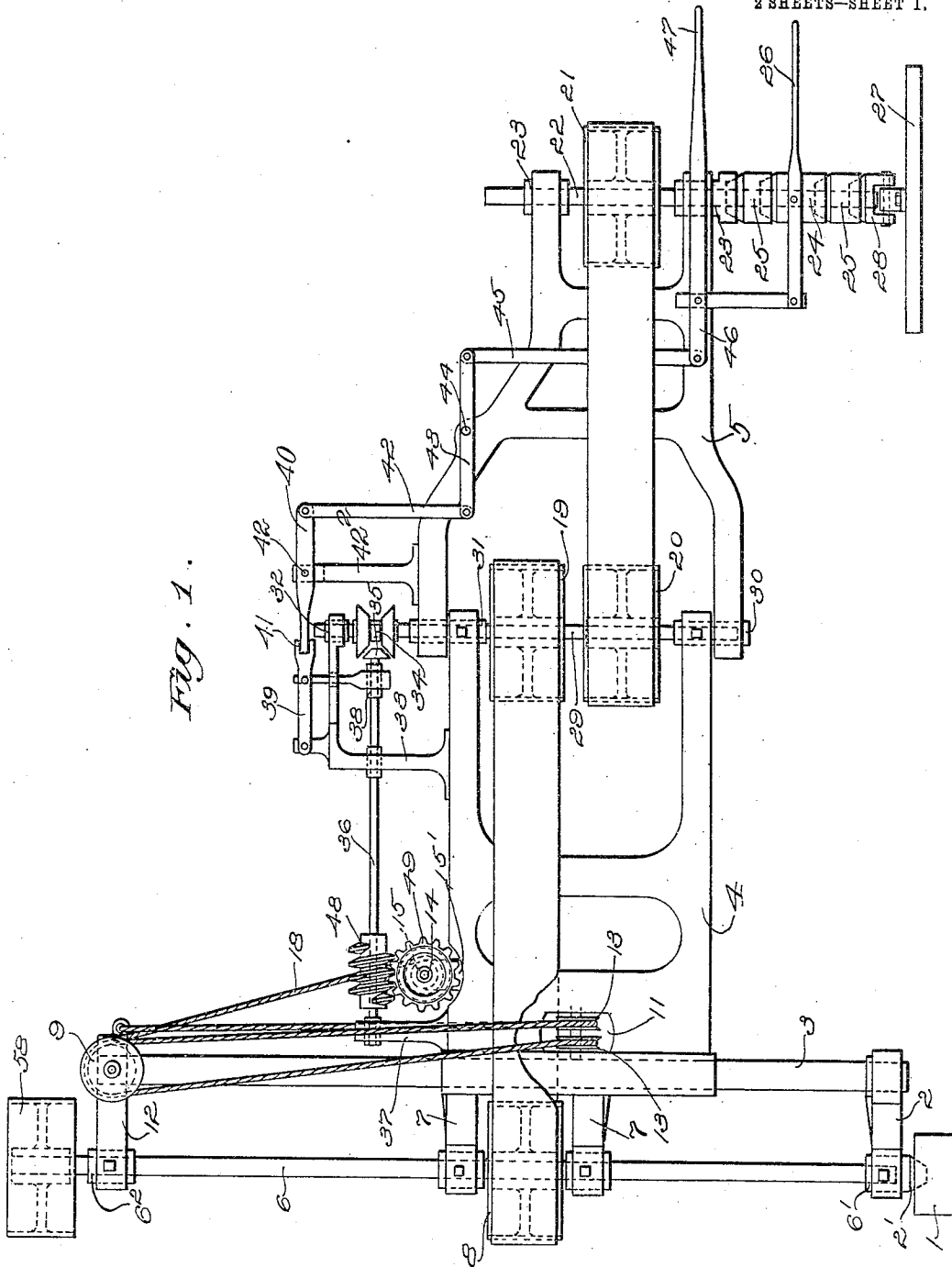


M. PEMBROKE.
STONE POLISHING MACHINE.
APPLICATION FILED MAY 27, 1908.

946,616.

Patented Jan. 18, 1910.

2 SHEETS—SHEET 1.



Witnesses:
J. C. Bowser.
R. B. Ellms.

