

No. 672,930.

Patented Apr. 30, 1901.

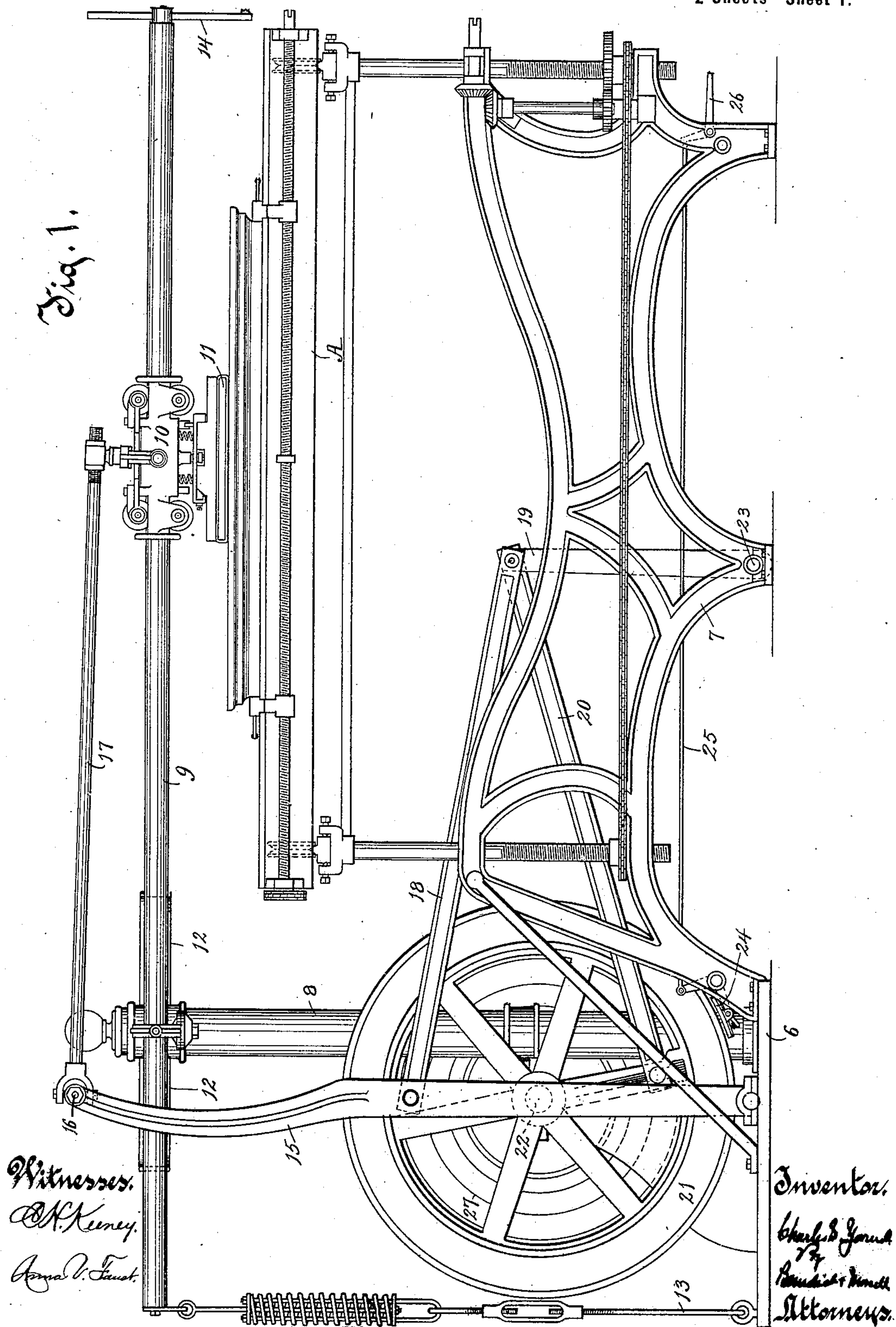
C. S. YARNELL.
ABRADING OR POLISHING MACHINE.

