

(No Model.)

L. E. WARNER.
SHAFT ADJUSTING DEVICE.

No. 603,353.

Patented May 3, 1898.

Fig. 1.

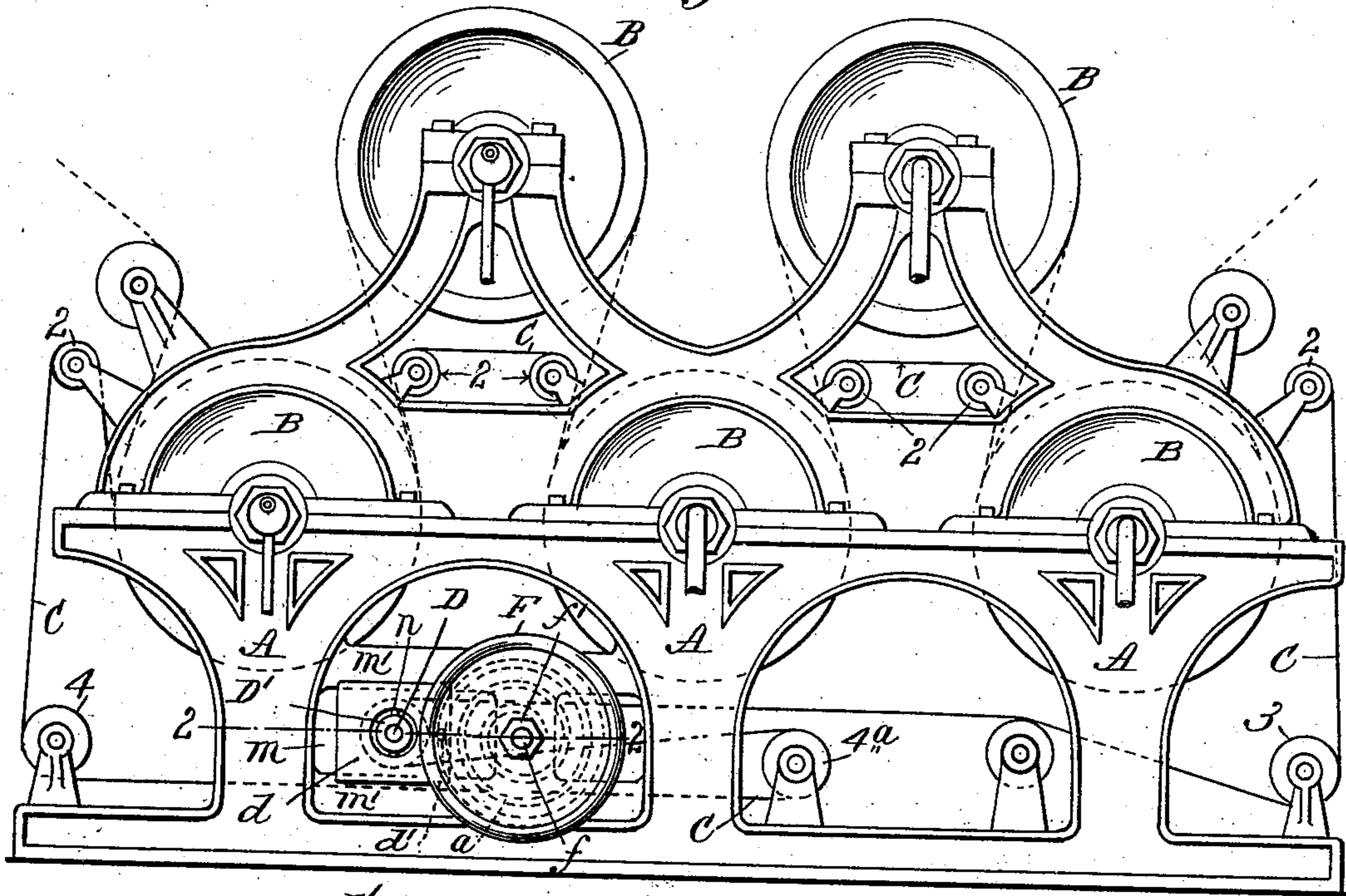


Fig. 2.

