(No Model.)

C. F. STACKPOLE.

SOLE EDGE BURNISHING MACHINE.

No. 562,860. Patented June 30, 1896.

FIG. 2.

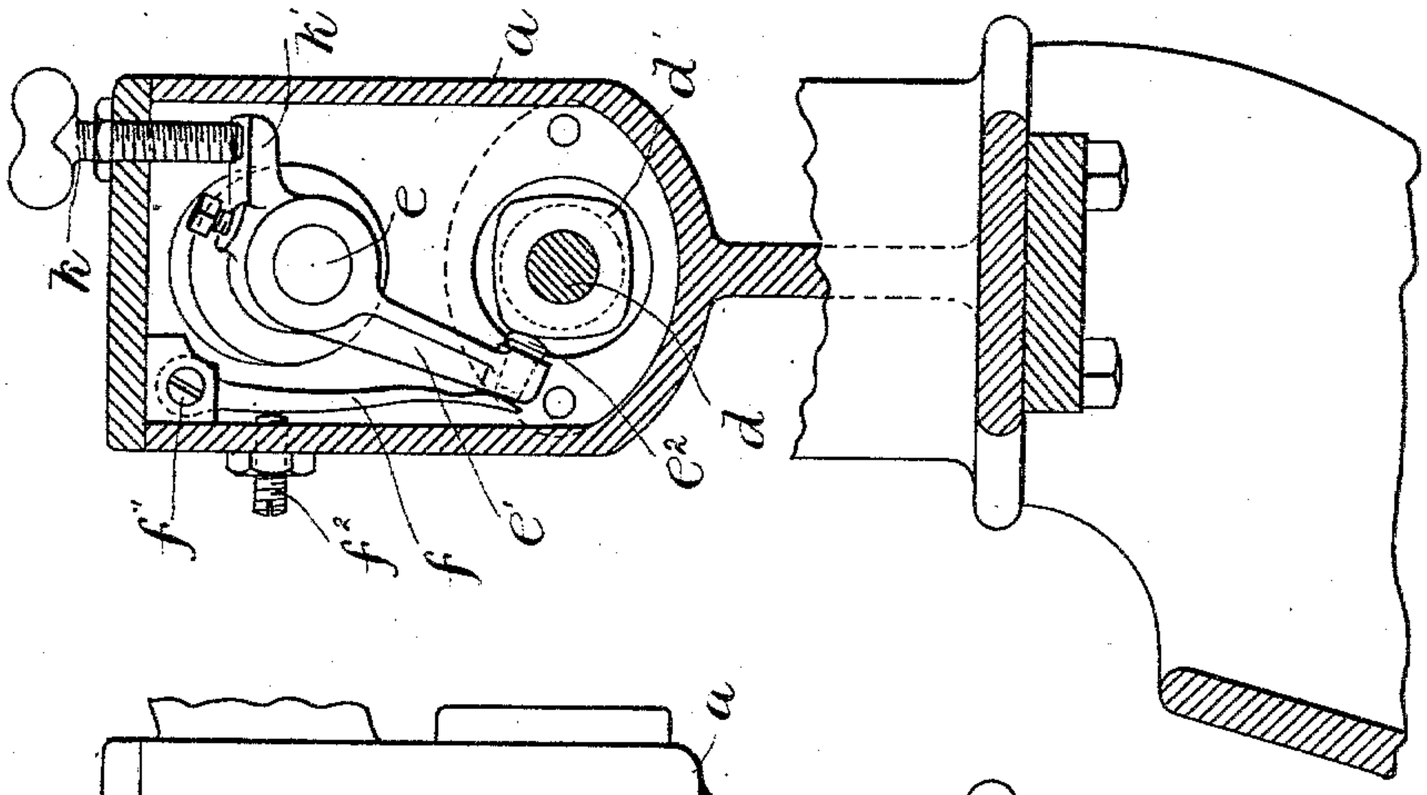
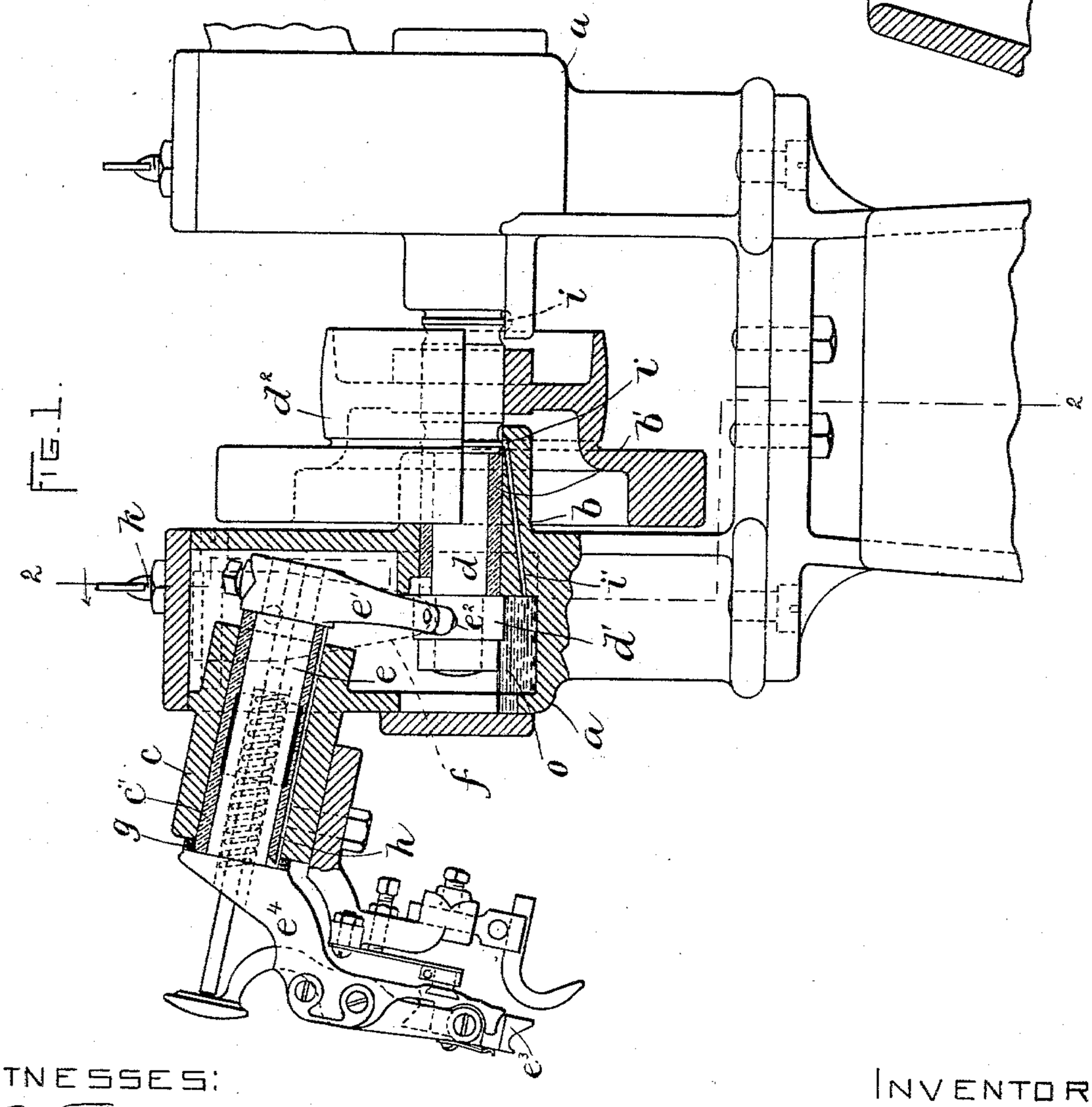


