

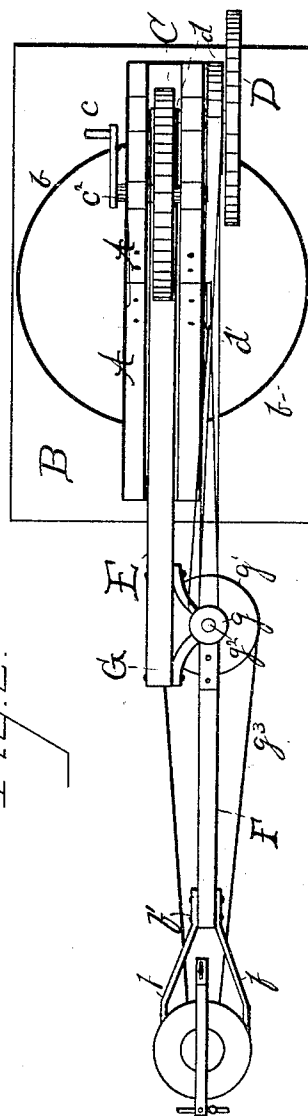
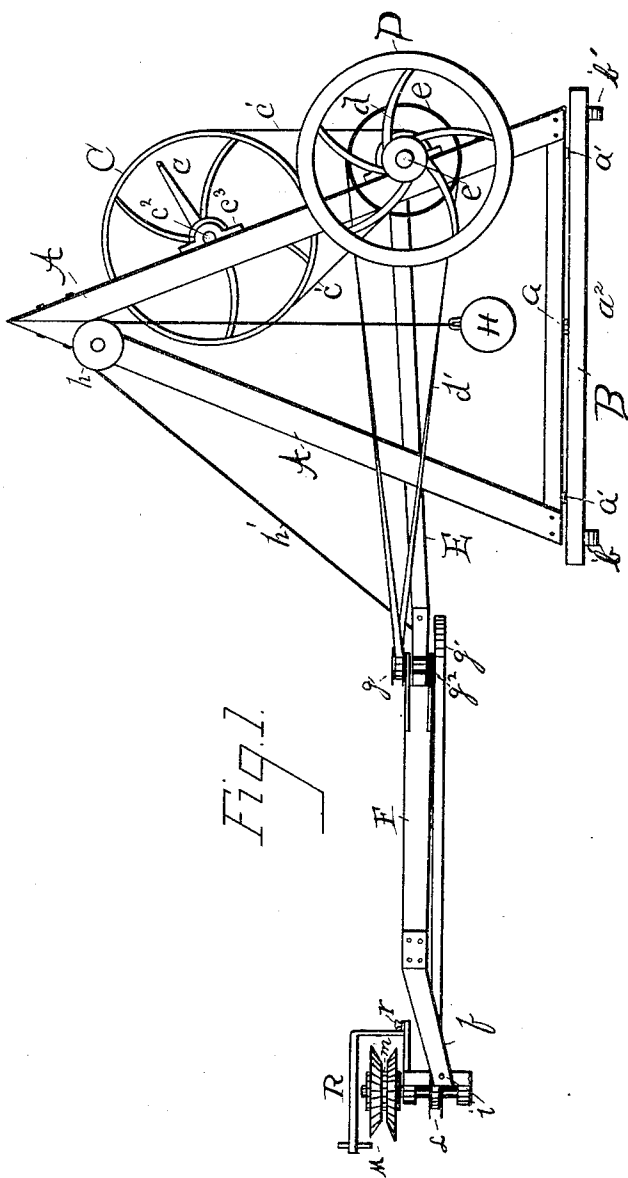
(No Model.)

2 Sheets—Sheet 1.

E. H. FENTON.
CALK SHARPENER.

No. 324,991.

Patented Aug. 25, 1885.



WITNESSES

S. F. Johnson
W. H. Stutzman

Ephraim H. Fenton, INVENTOR

per Rich^d. H. Manning Attorney

(No Model.)

2 Sheets—Sheet 2.

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Fig. 6.

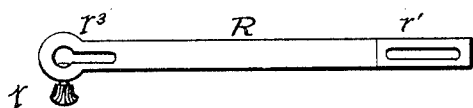


Fig. 5.

