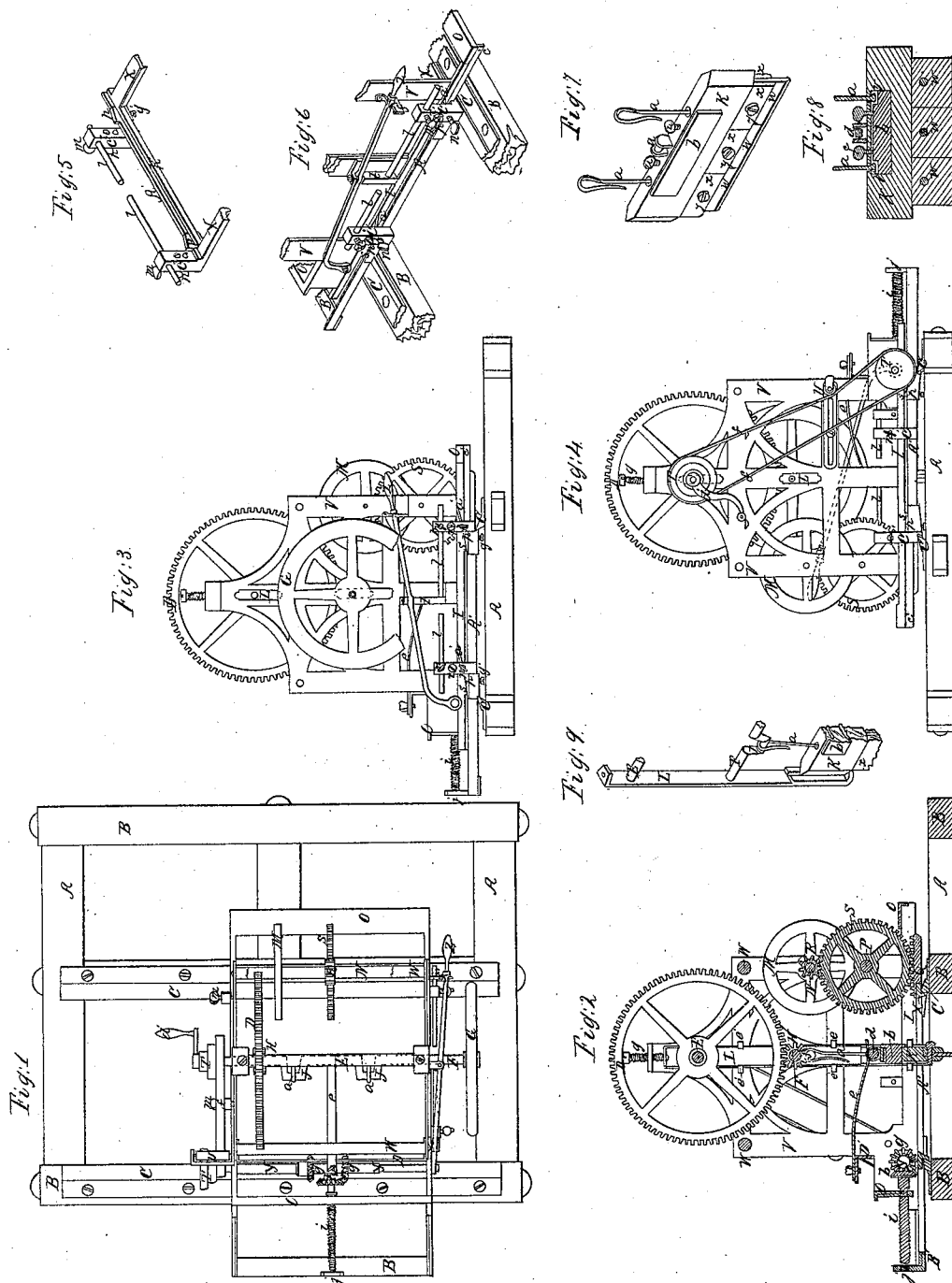


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*Dressing Millstones.*

*N<sup>o</sup> 4,973.*

*Patented Feb. 20, 1847.*



# UNITED STATES PATENT OFFICE.

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## MACHINERY FOR DRESSING MILLSTONES.

Specification of Letters Patent No. 4,973, dated February 20, 1847; Antedated October 10, 1846.

*To all whom it may concern:*

Be it known that we, ASA FISK, JR., LEANDER D. RUMSEY, and ORSON S. GREGORY, of Sullivan, in the county of Tioga and State of Pennsylvania, have invented a new and useful Machine for Dressing Millstones; and we do hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification.

The nature of our invention consists in so combining a set of cold chisels with an adjustable machine, arranged upon a frame work base and sliding carriage, that by turning a crank with one hand, rapid motion is imparted to the chisels, and by operating other parts of the machine at the same time with the other hand, the chisels are made to traverse the stone in such a manner as to form an even surface, or to cut the grooves in the mill stone.

