

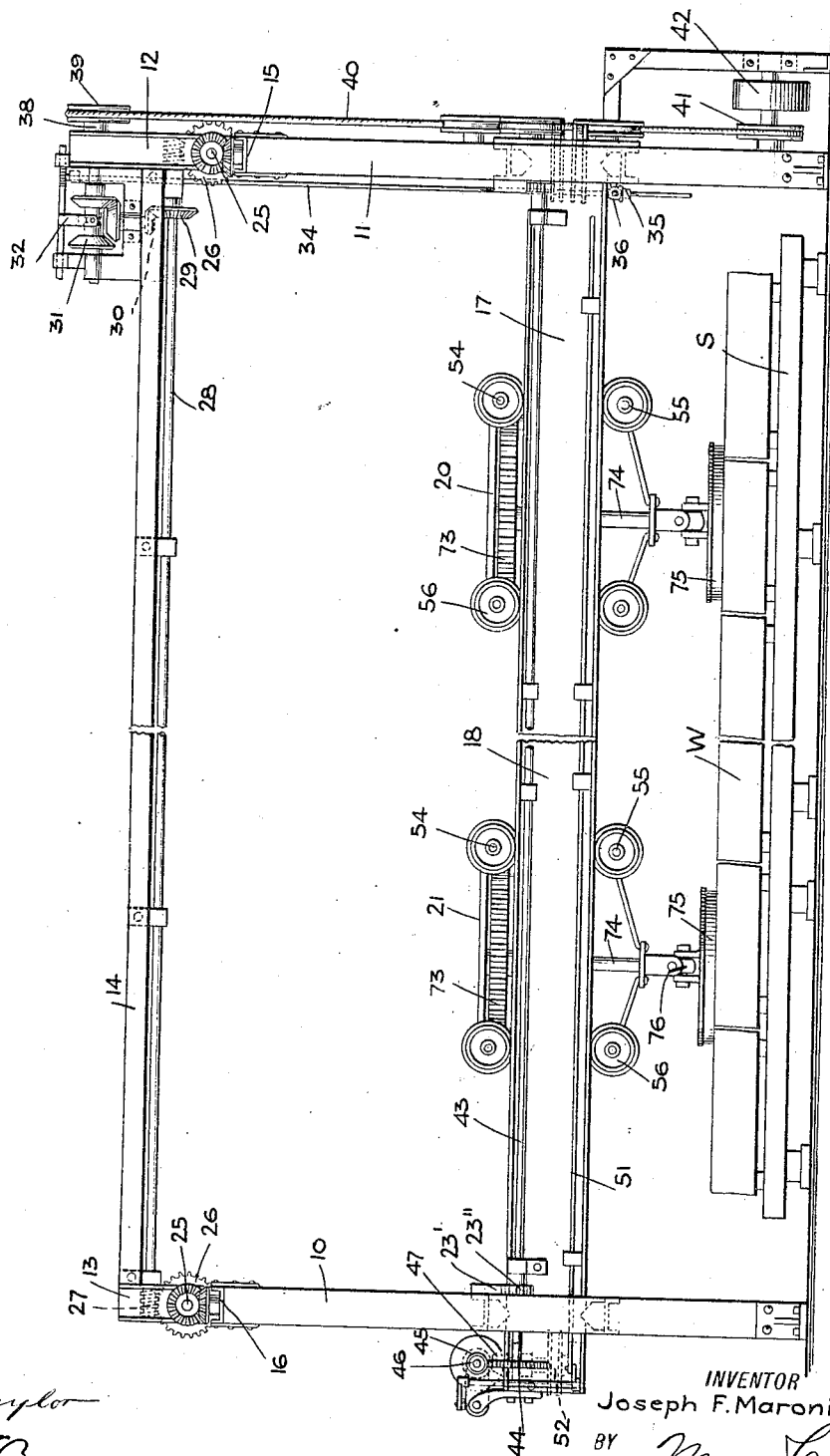
1,038,404.

J. F. MARONI.
POLISHING MACHINE.
APPLICATION FILED MAY 20, 1912.

Patented Sept. 10, 1912.

