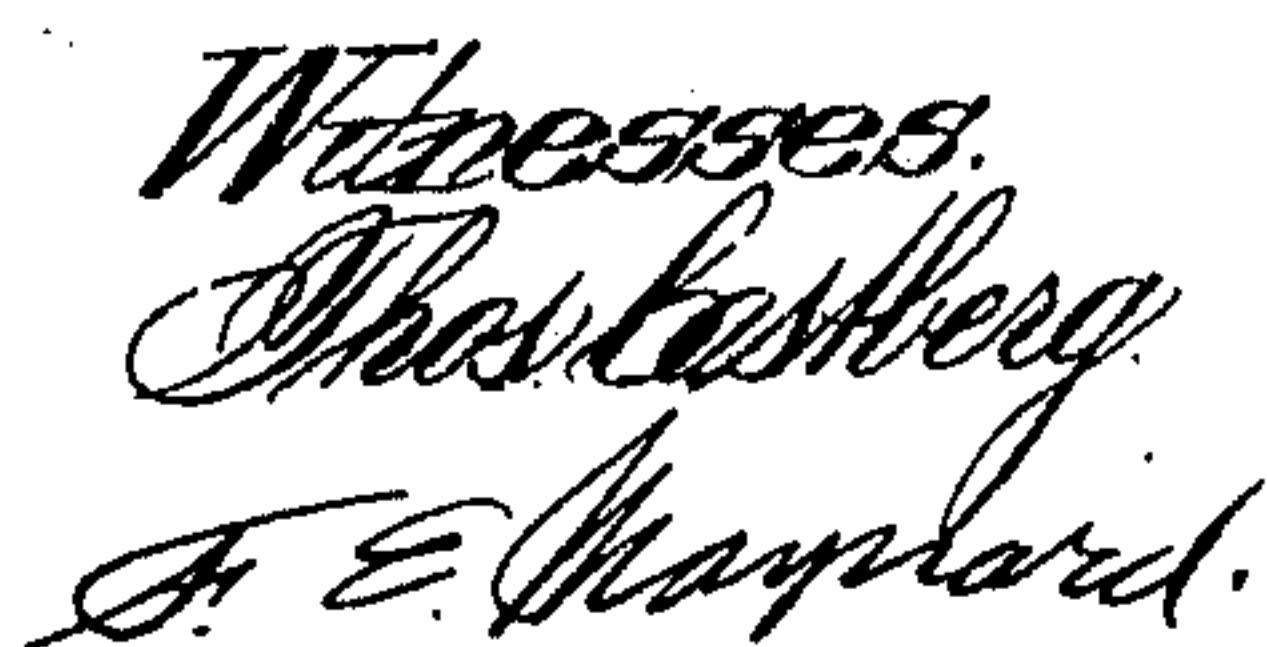


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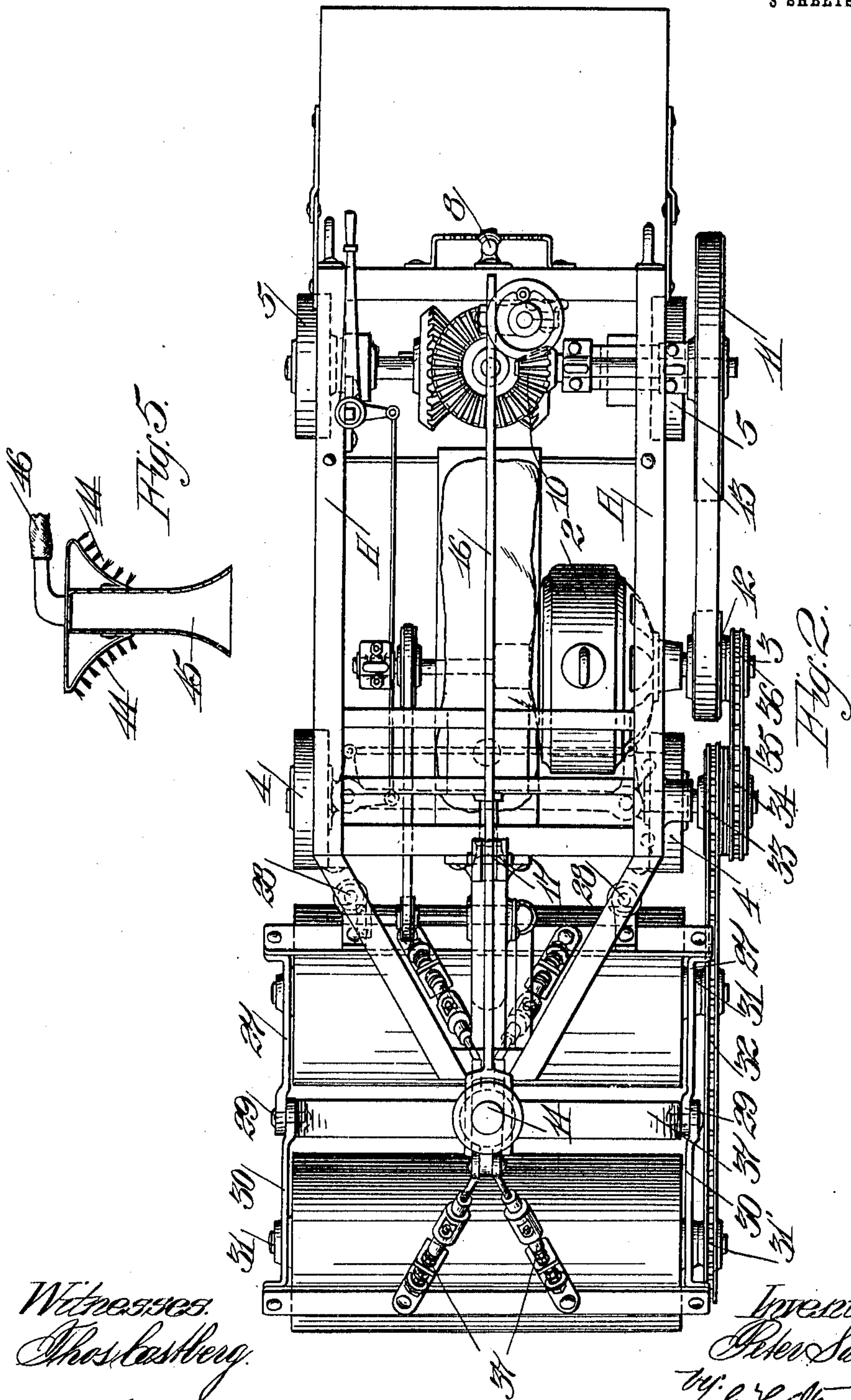
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FLOOR SURFACING AND POLISHING MACHINE.
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3 SHEETS-SHEET 2.



