A. A. WOOD.

GRINDING MACHINE.

APPLICATION FILED NOV. 15, 1909.

982,166.

Patented Jan. 17, 1911.

3 SHEETS—SHEET 1.

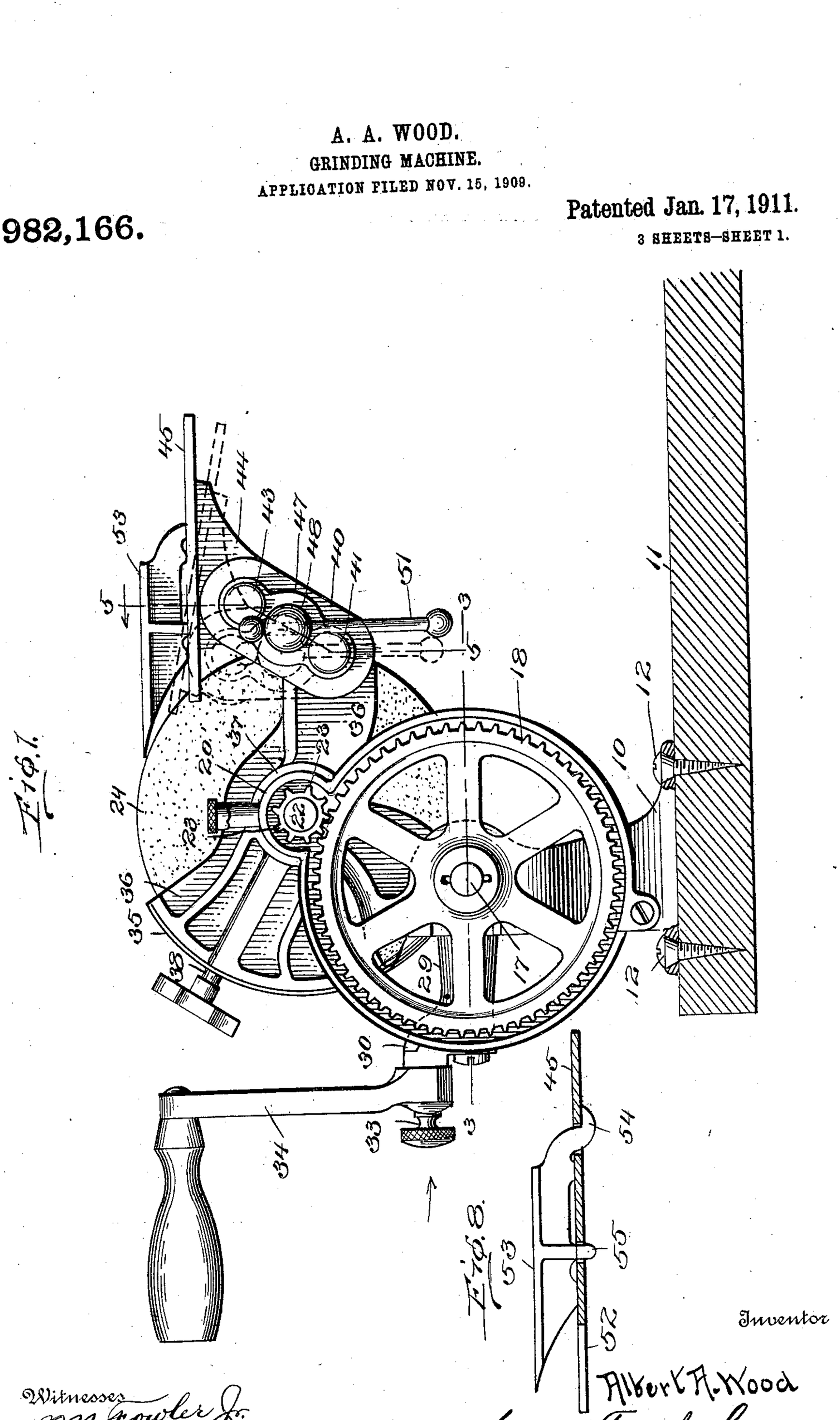


Fig. 7.