(Application filed Jan. 9, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



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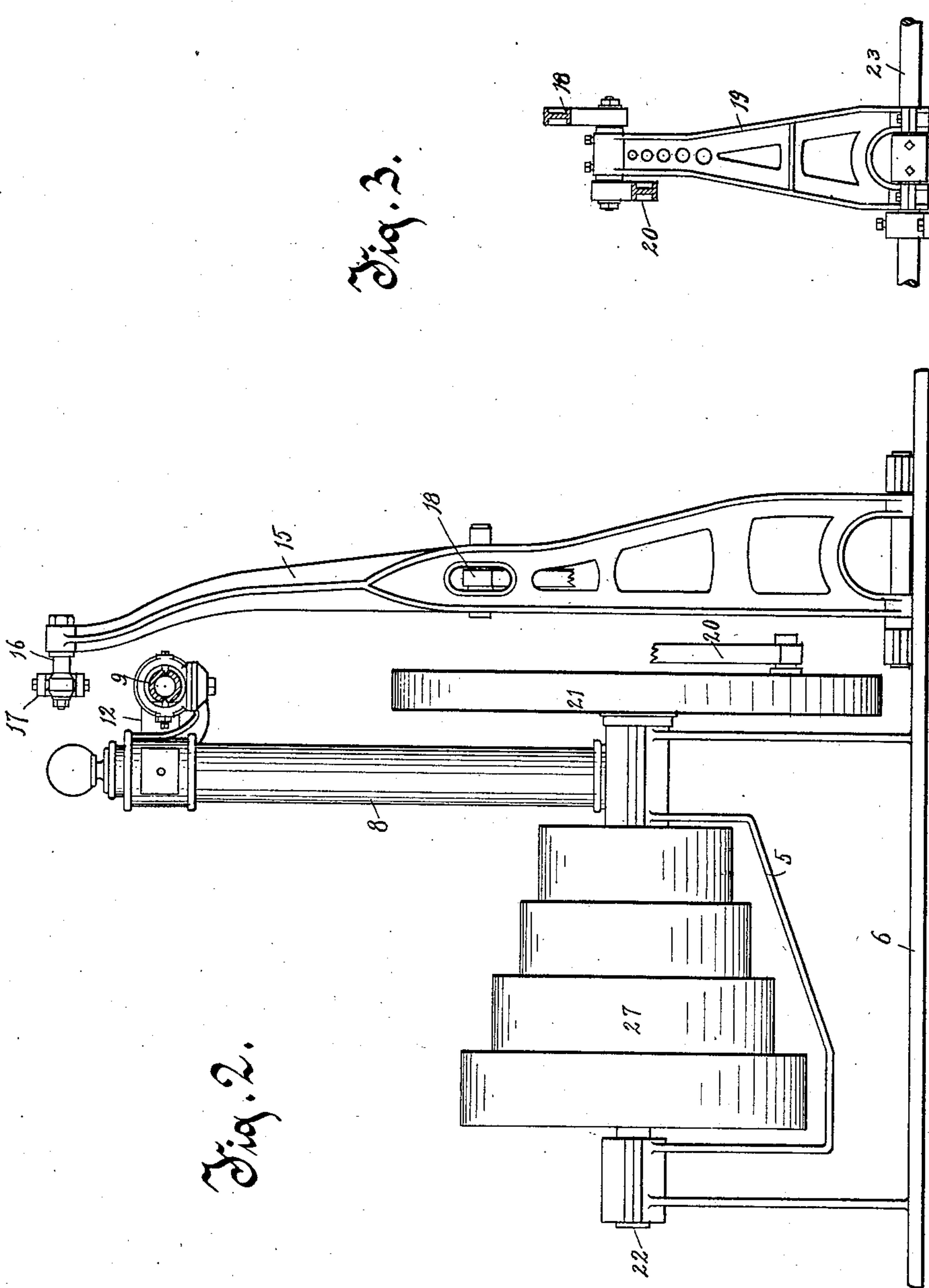
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2 Sheets—Sheet 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

CHARLES S. YARNELL, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO MOORE CARVING MACHINE COMPANY, OF SAME PLACE.

ABRADING OR POLISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 672,930, dated April 30, 1901.

Application filed January 9, 1901. Serial No. 42,643. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. YARNELL, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented a new and useful Improvement in Abrading or Polishing Machines, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention relates to an improved machine adapted for abrading or polishing plane surfaces by the use of a reciprocating abrader or buffer.

An important feature of my improved machine is that the machine is a compact construction occupying comparatively small space, and yet is so built as to secure a desirable long reciprocable movement of the abrader or buffer in connection with compact and suitable mechanism for securing such desirable movement of the abrader or buffer.

The invention consists of the machine and its parts and combinations of parts, as herein described and claimed, or the equivalents thereof.

In the drawings, Figure 1 is an elevation of the complete machine. Fig. 2 is an elevation of the machine at that end shown at the left in Fig. 1, parts being broken away and omitted for convenience of illustration. Fig. 3 is a detail of a vibrating arm located centrally of the construction, as shown in Fig. 1.

A suitable support for the moving and operative parts of the machine may, as shown in the drawings, consist of a frame 5, provided with a bed-plate 6, an auxiliary frame 7, and a post 8, secured upright on the bed-plate 6. In connection with my improved machine a table to support the material to be abraded or polished is required, and I have shown at A a suitable table therefor, which illustrates the method of operation of my improved machine and the relation of the material to be abraded or polished thereto. As the work-table forms no part of the present invention, a further description of it will not herein be made. A guide-bar 9 is swiveled, and thereby supported on the post 8, and extends in one direction therefrom forwardly over the material-supporting table and in the other di-

rection rearwardly a short distance. A carriage 10 is mounted reciprocably on the guide-bar, and this carriage is provided with an abrader or buffer 11, adapted to bear on the material, and by its movement thereon to abrade or polish it. The guide-bar 9 is so supported on the post 8 as to be capable of swinging vertically and slightly laterally, its lateral movement being limited by guard-arms 12 12, secured on the post 8. At its rear end the guide-bar is connected by an adjustable, elastic, and extensible rod 13 to a fixed attachment conveniently to the floor on which the machine stands. This elastic and adjustable rod is adapted to counterbalance approximately the carriage 10 and its load on the other extremity of the guide-bar. A bar 14, inserted transversely through the free end of the guide-bar 9, fits snugly but slidably therein, so as to be capable of adjustment endwise through the bar. The bar serves as a handle to be grasped by the operator.