In the accompanying drawings Figure 1, is a top view of the adjustable dressing machine, mounted on sliding carriage and base; Fig. 2, is a vertical transverse section; and Figs. 3 and 4, are end elevations of the same; Fig. 5, is a perspective view of a portion of the sliding carriage detached from the base and machine; Fig. 6, is a perspective view of a broken section of the base, sliding carriage, and dressing machine; Fig. 7, is a perspective elevation of the head block, and chisels of the dressing machine, detached, and Fig. 8, is a longitudinal vertical section of the same; Fig. 9, is a perspective elevation of one of the guiding posts of the head block, with a broken section of the head block, crank shaft, and driving shaft connected to the same.

The same letters refer to corresponding parts in all the figures.

A, A, and B, B, B, are the transverse and longitudinal pieces of which the frame work base is composed, above referred to. C, C, are metallic rails secured to two of the longitudinal base pieces B, B, having sharp edges projecting inward. Upon the rails C, C, the sliding carriage—composed of the pieces A' A', X, X and B'—is secured in such a manner that it cannot be lifted off, by ledges on the under side of X, X, passing under the projecting edges of the rails. Two vertical posts C', C', are attached to the side pieces A', A', of the sliding car-

riage, between which the dressing machine is placed.

V, V, are the end main supporters of the dressing machine, connected to each other by the cross ties W, W, O, O, and D'.

I, I, are shoe pieces at the bottom of the end supporters of the dressing machine, on which the machine rests and slides on the side pieces A', A', of the sliding carriage, the projecting lower edges *c'*, of the shoe pieces, resting on the shoulders *k*, on the inner sides of A', A', (Figs. 5 and 6).

E, is the main driving shaft turned by a crank *d'*; D is a cog wheel on main shaft, working into and driving pinion H, on crank shaft F,—to which the head block K, is connected. The shaft F, has two cranks J, J, within the machine, to which the head block K, is suspended by the rods *a*, *a*, by which it is operated. The cold chisels *w*, *w*, are secured to the head block by the plates *x*, *x*, and screws *y*, *y*, (Figs. 7 and 8). The force of the blow of the chisels upon the stone, is regulated entirely by the weight of the head block K,—the cranks J, J, exerting no pressure upon the head block, in consequence of the nature of their connection—the connecting rods *a*, *a*, being suspended by hooks to the cranks J, J, and connected by loose socket joints to the head block, as shown in Fig. 8. An aperture in the head block receives the weight *b*, for graduating the momentum of the same.

G, is a fly wheel on the end of the shaft F.

The main shaft E, and shaft F, have their bearings in the adjustable posts L, L; the head block K, likewise works in vertical grooves at the lower ends of the same. The adjustable posts L, L, are secured to the inner sides of the central posts of the end supporters of the dressing machine,—being suspended to caps at the tops of the same by the set screws *q*, *q*, and are kept securely in a vertical position by the clutches *e'*, *e'*, (Fig. 2). Slots are formed in the central posts of the end supporters V, V, for the main shaft E, and shaft F, to pass through. As the chisels *w*, *w*, are worn and shortened by use they are brought to the face of the stone by the action of the set screws *q*, *q*, operating on the posts L, L.

The dressing machine is moved horizontally in one direction, by the sliding carriage, moving on the rails C, C, the length of the frame work base. It is also moved horizontally in a direction at right angles

with the rails C, C, on the sliding carriage, when the chisels are used for bringing a stone to an even surface, (or for sharpening its surface); or it is given an inclined upward direction when the chisels are used for cutting out or dressing the furrows in a stone—in the manner hereinafter set forth. The dressing machine is moved upon the sliding carriage in a horizontal direction by the action of a screw *i*, operated as follows. On the center of the cross-piece B', of the sliding carriage, there arises the projection *j*, having an aperture in its center in which is formed a female screw, fitting the screw *i*. The screw *i*, has a journal formed near its inner end which has its bearings in the center of one of the cross-ties O, of the dressing machine. A bevel pinion *h*, is secured to the inner end of the screw *i*, which is placed between the bevel pinions *g*, *g*, on the shaft Y, (Figs. 1, and 2,) in such a position that it can be thrown into gear with either one of them. The shaft Y, has sufficient play in its bearings to allow of its being vibrated to the right or left far enough to throw either of the pinions *g*, *g*, into gear with the pinion *h*. Z, is a lever attached to one end of the shaft Y, by which it is vibrated; *f'*, is a catch for retaining the lever Z, and shaft Y, in a fixed position. The shaft Y, is driven by a band *f*, connecting the diminishing pulley T, on the driving shaft E, with the diminishing pulley on the shaft Y.

