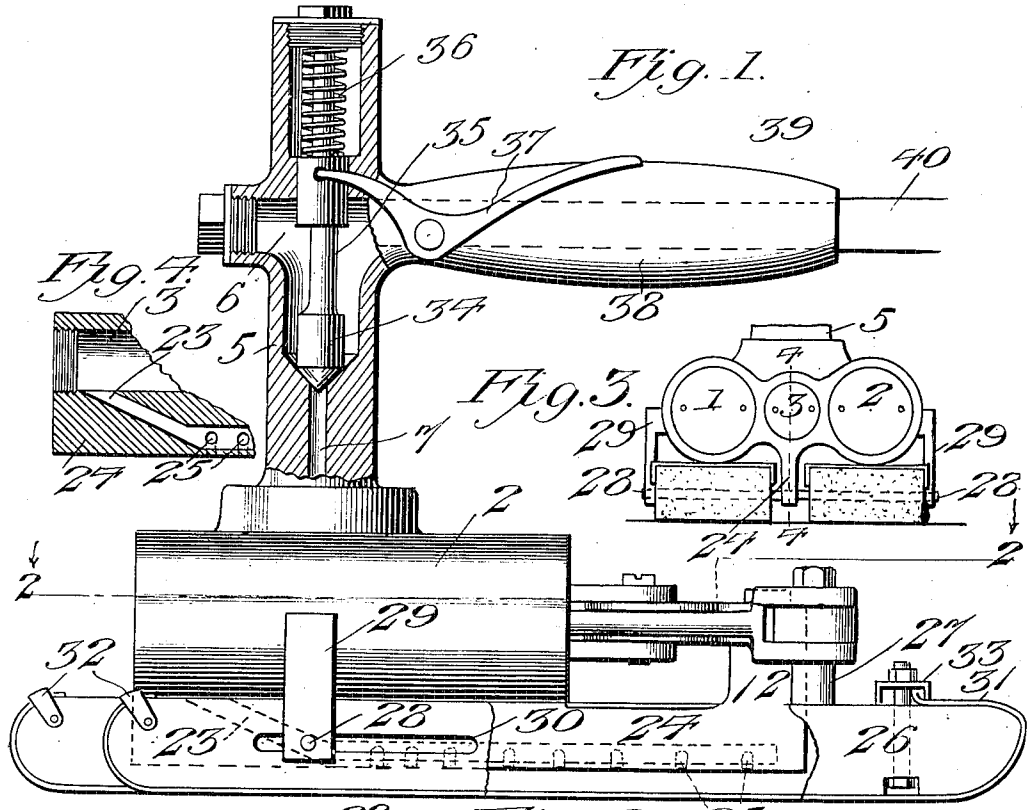
No. 812,119. PATENTED FEB. 6, 1906.

A. B. DENSON.

SANDPAPERING MACHINE.

APPLICATION FILED NOV. 29, 1904.



Witnesses

Wm. Koerth.

F. S. Elmore

Inventor

Arthur B. Denson

By Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

ARTHUR B. DENSON, OF BELOIT, WISCONSIN.

SANDPAPERING-MACHINE.

No. 812,119. Specification of Letters Patent. Patented Feb. 6, 1906.

Application filed November 29, 1904. Serial No. 234,801.

To all whom it may concern:

Be it known that I, ARTHUR B. DENSON, a citizen of the United States, residing at Beloit, in the county of Rock and State of Wisconsin, have invented new and useful Improvements in Sandpapering-Machines, of which the following is a specification.

This invention relates to sandpapering-machines adapted for operation by air or other fluid under pressure, and has for its objects to produce a comparatively simple inexpensive device of this character in which the fluid will be admitted alternately and successively to the operating members or pistons for moving the sandpapering devices alternately and in reverse directions, one wherein the machine will be under constant and ready control of the operator, and one in which the dust produced incident to the action of the smoothing and polishing devices will be expelled from beneath the latter by the fluid exhausted from the machine.

With these and other objects in view the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of a machine embodying the invention. Fig. 2 is a horizontal sectional plan, the section being taken on the line 2 2, Fig. 1. Fig. 3 is a detail front elevation of the machine. Fig. 4 is a detail section taken on the line 4 4 of Fig. 3.

Referring to the drawings, 1 and 2 designate a pair of parallel cylinders appropriately spaced transversely to produce between them a valve-chamber 3, the cylinders being connected by a bridge-piece or frame 4, which spans the space between the cylinders at a point above the chamber 3, and from which bridge-piece there arises a vertical tubular member or post 5, having an internal valve-chamber 6 and a passage or duct 7, leading from said valve-chamber to the air chamber or chest 3.

Arranged for reciprocation in the cylinders 1 and 2 are pistons 8 and 9, carried by rods 10, pivotally connected at their outer ends with a connecting-arm or cross-head 11, in turn pivoted for oscillation upon a fixed pintle or axle 12, arising vertically from a fixed portion of the frame of the machine, there being carried by the cross-head a central extension or enlargement 13, provided with a curved guide-slot or camway 14, adapted to receive an antifriction-roller 15, journaled for rotation upon a pintle 16 at the outer end of a reciprocatory valve-stem 17, carrying at its inner end a valve 18, arranged for sliding movement in the chest 3.

