Jan. 8, 1924. 1,480,422

S. E. STROM

SKATE GRINDING CLAMP

Filed Feb. 2, 1923

Fig. 1.

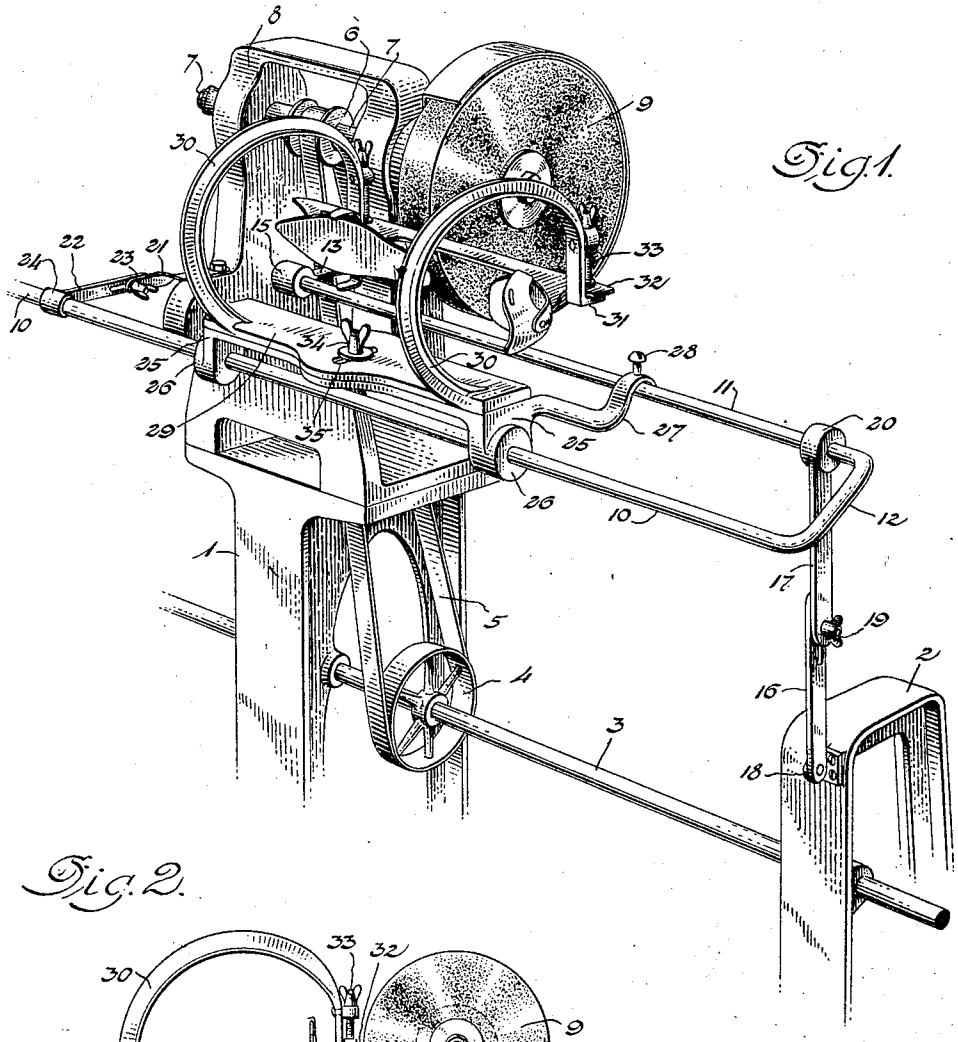
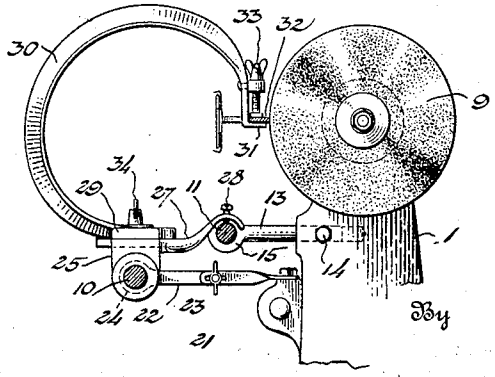


Fig. 2.



Inventor:

Sven E. Strom

By Bartlett & Bartlett

Attorneys

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SVEN E. STROM, OF DETROIT, MICHIGAN.

SKATE-GRINDING CLAMP.

Application filed February 2, 1923. Serial No. 616,482.