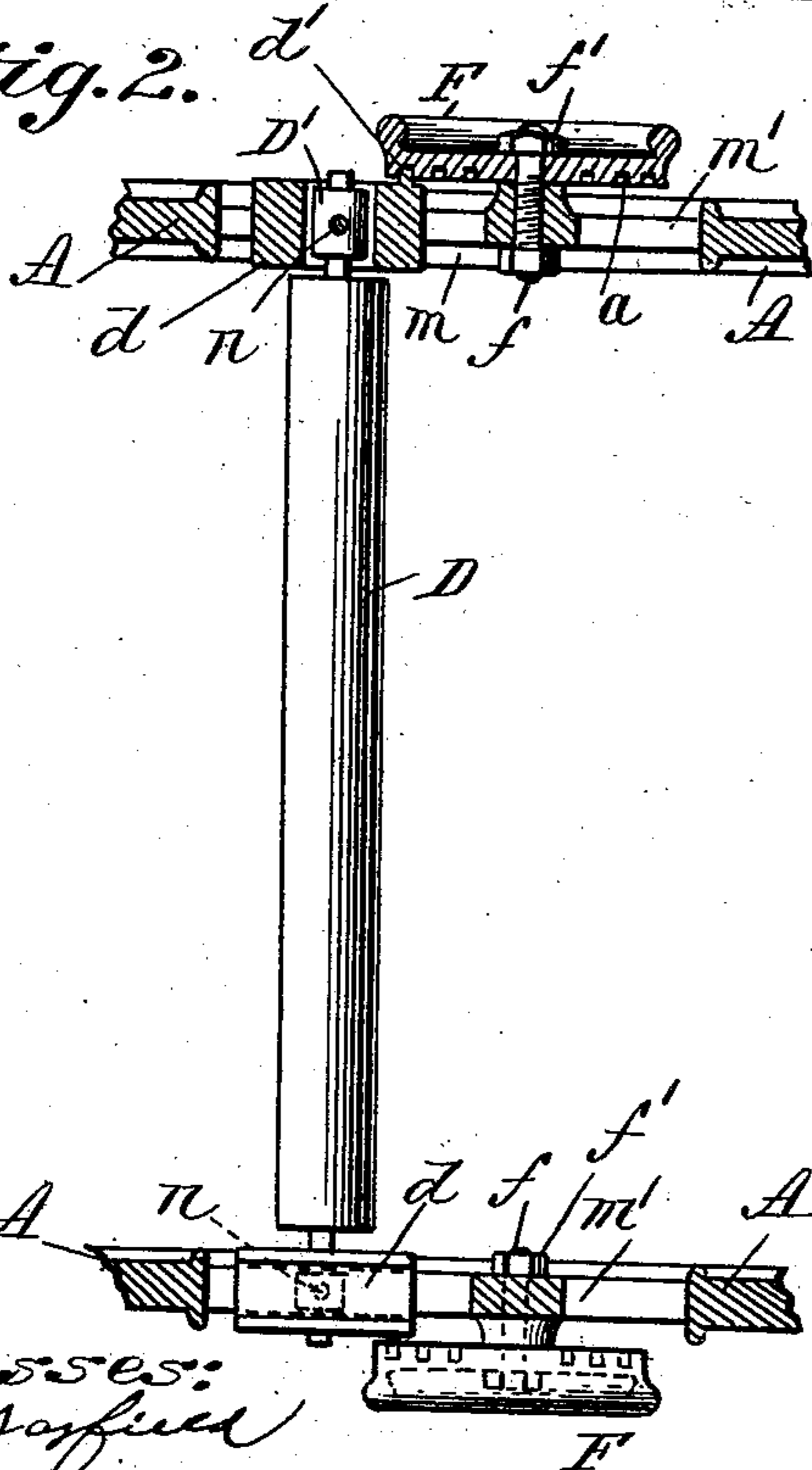


Fig. 3.

