

(No Model.)

2 Sheets—Sheet 1.

G. B. McLEAN & O. W. LEWIS.
STONE POLISHING MACHINE.

No. 438,635.

Patented Oct. 21, 1890.

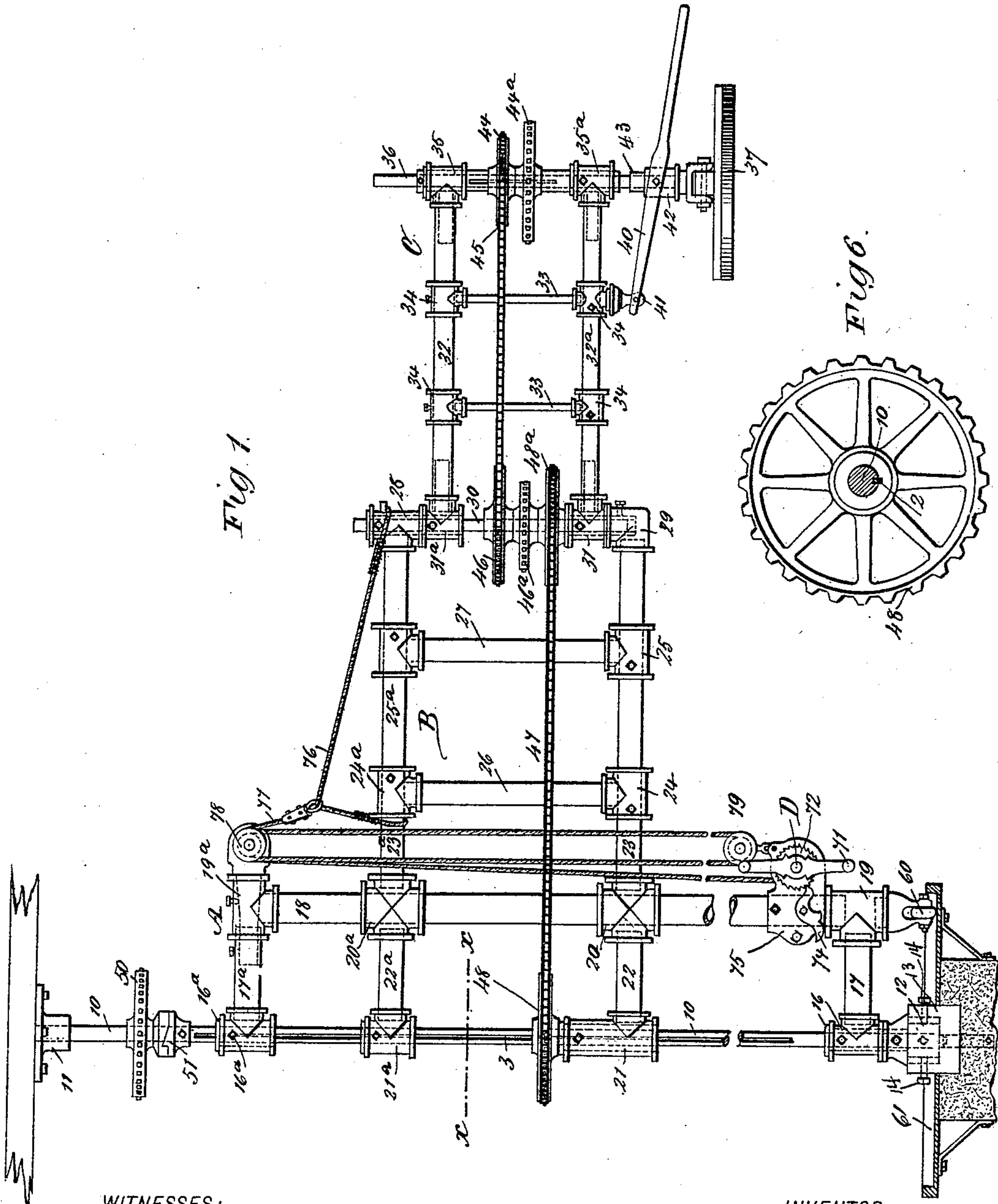


Fig. 1.

Fig. 6.

