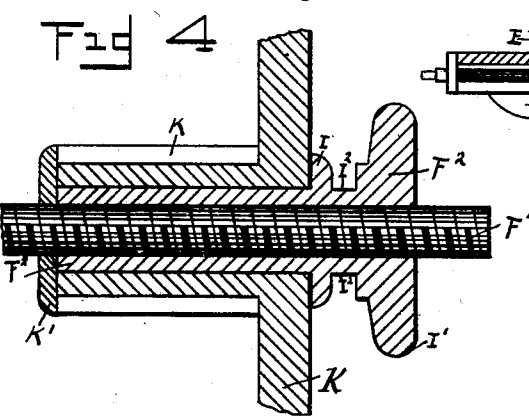
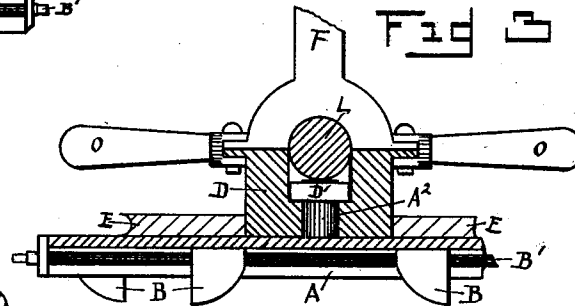
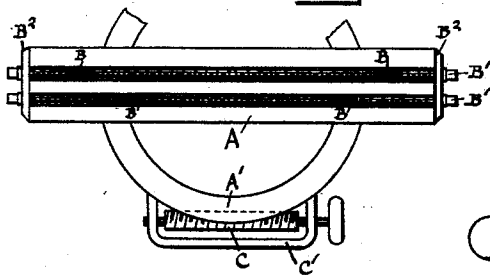
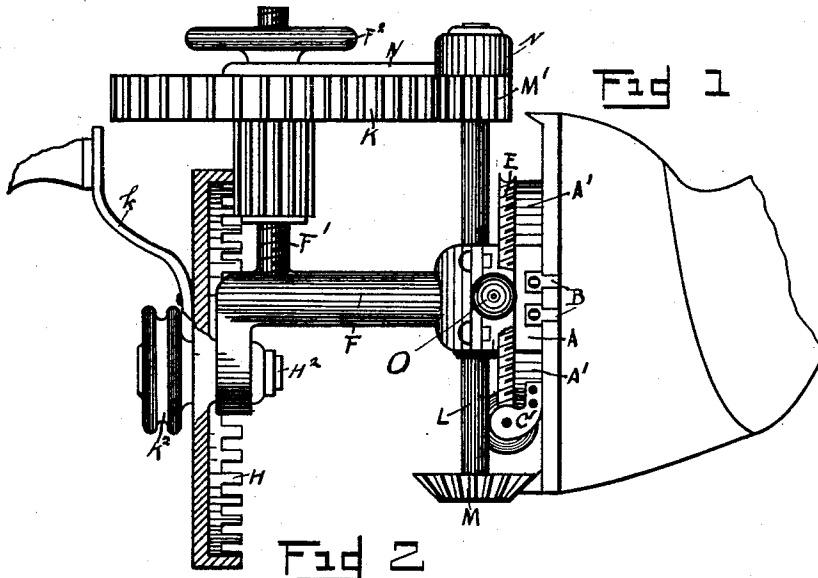


(No Model.)

J. H. E. CLARK.
CALK SHARPENER.

No. 479,204.

Patented July 19, 1892.



James H. E. Clark

Witnesses
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UNITED STATES PATENT OFFICE.

JAMES H. E. CLARK, OF COUNCIL BLUFFS, IOWA.

CALK-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 479,204, dated July 19, 1892.

Application filed February 16, 1892. Serial No. 421,761. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. E. CLARK, of Council Bluffs, in the county of Pottawattamie and State of Iowa, have invented certain useful Improvements in Calk-Sharpener; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention has relation to a new and novel calk-sharpener.

The object of this invention is to provide a simple device by means of which the calks upon the shoes of draft animals—such as mules and horses—may be readily and speedily sharpened without taking the shoe from the animal's hoof, as will be described more fully hereinafter, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 shows a calk-sharpener, with parts broken away, as attached to a horse's hoof. Fig. 2 is a bottom view of the pivot-block, showing the arrangement of the worm-feed. Fig. 3 is a view, partly in section, illustrating the connection of the pinion-stock to the pivot-block, while Fig. 4 is a central sectional view of the adjustable spur-gear as employed in my device.

The aim of my invention is to provide a horseshoe-calk sharpener that shall be so constructed that it may be detachably secured to the shoe without danger of injuring the hoof, and that shall be sufficiently simple in its construction and operation so as to enable any unskilled operator to use the same.