Fig. 8.

Witnesses
J. M. Fowler Jr.
H. Strauss

Inventor
Albert A. Wood
By Mason Fenwick & Lawrence,
Attorneys

A. A. WOOD.

GRINDING MACHINE.

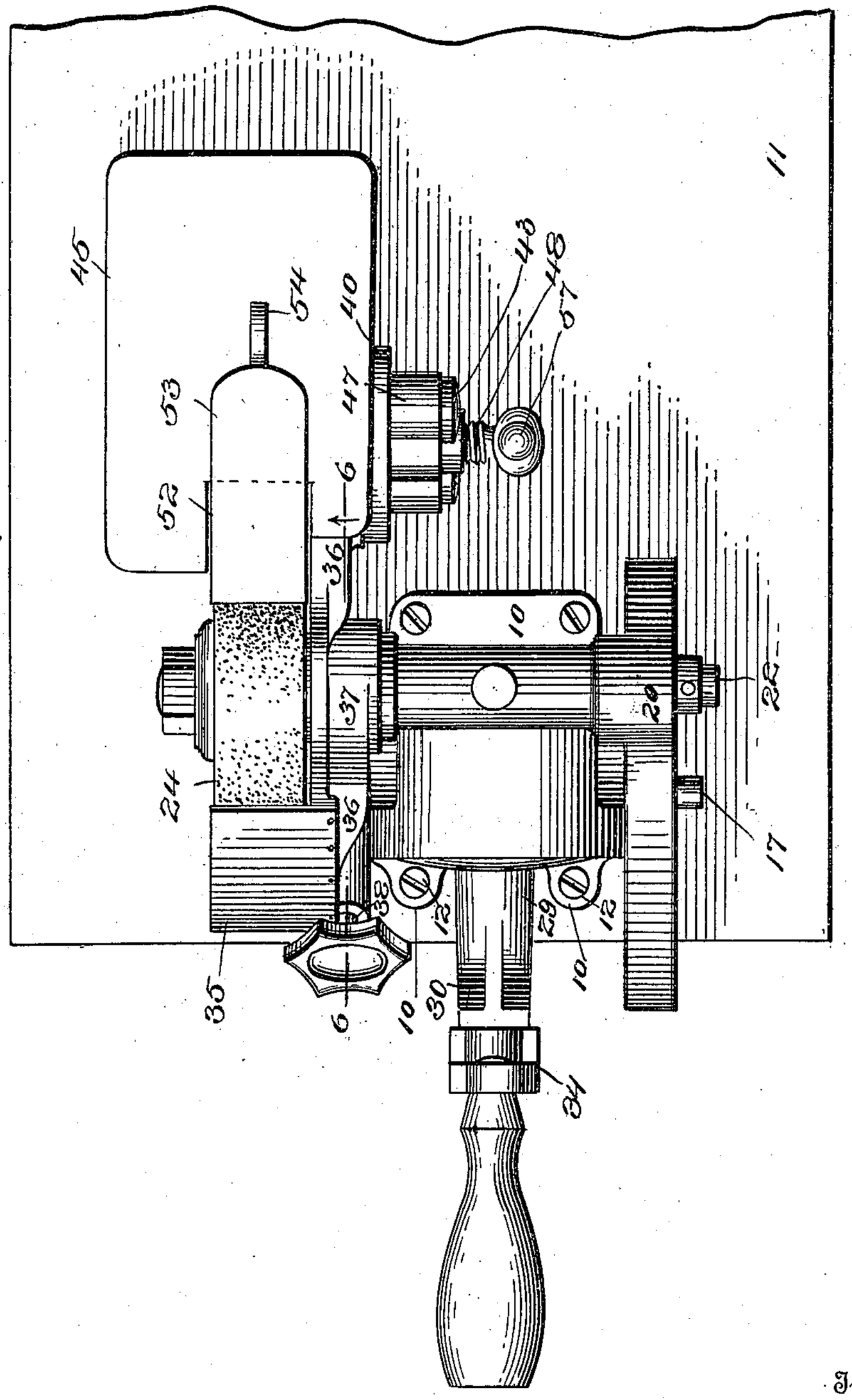
APPLICATION FILED NOV. 15, 1909.