WITNESSES:

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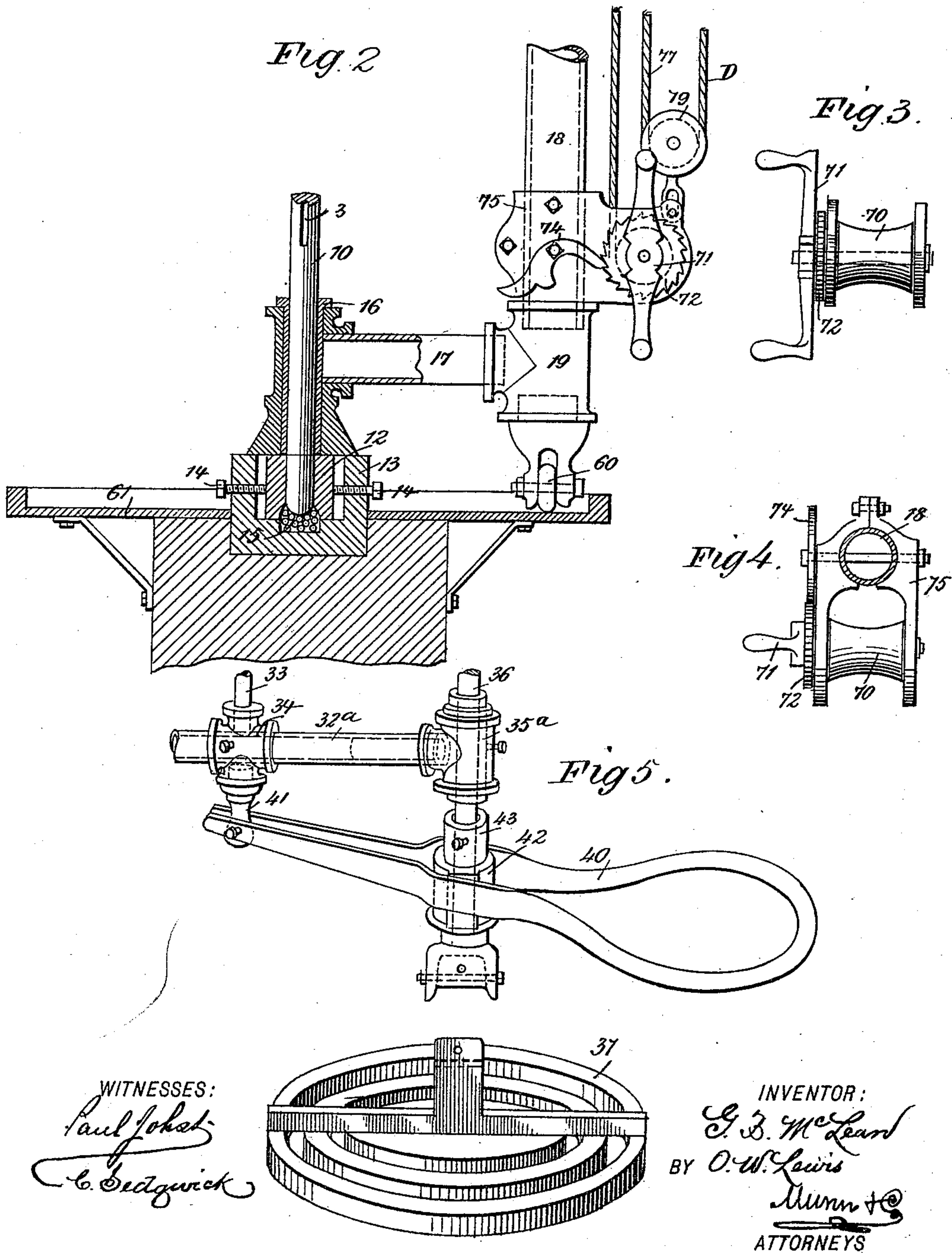
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Paul J. O'Neil
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UNITED STATES PATENT OFFICE.

GEORGE B. McLEAN, OF MONTPELIER, AND OTHELO W. LEWIS, OF BARRE,
VERMONT; SAID McLEAN ASSIGNOR TO SAID LEWIS.

STONE-POLISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 438,635, dated October 21, 1890.

Application filed December 7, 1889. Serial No. 332,941. (No model.)

To all whom it may concern:

Be it known that we, GEORGE B. McLEAN, a citizen of Canada, and a resident of Montpelier, in the county of Washington and State of Vermont, and OTHELO W. LEWIS, a citizen of the United States, residing at Barre, in the county of Washington and State of Vermont, have invented a new and Improved Stone-Polishing Machine, of which the following is a full, clear, and exact description.

