J. M. HUNTER.

Horseshoe Calk-Sharpener.

No. 207,744. Patented Sept. 3, 1878.

Fig. 1.

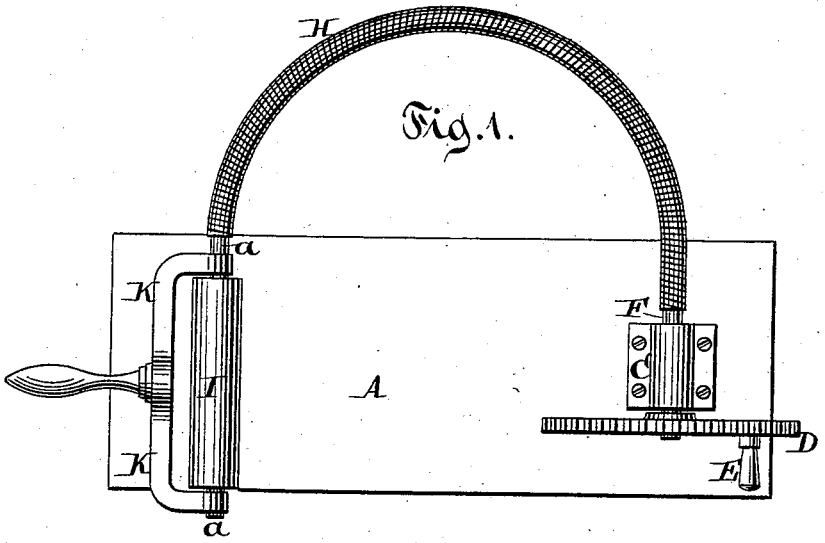
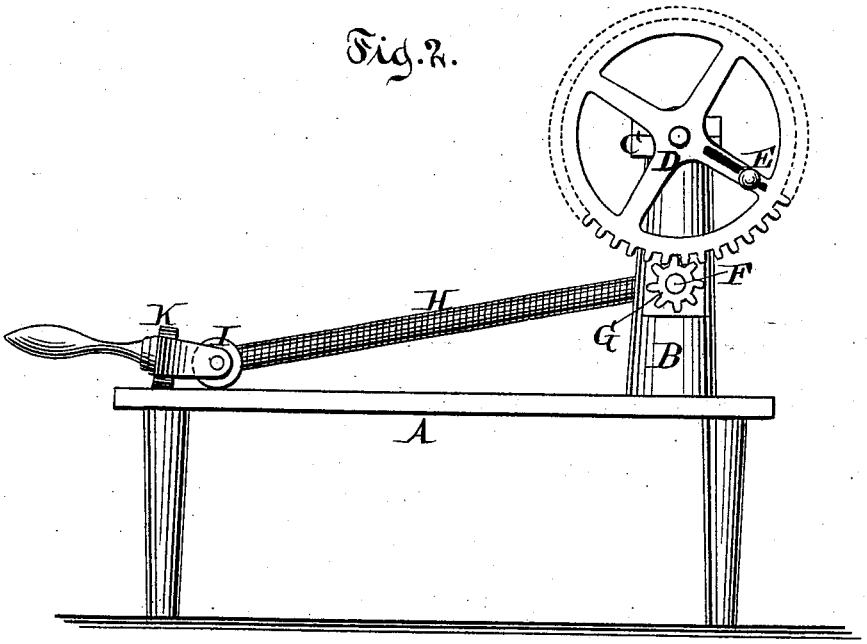


Fig. 2.



Witnesses.

F. C. Barnard

J. M. Alexander.

Inventor.

James M Hunter by

Duell Wells & Duell

his attys.

UNITED STATES PATENT OFFICE.

JAMES M. HUNTER, OF GREENE, NEW YORK.

IMPROVEMENT IN HORSESHOE-CALK SHARPENERS.

Specification forming part of Letters Patent No. **207,744**, dated September 3, 1878; application filed May 10, 1878.