5 SHEETS—SHEET 1.

Fig. 1.



WITNESSES
Geo. W. Taylor
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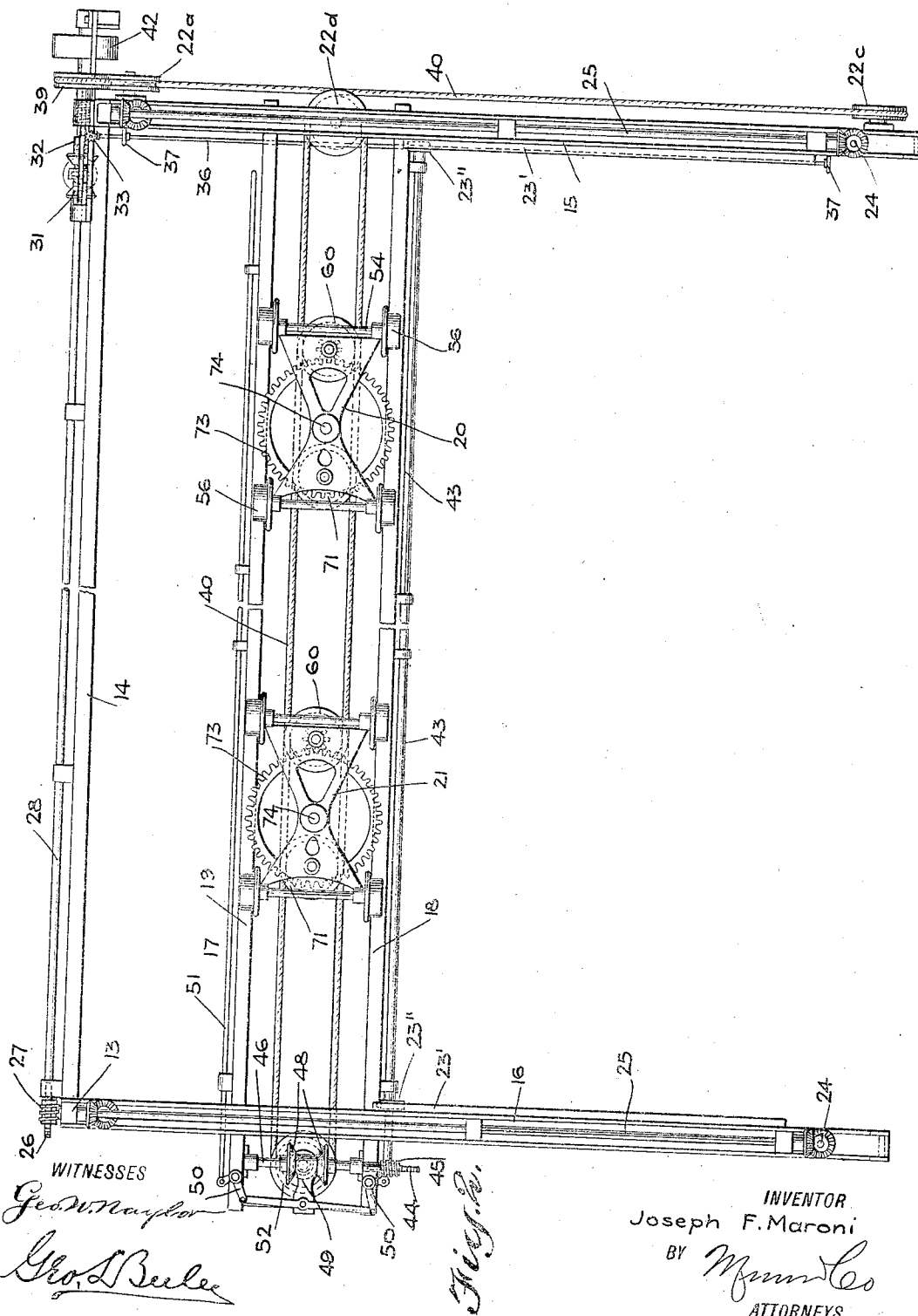
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5 SHEETS—SHEET 2.



