

Feb. 27, 1940.

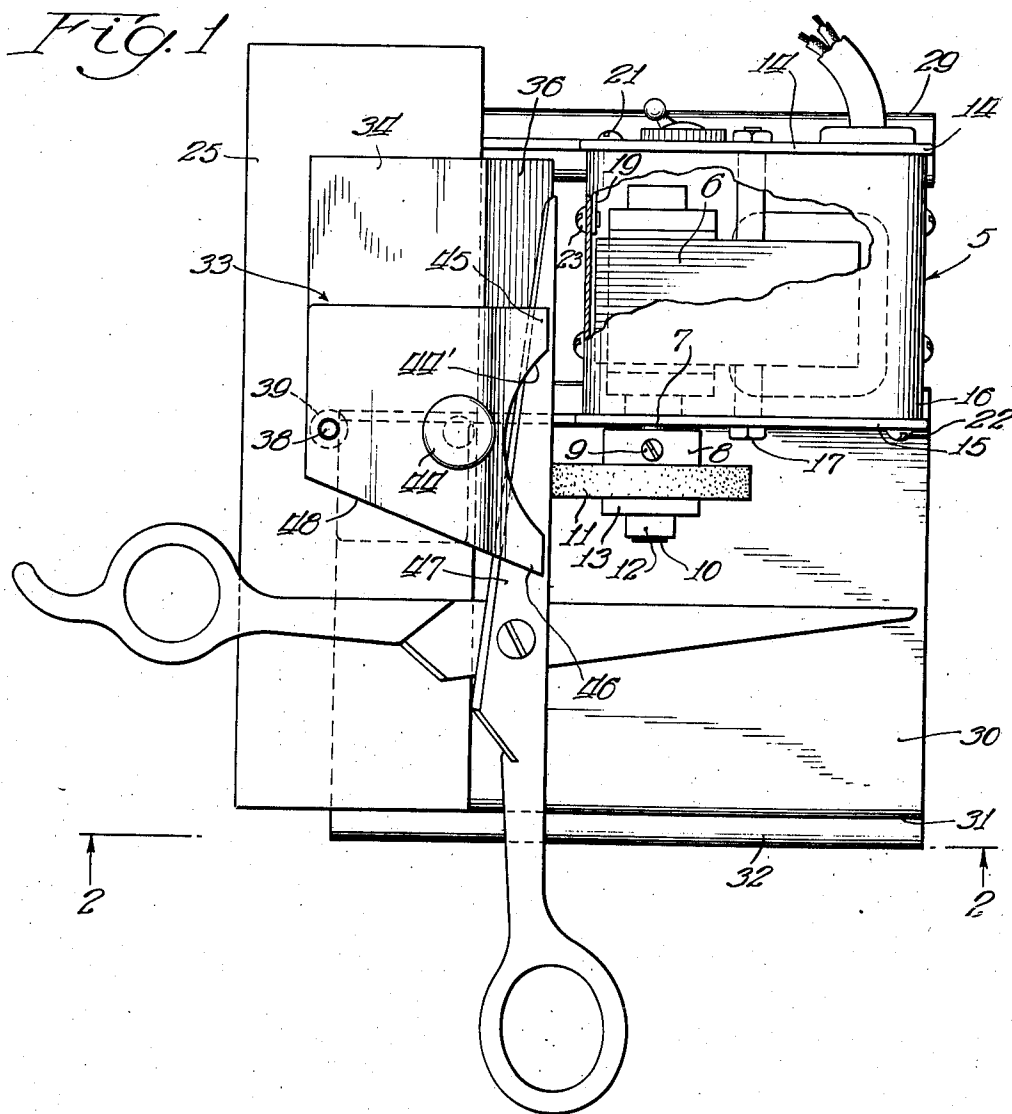
L. J. WAHL

2,191,600

GRINDER

Filed Aug. 25, 1937

2 Sheets-Sheet 1



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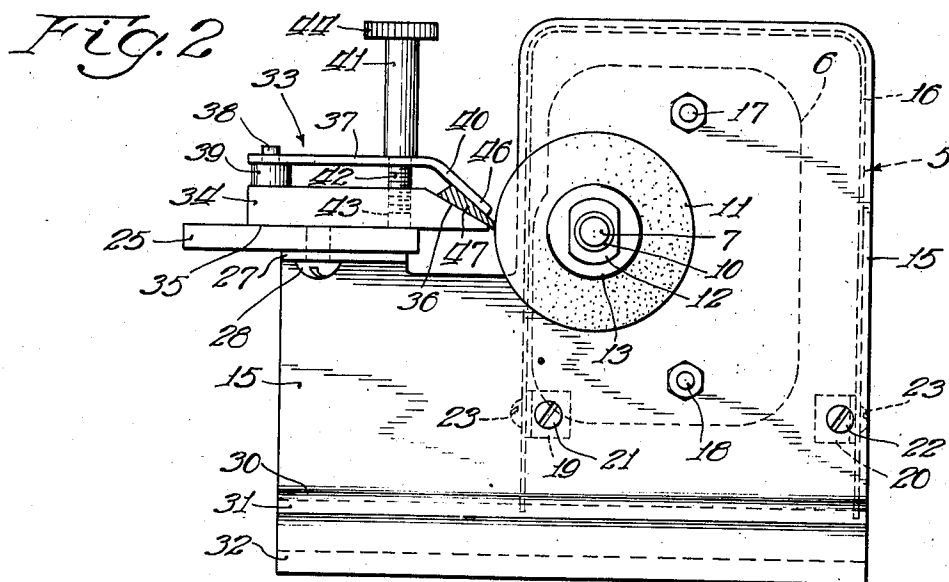
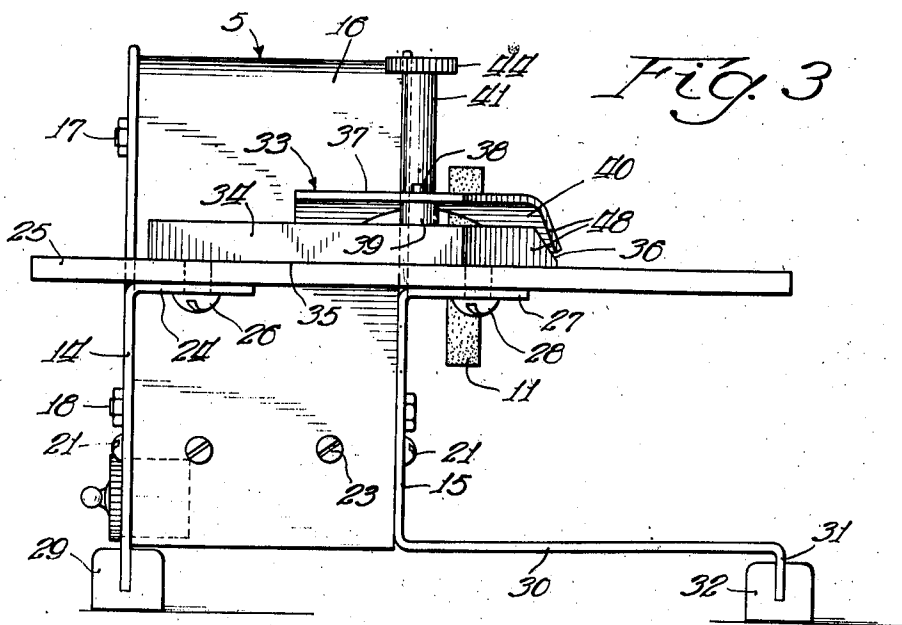
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UNITED STATES PATENT OFFICE

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GRINDER

Leo J. Wahl, Sterling, Ill.

Application August 25, 1937, Serial No. 160,869

3 Claims. (Cl. 51—92)

This invention relates to grinders and is particularly directed to the provision of a grinder adapted for sharpening the blades of shears, scissors, and the like.

One purpose of the invention is to provide a grinding apparatus which has means for clamping a shear blade at an angle with respect to the grinding wheel which is non-adjustable so that, each time the shear is sharpened, exactly the same angle will be used and no stock on the shear blade wasted.

