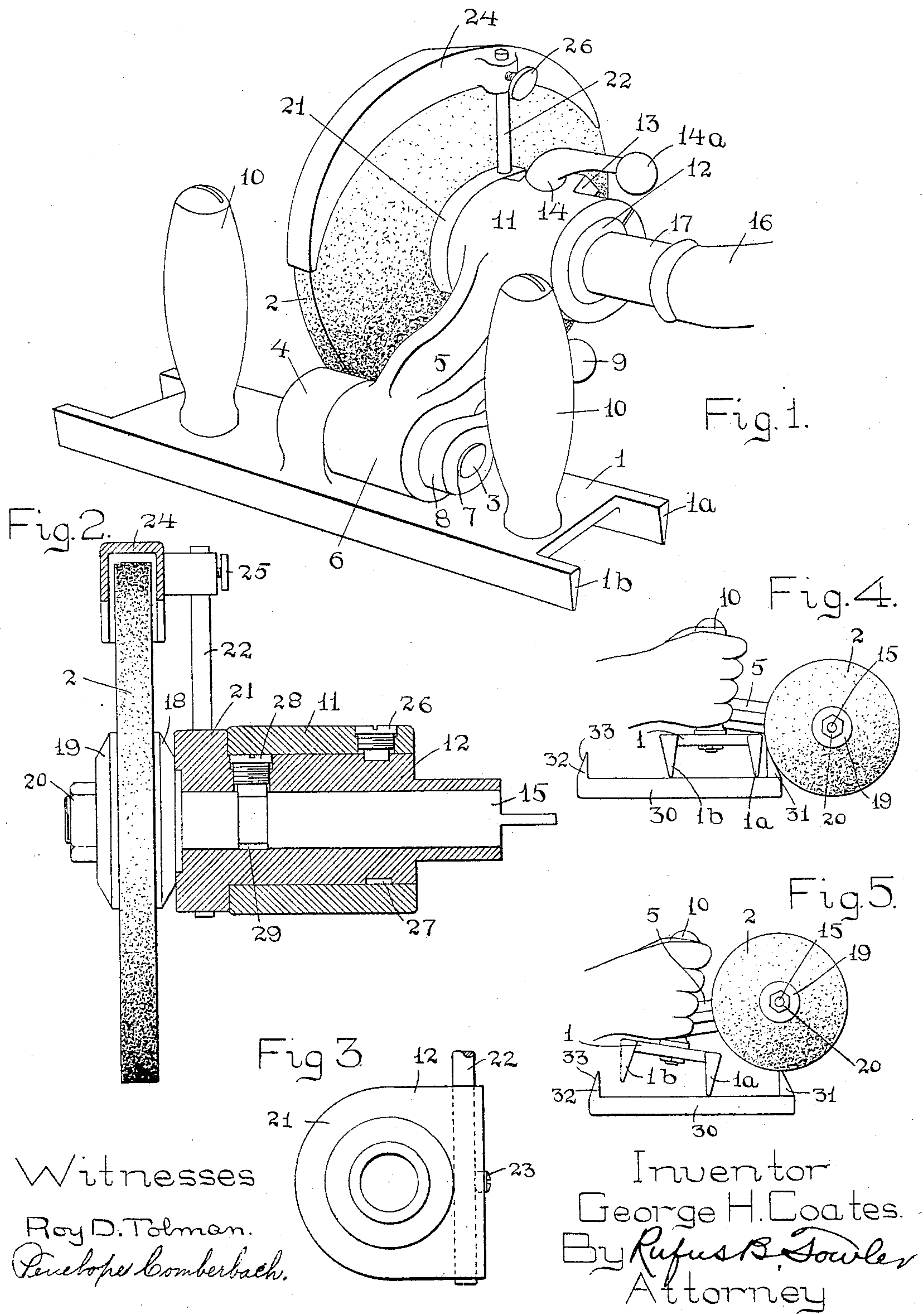


No. 801,217.

PATENTED OCT. 10, 1905.

