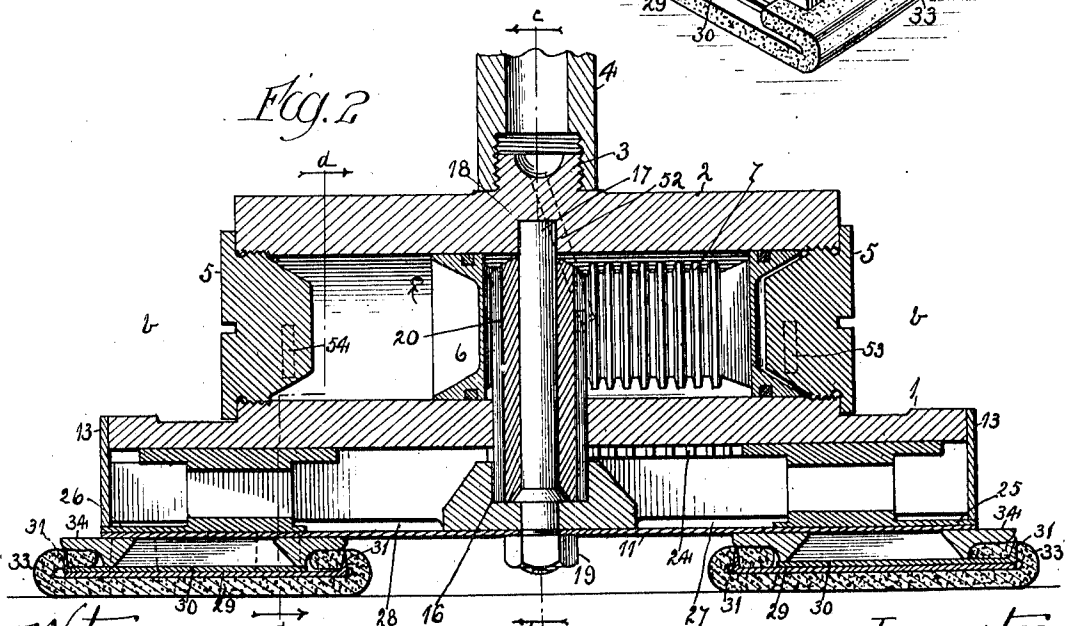
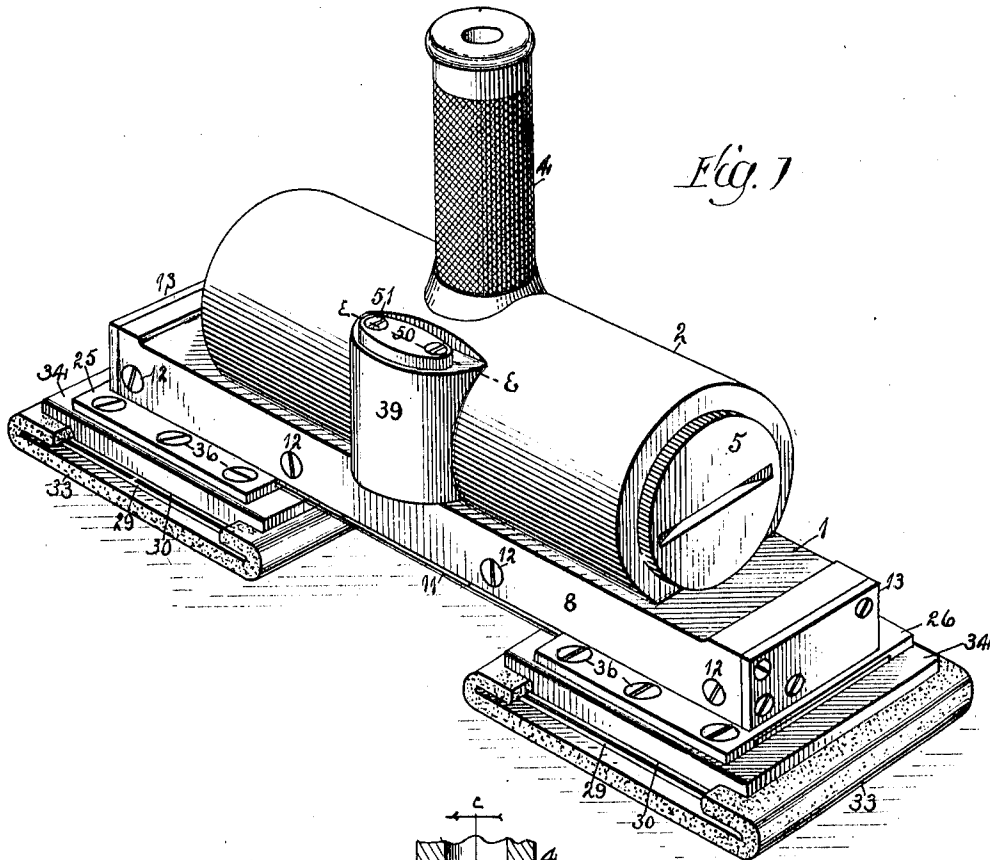


