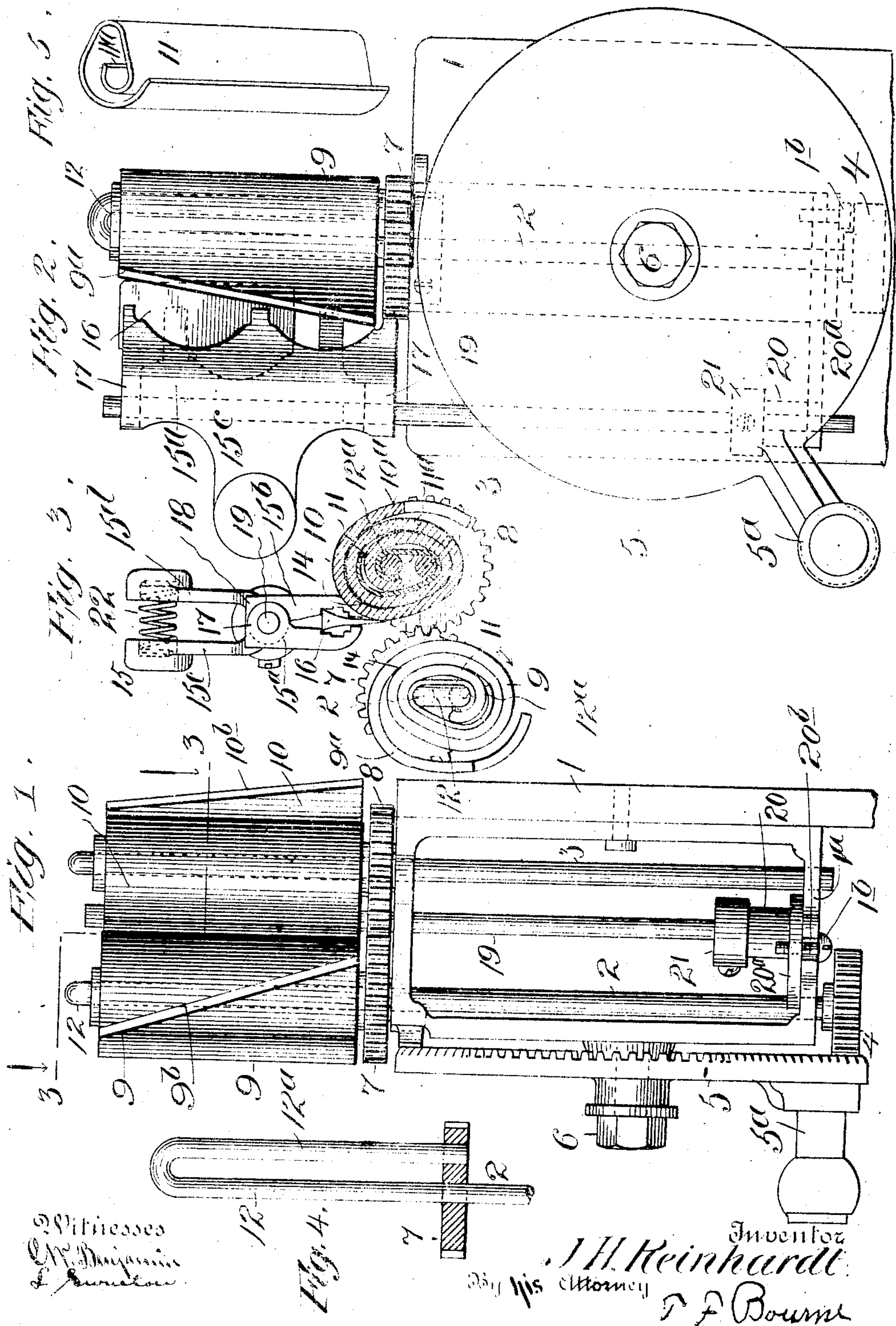


No. 863,879.

PATENTED AUG. 20, 1907.

J. H. REINHARDT.
BLADE SHARPENER.

APPLICATION FILED NOV. 28, 1906.



Witnesses
C. W. Benjamin
J. H. Reinhardt

Fig. 4.

Inventor
J. H. Reinhardt
By J. F. Bourne
Attorney

UNITED STATES PATENT OFFICE.

JAMES H. REINHARDT, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO HALF MINUTE EDGER COMPANY, A CORPORATION OF NEW YORK.

BLADE-SHARPENER.

No. 863,879.

Specification of Letters Patent.

Patented Aug. 20, 1907.

