To all whom it may concern:

Be it known that I, PERLEY R. GLASS, a citizen of the United States, residing at Brookline, in the county of Norfolk and State of Massachusetts, have invented certain Improvements in the Art of Edge-Finishing, 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 improvements in the art of finishing the edges of sheet material, and is illustrated in connection with the cementing and folding of the edges of parts of boots and shoes.

In shoes of many styles vamps are used which extend to the extreme rear of the shoes where they are joined by the back seam. Such a vamp is termed a "closed vamp" as distinguished from a vamp which extends only part way from the toe toward the rear of the shoe. It will be understood that a closed vamp forms a continuous band so that it can not be opened out to permit its edge to be laid flat and folded by the use of any folding machines heretofore known in the art.

In one aspect the present invention comprises an improved method of finishing the edge of a closed vamp whereby several operations which have heretofore been necessary are eliminated.

In the finishing of closed vamps it has heretofore been necessary to subject the vamp to six or more distinct operations; namely, cementing the edge, snipping the curved edge at the throat of the vamp, folding the edge to points on each side within about one inch of the rear end, cloasing and generally staying the back seam, recementing and finally folding the remaining portion of the edge left unfolded adjacent to the back seam.

In accordance with the method of my invention the back seam is closed before the folding operation, the vamp is then cemented and the entire edge is progressively folded, the throat being simultaneously snipped during the folding operation. By this method, therefore, the second folding operation and the recementing operation above discussed are entirely obviated.

The important advantages in the present method over that formerly practised in economy of time will be obvious but even greater advantages to the system of manufacture result from the method of my invention. Whereas formerly it was necessary to return the partially folded vamps to the stitchers for closing the back seam and then again send the closed and partially folded vamps to the folders, it is now possible to avoid such a piecemeal procedure, and greatly expedite the course of the work. In fact, the practice of the novel method herein disclosed results in saving nearly two days' time in getting the work through the stitching room of a large factory.

The method above discussed broadly comprises cementing the entire upper edge of a closed vamp and then progressively folding the cemented edge in a single continuous operation, starting at any given point in the edge and terminating at the same point. I have discovered that a closed vamp may be folded by a machine having a projecting or overhanging arm or post adapted to be passed through the opening of the vamp and having suitable folding instrumentalities located adjacent to the end of such projecting arm or post. A machine of this character may be employed to good advantage in carrying out the final step of the novel method herein disclosed. Such a folding machine constitutes the subject-matter of my co-pending application Serial No. 767,756, filed May 15, 1913, of which the present application is a division.

Any desired form of folding instrumentalities may be employed within the scope of the present invention although it is believed those best adapted for this work are similar to the folding instrumentalities disclosed and claimed in my prior application above identified. These instrumentalities briefly comprise a support, a creaser overlying the work, underlying the folded edge and over which the edge is bent by a movable folding device, and cooperating jaws for completing the folding and feeding the work.
The invention will be best understood and appreciated from the following description of one manner of carrying out the method, the steps thereof being shown in the accompanying drawings, in which,—

Figure 1 illustrates the step of closing a vamp; Fig. 2 illustrates the step of staying the back seam of a vamp; Fig. 3 illustrates the cement operating, and Fig. 4 shows a closed vamp in process of being folded.

A closed vamp is shown in Figs. 3 and 4, in Fig. 3 the sides being laid together with their unfinished surfaces out. In dealing with a leather vamp the edge to be folded is preliminarily skived so that the added thickness formed by the fold will not be objectionable. In dealing with a vamp of textile material the skiving is unnecessary. In those cases where the vamp is skived this operation is effected before the vamp is closed and while its edge may be laid flat and so presented to the machine.

The first step in carrying out the method of the present invention consists in stitching together the rear ends of the vamp or closing the vamp, its edge being skived but uncemented and unfolded. This step is illustrated in Fig. 1 in which 20 indicates the needle of a sewing machine, 22 the usual presser foot and 201 the back seam. This operation is carried out while the vamp is turned wrong side out, the two ends of the vamp being laid together and stitched through and through.