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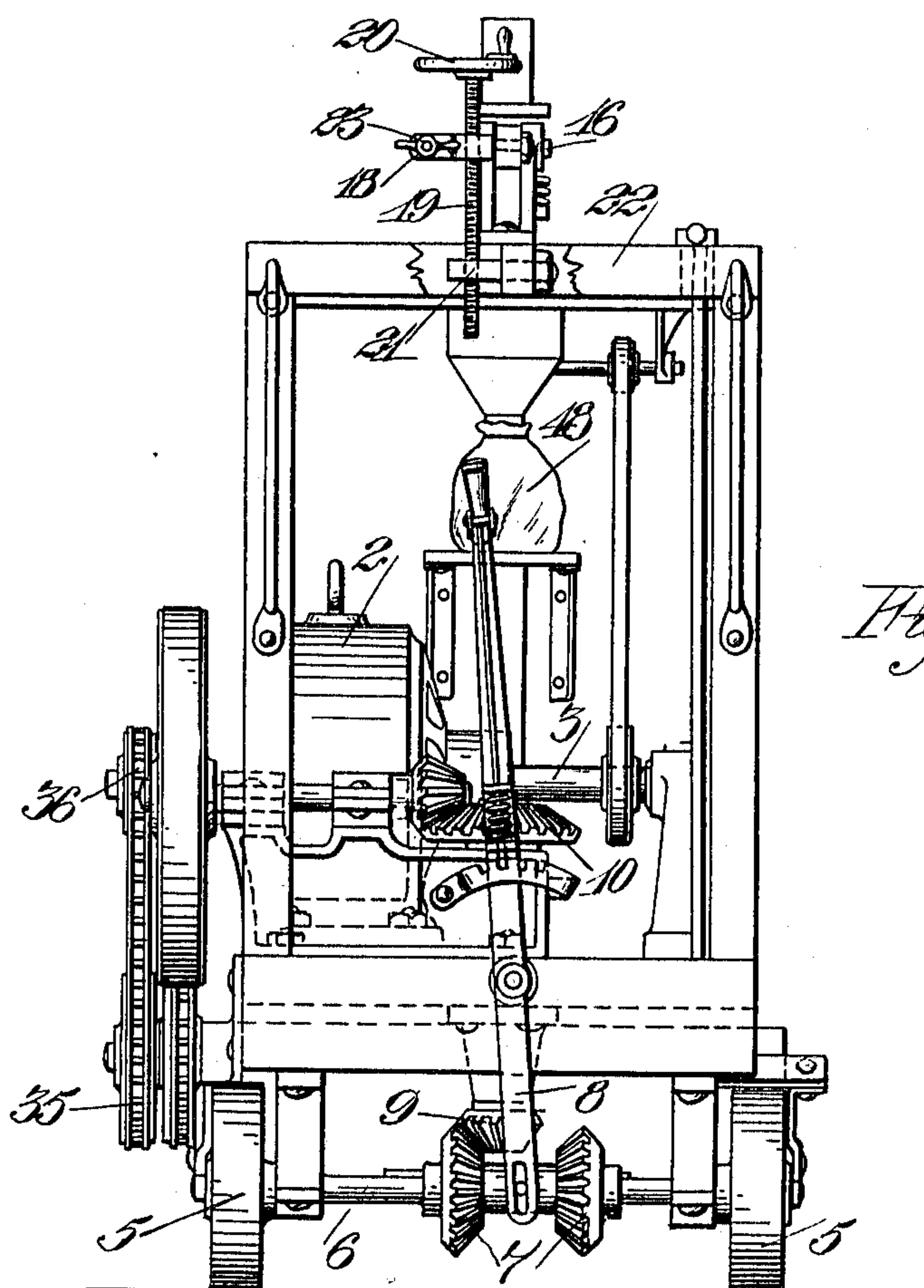


Fig. 3.

