J. Dickinson,

Dressing Millstone

No. 36,770. Patented Oct. 28, 1862.

Fig. 1.

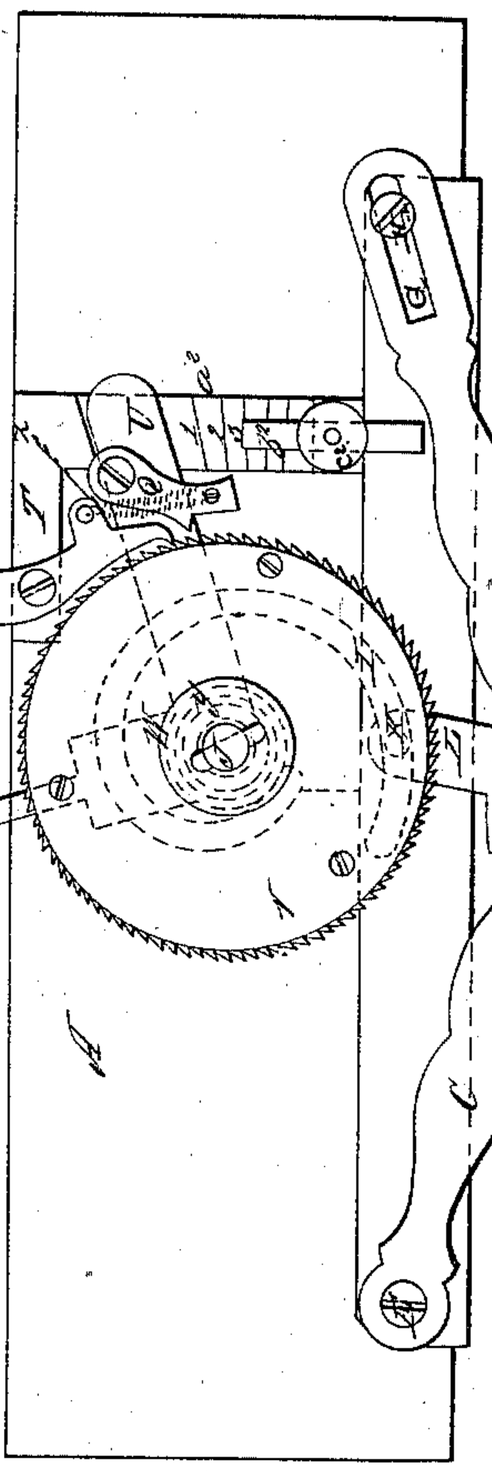


Fig. 4.

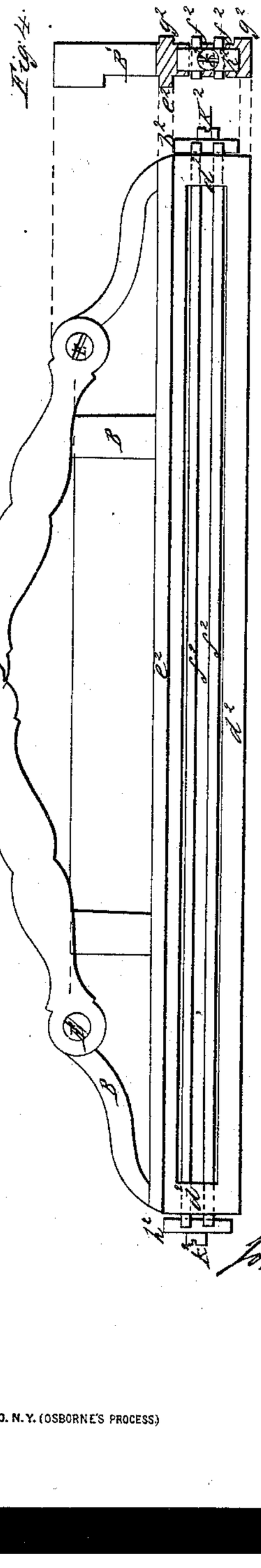


Fig. 3.

