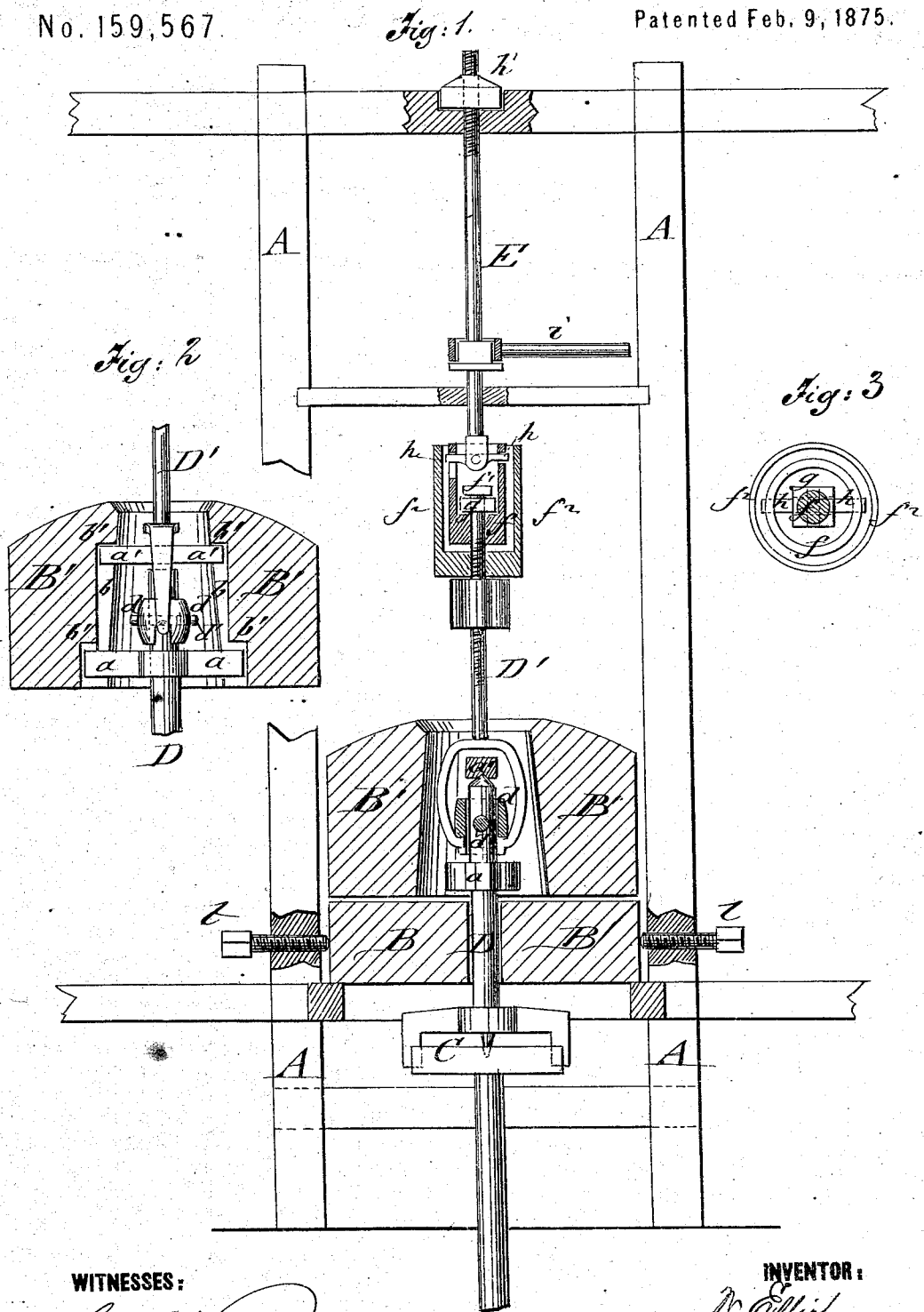


W. ELLIOT.
Mill-Spindle.

No. 159,567.

Patented Feb. 9, 1875.



WITNESSES:

Chas. Nida
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INVENTOR:

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UNITED STATES PATENT OFFICE.

