(No Model.)

J. H. CUTLER.

POLISHING MACHINE.

No. 335,568. Patented Feb. 9, 1886.

Fig. 1.

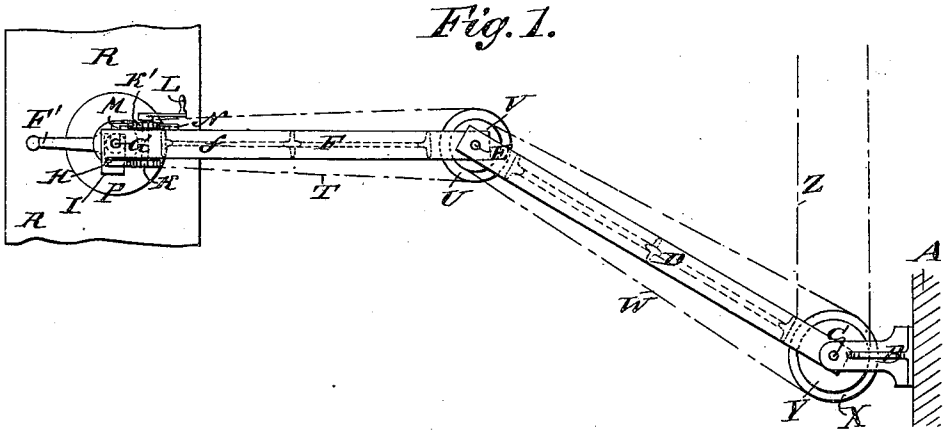


Fig. 2.

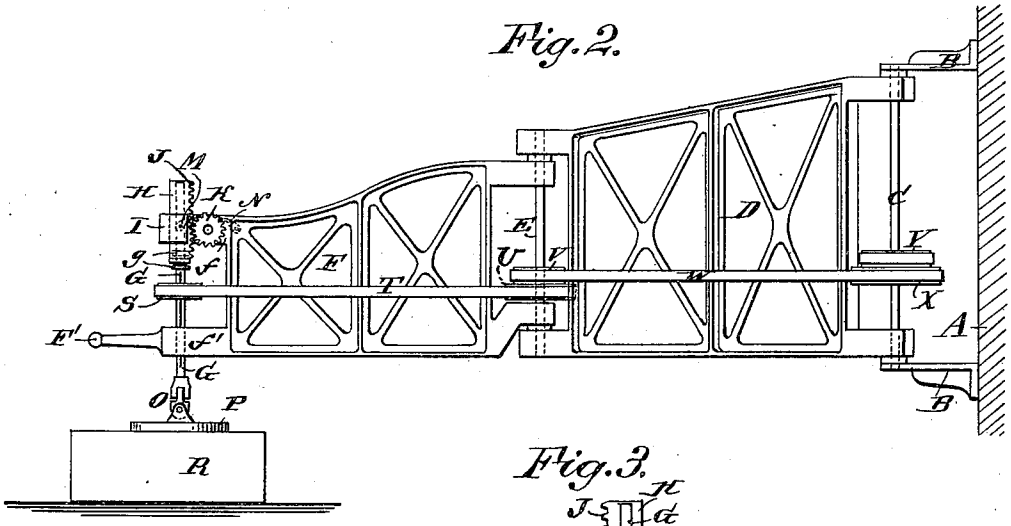
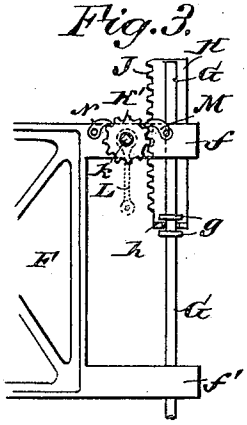


Fig. 3.



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JOSEPH H. CUTLER, OF WEST MEDWAY, MASSACHUSETTS.

POLISHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 335,568, dated February 9, 1886.

Application filed November 12, 1884. Serial No. 147,730. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH HIRAM CUTLER, of West Medway, in the county of Norfolk and State of Massachusetts, have invented a new and Improved Polishing-Machine, of which the following is a full, clear, and exact description.

My invention relates to machines for polishing granite or other stone, or for finishing or dressing the surfaces of other material, the object being to provide a simple, easy-running, and efficient machine, which may quickly be adjusted to polish flat surfaces and angles or corners of the work.

