

D. F. ENSIGN & M. HAZARD.

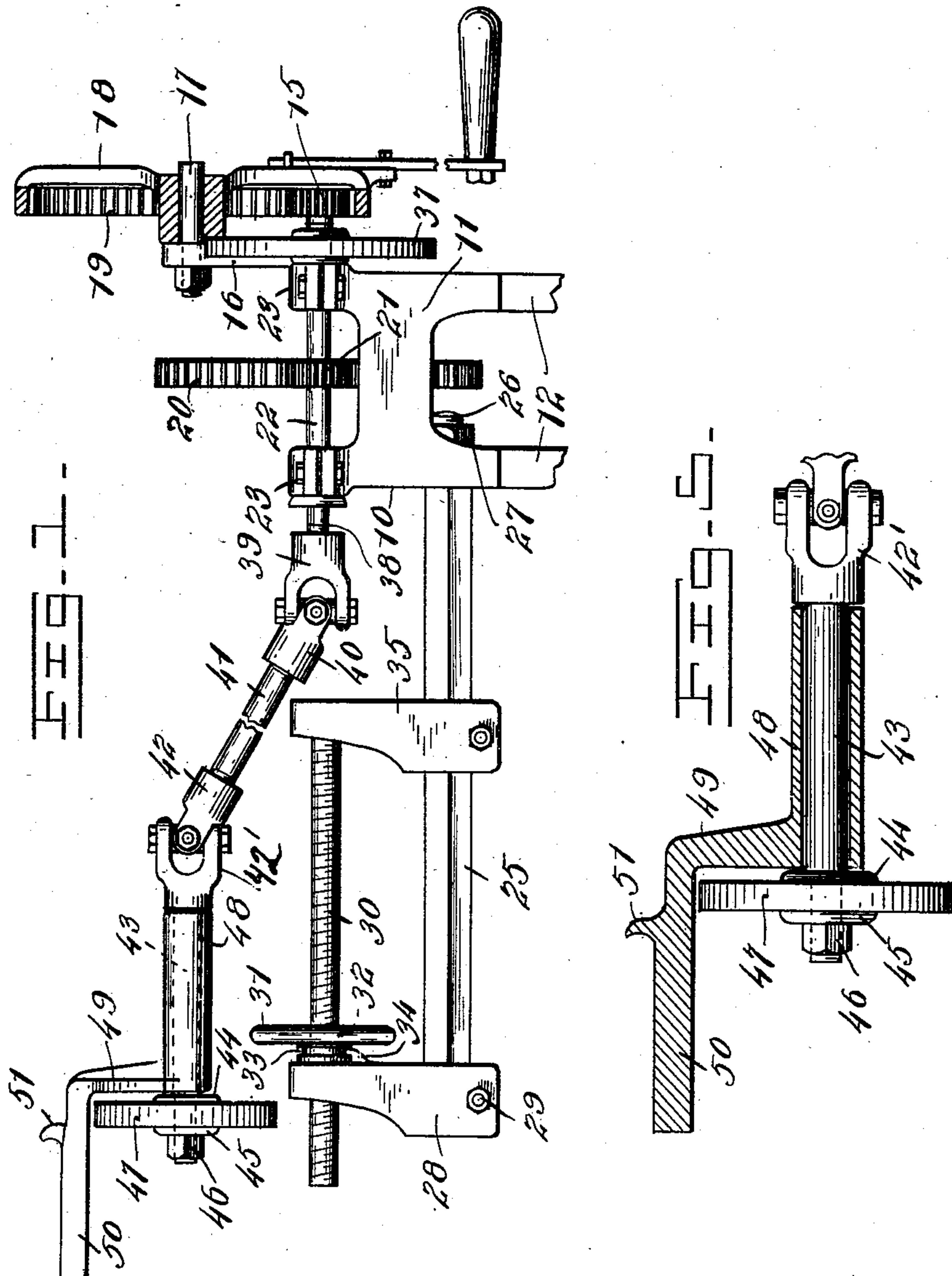
CALK GRINDER.

APPLICATION FILED SEPT. 13, 1906.

899,721.

Patented Sept. 29, 1908.

