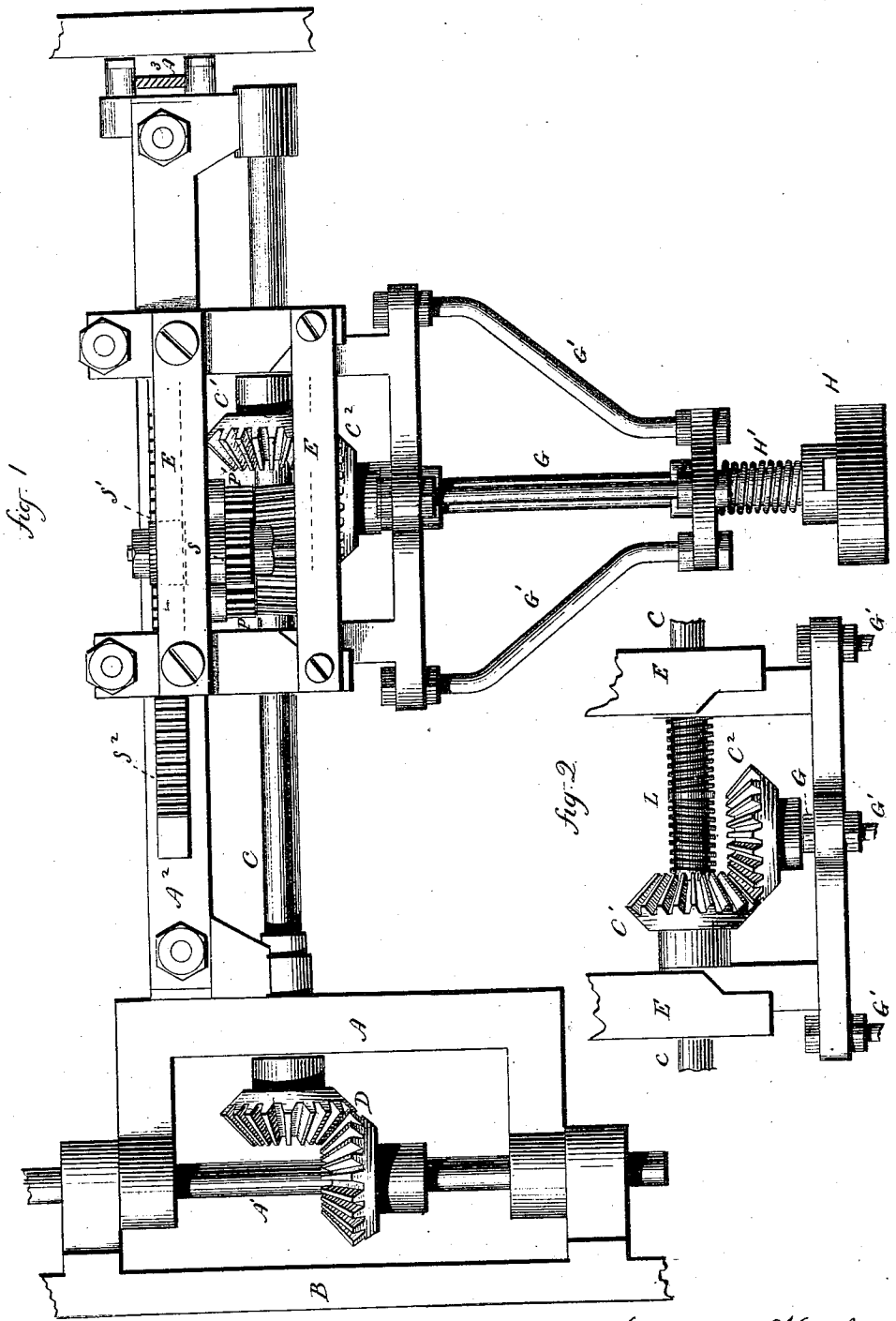
2 Sheets--Sheet 1.

P. H. WALSH.

Stone-Polishing Machine.

No. 167,591. Patented Sept. 7, 1875.



Witnesses.
H. Shumway
Clara Broughton.