S. F. ANDERSON.
BURNISHING MACHINE.
APPLICATION FILED OCT. 7, 1909.

987,940.

Patented Mar. 28, 1911.

4 SHEETS—SHEET 1.



Witnesses:

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Inventor:

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Att'y

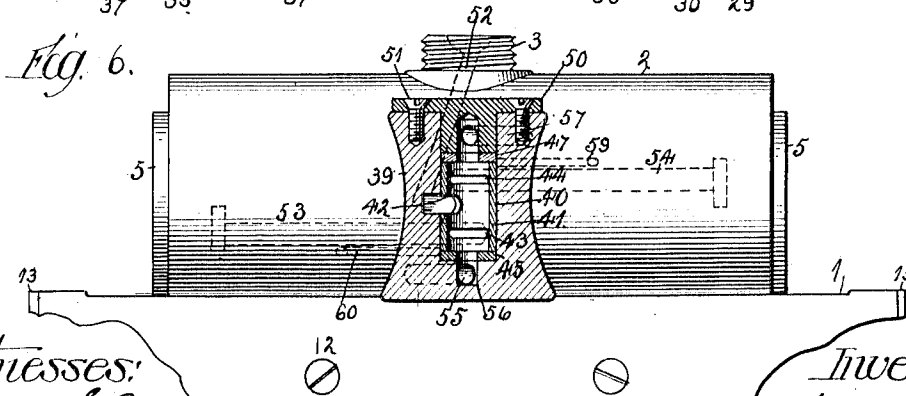
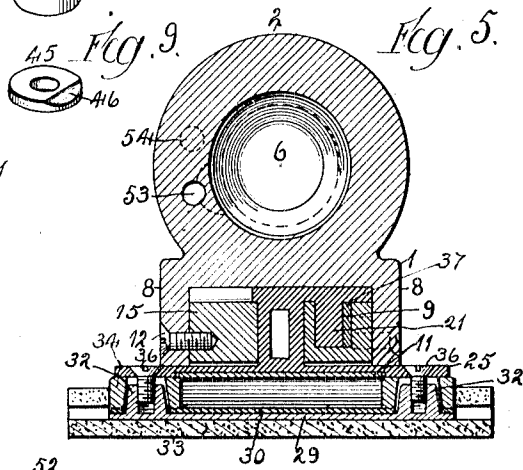
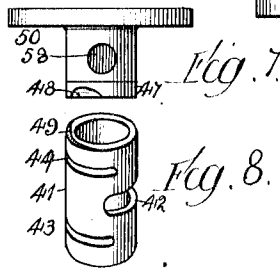
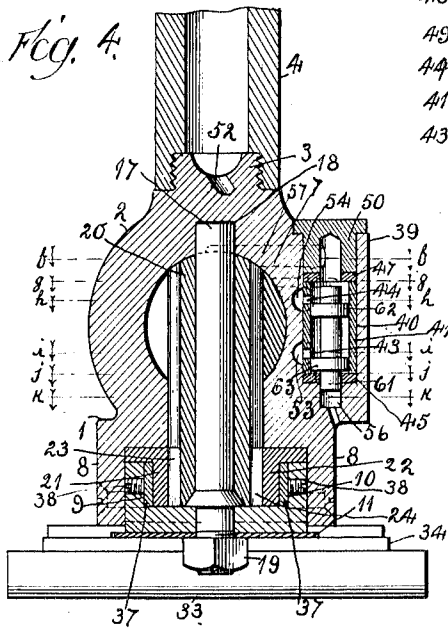
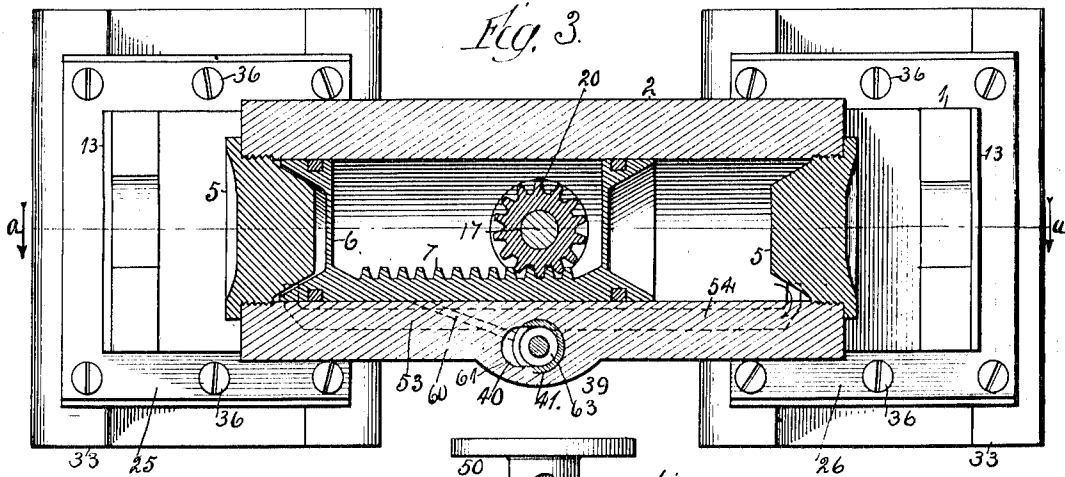
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4 SHEETS-SHEET 2.



