(No Model.)

J. S. KENYON & O. W. WILLIAMS.

SANDPAPERING MACHINE.

No. 456,362. Patented July 21. 1891.

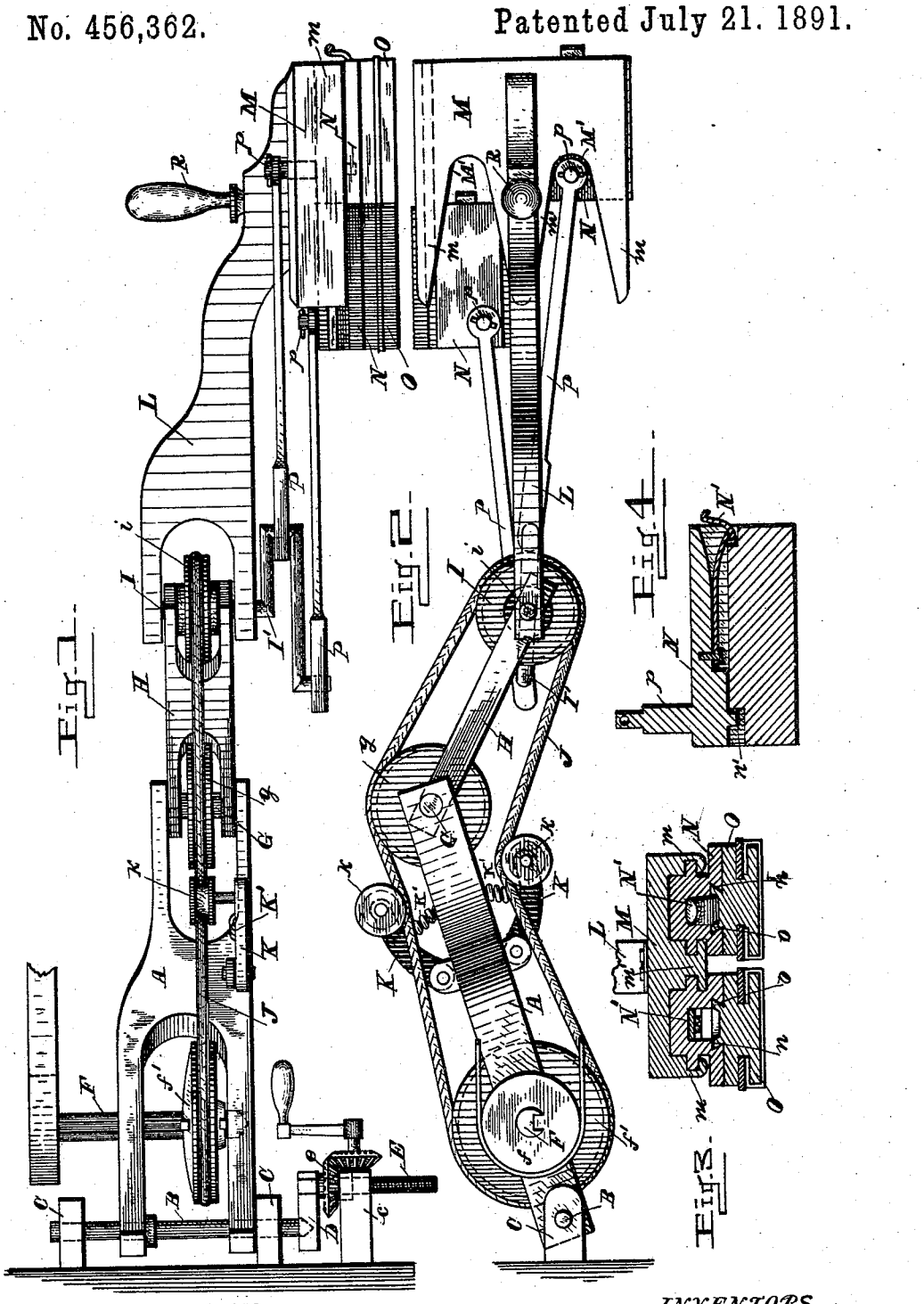


Fig. 1.

Fig. 2.

Fig. 4.

Fig. 3.

WITNESSES

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SANDPAPERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 456,362, dated July 21, 1891.

Application filed March 13, 1891. Serial No. 384,962. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH S. KENYON and OLIVER W. WILLIAMS, of South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Sandpapering-Machines; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 is a side elevation of our improved sandpapering-machine. Fig. 2 is a plan view thereof. Fig. 3 is a transverse sectional view through the polishing-block supporting-head. Fig. 4 is a detail longitudinal sectional view of the head.

This invention is an improvement in machines for sandpapering or polishing plane or curved surfaces by reciprocating rubbers; and it consists in the novel construction and combination of parts hereinafter described and claimed.

Referring to the drawings by letter, A designates a double bifurcated or H-shaped bracket having its rear arms loosely journaled on an upright shaft B, which is journaled in brackets C, attached to standards or other proper support, and the lower end of shaft B is stepped in a cup D, which is mounted on the upper end of a screw-shaft E, passing through a gear-nut *e*, fixed in a bracket *c* below brackets C and operated by a hand crank and gear, as indicated, or other convenient means to raise and lower shaft B, and with it bracket A. A second shaft F is journaled in the rear arm of bracket A, and on its upper end is a drive-pulley *f*, by which shaft F can be driven from any convenient source of power, and *f'* is a grooved pulley on shaft F between the arms of bracket A. In some cases the pulleys *f* and *f'* might be placed on shaft B and shaft F omitted. A shaft G is journaled in the front arms of bracket A, and on it is a grooved pulley *g*.