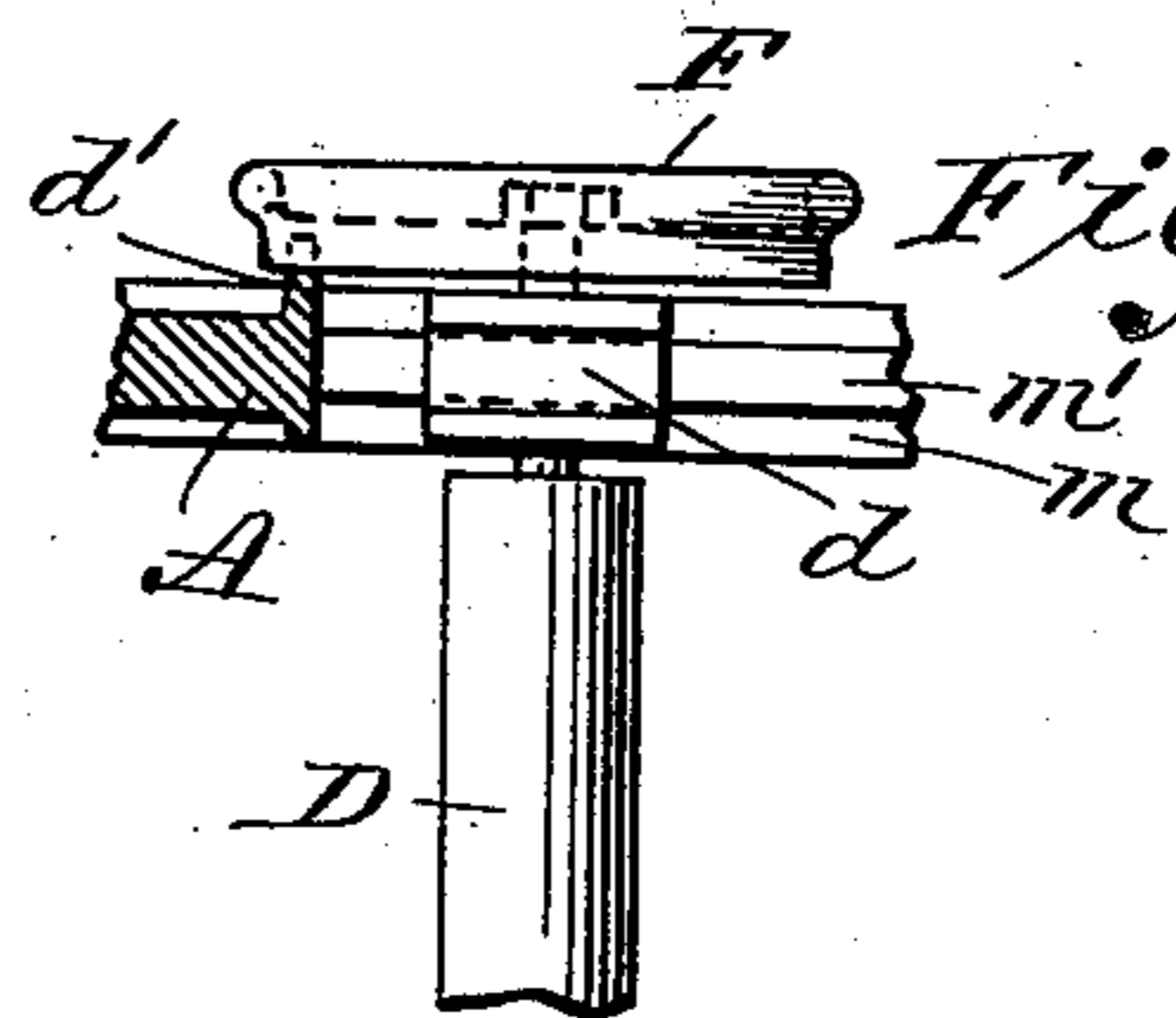
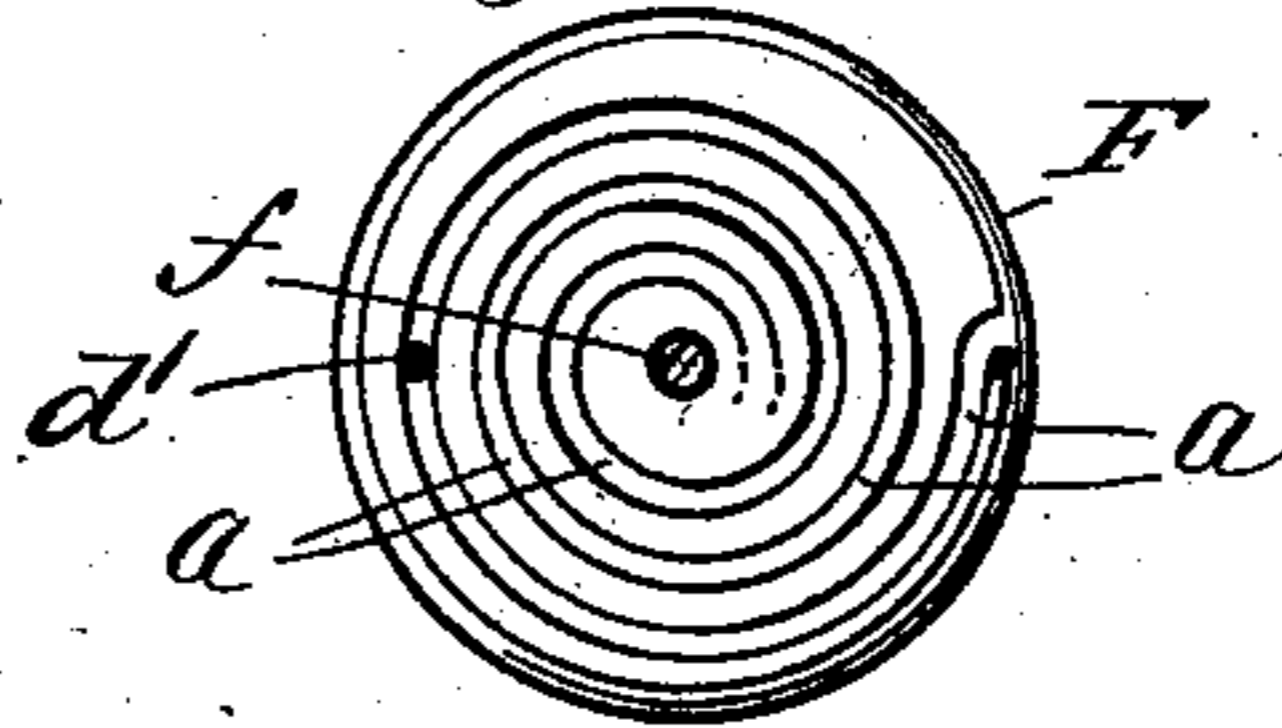