3 SHEETS—SHEET 1.



Witnesses
L. Armstrong
James W. Lunn

Inventors
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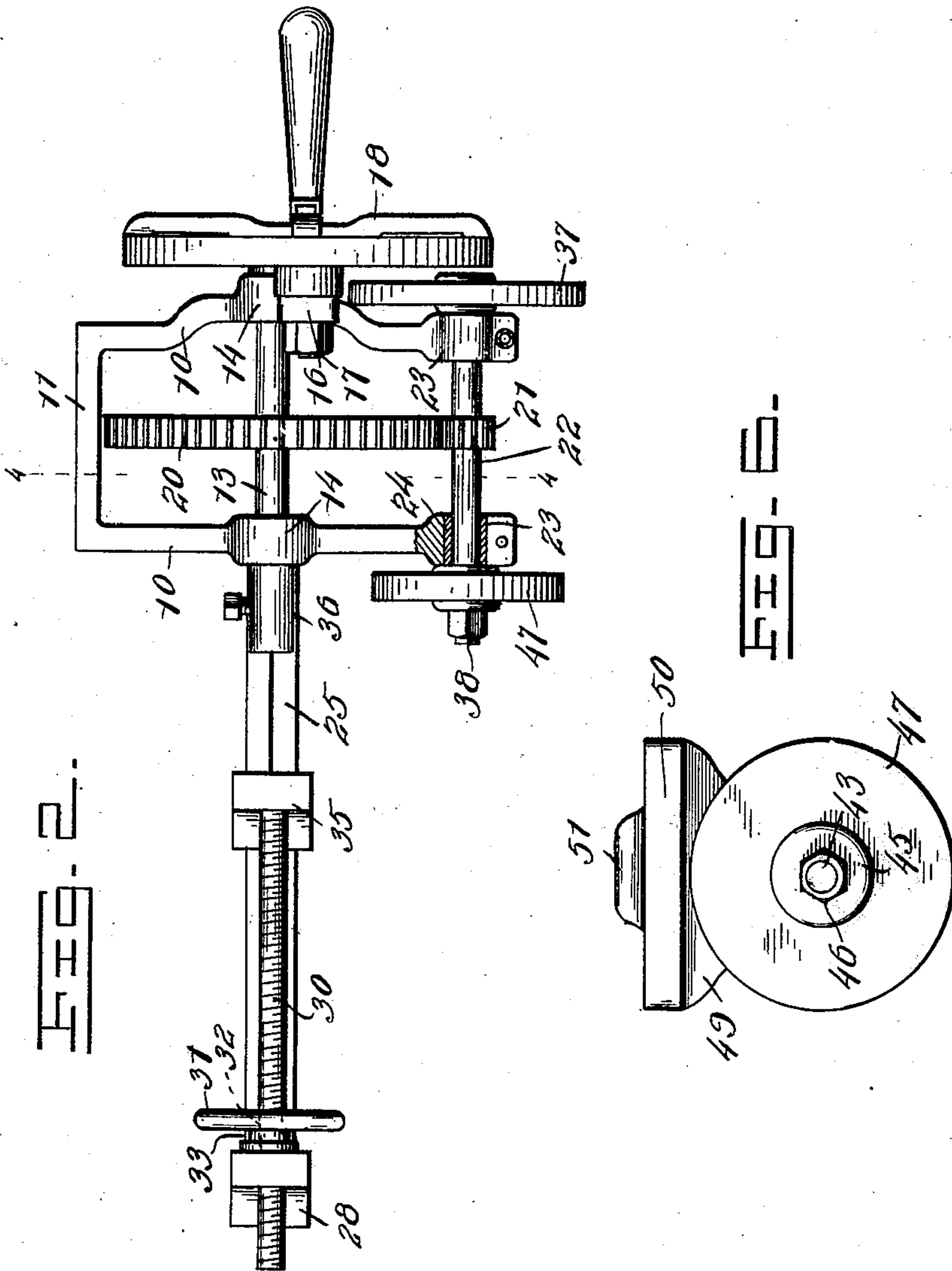
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3 SHEETS—SHEET 3.

