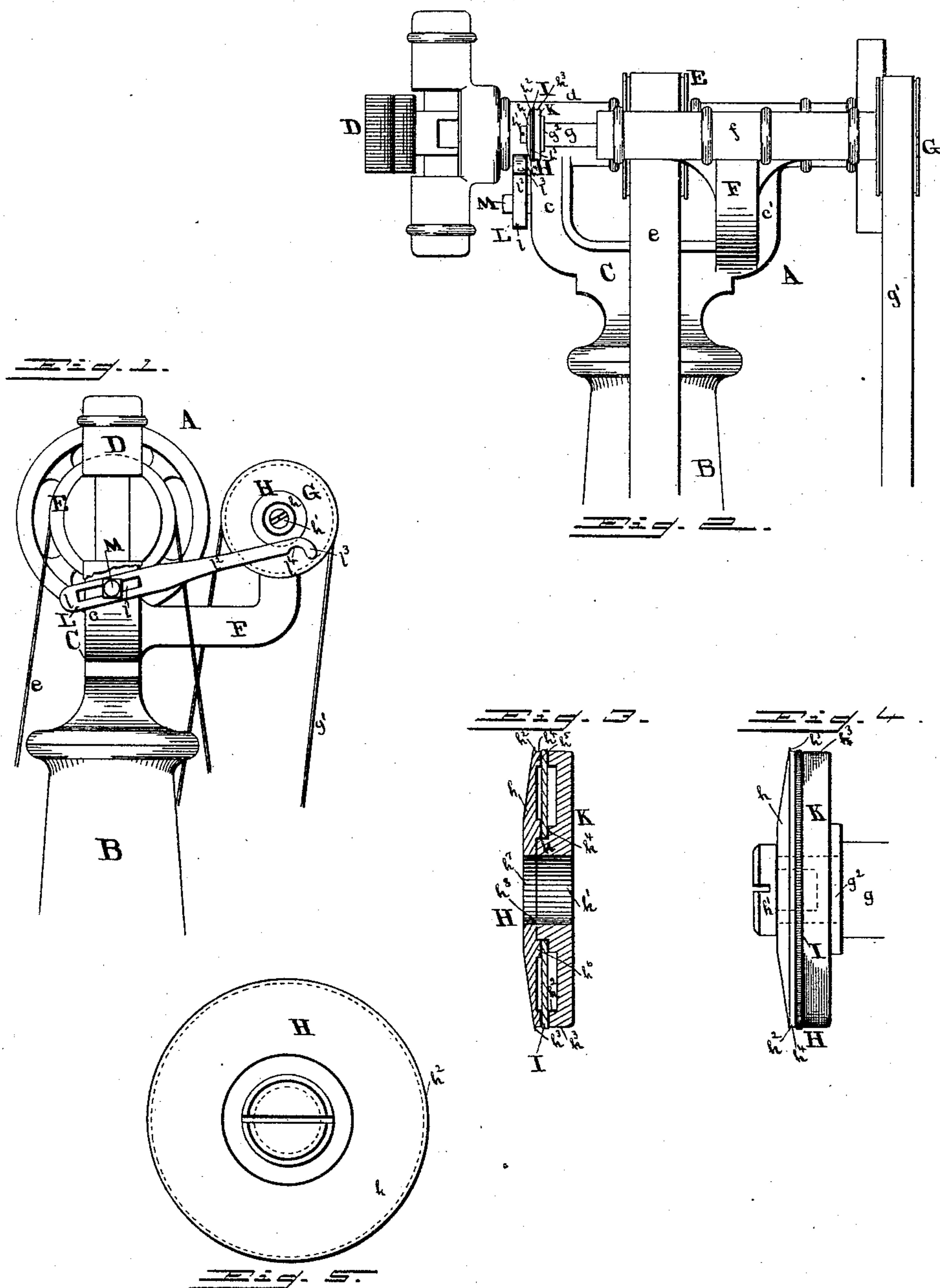


(No Model.)

