Aug. 7, 1951 J. FELLO 2,563,018

ICE SKATE GRINDING MACHINE

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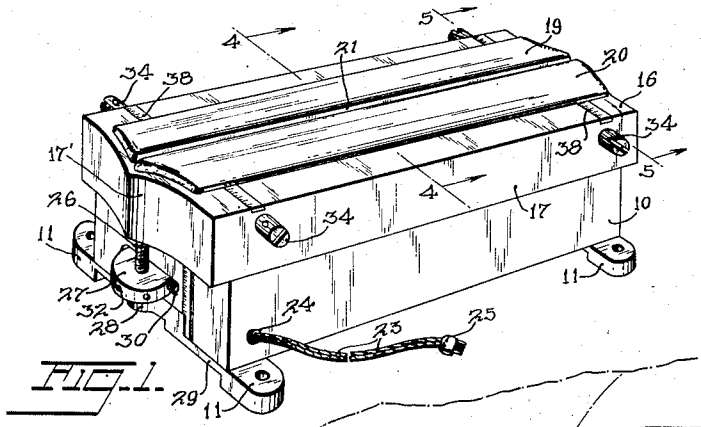


FIG. 1.

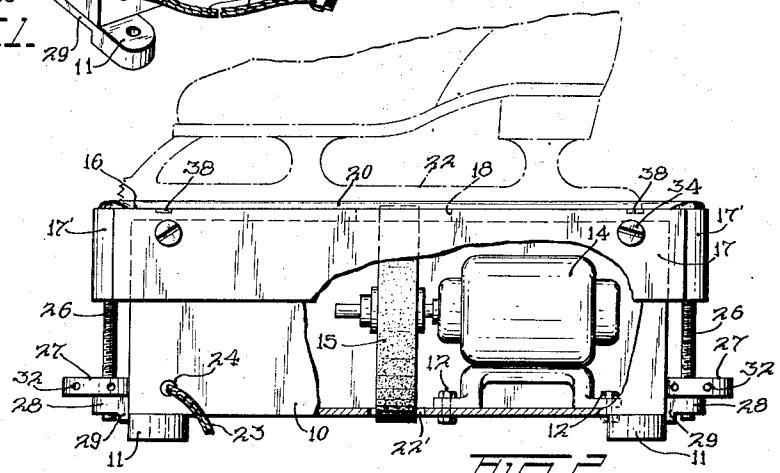


FIG. 2.

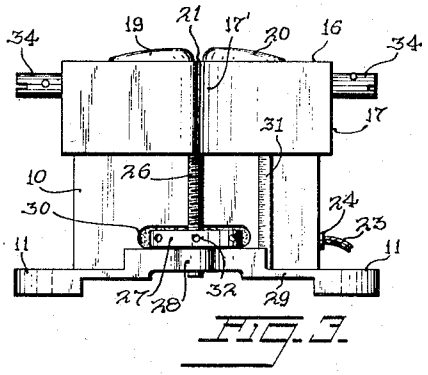


FIG. 3.

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ICE SKATE GRINDING MACHINE

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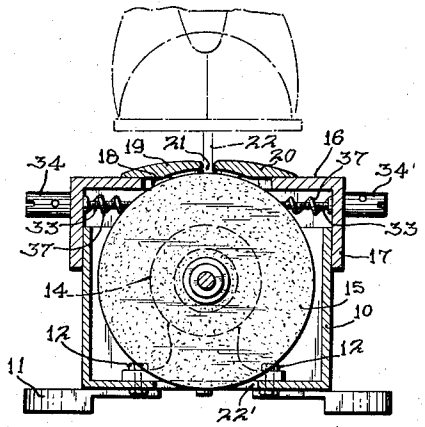


FIG. 4.

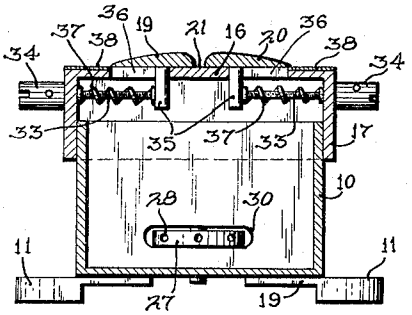


FIG. 5.

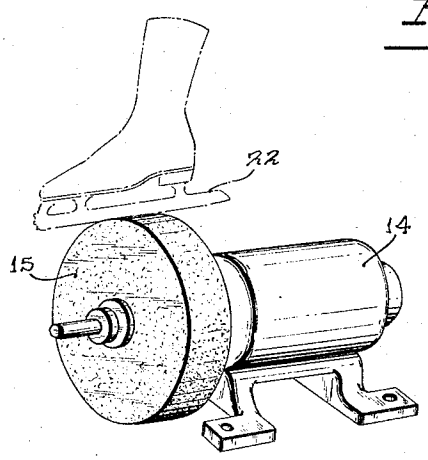


FIG. 6.