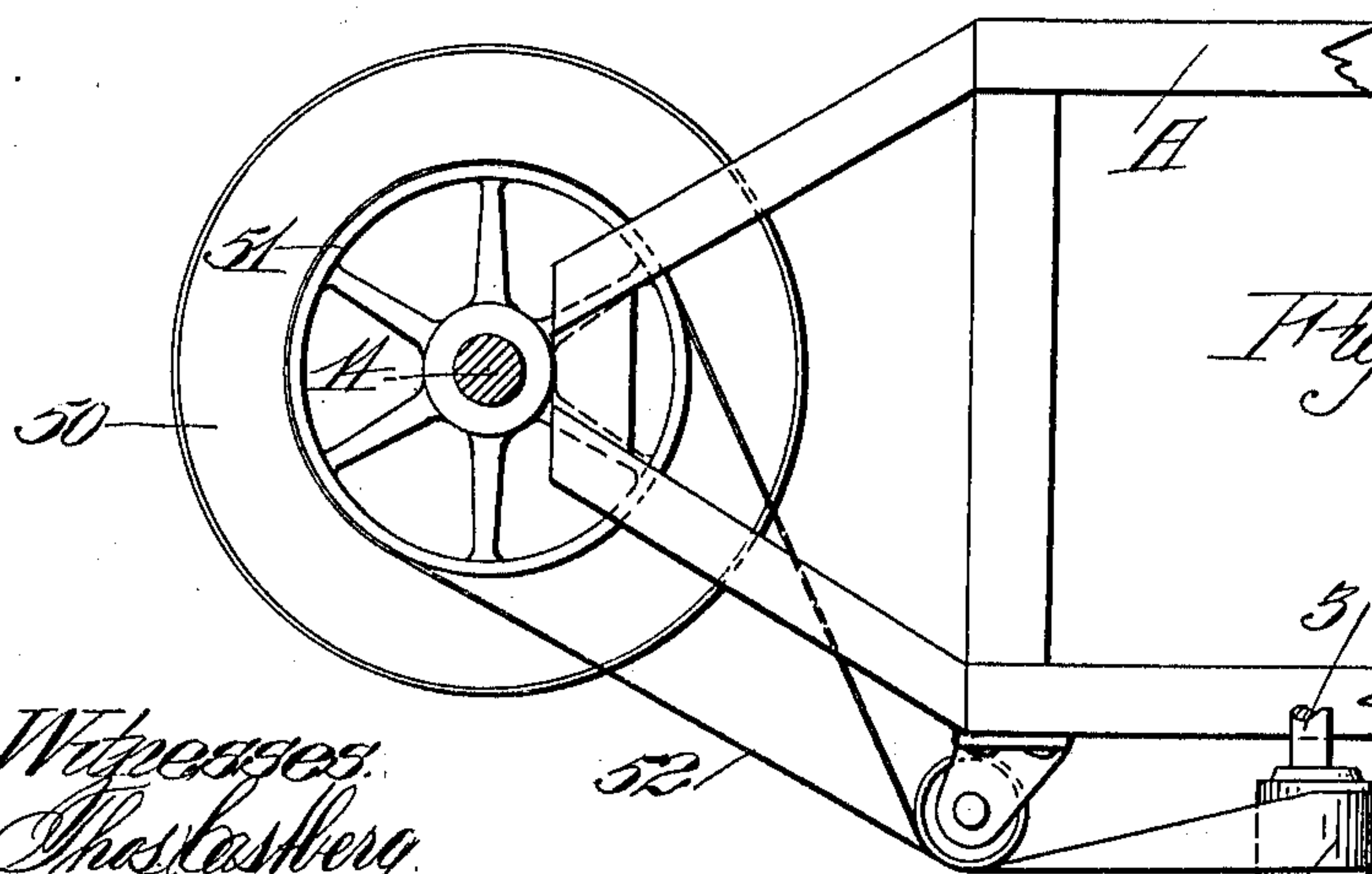


Fig. 4.

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UNITED STATES PATENT OFFICE.

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FLOOR SURFACING AND POLISHING MACHINE.

978,654.

Specification of Letters Patent. Patented Dec. 13, 1910.

Application filed January 24, 1910. Serial No. 539,656.

To all whom it may concern:

Be it known that I, PETER SASS, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Floor Surfacing and Polishing Machines, of which the following is a specification.

This invention relates to polishing machines, and particularly to that class of machines employed to surface, dress and polish floors.

It is a purpose of this invention to provide a machine universally adaptable to polish floors of marble, tile, mosaic, composition, and all wooden floors, whether inlaid, hardwood, or plain, to provide a machine susceptible of careful, close adjustment, and embodying means for propelling and steering.

The invention consists of the parts, and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a side elevation of the machine. Fig. 2 is a plan view. Fig. 3 is an end view. Fig. 4 shows the device as applied with a disk polisher. Fig. 5 is a cross section of the dust box.

The illustrated embodiment of my invention comprises an appropriate frame A, on the lower members of which is secured a suitable power generator, as the motor 2, so disposed that its shaft 3 projects sufficiently from the frame to carry sprockets or other power transmitting mechanism.

The machine is supported upon steering-wheels 4 having suitable operating levers, and driving wheels 5 fast on shaft 6 which carries a pair of reversing gears 7 shiftable by means of a lever 8, into and out of mesh with a driven pinion 9. Appropriate driving connections, as bevel-gears 10 and pulleys 11—12, and belt 13, transmit power from the motor to the pinion, thus this means enables the operator to drive ahead or reverse by simply throwing the lever 8.

An important feature of my invention, and one on which much stress is laid is the employment of means whereby the machine may quickly and easily be adapted to work upon composition, stone, wood or other floors with equal facility; and with this object in view I provide a turnable rod or shaft 14 mounted in bearing 15 of the frame

A, and vertically adjustable by means of a lever 16, fulcrumed at 17, and having a split nut 18 engaged by a screw 19, operated with a handle 20.

The screw 19 is composed of left-hand threads engaging the nut 18, and right-hand threads meshing with a block 21 mounted in cross-bar 22 of the frame; thus by turning handle 20 the shaft may be quickly raised or lowered, because the screw feeds through the nut or block 21 simultaneously as the nut 18 feeds on the screw, and the screw having been turned to adjust the shaft 14 to the desired position may then be locked by tightening the split nut 18 with a thumb-screw 23.

