A. C. HEATH.

RAND FORMING MACHINE.

APPLICATION FILED APR. 19, 1907.

915,957.

Patented Mar. 23, 1909.

2 SHEETS—SHEET 1.

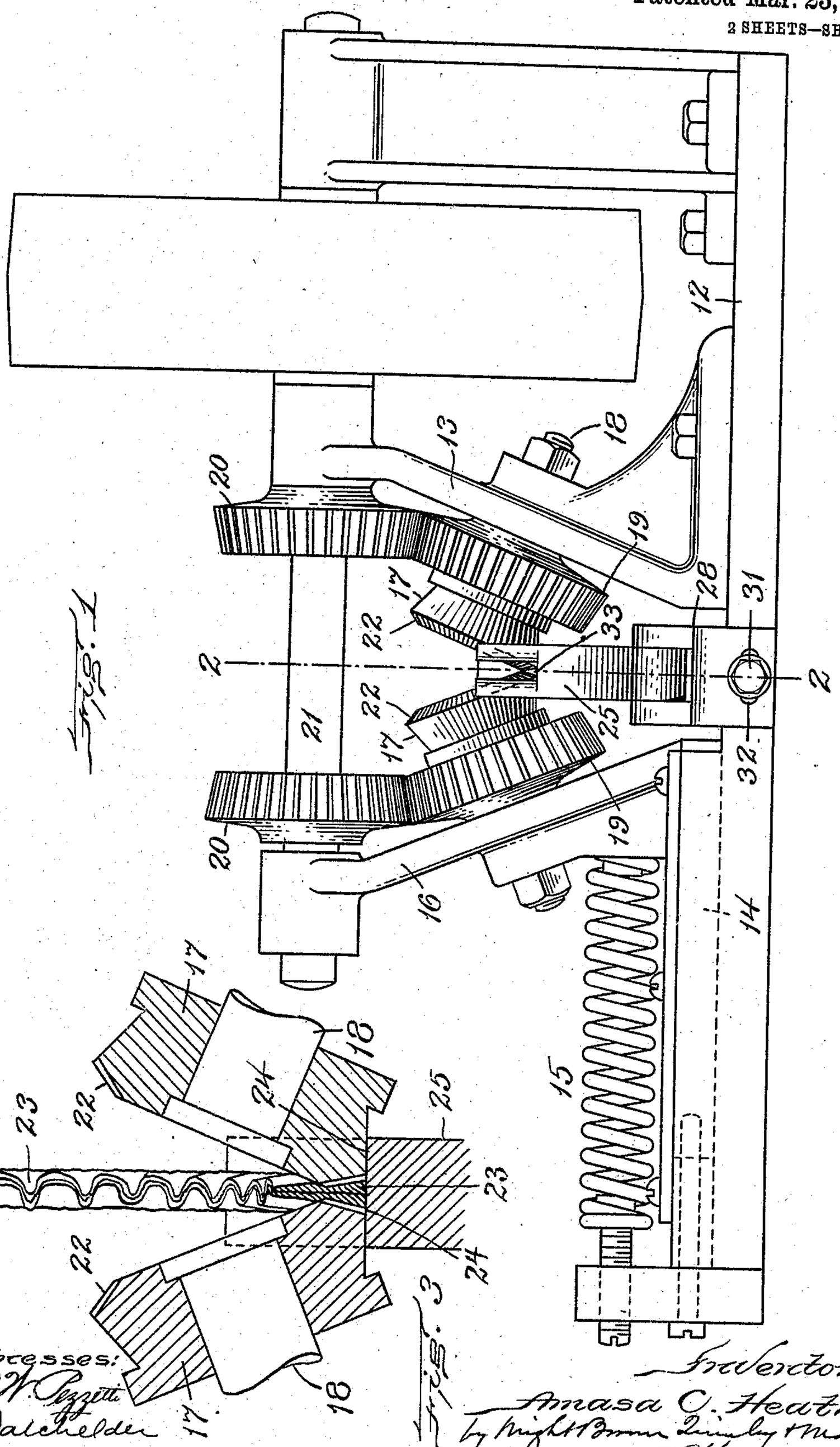


Fig. 1.