J. KNOUFF & S. POPE.  
HEEL BURNISHING MACHINE.

No. 410,838.

Patented Sept. 10, 1889.



WITNESSES

Oliver N. Sisson  
George W. Dale

INVENTORS

James Knouff and  
Samuel Pope  
By their Attorney W. B. Powell



# UNITED STATES PATENT OFFICE.

JAMES KNOUFF AND SAMUEL POPE, OF PHILADELPHIA, PENNSYLVANIA,  
ASSIGNOR OF ONE-THIRD TO THOMAS BEATTY, OF SAME PLACE.

## HEEL-BURNISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 410,838, dated September 10, 1889.

Application filed May 1, 1889. Serial No. 309,220. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES KNOUFF, a citizen of the United States, and a resident of the city and county of Philadelphia, in the State of Pennsylvania, and SAMUEL POPE, a subject of the Queen of Great Britain, and a resident of the city of Philadelphia aforesaid, have invented certain new and useful Improvements in Heel-Burnishing Machines and we do hereby declare the following to be a full, clear, and exact description of the invention.

Our invention has relation to heel-burnishing machines of the character shown and described in Letters Patent of the United States No. 392,715, dated November 13, 1888, and has for its object to improve the construction and increase the efficiency of such machines.

In the above-mentioned machine there is employed a hinged jack for the reception of a shoe or slipper the heel of which is to be burnished by a suitable tool and then beaded near its upper edge by a rotary beading device known as a "seat-wheel." Said jack has liberty of movement in a vertical plane and is secured to the end of a bent or curved jack-rod swiveled on the base of said machine and having an axial movement in a horizontal plane, said rod being controlled in its movements by a spiral spring of great tension secured at its other end to said base, so that when a shoe or slipper heel is to be brought into contact with the seat-wheel great force has to be exerted by the operator in order to first overcome the resistance of the spring and to get the shoe or slipper into the desired position, in which position, owing to the limited number of movements of the jack and rod and the constant tendency of the spring to draw said shoe or slipper away from contact with the seat-wheel, the operator has not the absolute control of said shoe or slipper which is necessary to a successful attainment of the desired object, and the sharp edge of the seat-wheel is apt to run on and scar the shoe or slipper upper; also on said machine the seat-wheel consists of three heavy disks, an outer, inner, and central disk, the outer edges of which are beveled or diminish in circumference from the inner to the outer disk and are in line with each other, the outer disk having a hollow boss which encircles

the shaft, on which is loosely journaled the central disk having its outer edge milled and having on one of its faces a cone which fits into a corresponding recess in the inner disk, forming a bearing therefor, while its other face is flat and bears against the inside of the outer disk. The object of so constructing the seat-wheel is so that if a shoe or slipper heel be pressed against the milled disk the same will only rotate as the said heel is rotated, while the other disks, which rotate rapidly with the shaft, will bear against said heel and prevent the scaling or chipping of the burnished surface on each side of the line of beading, and the sharp rim will pass into the space between the heel and the upper and guide the seat-wheel and at the same time polish the upper edge of said heel; but such construction is ineffective to accomplish the desired result, for the reason that the great bearing-surfaces of the several disks produce great friction and the heating of the same, causing them to expand and the gumming of the oil on said bearings. Consequently there is not the necessary independence of rotation of the central disk with reference to the others; also, owing to the beveled outer surface of the seat-wheel, the largest diameter thereof will contact with the shoe-heel first and prevent the necessary contact of the beading-disk, which is near the smallest diameter and does not project beyond the edges of the other disks and the wheel-guide, and scars the said heel at such contact-point. Consequently the device is inoperative and useless to accomplish any beneficial result.