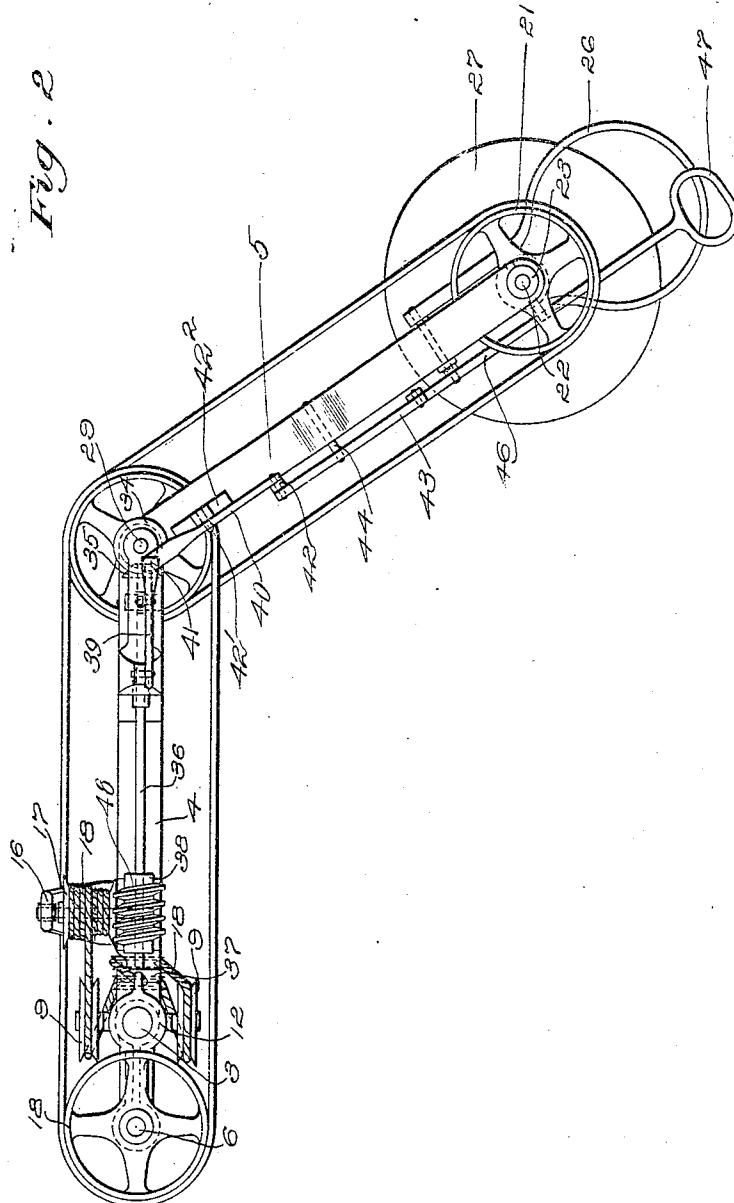
Inventor.
Michael Pembroke.
by *W. S. Spear* Attorney.

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R. B. E. L. L.

Inventor:

Michael Pembroke.

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UNITED STATES PATENT OFFICE.

MICHAEL PEMBROKE, OF MONTPELIER, VERMONT.

STONE-POLISHING MACHINE.

946,616.

Specification of Letters Patent.

Patented Jan. 18, 1910.

Application filed May 27, 1908. Serial No. 435,314.

To all whom it may concern:

Be it known that I, MICHAEL PEMBROKE, a citizen of the United States, residing at Montpelier, county of Washington, State of Vermont, have invented certain new and useful Improvements in Stone-Polishing Machines, of which the following is a specification.

This invention relates to stone polishing machines or similar devices or more particularly to that class of machines in which the working arm is to be vertically adjusted. In machines of this sort, and particularly in machines for polishing stone where the work required is of a heavy nature and the mechanisms for accomplishing it are of necessity of substantial build and construction, much difficulty has been experienced in devising mechanism for raising and lowering the working arm by power. In most efforts that have been made to secure the desired result, means employed have proven inadequate or unsuccessful or have been unsatisfactory on account of the unusual wear to which the machine's parts are subjected. In the polishing of stone, and particularly in the preliminary stages in which the rough pointed surface is first reduced, it is common to employ "mud" made up of chilled "shot," sand and water which is also augmented by finely ground particles of the stone itself. This mud becoming spattered on the machine, works itself into all moving parts and unless great care is taken, grinds out and destroys any part which is not carefully protected against it.

The object of my invention, therefore, is to provide positive means of raising and lowering the polishing arm by the power of machines, through mechanism which is not subject to deterioration or hindrance from the conditions of the work and which also is readily controlled by means capable of adoption to any position in which the jointed arm may be placed while work is being done on the various parts of the bed.

In the specification and drawings I have set forth and disclosed an embodiment of my invention which will be more fully described in the former and which is illustrated in the said drawings which form a part of the said specification, it being made a part thereof by a uniform system of reference numerals made to correspond throughout specification and drawing with the several parts.

In the drawings Figure 1 is a side view of my machine, and Fig. 2 is a plan view of the same.

1 is a socket which may be mounted on any suitable base or pedestal adjacent to or forming a part of the bed of the machine. In the socket is mounted an arm 2 which has a bearing 2¹ in the socket 1.

3 is an upright post on which is mounted a vertically adjustable polishing arm comprising frames 4 and 5 suitably hinged together as will be hereinafter described.

6 is a vertical power shaft journaled at one end in a socket 6¹ on the arm 2 and alined with the bearing 2¹ on said arm. At its upper end the post 3 is provided with an arm 12 which has a bearing 6² through which the shaft 6 passes. 7 are a pair of extension brackets on the frame 4 of the polishing arm provided with bearings 7 through which also the shaft 6 passes and between which the pulley 8 is carried.

