H. W. BUSLER.

SKATE SHARPENING MACHINE.

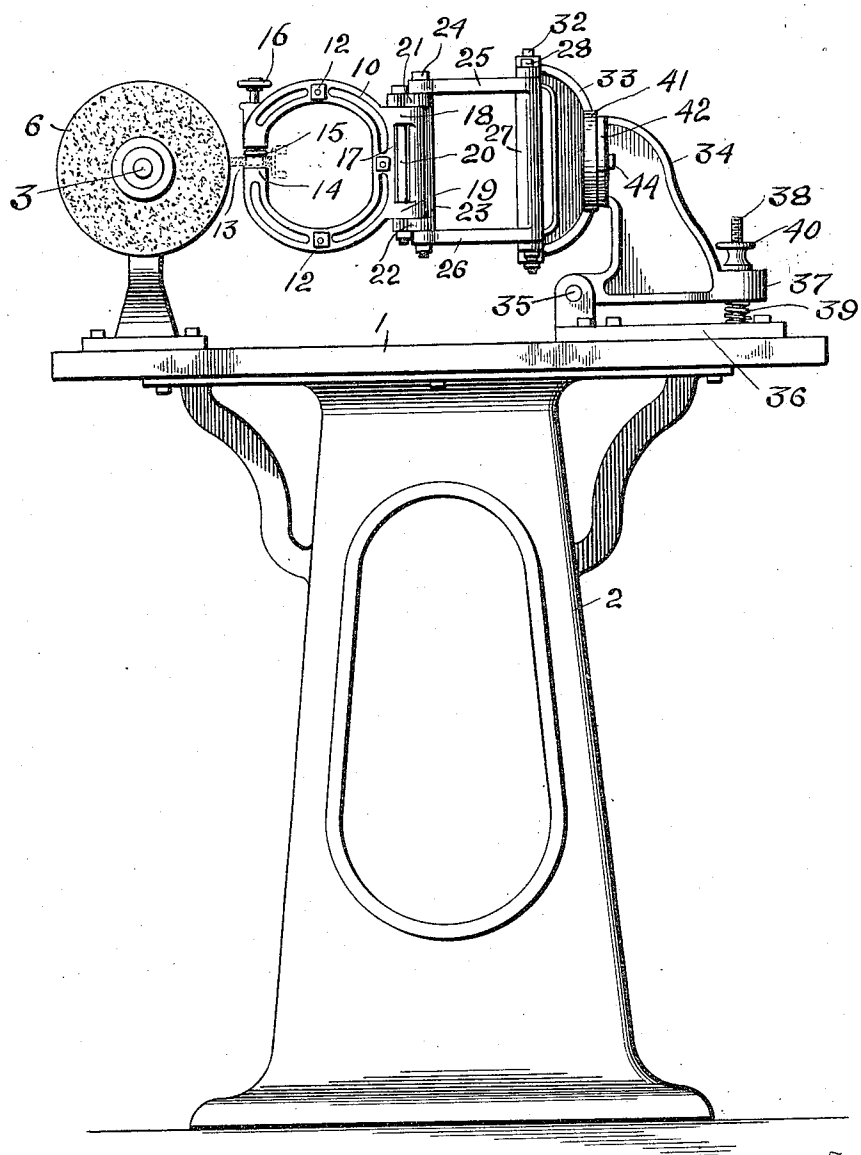
APPLICATION FILED JULY 9, 1915.

1,175,702.

Patented Mar. 14, 1916.

2 SHEETS—SHEET 1.

FIG. 1.



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Witnesses

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2 SHEETS—SHEET 2.

FIG. 2.

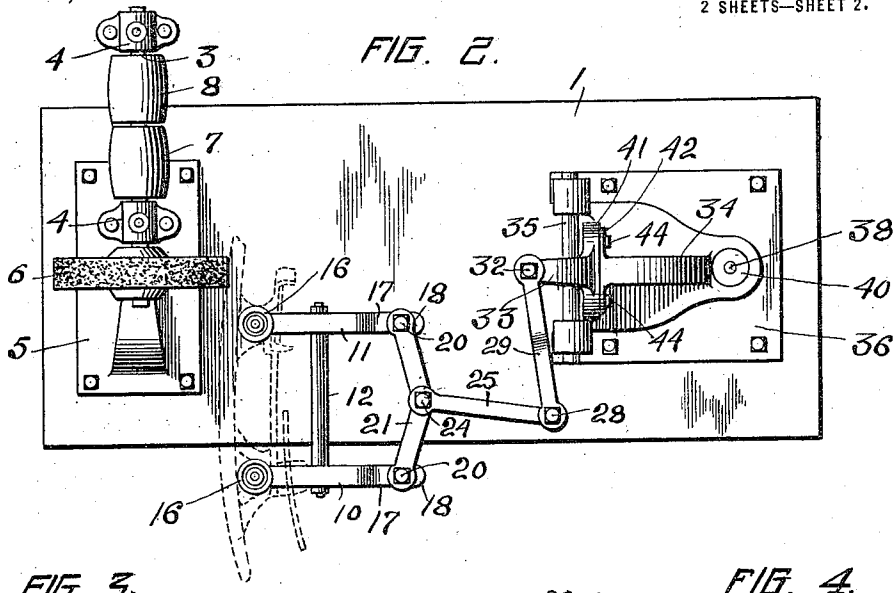


FIG. 3.

