(No Model.)

A. B. SMITH.

HORSESHOE CALK SHARPENER.

No. 521,513. Patented June 19, 1894.

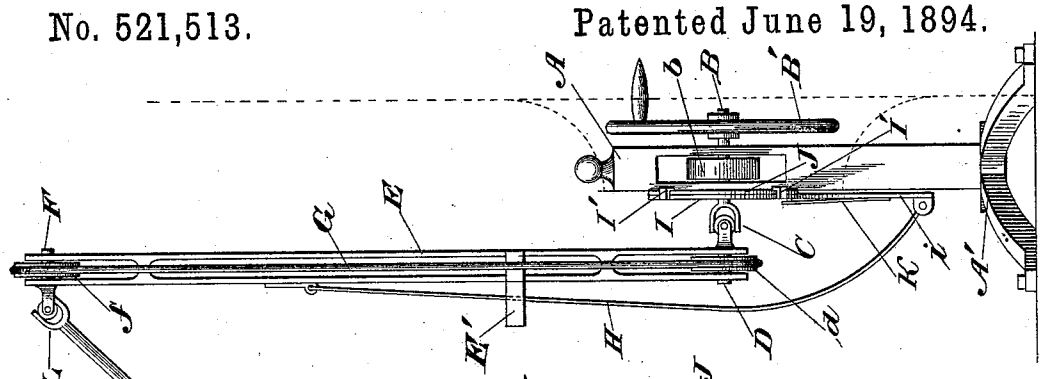


Fig. 1.

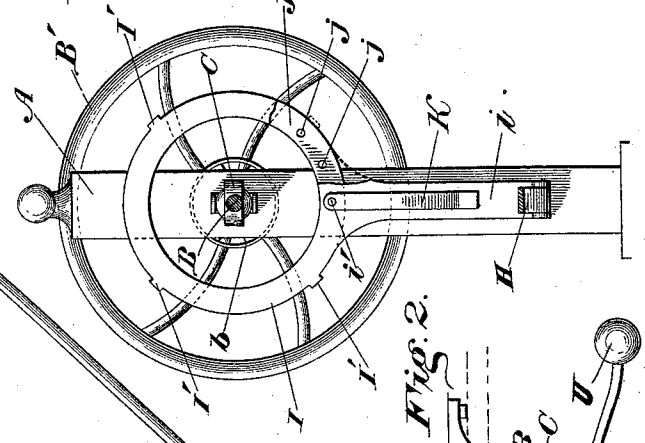


Fig. 2.

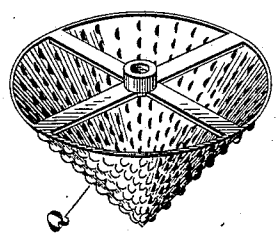
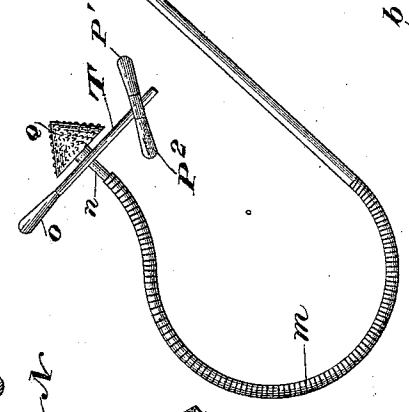


Fig. 4.



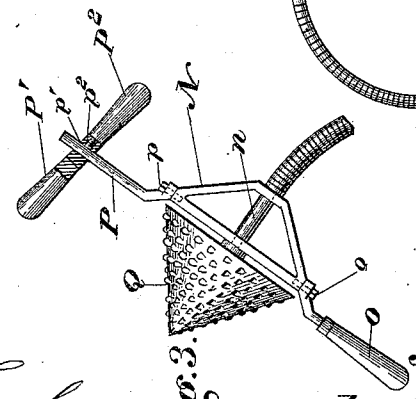


Fig. 3.