982,166.

Patented Jan. 17, 1911.

3 SHEETS—SHEET 2.

Fig. 2.



Witnesses
J. M. Fowler Jr
H. Strauss

Inventor
Albert A. Wood,
By Mason Fenwick & Lawrence,
Attorneys

A. A. WOOD.

GRINDING MACHINE.

APPLICATION FILED NOV. 15, 1909.

982,166. Patented Jan. 17, 1911.

3 SHEETS—SHEET 3.

Fig. 4

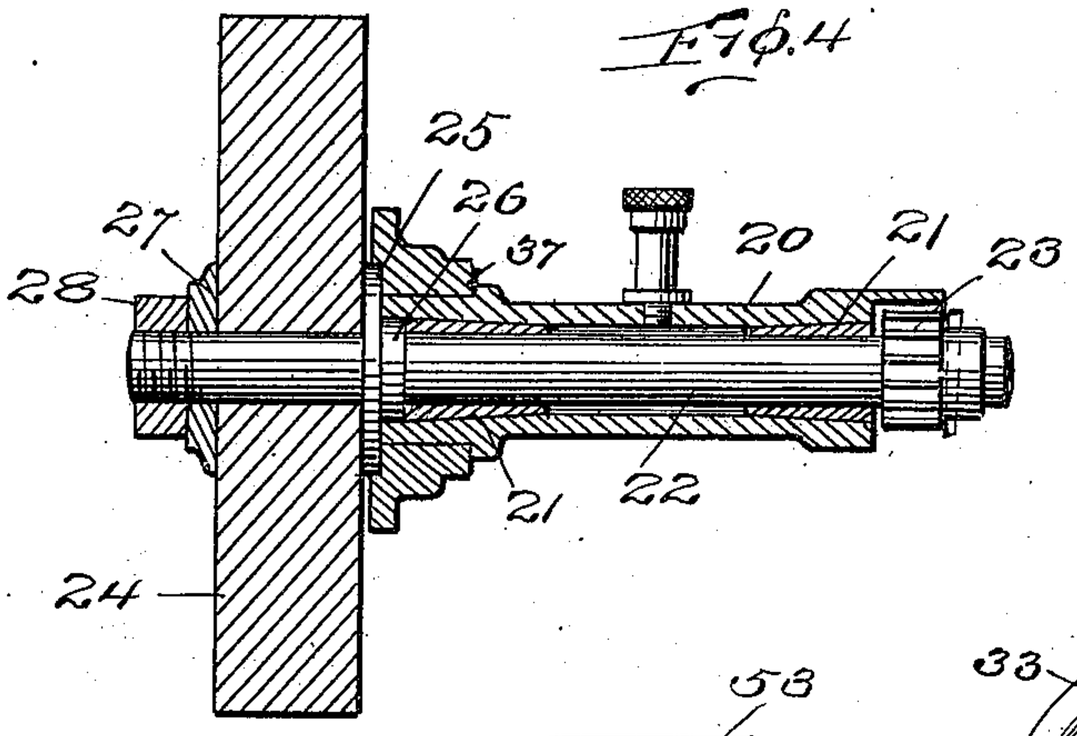


Fig. 7.