Witnesses:
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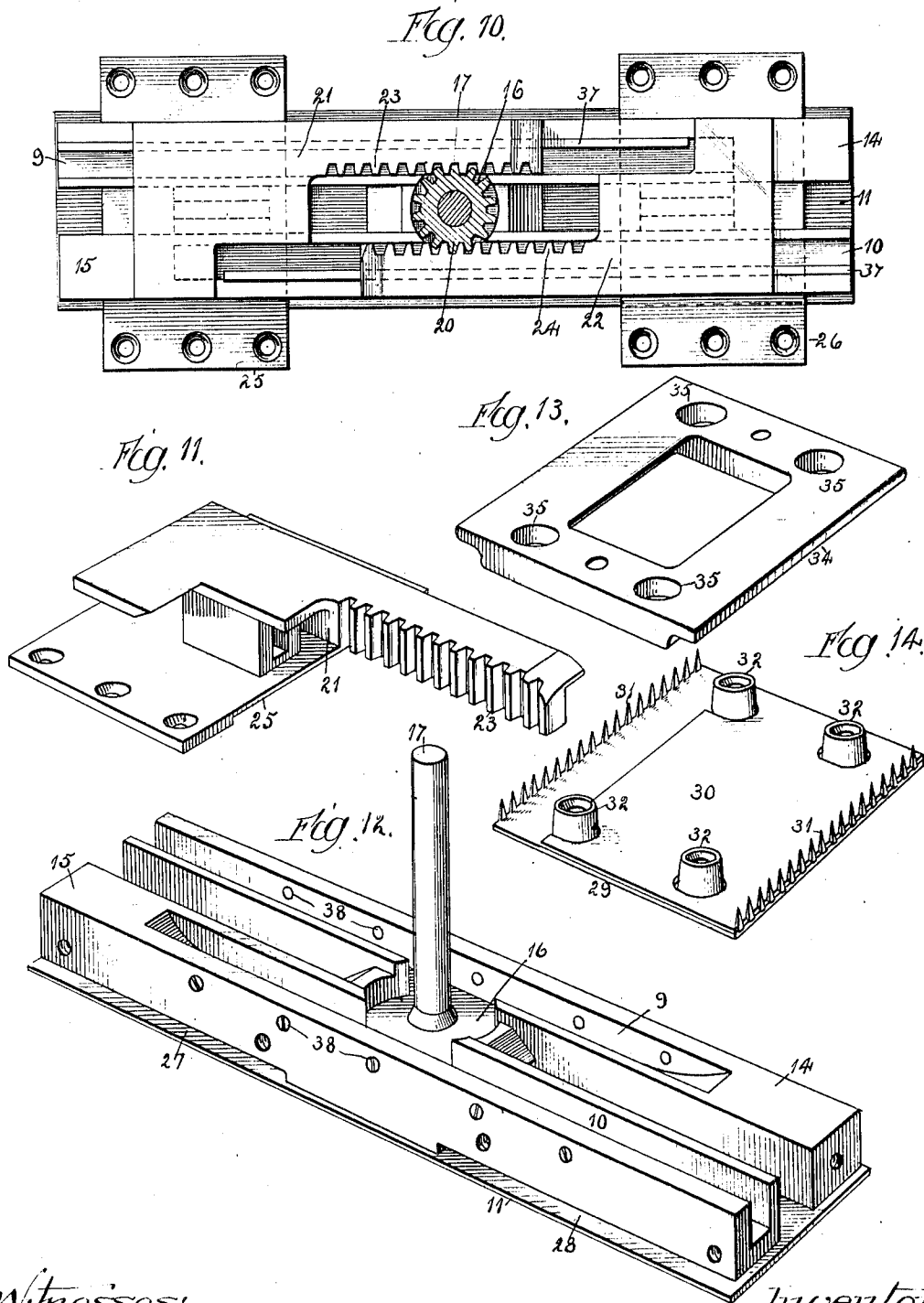
Inventor:
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4 SHEETS—SHEET 3.



