

T. ALSOP.
BACK-LASH SPRING.

No. 172,366.

Patented Jan. 18, 1876.

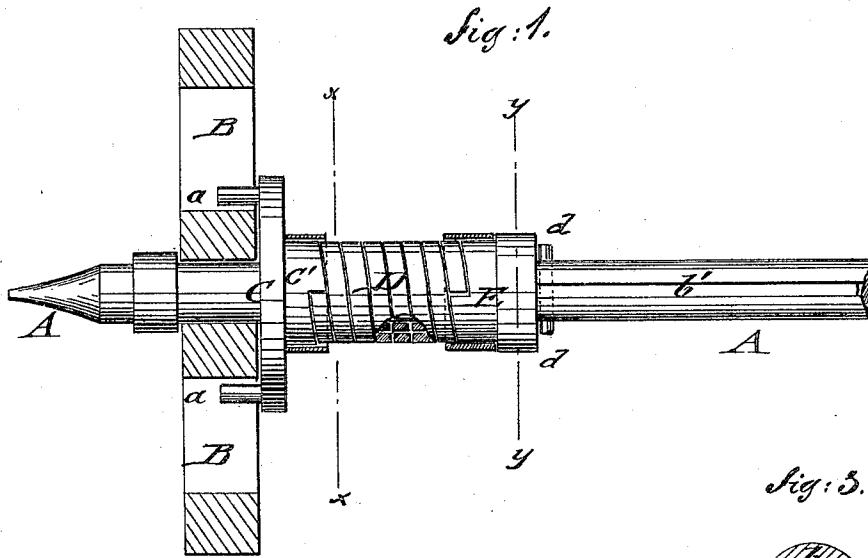


Fig: 2.

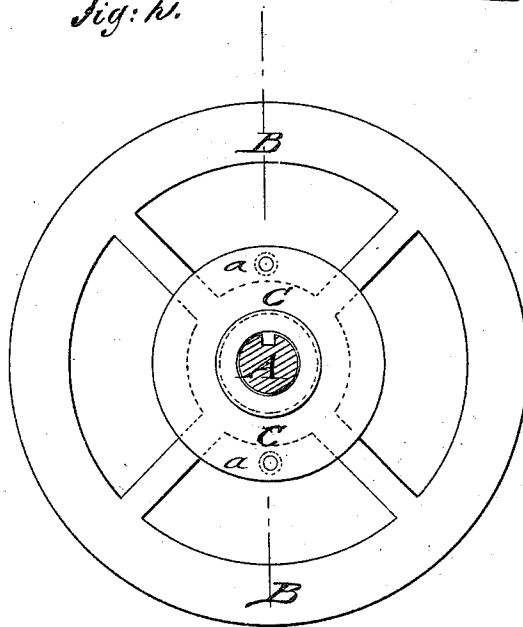
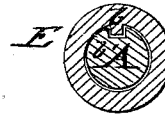


Fig: 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

THOMAS ALSOP, OF ELKHART CITY, ILLINOIS.

IMPROVEMENT IN BACKLASH-SPRINGS.

Specification forming part of Letters Patent No. **172,366**, dated January 18, 1876; application filed January 3, 1876.

To all whom it may concern:

Be it known that I, THOMAS ALSOP, of Elkhart, in the county of Logan and State of Illinois, have invented a new and Improved Backlash-Spring, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation of my improved backlash-spring, partly in section, on line *c c*, Fig. 2, as applied to a shaft and pinion; and Figs. 2 and 3 are vertical transverse sections of the same, respectively, on the lines *x x* and *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The invention relates to an improved backlash-spring for mill spindles, shaftings, &c., which bears equally on the pinion at both sides of the shaft, and takes up the backlash uniformly throughout the whole length of the spring, producing a more durable spring, as friction is obviated and no tensile strain exerted thereon.

The invention consists, mainly, of one or more springs, coupled together and applied at one end by a fixed sleeve or clutch to the shaft, and at the other end to a loose disk that engages by stops or pins the pinion that transmits the power to intermeshing gearing.

In the drawing, A represents a mill spindle, shaft, or other device, to which springs are to be applied for protecting the power-transmitting gearing against the injurious effects of backlash. The transmitting-pinion B is placed loosely on the shaft or spindle A, and acted upon by a loose disk, C, with lugs or studs *a*, that engage diametrically-opposite arms of the pinion B, and bear equally on both sides of the same, avoiding thereby the uneven wear of the spindle and pinion heretofore occasioned by the connection of the coiled back-

lash-spring on one side of the pinion merely. The loose disk C is provided with a sleeve-shaped clutch, C', that engages by a projecting cam the end of the spring D, which is wound singly or doubly around the spindle, and seated with the opposite end on a similar sleeve or clutch, E, that is fixed to the spindle by a tongue, *b*, projecting into a longitudinal groove, *b'*, of the spindle, and prevented from sliding thereon by a cross-pin, *d*. In case more than one spring is desired to be employed they may be coupled together by means of loose intermediate sleeves or clutches with cams at both ends that engage the ends of the springs and transmit the strain evenly through all the springs to the fixed sleeve, so as to bring them all into action.

By the use of several strong springs a heavy strain can be met, and still sufficient motion be obtained. The breaking or smashing of the teeth of the power-transmitting gearing by backlash is, by the uniform action of the spring or springs, avoided, and the springs rendered durable, as no friction or tensile strains are exerted thereon.

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

The combination, with a spindle or shaft and a power-transmitting pinion placed loosely thereon, of one or more backlash-springs applied to a terminal fixed cam-sleeve or clutch, and to a cam-sleeve placed on the shaft and engaging by pins or studs the pinion at diametrically-opposite points, substantially in the manner and for the purpose set forth.

THOMAS ALSOP.

Witnesses:

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