FIG. 1.



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CHARLES F. STACKPOLE, OF LYNN, MASSACHUSETTS.

SOLE-EDGE-BURNISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 562,860, dated June 30, 1896.

Application filed March 8, 1895. Serial No. 540,939. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. STACKPOLE, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Sole-Edge-Burnishing Machines, of which the following is a specification.

This invention relates to sole-edge-burnishing machines such as commonly employed in the manufacture of boots and shoes, and the prime object of the invention is to increase the working capacity of such a machine by providing for a greatly-multiplied speed of oscillation in the burnishing-tool as compared with machines heretofore in use.

The means whereby the above-stated object is carried out are specifically described hereinafter, and the essential features of the invention are recited in the appended claims.

The drawings which accompany and form part of this specification illustrate an embodiment of the invention.

Figure 1 represents a partial side elevation and partial longitudinal section of a sole-edge-burnishing machine having my improvement. Fig. 2 represents a section on line 2 2 of Fig. 1.

The same letters of reference indicate the same parts in both figures.

In the drawings, *a* represents a chamber or casing mounted on the frame of the machine and having in one of its walls or sides a sleeve or holder *b*, containing a brass or composition bearing *b'*, and in its opposite wall a sleeve or holder *c*, containing a similar bearing *c'*, located above or out of alinement with the bearing *b'*. A driving-shaft *d* is journaled in the bearing *b'* and projects at one end into the chamber, where it is provided with a cam *d'*, the shaft having at the outside of the chamber a driving-pulley d^2 or other means through which it may receive rotary motion. In the bearing *c'* is journaled a driven shaft *e*, one end of which projects into the chamber *a* and is provided with an arm *e'*, having at its lower end a bearing-piece e^2, which is pressed against the perimeter of the cam *d'* by a spring *f*, the latter being affixed at *f'* to a wall of the chamber and having its pressure regulated by a screw f^2. It will be seen that when the driving-shaft is rotated the cam *d'*, arm *e'*, and spring *f* coöperate to give the driven shaft a rocking or oscillating motion, the rapidity of which depends upon the velocity of the driving-shaft and the number of faces on the cam. The cam in all cases has a plurality of operating faces or projections, so that each complete rotation of the cam causes several movements of the driven shaft and its tool-carrier, the said carrier being therefore given an oscillating motion which is more rapid than the rotary motion of the cam.