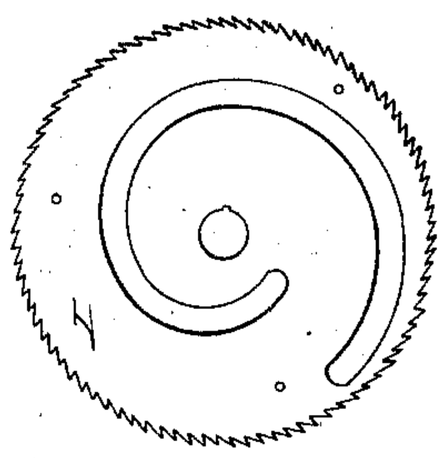
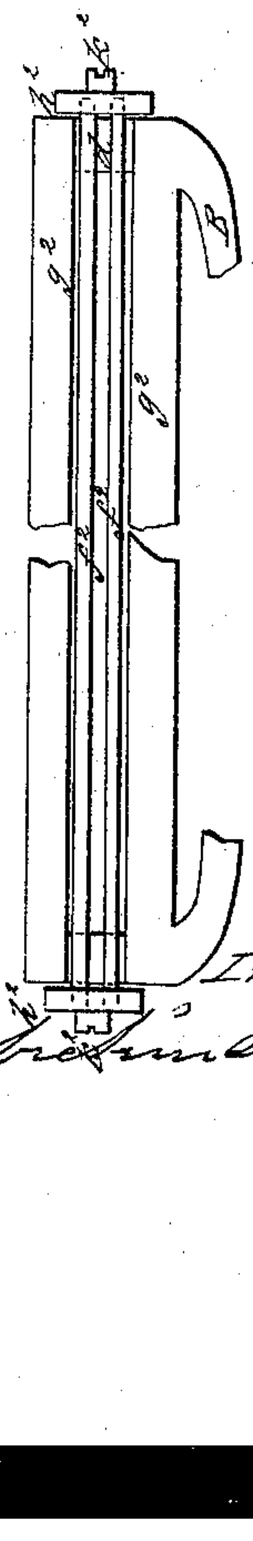


Fig. 2.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN APPARATUS FOR DRESSING MILLSTONES.

Specification forming part of Letters Patent No. **36,770,** dated October 28, 1862.

To all whom it may concern:

Be it known that I, JOHN DICKINSON, of the city, county, and State of New York, have invented certain new and useful improvements in apparatus or mechanism for graduating the linear cuts of the diamond used in dressing millstones and shielding the setting of the same from the wear of the millstone in passing across its face; and I do hereby declare the following to be a full description of the same.

The nature of my invention consists, first, in the method of graduating the motion of a parallel rule by means of a compensating extension arm or lever and a fixed arm or lever crossing each other, and secured at their ends to the rule and bed-board, so that by means of a connection with a scroll-wheel having ratchet-teeth on its edge, operated by a lever and pawls, each degree or tooth of the wheel as it rotates will move the rule a corresponding equal distance on the face of the millstone; second, in the method of regulating the degrees of motion in parallel rule by means of a scale of distances and an adjustable detent-pin; third, in the method of supporting or steadying the motion of the diamond-holder in the parallel rule by means of a raised ledge on the upper side of the double guideway or rule, so as to form a straight edge against which the back of the diamond-holder bears to steady its motion; fourth, in the use and application of an adjustable shield composed of thin strips of steel secured to the under side of the double guideway, so as to rest on the face of the millstone, and thus protect the setting of the diamond, but allowing the point of it to project below them far enough to cut the stone; fifth, in forming on the lower face of the double guideway a channel by means of two ledges of metal, in which the strips of steel are adjusted, so as to protect them from rubbing and bearing directly upon the face of the millstone as the rule is moved backward and forward over it.

But to describe my invention more particularly I will refer to the accompanying drawings, forming a part of this specification, the same letters of reference, wherever they occur, referring to like parts.

Figure 1 is a plan view of the machine. Fig. 2 is a view of the lower side of the double guideway, showing by the red lines the strips of steel for shielding the setting of the diamond. Fig. 3 is a detached view of the scroll-wheel for operating the rule. Fig. 4 is an end view of the rule or double guideway, showing the ledges of metal on its upper and lower surfaces for supporting the diamond-holder and forming the channel for the strips of steel to protect the setting of the diamond.

