(No Model.) 3 Sheets—Sheet 1.

J. DAWSON.

ROLLER MILL.

No. 416,904. Patented Dec. 10, 1889.

Fig. 1.

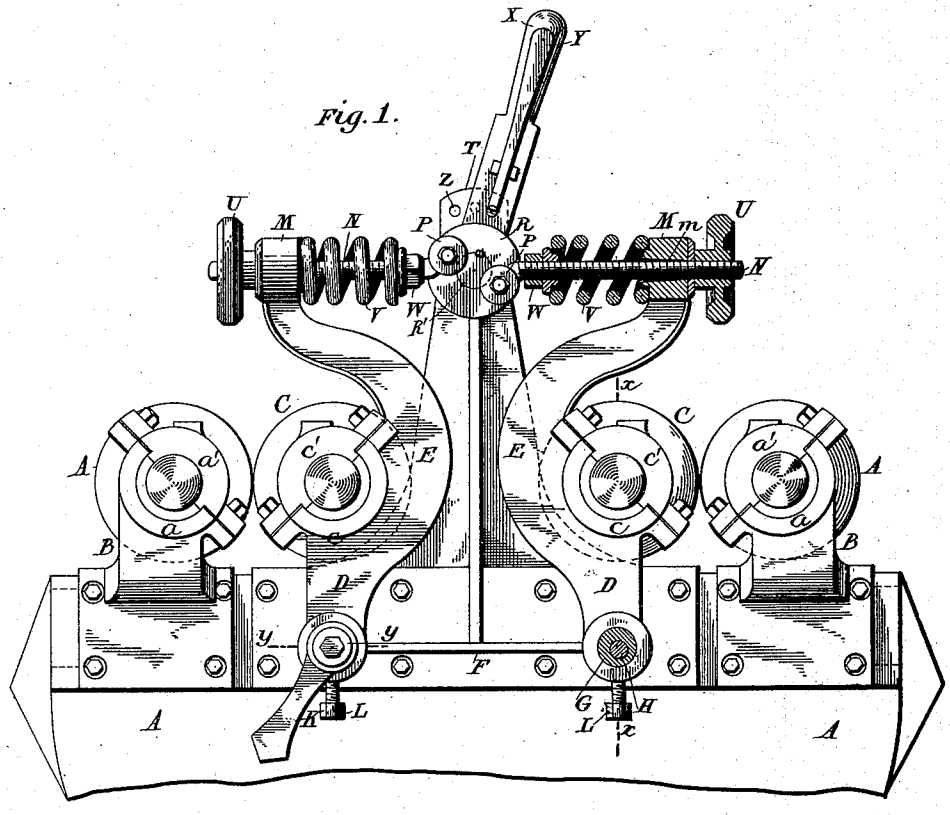
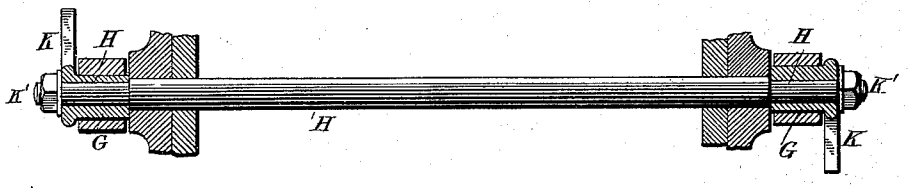


Fig. 4.



WITNESSES:

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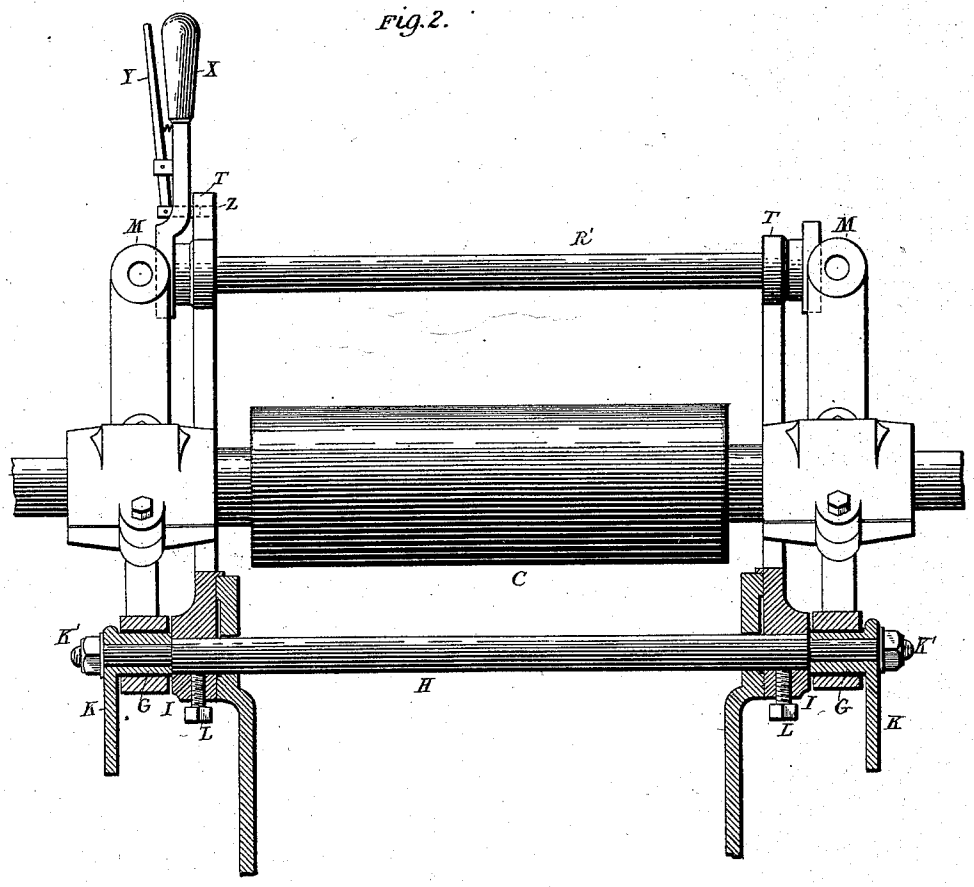
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Fig. 2.



