

W. MANSHIP.
MACHINE FOR USE IN THE MANUFACTURE OF BOOTS AND SHOES.
APPLICATION FILED MAY 29, 1912.

1,048,187.

Patented Dec. 24, 1912.

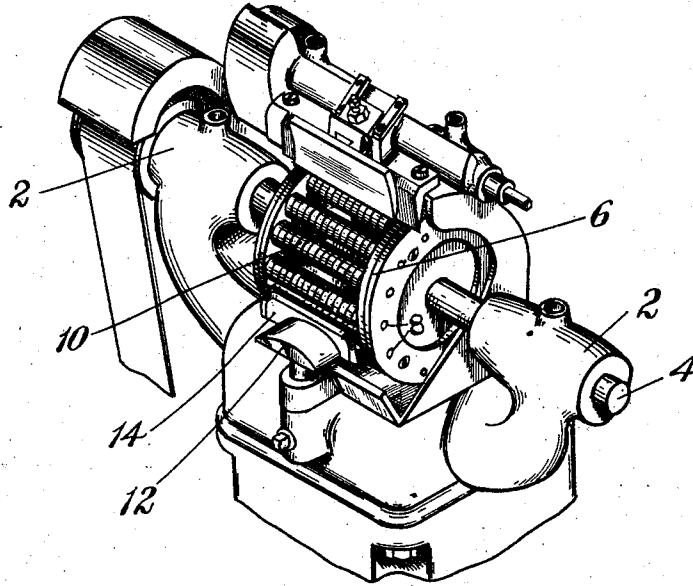


Fig. 1.

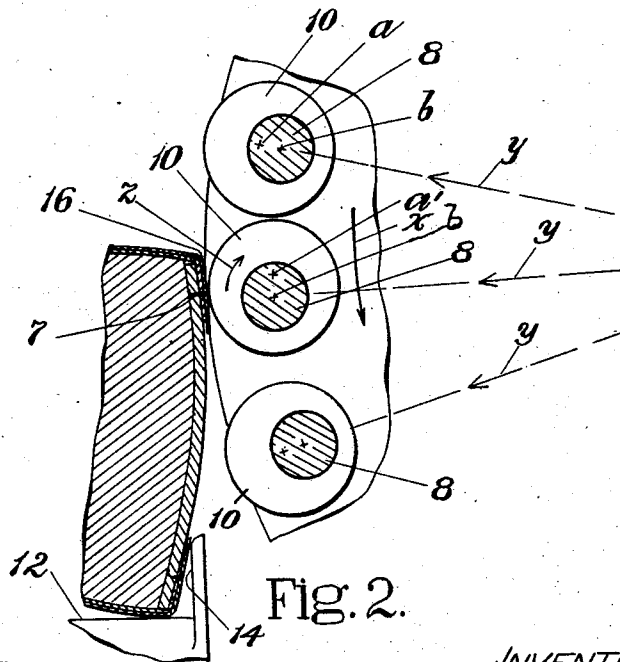


Fig. 2.

WITNESSES.

Elizabeth C. Coupe
O. Blanche Hargrave

INVENTOR.

William Manship
By his Attorney,
Nelson W. Howard

UNITED STATES PATENT OFFICE.

WILLIAM MANSHIP, OF LEICESTER, ENGLAND, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MACHINE FOR USE IN THE MANUFACTURE OF BOOTS AND SHOES.

1,048,187.

Specification of Letters Patent.

Patented Dec. 24, 1912.

Application filed May 29, 1912. Serial No. 700,476.

To all whom it may concern:

Be it known that I, WILLIAM MANSHIP, a subject of the King of England, and residing at Leicester, England, have invented certain Improvements in Machines for Use in the Manufacture of Boots and Shoes, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to machines for use in the manufacture of boots and shoes and particularly to shoe-shaping machines, and is herein shown as applied to a machine of the type shown in British Letters Patent No. 16,589/08. A machine of the type shown in the said British patent comprises a rotary beater which includes a very rapidly rotated carrier or hub having annular end disks, between which disks extend stems or rods arranged around the periphery of the carrier and each supporting a series of beating elements which strike a very rapid succession of light blows. The beating elements comprise rings loosely strung on their supporting rods so that they are held out radially from the carrier by centrifugal force in normal operative position while the carrier is rotating and yield inwardly when they strike the work. The rotary beater of the machine of the said British patent thus comprises an annular series of beating members each having a plurality of beating elements extending longitudinally of the carrier and adapted to be displaced under pressure of the work to conform to the transverse curvature of the surface of the work presented to them so that each of the said beating members has a flexible acting face adapted to conform to the contour of the surface being treated. Machines of this type are employed with great success in pounding up the overlaid marginal portions of shoe upper at the sides of the heel seat, and, in some classes of work, along the sides of the shank portions and forepart of the shoe bottom. In the use of the rotary ring pounding machine of the said British patent I have discovered that, while preserving the advantages of this ring construction, certain advantages may be obtained in the way of eliminating the chattering of the rings, both while the machine is being started and during the subsequent

operation of the machine, and also in a different quality of the blows struck upon the work, by dispensing with the radial play of the rings and forming them to have a predetermined or permanent state of eccentricity with respect to the carrier rods. These and other advantages of the present invention, including certain details of construction and combinations of parts, will be apparent from the following detailed description of so much of a machine embodying a preferred form of the invention as is necessary for a complete understanding thereof.