Fig. 4.



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UNITED STATES PATENT OFFICE.

LEWIS E. WARNER, OF NORTHAMPTON, MASSACHUSETTS.

SHAFT-ADJUSTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 603,353, dated May 3, 1898.

Application filed August 4, 1897. Serial No. 647,115. (No model.)

To all whom it may concern:

Be it known that I, LEWIS E. WARNER, a citizen of the United States of America, residing at Northampton, in the county of Hampshire and State of Massachusetts, have invented new and useful Improvements in Shaft-Adjusting Devices, of which the following is a specification.

This invention relates to mechanism for adjusting a shaft or similar construction over which a belt or similar flexible connection runs, the object being to provide means for keeping said belt or connection under more or less strain and for adjusting either end of said shaft independently of the other for preserving the alinement of said belt or connection.

In the drawings the device is shown applied to the idler-shaft of the felt running on the drying-cylinders of a paper-machine; but it is equally well adapted to other purposes, and I do not confine myself to the particular application thereof shown in the drawings accompanying this application.

In the drawings forming part of this specification, Figure 1 is a side elevation of that part of a paper-machine wherein are located the drying-cylinders, and shows my adjusting device as applied to operate on the felt running over said cylinders. Fig. 2 is a section on line 2 2, Fig. 1. Fig. 3 is a slight modification of the construction shown in Figs. 1 and 2. Fig. 4 is a side view of the operating-wheel, having a spiral groove cut in the side thereof.