On the upper end of the post 3 are supported a pair of sheaves 9 and in an opening 11 of the arm 4 are mounted a second pair of sheaves 13. Supported on the frame 4 is a transverse shaft 14 journaled in bearings 15 mounted on the frame proper 15¹ and a bracket 16 respectively. On the shaft 14 between the bracket 16 and the frame is mounted a drum 17 on which is wound one end of a wire rope 18 which after passing over one of the sheaves 9 is brought under one of the sheaves 13 from which it is led over the sheaves 9, brought under the other of the sheaves 13 and made fast to the frame 12.

Power is applied to the shaft 6 in any suitable manner as by a power pulley 18 mounted thereon and transmitted through the pulley 8 and the pulley 19 which are suitably belted together and by the pulleys 20 and 21 which are also suitably connected by belting. The pulley 21 is on the work shaft 22 which is journaled at 23 in the forward end of the frame 5 and which has at its lower end a ring 24 supported by collars 25 and adapted to receive the yoke 26 through which the operator controls the polishing wheel 27 set in the socket 28 on the shaft 22. The pulleys 19 and 20 are fixed on a shaft 29 which is journaled in bushings 30 and 31 which form the bearings of the joint between the frames 4 and 5. The shaft 29 rests in the bushing 30 and passes through the bushing 31 being again journaled at 32

in a frame 33 mounted on the frame arm 4. On the shaft 29, between the bushings 32 and 31, is mounted a double cone friction pulley 34 with which a beveled friction drive 5 35 which is mounted on a shaft 36 is adapted to be brought into engagement for rotation in other directions.

The shaft 36 is loosely journaled at its inner end in a support 37 and is supported 10 adjacent to the double cone pulley 34 in a movable bearing 38 which is hung on a lever 39 which connects at its end with the end of the lever 40 through a knuckle joint 41. At the end of the shaft 36 adjacent to its sup- 15 port 37 is mounted a worm 48 which meshes with a gear 49 at the end of the drum shaft 14. The lever 40 is fulcrumed at 42¹ on an upright 42² on the arm 5 but the levers 39 and 41 are permitted to move in any position 20 horizontally through the knuckle-joint 41 which being a loose joint permits sufficient play to effect the raising and lowering of the bearing 38 and the consequent engagement of the pulley 35 with the other side of the 25 double cone pulley 34.

The lever 40 is connected by a link 42 to the lever 43 pivoted at 44 to the frame 5 connected by a second link 45 to a lever 46 the handle 47 of which is located just above the 30 yoke 26 which is handled by the operator.

In operating the machine the yoke 26 is grasped and the arms swung in any direction desired to bring the polishing wheel 28 on to that part of the body which is to be worked 35 on. In all these positions the knuckle joint 41 turns readily to allow a lever connection and the power control for raising and lowering the machine. If it be desired to adjust the arm the handle 47 is lowered or raised 40 and through the connecting levers and links the shaft 36 is rocked to make the proper engagement with the double cone 34 which supplies power to the shaft 36, which in turn drives, through the engagement of the worm 45 48 with the pinion 49, the shaft 14, winding or unwinding the cable 17 on the drum 18, thus lengthening or shortening the cable when raising or lowering the arm.

My machine, therefore, which is capable of 50 various modifications in its details of structure, affords positive and efficient means of

controlling a vertical positioning of the polishing arm through a system of parts which are affected or hampered in their operation by the conditions under which the work 55 must be performed.

What I therefore claim and desire to secure by Letters Patent is:

1. In a machine of the class described, a support, a polishing arm vertically adjustable thereon, a flexible means for suspending said arm on said support and means on said arm and controllable from the working end thereof for lengthening or shortening said suspending means. 60 65

2. In a machine of the class described, a support, a polishing arm vertically adjustable thereon said arm comprising a pair of sections hinged together, a shaft set in the axis of said hinge, means for rotating said 70 shaft, flexible means for suspending said arm on said support, a drum for said suspending means and an operative connection for driving said drum in either direction from said shaft. 75

3. In a machine of the class described, a support, a polishing arm vertically adjustable thereon and comprising a plurality of jointed frames, a drum on one of said arm sections, flexible supporting means connected 80 to said frame at one end and wound on said drum at the other end, operative means for driving said drum in either direction and a jointed rod on said arm for controlling said drum. 85

4. In a machine of the class described, a rotatable arm support, means for rotatably holding the same, a polishing arm vertically adjustable on said arm support, a flexible means for suspending said arm on said sup- 90 port, said means being attached at one end to said rotatable support and operatively connected to said arm and means on said arm for lengthening or shortening said suspending means. 95

In testimony whereof, I affix my signature in presence of two witnesses.

MICHAEL PEMBROKE.

Witnesses:

MARIA FRANCES CRANE,
HARRY C. SHURTLEFF.