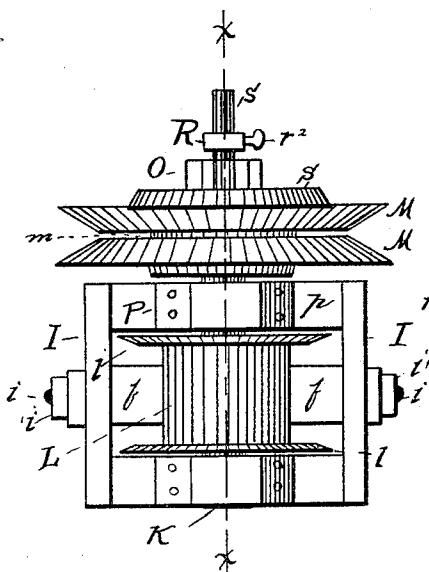
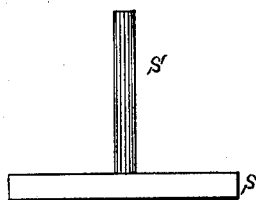


Fig. 3.

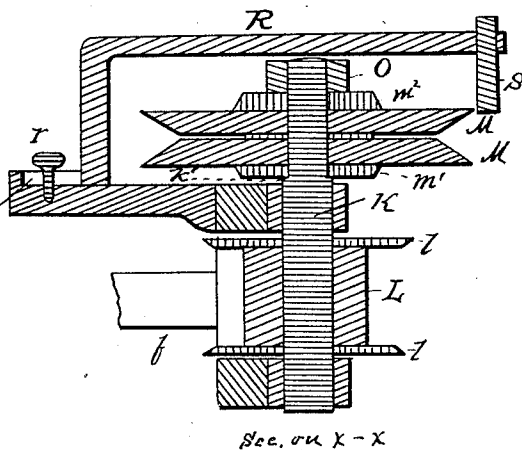


Fig. 4.

WITNESSES
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UNITED STATES PATENT OFFICE.

EPHRAIM H. FENTON, OF KANSAS CITY, MISSOURI.

CALK-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 324,991, dated August 25, 1885.

Application filed February 17, 1885. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM H. FENTON, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Means for Sharpening Calks on Horseshoes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The practice of removing the shoe from the horse's foot for the purpose of sharpening the calks, which is customary, is not only destructive to the hoof, but entails loss of time and expense; and the object of my invention is to utilize the firmly-attached shoe upon the hoof and accomplish the sharpening of the calks upon the horseshoe without removing the shoe from the hoof; and it consists in the novel means and mechanisms hereinafter fully described, and specifically pointed out in the claims.

In the drawings, Figure 1 is a longitudinal elevation of the machine. Fig. 2 is a plan view of the same. Fig. 3 is an end view of the tool-holder and sharpening-tools, and also of the adjustable guard. Fig. 4 is a sectional view of the tool-holder, taken on the line *xx* of Fig. 3, and showing the adjustable guard. Fig. 5 is a view of the adjustable guard. Fig. 6 is a view of the support for the adjustable guard.

A A are the standards, and *a* is the foot-support thereto. *a'* are the wheels beneath the supports *a*. *a''* is a pivot on which the support *a* turns. B is the carriage, and *b'* the wheels on carriage. *b* is a circular track on the carriage B. C is the driving-pulley on the standard A. *c* is the handle. *c'* is the band running from pulley C to pulley *d* on shaft *e'*. *c''* is a shaft for pulley C. *c'''* is the journal-box. D is the balance wheel on shaft *e'*. *d'* is a band running from pulley *d* to the pulley *g*. E is a portion of the jointed arm attached to the shaft *e'*. *e* is a pulley on shaft *e'*. F is a portion of the jointed arm united with the portion E and carrying the sharpening-tools. *ff* are the forked extensions of the arm F, and *f'f'* the

screw-bolts. G is a bracket on the end of the arm E. *g* is a pulley on the bracket-arm G. *g'* is a pulley on the opposite side of the bracket-arm G. *g''* is a pivot for the pulleys *g* and *g'*. *g'''* is a band running from the pulley *g'* to the pulley L on the mandrel. H is a weight. *h* is a pulley on the standard A. *h'* is a rope attached to the weight H, and also to the portion E of the jointed arm. I is the tool-holder. *ii* are the bolts securing the tool-holder I to the forked extensions *ff*. *i' i'* are the nuts for bolts *i*. K is the mandrel. L is a pulley rigidly fixed to mandrel K in the tool-holder. *ll* are the flanges of the pulley L. M M are the sharpening-disks. *m* is a washer interposed between the disks M M. *m'* is a washer between the disks M and the tool-holder I. *m''* is a washer between the disks M and the securing-nut O. O is a nut on mandrel K. P P are the boxes on tool-holder for the mandrel K. R is an adjustable guard-support. *r* is a thumb-screw. *r'* is a slot in the support R for guard S. *r''* is a slot in the guard-support for thumb-screw *r*. S is the adjustable guard. *s* is an extension of guard S.