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Fig. 2.

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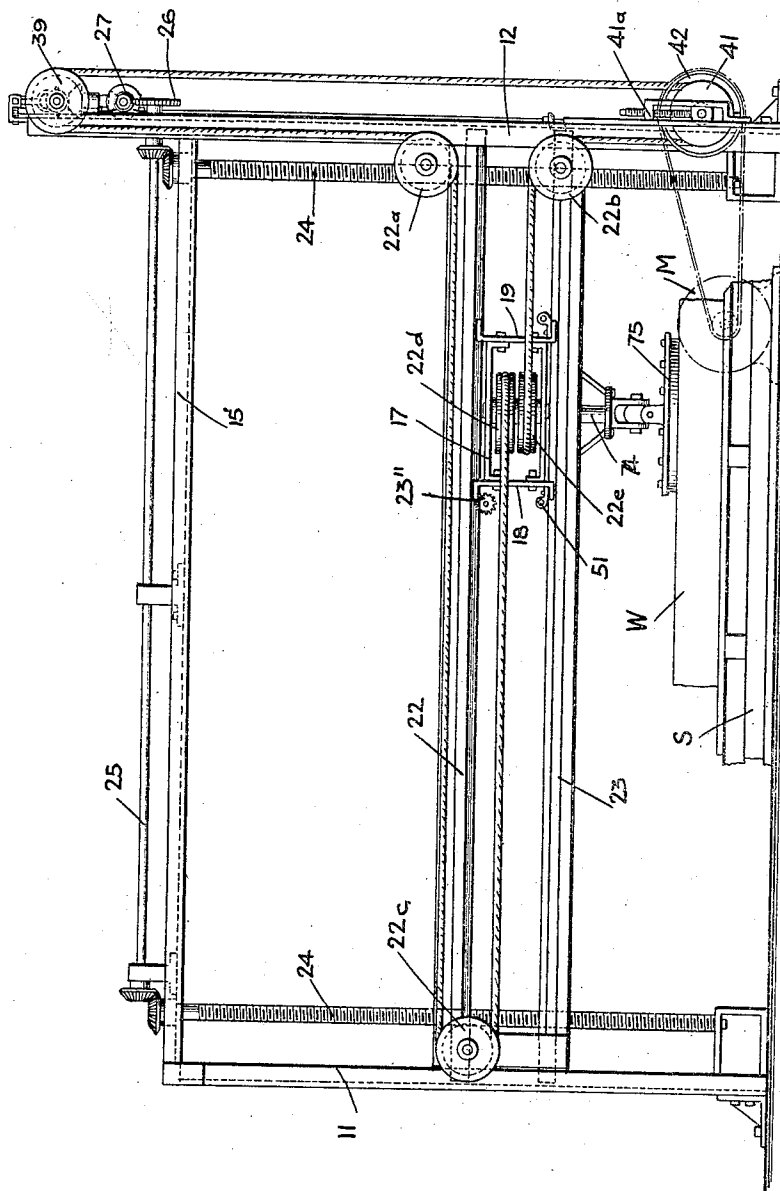
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5 SHEETS—SHEET 3.

Fig. 3.



