M. H. Bacon,

Dressing Millstones,

No. 29,350. Patented July 31, 1860.

Fig. 1.

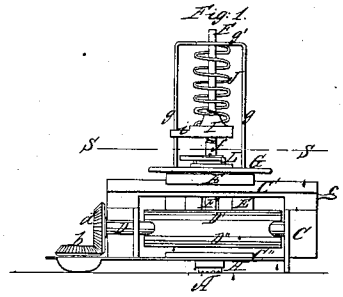


Fig. 2.

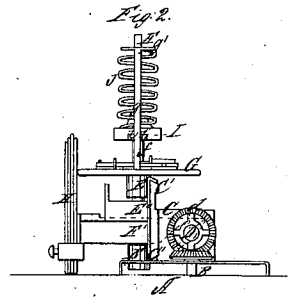


Fig. 4.

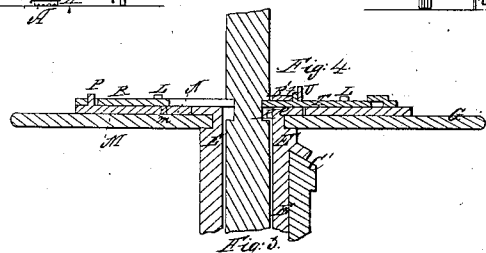
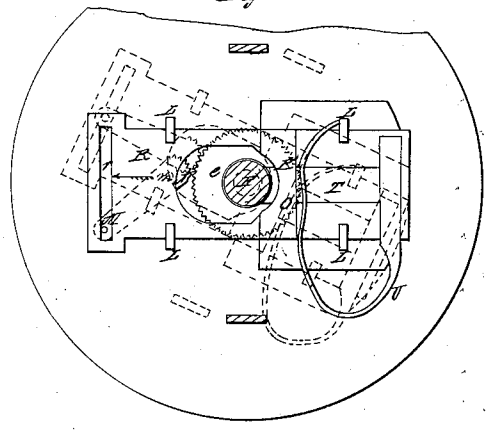


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

MINER H. BACON, OF MYSTIC, CONNECTICUT.

MACHINE FOR DRESSING MILLSTONES.

Specification of Letters Patent No. 29,350, dated July 31, 1860.

To all whom it may concern:

Be it known that I, MINER H. BACON, of Mystic, in the county of New London and State of Connecticut, have invented certain new and useful Improvements in Machines for Dressing Millstones by the Power of the Mill; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of my improved machine. Fig. 2, is an elevation at right angles to that in Fig. 1. Fig. 3 is a cross section through the same portion on the line S, S, drawn on a larger scale. Fig. 4 is a plan view of the same portion on the same scale.

Similar letters of reference indicate like parts in all the figures.

My invention is capable of being applied either in connection with the invention secured to me by Letters Patent of the United States or separately therefrom.

The nature of my invention consists in an arrangement of parts whereby a single hand wheel performs a triple duty as follows: 1st, adjusting the position of the cutting parts on the frame by allowing said wheel to be moved bodily to or from the attendant; 2d, controlling the force of the blow by turning the said wheel around on a fixed screw, and 3d, stopping the motion of the cutters and suspending them at an elevation above the stone by a small fraction of a revolution of the said wheel from any position where it may be placed. Also in a specific means of operating a stop in the said hand wheel whereby the effect is produced of causing a fraction of a turn of said wheel to stop the motion of the cutters and suspend them, whether the tension of the spring be great or small, or whether the wheel has previously been turned many or few times in either direction. Also in a certain combination of parts for allowing the handwheel to be operated when the spindle is not in the right position for suspending its action and for causing the catch to act as soon as the spindle reaches that position. Also in a certain arrangement of parts whereby a certain spring is made to perform a double function in a manner shown below.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation by the aid of the drawings.

A is the stone to be dressed.

b is a bevel gear wheel mounted on the mill spindle B.

C is a frame capable of being turned partly or entirely around, *b*, by the handle, *c*.

D is a shaft mounted in C and carrying the bevel wheel, *d*, which meshes into, *b*. The frame C may be hinged and the shaft D provided with a universal joint as in my former invention if preferred. I have here represented the parts as not so jointed but continuous. The frame C is adapted to carry the frame E on the beveled ways, C′, C″. The shaft D is winged as shown by the wings D′, D″.

The frame E supports in suitable bearings the upright spindle F so that it is free to reciprocate vertically. Around the upper bearing the metal of E is extended upward so as to form a lip E′ inclosing F to the height of two inches more or less above the general surface of the frame E. On the top of this lip E′ a toothed wheel *e*, is rigidly secured by riveting soldering or otherwise and on the said lip below such wheel, *e*, is loosely mounted a hand wheel G.

The spindle F is lifted and allowed to drop at each passage of a wing D′ or D″ which acts on a suitable horizontal arm F′ which is fixed on F. Suitable cutters H are also fixed to F and at each descent therefor acts on the stone A. Suitable guides E″ extend from E and act on the sides of F′ to prevent any turning of F around while they allow it freely to ascend and descend.

