Feb. 6, 1923. 1,444,374.

E. S. ENSIGN.

BLADE GRINDER.

FILED MAR. 15, 1922.

Fig. 1

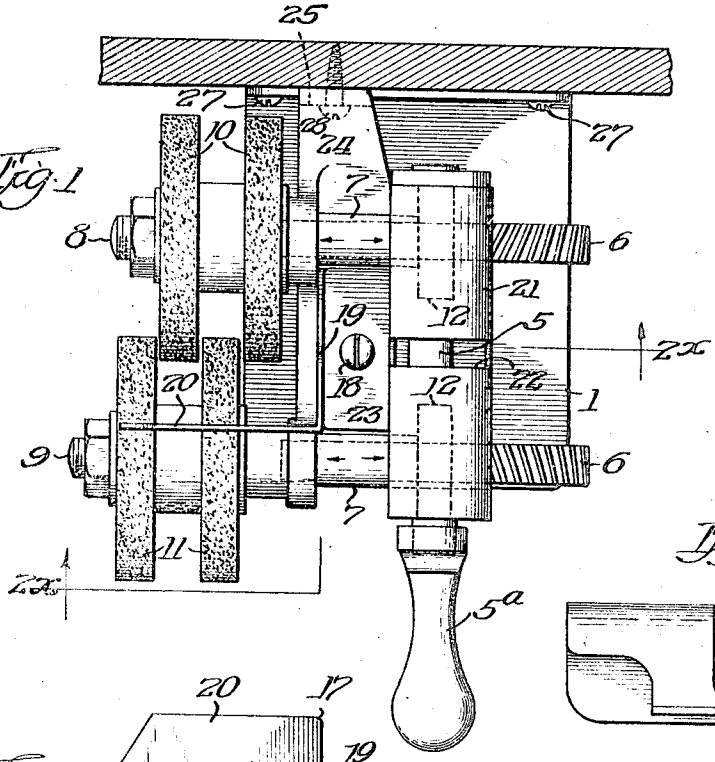



Fig. 3

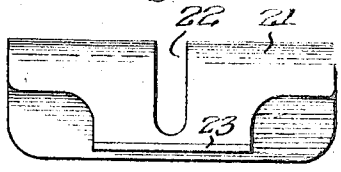



Fig. 2

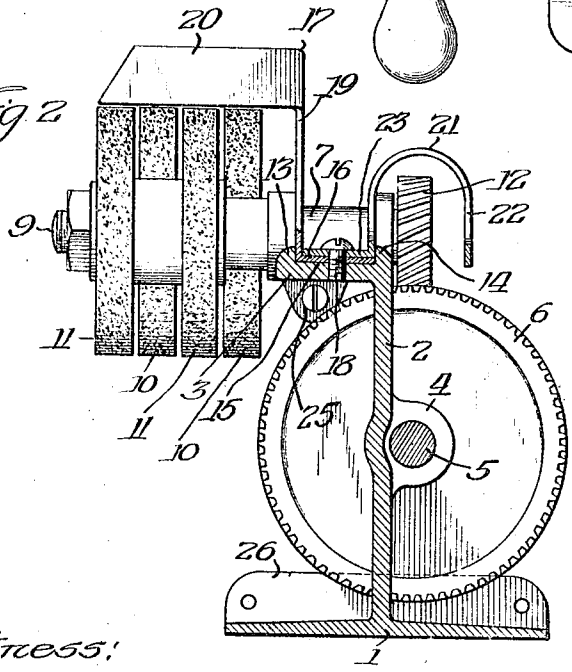
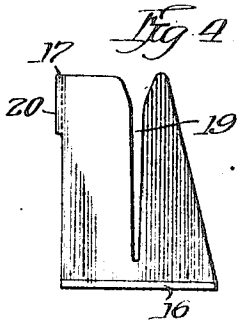



Fig. 4




Witness:

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By Wilkinson, Huxley, Byron & Hart

Attys.

Patented Feb. 6, 1923. 1,444,374

# UNITED STATES PATENT OFFICE.

EMORY S. ENSIGN, OF ROCKFORD, ILLINOIS, ASSIGNOR TO SPENGLER LOOMIS MANUFACTURING CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## BLADE GRINDER.

Application filed March 15, 1922. Serial No. 543,829.

*To all whom it may concern:*

Be it known that I, EMORY S. ENSIGN, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Blade Grinders, of which the following is a specification.

This invention relates to a machine for grinding the edges of knife, scissors, and other blades, and particularly to a machine which is provided with a guide or rest for holding the blade in proper angular relation to the periphery of a rotary grinding wheel.

The object of the invention is to provide a machine of this kind, the construction of which will be very simple and cheap in production and assembly, and durable and accurate in use.

