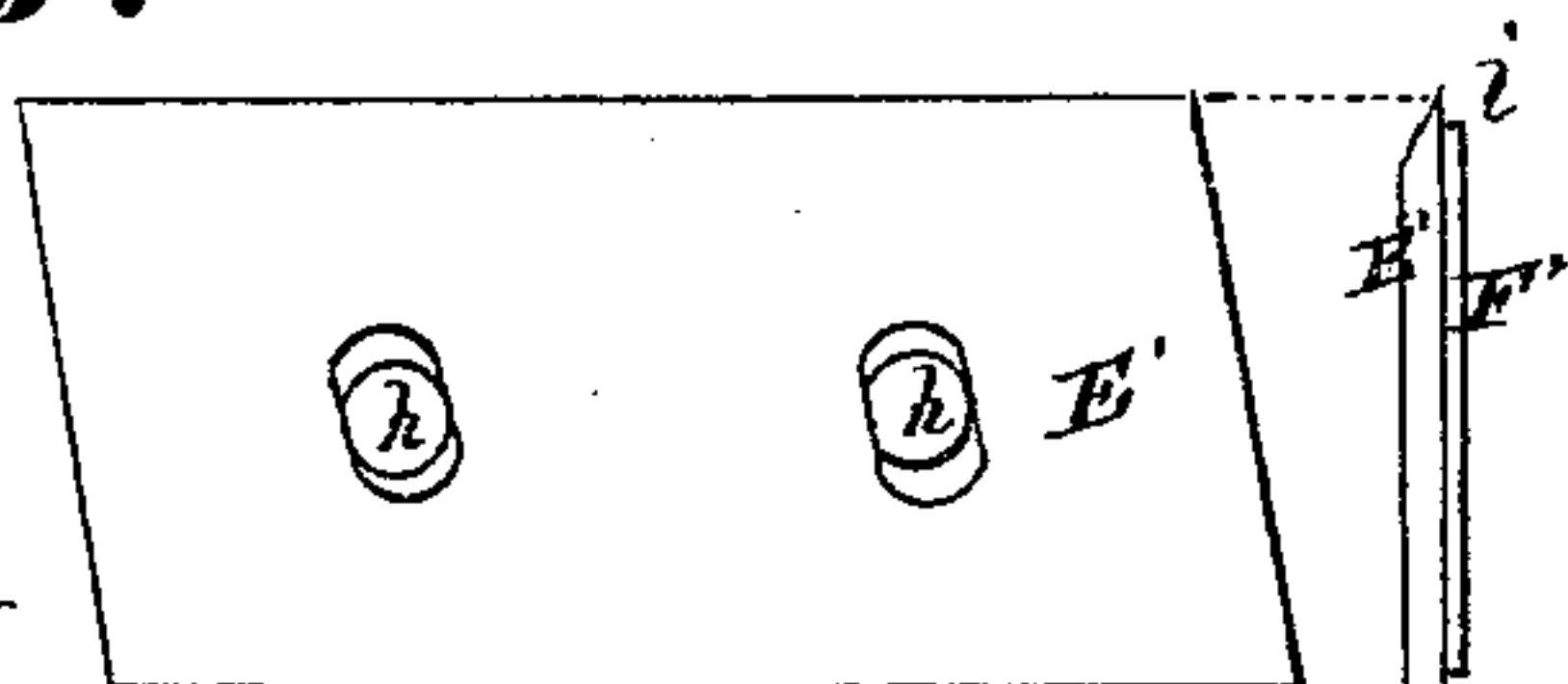


Fig 5.



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UNITED STATES PATENT OFFICE.

JOHN J. RALYA, OF CLEVELAND, OHIO.

IMPROVEMENT IN STAVE-JOINTERS.

Specification forming part of Letters Patent No. **138,762**, dated May 13, 1873; application filed November 29, 1871.