The object of this invention is to provide a simple, cheap, and durable stone-polishing machine, and one which may be used over a greater area than was possible with machines heretofore constructed; and to the ends named the invention consists, essentially, of a main shaft, a means for revolving the same, a main frame mounted to turn upon or about said shaft, a frame that is guided upon the main shaft and the main frame, and a polisher-carrying frame mounted to turn thereon, means being provided for transmitting the motion of the main shaft to the polisher-carrying shaft, all as will be hereinafter fully explained, and specifically pointed out in the claims.

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

Figure 1 is a side view of our improved stone-polishing machine, parts being shown in section. Fig. 2 is an enlarged sectional view of the lower portion of the machine. Fig. 3 is a detail view of a portion of the winding-drum. Fig. 4 is a sectional plan view of the winding-drum. Fig. 5 is a detail perspective view of the polisher and its connections, and Fig. 6 is a cross-sectional view on line *xx* in Fig. 1.

In the drawings, 10 represents a vertical shaft, the upper end of which is guided in a bracket 11, secured to the ceiling of the apartment in which the stone-polishing machine is mounted. The lower end of the shaft 10 is stepped in a box or bearing 12, which box is in turn adjustably held within a box 13, the adjustment of the box 12 being secured through the medium of set-screws 14. To reduce the friction incident to the rotation of

the shaft 10, we prefer to arrange a number of anti-friction balls 15 below the shaft, as shown in Fig. 2. The shaft 10 passes through T-couplings 16 and 16^a, to which there are secured laterally-extending horizontal arms 17 and 17^a, that are united by means of a vertical connection 18 and T-couplings 19 and 19^a.

It may here be stated that all of the movable frames of our polishing-machine are made up of piping and coupling connections.

Upon the pipe 18 we mount double T-couplings 20 and 20^a, which couplings are connected to T-couplings 21 and 21^a, that are mounted upon the shaft 10, this connection being established by short pipes 22 and 22^a. From the opposite sides of the couplings 20 and 20^a there extend short tubes or pipes 23 and 23^a, which carry couplings 24 and 24^a and 25 and 25^a, the couplings 24 and 24^a being connected by a vertical tube or pipe 26, while the couplings 25 and 25^a are connected by a vertical tube or pipe 27.

To the extreme ends of the tubes 23 and 23^a we connect a T-coupling 28 and an elbow 29, the elbow serving as a step for a vertical shaft 30, the upper end of which is guided in the coupling 28, properly-arranged boxes or bearings being carried by the elbow and coupling.

Upon the shaft 30 we mount couplings 31 and 31^a, which carry tubes 32 and 32^a, such tubes being braced and supported by cross-tubes 33, that engage couplings 34, as shown, and to the ends of the tubes 32 and 32^a we secure T-couplings 35 and 35^a, in which couplings there is mounted a shaft 36, the lower end of said shaft being arranged to receive a rubbing or polishing wheel 37.

In order that the rubbing or polishing wheel may be adjusted as to height, we fulcrum a lever 40 upon a stud 41, that is carried by one of the couplings 34, and this lever we provide with a sleeve 42, through which the shaft 36 passes, said shaft carrying a collar 43 directly above the sleeve.

From the construction described it will be seen that by raising or lowering the lever the rubbing or polishing wheel may be slightly raised or lowered.

In order that the shaft 36, which, as before

stated, carries the rubbing or polishing wheel, may be revolved, we provide said shaft with a chain or sprocket wheel 44, that is driven by a chain 45, said chain running in connection with a wheel 46, mounted upon the shaft 30, the shaft 30 being in turn driven by a chain 47, which runs in engagement with a sprocket-wheel 48, carried by the shaft 10, and with a wheel 48^a, carried by the shaft 30, primary motion being imparted to the shaft 10 through the medium of a chain or belt which runs in connection with a wheel or pulley 50, that is arranged so that it may be thrown into or out of connection with the clutch-section 51, carried by the shaft.

It is to relieve the shaft 10 of a certain amount of strain incident to the support of the frames above referred to that we have provided the frame made up of the parts numbered 16 16^a to 19 and 19^a, such parts constituting a frame, which we shall hereinafter refer to as the "frame A," the weight of this frame being supported by a wheel or roller 60, that is mounted below the coupling 19, said wheel or roller riding upon a table 61, that is arranged as clearly shown in the drawings.

The frame made up of the parts numbered 21 to 29, inclusive, we shall hereinafter designate as the "frame B," while the frame made up of the parts 31 to 35^a, inclusive, we shall refer to as the "frame C."