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ICE SKATE GRINDING MACHINE

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Application January 15, 1947, Serial No. 722,126

2 Claims. (Cl. 51—102)

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This invention relates to ice skate grinding machines for hollow grinding ice skates.

It is an object of the present invention to provide a relatively inexpensive yet practicable ice skate grinding machine, which will grind a hollow edge into the skate and which is of such nature and construction and so simple to operate that any skater might well have one of the devices at his home for his own use and for keeping his skates in a sharpened condition without the necessity of having to take them to a professional skate sharpener.

It is another object of the present invention to provide a portable skate sharpening machine, and one so arranged that the operating parts of the machine may be contained within a housing so closed in at its top that there is merely a slot wide enough to permit passage therethrough of the skate blade for engagement with the grinding means, whereby the operator will be protected from any particles, as particles of abrasive material, which may be thrown out by the grinding means, when as is favored, the latter is a revolving emery wheel or the like.

It is another object of the present invention to provide in an ice skate grinding machine simple means for effecting adjustment of the cut to be taken by the emery wheel, and a simple means for adjusting the width of the slot to the particular skate blade to be sharpened along which slot the skate is to be advanced to cause it to travel through a path at right angles to the flat of the emery wheel.

According to the embodiment of the invention illustrated, there is provided an elongate box having an open top, and in which there is mounted an electric motor with a grinding wheel thereon. The flat of the grinding wheel extends along the width of the box. Over the open top of the box is a cover with a depending skirt extending around the upper portion of the box; and an opening through which the skate blade may be passed extends lengthwise of the cover and centrally thereof. Thus the emery wheel is so positioned that it will cut transversely of a blade extended down through said opening so as to place within the skating edge of the blade the shallow transversely curved groove typical of the work of the professional skate grinder. In order nicely to control the depth of sharpening cut given to the skate, the cover is movable up and down by manually actuated adjusting means. The opening in the cover is topped lengthwise by a pair of bar members the lateral spacing of which determines the width of a receiving and positioning slot for the skate blade; and in order nicely to control such spacing the bar members are movable toward and away from each other by another manually adjustable means. Calibration means are provided which can be read to determine visually precisely any adjustment made while the adjustment is being made.

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For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a perspective view of the skate grinding machine looking upon and along one side of the same.

Fig. 2 is a side elevation partially broken away and partially in section; a skate in position to be sharpened being shown in dot and dash.

Fig. 3 is an end elevation.

Fig. 4 is a transverse section taken on the line 4—4 of Fig. 1.

Fig. 5 is a similar view, but taken on the line 5—5 of Fig. 1.

Fig. 6 is a fragmentary perspective view, showing the grinding wheel, its motor, and also, in dot and dash a skate positioned relative to the wheel for sharpening the skate.

The ice skate grinding machine, according to the present invention, includes a box 10 having an open top which is supported upon feet 11 at the four lower corners of the box. Secured as by bolts 12 to the floor of the box is the motor 14 on the shaft of which is fixed an emery wheel 15.

The open top of the box is closed over by a cover 16 having a depending peripheral skirt 17 surrounding the upper portion of the box in telescopic relation thereto. Cover 16 is centrally longitudinally slotted as at 18. Partially roofing such slot is a pair of bar members 19 and 20 for lateral adjustment toward and away from each other to provide a guide slot, as indicated at 21, for the skate blade 22 entered in the guide slot to engage the emery wheel 15 for sharpening the skate.

The emery wheel 15 at its top extends upwardly into a portion of the slot 18 located at about midway of the length of the slot 21, as indicated in Fig. 2, and the inner portions of the undersides of the bar members 19 and 20 are beveled, as shown clearly in Fig. 4. The floor of

box 10 has a cut-out 22' for accommodating the bottom of the emery wheel.

The driving motor 14 for the emery wheel is suitably wired to leads within a cord 23 issuing from the side of the box 10 through an insulation bushing 24, which cord carries a plug 25 for connection to a wall receptacle or the like.

Two adjusting means are provided; one for raising and lowering the top 16, to control the desired depth of the sharpening cut to be given by the wheel 15 to the skate, and the other for moving one or both of the bar members 19 and 20 to vary the width of the guide slot 21 to adapt such width to the thickness of a particular skate blade.