WITNESSES

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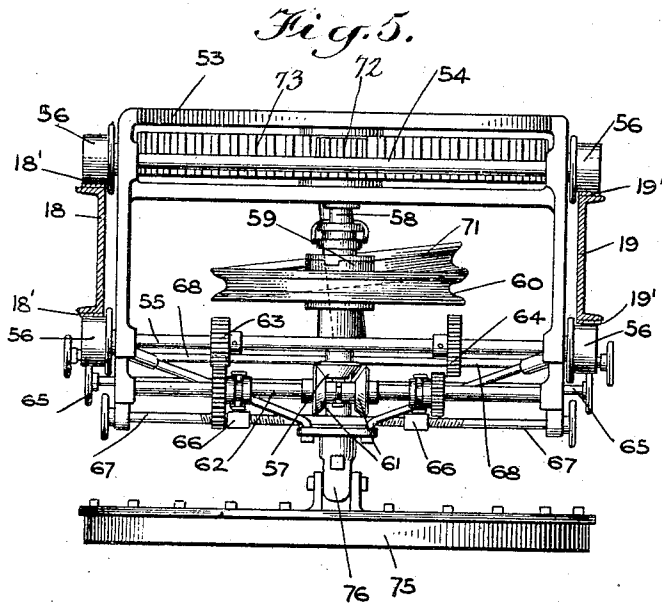
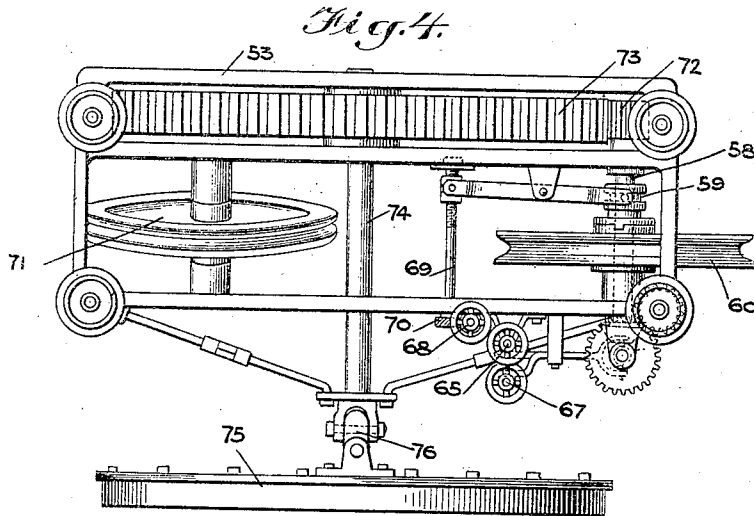
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5 SHEETS—SHEET 4.



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5 SHEETS—SHEET 5.

Fig. 8.

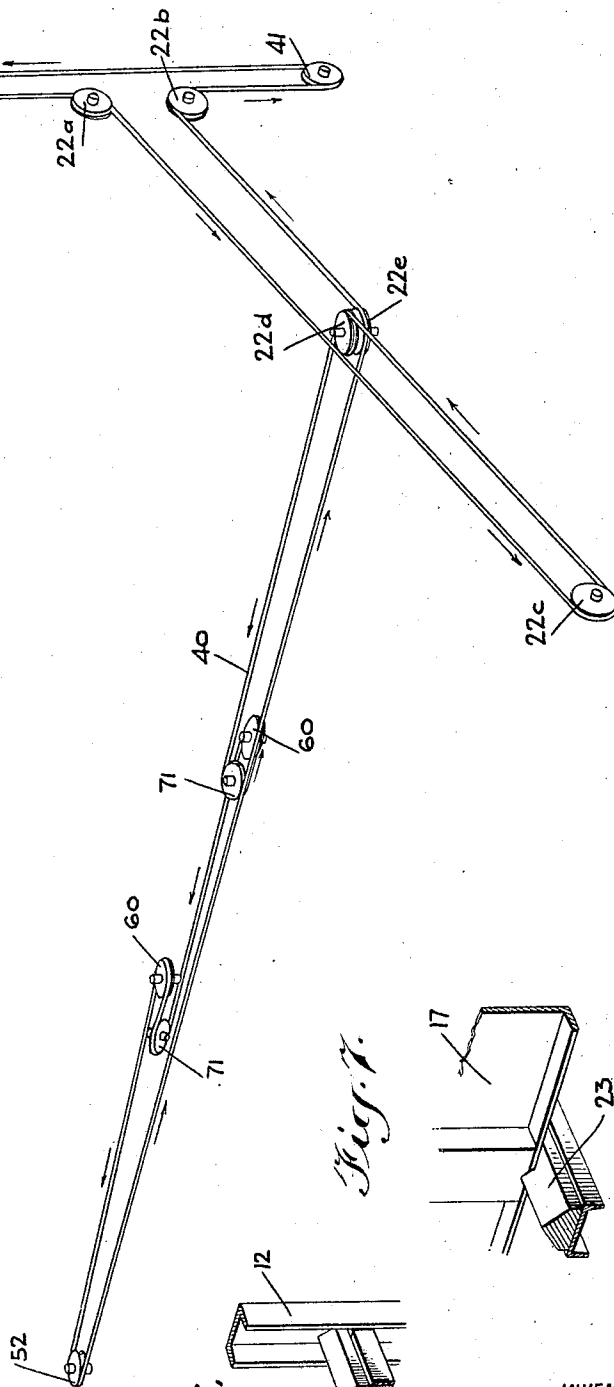


Fig. 7.

