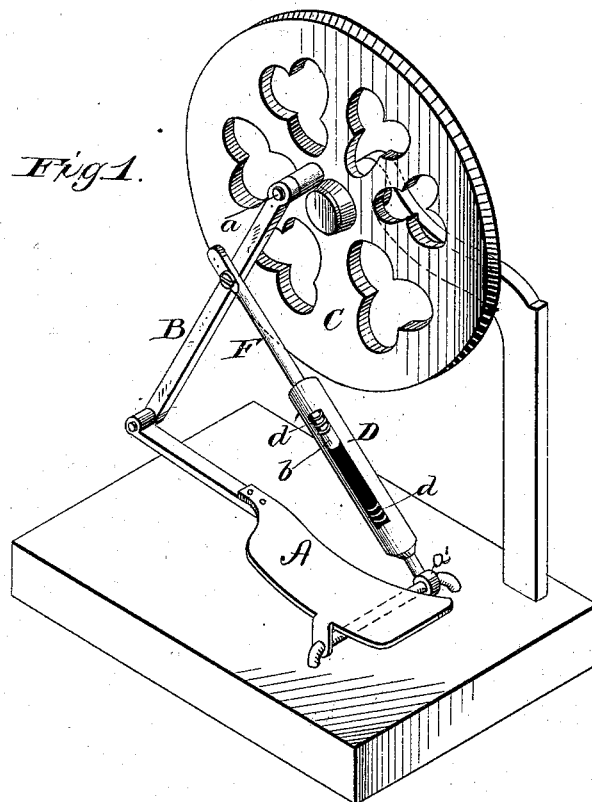
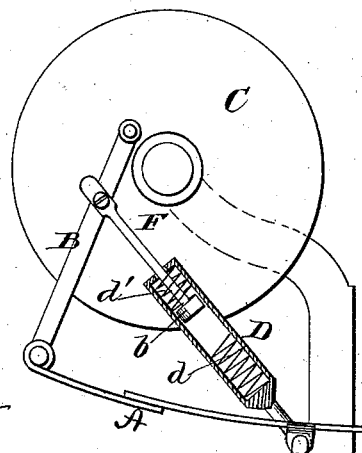


J. W. MULLINS.  
 Device for Overcoming the Dead-Centres.  
 No. 219,295                      Patented Sept. 2, 1879.



*Fig. 2.*



WITNESSES  
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 ATTORNEYS

# UNITED STATES PATENT OFFICE.

JOHN W. MULLINS, OF LONDON, KENTUCKY.

IMPROVEMENT IN DEVICES FOR OVERCOMING THE DEAD-CENTERS.

Specification forming part of Letters Patent No. **219,295**, dated September 2, 1879; application filed April 15, 1879.

*To all whom it may concern:*

Be it known that I, JOHN W. MULLINS, of London, in the county of Laurel, and in the State of Kentucky, have invented certain new and useful Improvements in Devices for Overcoming the Dead-Centers; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in an attachment for machines that are operated by treadles, whereby the crank is caused to stand off the dead-center, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a perspective view of my invention. Fig. 2 is a side elevation of the same.

A represents a treadle, connected by a pitman, B, with the wrist or crank pin *a* on the wheel C, these parts being constructed and arranged in any of the known and usual ways, and used for any purpose that may be desired—that is to say, these parts (treadle, pitman, and wheel) may be used for operating any machinery that the same may be applied to.

My invention is an attachment for such treadle-motion, and it is constructed as follows: D represents a tube or hollow cylinder, having at one end a shank or eye, *a'*, which is pivoted on the same rod or bearing on which the treadle is pivoted. F is a rod pivoted to the pitman B, and passing into the cylinder, as shown, and upon the end of this rod is attached a pis-

ton, *b*. In the bottom of the cylinder is placed a spring, *d*, and a similar spring, *d'*, is placed around the rod F above the piston.

It will readily be seen that for each stroke of the pitman B one spring is compressed, and the reaction of the spring carries the crank over the dead-center, and at no time can the crank stop on the dead-center.

This invention is applicable to any machinery that is operated by a treadle.

I am aware that a piston has been arranged in a cylinder and connected to a pitman, and a single spring applied on one side of the piston only; but in my invention there is one spring in each end of the cylinder, so as to get the spring action at both the upward and downward stroke of the piston, to pass the wheel easily over both the dead-centers. Where one spring only is used the action is not uniform, while by using one spring above and one below the piston the action is uniform for both the upward and downward stroke, and the machine can be operated with perfect ease.

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

In combination with a treadle and pitman, the rod F, with piston *b*, the cylinder D, and the springs *d d'*, arranged in the ends of the cylinder above and below the piston, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 15th day of February, 1879.

JOHN WESLEY MULLINS.

Witnesses:

T. J. JOHNSON,  
THOMAS BALES.