The action of the screw *i*, in the projection *j*, moves the dressing machine the length of the screw by shifting the pinion *h*, from one to the other of the pinions *g*, *g*, by action of the lever Z, the dressing machine can be moved backward or forward at pleasure. The speed of the screw *i*, and thereby the movement of the machine, is regulated by the adjustment of the band *f*, upon the diminishing pulleys. If it is desired to have but little action of the chisels upon a stone, the band *f*, is placed upon the largest portion of the pulley on the driving shaft, and on the smallest portion of the pulley on the shaft Y, thereby giving a rapid motion to the screw and dressing machine. When more action of the chisels is required upon a stone, a slower motion is imparted to the screw *i*, by a reverse adjustment of the band *f*, on the pulleys T, T.

The screws *r*, *r*, passing through the posts C', C', pass over the edges of the shoe pieces I, I, and secure the dressing machine to the sliding carriage, when the machine is moved by the screw *i*.

An upward inclined motion is given to the dressing machine, when it is desired to have the chisels cut out or dress the furrows of a mill stone, as follows: A couple of adjustable inclined planes *p*, *p*,—corresponding with the inclined sides of the furrows—are let

into recesses and project from the upper edge of each of the side pieces A' A', of the sliding carriage—(Fig. 5); inclined projections *s*, *s*, descend from the shoulders on the outer sides of the shoe pieces I, I, of the dressing machine, being placed the same distance from each other, that the inclined planes *p*, *p*, are in the side pieces A', A'. By detaching the screw *i*, from the projection *j*, and removing the screws *r*, *r*, from the posts C', C', the dressing machine can be drawn forward, in doing which, the projections *s*, *s*, on the shoes I, I, of the same, mount the inclined planes *p*, *p*, on the side pieces A', A', of the carriage, thereby elevating the dressing machine and chisels to correspond with the inclination of the furrows in the mill stone. The chisels *w*, *w*, are adjusted to the depth of the furrows in the mill stone by means of the posts L, L, and set screws *q*, *q*. The dressing machine is moved up and down the inclined planes *p*, *p*, by the left hand at the same time that the right hand of the operator is acting upon the driving shaft and chisels, as follows.

Q, is a rack attached to the center of one of the pieces X, of the sliding carriage. S, is a cog wheel on the shaft P, working into rack Q; R, is a pinion on shaft N, working into cog wheel S; M, is a hand wheel on the shaft N, placed near the right hand end of the same.

While the operator turns the driving shaft and acts upon the chisels with his right hand, with his left hand he moves the hand wheel M, backward and forward, thereby causing the dressing machine to ascend and descend the inclined planes *p*, *p*, in a direction corresponding with the inclined sides of the furrows in the mill stones, through the medium of the pinion R, cog wheel S, and rack Q.

*g'*, *g'*, are set screws (see Fig. 5) for elevating or depressing the inclined planes *p*, *p*. *l*, *l*, are governing rods passing through the tops of the posts C', C', for regulating the backward and forward movement of the dressing machine in dressing the furrows of a mill stone. *t*, is a projection on the outer side of the center post of one of the end supporters of the dressing machine, placed between the governing rods *l*, *l*. The governing rods are so adjusted that their inner ends will strike the projection *t*, at the moments that the chisels reach the top and the bottom of the inclined sides of the furrows in a mill stone. *m*, *m*, are set screws for securing the governing rods *l*, *l*, in their positions in the posts C', C'. *n*, *n*, are set screws with sharp points, (see Fig. 5) passing through the posts C', C',—the points of the screws *n*, pass into the inclined grooves *a'*, *a'*, in the shoe pieces I, I, to keep the dressing machine steady upon the sliding carriage, while it is ascending

and descending the inclined planes  $p, p$ . When the chisels  $w, w$ , are used for dressing or leveling the face of a mill stone, their cutting edges are brought to a position parallel with the lower sides of the pieces A, and B, of the base frame work.

Having thus fully described the construction and operation of our machine for dressing mill-stone, what we claim therein as new and desire to secure by Letters Patent, is—

The giving the dressing machine and chisels an inclined movement upon the sliding carriage (corresponding with the inclined side of the furrow of a mill-stone,) by means of the inclined planes  $p, p$ , (on the side pieces A', A', of the sliding carriage,) and the

projections  $s, s$ , (on the shoe pieces I, I, of the dressing machine,) combined with each other and with the hand wheel M, the pinion R, cog wheel S, and rack Q, substantially in the manner herein set forth.

ASA FISK, Jr.  
LEANDER D. RUMSEY.  
ORSON S. GREGORY.

Witnesses to signature of Asa Fisk, Jr.:

MOSES CRAWFORD,  
ANTHONY R. SPENCER.

Signed by Leander D. Rumsey and Orson S. Gregory in our presence:

CALVIN C. GRUN,  
THOS. ROBBINS.