June 9, 1942. W. G. CUMMING 2,285,808

STONE POLISHING MACHINE

Filed Dec. 12, 1940

Fig. 1

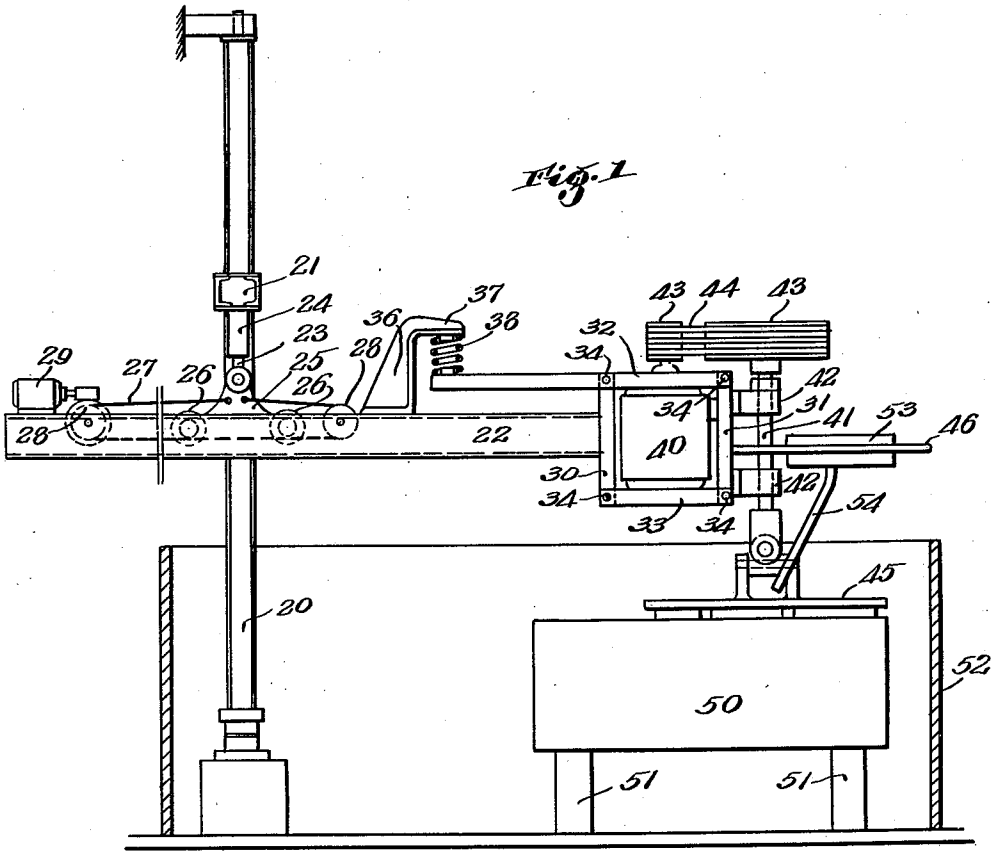
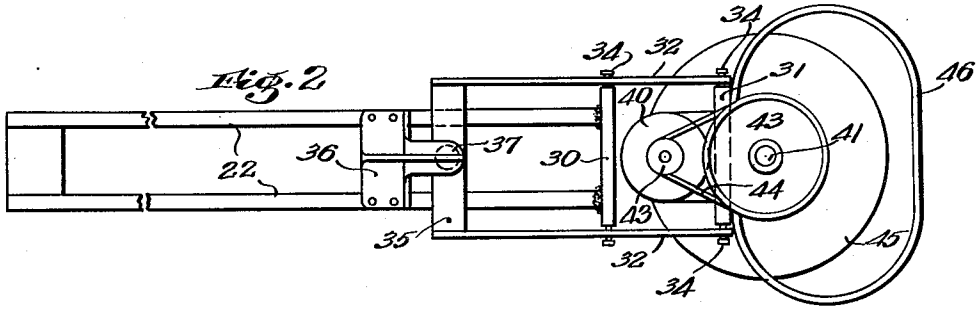


Fig. 2



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STONE POLISHING MACHINE

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8 Claims. (Cl. 51—126)

This invention relates to an improvement in a stone polishing machine and more particularly in a machine of the type disclosed in my Patent No. 2,073,400 granted March 9, 1937.