Our invention consists, first, in the provision of a rigid arm or rest adjustably secured to the head of the machine in such a position that its outer end will project beyond the seat-wheel and at the side thereof, said outer end being rounded and affording a rest for the upper of the shoe or slipper, which can be freely rocked or tilted on said end to any extent and in any direction, according as the operation of beading necessitates, said end also having a notch in its under side for the reception of the finger of the operator, whose thumb and other hand hold the shoe or slipper against the end of the rest and guide the same into proper contact with



the seat-wheel, serving to insure a tighter grasp of the said shoe or slipper by said operator, who thus has absolute control of the same without having to divide his attention  
 5 between the beading operation and pulling against the resistance offered by the spring-controlled jack-rod.

Our invention further consists in the provision of a seat-wheel of improved construction and composed of three light disks with  
 10 their outer edges or circumferences square, one of said disks having an annular sharp rim thereon for guiding the wheel and the other abutting against a washer on the shaft,  
 15 both the outer and inner disks having on their opposite or facing surfaces narrow rings or flanges, against which bear the flat surfaces of the beading-disk, which is very thin and  
 20 is extremely light. The outer edge of said disk projects beyond the edges of the smooth disks, said beading-disk having freedom of movement between the outer and inner disks,  
 25 and is loosely journaled on the hollow boss of the inner disk, which encircles the shaft and extends into a recess in the outer disk, the whole being secured on the shouldered end  
 30 of said shaft through the medium of a screw passing into the end thereof, and its head bearing against the outer disk, so that with the  
 35 outer edge of the seat-wheel square and the beading-wheel slightly projecting the result is a pronounced impression of the same on the heel of the shoe or slipper and the unimpeded pressure of the other disks on each  
 40 side of the line of beading, thus successfully preventing the scaling of the burnished surface; also, with the slight bearing-surfaces of the several disks the friction is reduced to a  
 45 minimum and the liability of the gumming of the oil obviated.

All of the features of our invention will be more fully described hereinafter, and will be clearly understood by referring to the accompanying drawings, wherein—

Figure 1 is an end elevation of a heel-burnishing machine with our improvements applied thereto. Fig. 2 is a side elevation of the same. Figs. 3, 4, and 5 are a vertical  
 50 transverse section, an edge view, and a front elevation of the improved seat-wheel enlarged.

A represents a heel-burnishing machine provided with the base or standard B, upon  
 55 which is mounted the forked head C, having the arms  $c$   $c'$ , which support the journal box or bearing  $d$  for the shaft of the burnishing-tool D, said shaft having secured thereon the driving-pulley E, receiving motion from the  
 60 main shaft at the bottom of the standard B through the medium of the belt  $e$ . The head C also has an arm F, extending laterally therefrom and supporting the journal box or bearing  $f$  of the seat-wheel shaft  $g$ , said shaft also  
 65 having secured thereon the driving-pulley G, receiving motion from the aforementioned main shaft through the medium of the belt  $g'$ .

H represents the seat-wheel or beading device, secured to the shouldered end of the shaft  $g$  through the medium of the screw  $h'$ ,  
 70 passing into the end of said shaft and its head impinging against the outer face of the outer disk or guard  $h$ , the inner disk K abutting against a washer  $g^2$  on said shouldered end.  
 75

As will be observed in Fig. 3 of the drawings, the outer face of the disk  $h$  is beveled from a point midway of its center and circumference for the purpose of reducing the  
 80 thickness of said disk, so as to facilitate the entrance of its sharpened edge  $h^2$  to the space between the shoe or slipper heel and the upper, thus guiding the seat-wheel on said heel and guarding against the same running on  
 85 and injuring the upper, while the inner face  $h^3$  of said edge  $h^2$  is at right angles with the square or flat circumference  $h^4$  of said disk.