G. H. COATES.
GRINDING MACHINE FOR HORSESHOE CALKS.
APPLICATION FILED NOV. 11, 1904.



UNITED STATES PATENT OFFICE.

GEORGE H. COATES, OF WORCESTER, MASSACHUSETTS.

GRINDING-MACHINE FOR HORSESHOE-CALKS.

No. 801,217.

Specification of Letters Patent.

Patented Oct. 10, 1905.

Application filed November 11, 1904. Serial No. 232,277.

To all whom it may concern:

Be it known that I, GEORGE H. COATES, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in Grinding-Machines for Horseshoe-Calks, of which the following is a specification, accompanied by drawings forming a part of the same, in which—

10 Figure 1 is a perspective view. Fig. 2 is a view of the grinding-wheel and its bearings, partly in section. Fig. 3 is a detached end view of the sleeve in which the grinding-wheel shaft is journaled, and Figs. 4 and 5 are diagrammatic views illustrating the application of my improved machine.

Similar reference-figures refer to similar parts in the different views.

My invention relates to a mechanism for sharpening and grinding the calks of horse-shoes; and it has for its objects to furnish a steady rest for the grinding mechanism while in use, thereby insuring accuracy in grinding and preventing the chattering and vibration incident to the operation of a rapidly-revolving grinding-wheel; to provide means for sharpening both toe and heel calks from a single position of the rest and to afford an accurate means for leveling any inequalities in the tips of the calks and bringing them parallel with the plane of the shoe; and it consists in providing a movable rest for a grinding-wheel adapted to bear upon the face of the shoe, in providing means for changing the position of the grinding-wheel relatively to the rest, and in the construction and arrangement of parts, as hereinafter described, and pointed out in the annexed claims.

Referring to the accompanying drawings, 40 1 denotes a rest or support for the grinding-wheel 2, of any suitable abrasive material. The rest 1 is preferably provided with ribs 1^a 1^b, adapted to rest and slide upon the face of the shoe. Pivoted on a spindle 3 from a 45 lug 4 on the rest 1 is an arm 5, held on the spindle 3 by a sleeve 6. The end of said spindle 3 is screw-threaded at 7, upon which end is placed a nut 8 with a handle 9, by which the sleeve 6 may be securely crowded against the 50 lug 4 and held from turning. Also attached to the rest 1 are handles 10, by which the machine may be firmly held while in operation. At the free end of the arm 5 is a split bearing 11, which incloses a sleeve 12 and 55 may be clamped thereon by a bolt 14 passing through flanges 13 and which is tightened by

the handle 14^a. Journaled in the sleeve 12 is a shaft 15, operated by a flexible shaft 16 of any suitable and known form of construction and is connected with any available 60 source of power. Mounted on the end of the shaft 15 is the grinding-wheel 2, held in the usual manner by collets 18 19 and a nut 20. Next to the collet 18, and preferably integral with the sleeve 12, is an enlargement 21 of 65 the sleeve 12, forming a shoulder bearing against the end of the split bearing 11 and provided with a hole for a spindle 22, adjustably held by a set-screw 23 and supporting at its end a hood 24, removably attached to the 70 spindle 22 by a set-screw 25 and inclosing a portion of the periphery of the grinding-wheel 2. By loosening the bolt 14 the sleeve 12 may be revolved in the bearing 11 in order to change the position of the hood over the 75 grinding-wheel; but longitudinal movement of the sleeve 12 is prevented by the set-screw 26, held in the bearing 11 and entering an annular groove 27 in the sleeve 12. The shaft 15 is also held from longitudinal move- 80 ment in the sleeve 12 by a set-screw 28, held in the sleeve 12 and entering a groove 29 in the shaft. By loosening the set-screw 26 and bolt 14 and detaching the shaft 15 from the shaft 16 the sleeve 12, shaft 15, and grind- 85 ing-wheel 2 may be removed from the split bearing 11. By withdrawing the set-screw 28 from the annular groove 29 in the shaft 15 and removing the spindle 22, which carries the hood 24, the sleeve 12 may be removed 90 from the shaft 15.