The invention consists in particular constructions and combinations of parts of the machine, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of my improved polishing-machine as at work. Fig. 2 is a side elevation of the same; and Fig. 3 is a detail view from the opposite side, showing the adjusting and holding devices of the polishing-head and its shaft.

The letter A indicates a wall, post, or other suitable support, to which strong brackets B B are fastened, and C a vertical shaft held rigidly in these brackets, on which shaft one end of a frame, D, is loosely held, so that the frame may swing in a horizontal plane. In the outer end of the frame D is rigidly held the vertical shaft E, on which one end of a frame, F, is loosely held, so that it may swing in a horizontal plane.

G is a vertical shaft, which revolves in and slides through the outer ends of the upper and lower arms, *f f'*, of the frame F, and said shaft G has a couple of collars, *g g*, fixed to it, so as to stand one above and the other below a flange or lip, *h*, formed on a plate, H, which is fitted to slide vertically in a guide-piece or head-plate, I, held to the frame F.

The plate H has a rack of teeth, J, along one edge, which are engaged by a pinion, K, the shaft *k* of which is journaled in the frame F, and has fixed to it the crank L, by which it may be turned to raise or lower the shaft G by the action of the flange *h* of plate H on the collars *g g*.

Pawls M N are pivoted to the frame F, and are adapted to engage the teeth of pinion K' at opposite sides of its vertical center, said pinion K' being fixed to the shaft *k* at its end opposite to that to which the pinion K is fixed and of the other face of the frame F, as shown.

To the lower end of the shaft G, I attach by a universal joint, O, of any approved construction, the polishing head or plate P, which is to be revolved on the face of a block or piece, R, of granite or other material requiring a finish.

On the shaft G is fitted by a spline or feather the pulley S, so that the shaft may move freely up and down through the pulley and be rotated thereby, and a driving-belt, T, passes from pulley S to a pulley, U, which is loose on shaft E, and has fixed to it a pulley, V, from which a driving-belt, W, passes to a pulley, X, which is loose on shaft C, and has fixed to it the pulley V, over which a driving-belt, Z, passes to any convenient motor, from which power may be taken to drive the machine.

It is evident that the frames D and F may freely be swung in a horizontal plane by taking hold of the handle F' of the frame F to carry the rotating polishing-head P to any point or place over the face of the work; and to carry the head down to the work the pawl M will be disengaged from the pinion K', and the crank L turned to lower the head, and the pawl will again be engaged with the pinion to hold the head, while the pawl N acts to prevent rise of the head by the pressure on it while at work. To lift the head for acting on higher faces of the stone R or other work or on work of greater thickness, the pawl N will be swung back and the crank L will be turned the other way, and the pawl will again be engaged with the pinion K', as will readily be understood.

The universal joint O allows the polishing-head to adjust itself to irregularities of the work, or to be adjusted by the attendant to chamfered or beveled corners or surfaces of the work, and the machine may be arranged

to be started and stopped without letting go of the handle F', by which the movements of the polishing-head are controlled.

By holding the shaft C stationary in the brackets B and the shaft E stationary in the frame D, and causing the pulleys X Y U V to revolve on these shafts, the machine may be run with less power than if the pulleys were fixed to the shafts and they revolved in end bearings in the brackets and frame, said pulleys in practice being retained in proper relative position upon their shafts, it may be by collars bolted to said shafts.

I prefer to make the swinging frames D F of metal, each frame cast in one piece; and the frames may be made in various sizes, as the work to be done may require.

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

1. The combination, with the swinging frame F, the polishing-head P, and its rotating shaft G, of the rack-plate H, pinion K, means for turning said pinion, the pinion K', and pawls M N, for holding the pinion K', substantially as herein set forth.

2. A polishing-machine constructed with a frame, D, swinging on a shaft, C, held rigidly in suitable supports, and the shaft E, held rigidly in the outer end of frame D, the frame F, swinging on the shaft E and carrying a rotating shaft, G, the polishing-head P, held by a universal joint, O, to the shaft G, the rack-plate H, engaging the shaft, the shaft *k*, the pinions K K', pawls M N, and the driving-belts T W Z, running over a pulley, S, splined to shaft G, and pulleys U V X Y, running loosely on the shafts E C, all combined and operating substantially as herein set forth.

JOSEPH H. CUTLER.

Witnesses:
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