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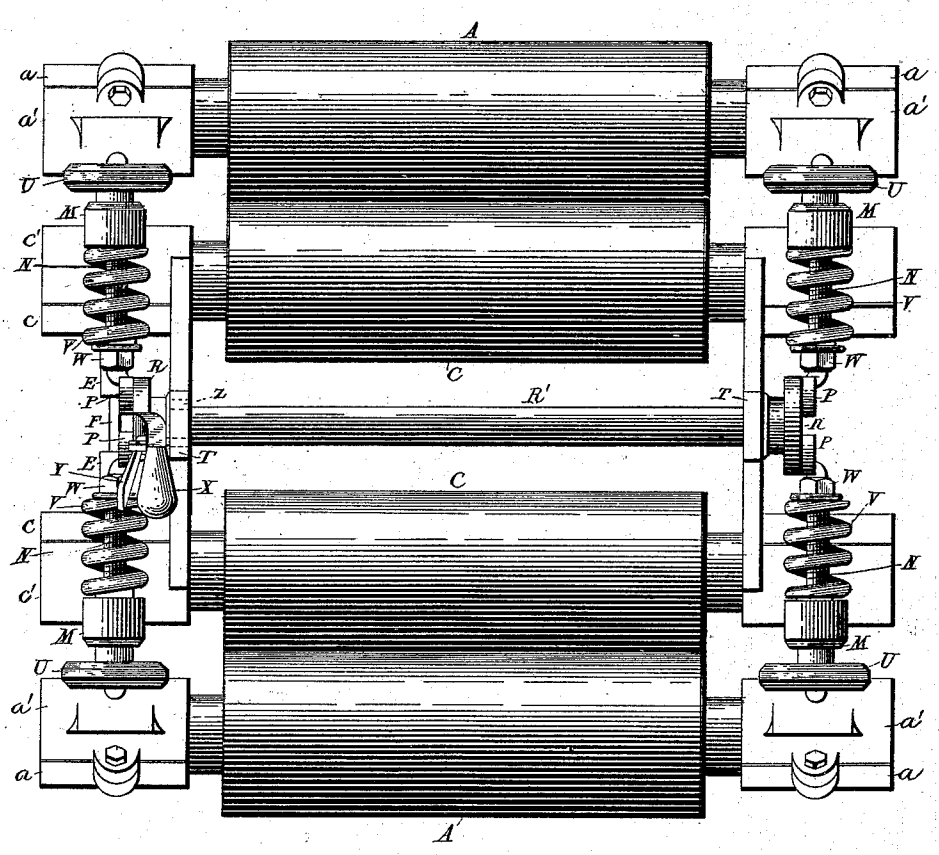
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Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES DAWSON, OF HARRISBURG, PENNSYLVANIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF PART TO JOHN H. DAWSON AND A. S. NORRISH, OF SAME PLACE.

ROLLER-MILL.

SPECIFICATION forming part of Letters Patent No. 416,904, dated December 10, 1889.

Application filed September 19, 1889. Serial No. 324,430. (No model.)

To all whom it may concern:

Be it known that I, JAMES DAWSON, a citizen of the United States, residing at Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Roller-Mills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to roller-mills; and it consists of certain combinations and arrangement of parts whereby certain advantages will be obtained in the adjustment of the movable roll with relation to the fixed roll, as I shall more specifically point out in the claims concluding this specification.

In the accompanying drawings, forming part of this specification, Figure 1 represents a side elevation of a roller-mill constructed according to my invention, a portion thereof being shown in section. Fig. 2 represents a partial transverse vertical section taken on the line *x x* of Fig. 1. Fig. 3 represents a plan or top view of the machine; Fig. 4, a horizontal sectional view taken on the line *y y* of Fig. 1.