Fig. 4

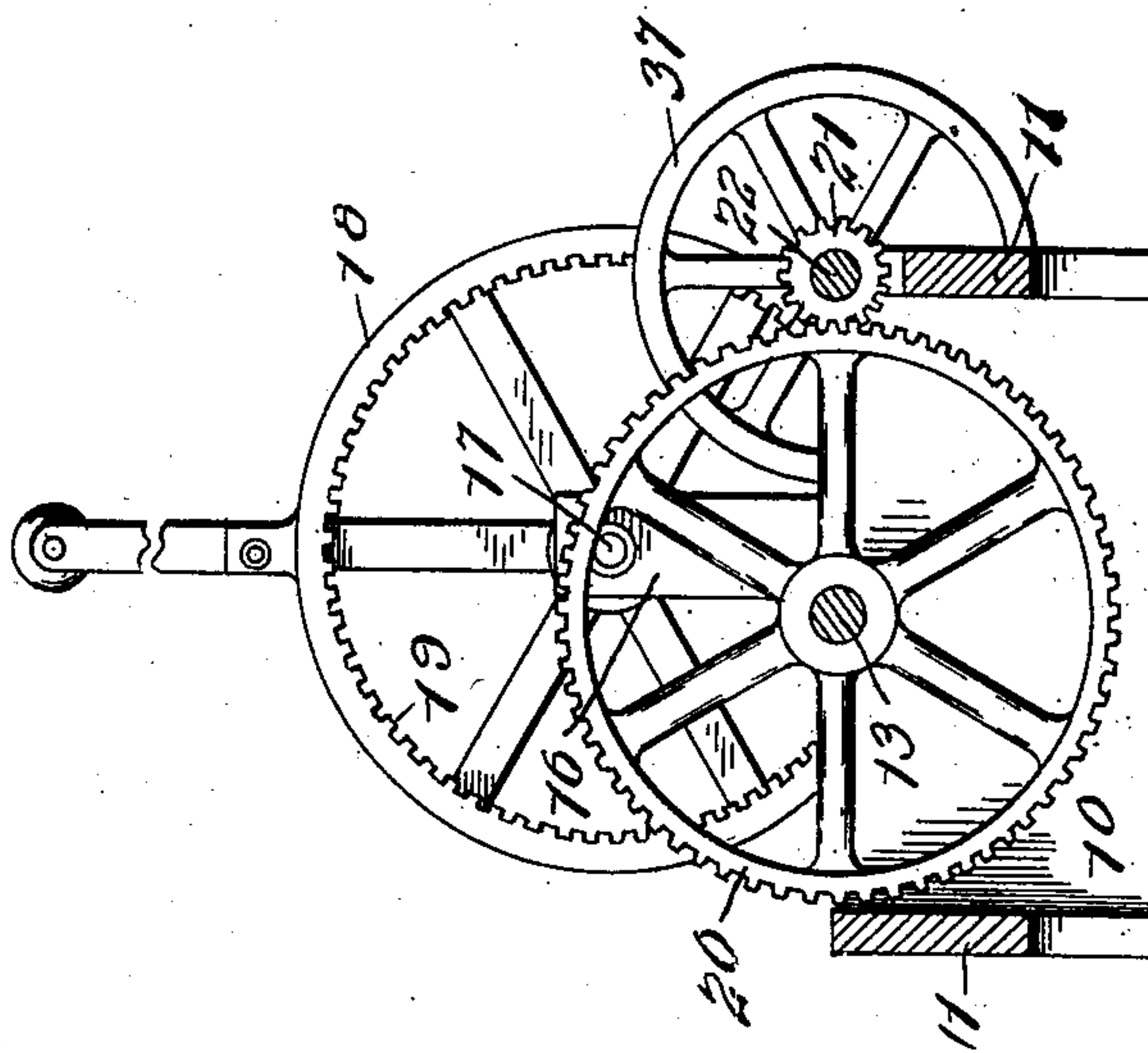
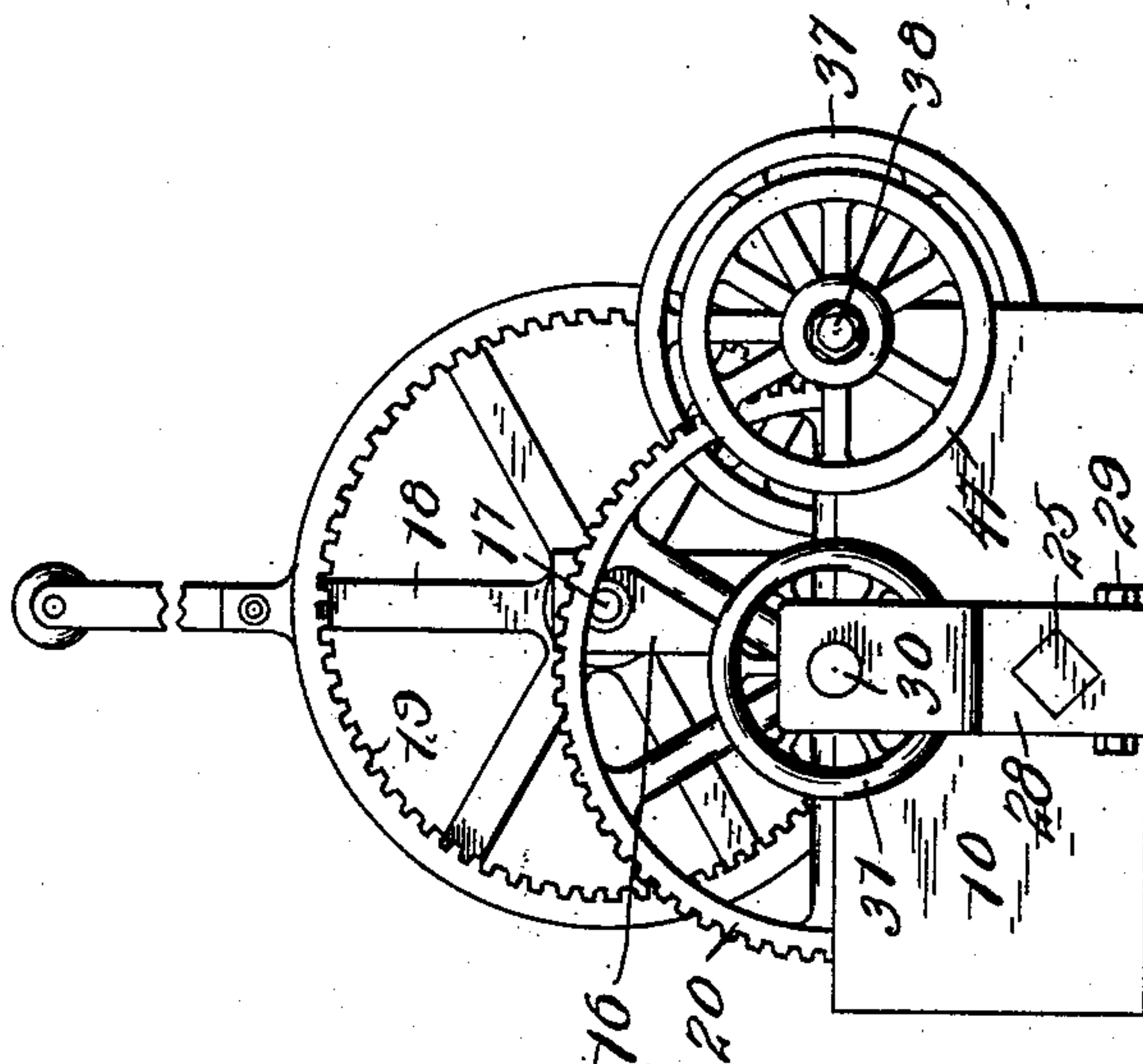