Letter A is the frame or bed-board of the apparatus. To the front edge of it is secured a double guideway or rule, B, by means of two crossed-extension arms, C and D. The arm C is secured at each end, by screws or pins E, to the bed and rule, while the arm D is only secured at one end as a fixed center upon the rule by a screw, F, and at the opposite end, by means of a slot, G, in it, works upon a center-pin, H, so as to permit it to have a compensating motion. This is obtained by means of a scroll cam-wheel, I, secured on a center-pin, J, into or against which a stud, K, on an arm, L, projecting back from the center of the arm C, engages, so that as the scroll cam-wheel is rotated it draws or shortens the leverage of the arm C, which, acting upon the arm D by means of the center-pin or screw M in the arm C, working through a slot, N, in the arm D, causes the rule to be projected squarely out from the bed, and at the same time at uniform and equal spaces for each degree marked off on the periphery of the scroll cam-wheel. To operate this scroll cam-wheel, teeth are cut on its periphery, into which engage two pawls, P and Q, for the purpose of propelling and detaining the cam-wheel. These pawls are secured, by suitable pins or screws, R and S, to a standard, T, and the propelling-lever U. This lever works upon the center-pin J, and is somewhat in the form of a bell-crank, the back arm of it, u^2, forming a projection beyond the periphery of the cam-wheel as a thumb-piece for the attendant to operate the lever and pawl Q to rotate the cam-wheel. On the upper side of the scroll cam-wheel is secured a cap-plate, V, to keep dust from choking the cam, and upon which, and surrounding the center-pin J, is a barrel, W, in which is secured a reacting watch-spring, Y. (Indicated by the red dotted lines in Fig. 1.) The object of this spring is that, when the rule has been shortened or drawn into the bed, by releasing the pawls the spring will expand, and thus open the rule again.

Letter Z is a small spiral spring (shown in red outline Fig. 1,) connecting the two pawls together, and for the purpose of keeping them in contact with the face of the cam-wheel.

Letter a^2 is a graduated scale, and b^2 is an adjustable stop or set pin held by a binding-screw, c^2. The object of this scale is to regulate the amount of motion of the lever U, and thus the rotation of the scroll cam-wheel, and, through the levers C and D, the number of lines graduated to the inch of the rule.

Letter d^2 is a double guideway or rule. Upon the upper side of the inside guideway is a raised ledge, e^2. This ledge runs the whole length of the rule, and is set back from the edge of it, so as to form a bearing against which the back of the adjustable clamp of the diamond-holder is supported to keep it steady when being drawn across the face of the millstone.

Letters f^2 are two thin strips of steel, secured in a channel formed on the under side of the double guideway by means of two ledges, g^2 g^2, raised on the lower surface of the rule at each side of the slot in the double guideway and parallel with the strips of steel. These strips of steel are secured to the ends of the double guideway by a clamp, h^2, and binding-screen k^2, so as to hold them firmly in the channel and at about a quarter of an inch apart. The object of these strips of steel is to form an elastic shield for the setting of the diamond to rest upon, and thus protect it from coming in contact with the face of the stone, while the diamond projecting below them alone acts to cut it, and that of the ledges g^2 is to form a bearing for the rule upon the face of the stone, and thus keep the thin strips of steel forming the diamond-setting shield from being worn away and at the same time warped or twisted, as would be the case if they rested directly upon the roughened surface of the millstone, and drawn backward and forward over it in the operation of making the succession of cuts to drop a millstone.

Having now described my invention, I will proceed to set forth what I claim and desire to secure by Letters Patent of the United States—

1. The combination of the scroll-cam wheel I, the arm or lever C, compensating-arm D, operating-lever U, and pawls P and Q, for operating the scroll cam-wheel or equivalents of either of the said several parts, in combination with the said scroll cam-wheel, to produce the results hereinbefore set forth.

2. The combination of the graduated scale a^2 and adjustable stop b^2 with the lever U and scroll cam-wheel I, for the purposes hereinbefore set forth.

3. The use of the raised ledge e^2 on the upper side of a double guideway parallel rule, for the purposes hereinbefore set forth.

4. The use of the two strips of steel f^2 as a shield for the setting of the diamond in dressing millstones, in combination with the double guideway d^2, substantially as hereinbefore set forth.

5. The use of the two ledges g^2 g^2, raised on the lower surface of the double guideway, so as to form a channel for the shields f^2 to be adjusted in, in combination with the shields f^2, for the purposes hereinbefore set forth.

JOHN DICKINSON.

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