In practice I prefer to employ two sets of grinding-rolls, as shown in the drawings, although it is evident that one set alone may be employed.

In the said drawings, the letter A indicates two stationary rolls mounted in divided bearings *a a'*, the lower section of said bearings being formed in pillow-blocks B, the bases of which are bolted to the bed A of the machine.

The letter C indicates two adjustable rolls, which are journaled in split bearings *c c'*, the lower section of said bearings being formed in the standards D of the two vertical frames E, the said standards being united at their lower ends by means of a cross-bar F. The lower ends of the standards embrace the bed of the machine at opposite sides, and are provided with accurately-bored bearing-bosses, which are mounted on the eccentric sleeves G, which latter are mounted on the ends of the shafts H, which shafts have their bearings in the boxes I at opposite sides of the machine. Said eccentrics are secured, when set, by nuts K' upon the screw-threaded ends of the shafts H, impinging upon the outer ends of said eccentrics and binding the same against the frame of the machine. To the end of each shaft H, outside of said bearings, is secured a hand-lever K, by means of which the shaft may be turned.

L indicates two binding-screws, by means of which the shafts may be securely fastened after the roll has been adjusted.

The upper ends of the standards D are provided with enlargements M, having conical openings *m* flaring inward, through which extend screw-threaded rods N, which are pivoted at their inner ends to wrist-pins P, secured on a disk R upon one end of a shaft R', mounted in the standards T. The outer projecting ends of the screw-rods N have secured upon them hand-wheels U, the hubs of which are internally screw-threaded, and which bear against the upper ends of the standards D. Each screw-rod is surrounded by a spiral spring V, having its ends bearing against the enlargement M, and a screw-nut W, by means of which a yielding pressure is given to each frame and to the roller which it carries, the force of said pressure being regulated by turning the wheel U in the proper direction. The disk R upon one side of the machine has secured to it a lever-arm X, which is provided with a spring-controlled latch Y, carrying a pin adapted to engage the recesses Z at either side of the upper end of the standard T, so as to hold the roll C to a properly-adjusted position, as more fully hereinafter explained.

It will be perceived that the two adjustable rolls are arranged between the stationary rolls in a position where they are readily removable for regrinding or resurfacing, as occasion requires. The said position also enables the said rolls to be set to and from the stationary rolls by a device common to both, thus rendering the machine simple and compact in its construction. When the journal-bearings of the rolls become worn and the parallelism of the rolls is thereby destroyed,

it is only necessary to restore their respective normal position to turn the shafts carrying the eccentric sleeves in the proper direction, moving the sleeves at each side simultaneously and effecting the perfect adjustment at each end simultaneously of the roll and without the necessity of any calculation for the purpose; also, in the event of the unequal wear of the bearings of the fixed roll, it is only necessary to adjust the bearings of the adjustable roll to effect and maintain a proper coacting horizontal relation of the two rolls, and this in the same manner as in compensating for the wear of the journals of the adjustable roll, so that the bearings of the fixed roll are not disturbed. When the rolls have been properly adjusted, the shafts are fastened in position by means of the binding-screws bearing against them.

To set either of the movable rolls to or from its stationary roll, all that is necessary is to shift and lock the lever-arm X, secured to the disk R, before mentioned, this movement causing the disk R on the opposite side of the machine to rotate and adjust the lateral position of that end of the roll simultaneously.

It will be seen that I am enabled to simultaneously and accurately adjust the horizontal position of both ends of the adjustable roll, so as to bring the same into exact parallelism with the stationary roll, and that this operation is accomplished from one side of the machine; also, that the lateral position of the adjustable roll with relation to its fellow can be accurately adjusted throughout its length from one side of the machine.

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

1. In a roller-mill, the combination, with the journal-bearings of the adjustable roll, of a shaft mounted in bearings in the bed-frame, eccentrics fixed upon each end of said shaft in the reverse relation described and supporting the bearings of the roll, and hand-levers fixed upon said eccentrics, whereby the said roll may be simultaneously adjusted with relation to its horizontal axis at each bearing at either side of the machine, substantially as described, for the purpose specified.

2. In a roller-mill, the combination, with the journal-bearings of the adjustable roll, of a shaft mounted in bearings in the bed-frame, eccentrics fixed upon each end of said shaft in the reverse relation described and supporting the bearings of the roll, and the binding-nuts K′ on said shaft, substantially as and for the purpose specified.

3. In a roller-mill, the combination, with the journal-bearings of the adjustable roll, of a shaft mounted in bearings in the bed-frame, eccentrics fixed upon each end of said shaft in the reverse relation described and supporting the bearings of the roll, and the binding-nuts K′ and screws L, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES DAWSON.

Witnesses:
F. L. BROWNE,
LAMECH DUVALL.