Accordingly, the invention consists in providing a combined base, standard, and bearing head, with bearings for the shafts of grinding wheels and driving gears as well as a seat for receiving and accurately positioning the blade holder embodied in the construction of the head. Incidentally, the means on the head for positioning the blade holder is also made to receive and position a gear shield, and the head is provided with an attaching arm through which the machine can be mounted upon a fixed surface, in conjunction with an attaching flange upon the base, thereby steadying the head with relation to the base.

The invention will be fully understood upon reference to the accompanying drawing, in which—

Figure 1 is a top plan view of the machine; and Figure 2 is an end elevation thereof with the mounting in vertical section on the line $2^{\times}$—$2^{\times}$ of Figure 1.

Figures 3 and 4 are detail views, respectively, of the gear shield and blade guide.

1 represents the base, 2 the standard, and 3 the head of the mounting. Standard 2 is provided with bearings 4 to receive the shaft 5, which is driven by crank shaft $5^{a}$ and carries a pair of driving gears 6. Head 3 is constructed with parallel bearings 7 in a vertical plane at right angles to the plane of shaft 5, and in these bearings are mounted shafts 8 and 9 carrying at their outer ends overlapping twin grinders 10 and 11, and at their inner ends gear wheels 12 through which they are driven. The intermeshing teeth on the gear wheels 6 and 12 are angularly disposed in order to permit them to intermesh.

Located on the head 3 between the bearings 7, and lying in vertical planes perpendicular to the axes of said bearings, are flanges 13 and 14 which provide confining walls for a seat 15, and in this seat is fitted the attaching foot 16 of an upstanding blade guide 17, the position of which is accurately defined by the flanges 13, 14 so that it can be secured in place by the single screw 18. Blade guide 17 is constructed with a slot 19 that lies in a vertical plane that symmetrically cuts the overlapping portions of the grinders 10 and 11, so that a blade inserted in said slot, edge downward, will be held in proper relation to define the bevel which will be ground upon opposite sides of the edge by the pairs of cutters. Also embodied in the construction of the blade guide 17 is an arm 20 that extends across a pair of cutters and lies in a plane at such an angle to the radius of the grinders that a scissors blade held with its flat face against the face of the arm and rested against the grinders, will have the proper bevel for a scissors blade developed upon its cutting edge.

Also defined in position by the seat 15 is a gear shield 21 overhanging the gears 6 and preferably provided with a slot 22 to avoid interference with a knife blade working in the slot 19. In the particular embodiment shown, the shield 21 is constructed with a separate supporting plate 23 held by the same screw 18 that holds the plate 16 of the blade holder.

The head 3 is further provided with an arm 24 constructed with a depending perforated lug 25 lying in the same plane with the upstanding perforated flange 26 of the base 1, so that the machine may be attached to a vertical surface by screws 27 in said flange and a screw 28 in said lug and thereby greatly steady the machine, relieve the standard 2 from undue strain, and adapt the mounting, including said standard, to be made of lighter dimensions.

I claim:

1. A grinding machine, comprising a mounting including a head, a transverse bearing in said head, carrying the grinding wheel, a seat formed with upstanding confining walls extending transversely to said

bearing, and a blade holder fitted to said seat, confined by said walls, and adapted to present a blade in grinding relation to said wheel.

2. In a grinding machine, a mounting head, transverse bearings spaced apart on said mounting head, coacting grinders mounted upon shafts confined in said bearings, a seat extending between said bearings and transversely thereto and constructed with upstanding confining walls, and a blade holder fitted to said seat, confined by said walls, and adapted to present a blade in grinding relation to said grinders.

3. In a grinding machine, a mounting head, transverse bearings spaced apart on said mounting head, coacting grinders mounted upon shafts confined in said bearings, a seat extending between said bearings and transversely thereto and constructed with upstanding confining walls, and a blade holder fitted to said seat, confined by said walls, and adapted to present a blade in grinding relation to said grinders; said blade holder being constructed with an arm extending transversely across the grinders.

4. A grinding machine comprising a mounting head, transverse bearings in said mounting head, a seat extending between said bearings and transversely thereof, constructed with upstanding confining walls, grinders having shafts mounted in said bearings, gears on said shafts, and a gear shield for said gears having a supporting plate fitted to said seat and confined by said walls.

5. In a grinding machine, a mounting comprising a base with an upstanding attaching flange at one end thereof, a standard mounted on said base, and a head carried by said standard; grinding wheels mounted upon said head, driving gears for said wheels, and an attaching arm formed on said head, extending therefrom to the plane of said upstanding flange, and having means for securing it to the same surface which receives said upstanding flange in mounting the machine.

Signed at Rockford, Illinois, this 10th day of March, 1922.

EMORY S. ENSIGN.