In the machine disclosed in that patent the polishing spindle is supported upon one end of the horizontal beam and the motor by which the spindle is rotated is supported at the other end of the beam. The spindle has no bodily movement relation to the beam other than that of rotation and the drive is transmitted to the spindle through a shaft which extends the length of the beam.

The primary object of this invention is to provide a polishing machine wherein the polishing spindle and motor are mounted closely adjacent each other at one end of the horizontal beam and in such manner that they may be raised or lowered relative to the horizontal beam to allow for any variation in height of the stone being polished.

A further object of this invention resides in the provision of spring means by which the weight of the motor and spindle unit is counterbalanced as when the polishing wheel is not resting upon a stone.

These and other objects of the invention will appear from a consideration of the following description and of the accompanying drawing of one embodiment of the invention and in which

Fig. 1 is a view in front elevation of the machine; and

Fig. 2 is a top plan view of the horizontal beam and the motor and spindle unit.

The stone polishing machine selected to illustrate one embodiment of the invention comprises an upright 20, a horizontal arm 21 extending at right angles thereto and a horizontal beam 22. The beam 22 is connected to the arm 21 by a swivel shaft 23 enclosed within a sleeve 24 and depending from the arm 21 and a triangularly shaped plate 25 pivoted to the shaft 23 and carrying rollers 26 by which the horizontal beam is supported. The beam 22 is reciprocated over the rollers 26 by a belt 27 passed around pulleys 28 carried by the beam and secured at its ends to the plate 25. A motor 29 drives one of the pulleys 28 to actuate the belt under control of the operator. The above construction is similar to that shown and described in the above-mentioned patent and since it forms no part of the present invention it will not be further described.

Rigidly attached to one end of the beam 22 is a plate 30 generally rectangular in form. A plate 31 is connected to the plate 30 by upper and lower bars 32 and 33 pivotally attached to the side edges of the plates 30 and 31 by pins 34. The plate 31 is thus freely movable relative to the plate 30 and since the pins 34 are uniform distances apart along the bars 32 and 33 the plates are at all times parallel. The bars 32 extend beyond the pins 34 and are connected at the outer ends by a cross bar 35. Fixed upon the top of the beam 22 is a bracket 36 which includes a tongue 37 that extends over the cross bar 35. A spring 38 is positioned between the cross bar 35 and tongue 37 for a purpose to be described later.

The plate 31 supports a motor 40 and the polishing spindle 41 driven thereby. The motor 40 is rigidly mounted upon the face of the plate 31 nearer the plate 30 while the spindle 41 is rotatably supported in bearing brackets 42 mounted upon the opposite face of the plate 31. Power is transmitted from the motor to the spindle in any suitable way as by means of pulleys 43 and belts 44.

A polishing wheel 45 is pivotally attached to the spindle 41. A loop 46 fixed to the plate 31 enables the operator to guide the polishing wheel over the upper surface of a slab of stone 50 resting upon blocks 51 within an enclosure 52. A receptacle 53 carried by the loop 46 supplies abrasive through a duct 54 to the polishing wheel 45.

From the above description it will be noted that the motor and spindle unit which includes the plate 31 is movable in a plane at right angles to the beam 22. The spring 38 acting upon the bars 32 is so constructed and exerts such tension that it counterbalances the weight of the motor and spindle. As the polishing wheel 45 is guided over the stone 50 by the operator the motor and spindle unit is raised and lowered in response to the presence of high or low spots on the face of the stone. Moreover, the mounting of the motor and spindle unit is such that the machine can be used upon slabs of stone differing in height without making any adjustment in the height of the beam 22.