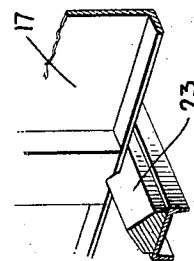
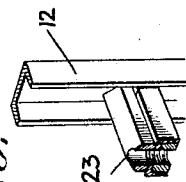


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOSEPH F. MARONI, OF MONTPELIER, VERMONT.

POLISHING-MACHINE.

1,038,404.

Specification of Letters Patent. Patented Sept. 10, 1912.

Application filed May 20, 1912. Serial No. 698,473.

To all whom it may concern:

Be it known that I, JOSEPH F. MARONI, a citizen of the United States, and a resident of Montpelier, in the county of Washington and State of Vermont, have invented a new and Improved Polishing-Machine, of which the following is a full, clear, and exact description.

This invention relates to machinery for treating or dressing stone, such as granite or marble, or for the treatment of other materials of a corresponding nature.

The invention has for its primary object to improve this type of machinery with respect to universality of movement and operation whereby practically all hand power is obviated in carrying on extensive operations.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification in which like characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a side elevation of a preferred embodiment of this invention; Fig. 2 is a plan view of the same; Fig. 3 is an end elevation as would appear looking toward the left in Fig. 1; Figs. 4 and 5 are respectively front and end elevations of one of the polishing units described below; Figs. 6 and 7 are fragmentary details of an adjustable bridge construction; and Fig. 8 is a diagram representing the circuit of the endless power cable.

Referring particularly to the general views in Figs. 1 to 3, I have shown a substantially rectangular frame comprising corner uprights 10, 11, 12 and 13. The framework is constructed so as to include a longitudinal stringer 14 extending between the posts 12 and 13, and they are provided also with upper transverse stringers 15 and 16. The aforesaid posts and stringers are preferably in the form of channel beams whereby maximum strength may be derived in proportion to the mass and for the additional reason that guiding means are provided thereby applicable especially in connection with the corner posts, the channels of the respective posts at each end being directed toward each other. At 17 is indicated what may be termed a bridge comprising front and rear beams 18 and 19 held

in parallel spaced relation in any suitable manner and constituting track-ways upon which one or more polishing units or trolleys 20 and 21 will operate longitudinally of the entire apparatus. The bridge 17, together with all the parts carried thereby, may be shifted or adjusted transversely of the framework by any suitable means, being supported for such lateral adjustment, as illustrated between and upon pairs of upper and lower rails 22 and 23, each pair of said rails being guided within the aforesaid facing channels of each pair of end posts of the main frame. The said pairs of rails 22 and 23 may be supported vertically by any suitable means, the means shown being a set of vertical screws 24, one of the screws being located adjacent each corner of the frame. One or the other or both of said rails 22 and 23, preferably the latter, will be provided with threads corresponding to the threads of the screws, whereby there will be provided positive support of the rails and bridge upon said screws. By providing means for simultaneous uniform rotation of said screws, the entire bridge and supporting means may be adjusted vertically in addition to the aforesaid lateral adjustment of the bridge and the longitudinal movement of the trolleys upon the bridge. The means indicated for imparting the simultaneous movement to the screws consists of a pair of shafts 25 arranged transversely of the main frame and along the transverse stringers 15 and 16 and having miter gear connection with the upper ends of the respective screws. At the rear ends of the shafts 25 are connected worm wheels 26 driven by worms 27 mounted upon a longitudinal shaft 28 adjacent the stringer 14 and on which is a gear 29 in mesh with a pinion 30 adapted to be left stationary or to be driven in either direction by means of friction gearing indicated by 31 and including a shifting bar or yoke 32 for determining the operation of said pinion. The bar 32 is provided with rack teeth and is adapted to be operated by a pinion 33 on the upper end of a shaft 34 extending downwardly in proximity to the corner post 12. Splined to said shaft 34 is a gear 35 through which the said shaft may be driven from a horizontal shaft 36 adapted to be rotated in either direction by one or more hand wheels 37. The rotation of the shaft 36, therefore, will cause the shiftable members of the fric-