Patrick H. Walsh
Inventor.
By atty.
John P. Earle

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

2 Sheets--Sheet 2.

P. H. WALSH.

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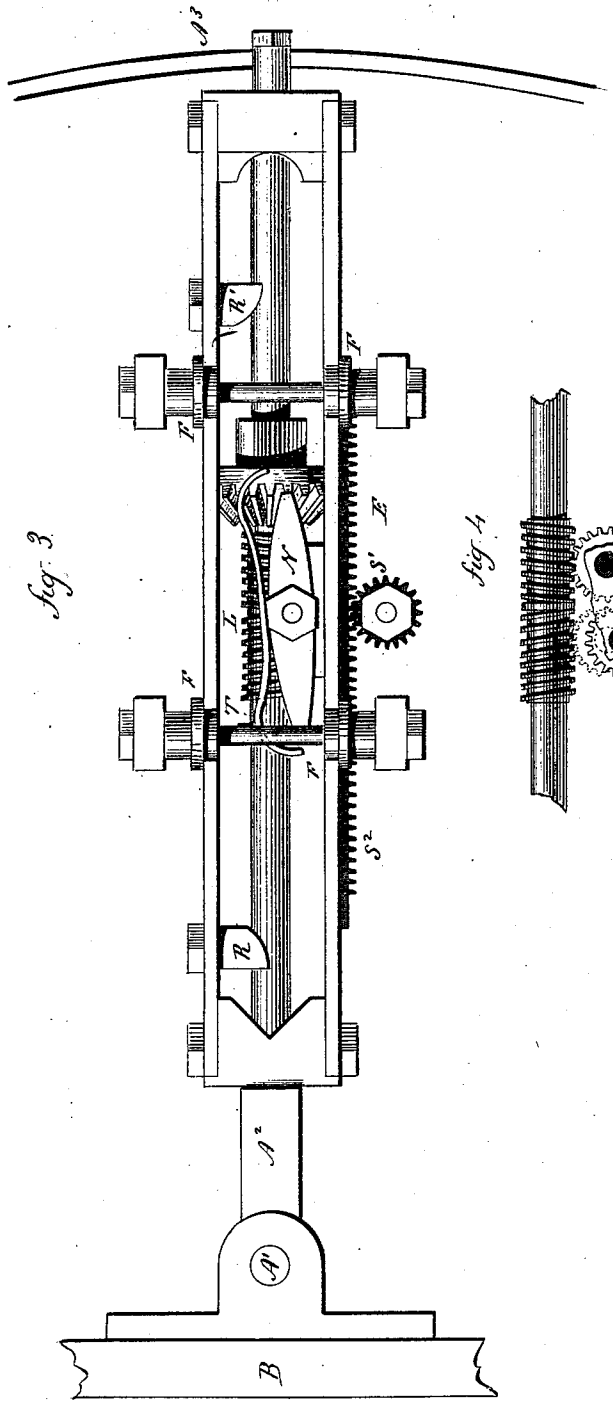

Fig. 3

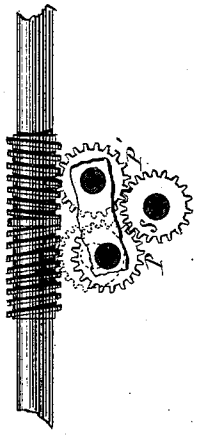

Fig. 4

Witnesses,
H. C. Shumway
Clara Broughton.

Patrick H. Walsh
Inventor
By atty:
Thos. G. Earle

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

PATRICK H. WALSH, OF WATERBURY, CONNECTICUT.

IMPROVEMENT IN STONE-POLISHING MACHINES.

Specification forming part of Letters Patent No. **167,591**, dated September 7, 1875; application filed April 12, 1875.

To all whom it may concern:

Be it known that I, PATRICK H. WALSH, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new Stone-Polishing Machine; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, side view, Fig. 2 partial view from opposite side, Fig. 3 top or plan view, Fig. 4 detached view, of a part of the mechanism.

This invention relates to a machine for rubbing or polishing stone, and like purposes, the object being to perform by mechanical means that labor which has heretofore been done by hand-work; and it consists in the arrangement and combination of mechanism to impart the necessary relative movement to the rubber.