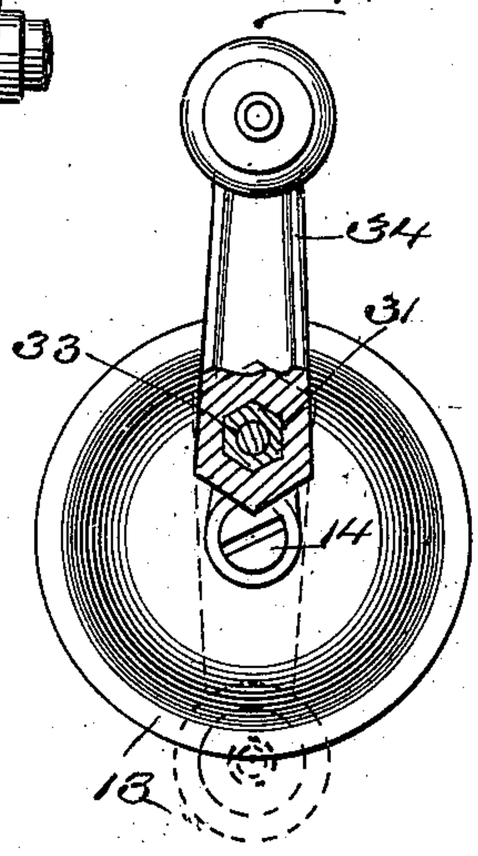


Fig. 5.

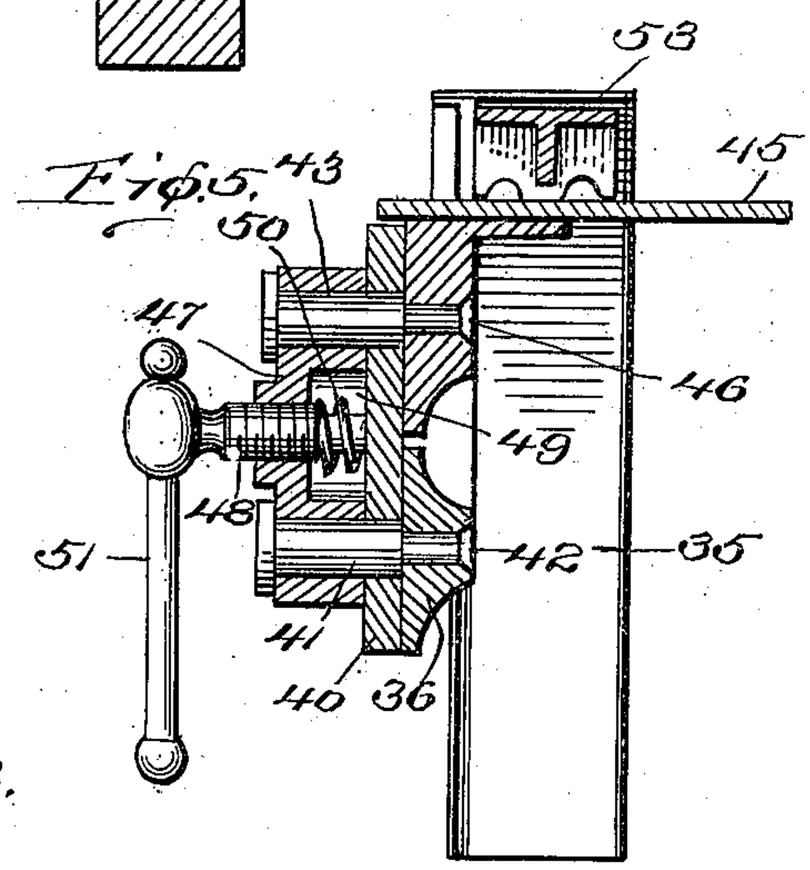


Fig. 3.