In order that the frames B and C may be raised or lowered so as to bring the rubbing or polishing wheel 37 in the approximate operative position, we provide a windlass D, which consists of a drum 70, to one end of the shaft of which there is secured a handled lever 71 and a ratchet 72, the said ratchet being engaged by a gravity-pawl 74, and the whole being connected to the tube 18 by a bracket 75.

To the frame B we connect a sling 76, to which sling we secure one end of a cord or rope 77, which passes over sheaves 78, that are carried by a bracket which is secured to the coupling 19^a, the rope also passing about a sheave 79, that is secured to the bracket 75, the end of the rope being secured to the drum 70. In this way it becomes exceedingly easy to move the frames B and C to the approximate required height, while the polishing or rubbing wheel may be slightly adjusted by raising or lowering the lever 40, as before stated.

From the construction above described it will be seen that the frame C may be folded inward upon the frame B, and that the frames A and B may be moved so as to extend radially in any desired line from the shaft 10. In this way we provide for the going over of an extremely large surface of stone.

The object of providing for the adjustment of the step 12 is to secure a proper centering of the shaft 10 should such shaft become worn.

The wheel 48 is formed with a key 2, that rides in a groove 3 formed in the shaft 10,

this arrangement being adopted in order to provide for the vertical adjustment of the frame B.

It might be desired to decrease the speed of the rubbing or polishing wheel, and to this end we provide the shaft 30 with a chain-wheel 46^a that is smaller than the wheel 46, while we provide the shaft 36 with a chain-wheel 44^a that is larger than the wheel 44.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a polishing-machine, the combination, with a vertical driving-shaft, of a vertical frame or column having couplings or sleeves at the upper and lower ends of its inner edge, through both of which said driving-shaft passes to support said frame or column and permit it to rotate thereon, of a vertically-sliding frame having couplings or boxes sliding on the said frame or column and on the main shaft, whereby the main shaft will support the vertical frame or column and also directly and indirectly support the vertically-sliding frame, substantially as set forth.

2. The combination, with the main shaft, bearings for the upper and lower ends thereof, and a table or track around the lower bearing, of a vertical frame or column having couplings or boxes through which the shaft passes and a supporting-wheel traveling on said track, supporting the outer part of the frame or column to relieve the main shaft of strain, and a vertically-sliding frame having couplings or boxes freely sliding on said main shaft and vertical frame or column, substantially as set forth.

3. The combination, with the main shaft, having bearings for its upper and lower ends, and a table or track 61 at the lower bearing, of a frame A, formed of a vertical pipe 18, having short transverse pipes 17 17^a at its upper and lower ends, provided with vertically-aligned T-couplings 16 16^a, through which the said shaft freely passes, a vertically-adjustable frame B, formed of longitudinal and transverse pipes, the inner part of the frame having vertically-aligned couplings 21 21^a, sliding on the main shaft, and two vertically-aligned couplings 20 20^a, sliding on the vertical tube 18, an adjusting mechanism for raising and lowering the frame B, a horizontally-swinging frame on the outer end of the frame B, a polisher-shaft mounted thereon, and power mechanism connecting the main and polisher shafts, substantially as set forth.

4. The combination, with the main shaft, its upper and lower bearings, and the horizontally-turning frame A, mounted at its upper and lower ends on the said main shaft, of the frame B, formed of tubing and having vertically-aligned couplings at its inner end sliding on the main shaft and frame A, respectively, and provided at its outer end with vertically-aligned couplings 28 and 29, a vertical shaft 30, mounted in said couplings, the outer frame C, formed of tubing and provided

at its inner end with vertically-aligned T-couplings 31 31^a, turning on the shaft 30, and at its outer ends with similar couplings 35 35^a, the polisher-shaft mounted in said outer couplings, and power mechanism connecting the main and polisher shafts, substantially as set forth.

5. The combination, with the vertical main shaft 10, having bearings for its upper and lower ends, the horizontally-turning frame A, formed of tubing 18 17 17^a and couplings 16 16^a at its upper and lower ends, through which the shaft passes between its bearings and couplings 19 19^a, connecting the pipes or tubes 17 17^a with pipe or tube 18, the windlass D, clamped upon the lower end of tube 18, and

the pulley 78, mounted on the upper coupling 19^a, of the vertically-adjustable frame B, mounted on the frame A and the main shaft, the sling 76, connected to the outer and inner parts of the upper end of the frame B, the cable connected with said sling and passed over pulley 78 to the windlass, and the outer frame C, mounted on the frame B and carrying the polishing mechanism, substantially as set forth.

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Witnesses:

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