This grinding machine is intended for use in barber shops and similar places where it is necessary to sharpen a relatively small number of shears at intervals, the construction of the grinding machine being such as to avoid any complicated control mechanisms.

The present invention contemplates the provision of a grinding apparatus in which the grinding is all done by moving the shear blade in a plane which is parallel to or substantially coincides with the axis of the grinding wheel. In other words, it is the function of the grinding apparatus to present the work to the wheel so that the angle of the grinder is not changed as the wheel becomes smaller from wear.

The present invention also contemplates the provision of a grinding apparatus having means for clamping and guiding the blade of a shear without the necessity of taking the shear apart.

The features and the advantages of the invention will appear more fully as the description proceeds reference being had to the accompanying drawings wherein a preferred form of the invention is shown. It is to be understood, however, that the drawings and description are illustrative only and are not to be taken as limiting the invention except in so far as it is limited by the claims.

In the drawings:

Fig. 1 is a plan view of a grinder embodying the invention;

Fig. 2 is an end view with the platform and the shear blade cut off to better illustrate the angular position of the shear blade being sharpened;

Fig. 3 is a front view of the grinder.

Referring now in detail to the drawings, the present invention is embodied in a grinder of the type wherein a power driven grinding wheel is used to grind the edges of shear blades. The grinder comprises a casing 5 which houses a motor 6. The motor 6 has a drive shaft 7 projecting through a wall of the casing. This shaft 7 has a hub 8 fixed thereon by means of a set screw 9. The hub 8 has a threaded sleeve portion 10 on

which a grinding wheel 11 is mounted, the grinding wheel being clamped in position by a nut 12 which has an annular flange 13 for pressing against the side of the grinding wheel.

The casing 5 is made up of three sheet metal members 14, 15, and 16. The members 14 and 15 have vertical portions, engaging the member 16, held together by a plurality of tie rods 17 and 18. The member 16 is substantially U-shaped, as shown, and is further connected to the members 14 and 15 by a pair of cross bars 19 and 20 which are secured to the members 14, 15, and 16 by suitable screws such as shown at 21, 22, and 23, the screws 23 being threaded into the bars 19 and 20 through the member 16, and the screws 21 and 22 being threaded into the ends of the bars through the members 14 and 15.

The member 14 projects forwardly and has a turned over flange 24 which supports one end of a platform 25. The platform 25 is secured by a screw 26 to the flange 24. The member 15 also projects forward and has a flange 27 supporting the platform 25 and secured thereto by a screw 28.

The member 14 extends downwardly below the lower edge of the member 16 and has an elongated rubber supporting shoe 29 fitted over its lower edge. The shoe 29 is simply grooved to receive the lower edge of the member 14 so that it forms a detachable shoe. The member 15 is extended horizontally away from the member 16 at the lower edge thereof to form a shelf 30 beneath the grinding wheel 11 to catch the material ground away in the use of the wheel. At its outer end, the shelf 30 is turned down, as indicated at 31, and a second shoe 32 is grooved to receive the portion 31. The two shoes 29 and 32 thus provide a support for the entire grinder.

The platform 25 extends beyond the flange 27 a substantial distance and the top of this platform preferably is flat and smooth so that it may be used as a guide for guiding a clamp 33 for clamping the shear blades in a manner which will be presently described. The position of the top surface of the platform 25 is such that it lies in a plane extending substantially radially with respect to the shaft of the grinding wheel 11. The axis of the grinding wheel is therefore in the plane of the top of the platform, and if the work is moved in this plane against the wheel 11 the diameter of the grinding wheel may vary over a wide range without the necessity of any adjustments.