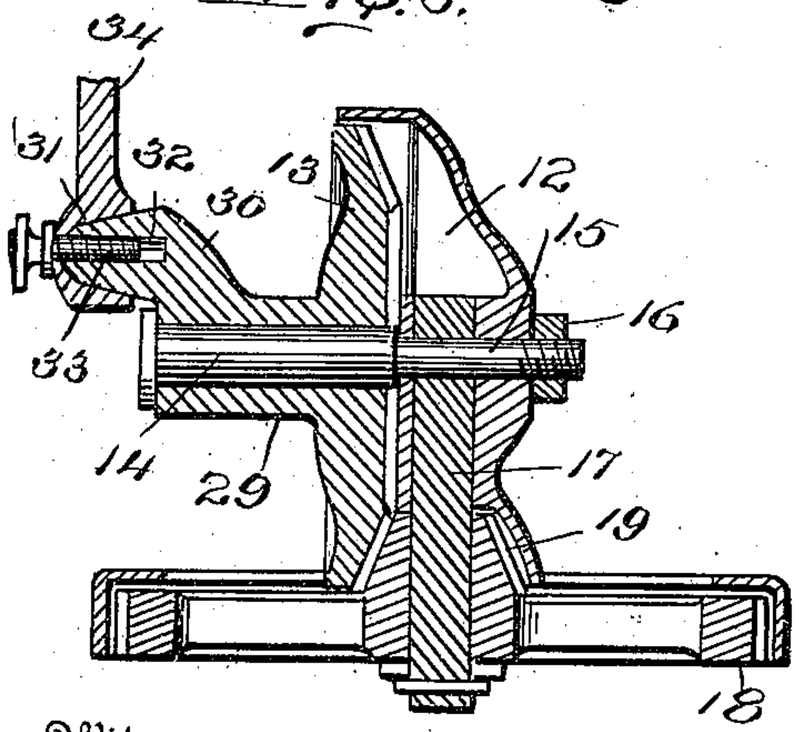
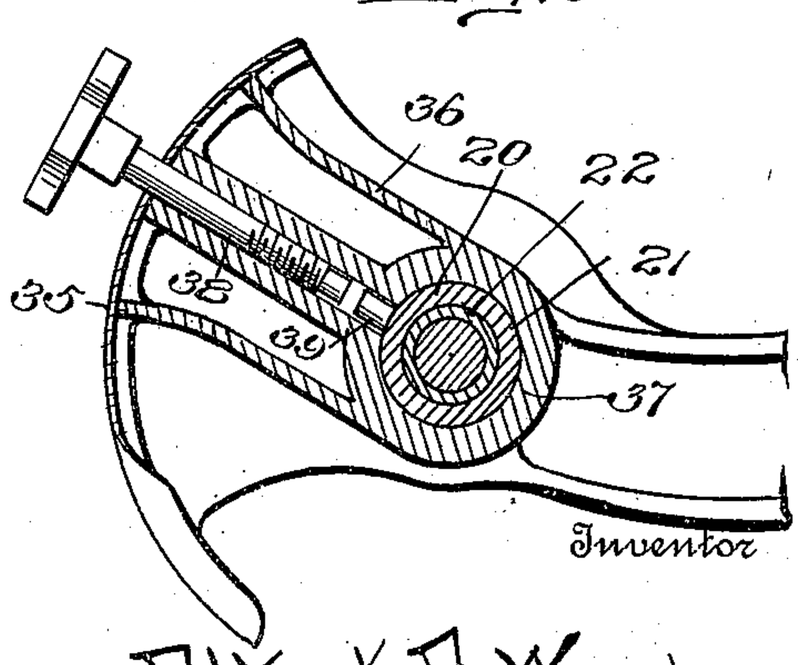


Fig. 6



Witnesses

J. M. Fowler Jr

H. Strauss

Inventor

Albert A. Wood,

By Mason Fenwick & Lawrence,

Attorneys

UNITED STATES PATENT OFFICE.

ALBERT A. WOOD, OF ATLANTA, GEORGIA.

GRINDING-MACHINE.

982,166. Specification of Letters Patent. Patented Jan. 17, 1911.

Application filed November 15, 1909. Serial No. 528,245.

To all whom it may concern:

Be it known that I, ALBERT A. WOOD, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented certain new and useful Improvements in Grinding-Machines; and I 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 grinding machines, and has for an object to provide a machine of the class embodying new and improved adjustments for the tool supporting rest.

A further object of the invention is to provide improved gearing for transmitting power from the crank to the rotating shaft carrying the grinding disk.

With these and other objects in view, the invention comprises certain novel constructions, combinations and arrangements of parts, as will be hereinafter fully described and claimed.