The foregoing description has relation to the frame, and the operating and adjusting mechanism constituting the permanent organization to which I attach disk or roller abrading mechanism as may be required to perform the polishing.

Fig. 1 shows the machine equipped with a plurality of rollers 25 provided with a surface or facing of suitable abrasive or polishing material 26 suitably secured thereon, and journaled in a flexible frame having a section 27 removably and slidably hung upon pins 28 in the main frame A, and pivoted at 29 to a complementary section 30 journaling the forward roller 25. The rollers 25 are secured upon shafts 31, fastened on which are sprockets 31' driven in opposite directions by a chain 32, and a driving sprocket 33 receiving power from the motor 2 through the transmitting chain 34 and its wheels 35 and 36. To accomplish the necessary exact adjustment of the abrading members upon the surface to be polished, the pivots 29 of the section frames 27—30 are mounted in a transverse yoke or hanger 37, which is pivotally and detachably connected at 38 to a socket-piece 39 fastened upon the lower end of the shaft 14, and the cross bars of the section 27—30 are connected by flexible or yieldable links 40 removably attached to the shaft 14, and to prevent the rollers from being lowered too violently or stiffly upon the floor, suitable buffers or springs 41 are placed upon the links 40 and abut the bars 27—30 at the place of connection, the tension of the springs being varied by the nuts 42. Turn-buckles or equivalent devices 43 are employed whereby the links may be changed in length.

The operation of the polishing mechanism

is as follows: The motor having been started, and the driving sprocket connected to the abrading rollers, revolving same, the operator turns the handle 20 of screw 19, causing the lever 16 to gradually lower the shaft 14 and its suspended wheel-bearing frames until the rollers 25 lightly touch the floor, and by further lowering the shaft 14 the springs 41 may be compressed, thus effectively yet resiliently maintaining the rollers in the exact poise, and in just such contact as is best suited to the particular material being performed on. For the purpose of preventing the polishing rollers 26 from becoming embedded with fine particles of dust from grinding, suitable brushes 44 are conveniently attached to the yoke frame 37, and bear against the roller surfaces effectively, cleaning them, and adjacent to the brushes is provided a dust collector 45 connected by tube 46 to an exhaustor 47 whereby the grindings may be collected in a receiver 48.

In Fig. 4 is shown a disk grinder or polisher 50 secured to the lower end of the shaft 14 from which the frame 27—30, and links 40 carrying the rollers 26, have been removed, and to which is then keyed a pulley 51 adapted to be driven by a belt 52 from a pulley 53 removably secured on the motor shaft 3.

By the construction shown the machine may be quickly and easily adapted by changing the nature and form of the changeable polishing members, using a roller in some instances and a disk in others, to various classes of flooring; and the machine is so simple and reliable that the services of a skilled mechanic are not required, which is a feature of much advantage.

The shaft 14 supporting the polishers is equally adjustable whether a disk or rollers are being employed, and by means of the practical adjusting device provided, the operator has perfect control of the polishers which may be depressed heavily to make the initial cutting, and gradually lightened as the polishing proceeds until the desired finish is obtained.

In order that the operator may ride when desired, I have shown a platform 55 having its front edge hinged to suspending brackets 56, and a similarly hinged diagonal brace 57 extends back from the main frame to support the rear of the platform. This construction allows the platform to be folded up out of the way when not in use.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. The combination in a surfacing machine, of a carriage, a motor, transmitting and steering mechanism on said carriage, a flexibly mounted frame, a vertically adjustable abrading member independently

mounted in said frame, said member being connected with the carriage, and sprockets and a flexible chain transmitting power thereto.

2. The combination in a surfacing machine, of a carriage, a motor, transmitting and steering mechanism on said carriage, a flexibly mounted frame, an independently mounted abrading member, a vertically guided slidable shaft by which said member is carried, said shaft being mounted in said flexible frame, a fulcrumed lever within one end of which said shaft is horizontally turnable, said lever having a nut at its outer end and a turnable screw engaging said nut.