Application filed November 28, 1906. Serial No. 345,480.

To all whom it may concern:

Be it known that I, JAMES H. REINHARDT, a citizen of the United States, and a resident of East Orange, Essex county, New Jersey, have invented certain new and useful Improvements in Blade-Sharpener, of which the following is a specification.

The object of my invention is to provide improved means for sharpening or honing the edges of blades for razors, knives or the like, and the invention comprises a pair of rotative straps located side by side and adapted to receive a blade edge between them, said straps being loose at their outer ends so as to swing by centrifugal action against the blade at its edge, and means for supporting a blade in proximity to said straps with means for rotating said straps in reverse directions, whereby as said straps are rotated the centrifugal action imparted to their free ends will cause the same to drag along the blade edge to sharpen or hone the same.

The invention also comprises the novel details of improvement that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming part hereof, wherein,

Figure 1 is a side elevation of a blade sharpener embodying my improvements, Fig. 2 is a face view thereof, looking from the left in Fig. 1, Fig. 3 is a plan view, partly in section on the line 3-3, in Fig. 1, Fig. 4 is a detail view of the strap-supporting shaft, and Fig. 5 is a detail perspective of a holder for detachably connecting the strap with its shaft.

Similar numerals of reference indicate corresponding parts in the several views.

At 1 is indicated a suitable frame in which shafts 2 and 3 are journaled in suitable bearings parallel with each other, the shaft 2 being shown provided with a pinion 4 meshing with a gear wheel 5 journaled upon a suitable shaft 6 carried by frame 1, said gear wheel being provided with a handle 5^a for rotating it. Gears 7 and 8 secured to shafts 2, 3 cause said shafts to rotate simultaneously but in reverse directions. Upon the shafts 2, 3, are mounted straps 9, 10 which extend side by side, and the outer end portions 9^a, 10^a, of the said straps are free to swing outwardly under centrifugal action during their rotation. Said straps are shown coiled around holders 11, which may be pieces of metal bent to the required shape and to which the straps may be secured, as by rivets, which holders 11 are adapted to be freely slipped over the upper ends of shafts 2 and 3. I have shown said shafts as of wire bent to form two parallel arms at 12, 12^a, (Fig. 4) over which the holders 11 can be slipped, the space 11^a of said holder being adapted to receive the two arms 12, 12^a of the shaft for rotatively connecting them together. In Fig. 4 the reversely bent arm 12^a of the shaft is shown connected with the gear 7, (the shaft 3 being similarly bent and

connected with gear 8) providing a convenient means for rotatively connecting said gear with said shaft and holding the two arms of said shaft in relative positions, the holders 11 thus being eccentrically supported upon their shafts. The free edges 9^a, 10^a of the straps 9, 10 are shown cut at an acute angle to their plane of rotation, and the windings of each strap may be connected together, as at 14, to hold the wound parts of the strap together while permitting their end portions 9^a, 10^a to swing outwardly during rotation.

At 15 is indicated, generally, a blade holder, adapted to detachably grip a blade 16, and said holder comprises two clamping members 15^a, 15^b having hinge portions 17, 18 at their upper and lower parts provided with aligned apertures receiving a rod or shaft 19 that is pivotally supported upon frame 1, as in a suitable bearing 20, a collar 21 secured to said shaft resting upon said bearing and thus rotatively supporting said shaft. A spring 22, interposed between the rearwardly extending arms 15^c, 15^d of the blade holder, tends to cause the jaws 15^a, 15^b to grip the blade 16 and also cause the hinge portions 17, 18 at their apertures to spread apart and thus grip the shaft 19. By this means the holder 15 may be adjusted up and down along shaft 19 by compressing the arms 15^c, 15^d to release the gripping action on shaft 19, and then releasing said arms. The shaft 19 extends parallel to shafts 2 and 3 and is located in a line between said shafts and at one side thereof, at such a distance that when the blade 16 is in the holder its edge will extend parallel to the straps 9 and 10 and be in position to be engaged thereby, as shown.

The bearing 20 is shown carried upon an arm 20^a resting upon part 1^a of frame 1, and shown held thereon by a screw 1^b entering a threaded hole in said arm, said screw being shown located in a slot 20^b in said arm. By this means said arm may be adjusted back and forth and thereby bearing 20, shaft 19 and the blade holder may be adjusted with respect to the straps, whereby blade 16 may be adjusted toward and from the straps according to the width of the blade to cause the straps to act properly against different blades.