While one embodiment of this invention has been shown and described, it will be understood that the invention is not limited thereto and that other embodiments may be made without departing from the spirit and scope of the invention as set forth in the following claims.

I claim:

1. A stone polishing machine comprising a support, a horizontal beam movably mounted on the support intermediate its ends to shift endwise and to tilt up and down, means on one end

of the beam to shift it endwise on the support, an arm pivotally mounted on the other end of the beam to swing up and down, the outer end of the arm projecting beyond the end of the beam and the inner end of the arm extending along the beam, a grinding wheel mounted on said outer end to rotate about a vertical axis, and a spring interposed between the beam and said inner end to cushion said up and down movement of the arm.

2. A stone polishing machine comprising a support, a horizontal beam movably mounted on the support intermediate its ends to shift endwise and to tilt up and down, means on one end of the beam to shift it endwise on the support, arms pivotally mounted on the other end of the beam to swing up and down in parallelism, a link pivotally interconnecting the arms beyond the end of the beam, and a grinding wheel mounted on said link to rotate about a vertical axis.

3. A stone polishing machine comprising a support, a horizontal beam movably mounted on the support intermediate its ends to shift endwise and to tilt up and down, means on one end of the beam to shift it endwise on the support, arms pivotally mounted on the outer end of the beam to swing up and down in parallelism, a link pivotally interconnecting the arms beyond the end of the beam, a grinding wheel and a motor mounted on opposite sides of said link to rotate about vertical axes, means kinematically interconnecting the motor and wheel to rotate in unison, and spring means interposed between the beam and arms to counteract the weight of the wheel and motor and to cushion the action of the wheel on the stone.

4. A stone polishing machine comprising a support, a horizontal beam movably mounted on the support intermediate its ends to shift endwise and to tilt up and down, means on one end of the beam to shift it endwise on the support, four arms pivotally mounted on the other end of the beam to swing up and down in parallelism, means including a plate pivotally interconnecting the arms beyond the end of the beam, the eight pivots of the arms defining a rectangular space, a motor mounted on one side of said plate in said space, a grinding wheel mounted on the opposite side of said plate and means kinematicaly interconnecting the motor and wheel.

5. A stone polishing machine comprising a support, a horizontal beam movably mounted on the support intermediate its ends to shift endwise and to tilt up and down, means on one end of the beam to shift it endwise on the support, four arms pivotally mounted on the other end of the beam to swing up and down in parallelism, means including a plate pivotally interconnecting the arms beyond the end of the beam, the eight pivots of the arms defining a rectangular space, a motor mounted on one side of said plate in said space, a grinding wheel mounted on the opposite side of said plate, the inner ends of certain of said arms overlapping the beam, and a spring interposed between said ends and beam to cushion the action of the wheel on the stone.

6. A stone polishing machine comprising a support, arms pivotally mounted on the support to swing up and down in parallelism, a link pivotally interconnecting the arms in spaced relation to the support, a grinding wheel and a motor mounted on opposite sides of said link to rotate about a vertical axes, means kinematically interconnecting the motor and wheel to rotate in unison, and spring means interposed between the support and arms to counteract the weight of the wheel and motor and to cushion the action of the wheel on the stone.

7. A stone polishing machine comprising a support, four arms pivotally mounted on the support to swing up and down in parallelism, means including a plate pivotally interconnecting the arms in spaced relation to the support, the eight pivots of the arms defining a rectangular space, a motor mounted on said plate in said space, a grinding wheel mounted on the opposite side of said plate, and means kinematically interconnecting the motor and wheel.

8. A stone polishing machine comprising a support, four arms pivotally mounted on the support to swing up and down in parallelism, means including a plate pivotally interconnecting the arms in spaced relation to the support, the eight pivots of the arms defining a rectangular space, a motor mounted on said plate in said space, a grinding wheel mounted on the opposite side of said plate, the inner ends of certain of said arms overlapping the support, and a spring interposed between said ends and support to cushion the action of the wheel on the stone.

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