Witnesses:
Harold G. Bantitt.
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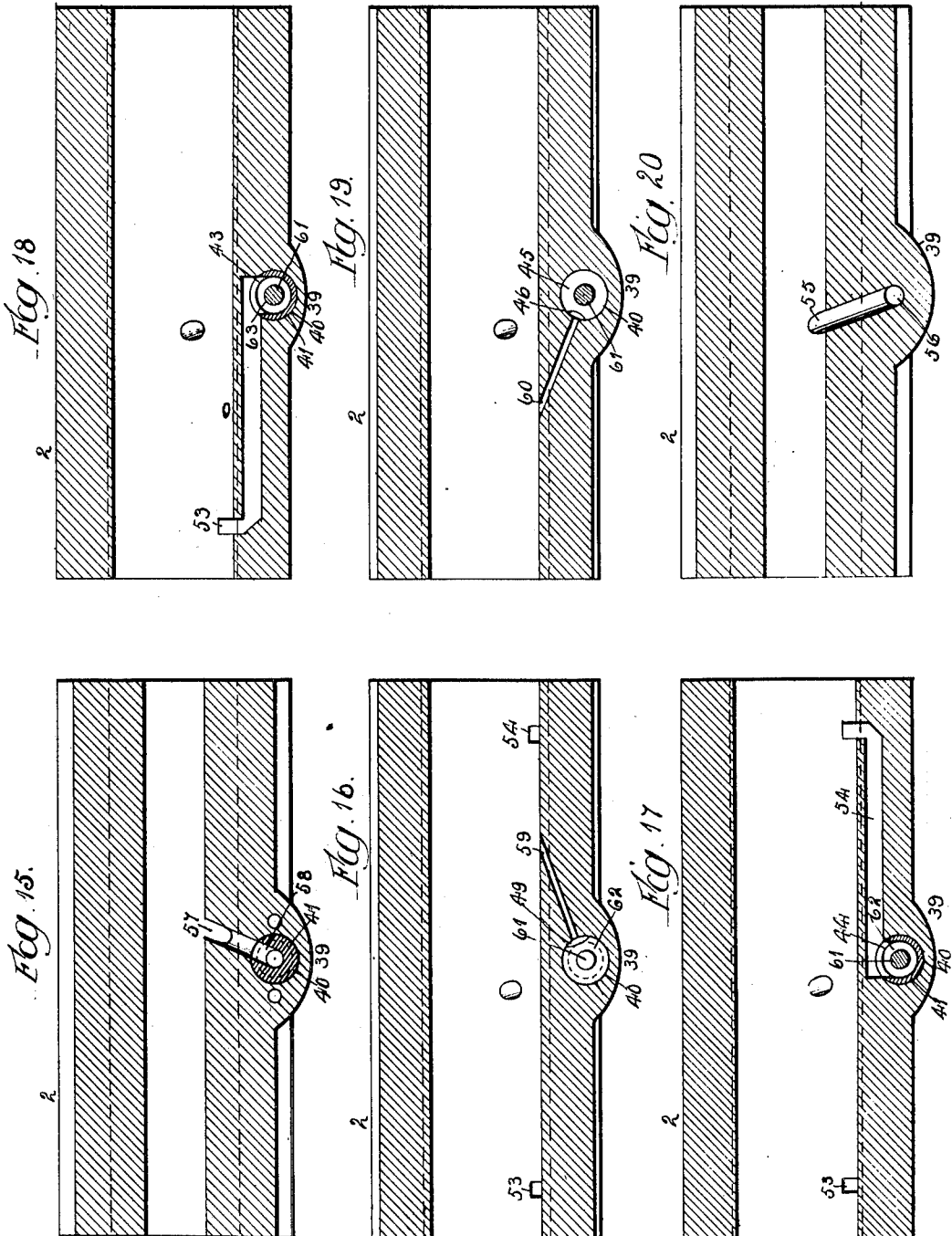
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