To all whom it may concern:

Be it known that I, SVEN E. STROM, a subject of the King of Sweden, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Skate-Grinding Clamps, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an attachment for grinding machines, and more particularly to an attachment for holding and grinding ice skates in sharpening the same, and the object of the invention is to provide a simple device which may be conveniently attached to grinders as commonly constructed for use in shoe repair shops, whereby an ice skate may be accurately and expeditiously sharpened.

A further object is to provide an attachment whereby the skate is rigidly held and accurately guided in its longitudinal movement across the face of the grinding wheel and whereby the skate may be swung laterally in its plane of longitudinal movement to bring the curved or rounded end portions of the skate runner into proper engagement with the grinding wheel while being guided in such movement. It is also an object to provide means whereby the position of the skate relative to the grinding wheel may be accurately and quickly adjusted and means whereby the grinding operation may be accurately controlled by the operator and the work moved into and out of engagement with the grinding wheel at will to inspect and control the work and to facilitate the removal and replacement of skates from the device. It is also an object to provide certain other new and useful features in the construction and arrangement of parts, all as will hereinafter more full appear.

With the above and other ends in view, the invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims, reference being had to the accompanying drawings in which—

Fig. 1 is a perspective view of a grinding machine of conventional construction with an attachment illustrative of the invention in operative position thereon; and

Fig. 2 is a transverse section of the same.

The attachment illustrative of the invention and shown in the drawing, is shown as applied to a conventional form of grinding machine usually employed in shoe repair shops and comprising suitable supporting frames or standards 1 and 2 carrying a line driving shaft 3 upon which is secured a drive pulley 4 from which motion is transmitted by a belt 5 to a pulley 6 on a spindle 7, which spindle is mounted in a suitable head or frame 8 formed integral with or secured to the standard 1 in any suitable manner. On one end of the spindle 7 is a suitable grinding wheel 9 to rotate with the spindle.

The attachment illustrative of the invention comprises a rigid frame formed of a heavy rod or shaft bent into U-shape to provide parallel straight portions 10 and 11 connected at one end by a connecting portion 12 and to secure this guide frame to the grinding machine, a bracket 13 is adjustably and detachably secured to a suitable part of the head 8 by the engagement of the rounded shank portion or stem of the bracket within an opening in the frame and securing the same in place by a set screw 14. The outer end of this bracket is formed with an eye or bearing 15 to receive the free end of the straight portion 11 of the guide frame. This frame is supported at its connected or closed end 12 by a suitable supporting arm comprising links 16 and 17, the link 16 being pivotally attached at 18 to the standard 2 and to the lower end of the link 17 by a thumb screw 19 passing through an opening in one link and through a longitudinal slot in the other link, the upper end of the link 17 being formed with an eye 20 to receive the arm 11 of the guide frame. The closed end 12 of the guide frame is thus adjustably supported by these links 16 and 17 and the opposite end of the arm or member 10 of the frame is adjustably supported by an arm 21 rigidly secured to the head 8 and extending outwardly therefrom and a link 22 attached to the outer end of said arm by a screw 23 passing through an opening in the arm and a longitudinal slot in the link, which link is formed with an eye 24 at its outer end to receive the free end of the guide arm 10 of the guide frame.

To carry and guide a skate to be sharpened, a table 25 is provided to slide upon the guide rod or arm 10, said table being formed with downwardly extending ears 26 having openings to receive the rod and slide longitudinally thereof. To prevent tilting of the table upon said guide rod, an arm 27

extends laterally therefrom toward the arm 11 and has a curved end portion to overlie the rod with an adjusting screw 28 carried by said end to engage the rod and ride thereon during the reciprocating movement of the table.

The table is thus prevented from tilting or turning on the rod 10 toward the grinding wheel but is free to rotate in an opposite direction or away from the wheel.

On the upper flat face of the table 25 is a plate 29 formed with a pair of upwardly and laterally curved arms 30, the free ends of which extend adjacent to the grinding wheel and are provided with outwardly turned ends forming seats 31 for the blade 32 of a skate to be sharpened, and carried by each arm to oppose each seat is a clamping screw 33 to engage the upper side of the skate blade or runner and clamp the same firmly in place upon its seat.