Fig. 5



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UNITED STATES PATENT OFFICE.

D FLOYD ENSIGN AND MERTON HAZARD, OF WILLET, NEW YORK, ASSIGNORS OF ONE-THIRD
TO JOHN FORSHEE, OF WILLET, NEW YORK.

CALK-GRINDER.

No. 899,721.

Specification of Letters Patent.

Patented Sept. 29, 1908.

Application filed September 13, 1906. Serial No. 334,514.

To all whom it may concern:

Be it known that we, D FLOYD ENSIGN and MERTON HAZARD, citizens of the United States, residing at Willet, in the county of Cortland, State of New York, have invented certain new and useful Improvements in Calk-Grinders; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to calk grinders and has for its object to provide a mechanism of this character which will grind the calks of a horseshoe while the shoe remains upon the horse's hoof, and, while the machine is designed chiefly for this purpose, it will readily be understood that the same may be utilized for grinding or polishing other articles when so desired.

The mechanism embodied in our application also includes a drill operating device and means whereby the shaft which supports the grinding element, may be detached from the shaft from which it is driven and the grinding element located directly upon the last named shaft, this being done when it is desired to grind tools or the like.

More particularly the device embodied in the present invention includes a driven shaft and a tumbling shaft which is detachably connected with the said driven shaft and carries a detachable grinding wheel.

In the accompanying drawings, Figure 1 is a side elevation of the invention, Fig. 2 is a top plan view thereof, Fig. 3 is an end elevation, Fig. 4 is a detail vertical transverse sectional view on the line 4—4 of Fig. 2, Fig. 5 is a detail longitudinal sectional view through the hanger for the emery wheel and the corresponding end of the shaft, and, Fig. 6 is an end view of a hanger for the grinding wheel and its shaft.

The mechanism comprises a frame including sides 10 and ends 11. The frame is preferably supported by means of standards 12 which are of angle iron construction and are secured at their upper ends one at each corner of the frame.