Fig. 3.

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2 SHEETS—SHEET 2.

Fig. 4

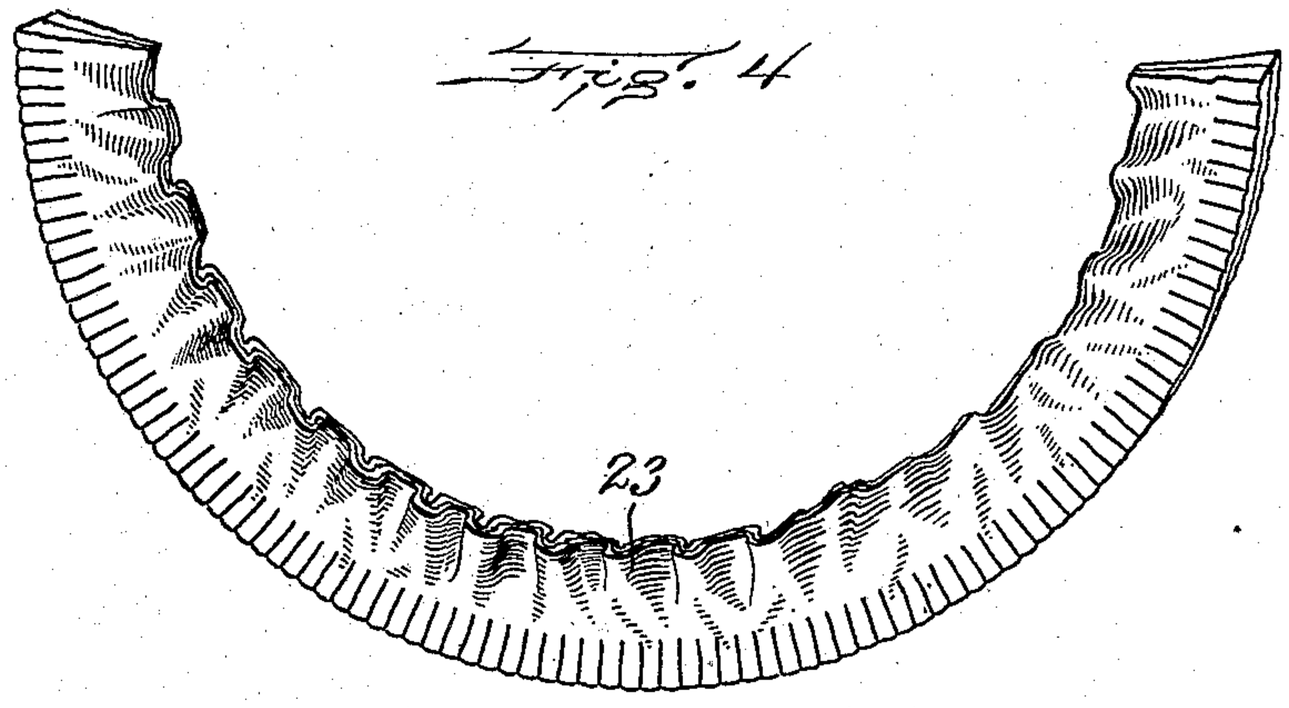
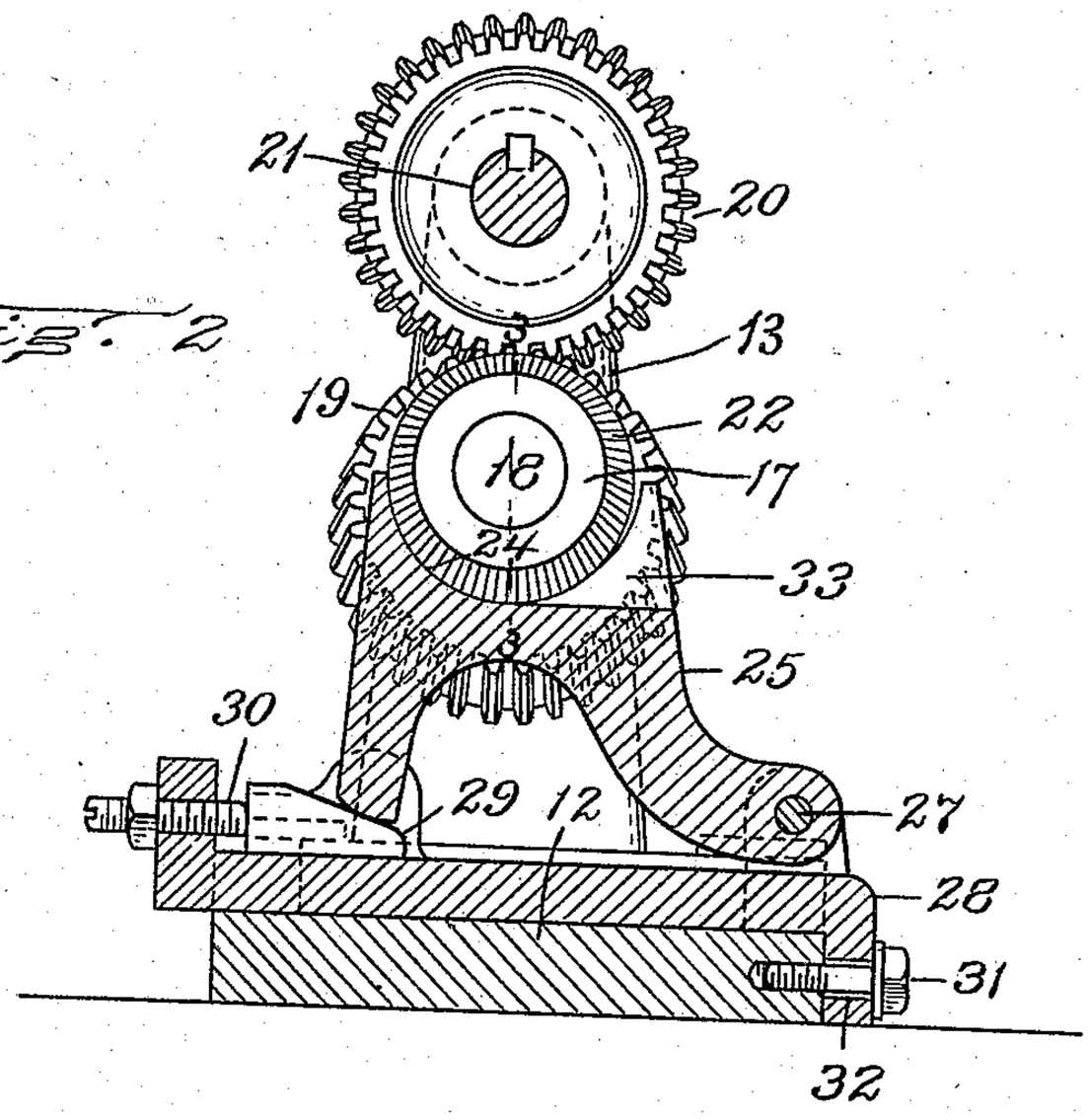