The adjusting means for modifying the elevation of top 16 comprises, at each end of the box 10, an elevating screw 26 for the cover 16 and a disc 27 fixed on the screw. The adjusting means now being described is duplicated at each of the opposite ends of the box 10, and so a description of one of the like collection of parts at one of the ends of the box will suffice.

Referring, for example, to these parts as shown in Fig. 1, the screw 26 is vertical, and the lower end thereof is journalled against axial movement in a bracket 28 formed on a beam structure 29 extending across the width of the box under the same, while the screw at its upper end has its thread engaging an internal thread in a hole extending vertically through a central enlargement 17' of the adjacent end wall of skirt 17 of the cover. The beam 29, bolted or otherwise suitably secured to the bottom of the box 10, is formed at opposite ends beyond the periphery of the box to provide two of the four feet 11 which elevate the box above a suitable support on which the feet rest whereby clearance is given for the lower portion of the emery wheel 15 to project below the cut-out 22' of the floor of box 10.

A horizontal slot 30 is cut in the end wall of the box for partial extension into the same of adjusting disc 27.

In connection with each similar collection of adjusting parts at each end of the box 10, there is provided a calibration means comprising a vertical scale 31, marked off into very small fractions of an inch or otherwise calibrated, the same suitably secured to the end wall of the box, and an index constituted by the portion of the bottom edge of skirt 17 which crosses the scale.

Disc 27 at intervals around the same is provided with cylindrical, radial recesses 32, with which a suitable pin (not shown) may be used to render turning of the disc easy and yet precisely to govern angular movement of the disc, and hence the degree of rise or descent of the adjacent end of guide slot 21.

The adjusting means for varying the width of guide 21 is also duplicated at opposite sides of the box 10 for each of the bar members 19 and 20. Each such collection of parts comprises, in turn, two like adjusting instrumentalities; and so a description of one of these last will suffice.

Said instrumentality comprises an interior horizontal screw 33 having a plain cylindrical portion journalled in skirt 17, this portion of the screw, where projected exteriorly of the skirt, suitably fixedly carrying a knob 34 for manual turning. At the inner end of the screw the same threadedly engages a tapped hole in the lower end of a lug 35 depending from the underside of the bar member 19 or 20 as the case may be. This lug extends through an opening 36 in the cover 16. An expansile coil spring 37 is sleeved on the screw between skirt 17 and lug 35.

The length and tension of the spring 37 is such that in all widths of slot 21 permitted by opening 36, the inner end of knob 34 is held against the outer surface of skirt 17.

The knob 34 is provided at intervals around its circumference with cylindrical radial holes for turning by an added tool as explained in connection with disc 27.

In connection with each of the said four instrumentalities including a knob 34, there is provided a calibration means comprising a horizontal scale 38, marked off into very fine divisions, the same being secured to the upper surface of the top 16, and an index constituted by the portion of the outer edge of a bar member 19 or 20, as the case may be, where such edge crosses the scale.

As will be understood, once the motor has been started and the wheel 15 is spinning, the skating edge of the skate blade may be given a perfect professional sharpening, merely by inserting the blade into guide slot 21 and then moving said blade lengthwise along the slot and hence over the wheel 15.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. In a skate sharpening device, an elongated box having an open top, an elongated cover for the box adapted to support a skate during sharpening, said cover including a depending peripheral skirt surrounding the upper portion of the box in telescopic relation thereto, a power driven grinding wheel mounted in the box for rotation about an axis longitudinally of the box, said cover having a central slot and transverse openings at the ends of the cover, said grinding wheel including an upper portion extending upwardly through the slot, a pair of bar members slidably mounted on top of the cover and including inner portions partially roofing the slot and overlying the upper portion of said grinding wheel, lugs attached to the ends of the bar members and slidably received in the openings, a pair of coaxial horizontal screws rotatably supported on each end of the cover and disposed transversely of the cover, said lugs having internally threaded openings receivably engaging the screws to permit selective adjustment of the bar members toward and away from each other to limit the width of the space between the bar members for a skate blade, enlargements on the ends of the cover each having an internally threaded vertical bore, support brackets formed on the box beneath said enlargements, vertical screws having their lower ends rotatably supported on the brackets and their upper ends threaded in said bores, a disk fixed on each vertical screw for rotating the vertical screws to selectively raise and lower the cover relative to the grinding wheel, the end walls of said box having cut-outs receiving the disks, coil springs surrounding the horizontal screws and biased between the lugs and said skirt, and knobs on the outer ends of said horizontal screws held against said skirt by said springs.

2. The combination of claim 1 and a vertical scale secured to the outer surface of one end wall of the box, said skirt including an end wall having a straight lower edge crossing the scale and forming an index.

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