Referring to the drawings, a portion of the side frame of a paper-machine is shown and indicated by A. In suitable bearings therein are supported the revolving steam-cylinders B, with a felt band C suitably applied to a part of said cylinders in the usual manner for carrying the web of paper around said steam-cylinders for the purpose of drying said paper. Said felt band is endless, and, after passing around the under side of the lower tier of cylinders, guided by the rolls 2, located substantially on a line with the top thereof, the felt is then led down toward the floor and around rolls 3 and 4 at each end of said frame and from thence toward the center of the frame, that part of the felt from the roll 4 passing under the part from the roll 3 and

said first-named part from the roll 4 then passing around the roll 4^a and, being doubled back on itself and passing around the idler-shaft D, is united with that part of the felt from the roll 3, constituting an endless band. As is well known, these felts are liable to considerable variations in length, owing to the changing conditions of heat and moisture to which they are subjected, and the means herein shown for compensating for such variation in length consist in making the shaft D adjustable in a plane coinciding with the plane of movement of the felt where it is doubled back upon itself, as above described, and said adjustment is effected by the operating-wheel F, pivotally hung on a stud *f*, secured to the rigid part of the frame A, which wheel is constructed with a spiral groove *a*, cut or cast in the side of said wheel, as shown in Fig. 4. The said shaft D is hung in boxes D', which are located in the slide-blocks *d d*. Said blocks have oppositely-grooved sides which fit the upper and lower edges of a slot *m* in the part *m'* of the frame A, and said boxes are supported therein on vertically-disposed trunnions *n*, whereby one end of said shaft D may be moved relative to the other without causing either end thereof engaging the said box D' to bind. On each of the said blocks *d d* is a stud *d'*, projecting outwardly therefrom for engagement with the groove *a* in the side of the operating-wheel F.

It is apparent that by turning either of the wheels F either end of the shaft D may be moved relative to the frame in a horizontal plane, or if both of said wheels be operated in like degree in the same direction the shaft may be moved forward and back relative to said frame in lines parallel with the position from which it started. By turning up the nut *f'* on the stud *f* said wheels F may be locked in any desired position.

The object in making each end of the shaft D independently adjustable is to permit of the adjustment of the shaft D to a slightly-oblique position relative to the sides of the frame A should one edge of said felt stretch to a greater extent than the opposite edge thereof.

In Fig. 3 is shown a slight modification of the construction shown in Figs. 1 and 2, and said modification consists in securing the op-

erating-wheel to the end of the shaft D and placing the projecting stud for engagement with the spiral groove *a* in said wheel on the frame A, which is a mere reversal of the construction shown in the said Figs. 1 and 2 and is clearly within the scope of this invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

10 1. Adjusting devices for the take-up roll of the drying-cylinder felt in paper-machines and analogous purposes, consisting of two parallel frames, a shaft located transversely between them, said frames being provided
15 with slots through which the ends of said shaft protrude, operating-wheels pivotally supported on said frames in proximity to the ends of said shafts, there being a spiral groove on the inner side of each of said wheels and
20 means of engagement between the ends of said shaft and said spiral grooves whereby the rotation of the said wheel will cause a horizontal movement to said shaft in said slots, substantially as described.

25 2. Adjusting devices for the take-up roll of the drying-cylinder felt in paper-machines and analogous purposes, consisting of two parallel frames, a shaft located transversely between them, said frames being provided

with slots, blocks in said slots in which the ends of said shaft are supported, operating-wheels pivotally supported on said frames in proximity to said blocks, there being a spiral groove on the inner side of each of said wheels, and means of engagement between said blocks
35 and said grooves, whereby by the rotation of said wheels said blocks are given a horizontal movement in said slots, substantially as described.

3. Adjusting devices for the take-up roll of the drying-cylinder felt in paper-machines and analogous purposes consisting of two parallel frames, a shaft located transversely between them, said frames being provided
45 with slots through which the ends of said shaft protrude, operating-wheels pivotally supported on the ends of said shaft, in proximity to the sides of said frames, there being a spiral groove on the inner side of each of said wheels, a stud on each of said frames
50 adapted to engage the spiral grooves in said wheels, whereby the rotation of the latter will cause a horizontal movement to said shaft in said slots, substantially as described.

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