In the drawings:—Figure 1 is a view of the improved machine in side elevation. Fig. 2 is a top plan view of the machine. Fig. 3 is a horizontal, sectional view taken on line 3—3 of Fig. 1. Fig. 4 is a sectional view through the bearing for the shaft carrying the grinding disk. Fig. 5 is a sectional view through the adjusting mechanism taken on line 5—5 of Fig. 1. Fig. 6 is a sectional view of the shield and shield adjusting means taken on line 6—6 of Fig. 2 with the grinding disk removed. Fig. 7 is a view in elevation of the crank with portions broken away to show the adjusting means. Fig. 8 is a sectional view through the tool supporting table showing the auxiliary tool support and means for removing from the main tool support.

Like characters of reference designate corresponding parts throughout the several views.

The mechanism here illustrated is formed with a base 10 adapted to be secured to any bench or the like indicated at 11 by the employment of screws 11′ or by a clamp or any ordinary means.

Above the base a dish like portion is provided, providing a cavity 12 within which a beveled gear 13 is mounted to rotate upon a bearing pin 14 which said bearing pin is provided with a reduced portion 15 extending through the back of the frame portion and provided with a nut 16 for securing the pin rigidly in position.

At a right angle to the pin 14 a bearing pin 17 is set in the frame and is secured by the reduced portion 15 of the pin 14 extending through such pin 17. Upon the pin 17 a spur gear 18 is mounted to rotate provided with an integral or rigidly connected bevel pinion 19 intergeared with and receiving motion from the bevel gear 13.

At the top of the frame-work a sleeve 20 is provided having bushings 21 inserted in the ends of such sleeve and forming bearings for a shaft 22 which is provided with a spur pinion 23 rigidly connected therewith intergeared with and receiving motion from the spur gear 18. The shaft 22 carries upon its end opposite the spur pinion 23 an abrading disk 24 held in position between a collar 26 flanged at 25 and rigidly secured upon the shaft 22 and a washer 27, the disk being clamped between such washers by a nut 28 upon the end of the shaft 22.

To provide power for rotating the several gears and the abrading disk 24 the bevel gear 13 is provided with a sleeve 29 journaled to rotate with the said gear upon the bearing pin 14 and provided with an offset 30 disposed at one side of the axis. The offset 30 has at its extremity a pyramidal portion 31 multiangular in cross section preferably hexagonal as indicated at Fig. 7. It is also provided with a screw-threaded hole 32 in which a screw 33 engages and a crank arm 34 is provided with a socket corresponding to the pyramid 31 so that when engaged upon said pyramid as shown at Figs. 3 and 7 and the screw 33 tightened the crank becomes rigid with the offset 30. As shown in full lines at Fig. 7 the working leverage on the crank is the entire length of such crank plus the length of the offset 30. To shorten the crank the screw 33 is loosened and the crank turned to dotted position in Fig. 7 whereby the crank leverage is the length of the crank minus the length of the offset 30. It will be apparent

that between these two extreme points a leverage adjustment can be secured by setting the crank at other angles.

To protect the eyes of the user from sparks a shield 35 is provided conforming to the general outline of the abrading disk 24 and mounted upon a frame 36 which has a hub 37 embracing one end of the sleeve 20 and means to secure the frame 36 rigidly upon such hub is provided in the screw 38 adapted to engage upon a plunger 39 which is forced against the end of the sleeve 20 to prevent rotary movement of the frame 36 but to permit the adjustment of the frame and shield and also the tool rest 45, also carried by said frame 36, by loosening the screw 38. At its opposite end the frame 36 carries a link 40 pivoted thereto upon a pivot pin 41 which is made rigid with the frame 36 as by upsetting the end as indicated at 42. At its other end the link 40 is also pivoted upon a pin 43 which said pin is rigidly connected with a bracket 44 carrying the tool support 45. The pin 43 is made rigid with the bracket 44 the same as the pin 41 by upsetting the end as at 46. Mounted also upon the pins 41 and 43 is a yoke 47 having a screw 48 inserted through such yoke and bearing upon the link 40. The yoke 47 is provided with a cavity 49 with a spring 50 mounted therein surrounding the extremity of the screw 48 so that there is constant tension between the yoke 47 and the link 40 which is increased to a binding force by manipulating the screw 48 by the lever 51.