To the outer end of the driven shaft *e* is affixed an arm or carrier e^4, provided with the sole-edge-burnishing tool e^3.

The chamber *a* contains a body *o* of oil, which is in contact with the cam *d'*, so that as the latter rotates its perimeter is constantly lubricated. I find that the pressure of the bearing-piece e^2 on the constantly-lubricated perimeter of the cam produces a hard glaze or film upon the surfaces of both parts, which so reduces friction that there is no appreciable wear of the cam and bearing-piece, notwithstanding the constant and firm pressure of the bearing-piece against the cam by the spring *f*. The agitation of the oil caused by the contact of the rotating cam with it vaporizes a portion of the oil; and to prevent the escape of this vapor I make the chamber *a* oil-tight at all points, so that the vaporized oil accumulates on the inner walls of the chamber and flows back to the bottom thereof. The vapor thus formed finds its way to the surface of the driven shaft *e* in sufficient quantity to properly lubricate the latter and its bearing *c'*. To prevent exudation of the oil from the outer end of the bearing *c'*, I provide a packing *g* of leather or other suitable material surrounding said outer end and interposed between the arm e^2 and the outer end of the sleeve *c*.

h represents a duct formed in the sleeve or holder *c* to convey the surplus oil from the bearing *c'* back to the chamber *a*.

i represents a horizontal groove or trough formed in the outer portion of the sleeve or holder *b* below the bearing *b'*. Said trough serves to receive the surplus oil which exudes from the outer end of the bearing *b'*, said oil returning to the chamber *a* through a duct *i'* formed in the sleeve *b*. Such added supplies of oil as may be required from time to time may be introduced through the trough *i* and duct *i'*. I find, however, that in practice the

loss of oil is hardly appreciable, owing to the provisions made, as above described, to prevent its escape in any form. The inner end of the duct i' is below the level of the accumulation of oil in the chamber, so that the vaporized oil cannot escape through said duct. The level of the said accumulation of oil is not intended to rise above the trough i.

k represents a screw, which is adjustable in the casing a, and is arranged so that it may bear on an arm k', formed on the hub of the arm e', and force said arm away from the cam d', thus disconnecting the driving-shaft from the driven shaft, so that when the construction above described is duplicated, as in a twin machine having two oil-chambers and two driven shafts impelled by a single driving-shaft, one of the driven shafts may be stopped without affecting the other. The bearing-piece e^2 and cam d' are preferably chilled-iron castings.

It will be seen that the construction of machine above described provides for great rapidity of oscillation in the burnishing-tool. The many-sided cam produces multiplication of movement in said tool as compared with the revolutions of the driving-shaft, and the arrangement for lubrication is such as to withstand the highest speed of movement of the parts.

I claim—

1. In a sole-edge-burnishing machine, the combination of a casing mounted on the frame of the machine and having bearings in its walls, a driving-shaft journaled in one bearing and carrying a cam on its end within the casing, a driven shaft journaled in the other bearing and carrying an arm on its end within the casing and supporting the carrier of the burnishing-tool on its outer end, and a spring pressing the said arm against the cam, the casing adapted to contain a body of oil in contact with the cam, substantially as and for the purpose described.

2. In a sole-edge-burnishing machine the combination of an oil chamber or casing having bearings in its walls, a driving-shaft journaled in one of said bearings, a cam on said shaft in contact with the oil in the chamber, a driven shaft in the other bearing having an arm within the chamber, and a burnishing-tool carrier without the same, a spring which presses the arm toward the cam, and an adjusting-screw arranged to displace the arm against the pressure of the spring.

3. In a sole-edge-burnishing machine the combination of an oil chamber or casing having sleeves or holders b and c, said sleeve b being provided with an external trough and an oil-duct extending from said trough to the chamber, a bearing b' in said sleeve above the trough, a bearing c' in the sleeve c, said bearing having an oil-duct in its lower portion, a driving-shaft in the bearing b', a cam on said shaft within the chamber, a driven shaft in the bearing c', an arm attached to the inner end of the driven shaft and pressed yieldingly against the cam, and a packing g surrounding the outer end of the bearing c'.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 2d day of March, A. D. 1895.

CHARLES F. STACKPOLE.

Witnesses:
C. F. BROWN,
E. BATCHELDER.