Referring to the drawings,—Figure 1 is an angular perspective in elevation of so much of the machine as is concerned with the present invention; Fig. 2 is an end view in elevation showing in detail the operative relation between the beater and the work and illustrating the use of the beater for pounding a heel seat.

Bearings 2 on the frame of the machine support a shaft 4 upon which is mounted a hub or carrier comprising end disks or flanges 6 connected by rods or stems 8 which support an annular series of beating members each comprising a plurality of beating elements 10. The beating elements 10, in accordance with the present invention, comprise rings having eccentrically located holes by which they are strung upon the rods 8 and they are formed to have a running fit on the rods so that, as the carrier rotates, the rings are held from direct radial movement with relation to the rods 8. The beating rings 10 have a predetermined or permanent degree of eccentricity with respect to the rods 8 upon which they are strung, as clearly appears from Fig. 2.

The work supporting means may conveniently be constructed and arranged substantially as shown and described in United States Letters Patent No. 1,032,356, issued July 9, 1912, and comprise a horizontal work resting member 12 having its work resting face convexly rounded and an associated vertical abutment 14. In the use of the machine for pounding up the overlaid marginal portions of a shoe upper as, for example, in heel seat pounding, as illustrated in Fig. 2, one side of the shoe is rested upon the horizontal work resting member 12 which sustains the shoe for treatment of the shoe bottom at the other side, the vertical abutment

14 serving primarily as a guard to prevent the beater from engaging and displacing toward the shoe edge the upper upon the lower side of the shoe while the upper upon the upper side of the shoe is being beaten inwardly from the shoe edge.

When the machine is at rest, the rings hang with their heavy sides downwardly by reason of the eccentric mounting of the rings. When the machine is running, however, the rings 10 will all be turned to their normal operative position by centrifugal force, in which position the heavy parts of the rings stand outwardly away from the machine in position to strike the work as the carrier is revolved.

The mode of operation of the beating elements 10 mounted, as above described, to have a running fit on the supporting rods 8 and to be held against direct radial movement with relation to the rods during the operation of the machine, is illustrated in Fig. 2 in which the arrow x represents the direction of rotation of the rotary carrier, the arrows y show the radial direction of the action of centrifugal force upon the beating elements and the arrow z represents the direction of backward swinging movement of a beating element under pressure of the work as it contacts with and glides over the shoe bottom from the edge inwardly toward and over the lasting tack 7. Fig. 2 also illustrates three successive positions taken by the rings during the operation of the machine. The position of the upper ring is the normal operative position of a ring as it approaches the work and just before it strikes the work. The middle ring is in the position of a ring after it has struck the work and while it is being swung backwardly as it glides over the work. The lower ring has moved out of contact with the work after acting upon it and is assumed to have resumed its normal position under the action of centrifugal force.

As each of the rings 10 approaches the work, its center of gravity, which by reason of the eccentric mounting of the rings does not coincide with the center b of rod 8 about which the ring swings, will locate in a straight line which passes through both the center 4 about which the rotary carrier rotates and the center b , this position of the center of gravity of the ring 10 being indicated by the letter a . By reason of the mounting of the rings, both eccentrically on the rods 8 and to have a running fit thereon, when each ring 10 comes into contact with the work it is swung backwardly about the center b in the direction of the arrow z and the center of gravity of the ring is forced out of the above-mentioned straight line and the resistance therefrom is progres-

sively increased during the time the ring is in contact with the work until its center of gravity approaches the position indicated at a' (Fig. 2), in which position of the center of gravity of the ring a line connecting the center of gravity of the ring and the center b forms substantially a right angle with the radial direction of centrifugal force as indicated by the arrow y . As a result of this mounting the rings strike the work with a firm flattening blow from which there is no rebound, and after each ring strikes the work it glides over the work with the progressively increasing pressure of centrifugal force from the edge of the shoe inwardly over the heel seat tacks.

By reason of the above-outlined construction and mode of operation of the beating elements 10, this beater is particularly adapted for use in heel seat pounding or beating, in which use (see Fig. 2), each ring first engages the shoe bottom at its edge 16 and thereafter, as the center of gravity of the ring is forced backwardly with reference to the direction of rotation of the beater, from position a to position a' , the ring glides over the work with gradually increasing pressure which reaches its maximum as the ring is passing over the region of the heel seat tacks indicated at 7, with the result that the pressure is the greatest at the point where the greatest force is required in order satisfactorily to pound down the heel seat tacks and to level the surrounding region.

Rings constructed and arranged as above described not only have substantially no rebound by reason of their running fit on the supporting rods but at the same time they seem to strike the work more heavily and then to hang to the work to a greater degree than as heretofore constructed and arranged and with increasing pressure. Moreover by reason of their running fit on the supporting rods they do not chatter and bounce either while the machine is being started or thereafter during its operation.

Having indicated the nature of the invention and described a machine embodying the same, I claim as new and desire to secure by Letters Patent of the United States:—

In a machine of the class described, a rotary carrier, a plurality of ring supporting rods arranged around the periphery of the carrier, and a series of rings mounted eccentrically and to have a running fit on each rod.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM MANSHIP.

Witnesses:

JOHN RICHARD LAW,
CLAUD BENNION.