The plate 29 is attached to the table 25 by a single centrally positioned vertical pivot in the form of a screw provided with a thumb-nut 34, the screw being secured to the table and extending upward through a transverse slot 35 in the plate. This plate with its skate carrying means 30 may therefore be turned or swung upon the table about its vertical pivot while being guided in its longitudinal movement upon the guide member 10 of the frame, to present the curved end portions of a skate runner to the grinding wheel. By slackening the thumb nut 34 on its screw, this plate 29 may be slid transversely upon its table to adjust the skate toward or from the grinding wheel.

The guide member 10 upon which the table 25 slides, may be adjusted by means of the screw 23 to bring this member exactly parallel with the face of the grinding wheel and the adjustable links 16 and 17 may be adjusted to vary the height of the closed end of the supporting frame to bring the frame into a true horizontal position at right angles to the grinding wheel, and therefore the position of the skate runner may be varied to bring it in proper relation to the wheel so that said wheel will grind exactly at right angles to the blade and give a true even cut, grinding the runner with a slight concave, due to the circular form of the grinding surface of the wheel cutting at exactly right angles to the blade.

With this device, a skate runner may be very accurately ground with a slight concave, by an inexperienced workman, and the grinding apparatus found in most shoe repair shops may be utilized for the purpose, the device being cheap to manufacture and quickly attachable to or detachable from such machine, and the work may be very expeditiously performed as the skate is accurately held and guided relative to the grinding wheel, and it is only necessary for the operator to move the table back and forth upon its guide and swing the plate slightly, by grasping the two arms 30. Because of the manner in which the skate is held, the operator may have an unobstructed view of the work during the grinding operation, and thus is enabled to perform a true even grinding operation.

Obviously changes may be made in the particular form or construction of the attachment and manner of attaching the same to a grinding machine of any suitable form of construction, within the scope of the appended claims and without departing from the spirit of the invention, and such changes are contemplated.

Having thus fully described my invention, what I claim is:—

1. An attachment for grinding machines comprising a guide frame, means for attaching said guide frame to a grinding machine, reciprocable means guided by said frame, and holding means carried by said reciprocable means for holding a skate to present the blade thereof in right angular relation to a grinding wheel of the grinding machine, said reciprocable means being rockable upon said frame transversely of its reciprocating movement to move the skate held thereby toward and from the wheel, and said holding means being turnable about an upwardly extending axis relative to the frame to present a curved surface of the skate to the grinding wheel during the reciprocatory movement.

2. An attachment for grinding machines comprising a guide frame, a table reciprocable upon and guided by said frame, means for detachably attaching said frame to a grinding machine to guide said table in its reciprocation at right angles to the plane of rotation of a grinding wheel of the grinding machine, a skate holding and guiding member pivotally secured to said table to swing about an upwardly extending axis during reciprocation and provided with spaced laterally extending arms, and clamping means on the free ends of said arms for holding a skate.

3. An attachment for grinding machines comprising a guide frame including a guide arm, means for adjustably and detachably securing said frame to a grinding machine, a table having ears provided with openings to receive said guide arm and slide and rock thereon, means for holding said table against rocking upon said arm, and means on the table for holding and guiding a skate during reciprocation of said table.

4. An attachment for grinding machines comprising a guide frame having a guide arm and a guide parallel with said arm, a work carrying member reciprocable and rockable upon said guide arm and having a member extending laterally over said par-

allel guide to engage the same and prevent rocking in one direction of said work carrying member upon said guide arm, and means on said work carrying member at the side thereof from which the laterally extending member extends, for detachably holding the work.

5. An attachment for grinding machines including a guide frame having parallel spaced guide arms, means for attaching said frame to a grinding machine, a work carrying table slidable and rockable upon one of said guide arms, means on said table extending laterally over the other of said guide arm to prevent rocking of the table in one direction, and work supports on the table extending toward said last named guide arm.

6. An attachment for grinding machines including a supporting and guiding frame having parallel guide rods, means for detachably attaching said frame to a grinding machine, a table slidable upon and rockable about one of said guide rods, an arm on the table extending laterally therefrom over the other of said guide rods, adjusting means on said arm to engage and rest upon said last named guide rod and prevent rocking of the table in one direction during its reciprocation, a plate seated upon said table and pivotally attached thereto to swing thereon, work carrying arms on the plate extending upwardly and laterally therefrom toward the guide rod supporting said arm on the table, and clamping means on the free ends of said work carrying arms.

In testimony whereof I affix my signature in presence of two witnesses.

SVEN E. STROM.

Witnesses:

LEWIS E. FLANDERS,

ANNA M. DORR.