SWAN F. ANDERSON, OF ROCKFORD, ILLINOIS, ASSIGNOR TO ROCKFORD TOOL COMPANY,
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BURNISHING-MACHINE.

987,940.

Specification of Letters Patent.

Patented Mar. 28, 1911.

Application filed October 7, 1909. Serial No. 521,626.

To all whom it may concern:

Be it known that I, SWAN F. ANDERSON, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Burnishing-Machines, of which the following is a specification.

The object of this invention is to construct a machine for polishing woodwork and especially furniture.

In the accompanying drawings. Figure 1 is a perspective view of my improved polishing machine. Fig. 2 is a vertical section on dotted line *a a* Fig. 3. Fig. 3 is a horizontal longitudinal sectional view. Fig. 4 is a section on dotted line *c c* Fig. 2. Fig. 5 is a section on dotted line *d d* Fig. 2. Fig. 6 is a section on dotted line *e e* Fig. 1. Figs. 7, 8 and 9 are representations of the valve casing. Fig. 10 is a plan view of the gear connection between the rubbers. Fig. 11 is a perspective view of one of the racks and its guide. Fig. 12 is a perspective view of the base portion. Figs. 13 and 14 are perspective views of the holders for the yielding rubbing surfaces. Fig. 15 is a section on dotted line *f f* Fig. 4. Fig. 16 is a section on dotted line *g g* Fig. 4. Fig. 17 is a section on dotted line *h h* Fig. 4. Fig. 18 is a section on dotted line *i i* Fig. 4. Fig. 19 is a section on dotted line *j j* Fig. 4. Fig. 20 is a section on dotted line *k k* Fig. 4.

The base portion of the burnisher comprises the plate 1 having a cylinder 2 supported on its upper face. This cylinder has a screw-threaded extension 3 and a tubular handle 4 is held in connection with the extension. The ends of the cylinder are internally screw-threaded and plugs 5 are turned in connection therewith. Within the cylinder is located a piston 6 having a rack 7 formed integral therewith.