The inner face of the disk  $h$  has formed thereon two annular rings or flanges  $h^5$   $h^6$  with flattened faces, the former of which is  
 90 contiguous with the portion  $h^4$  and the latter is near the central opening  $h^7$ , which receives the end of the shaft  $g$ . Both of said rings are in the same plane and afford a flat bearing for one of the flat faces of the thin beading-disk I, said inner face also having formed  
 95 therein a recess  $h^8$  concentric with and on the edge of the opening  $h^7$  for the reception of the outer end of a stepped boss  $k$ , formed on the inner face of the inner disk K and  
 100 having therein a central opening  $k'$ , corresponding with the opening  $h^7$ . Said boss and the recess  $h^8$  form the medium of connection between the disks  $h$  and K, the friction thereof when the screw  $h'$  is in place insur-  
 105 ing their rotation together, also preventing the inner faces of said disks coming too close to allow of the free rotation of the disk I on the boss  $k$ . Said disk I also has a flat bearing on the ring or flange  $k^2$  on the inner face  
 110 of the disk K and contiguous with the square circumference  $k^3$  of said disk and on the shoulder  $k^4$  of the boss  $k$ . The inner face of the disk K is flat throughout, guarding against  
 115 slipping of the seat-wheel on its shaft when the same is secured thereon and pressure is applied thereto, and at the same time allowing of the free rotation of the beading-disk according as the shoe or slipper heel is rotated, and the  
 120 friction between said disks is so slight as to obviate all liability to expansion by the heating thereof and the gumming of the oil on said bearings, thus securing the desired unfailing  
 125 independence of rotation of the several disks, and therefore obviating the danger of the same sticking together and rotating coincidentally, thus impairing their usefulness; also, as will be observed, the milled edge  $i$  of the disk I projects very slightly above the sur-  
 130 faces or circumferences of the disks  $h$  and K, enabling the same to make a decided impression on the heel of the shoe or slipper and said square surfaces to revolve rapidly against said heels at each edge of the line of beading,



preventing the scaling or chipping of the burnished surface of said heels, while the sharp edge  $h^2$  of the disk  $h$  will perform its guiding and guarding functions and the portion between the face of the said sharp edge and the square circumference of the disk  $h$  will polish the upper edge of the shoe-heel. By reason of the narrowness of the seat-wheel the same can be used on heels of all shapes without regard to the curvature of the same.

L represents the arm or rest for the shoe or slipper upper when the beading operation is being accomplished, and is composed of steel or other metal, having the enlarged inner end  $l$ , with the longitudinal slot  $l'$  therein for the reception of the shank of the bolt  $m$ , which bolt passes into the arm  $c$  of the head C, and the head of which impinges against said end  $l$ , keeping the rest in any adjusted position on said bolt, such position being determined by the size of the seat-wheel. The outer end  $l^2$  or portion beyond the enlarged end is diminished slightly and terminates in a rounded hooked end  $l^3$ , said end being at the side of and extending slightly beyond the seat-wheel H sufficiently for the operator to rest the upper of the shoe or slipper thereon in such position that the space between said upper and heel will be opposite the sharp edge  $h^2$  of said seat-wheel. The notch  $l^4$  in the under side of the end  $l^3$  serves as a rest for the fingers and a brace therefor in order to tighten the grasp of the hand of the operator on the shoe or slipper.

Owing to the fact that the end  $l^3$  of the rest is round, as is also the shoe or slipper upper, the latter can, as is perfectly obvious, be rocked or tilted in any direction on the former without its slipping therefrom, and the operator, having nothing to do but hold the shoe or slipper in proper contact with the seat, without having to also operate a spring-controlled jack-rod, which is an absolute detriment and greatly interferes with the beading operation, has perfect control over said shoe or slipper and can successfully perform the beading operation without the slightest danger of injury to the shoe or slipper heel or upper, and without exercising more than ordinary skill, and can always rest assured of the unfailing operation of the seat-wheel perfectly. Furthermore, the placing of the rest edgewise at the side of the seat-wheel, as shown in Figs. 1 and 2 of the drawings, renders said rest capable of resisting any amount of pressure which may be found necessary to impose thereon, without its bending, the thickness of the rest being considerably less than its width, thus conducing to greater strength than if it were placed with its width in a horizontal plane, in which position it would be extremely weak. Another and vital feature of the placing of the rest edge upward is that it enables said rest to come into that portion of the upper of the shoe next to the heel, where it finds a solid bearing against the edge of the stiff in-