3. The combination in a surfacing machine, of a carriage, a motor, transmitting and steering mechanism on said carriage, a flexibly mounted frame, an independently mounted abrading member, a vertically guided slidable shaft by which said member is carried, said shaft being mounted in said flexible frame, a fulcrumed lever within one end of which said shaft is horizontally turnable, said lever having a nut at its outer end and a turnable screw engaging said nut, said screw having the lower end oppositely threaded, and a fixed co-acting nut within which the lower end of the screw is turnable.

4. The combination in a surfacing machine, of a carriage, a motor, transmitting and steering mechanism upon the carriage, a vertically guided, slidable and turnable shaft supported in front of the carriage, means for attaching abrading surfaces to said shaft, means for raising and lowering the shaft and its attachments, and a flexible elastic frame disposed between the shaft and the abrading surfaces.

5. A surfacing machine including a carriage, a motor and propelling mechanism, a vertically guided slidable and turnable shaft, a flexible elastic and adjustable frame, abrading surfaces carried by said frame, connections between the frame and the shaft, and means for raising and lowering the shaft and its attachments.

6. A surfacing machine including a carriage, a motor and propelling mechanism, a vertically guided slidable and turnable shaft, a frame, abrading surfaces carried by said frame, means for connecting the frame and surfaces with the vertically movable shaft, and elastic connections between the frame and the shaft.

7. In a surfacing machine, a vertically guided, movable and turnable shaft, and means for raising and depressing the same, a frame composed of sections flexibly connected, and united to the lower end of the vertical shaft, diagonally disposed yielding connections having the upper ends connected with the shaft, and the lower divergent ends connected with the flexible frame.

8. The combination in a surfacing machine, of a movable carriage, a vertically guided movable and turnable shaft supported in front of said carriage, a transverse yoke or hanger at the bottom of the shaft, a flexible frame, abrading mechanism carried by said frame, a connection between the center of the flexible frame and the yoke or hanger of the shaft, and elastic connections between the outer portions of the frame and a central portion of the shaft.

9. The combination in a surfacing machine, of a movable carriage, a vertically guided and turnable shaft supported in front of the carriage, and means for raising and lowering said shaft, a socket-piece with a yoke or hanger carried at the lower end of the shaft, a two-part centrally pivoted frame, abrading devices carried by said frame upon each side of the pivot point, a connection between the central portion of the frame and the yoke of the vertical shaft, and diagonal yielding connections between the outer ends of the frame and the central portion of the shaft.

10. The combination in a surfacing machine, of a movable carriage, a vertically guided and turnable shaft supported in front of the carriage, and means for raising and lowering said shaft, a socket-piece with a yoke or hanger carried at the lower end of the shaft, a two-part centrally pivoted frame, abrading devices carried by said frame upon each side of the pivot point, a connection between the central portion of the frame and the yoke of the vertical shaft, diagonal yielding connections between the outer ends of the frame and the central portion of the shaft, and means for regulating the length and tension of said connections.

11. A surfacing and polishing machine, including a movable carriage, motor and transmitting devices, a vertically guided slidable shaft, a flexible and elastic frame carried by said shaft, abrading devices car-

ried upon the ends of the flexible frame, means for raising and lowering the shaft and its attachments to carry the abrading surfaces into or out of action, and brushes so located as to cleanse the abrading surfaces of adherent material.

12. A surfacing and polishing machine, including a movable carriage, motor and transmitting devices, a vertically guided slidable shaft, a flexible and elastic frame carried by said shaft, abrading devices carried upon the ends of the flexible frame, means for raising and lowering the shaft and its attachments to carry the abrading surfaces into or out of action, brushes so located as to cleanse the abrading surfaces of adherent material, and a vacuum dust collector having its mouth located between the abrading and polishing devices, and with its mouth contiguous to the surface to be polished.

13. A surfacing and polishing device including a carriage, a motor, mechanism for transmitting power therefrom to move the carriage, a vertically guided and movable shaft located in front of the carriage, means for raising and depressing said shaft, an abrading member and means detachably connecting the same to said vertical shaft, and means for transmitting power from the motor to rotate said devices.

14. A surfacing machine, including a carriage, a motor and propelling mechanism, a flexible elastic frame, abrading surfaces carried by said frame, and means for detachably securing said flexible frame to the carriage.

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

PETER SASS.

Witnesses:

FREDERICK E. MAYNARD,
CHARLES EDELMAN.