The base 1 has depending sides 8 which receive guideways 9 and 10 connected to a plate 11. Screws 12 connect the sides to the guide-ways. Plates 13 are secured to the ends of the guide-ways and form ends to the depending sides 8. The guide-ways 9 and 10 have one end 14 and 15 respectively of each, closed as shown at Fig. 12, and communicate with each other through the central recessed portion 16.

A stud 17 has its lower end inserted through an opening in the plate 1 and in

the central section connecting the two guide-ways, the upper end of this stud is seated in a recess 18 formed in the upper portion of the cylinder 2, and is held in place by the nut 19. Around this stud is located a spur pinion 20 with which the rack 7 of the pinion meshes. This pinion is of a length to fill the space between the bottom of the recess 16 and the upper inner face of the cylinder.

In the guide-ways 9 and 10 are located guides 21 and 22 respectively, and each is formed with a rack 23 and 24 respectively which mesh with the spur pinion 20. To each guide 9 and 10 are secured plates 25 and 26 respectively which are located in cut-away portions 27 and 28 of the guide-ways above the plate 11. These plates 25 and 26 extend laterally beyond the depending sides of the base, and have pad holders connected thereto. These holders comprise two plates 29 and 30, each having teeth 31 extending along one edge and the plate 29 having screw-threaded bosses 32. A felt pad 33 has its edges turned over and engaging the teeth, and the top plate 34 has openings 35 through which the bosses extend, and is located over the turned over edges of the pad and connected to the plate 29 by the screws 36. Plates 37 to take up the wear of the guides in the guide-ways may be moved against the guides by the screws 38.

As the piston 6 is moved back and forth the rack 7 carried thereby will rotate the spur-pinion 20 first in one direction and then in the opposite direction. When the pinion is rotated in one direction, the racks 23 and 24 carrying the felt pads will be moved toward one another, and when moved in the opposite direction they will be moved away from one another. These movements of the pads will allow the base, cylinder and handle to remain at rest until the burnisher as a whole is moved by the attendant. The means employed to automatically reciprocate the piston will now be described.

To the cylinder midway of its length is formed an enlargement 39 which has a vertical opening 40 within which is located a shell 41 having a central slot 42 and two end slots 43 and 44. Beneath this shell is located a washer 45 having a cut-away portion 46. A washer 47 is located on the upper end of the shell and has a cut-away portion 48 coinciding with the cut-away portion

49 of the upper end of the shell. A cap 50 has a depending tubular portion which is located in the opening 40 and over the washer 47. Screws 51 connect the cap 50 with the enlargement 39 of the cylinder. A port 52 connects the tubular handle 4 with the slot 47^a. A port 53 connects the slot 43 with one end of the cylinder. A port 54 connects the slot 44 with the other end of the cylinder. A port 55 connects the reduced portion 56 of the opening 40 with the interior of the cylinder near its center and beneath the rack 7 in order that it may communicate with the space between the ends of the piston. A port 57 connects the opening 58 in the tubular portion of the cap 50 with the interior of the cylinder near the center of its length and above the rack 7 in order that communication may be had with the space between the heads of the piston. A port 59 connects with the interior of the cylinder and with the cut-away portions 48 and 49. A port 60 connects with the interior of the cylinder and with the cut-away portion 46 of the washer 45. Within the shell 41 is located a rod 61 supporting two rings 62 and 63, and the slot 42 of the shell 41 is located between these rings. This rod with attached rings act as valves to direct the air under pressure to the ends of the piston and to the exhaust ports. With the piston in the position shown in Figs. 2 and 3, and the valve in the position shown at Fig. 4, air is admitted through the handle and by the port 52 into the space between the rings 62 and 63 of the valve. The port 53 will also be exposed between the rings 62 and 63 which will allow the air to pass from the port 52 into the port 53 and to one end of the piston. At Fig. 3 the piston is shown at the extreme end of its movement in which the end of the port 53 is closed by the piston, but the piston will not stand at rest in this position, as the air which is trapped between the end of the piston and plug 5, will be compressed, which will force the piston back sufficient to expose the end of the port 53. The force of the air will then move the piston toward the other end of the cylinder thereby rotating the spur pinion 20 and moving the burnisher pads. The exhaust at the other end of the piston will pass by way of the opening 58 into the port 57 which communicates with the space around the spur pinion 20, and downward through the moving parts around the guides and escape in all directions. When the piston has moved so as to uncover the port 60, the air pressure will be directed through this port into the cut-away portion 46 of the washer 45, and upward against the lower end of the ring 63 of the valve, which will raise the valve so that the ring 63 will be between the slots 43 and 44, and the ring 62 will be above the slot 44, in order that the