To all whom it may concern:

Be it known that I, JOHN J. RALYA, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Stave-Jointer; and I do hereby declare that the following is a full, clear, and complete description thereof, reference being had to the accompanying drawing making part of the same.

Figure 1 is a front elevation of the machine. Fig. 2 is a plan view. Fig. 3 is a side elevation. Figs. 4 and 5 are detached sections.

Like letters of reference denote like parts in the different views.

The nature of this invention relates to a machine for jointing barrel-staves; and the especial objects of which are to so construct the wheel of said machine, wherein the cutters are secured, that it shall have a close face and back, thereby preventing the wind from being drawn into the wheel, and resisting its motion, and also to prevent the chips from being blown widely about the machine. The invention also has for its object a device whereby more or less bilge may be obtained to the stave, as the peculiar shape of the barrel may require; and also a device whereby more or less bevel may be obtained to the edge of the stave; and, furthermore, it has for its object the prevention of the cutters from cutting too deep into the wood, by which means the stave is more smoothly planed, all of which is hereinafter more fully described.

In the drawing, Fig. 1, A represents a frame, in which the wheel B is hung on the shaft C. The face of said wheel is concave for the purpose of giving the bilge to the stave, against which it is pressed while being dressed or planed by the cutters D, Fig. 4, a detached view of which is shown in Fig. 5. Said cutters are three in number, and consist each of a steel blade secured by screws in the recesses E, formed in the back of the wheel, the cutters being so adjusted that the cutting edges thereof pass through the throats F of the recesses, and project so far beyond the face of the wheel as to allow them to cut freely the stave when held thereto for that purpose. A further description of said cutters will be made hereinafter.

Around on the face of the wheel is a con-

tinuous rib, G, slightly raised above its face, the purpose of which will presently be shown. The construction of said wheel is such that the back side thereof is closed up by a vail of metal, J, so that it presents a plain smooth surface with the exception of the recesses referred to. By this vail the arms and center of the wheel are unexposed; hence, as it revolves, they offer no impediment to its revolutions by the resistance of the air, which, as the wheel revolves at a high velocity, is very great on the arms when uncovered, thereby resulting in the loss of power in overcoming such resistance of the air upon the spokes and other parts of the wheel when running without being covered by the vail, as above said; also, by thus inclosing the arms and other parts of the wheel the chips cut from the stave are not thrown far away from the machine, but fall about near by; hence, there is less dust and annoyance resulting from the flying chips.

The stave is held and adjusted to the wheel by means of the following device: K, Fig. 1, is a frame, suspended in front of the machine from the shaft L on hangers M. The lower ends of said hangers are pivoted to the ends of the frame K. The frame is also indirectly connected to the shaft N, Fig. 2, by the intervention of links O attached to the frame in a rigid manner, whereas the opposite ends of the links are pivoted to the arms P depending from the shaft N, as shown in Fig. 3. By this arrangement of arms, shafts, and links the frame K is allowed a vibratory movement to and from the face of the wheel, for a purpose presently shown. In the upper part of the frame is pivoted a pair of clamps, Q, Fig. 1, the inner ends of which are curved and made to project over the rests R, on which the stave is laid and clamped while being jointed. The outer ends of the clamps are attached to the outer ends of the levers S by means of link T, whereas the inner ends of said levers are secured in the upper end of a slide, U, Fig. 3, fitted in the standard V, in which said slide is made to move vertically for operating the levers S by means of the treadle A'. In order that the slide may move easily and freely friction-rollers *a* are introduced between the slide and the side of the standard, said rollers

being secured to the slide and run upon the inner edge of the standard, as shown.