tion gearing 31 to drive in alternation the aforesaid pinion 30, whereby the said pinion and screw operating shafts will be operated from a short shaft 38 upon which is mounted a pulley 39 over which operates an endless power cable 40 which is understood to be driven constantly in a certain direction from a pulley 41, in turn driven in any suitable manner from a motor M indicated conventionally and which may be located at any convenient distance from the machine and protected from the operating elements by any suitable means. Power from the motor is shown as transmitted through a pulley 42 mounted upon the same shaft as the cable pulley 41. 41^a indicates a suitable form of tightener for the cable. The means for shifting the bridge laterally along the bars 22 and 23 is shown as comprising a pair of racks 23' carried by the bars 23 and with which cooperate a pair of pinions 23'' mounted upon a longitudinal shaft 43 located for convenience upon the beam 18 of the bridge. At one end of said shaft 43 is a worm wheel 44 meshing with a worm 45 connected to a transverse shaft 46 adapted to be driven in either direction by a friction wheel 47 through the cooperation of one or the other of the friction wheels 48 mounted slidably upon the shaft 46. Said wheels 48 may be shifted by a yoke 49 to which are connected a pair of bell cranks 50 adapted to be operated by hand operated rods 51 located for convenience upon opposite sides of the bridge. The friction wheel 47 is driven constantly through a pulley 52. It will be apparent that the wheel 47 by engagement with one or the other of the friction wheels 48 will cause the bridge to travel transversely of the main frame in one direction or the other at a comparatively low speed.

The aforesaid polishing units 20 and 21 each comprise a trolley which, as indicated in Figs. 4 and 5, preferably includes a frame 53 of any suitable substantial nature. Mounted transversely in the frame 53 are axles 54 and 55, at least one of which may be regarded as a driving axle for the trolley. The axles are provided with rollers or wheels 56 which operate upon the bridge beams 18 and 19. Said beams may be provided with renewable wear plates 18' and 19', if desirable. The axle 55 may be driven by any suitable means, the means shown being a friction wheel 57 connected to a vertical shaft 58 having a shiftable clutch connection at 59 with a cable pulley 60 in the circuit of the aforesaid cable 40. The said friction wheel 57 is disposed between the friction wheels 61 and may be free therefrom or may be caused to drive said wheels 61 in alternation upon shifting said wheels 61 along a shaft 62 which they are adapted to drive. The shaft 62 is arranged so as to

drive the shaft 55 through high or low speed gears 63 and 64 respectively, either of said sets of gears being adapted to be operated in either direction in accordance with the adjustment of the friction wheels 61. Said friction wheels may be adjusted through a yoke in connection with a shaft 65, and the change-speed gears may be adjusted through yokes 66 and operated through a shaft 67. 68 indicates a shaft adapted upon rotation to rotate a vertical shaft 69 through a worm gear 70 to cause the shifting of the clutch 59. As shown in Fig. 5, each of the shafts 67, 65 and 68 is provided with a hand wheel at each end whereby an operator on either side of the bridge may attend to the aforesaid manipulations. At 71 is indicated an idler pulley journaled on a slightly inclined axis in the trolley frame 53 and whose function is to guide the power cable 40 and increase its traction on the driven pulleys. Connected to the shaft 58 at its upper end is a pinion 72 meshing with a gear 73 mounted upon a substantially central shaft 74 to the lower end of which is connected a scroll 75 preferably through a universal joint or knuckle 76. By this means the scroll will be given a continuous rotation through the power cable 40 through the pulley 60 in all positions of adjustment of the trolley and bridge. Additional guide pulleys for the cable 50 are shown at 22^a, 22^b, and 22^c journaled adjacent the ends of the bars 22 and 23, and at 22^d and 22^e on the adjacent end of the bridge.