H designates a second bracket, similar to but rather smaller than bracket A, and having its rear bifurcations loosely connected to shaft G between the arms of bracket A, so as to hinge brackets H A together, and a shaft I is journaled in the front arms of bracket H, and on it is a grooved pulley *i*.

J designates an endless belt running from pulley *f'* to pulley *i* and on opposite sides of pulley *g*, which serves as an intermediate, so that when brackets A and H are folded or swung toward each other the belt will be kept from binding or catching at the angle or connection between the brackets. In order to take up the slack in the belt and prevent its buckling, two idler-pulleys *k k* are employed, mounted on the outer ends of pivoted arms K K, attached to bracket A, and pressed inward, so as to tension the belt between pulleys *f'* and *g* by springs K', as shown in Fig. 2.

L designates a bracket having its rear end bifurcated and loosely connected to shaft I in the front end of bracket H. The outer end of bracket L curves downwardly and supports the polishing-head M, as shown. This head consists of a block having side flanges *m m* and intermediate flange *m'*, which flanges are grooved longitudinally on their inner faces, as shown, and N N designate parallel sliding blocks fitting between said flanges and having tongues on their sides to engage the grooves in the flanges and support the blocks thereon. In the lower faces of the blocks are longitudinal dovetailed channels *n*.

O designates the rubbers, having longitudinal dovetailed ribs *o* on their upper faces, adapted to engage the grooves *n* in the blocks N, and are kept in said blocks by stops *n'* and spring-catches N', as indicated, so that they can be readily removed as desired. The rubbers may be faced with any suitable abrading material and have any desired configuration in cross-section to conform to the surface to be polished or sandpapered.

In practice a number of interchangeable rubbers may be provided for use with each machine.

The lower end of shaft I is formed into or rigidly connected to a double crank I', with the opposite crank portions of which are connected the ends of pitmen P P, the other ends of which are connected to pins *p p*, attached to the blocks N N, the top of head M being slotted, as at M' M', to permit the free movement of the pitmen in reciprocating the blocks. The double crank of course im-

parts opposite movements simultaneously to blocks N N and reciprocates the rubbers O back and forth with a rapidity governed by the rotation of shaft I, and the opposite movements of the rubbers counteract the vibratory effect which would be incident to the employment of a single rubber or two rubbers moving together.

R R are handles attached to the head or bracket-arm, by which it may be guided to operate on the work.

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

1. The combination of the connected swinging brackets, the pulleys at the opposite ends of said brackets, the intermediate pulley at the joint of said brackets, and the single belt with the spring-controlled movable idler-pulleys for regulating said belt, substantially as described.

2. The combination of the polishing-head, the pair of parallel movable blocks carried by said head, and the rubbers attached to said blocks with the cranked shaft and pitmen for independently reciprocating said blocks, substantially as set forth.

3. The combination of the two end and one intermediate bracket and the shafts and pulleys thereon, arranged substantially as described, with a polishing-head carried by the outermost bracket, having a pair of movable parallel blocks, the pitmen for independently and simultaneously reciprocating said blocks from one of said shafts, and the rubbers carried by said blocks, substantially as specified.

4. The combination of the vertically-adjustable bracket A, the intermediate bracket H, and the outer bracket L, the shafts connecting brackets L and H and H and A, and the driving-shaft connected to bracket A with the pulleys on said shafts, the single belt, and the idler take-up pulleys for regulating the belt, mounted on swinging spring-controlled arms on bracket A, substantially as described.

5. The combination of the vertically-adjustable bracket A, the intermediate bracket H, and the outer bracket L, the shafts connecting brackets L and H and H and A, and the driving-shaft connected to bracket A with the pulleys on said shafts, the single belt, and the idler take-up pulleys mounted on swinging spring-controlled arms on bracket A, with the polishing-head connected to the outer end of bracket L and movable therewith, and the rubbers on said head, substantially as described.

6. The combination of the polishing-head having side and intermediate grooved flanges, the sliding blocks having lateral tongues engaging in the grooves of said flanges, and bottom dovetailed grooves with the rubbers having dovetailed ribs on their upper faces engaging the grooves of the blocks, and the stops and catches for detachably securing the rubbers to said blocks, and means for independently reciprocating the blocks, substantially as and for the purpose set forth.

7. The combination of the connected brackets and the polishing-head, having parallel oppositely-reciprocating grooved blocks, rubbers detachably secured to said blocks, the cranked shaft carried by said brackets, and the pitmen engaging the opposite cranks on said shaft and said blocks, respectively, for reciprocating the latter independently of the movement of the head, and the belt and pulleys for driving said cranked shaft, all constructed and arranged to operate substantially as described.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

JOSEPH S. KENYON.
OLIVER W. WILLIAMS.

Witnesses:
JAMES DUSHANE,
O. M. ASH.