ports 52 and 54 may be in communication, and the ports 53 and 55 be in communication. The air entering by way of the port 52 will pass by way of the port 54 in the cylinder, between the end of the piston 6 and the plug 5, which will move the piston back. The air from the other end of the piston will pass by way of the ports 53 and 55 into the space around the spur pinion and escape around the moving parts in all directions. When the port 59 is uncovered, the air will pass through it into the cut-away portions 48 and 49, and against the upper end of the ring 62, which will force the valve down into the position shown at Fig. 4, when the operations will be repeated. Each time the piston is moved in one direction, the pads will be moved toward one another and when the piston is moved in the opposite direction, the pads will be separated. These movements of the pads will allow the handle portion and cylinder to remain at rest so far as bodily movement is concerned until moved by the attendant. The exhaust air will keep all the joints clear of dust and will also keep the material being burnished clear of dust.

I claim as my invention.

1. In a burnishing machine, the combination of a cylinder, a piston within the cylinder provided with a rack, two devices each provided with a rack, a spur-pinion in mesh with the three racks, and valve arrangements and ports for imparting a reciprocating movement to the piston.

2. In a machine of the character set forth, the combination with a support, of a single cylinder mounted thereon, a single reciprocatory piston located and operating in the cylinder, oppositely moving devices mounted on the support, and means for transmitting motion from the piston to the devices to affect their simultaneous movement in opposite directions.

3. In a burnishing machine, the combination of a cylinder, a piston within the cylinder comprising two heads and a rack connecting the heads, two racks, a device connected to each rack, a guide-way for each of two last mentioned racks, a spur pinion meshing with the three racks and valve arrangements and ports for imparting a reciprocating movement to the piston.

4. In a machine of the character set forth, the combination with a base, of a single cylinder mounted thereon, a single reciprocatory piston located and operating in the cylinder, oppositely moving devices mounted on the base, and a rotary member geared to the single piston and to both of the devices for operating the latter.

5. In a machine of the character set forth, the combination with a support, of a cylinder mounted thereon, a reciprocatory piston operating in the cylinder and having a

rack, a rotary member geared to the rack, a reciprocatory device, and means for effecting the reciprocation of the device on the rotation of the member.

5 6. In a machine of the character set forth, the combination with a support, of a cylinder mounted thereon, a reciprocatory piston operating in the cylinder, a rotary gear operated by the piston, and a reciprocatory device having a rack meshing with the gear.

10 7. In a machine of the character set forth, the combination with a base support, of a cylinder mounted thereon, a reciprocatory piston operating in the cylinder and having a rack, a rotary member geared to the rack, and a pair of reciprocatory devices having racks geared to the rotary member and simultaneously operating in opposite directions.

20 8. In a machine of the character set forth, the combination with a base having an internal guideway, of a reciprocatory member mounted in the guideway and projecting be-

yond the sides of the base, a device secured to the projecting portions of the member and extending beneath the base, and means for reciprocating the member and the device. 25

9. In a machine of the character set forth, the combination with a base having internal guideways, and cut-away portions, of reciprocatory members mounted in the guideways and projecting through the cut-away portions, devices secured to the projecting portions and extending beneath the base, said devices moving toward and from each other in the same rectilinear path, a motor mounted on the base, and connections between the motor and members for effecting their simultaneous reciprocation in opposite directions. 30

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses. 35 40

SWAN F. ANDERSON.

Witnesses:

A. O. BEHEL,
E. D. E. N. BEHEL.