In furthering the aim of my invention I provide a pivot-block comprising the bar A, of wrought or malleable cast-iron, which is provided with the circle A', forming part thereof. The bar is further provided with two longitudinal grooves, which are adapted to adjustably hold the four T-shaped gripping-jaws B B B, which are mounted in sets of two upon the right and lefthanded screws B' B'. These screws work within the grooves of the bar A, being supported at each end by means of the journal-plates B² B², as will be understood by referring to Fig. 2. Centrally the bar A is

provided with the pivot-post A², integral therewith, and by means of which the pinion-stock is secured thereto. The circle A' is provided with the worm C at a convenient point, which is provided with an operating-head and held by means of the bracket C', as shown.

The base D of the pinion-stock is provided with a suitable opening adapted to contain the pivot-post A² and is pivotally held upon said post by means of the nut D'. This base D is provided with the worm-gear E, which is engaged by the worm C, so that these two circles A' and E may both be adjusted or held in a locked position by means of said worm. Detachably secured to the base D is the pinion-stock F, provided at a suitable point, near the upper end, with the threaded stub-shaft F' and terminating in an angular portion adapted to offer a bearing to the crown-gearing H. This stock is of any suitable cast or forged metal. Adjustably held upon the shaft F' is the threaded sleeve F², provided with the shoulder I, the operating-head I', and the groove I². Upon this sleeve the compound spur-gear K is revolubly held by means of the shoulder I and the plate K'. The pinion of this gear is engaged by the crown-gear H, connected by means of a stub-shaft H² to the stock F and provided with the integral grooved pulley K² and a suitable operating-crank k. Passing through the base of the stock F is the adjustable free milling-shaft L, provided at the forward end with the miller M and at the rear with the fixed pinion M'. This pinion meshes with the compound gear K, while the shaft L is revolubly secured to the adjustable sleeve F² by means of the tie-bar N. This bar N acts as an end bearing to the shaft L and at its lower end works between the pinion M' and an end nut and at its upper end within the groove I², so that as the sleeve F' is adjusted the connected shaft L is given a corresponding adjustment. Upon the sides the stock is provided with the supporting-handles O O.

When all the instrumentalities have been properly arranged, the operation of my device would be as follows: The sharpener is secured to the shoe by means of the jaws B B B, two of which work outward and two inward, so that the shoe is securely clamped between them, the screws B' B' being operated

by means of a key. The miller M, secured to the forward end of the shaft L, is then properly adjusted by means of the sleeve F² and the sharpener started, being operated at the crown-wheel by hand or any other power. The miller is now fed forward and the feed adjusted by means of both the sleeve F² and the worm C until the calk has been properly sharpened. When the forward calk has been sharpened, it is simply necessary to feed the miller around by means of the worm C until the rear calks are reached, where the miller is again adjusted and fed from side to side until the calks are in proper condition. For the various forms of calks different cutters are used.

Now, having described my said invention and the best method known to me of operating the same, what I claim as new, and desire to secure by United States Letters Patent, is—

1. In a calk-sharpener, the combination of a clamping base-bar, a worm attached to said bar, a pinion-stock pivotally secured to said base-bar, provided with a worm-gear meshing with said worm, a cutter-shaft within said stock, and gears for operating said cutter-shaft, substantially as and for the purpose set forth.

2. In a calk-sharpener, the combination of a clamping base-bar, a pinion-stock pivoted to said bar, provided with a stub-shaft and adjustable upon said bar by means of a worm and gear, a cutter-shaft within said stock, provided with a pinion, an adjustable gear upon said stub-shaft, meshing with said pinion, and means for operating said gear, all substantially as and for the purpose set forth.

3. In a calk-sharpener, the combination of a clamping base-bar, a pinion-stock pivotally secured to said bar and provided near its upper end with a threaded stub-shaft, a cutter-shaft free within said stock, provided with a pinion, a threaded sleeve adjustable upon

said threaded stub-shaft, provided with a gear meshing with said pinion, and means for operating said gear, substantially as set forth.

4. In a calk-sharpener, the combination of the following instrumentalities, to wit: a clamping base-bar provided with a worm, a pivoted pinion-stock secured to said bar, having a threaded stub-shaft near its upper end, and a worm-gear meshing with said worm at its lower end, a cutter-shaft free within said stock, provided with a pinion, a threaded sleeve upon said stub-shaft, having a gear meshing with said pinion, a tie-bar connecting said cutter-shaft to said sleeve, and means for operating said gear, all substantially as and for the purpose set forth.

5. In a calk-sharpener, the combination of the following instrumentalities, to wit: a clamping base-bar, a worm connected to said bar, provided at the upper end with a shaft opening centrally with a threaded stub-shaft, and at the lower end with a worm-gear, a cutter-shaft free within said stock provided with a pinion, and a compound gear and pinion adjustable upon said stub-shaft, said gear meshing with the pinion upon the cutter-shaft, a crown-gear secured to the upper end of the stock, said crown-gear meshing with the pinion of said compound gear, a tie-bar revolvably securing said cutter-shaft to said compound gear, and means for actuating said crown-gear to operate said cutter-shaft, said cutter-shaft having a radial and circumferential adjustment within one plane, all substantially as and for the purpose set forth.

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

JAMES H. E. CLARK.

Witnesses:

GEO. F. WRIGHT,
JOHN N. BALDWIN.