To sharpen or hone the blade edge the blade is mounted in the holder, as set forth, and wheel 5 rotated, whereupon the straps 9 and 10 will be rotated in reverse directions, (in the direction of the arrows in Fig. 3,) and will bear alternately upon opposite sides of the blade edge, and during such rotation the free ends 9^a, 10^a of said straps will swing outwardly to cause them to bear lightly yet with sufficient force against the blade edge to sharpen it. By the eccentric mounting of the straps upon the shafts 2, 3, they will, during rotation, cause the blade and its holder to swing from side to side so that one strap will swing the blade over into position to be engaged by the other strap; and vice versa.

Changes can be made in the details and arrangements

shown and described without departing from the spirit of my invention.

Having now described my invention what I claim is:—

- 5 1. A blade sharpener comprising a pair of shafts, means for rotating them, straps carried by said shafts and having their outer ends free to swing outwardly by centrifugal action, and means for holding a blade in the path of the free ends of said straps the extreme free ends of the straps being oblique to the plane of the edges of the strap.
- 10 2. A blade sharpener comprising a pair of parallel shafts, means to rotate said shafts in opposite directions, straps coiled around said shafts and having central spaces receiving said shafts, said straps having their outer end free to swing outwardly by centrifugal action, and a blade holder adapted to hold a blade edge between said straps to be engaged by the free ends of said straps.
- 15 3. A blade sharpener comprising a pair of shafts, means to rotate them in opposite directions, coiled straps eccentrically mounted upon said shafts and having their outer ends free to swing outwardly by centrifugal action, and a blade holder to hold a blade in the path of said straps.
- 20 4. A blade sharpener comprising a pair of parallel shafts, means to rotate said shafts in opposite directions, straps coiled around said shafts and having their outer ends free to swing outwardly, means for detachably connecting said straps with said shafts, and a blade holder mounted to hold a blade in the path of said straps.
- 25 5. A blade sharpener comprising a pair of shafts, means to rotate said shafts in reverse directions, said shafts being bent reversely at adjacent ends, holders mounted upon said ends of said shafts, straps coiled around said holders and having their outer ends free to swing outwardly, and a blade holder mounted to hold a blade in the path of said straps.
- 30 6. A blade sharpener comprising a pair of shafts, means to rotate said shafts in reverse directions, holders eccentrically and detachably mounted upon said shafts, straps wound upon said holders and having their outer ends free to swing outwardly, and a blade holder mounted to hold a blade in the path of said straps.
- 35 7. A blade sharpener comprising a pair of shafts, means to rotate them in reverse directions, straps carried by said shafts and having their outer ends free to swing outwardly, the outer ends of said straps extending at an
- 40
- 45

acute angle to the plane of rotation of said straps, and a blade holder moun to hold a blade in the path of said straps.

8. A blade sharpener comprising a pair of shafts, means to rotate them in opposite directions, blade sharpening means carried by said shafts, a blade holder comprising a pair of jaws having hinge portions provided with alined apertures, a shaft entering said apertures, a spring action with said jaws to cause said hinge portions to grip said shaft, and means for pivotally supporting said shaft.

9. A blade sharpener comprising a frame, a pair of shafts, means to rotate them in opposite directions, blade sharpening means carried by said shafts, a blade holder, a shaft therefor, a bearing for rotatively supporting said shaft, an arm carrying said bearing, and means for adjustably supporting said arm upon said frame.

10. A blade sharpener comprising a frame, a pair of shafts, means to rotate them in opposite directions, blade sharpening means carried by said shafts, a blade holder, a shaft therefor, a bearing for rotatively supporting said shaft, an arm carrying said bearing, said arm supported by said frame, and a screw and slot connection between said arm and frame.

11. A blade sharpener comprising a frame, a pair of shafts, means to rotate them in opposite directions, blade sharpening means carried by said shafts, a blade holder, a shaft therefor, a bearing for rotatively supporting said shaft, an arm carrying said bearing, said arm supported by said frame, and a screw and slot connection between said arm and frame, said shaft having a collar resting upon said bearing, for rotatively supporting said shaft upon said bearing.

12. A blade sharpener comprising a frame, a pair of shafts, means to rotate them in opposite directions, blade sharpening means carried by said shafts, a blade holder, a shaft therefor, a bearing for rotatively supporting said shaft, an arm carrying said bearing, said arm supported by said frame, and a screw and slot connection between said arm and frame, said shaft having a collar resting upon said bearing for rotatively supporting said shaft upon said bearing, and means for adjusting said collar along said shaft.

JAMES W. REINHARDT.

Witnesses:

T. F. BOURNE,
L. SWINTON.