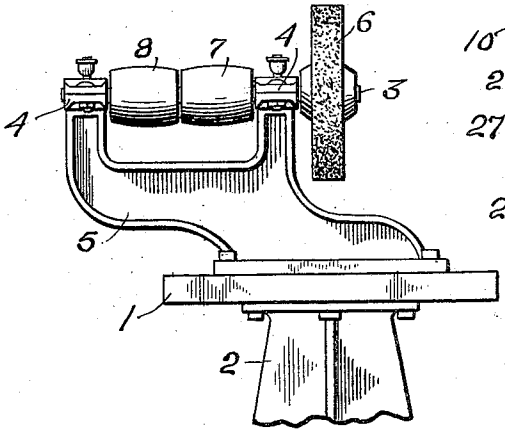
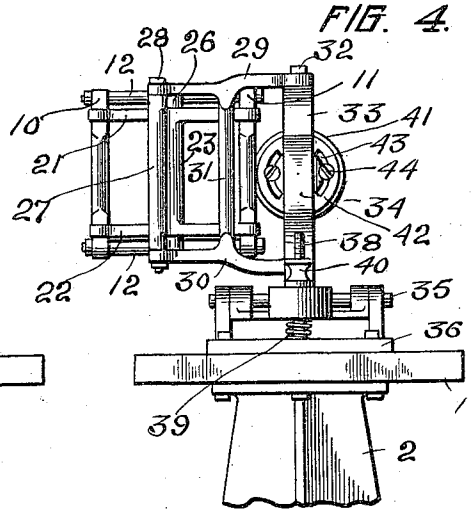


FIG. 4.



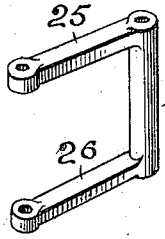


FIG. 5.

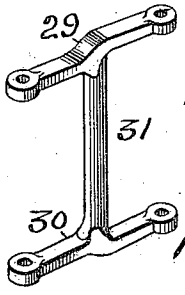


FIG. 6.

Witnesses

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HARRY W. BUSLER, OF LITTLETON, NEW HAMPSHIRE.

SKATE-SHARPENING MACHINE.

1,175,702. Specification of Letters Patent. Patented Mar. 14, 1916.

Application filed July 9, 1915. Serial No. 38,891.

To all whom it may concern:

Be it known that I, HARRY W. BUSLER, a citizen of the United States, residing at Littleton, in the county of Grafton, State of New Hampshire, have invented certain new and useful Improvements in Skate-Sharpening Machines, of which the following is a description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to skate sharpeners and has for its object to provide in combination with a grinding wheel or other sharpening means a holder for the skate or other article to be ground or sharpened which will hold the article to be ground or sharpened in a determined plane relative to the plane of the axis of the grinding wheel or other sharpening means and at the same time permit the article to be ground or sharpened to be moved freely in the determined plane so as to bring all parts of its edge into contact with the grinding or sharpening means so that the entire edge of the article will be ground throughout its extent at the same angle or with the same concavity.

With these objects in view, my invention consists in the construction and combination of elements hereinafter described and claimed.

Referring to the drawings, Figure 1 is an end view of a skate sharpener embodying my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a side view of the grinding device. Fig. 4 is a rear end view of the holder, and, Figs. 5 and 6 are detail views of parts of the holder.

In the drawings, 1 indicates a table supported in standard 2 and carrying the grinding device and the holder for the skate or other article to be sharpened.

The grinding and polishing device, as here shown, comprises a shaft 3 carried in bearings 4 in a bracket 5 secured to the table 1, the shaft carrying at one end a grinding wheel 6 and being provided between the bearings with fast and loose pulleys 7 and 8. The grinding wheel is of suitable abrasive material and is of suitable diameter to grind the edge of the skate to the degree of concavity desired as it is presented by the holder.