The clamp 33 comprises a plate 34 having a flat bottom surface 35 adapted to be moved

along the top of the platform 25 by hand in grinding the shear blade. This plate 34 has a bevelled top surface 36 (see Fig. 2) that extends upwardly away from one side edge of the plate

5 34. A spring clamping plate 37 is loosely pivoted upon a reduced portion 38 of a pin 39 mounted on the plate 34. The opening in the plate 37 that receives the pin 39 is somewhat larger than the pin so as to permit free play of the plate 37 thereon. At the edge opposite the pin 39, the plate 37 is bent downwardly to provide a clamping portion 40 that overlies the bevelled surface 36 of the plate 34. The angle of the portion 40 with respect to the body portion of the plate 37 is somewhat greater than the angle of the bevelled surface 36 with the plane of the plate 34. A clamping screw 41 has a reduced threaded portion 42 threaded into an opening 43 in the plate 34 and is enlarged above the threaded portion 42 so as to press down upon the plate 37 which is apertured to receive the threaded portion 42. A knurled head 44 is provided on the clamping screw 41. The angular portion 40 of the plate 37 is cut out as indicated at 44' so as to provide spaced clamping fingers 45 and 46.

The manner in which a blade 47 of a pair of shears is clamped between the bevelled surface 36 and the fingers 45 and 46 is believed to be evident. The blade 47 can thus be held at the same angle every time it is desired to sharpen it, and, since the position of the cutting edge of the blade is such that it extends over the adjacent edge of the plate 34 so as to contact the grinding wheel 11, successive grindings of the blade 47 may always be made at the same angle. The platform 25 enables the operator to set the edge of the blade in a line which lies in the plane including the top of the platform 25 and the axis of the grinding wheel. The angle which is given to the cutting edge therefore will be the angle of the line tangent to the grinding wheel at the point of contact to the cutting edge of the blade with the wheel. This conserves the stock of the blade, insures the proper cutting angle for edges of the shears, regardless of the diameter of the grinding wheel 11 which may be changed due to the wearing of the wheel over a long period of use. The curvature or cup of the ground surface of the shear blade will increase as the grinding wheel 11 gets smaller in diameter. The actual angle at the cutting edge will, however, remain substantially unchanged for it is substantially the angle of a line tangent to the grinder at the cutting edge. The ends of the plates 34 and 37 are bevelled as shown at 48 so that the blade of the shears that is not being sharpened can be held back out of the way of the grinder. Therefore, it is not necessary to take the shears apart in order to sharpen the blades.

From the above description, it is believed that the construction and advantages of this device will be readily apparent to those skilled in this art.

Having thus described one specific form of my invention, what I claim as new and desire to secure by Letters Patent is:

1. A grinding machine of the character described comprising a grinding wheel, a drive shaft therefor, a motor for driving said shaft, a housing and supporting framework in which said motor is mounted, said shaft projecting through said framework and said grinding wheel being mounted on the shaft outside the framework, said framework including a pair of side plate members, and a cover plate, said side plate members having portions projecting beyond the cover plate at one side thereof, and a work guiding platform mounted on said portions, one of said side plate members having a shelf portion extending outwardly away from the framework and beneath said grinding wheel.

2. A grinding machine of the character described having a grinding wheel, a drive shaft therefor, means for rotating said shaft, a clamp having a plate provided with a flat guide surface on the bottom thereof and a bevelled upper surface extending angularly upward from one edge of the plate, said clamp having means to clamp a shear blade to said bevelled surface with the cutting edge thereof projecting over the adjacent edge of the plate, a supporting framework having a shelf beneath said wheel, and a guide platform for said plate on which the plate may be moved toward and away from the wheel in a direction substantially perpendicular to the periphery thereof, said framework including side plate members extending beneath the platform and having flanges for mounting said platform in spaced relation to the grinding wheel.

3. A grinding machine of the character described having a grinding wheel, a drive shaft therefor, means for rotating said shaft, a clamp having a plate provided with a flat guide surface on the bottom thereof and a bevelled upper surface extending angularly upward from one edge of the plate, said clamp having means to clamp a shear blade to said bevelled surface with the cutting edge thereof projecting over the adjacent edge of the plate, and a guide platform for said plate on which the plate may be moved toward and away from the wheel in a direction substantially perpendicular to the periphery thereof, said platform comprising a flat elongated plate mounted horizontally in front of the grinding wheel.