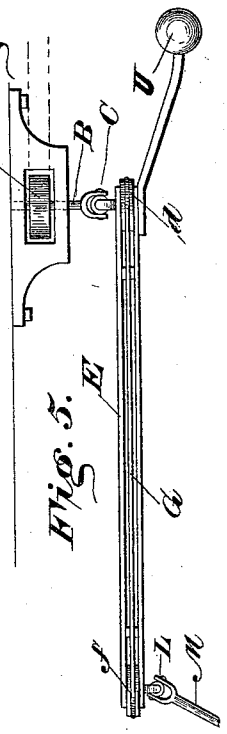


Fig. 5.

Witnesses
M. E. Fowler
James Mansfield

Inventor
Alvia B. Smith
by Alexander & Sowell
Attorneys

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ALVIA BYRON SMITH, OF MIDDLEBURY, VERMONT.

HORSESHOE-CALK SHARPENER.

SPECIFICATION forming part of Letters Patent No. 521,513, dated June 19, 1894.

Application filed March 3, 1894. Serial No. 502,229. (No model.)

To all whom it may concern:

Be it known that I, ALVIA BYRON SMITH, of Middlebury, in the county of Addison and State of Vermont, have invented certain new and useful Improvements in Farriers' Tools; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention is an improvement in machines and tools especially designed for use in trimming horse hoofs, grinding and cutting calks, polishing and burnishing, and otherwise applicable to various useful purposes.

The invention consists in the novel constructions and combinations of parts, hereinafter described in detail, and as stated in the claims.

In the accompanying drawings: Figure 1 is an elevation of the complete machine. Fig. 2 is a detail front view thereof. Fig. 3 is a detail view of a preferred form of tool holding frame. Fig. 4 is a detail view of the cone-rasp. Fig. 5 illustrates a modification.

Referring to said drawings by letter A designates a standard mounted on a base A′ or other suitable support. In this standard is journaled a horizontal shaft B upon one end of which is fixed a crank wheel B′ by which the shaft may be turned by hand; but it may be rotated mechanically, as by a pulley *b* thereon belted to a suitable motor. The other end of the shaft is connected by a universal joint C to a stub shaft D journaled on one end of a frame E,—(which may be a single bar if desired)—about four feet long, in the opposite end of which is journaled a stub shaft F, upon which is fixed a pulley *f*, driven by a belt G from a pulley *d* on shaft D. The frame E is normally held at about right angles to shaft B, and parallel with the standard, by a spring bar H, one end of which is connected to the side of the frame, and the other end to an arm *i* on an annular plate I which is rotarily adjustable on an annular plate J, secured to standard A around shaft B. Plate I has a number of ears I′ on its periphery which are bent over the edges of plate J, thereby fastening plate I thereto, but permitting it to be rotated thereon. A spring catch K may be attached to arm *i*, and its tooth *i′* playing through a perforation in plate I can be engaged with any one of a series of openings *j* in plate J, thereby locking plate I in any desired position, to hold frame E at any angle to the standard, and at the same time allow its outer end to be moved away from the standard overcoming the resistance of spring H, which however will throw the frame back to a position about at right angles to shaft B when said frame is released. A loop E′ attached to frame E near shaft D embraces spring H loosely and will arrest the bowing of it after the frame is swung to a certain extent, thus stiffening the spring.

A rod M is connected at one end by a universal joint L to shaft F, and at its other end by a section *m* of flexible shafting, of any suitable kind, to a stub-shaft *n* journaled in a suitable hand frame; as shown in Fig. 1 the hand frame is simply a straight bar T in the center and transversely of which the shaft *n* is journaled, and suitable handles are attached to its outer ends, one of said handles being provided with an adjustable grip piece P′ as shown.

While the size and shape of the tool holder may be varied to suit different people or tools, I prefer the holder shown in Fig. 3, which consists of a triangular frame N, at two opposite corners of which are handles O, P, standing at about right angles to the stub shaft *n*, and as shown adjustably secured to the frame by set screws *o*, *p*, respectively, so that they can be set to suit the operator. Handle P is provided with an adjustable diagonal grip piece P′ made in two parts, one end of it screwing into the other end and forming the means for securing the grip piece on the handle in any desired position.