The holder for the skate or other article to be sharpened comprises a pair of rings 10 and 11 arranged to stand vertically and secured together by bolts 12. These rings are each open at 13 and are each provided with a fixed jaw 14 and a movable jaw 15 operated by a hand screw 16, the openings 13 being so located that they are in the plane of the axis of the shaft 3. Opposite the openings 13 the rings 10 and 11 are each provided with an extension 17 having upper ears 18 and lower ears 19 adapted to form the bearings for vertical rods 20 on which are carried the ends of upper and lower arms 21 and 22 which serve to aid in holding the rings 10 and 11 in rigid relation to each other, and are provided midway between their ends with a vertical tubular connection 23 preferably formed integral with the arms 21 and 22. On the ends of a vertical rod 24 which extends through the tubular connection 23 are received the ends of upper and lower arms 25 and 26 carried by a vertical tubular connection 27, the arms 25 and 26 being preferably integral with the tubular connection. In this tubular connection 27 is carried vertical rod 28, on the ends of which are carried the ends of upper and lower arms 29 and 30 which are rigidly secured by vertical bar 31, the other ends of arms 29 and 30 being carried on the ends of vertical rod 32 which is carried by a bracket 33 which is provided with a disk 41 which is recessed in its rear face to receive the front face of a disk 42 carried by a bracket 34. The disk 42 is provided with arc-shaped slots 43 through which headed screws 44 extend into disk 41 to clamp the two disks together. The bracket 34 is pivoted at 35 to a bed plate 36 suitably secured to the table 1, the axis of the pivot 35 being parallel with the axis of shaft 3. The bracket 34 is provided at its rear end with an ear 37 which fits over a screw-threaded rod 38. A spring 39 on the rod 38 beneath the ear 37 presses it upward and a thumb nut 40 on the rod 38 above the ear serves to adjustably hold the ear against upward movement. The rings 10 and 11 are of such size as to permit the sole and heel portions of the skate to be received within them with the blade between the jaws 14 and 15, as shown in dotted lines in Figs. 1 and 2, so that it will be in the horizontal plane of the axis of the shaft 3.

By reason of the distance apart of the arms 25 and 26, and 29 and 30, long bearings are afforded on the rods 24, 28 and 32 so that the skate or other article to be sharpened will be firmly held against any tend-

ency to movement in a vertical direction. At the same time by reason of the hinge or pivoted connection on the rods 24, 28 and 32, the rings 10 and 11 carrying the skate or other article to be sharpened may be swung laterally in either direction and may be moved toward and from the grinding wheel. The double joint provided by the construction shown permits the rings carrying the skate or other article to be sharpened to be moved across the cutting face of the grinding wheel in a straight line or on any curved line conforming to the line of the edge of the blade.

While the device, as above described, is particularly intended for sharpening the runners or blades of ice skates, it may be used for grinding or sharpening any article which requires to be ground off or sharpened along a relatively thick edge.

By means of the thumb nut 40, the holder may be adjusted to take up wear or to bring the edge of the article to be ground or sharpened into the exact plane of the shaft 3 or to bring it out of such plane as may be desired.

The arrangement of the disks 41 and 42 permits the holder to be adjusted at any angle desired within the limits of the length of the slots 43 so as to change the angle of the plane of movement of the article to be ground. By reason of the adjustment permitted by these disks and that permitted by the hinging of the bracket 34 to the bed plate 36, the holder is made capable of universal adjustment.

The grinding wheel may be of any size desired within wide limits provided only that it be not so small in diameter that the edge of the article to be ground or sharpened will come in contact with the bearings of the shaft and that it be not so large that the projections on the rear of the rings cannot move freely past the ends of the arms of bracket 33.

Having thus described my invention, what I claim is:

1. In combination with a rotary shaft carrying a grinding wheel, a holder for a skate, comprising a clamp adapted to hold the article, a bracket provided with a disk, link members between the clamp and bracket, a bracket carried by a bed plate and provided with a disk fitting the disk of the first mentioned bracket, and means for securing the two disks together.

2. In combination with a rotary shaft carrying a grinding wheel, a holder for a skate, comprising a clamp adapted to hold the article, a bracket provided with a disk, link members between the clamp and bracket, a bracket pivoted to a bed plate and provided with a disk fitting the disk of the first mentioned bracket, means for securing the two disks together, and means for adjusting the second bracket on its pivot.

3. In combination with a rotary shaft carrying a grinding wheel, a mounting plate secured to a bed plate, a tilting bracket pivotally mounted on the mounting plate and extending vertically therefrom, means for adjusting the upper end of the bracket toward and from the grinding wheel, a disk at the upper end of said bracket, a rotary adjustable bracket having a disk adapted to be secured to the first mentioned disk, a skate holder provided with a clamp for the article, and link members between the clamp and the rotary adjustable bracket.

4. In combination with a rotary grinding wheel, a holder for a skate comprising a clamp, a bracket, link members between the clamp and the bracket, a second bracket carried by a bed plate, means for mounting for rotary adjustment said first mentioned bracket on said second bracket, and means for mounting for tilting movement said second bracket on the bed plate.

5. In combination with a horizontal rotary shaft carrying a grinding wheel, a holder for a skate comprising a clamp, a bracket, link members between the clamp and the bracket, a second bracket pivotally mounted on a bed plate, means for adjusting the second bracket on its pivot and means for mounting for rotary adjustment said first bracket on said second bracket, with its center of oscillation in line with the center of the shaft.

6. In combination with a horizontal rotary shaft carrying a grinding wheel, a bed plate, a tilting bracket mounted on the bed plate, a rotary adjustable bracket mounted on the tilting bracket having its center of oscillation in line with the shaft, link members mounted on said rotary adjustable bracket, a skate holder mounted on the outer end of the link members between the rotary adjustable bracket and the grinding wheel.

This specification signed and witnessed this 9th day of June, A. D. 1915.

HARRY W. BUSLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."