sole or "counter" of the shoe or slipper, being of about the same width as said insole. If said rest were so placed as to present a wide surface to the upper, the portion of said upper beyond the insole would yield to the pressure of the operator and prevent the success of the beading operation, because of a tendency to rocking of the shoe or slipper in the wrong direction, unless the shoe or slipper were braced from within; also, in the case of a fine shoe—for example, one with a narrow "foxing" of patent leather and an upper of undressed kid—wherever the rest contacts with undressed kid the result is a flattening of the rough surface of the leather and necessitates the discarding of the shoe as faulty or defective; but with the use of a narrow rest there is no scarring or any character of damaging of the upper in any respect.

We are aware that a rest for the upper of a shoe or slipper has been used on a heel-trimming machine. Therefore we not wish to be understood as claiming, broadly, the use of such a device; but,

Having fully described our improvements, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the seat-wheel of a heel-burnishing machine, of an arm or rest longitudinally slotted through the sides of its inner end, a bolt passing through the slot and into the side of the machine, its head impinging the side of the rest and securing it in position, the outer end of the arm being rounded and hook-shaped and presented edgewise at the side of the seat-wheel, substantially as shown and described.

2. The combination, with the seat-wheel of a heel-burnishing machine, of the arm or rest L, having the enlarged inner end  $l$ , the slot  $l'$ , passing through the sides of the inner end, the outer rounded end  $l^3$ , presented edgewise at the side of the seat-wheel and having the notch  $l^4$  in its under side, the bolt  $m$ , passing through the slot and into the side of the machine, and the head of the bolt impinging the side of the inner end of the rest, substantially as shown and described.

3. The combination, with the shaft of a heel-burnishing machine, of a seat-wheel secured thereon, consisting of an outer and inner disk having annular flanges or rings on their inner surfaces, said outer disk having a sharp circumferential rim and having in its inner face a central recess for the reception of the end of a stepped boss on the inner face of the inner disk, on which boss is loosely journaled an interposed flat beading-disk whose surfaces bear against said rings and the shoulder of the stepped boss, and its flat edge projects slightly beyond the flat or square edges of the other disks, substantially as and for the purpose described.

4. The combination, with the shaft  $g$  of the heel-burnishing machine A, of a seat-wheel H, secured to the end of said shaft through the medium of the screw  $h'$ , said wheel con-



sisting of the disk  $h$ , having the sharp rim  $h^2$ ,  
with the face  $h^3$  at right angles with the square  
edge  $h^4$  of said disk, which has also the rings  
 $h^5$   $h^6$ , the central opening  $h^7$ , and the concen-  
5 tric recess  $h^8$ , receiving the end of the boss  $k$   
on the inner face of the disk K, and having  
the central opening  $k'$ , said disk also having  
the ring  $k^2$  and the square edge  $k^3$  and abut-  
ting against the washer  $g^2$  on the shaft, the  
10 beading-disk I, with the milled square edge,  
being loosely journaled on said boss and its  
flat sides bearing against said rings and the

shoulder  $k^4$  of the boss  $k$ , said edge  $i$  project-  
ing slightly beyond the aligned flat edges  $h^4$   
 $k^3$ , substantially as and for the purpose de- 15  
scribed.

In testimony whereof we have hereunto set  
our hands, at the city of Philadelphia, Penn-  
sylvania, this 27th day of April, A. D. 1889.

JAMES KNOUFF.  
SAMUEL POPE.

Witnesses:

THOMAS BEATTY,  
WILL. H. POWELL.