In the construction of my invention I make a suitable frame, with the standards A A of the proper height to receive the mechanism for transmitting power to the sharpening-tools, and unite said standards with a foot-support, *a*, which support may be made in one piece. The standards A A are placed a sufficient distance apart to permit the shaft E to play between them and be guided in its vertical movement. The foot-support *a* is mounted upon wheels *a'*, arranged at suitable distances apart. An independently-rotating carriage, B, is then made and also mounted upon the wheels *b'*. Upon the platform of the carriage B, I lay a circular track, *b*, and mount the standards A A with their wheels *a'* upon the track *b*, so that the standards A A may be given a rotary motion upon the said track *b*, and at the same time the movement of the carriage B may be in any direction. I then attach at the required height to the shaft *c''*, which is arranged in the journal-boxes *c'''* on the standard A, the pulley C. The said pulley C is provided with the handle *c*. Beneath the pulley C is a shaft, *e'*, arranged transversely on the standards A A, and mounted upon said shaft are the

balance-wheel D and pulleys *d* and *e*, which are keyed on the shaft *e'* and rotate therewith. A band, *c'*, runs from pulley C to the pulley *e* and the shaft *e'* rotated thereby.

- 5 Movably attached to the shaft *e'* at one end is an arm, E, which extends in a horizontal direction from said shaft *e'*, and between the opposite standards, A A, a suitable distance, and is provided at its extreme end with the
10 laterally-projecting bracket, G.

The end of arm F is attached to the bracket G by the pivot *g*², which passes transversely through a suitable perforation in the ends of the arms E and F, and also in the bracket G.

- 15 The said pivot *g*² is made of a sufficient length to project through on either side of the bracket G, and the pulley *g* is mounted upon said pivot, upon the upper side of the bracket G, and a pulley, *g'*, is mounted upon the same
20 pivot from the under side of said bracket, both pulleys being fixed upon and rotating simultaneously with the said pivot *g*². From the pulley D a band passes to the pulley *g*, and power is communicated to said pulley thereby.

- 25 At the opposite end of the arm F to that fastened to the bracket G, I attach the forked extensions *f f*, the screw-bolts *f'* serving to secure said extensions to said arm. The arms E and F

- 30 are arranged to have a free lateral movement at the joints, and when raised vertically have a combined movement from the shaft *e'*. A pulley, *h*, is fixed upon an opposite standard to that supporting the driving-pulley, and a cord, *h'*, is attached at one end to arm

- 35 E, near the pulley *g*, and passed over the pulley *h*, and a weight, H, suspended upon the opposite end. I then construct the tool-holder I from suitable material and with the four sides in nearly equal dimensions. About
40 midway on opposite sides of said tool-holder and transversely through said sides I pass a screw-bolt, *i*, and attach said tool-holder I to the forked extensions *f f* of the arm F, the said screw-bolts being passed through said

- 45 extensions, and the nuts *i* then turned on the said screw-bolts, permitting the tool-holder I to have a vibratory movement between the forked extensions *f f*. The tool-holder I is constructed with suitable journal-boxes, P,

- 50 which are bolted to the transverse partition *p*, extending part way across the tool-holder at the top and bottom. A pulley, L, is then made with the broad flanges *l l* to fit within the tool-holder and between the upper and

- 55 lower journal-boxes. The pulley L is perforated longitudinally to receive the mandrel K, and the said pulley fitted to said mandrel. A belt, *g*³, extends from pulley *g'* to pulley L in the tool-holder and rotates said pulley.

- 60 Upon the mandrel K, which is made to extend a suitable distance outside the tool-holder, and with the reduced portion forming the shoulder *k*, I fit a washer, *m'*, which rests upon said shoulder. I then make two disks, M M, of a
65 suitable size, and from such material as emery or its equivalent, emery having been found desirable for the work. The disks M M are

beveled on their edges, and are placed on the mandrel K, first interposing the washer *m* between them, and with the beveled portions of said disks opposite each other, forming a V-
70 shaped wheel. An outer washer, *m*², is then placed on the mandrel K, outside of the disks M, and a nut, O, turned on said mandrel and against said washer, thereby preventing the
75 movement of the disks. Extending from the top and rear part of the tool-holder I, over the disks M M and toward the front end of the said tool-holder, is a guard-support, R. This
80 guard-support R is attached at one end to the tool-holder by the thumb-screw *r*, said end having a slot, *r*³, and the opposite end of said support is provided with a slot, *r'*. The guard
85 S is made with a longitudinal piece, which passes through the slot *r*, and a thumb-screw, *r*², secures it adjustably in place, so that the support may be adjusted in a forward position, and the guard may be adjusted in a vertical
90 relation over one of the disks M. The end of the guard S is provided with an extension, *s*, at right angles, which covers one of the disks M in such a manner that the edge of the tool
is protected and kept away from direct contact with the calk upon the shoe.