Having described the construction and arrangement of the machine, the practical operation of the same is as follows: An undressed stave is laid flatwise upon the rests R, as indicated by the dotted line a' , Fig. 1, and which is held firmly thereon by means of the curved end of the clamps Q, which are forced down upon the stave by the operator on placing his foot upon the treadle A' , Fig. 2, thereby actuating the levers S, which, as aforesaid, are connected to the clamps by the links T. The stave, when thus secured, is forced toward the face of the wheel by pressing against the frame K, on which it is laid, thereby bringing the edge of the stave to the cutters, which, as the wheel revolves, cuts or shaves the edge to the proper bevel and bilge required for the barrel. More or less angle or bevel may be given to the stave, as the diameter of the barrel may require, by adjusting the rests or tables R in their relation to the face of the wheel so that the plane or surface of the rests may be more or less obliquely therewith. Thus, should the stave lie horizontally on the table, the edge would be cut square with the sides; but on depressing the outer edge of the table the outer edge of the stave thereon will also be depressed, thereby causing the stave to lie obliquely in its relation to the face of the wheel, which will cause the stave to be shaved the most on its lower or inner edge, giving to the edge a certain bevel, more or less, as the adjustment of the table and stave may have been, and which adjustment is effected by elevating or depressing the outer ends of the links O in their connection with the arms P, a slot, c , Fig. 3, being cut in the ends of the arms for the admission of the thumb-screw j , whereby the ends of the links are secured to the ends of the arms, and for the adjustment of the frame in order to cut the edge of the stave at any desirable angle.

The proper degree of bilge is obtained to the stave in the manner, as follows: It will be observed that the two extreme ends of the stave are first shaved by the outer ends of the cutters—that is to say, as the wheel revolves the outer ends of the cutters first commence to cut the extreme ends of the stave. Now, as the face of the wheel is slightly concave, the edge of the cutter recedes therewith; therefore, the inner end of the cutter is less prominent than the outer end. From this it will be obvious that, as the cutters leave the end of the stave, they cease to cut the stave at or near the middle until the two extreme ends are so far shaved away as to allow the more central part to be within reach of the inner end of the cutters, which is then shaved, as are the ends making the length of the edge of the stave of the proper curve for the bilge required for the barrel,

and which curve is of the same degree as the concave of the face of the wheel. The edge of the undressed stave is straight or nearly so; therefore, in order to dress down the ends of the stave to obtain the bilge, more timber is necessarily cut therefrom than at the middle or bilge. In order to facilitate this extra cutting the blade or cutter is so ground as to give most prominence to the outer end.

It will be obvious, in view of this, that as the wheel rotates the ends of the staves will be first cut away, and the operation continuous until the stave, bearing against the rib G, the wheel is cut throughout its length, making the bilge for the barrel. Should more or less swell or bilge be required for the stave it can be obtained by modifying the edge of the cutters by grinding, giving more or less cut to the inner end of the cutters.

By the application of the rib to the face of the wheel I am enabled to work off the ends of the stave with great rapidity.

One of the cutters used in my machine is shown detached in Fig. 5. Said cutter consists of a blade, E' , to the opposite side of which is attached a plate, F' , by means of screws h fitted in slots to allow of the plate being adjusted in its relation to the edge of the blade.

It will be observed that the upper edge i of the plate is at right angle to the sides, and that when it is laid on the back of the blade it forms a square shoulder immediately below the cutting-edge, as shown in the drawing, Fig. 5.

In thus forming a square shoulder under the cutting-edge of the blade by means of the square edge of the back plate, I am enabled to shave the stave smoother and with less tearing of the fiber of the wood than when the edge of the back piece is made obliquely, so as to form an obtuse angle with the side or back of the blade, as the abruptness of the shoulder prevents the cutting-edge from running into the wood and tearing the same.

Claims.

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

1. The adjustable frame K, hangers M, links O attached to the arms P of the shaft N, combined and arranged to operate in the manner as described and in relation to the wheel B, for the purpose specified.

2. The clamps Q, levers S, links T, slide U, standard V, friction-rollers a , and treadle A' , as arranged to operate in combination with each other and in relation to the rests or tables R, substantially in the manner as described, and for the purpose set forth.

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Witnesses:

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