The cylinders 1 and 2 communicate with the chest 3 through the medium of inlet-ports 19 and exhaust-ports 20, while within the valve 18 is an inclosed chamber or space 21, adapted for communication with the cylinders 1 and 2 through the medium of ports 22, which register alternately and successively with the ports 19, this chamber being also in communication with the duct or passage 7 through the medium of a port, (not shown,) while leading from the chest 3 at a point adjacent its inner end is an exhaust passage or duct 23, communicating with a hollow tubular web 24 at a point between the ends of the latter. The web 24, which extends longitudinally and centrally of the machine immediately beneath the chest 3, is provided at suitably-spaced intervals with oppositely-extending lateral discharge openings or ports 25 for a purpose which will hereinafter appear, the post 12 being formed upon and fixedly carried by the tubular web 14 at a point adjacent the rear end of the machine.

The machine is equipped with a pair of reciprocatory polishing devices or blocks 26, arranged, respectively, beneath the cylinders 1 and 2 and connected, by means of posts 27, with the rear ends of the piston-rods 10, these posts subserving the further function of pivotally connecting the rods with the cross-head 11, while the blocks are also connected at a point adjacent their forward ends with the cylinders by means of a rod 28, carried by hangers 29 and extended through guideways or slots 30, provided in the blocks, these slots being in turn extended longitudinally of the blocks to permit free reciprocation of the latter upon the supporting member or rod 28. Each block has its lower active face covered by a sheet of sandpaper, emery-cloth, or other appropriate grinding or polishing material 31, secured in place at its opposite ends by clamps 32 33, it being obvious that under this arrangement the sheet of abrasive material may be readily removed to permit application to the blocks of material of varying degrees of coarseness or abrasiveness.

Arranged in the valve-chamber 6 within the vertical post 5 is a valve 34, adapted for closing the passage 7, this valve being car-

ried by a stem 35, acted upon by a spring 36 for normally pressing the valve to closed position. The valve may be moved to open position by means of an actuating member or lever 37, pivotally engaged at one end with the valve-stem, this lever being in turn pivoted between its ends to a tubular handle 38, extending from the post 5 and having a central longitudinal passage 39, communicating at one end with the valve-chamber 6 and to the other or outer end of which is coupled a flexible pipe or duct 40, through which the air or other fluid under pressure is conveyed from a suitable tank or other source (not shown) and introduced to the chamber 21 within the valve 18.

In practice, the blocks or devices 26 having been covered with the appropriate material 31, the machine is seated in position on the surface to be treated and the valve 34 opened by manipulating the actuating member or lever 37. The air or fluid under pressure thus finds its way to the chamber 21 within the valve 18 and from the latter, through the ports 19 and 22, to the cylinders 1 and 2 for reciprocating the pistons in the latter. As the pistons are reciprocated a corresponding motion will be communicated to the blocks 26, owing to their connection with the pistons, while at the same time the cam member 13, carried by the cross-head 11, will act through the medium of its cam-slot 14 and the antifriction-roller 15 for reciprocating the valve 18, thus to bring the ports 22 at opposite sides of the latter alternately into register with the ports 19, thereby stroking the pistons alternately, as will be readily understood. During the movement of the valve the exhaust-ports 20 in the respective cylinders will be successively uncovered at proper intervals, or, that is, during the instroke of the pistons 8 and 9, for exhausting the dead air from the cylinders, this air passing off through the duct 23 into the tubular web 24, from which it escapes through the lateral discharge-openings 25. As the exhaust-air is forced from the openings 25 it serves to blow the dust and other accumulations from beneath the active faces of the polishing devices 26, thereby preventing clogging of the abrasive material 31 and serving to maintain the surface acted upon in proper condition for responding to the action of the abrasive material.

The motion of the polishing devices may be discontinued at any time and instantaneously by releasing the member 37, thereby permitting the valve 34 to close and cut off the supply of fluid to the machine.

From the foregoing it is apparent that I produce a simple device which in practice will efficiently perform its functions to the attainment of the ends in view, it being understood that minor changes in the details herein set forth may be resorted to without departing from the spirit of the invention.

Having thus fully described my invention, what I claim as new is—

1. In a device of the class described, a pair of cylinders, pistons arranged for reciprocation in the cylinders, polishing members connected to and for movement with the respective pistons, means for admitting air under pressure to the cylinders for operating the pistons, and a tubular member disposed between the polishing devices and having discharge-ports directed to the latter, said member being in communication with the cylinders and adapted to receive the exhaust from the latter.

2. In a device of the class described, a pair of cylinders, pistons movable therein, polishing devices connected to and for movement with the respective pistons, means controlled by the movement of the pistons for admitting a fluid under pressure alternately to the cylinders, and a tubular exhaust member communicating with the cylinders and extended between the polishing devices, said member having discharge-ports for directing the exhaust fluid toward the polishing devices.

3. In a device of the class described, a pair of reversely-movable polishing devices, operating members connected therewith, a tubular member between the polishing devices and having discharge-ports directed toward the latter, and means for admitting fluid to and for actuating the operating members, the fluid being adapted to exhaust through the tubular member for preventing accumulations beneath the polishing devices.

4. In a device of the class described, a reciprocatory polishing device, a tubular member sustained adjacent the side thereof and provided with exhaust-ports directed toward the device, an operating member connected with said device, and means for admitting fluid under pressure to the operating member, and a tubular member for actuating the polishing device and preventing accumulations therebeneath.

5. In a device of the class described, a movable polishing member, means for operating the same, a tubular member disposed and sustained at one side of the polishing device and having ports directed toward the latter, and means for admitting fluid under pressure through the member to prevent accumulations beneath the polishing device.

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

ARTHUR B. DENSON.

Witnesses:

A. B. LYNN,

J. A. LOVE.