The operation of the machine may be briefly described as follows:—Assuming that the power cable 40 is running, the bridge and supporting cross beams, therefore, may be elevated by rotation of the transverse shaft 36 in the proper direction. This will permit the operators to place the work in position as indicated at W upon any suitable platform or support S. A reverse rotation of said shaft 36 will then result in the lowering of the bridge, bringing the scrolls into operative engagement with the work. At such time the friction gearing 31 may be thrown out of gear. While the scrolls are rotating it is usually desirable to cause the trolleys to traverse the bridge which will be done, as herein set forth, by manipulation first of the shaft 68 and then the manipulation of the shafts 65 and 67 according to the direction and speed at which the trolleys are to be operated along the bridge. While the trolleys are operating longitudinally as just described, or at any other time, the entire bridge may be shifted laterally by virtue of the racks 23' and pinions 23'' as a result of the shifting of either of the rods 51. Assuming that the machine is set up complete and the cable 40 is running, the bridge may be brought to one side while a bed of stones is being pre-

pared on the other side, an overhead crane being used to bring the stones to the machine and leveling the same. Then the bridge may be moved over the bed and the scrolls brought into contact with the work and started to operate as above described. While the scrolls are engaged on the bed, set as described above, the crane may be preparing another bed on the other side, and when one bed is completed the bridge is moved over to the other bed, and so on, one bed being always ready for the machine. The shifting of the bridge laterally while the trolleys are traveling longitudinally is desirable.

The several parts of the machine may be made of any suitable materials, and the relative sizes and proportions thereof may be varied to a large extent without departing from the spirit of the invention.

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

1. In a polishing machine, the combination of a main frame, pairs of parallel transverse horizontal bars movably guided in the frame for vertical adjustment, a bridge supported by and between the respective pairs of said bars and movable along the same longitudinally thereof and transversely of the main frame, a trolley supported upon and movable longitudinally along said bridge, polishing devices carried by said trolley, and a power driven endless cable adapted to operate all of the aforesaid movable devices.

2. In a polishing machine, the combination of a main frame having vertical corner posts, a screw parallel to and adjacent each of said posts, pairs of horizontal bars supported upon and adjustable vertically by means of said screws, polishing means supported upon and adjustable laterally and longitudinally of the frame by means of said bars, means for operating the polishing means continuously, and means for rotating said screws from said power means, the screw operating means including a set of friction gears and shifting means therefor

comprising a horizontal shaft extending adjacent and parallel to one pair of said bars and having means at its opposite ends whereby it may be operated from either side of the polishing means.

3. In a polishing machine, the combination of a main frame, a bridge extending longitudinally thereof and supported thereon, polishing means supported upon said bridge and movable longitudinally thereof, a series of guide pulleys on the bridge and frame, an endless power cable guided over all of said pulleys to operate the polishing means, and means to shift the bridge laterally with respect to the main frame, said shifting means comprising one of said guide pulleys, a pair of racks, a longitudinal shaft mounted upon the bridge, a pair of pinions on said shaft meshing with said racks, and shiftable gearing between said guide pulley and said shaft.

4. In a polishing machine, the combination of a horizontal bridge, a polishing unit supported upon said bridge and movable longitudinally thereof, said unit comprising a scroll, a cable pulley, a clutch to establish geared connection between said pulley and scroll, hand operated means accessible at either side of the unit for operating said clutch, and an endless power device to operate said pulley.

5. In a polishing machine, the combination of a horizontal bridge, a polishing unit supported upon said bridge and movable longitudinally thereof, said unit comprising a scroll, a cable pulley, means to propel the unit along the bridge including shiftable change speed gearing, connections between said pulley and the scroll including a clutch, said gearing and clutch being operable from either side of the unit, and an endless power cable driving said cable pulley.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH F. MARONI.

Witnesses:

FRANK J. MARTIN,
ALBERT C. LAIRD.