Fig. 2

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# UNITED STATES PATENT OFFICE.

AMASA C. HEATH, OF EASTON, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO F. M. SHAW & SON, CORPORATION, OF BROCKTON, MASSACHUSETTS, A CORPORATION OF MAINE.

## RAND-FORMING MACHINE.

No. 915,957. Specification of Letters Patent. Patented March 23, 1909.

Application filed April 19, 1907. Serial No. 369,095.

*To all whom it may concern:*

Be it known that I, AMASA C. HEATH, of Easton, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Rand-Forming Machines, of which the following is a specification.

This invention relates to machines for forming rands for boot and shoe heels, and involves the compression of the outer or thicker edge of the rand, the longitudinal curvature of the rand to an approximation of its final heel shape, and the waving or corrugation of the inner or thinner edge of the rand to take up the fullness caused by the curvature of the rand.

It has been customary heretofore to form rands by inserting the rand blank between two beveled faces formed upon the ends of rotating heads, which are mounted on oppositely inclined axes, the acting faces being inclined relatively to each other so that they meet or nip the blank at one side of the centers of the heads and a concave guide which partially surrounds the perimeters of the heads, the heads and guides acting conjointly to transversely compress and longitudinally curve the blank.

A type of machine above generally described is shown in Letters Patent to Merrithew, #494,378.

Heretofore and as shown in the above-mentioned patent, the acting faces of the rotary heads have been of such width that they compress the entire width of the blank from its thicker to its thinner edge. The waves or corrugations which are formed at the thinner edge portion by the longitudinal curve imparted to the rand, are therefore flattened down, compressed and set by the machine. This setting of the corrugated portion makes the rand undesirably stiff, so that its outer edge cannot be conformed to the various curves of the heel to which it is applied, with as much freedom as is desirable, the rand having a strong tendency to retain the curvature imparted to it by the machine, and offering a resistance to force tending to give its outer edge a smaller curvature, such as that of the rear portion of a heel, which resistance is greater than would be the case if the corrugated inner edge portion of the rand were not compressed in such manner as to set the corrugations.

My invention has for its object to provide a machine which shall compress the outer or thicker edge portion only, and impart a longitudinal curvature to the blank, at the same time leaving the corrugations or waves on the inner edge portion entirely uncompressed and in a pliable, flexible condition, so that the rand can be freely bent by the fingers of the operator in fitting it to the heel to which it is applied, without material resistance to the pressure exerted, the resistance being much less than would be the case if the corrugations of the edge portion were compressed and set.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification,—Figure 1 represents a side elevation of a rand forming machine embodying my invention. Fig. 2 represents a section on line 2—2 of Fig. 1. Fig. 3 represents an enlarged section on line 3—3 of Fig. 2, showing the cross section of a rand interposed between the two heads. Fig. 4 represents a perspective view of a completed rand formed by my improved machine.

The same figures of reference indicate the same parts in all the figures.

In the drawings 12 represents the bed plate of the machine, to which is affixed a standard 13.

14 represents a slide movable between suitable guides on the bed plate toward and from the standard 13, and pressed normally toward the standard by a spring 15. Carried by the slide 14 is a standard 16.

17 17 represent heads which are rotatively mounted on the standards 13 and 16, the axes of rotation of said heads being oppositely inclined, as shown in Fig. 1, so that the opposed inner ends or faces of the heads are inclined, and are adapted to meet at one side of the axes of the heads, as shown in Fig. 1, the head supported by the standard 16 being pressed toward the opposite head by the spring 15 acting through the slide and standard. Any suitable means may be employed for rotatively connecting the heads 17 with the standards, the means here shown being inclined studs 18 passing through and affixed to the standards, and forming journals on which the heads 17 are adapted to rotate. Means are employed for rotating the heads 17 in unison, the said means here shown comprising gears 19 affixed to the

heads 17, and meshing with gears 20 affixed to a driving shaft 21, the arrangement of the gears being such that the movements of the slide 14 and the head carried thereby toward and from the other head, do not affect the operative relation of the gears.

The heads 17 are provided on their opposed ends with annular marginal acting faces 22, which are adapted to bear upon opposite sides of the thicker edge portion of a rand 23, as shown in Fig. 3, the said acting faces being beveled so that they conform to the shape of the sides of the rand. The width of the annular acting faces 22 is considerably less than the total width of the rand, said faces being arranged to act only on the thicker outer edge portion of the rand, the latter being supported in the relation to the acting faces shown in Fig. 3, by the concave face 24 of a guide block 25, which is supported by the bed of the machine, preferably in rubbing contact with portions of the perimeters of the heads 17. The portions of the opposed ends of the heads 17 surrounded by the acting faces 22, are separated from each other by an unobstructed space, into which the inner edge portion of the rand projects, as shown in Fig. 3.