It will be apparent that with the screw 48 loosened the tool support 45 may be adjusted to various angles by moving the link 40 upon its pivot 41 and by moving the bracket 44 upon the pin 43, the spring 50 acting to impede both these movements.

The tool support 45 is provided with a recess 52 to receive the edge of the abrading disk 24 and thereon may be mounted an auxiliary support 53 for supporting chisels, knives or other articles, which is removably secured upon the main tool support 45 by being hooked thereon by the hook 54 and held in position upon stud 55 both of which are inserted through properly spaced openings in the tool support 45. This auxiliary support 52 should not be wider than the face of the abrading wheel in order that its edge will not prevent grinding close to an enlarged portion or shoulder of the tool being ground.

In grinding the tool to be ground is rested upon the tool rest 45 or, if the nature of the article is such as to make it desirable, the auxiliary tool rest 53, and the crank 34 being rotated by the operator rotates the abrading disk 24 whereupon the tool can be moved into engagement with the abrading disk and the proper bevel always maintained by being supported on the tool rest.

What I claim is:—

1. In a grinding mechanism, a frame, a tool rest, means pivoting the tool rest to the frame upon two pivotal centers and a single locking means adapted to lock both pivots.

2. In a grinding machine, a shaft mounted to rotate, a grinding disk carried by the shaft, means to rotate the shaft and disk, a frame adjustable with the axis of the shaft as its center, a link carried by the frame, a tool rest carried by the link, means to secure the tool rest against movement relative to the link.

3. In a grinding machine, a journaled shaft, a grinding disk carried by the shaft, means to rotate the shaft and disk, a frame mounted adjacent its center to move angularly about the shaft, a shield carried at one end of the frame, a link carried at the opposite end of the frame and pivoted thereto, a bracket pivoted to the opposite end of the link, a tool rest carried by the bracket, and means to secure the tool rest against movement relative to the frame.

4. In a grinding machine, a sleeve, a shaft journaled to rotate in the sleeve, a grinding disk carried by the shaft, means to rotate the shaft and disk, a frame mounted upon the sleeve and capable of rotary movement thereon, means carried by the frame to lock the frame against movement relative to the sleeve, a disk carried by the frame adjacent the disk, a tool rest carried by the frame opposite the shield, means permitting the adjustment of the tool rest relative to the frame, and means to secure the tool rest at an obtained adjustment.

5. In a device of the class described, a frame piece, a link pivoted at one end to the frame piece, a bracket pivoted to the opposite end of the link, and means to lock the parts against movement upon their pivots.

6. In a device of the class described, a frame piece, a link pivoted at one end upon the frame piece, a bracket pivoted at the opposite end of the link, a yoke carried by the link, and means carried by the yoke for exerting tension upon the link against its pivot to lock the link against movement upon the said pivots.

7. In a device of the class described, a frame piece, a link pivoted at one end upon the frame piece, a bracket pivoted to the opposite end of the link, a yoke carried by the link and also pivoted upon the frame, means exerting yielding tension between the yoke and the link, and means to exert greater tension between the yoke and link to lock the link against movement relative to its pivots.

8. In a device of the class described, a supporting member, links pivoted upon the

supporting member, a tool rest pivoted upon the links at the ends opposite their pivoting to the support, a screw adapted to exert positive pressure upon the links to lock the same, and a spring adapted to exert similar pressure in a lesser degree.

9. In a device of the class described, a supporting member, links pivoted upon the supporting member, a member pivoted upon the links at the ends opposite the pivoting to the support, a spring positioned to exert tension to prevent movement of either of the pivots of the links, and a screw adapted to exert similar but increased pressure to lock the link in secured position.

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

ALBERT A. WOOD.

Witnesses:
JULIA E. ROCKEY,
A. P. WOOD.