WILLIAM ELLIOT, OF WILLIAMSFORD, CANADA.

IMPROVEMENT IN MILL-SPINDLES.

Specification forming part of Letters Patent No. **159,567**, dated February 9, 1875; application filed April 25, 1874.

To all whom it may concern:

Be it known that I, WILLIAM ELLIOT, of Williamsford, in the county of Grey and Province of Ontario, Canada, have invented a new and useful Improvement in Suspending Millstones, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a sectional front elevation of my improved device for suspending millstones. Fig. 2 is a detail vertical transverse section of the attachment of the top millstone to the spindle, and Fig. 3 is a top view of the swivel-joint connection of the stone-spindle and adjustable suspension-rod.

Similar letters of reference indicate corresponding parts.

The object of my invention is to provide, for use in mills, an improved device for suspending the millstone above the water-wheel shaft without raising and lowering the wheel with it, so that the adjustment of the upper stone to the exact position required for grinding may be readily accomplished, and a perfectly horizontal position and smoother running of the stones obtained.

The invention will first be fully described, and then pointed out in the claims.

In the drawing, A represents the millstone-supporting frame, which supports, by its lower part, on the mill-floor, the bed-stone B; by the intermediate cross-bar, the hopper-stand; and by the top bar, being a joist of the upper floor, the adjusting-rod of the top millstone. The lowermost cross-bar holds the upper end of the water-wheel shaft, which connects by a claw-coupling, C, with the stone-spindle D. Spindle D passes centrally through the bed-stone B, and supports the top millstone B' on a diametrical cross-bar, *a*, and a loose cross-bar, *a'*, placed on the conically-pointed end of the spindle. The cross-bars *a* and *a'* are introduced by means of diametrically-opposite recesses *b* of the stone, which form projecting shoulders *b'*, so that the weight of the stone rests on the upper bar, while the lower turns the same.

The connection of stone-spindle D and top adjusting-rod E is made by an intermediate

shaft, D', which is applied by its forked lower end into a recessed sleeve, *d*, attached to the spindle D by a cross-pin, *d'*. The forked end passes at both sides of the stone-supporting bar into the central cavity of the stone, and is turned with the same. The upper end of shaft D' is hung to a cup, *f*, with steel bottom, by means of an end nut, *f'*, and steel washer *g*, which revolves with the millstone on the cup-bottom, and is oiled by a second surrounding cup, *f*². Oil-cup *f*² is screwed onto shaft D' above the cam-wheel of the shoe-shaker, with which the same is adjusted. Cup *f* is slotted near its upper open end, the slot at one side being longer than that at the opposite side, for the ready insertion and detaching of the pivoted cross-rod *h* of the adjustable rod E, on which the top stone is suspended. Rod E is hung by its threaded upper end and a strong screw-nut, *h'*, into a recess of the top bar, and provided with a lever-handle, *i*, for turning the same in either direction, and thereby raise or lower the top millstone, as required for grinding. The bed-stone B is adjusted by side screws *l*, so as to change thereby its position in the supporting-frame, and produce the exact trammings or plumbing of the stone-spindle, and, consequently, the true horizontal running of the top stone.

The top stone runs smoother and does better work by this mode of suspending and running the same, is readily adjusted, produces less friction, and requires, therefore, less power to drive it. The water-wheel remains stationary, being readily detached from the upper stone supporting and suspending parts, which are also easily separated and repaired, if necessary.

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

1. The combination, with the runner B, of the adjustable suspension-rod E, the swivel-connection *f*¹ *f*², the intermediate shaft D', having forked lower end, the recessed sleeve *d*, cross-pin *d'*, and the spindle D, as and for the purpose specified.

2. The swivel-joint, for connecting the ro-

tary intermediate shaft D' with the adjustable suspension-rod E, composed of inner cup *f*, hung to pivoted cross-rod *h*, and outer oil-cup *f*², for lubricating the washer *g*, constructed substantially as described.

3. The combination of forked end of shaft D' with recessed sleeve *d*, cross-pin *d'*, and

stone-spindle D, for transferring weight of stone from spindle and wheel-shaft to top suspension-rod, as set forth.

WILLIAM ELLIOT.

Witnesses:

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