A vibrating arm 15 is pivoted at its lower end conveniently on the bed-plate 6 and extending upwardly therefrom is provided at its upper end with a stud-pin 16, projecting laterally therefrom, and a carriage-driving rod 17 is pivoted on the pin 16 and at its other extremity is connected to the carriage 10. For swinging or vibrating the arm 15, and thereby reciprocating the buffer or abrader 11, the arm 15 is connected medially by a rod 18 to a movable member 19, and this movable member 19 is in turn connected by a pitman 20 to the wrist of a wheel 21, fixed on a shaft 22, having its bearings in the frame 5. For steadying the motion of the machine the wheel 21 is advisably provided with a heavy rim, adapting it to serve as a balance-wheel, and the wheel and its shaft 22 are mounted in bearings in the frame as near the floor or main support of the machine as is conveniently possible. It will be observed that this construction locates the driving-shaft 22 and the means for connecting it to the vibrating arm 15 in a plane considerably below the plane of the travel of the abrader or buffer 11. The connecting-rod 18 and the pitman 20 are of course suitably hinged or pivoted at their respective ends to the members of the construction to which they are connected.

The movable member 19 is advisably a swinging arm pivoted at its lower extremity on a rod or pivot-pin 23, fixed in the frame 7. This movable member 19, being in the form of a swinging arm, is also pivoted, and thereby supported near the floor or foundation on which the machine is supported, thereby also obviating jar or vibration to a maximum extent. The vibrating arm 15 is advisably made furcate at its lower extremity, so that its two short terminal legs, being pivoted on the frame at a distance apart, furnish a steady support for the arm against vibration laterally. A similar form of construction is advisable for the member 19 and is so shown in the drawings.

A brake 24, operated by a rod 25 and crank-handle 26, is provided for controlling the motion of the wheel 21 and the mechanism connected operatively therewith. The shaft 22 is provided with a fixed stepped band-wheel 27 for connecting the shaft to a source of power.

What I claim as my invention is—

1. In an abrading or polishing machine, the combination with a reciprocable abrader or polisher, of a hinged and vibrating arm connected to the abrader or polisher, a correspondingly-movable member connected to the vibrating arm medially, a driven shaft, and a pitman connecting said movable member to an eccentric wrist on said shaft.

2. In an abrading or polishing machine, a means for reciprocating an abrader or polisher comprising a driven shaft, a vibrating arm 19, a pitman connecting an eccentric wrist on the shaft to said arm, another vibrating arm 15, a rod connecting the two vibrating arms, and means connecting the vibrating arm (secondly enumerated) to the abrader or polisher.

3. In an abrading or polishing machine, a horizontally-disposed guide-bar, a carriage reciprocable on the guide-bar, an upwardly-disposed vibrating arm adjacent to the guide-bar hinged at its lower end on a fixed support and connected at its upper end to said carriage, a second vibrating arm also upright and hinged to a fixed support at its lower end, a

rod connecting said second vibrating arm to said first enumerated vibrating arm medially, a shaft, and a pitman connecting an eccentric wrist-pin on said shaft to said vibrating arm.

4. In an abrading or polishing machine, a horizontally-disposed guide-bar, a carriage reciprocable on the guide-bar, an upright arm capable of vibration alongside the guide-bar, a driven shaft, and means below the guide-bar including an intermediate movable member connecting the shaft eccentrically to said vibrating arm medially.

5. In an abrading or polishing machine, a horizontally-disposed guide-bar, a carriage reciprocable on the guide-bar, an upright arm capable of vibration alongside the guide-bar, said arm being furcate at its lower end and hinged by its furcate members to a fixed support so as to prevent vibration laterally, a driven shaft, and means below the guide-bar including an intermediate movable member connecting the shaft eccentrically to said vibrating arm medially.

6. In combination, a driven shaft, a fly-wheel on the shaft, a long vibrating arm hinged below the shaft to a fixed support and connected near its free end to a reciprocable buffer-carriage, a short vibrating arm opposite to and at a distance from the long vibrating arm, a rod connecting the free end of the short vibrating arm to the long vibrating arm medially, and a pitman connecting the free end of the short vibrating arm to a wrist-pin on said fly-wheel.

7. In combination in an abrading or polishing machine, a horizontally-disposed guide-bar pivoted medially to swing vertically and carrying a reciprocable carriage on one arm thereof, and an elastic extensible rod secured to the other arm of the guide-bar and to a fixed anchor adapted to support yieldingly the carriage-carrying arm of the bar.

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

CHARLES S. YARNELL.

Witnesses:

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GEO. M. JONES.