To all whom it may concern:

Be it known that I, JAMES M. HUNTER, of Greene, in the county of Chenango and State of New York, have invented a new and useful Improvement in Machines for Sharpening the Calks of Horse and other Shoes, of which the following is a specification, reference being had to the accompanying drawings.

My invention consists of a device for sharpening calks on horseshoes and the like without removing the shoe from the foot.

Figure 1 is a plan view, and Fig. 2 a side elevation, of my invention.

Upon any firm bench or support, A, a column, B, is erected. The summit of this column B is provided with a bearing, C, to receive the shaft of the cog-wheel D. The cog-wheel D, preferably of metal, is provided with a handle, E, set at a right angle to its plane, and near its periphery a radial slot may be made from near the center of the wheel almost to the periphery, (care being taken not to extend the slot in either direction so far as to weaken the wheel.) The handle may be made to traverse in this slot, and, being provided with a shoulder and screw on its attached end, may be set at any point by a nut. Thus the distance of the handle from the center of the wheel may be adjusted according to the length of arm and strength of the operator. For most persons, however, if the handle is set about one-eighth of the diameter of the wheel from the periphery it will answer every purpose.

Beneath the cog-wheel D, and at a proper distance from it, the column B is pierced with a hole to receive the shaft F of the pinion G. The faces of the column at this point should be flat, so as to give bearing to the collar set upon the shaft of the pinion, and thus retain the pinion in position to be acted on by the cog-wheel.

The pinion may be of the same material as the cog-wheel. Between the pinion and the adjacent face of the column the shaft F is provided with a collar to prevent the contact of this pinion with that face, and thus reduce the friction. The shaft of the pinion passes through the column and appears on its other side, as shown in Fig. 1. This shaft is there provided with another collar, (not shown in drawing,) which, in conjunction with the collar on said shaft, heretofore mentioned, prevents any lateral motion on said shaft, and retains the pinion fairly on the cog-wheel.

Attached to the extremity of the pinion-shaft most distant from the pinion is the ordinary form of flexible shaft H, consisting of a wire coiled spirally, and so closely that each turn is nearly, if not quite, in contact with those adjacent to it. The extremity of the flexible shaft most distant from the pinion is connected with the shaft *a* of a cylinder of emery, I. The shaft *a* passes longitudinally through the emery-cylinder I, and its extremities bear and revolve in the parallel ends of a forked handle, K. The form of this handle and its combination with the shaft *a* are shown clearly in the drawing, and a universal joint and sliding sleeve may be substituted in its stead.

The greater the speed of the emery-cylinder the better the result. The cog-wheel D should not be less than fifteen inches in diamter, and it may exceed that to advantage; the diameter of the pinion about one inch. The length of the flexible shaft, or the extreme length of the hereinbefore-described equivalent, should be about twenty-four inches, and its diameter one-half inch. The emery-cylinder should be about one inch in diameter and three inches long.

My device is operated as follows: An assistant turns the cog-wheel D by its handle. The motion is transmitted to the pinion and its shaft, thence through the flexible shaft or its equivalent to the emery-cylinder, which revolves rapidly. The animal's hoof, with shoe attached, being raised by another person and held so as to give access to the calks, the emery-cylinder, revolving rapidly, is applied to them by the person holding the hoof. Owing to the flexibility of the connection between the pinion and the emery-cylinder, it may be applied in any desired position and to any desired point. Thus the metal of the calk is ground away and the calk sharpened.

What I claim as new, and desire to patent, is—

In combination with the base or support A and the standard B, carrying the toothed driv-

ing-wheel E and pinion F, intermeshing with the same, the flexible shaft H, secured at one end to the shaft of the pinion F, and at the other to the shaft of a grinding-cylinder, I, journaled at each end in the branches of a forked handle, K, the whole constructed to operate substantially as set forth.

In testimony that I claim the foregoing improvement in machines for sharpening the calks of horse and other shoes, as above described, I have hereunto set my hand this 8th day of May, 1878.

JAS. M. HUNTER.

Witnesses:

HENRY P. WELLS,

JOSEPH M. ALEXANDER.