In the operation of my invention, and for the
95 purpose of sharpening the calks on the hoof, the foot of the animal is held either between the knees of the operator or placed upon any suitable support. Power is then applied to the driving-pulley, and is transmitted through
100 the belts and to the pulley fixed upon the mandrel, thereby enabling the disks M M to attain a high rate of speed. The tool-holder is then thrown by the hands into position near the hoof, and the edges of the disks M M
105 brought to bear upon the calk until an edge is formed on said calk. By means of the guards the calk is more readily thrown in contact with the disks M without danger of cutting away accidentally the edge of the calk.

Should it become necessary, one of the disks M M may be reversed in position on the mandrel, so as to present but one inclined edge
110 between the wheels, and in this position an edge may be given to a heel-calk bent inward toward the toe and chamfered outwardly, as frequently made.

The various inclinations of the calks upon the shoe are readily met by the disks, the vibratory movement of the tool-holder permit-
120 ting the said disks to be applied to the calks at suitable angles.

The disks M M are so arranged as to be adjusted at certain distances apart in relation to each other by the washer *m*, of suitable thick-
125 ness. When it is desired to increase the distance between the disks, a washer of increased thickness is inserted. The mandrel may, however, be threaded its entire length, and the washers interposed between the disks may be threaded, so as to turn on said mandrel, and
130 then two washers may be interposed, each turning in opposite directions and against an opposite disk, in place of having the washers

made of different thicknesses. The nut O is released to adjust the space between the sharpening-disks, and when said disks are adjusted said nut is again turned so as to retain the disks in a relative fixed position.

In my invention I am enabled to obtain with the beveled edges of the disks an edge on the calks from grinding upon one or both sides, and especially when the surfaces of the calks toward the shoe are rounded in form or use. With the aid of the adjustable guard the grinding can be accomplished and retain the same fashion of the calk.

I am also enabled to taper the calk from the back to the front, or from the direction of the shoe, this being accomplished by the action of the vibrating tool-holder with the beveled disks, between which the calk is placed, and the tool-holder thrown so as to present the disks to the shoe in the same relative angle.

To accomplish the sharpening of both sides of the calk without taking the shoe from the hoof, and thus lessen the expense, the disks are arranged as close as required in relation to each other, and an edge applied to said calks from an obtuse or acute angle.

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

1. The combination in a calk-sharpening machine, with the rotating platform, of a supporting-frame, suitable driving mechanism on said frame, flexible jointed arms extending from and pivoted to said supporting-frame, and a tool-holder journaled upon said arms, and grinding-disks in said tool-holder, connected with the driving mechanism, as shown and described.

2. The combination, with the rotating platform, of a supporting frame thereon, suitable driving mechanism mounted on said supporting-frame, and flexible jointed arms pivotally attached at one end to said supporting-frame, and means for supporting said arms at various elevations adjustably, as described.

3. The combination, with the supporting-frame of the machine, of the driving-pulley, flexible jointed arms attached at one end to said supporting-frame, a vibrating tool-holding box pivotally attached to said arms and provided with a suitable pulley, and grinding-

disks, beveled, as described, and belts attached to said pulley on the supporting-frame and extending to the pulley in the tool-holding box, for the purpose described.

4. In a tool-holder for sharpening calks, the combination, with the mandrel, of the oppositely-arranged grinding-disks fixed rigidly in said mandrel, and having the periphery of said disks beveled, as shown, and arranged at opposite inclinations in respect to each other and at a suitable distance apart, and means for rotating said mandrel, as described.

5. In a tool-holder for sharpening calks, the combination, with the oppositely-arranged sharpening-disks, beveled, as described, of an adjustable guard arranged in proximity to the edge of one of said disks, and adapted to prevent the contact of the edge of the said disk with the calk and guide the point of the calk, as shown and described.

6. In a tool-holder for sharpening calks, the combination, with the mandrel, of sharpening-disks, beveled, as described, and oppositely arranged on said mandrel in said tool-holder, and a washer or its equivalent arranged between said beveled disks and retaining devices on said mandrel outside of and against said disks, and means for rotating said mandrel, substantially as described.

7. The combination, with the supporting-frame of the machine, of the flexible jointed arms attached at one end to said supporting-frame and held at various elevations by an adjusting device, a driving-pulley on said supporting-frame, and a tool-holding box provided with a mandrel and pulley, and journaled on said arms and adapted to vibrate, bands attached to said driving-pulley on the machine, and also to the pulley in the tool-holding box, sharpening-disks, beveled, as described, on said mandrel, and means for adjusting the distance between the said disks on said mandrel, and an adjustable guard attached to said tool-holding box and arranged in proximity to the periphery of one of said disks, for the purpose specified.

EPHRAIM H. FENTON.

Witnesses.

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OWEN H. MCGEE.