The method of operation of my improved grinding mechanism is illustrated in Figs. 4 and 5, in which I have represented a horse-shoe at 30, having a toe-calk 31 and a heel- 95 calk 32. The handles of the grinding-machine are grasped by the operator and the ribs 1^a and 1^b are rested upon the horseshoe, as shown in Fig. 4, at the proper distance from the calk to allow the grinding-wheel 2 100 to bear upon the outer surface of the calk to be ground. In Fig. 4 the grinding-wheel 2 is shown in contact with the toe-calk 31. The rest 1 is then moved longitudinally on the face of the shoe, thereby traversing the grind- 105 ing-wheel along the outer surface of the toe-calk. When the operation of sharpening this calk has been completed, by loosening the nut 8 the arm 5 may be swung on the bracket 4 and the position of the grinding-wheel may 110 be changed to similarly sharpen the outer surface 33 of the heel-calk 32. When the

position of the grinding-wheel is so changed, the hood can be changed to correspond by loosening the split bearing 11 and turning the sleeve 12 to bring the hood into its desired position. The tip of the toe-calk often wears unevenly, and it is necessary to level it before the operation of sharpening, and I have illustrated in Fig. 5 the application of my invention to this purpose. The arm 5 is swung to bring the grinding-wheel 2 in contact with the highest position of the calk when the ribs 1^a and 1^b are both in contact with the horseshoe, and as this highest position is ground off the grinding-wheel may be still retained in contact with the calk by tipping the rest 1 upon the rib 1^a, as illustrated in Fig. 5. If the tip of the heel-calk 32 were to be similarly leveled, it is of course obvious that after swinging the arm 5 and changing the position of the grinding-wheel 2, as has been already described, the rest 1 would be tipped on the rib 1^b.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine for grinding horseshoe-calks, the combination with a rest adapted to be held on the horseshoe during the operation of grinding, a pair of handles attached to said rest, a grinding-wheel carried by said rest and means for adjusting said wheel relatively to said rest.

2. In a machine for grinding horseshoe-calks, the combination with a grinding-wheel, means for driving said wheel, a rest for said wheel adapted to be held upon the horseshoe during the operation of grinding, and a pivoted connection between said wheel and said rest.

3. In a machine for grinding horseshoe-calks, the combination with a grinding-wheel, means for driving said wheel and a rest for said wheel provided with a longitudinal rib, said rib being adapted to bear upon the horseshoe and allow the rest to be rocked thereon.

4. In a machine for grinding horseshoe-calks, the combination with a grinding-wheel, means for driving said wheel, a rest for said wheel adapted to be held upon the horseshoe during operation of grinding, and an arm connecting said wheel and said rest.

5. In a machine for grinding horseshoe-calks, the combination with a grinding-wheel, means for driving said wheel, a rest for said wheel adapted to be held upon the horseshoe during the operation of grinding, and means for grinding both toe and heel calks without reversing the position of the rest.

6. In a machine for grinding horseshoe-calks, the combination with a grinding-wheel, means for driving said wheel, a rest adapted to be held upon the horseshoe during the operation of grinding, and an arm pivotally attached thereto, a bearing on the opposite end of said arm, a sleeve for the shaft of said wheel inclosed by said bearing, a hood for said grinding-wheel adjustably supported from said sleeve, and means for allowing or restraining at will both circular and longitudinal movements of said sleeve in said bearing.

7. In a machine for grinding horseshoe-calks, the combination with a grinding-wheel, means for driving said wheel, a rest adapted to be held upon the horseshoe during the operation of grinding, an arm pivotally attached thereto, a bearing on the opposite end of said arm, a sleeve inclosed by said bearing, and a shaft for said grinding-wheel journaled in said sleeve.

8. In a machine for grinding horseshoe-calks, the combination with a rest adapted to slide on the shoe, an arm pivoted to said rest, means for varying the angle of said arm to said rest and a grinding-wheel carried by said arm.

GEORGE H. COATES.

Witnesses:

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