From the foregoing description, and the drawings, it will be understood that when shaft B is revolved motion is transmitted to shaft *n*, and the latter can be moved with frame N to any place desired within the range of movement allowed by the swinging frame E, the flexible shafting, and universal joint connections, and it can also be turned at any angle desired.

On the end of shaft *n* is secured the tool which is to be used, such as a burr, cutter, polisher, trimmer, &c., which can be operated by rotary motion.

Q represents a conical rasp, shown detached

in Fig. 4 which can be attached to shaft *n* in any suitable manner, as by screwing it thereon. This rasp is made of thin steel with the teeth cut through. With it the operator can quickly dress down a hoof so as to fit a shoe thereto without burning the hoof or otherwise injuring it, it can also be used to clean out the hoof, and is a very useful tool. The cone may be removed and disk-rasps, cutters, &c., substituted therefor. The peculiar shape of the tool holding frame N and the adjustability of its handles enable the operator to employ the tool with ease, and accurately, and the work performed neatly and speedily.

When the machine is worked by power, or for convenience, the standard A may be replaced by a bracket, which can be fastened to the side wall, or to the ceiling, as indicated in dotted lines Fig. 1, and in Fig. 5, which enables the parts to be folded out of the way when not in use; and I propose securing the bracket overhead, so as to have the greatest range possible. When secured overhead the spring H can be dispensed with, and a weight U substituted therefor, as indicated in Fig. 5, the weight serving to swing the frame up against a wall or ceiling out of the way, except when the machine is in use.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent thereon, is—

1. The combination of a driving shaft, a frame, a stub shaft journaled in said frame, and a universal joint connection between said stub shaft and driving shaft, said joint also constituting a connection between the frame and driving shaft, and suspending the former on the latter a second stub shaft journaled in the outer end of the frame, and means for driving the latter stub shaft from the former; with a tool carrying shaft mounted in a hand frame, and a flexible universal connection between said shaft and the second stub shaft, substantially as set forth.

2. The combination of the hand frame, the handles adjustably attached thereto, and the tool carrying shaft journaled therein, with the flexible shafting connections between said tool carrying shaft and a main driving shaft, substantially as described.

3. The combination of the triangular frame, a tool carrying shaft journaled therein, the handles adjustably attached to the frame, and the grip piece adjustably attached to one of the handles, substantially as set forth.

4. The combination of a main shaft journaled in a suitable support, and means for rotating it, a frame carrying stub shafts at its opposite ends, a universal joint connection between one of the stub shafts and the main shaft, whereby the frame is supported on the main shaft means for driving one of the stub shafts from the other, a rod connected to the second stub shaft by a universal joint, a holder for a rotating tool provided with adjustable handles, and a flexible connection between said rod and the tool holder, substantially as described.

5. The combination of the standard, the plate fixed thereon, the rotatable plate attached to and adjustable on the fixed plate, a spring supported on said movable plate, a main shaft on the standard, and a frame upheld by the spring and adjustably supported on the main shaft, a tool holder, flexible connections between said holder and the outer end of said frame, and means for transmitting motion from a main shaft on the standard along said frame and flexible connections to the tool-holder, substantially as specified.

6. The combination of the main shaft, a support therefor, an adjustable frame, supported on and connected to the main shaft stub shafts journaled in opposite ends of said frame, a universal joint connection between one of said shafts and the main shaft, and pulleys and belt for transmitting motion from one of the stub shafts to the other, an adjustable spring mounted on the support for upholding and adjusting the position of the frame relative thereto with a frame provided with handles, a rotating tool-holding shaft journaled in said hand frame, and flexible connections between the tool-holding shaft and the stub shaft on the free end of the spring controlled frame, all constructed substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

ALVIA BYRON SMITH.

Witnesses:
MILTON A. BROOKS,
LIZZIE M. BROOKS.