The concave face 24 of the guide block 25 conforms closely to the portions of the perimeters of the heads 17 from the point where the acting faces 22 meet, to a point at the rear sides of the heads, as shown in Fig. 2. It is desirable to have the concave face 24 in actual rubbing contact with the said portions of the perimeters of the heads 17, in order that the rand which is forced against the concave face 24 by the rotation of the heads, will not find a crevice between the perimeters of the heads and the concave face 24, of sufficient thickness to cause the formation of burs or fins on the thicker edge of the rand. I prefer to provide means for adjusting the guide block 25 to compensate for wear of the face 24 and of the perimeters of the heads 17, the preferred means being as follows: The guide block is pivotally connected by a pin 27 with ears on a holder 28, which is affixed to the bed 12, the guide block being adapted to swing on the pin 27 toward and from the heads 17. The swinging portion of the guide block bears upon a wedge 29 which is adjustable on the holder 28 by means of a screw 30. When the wedge 29 is adjusted inwardly, it forces the guide block 25 upwardly against the heads 17. The holder 28 is affixed to the bed 12 by means of a screw 31 passing through a slot 32 in a downwardly-projecting flange formed on the holder 28. Said slot and screw permit the holder 28 and the guide block to be adjusted laterally. The guide block is provided with a slot 33 in its front side, the sides and inner end of the slot constituting guides to conduct the rand to the meeting portions of the acting faces 22. The described provision for the lateral adjustment of the guide block, enables the sides of the slot to be accurately adjusted relatively to the meeting point of the acting faces 22.

A rand blank inserted in the slot 33, is directed thereby to the meeting point of the acting faces 22 of the heads, and is grasped only at its outer or thicker edge portion by said acting faces, the latter compressing the portions of the blank on which they bear, and forcing it forward against the concave face of the guide, said face imparting a longitudinal curvature to the blank, and at the same time burnishing its outer edge by frictional contact therewith. The inner edge portion of the blank projects into the space between the heads 17, and is free to move laterally in said space, as required by the formation of the waves or corrugations caused by the longitudinal bending of the blank, as shown in Fig. 4. The reduced width of the acting faces 22 is such that said faces do not act at all on the waved or corrugated portion of the rand, so that the waves or corrugations are entirely uncompressed, the inner edge portion of the rand possessing practically the same flexibility as the inner edge of the blank before the forming operation. It follows, therefore, that the rand can be more freely manipulated by the fingers of the operator, and conformed to heels of any and all curvatures, with less difficulty and loss of time than would be the case if the corrugations of the inner edge portion of the blank were compressed and set by pressure extending entirely across the rand, such pressure being necessary in the operation of a machine such as that shown in Letters Patent #494,378, above referred to.

The rand may be made either from a single piece or from two pieces cemented together. In Figs. 3 and 4 of the drawing I have shown a pieced rand. The pieces composing the rand may be coated with cement on their inner sides and brought together by the operator who presents the rand to the machine, the conjoint action of the heads and the guide causing the thicker edges of the pieces to be exactly flush with each other in the formed rand, so that no special care is required on the part of the operator in bringing the pieces together.

I claim:

A rand-forming machine comprising a pair of rotary heads mounted on oppositely-inclined axes, and having opposed annular marginal acting faces which are beveled and inclined relatively to each other, and are narrower than a heel rand, one of said heads being longitudinally movable, means for pressing said head toward the opposite head, and a segmental guide conforming closely to portions of the outer edges of the annular acting faces, the portions of the heads sur-

rounded by the annular acting faces being separated by a rand-edge-receiving space, the rand-compressing portions of the annular acting faces being between said space and the guide, whereby a rand presented to the machine is compressed at its outer or thicker edge portion only, its inner edge portion passing without compression through said space, and being formed by the conjoint action of the heads and guide into flexible waves or corrugations which are free from setting pressure.

In testimony whereof I have affixed my signature, in presence of two witnesses.

AMASA C. HEATH.

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