The spindle F is threaded at one part as represented by *f*. On this thread a nut I is mounted which nut has a forked branch extending from one side as shown by, *i*. On the upper side of the hand wheel G is fixed two upright posts *g*, *g* and a cross piece *g′* as represented. The cross piece *g′* may loosely surround the spindle F and the two may thus mutually steady each other if desired. A coiled spring J extends between the nut I on the spindle F and the cross piece *g′* tending to increase their distance each from the other. The forked arm, *i*, extends from the side of I and embraces *g*. This hand wheel G is by the peculiarity of

my invention made to perform the several important duties of changing the position of E upon the slides C′, C″ raising and lowering at the nut I and holding F suspended at will by a slight movement whatever may be the position of the parts. The first named effect is obvious from the construction and arrangement of the parts, as the wheel is close down to E and any force applied to G in the line of its axis necessarily tends to move both the wheel and its supporting frame E. The second effect is almost equally obvious since a continued revolution of G in either direction turns the posts *g*, *g* and these by turning the nut I upon the screw thread *f* raise or lower the same relatively to the spindle F. This raising or lowering changes the distance between this nut I and the cross piece *g′* and consequently modifies the action of the spring, increasing the force of the blows as the nut is raised and diminishing the force as the nut is lowered. It requires several complete revolutions of G to raise and lower I to its full extent and the blows may be varied in force with great nicety by turning G to various extents in either direction. The third effect, that of stopping the action of the cutters by a slight motion of G is due to the action of parts which have not been explained.

In the spindle F is a groove extending quite around at the point shown by K in Fig. 4. On the upper surface of G, four short guide posts are erected as shown by L, L. At the point *m* is mounted a lever M. One end of this is a segment of gearing N the other terminates with a pin or arm extending upward as shown by P. The gearing N is adapted either to gear into the teeth of, *e*, or to serve as a pawl in relation thereto according as the parts may require to be operated. Between the guide posts L, L is mounted a slide R of the form represented. It traverses at such height above G as to allow play to the lever M between. A slot, *r*, extends across one end of R and the pin P is received in this slot so that it is free to traverse therein from one end to the other. The slot, *r*, being straight a vibration of the lever M causes a slight motion of R in the direction of its length the extent of the motion being the versed sine of the arc described by N or in other words the mount by which the "sweep" of N deviates from a straight line drawn from one end, of its motion to the other. This slight motion is sufficient to thrust a suitable stop into the groove K and induce the stoppage of the motion of F when the lever M is in its central portion and to remove it and allow F to act freely when the lever M is at either extreme of its motion. The continuance of the motion of F therefore depends on the lever M remaining in one extreme or the other of its motion so that the pin N shall stand in one end or the other of the slot, *r*.

The segment N by its relation to the fixed wheel *e* allows the hand wheel G with all its attachments to be turned in either direction to any extent desired either continuously or intermittently. In doing so the teeth of the segment N act merely as pawls slipping past the teeth of, *e*, with a slight rattling sound and producing no effect except a gentle tremulous motion of the parts, but if after having turned the hand wheel G to any desired extent in one direction so as to increase or diminish the force of the blows to the required degree the direction of the motion of G is reversed the teeth of P immediately mesh into the teeth of, *e*, and commence to act as a geared segment instead of a pawl and to throw the lever M over to its extreme opposite position. After the lever M has been thrown in this manner so that the pin N stands in the opposite extremity of slot, *r*, the motion of hand wheel G may be continued to any extent desired and the teeth of P will only serve as a pawl as before. But while the lever M is changing its position it temporarily suspends the action of the cutters and at any moment when the attendant desires to stop the action he turns the handwheel to a just sufficient extent to leave the pin N in the middle of the slot, *r*, and the cutters will remain suspended so long as the parts are so left. The stop which enters the groove K to effect this is not rigidly fixed on the slide R but is a part of a smaller slide T which latter is mounted in R with liberty to slide longitudinally therein. A pin *t* projects upward from the upper face of T and is acted on by the spring U which is fixed on R and tends to hold T in contact with the spindle F ready to enter the groove K. A cross bar R′ extends across the upper side of R and serves as a stop to receive *t*, and prevent T from locking into K except when the slide R is placed in the proper position by the central position of the lever M.

The end of the spring U extends beyond the pin, *t*, and acts in the reverse direction against one of the guide posts L. This gives the entire slide R and all its connections a tendency to move relatively to G in the direction indicated by the blue arrow, which is only restrained by the pin *m*. From this it will be seen that the action of the spring U against the post L constantly presses the side of the slot *r*, against the pin *m*, and tends to turn the lever M and throw it into its central position. This tendency is resisted by the contact of the teeth of N with the teeth of, *e*, which insures these

teeth being always in close contact ready to act efficiently as a pawl or as a geared segment as has been described.

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

1. The arrangement of the hand wheel G sliding frame E sleeve E′ spring J and suitable means for adjusting the tension of J and suspending the spindle K by turning G substantially as herein set forth.

2. Operating the stop T by the pawl N substantially in the manner herein shown for the purpose of seizing and holding up the cutters by a slight motion of the wheel G whatever may be the tension of the spring.

3. The slide R spring U slide T and grooved spindle F, K in combination with the shifting device M, N, *e*, *v*, or its equivalent substantially as and for the purpose herein set forth.

4. The arrangement of the spring U in connection with the double slide R, T, and hand wheel G substantially as herein shown for the purpose specified.

In testimony whereof I have hereunto set my name in the presence of two subscribing witnesses.

MINER H. BACON.

Witnesses:

JAMES M. CHESBRO,

AMOS WATROUS.