A chuck shaft 13 is journaled in bearings 14 formed in the sides 10 of the frame and is provided at one of its ends and outwardly of the frame with a pinion 15. The side of the frame at which the pinion 15 is located is provided with an upwardly extending bracket

16 at the upper end of which is mounted a stub shaft 17 upon which a crank wheel 18 is journaled and said wheel has its rim in the formation of an internal gear 19 which is in mesh with the pinion 15 upon the shaft 13. Mounted upon the said shaft 13 and within the frame is a gear wheel 20 which meshes with a pinion 21 upon a fly-wheel shaft 22 which latter is journaled for rotation at one end of the frame and in suitable bearing boxes 23, the said shaft being preferably located in a common vertical plane with the corresponding end 11 of the frame. From a consideration of the above method of gearing it will be obvious that the shaft 22 is a high speed shaft and in order to prevent wear of the bearing upon which it is mounted, bearing sleeves 24 of Babbitt metal are engaged in said bearing and upon the shaft, although any other suitable bearing may be used.

A bar 25 which is rectangular in cross section is provided at one end with a reduced screw threaded end 26 which is engaged through an opening in the side of the frame opposite that upon which the stub shaft 17 is located and a nut 27 is engaged upon the said threaded stem to hold the same securely in this position. The bar 25 carries at its opposite end a block 28 which is secured by means of a suitable bolt fastening 29. The block 28 in its upper end is formed with a bore through which is engaged a threaded feed shaft 30. A hand wheel 31 is engaged upon the shaft 30, to feed the same, such engagement being effected by means of a threaded bore 32 in said hand wheel and which surrounds said shaft. The wheel 31 has its hub formed with a groove 33 in which is engaged a lug 34 carried by the block 28, the function of the lug 34 being to hold the wheel 31 against said block and from axial movement, but without interfering with its rotation. A second block 35 is slidably mounted upon the bar 25, and serves as a work holder, it being understood that the block 35 has connection with the adjacent end of the shaft 30. The work held against the block 35 is acted on by a drill or other tool (not shown) which is carried by a chuck 36, the latter being removably engaged upon the shaft 13.

The shaft 22 is provided at one of its ends and outwardly of the frame with a fly wheel 37 and has its opposite end screw threaded as at 38 for the connection therewith of one

member 39 of a universal joint, the other member 40 of the joint being provided with a threaded bore for the reception of one end of a shaft 41 which shaft is threaded at its opposite end for engagement in a similar bore formed in one member 42 of a second universal joint the other member 42' of which is provided with a threaded bore for the reception of one end of a shaft 43. The outer end of the said shaft 43 is provided with a collar 44 and engaged upon the said shaft is a washer 45 and a nut 46 which latter serves to secure an emery or abrading wheel 47 between the said collar 44 and the washer 45. A hanger for the said shaft 43 comprises a sleeve portion 48 through which the shaft extends, and which is located between the collar 44 and the member 42' of the universal joint which is connected to the said shaft, and a portion 49 which extends upwardly and perpendicularly from the said sleeve portion 48 to a point slightly above the top of the emery wheel 47 and is thence turned horizontally and forwardly above the said wheel as at 50 to afford a handle designed to be gripped by the other hand of the operator and is provided with a thumb rest 51, it being understood that the sleeve portion 48 serves as a handle by means of which the emery wheel 47 may be held against the work or other article being ground or sharpened, and that the portion 49 is formed of sufficient size to constitute a guard for the hand of the operator upon the sleeve 48. The guard 50, it will be noted by reference to Fig. 6, is about equal in width to the diameter of the emery wheel 47 and thus projects over the whole upper surface of the wheel, and not only amply protects the person of the operator but enables him to employ the guard 50 to shield his eyes and face from the sparks flying from the wheel, and also to materially assist in holding the wheel in po-

sition relative to the work, as the inner flat surface of the guard 50 provides an ample rest against which the work is held while being acted upon by the side face of the abrading wheel.

In case it is desired to sharpen articles at the machine, the flexible shaft may be disengaged from the shaft 22 and the emery wheel 47 engaged upon the last named shaft and held thereon by means of a nut which is engaged upon the threaded portion 38 thereof.

It is to be understood that we do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

What is claimed is,

In a device of the class described, a shaft, means applied to one end of said shaft for operating the same, an emery wheel connected to said shaft at the other end and partaking of its motion, a sleeve mounted upon said shaft between the emery wheel and the operating means, a projection extending from said shaft adjacent to the emery wheel and in parallel relations to the adjacent side face of the same, and a guard extending from said projection and at right angles thereto, and of a width substantially equal to the diameter of the emery wheel and projecting beyond the outer side face thereof, the sleeve serving as a grip for the hand of the operator, and the guard acting as a support for the work and also to assist the hand of the operator while actuating the device.

In testimony whereof, we affix our signatures, in presence of two witnesses.

D FLOYD ENSIGN.
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Witnesses:

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