In Fig. 2 is illustrated the step of staying the back seam. In this operation a stay strip 202 is stitched to the unfinished side of the vamp so as to cover the back seam 201. This operation is preferably carried out by a two-needle sewing machine. In Fig. 2 the needle bar 60 is shown as carrying two needles which pass through the aperture in a presser foot 62. A similar stay strip 202 is used to cover the side seam if a pieced vamp is used, as indicated in Fig. 3.

The third step of the method consists in applying cement to the edge which is to be folded. This may be done by hand or by the use of an upper cementing machine of any preferred construction. In Fig. 3 this step is illustrated as being carried out by hand by means of a brush 30. As suggested, the skived portion of the edge is coated on one side of the vamp and after this has partially dried the vamp is turned over and the other side similarly treated. In applying the cement the upper ends of the stay strips 200 and 202 are coated as well as the edge of the vamp.

In Fig. 4 the final step of the method is illustrated as being carried out with the assistance of the machine disclosed in my prior application, but it is obvious that this step may be carried out by any other suitable mechanically or manually operated folding instrumentalties. As herein shown the operating parts of the folding machine are mounted near the end of an overhanging support 6. The actual folding is effected by the combined action of a movable folder 55 and a normally stationary creaser 50. The folder 55 is arranged to reciprocate in an inclined path across the edge of the creaser 50, the latter determining the crease line or fold vertex. The fold is completed by the action of a pair of pressing jaws, one being indicated by reference character 66, which are also utilized to feed the work. The creaser 50 is mounted on an overhanging arm 44 which also carries a slitting knife 122 arranged to be operated when a curved edge is encountered to slit the vamp as shown in Fig. 4. For further details of the folding machine herein shown in part reference may be had to my prior application above identified.

The folding operation is preferably begun at a point on the edge of the vamp at one side of the back seam, such for example as that indicated by the arrow in Fig. 4. Accordingly this point on the edge is presented in a horizontal position to the action of the movable folder 55 and by the first feeding operation the partially formed fold is moved into range of the jaw 66 by which the fold is completed. The folding is continued in a step-by-step manner about the entire edge of the vamp and back to the starting point. During this operation the vamp is drawn about the support 6 and each portion to be folded is presented successively in horizontal position to the folding instrumentalties. The ends of the stay strips are turned back and folded without any interruption of the process and when the starting point is again reached the entire edge of the vamp is completed.

In folding the edge along the curved portion of the throat the vamp is slitted by the knife 122 which for this purpose is temporarily thrown into operation. The slitting takes place one step in advance of the folding.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent of the United States:

1. The method of finishing the edge of a vamp which consists in stitching the rear ends of the vamp together so that its upper edge will present an endless outline, cementing said edge for its entire length, and finally folding the edge in a step-by-step manner progressing from a given starting point entirely around said edge and back to the starting point.

2. The method of finishing the edge of a vamp which consists in closing the vamp by a back seam, the edge of the vamp being unfolded, staying the back seam, applying
cement to the entire upper edge of the vamp including the upper end of the stay strip, and finally folding the edge in a step-by-step manner beginning at a point on one side of the stay strip and including the end of the stay strip before the starting point is again reached.

3. The method of finishing the edge of a closed vamp which consists in cementing the entire edge, including the ends of the back and side seams, and then folding the entire edge in an uninterrupted step-by-step operation.

4. The method of finishing the edge of a closed vamp which consists in cementing the entire edge, separating the two sides of the vamp and locating one portion thereof in a substantially horizontal position, advancing the vamp to bring every other portion successively into that position, and simultaneously folding the edge.

5. The method of finishing the edge of a closed vamp which consists in turning the vamp inside out, cementing its upper edge, then progressively folding the entire edge beginning at a point on one side of the back seam and passing about the throat to the same point, and slitting the throat progressively one step ahead of the point where the folding is taking place.

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

PERLEY R. GLASS.

Witnesses:

Geo. E. Warren,

Fred W. Guilford.