A is a frame hung to a vertical shaft, A^1, on an upright, B, or any convenient position, so as to swing in a horizontal plane to the right and left. From the frame A an arm, A^2, extends at right angles to support the mechanism, and its other end preferably supported upon a track, A^3, so as to prevent the outer end of the arm from sagging. On this arm a horizontal shaft, C, is arranged, driven from the vertical shaft A^1 through beveled gears, D, power being applied to the vertical shaft in any suitable manner. The arm A^2 is divided, as seen in Fig. 3, so as to form two sides with a vertical opening between. To this arm a carriage, E, is hung to move back and forth upon the said arm, the upper edge of the two sides forming a track upon which wheels F on the carriage roll. To this carriage a vertical shaft, G, is hung by suitable supports, G′, extending from the carriage down, as seen in Fig. 1. On the longitudinal shaft C a pinion, C^1, is arranged, splined to the shaft, so as to revolve with the shaft, but yet travel freely in a longitudinal direction. This pinion C^1 is arranged in connection with the carriage, so as to take a bearing in the carriage and move with it longitudinally. On the vertical shaft G is a corresponding pinion, C^2, and into which the pinion C^1 works, so that the revolution of the shaft C will cause a corresponding revolution of the shaft G, and this in whatever position the carriage stands along the arm A^2. The head or rubber H is attached to the lower end of the shaft, so as to revolve with it, but loose vertically, and bearing on this head is a spring, H′, which forces the head downward. The stone to be rubbed is placed in a position beneath the head, and blocked up so that the surface to be rubbed will be substantially level. The shaft C is then caused to revolve, imparting its revolution to the head H through the intermediate shaft G. At the same time the carriage is moved along the arm, which causes a corresponding movement of the head, so that the head will travel over the stone pressed down by the spring H′, and thus rub and polish the surface of the stone. It will be understood that the rubbing material is placed upon the stone in like manner as for rubbing by hand, the head or rubber H taking the place of the stone rubber usually employed. In order to impart to the carriage an automatic movement back and forth on the arm a sleeve, L, is attached to the pinion C^1, through which the shaft C passes, and this sleeve is threaded at one end with a right-hand screw-thread, and at the other with a reverse or left-hand thread, and on the carriage a lever, N, is hung carrying two pinions, P and P′. (See Fig. 4.) When the lever N is in a horizontal position neither of the pinions P or P′ will engage with the sleeve L; but turned in one direction, as in Fig. 4, the pinion P′ will engage the thread at one end of the sleeve, and turned in the opposite direction, as denoted in broken lines, the other pinion will engage the thread at the opposite end of the sleeve, hence the direction of the revolutions of the said pinions will be reversed as they are engaged with the thread at opposite ends. In connection with these pinions is a third pinion, S, and on the same shaft with this pinion S is another pinion, S^1, which works in a rack, S^2, on the side of the frame, as seen in Fig. 3. The rotation of this last pinion S^1 will cause the carriage to travel according to the direction in which the said pinion revolves. On the arm A^2 are arranged two adjustable stops, R and R′, so that when the lever N is turned to engage the thread at

one end of the sleeve the carriage will travel in the direction indicated by the revolution of the thread until the highest end of the lever strikes the stop at the end toward which the carriage is traveling, and cause the lever to turn, throwing out the working-pinion, and the other into the opposite thread, thereby causing the movement of the carriage to be reversed, and travel in the opposite direction, until the other end of the lever shall come in contact with the other stop. By this arrangement the action of the machine becomes automatic, and the extent of the travel of the carriage may be adjusted by setting the stops at different points. To insure the throwing in of one pinion as the other is thrown out a spring, T, is attached to the lever, so that the spring will strike the top and yield somewhat before the lever is turned, the reaction of the spring being sufficient to throw the other pinion into gear as soon as the first is thrown out.

I claim—

The combination of the swinging arm A^2, provided with adjustable stops R R′, the driving-shaft C carrying the right and left threaded sleeve L, the carriage E carrying the shifting lever N and pinions P P′, all substantially as described.

PATRICK H. WALSH.

Witnesses:

JOHN E. EARLE,

CLARA BROUGHTON.