

April 20, 1926.

1,581,330

W. J. SHAW

HEEL TRIMMING MACHINE

Filed July 10, 1924

3 Sheets-Sheet 1

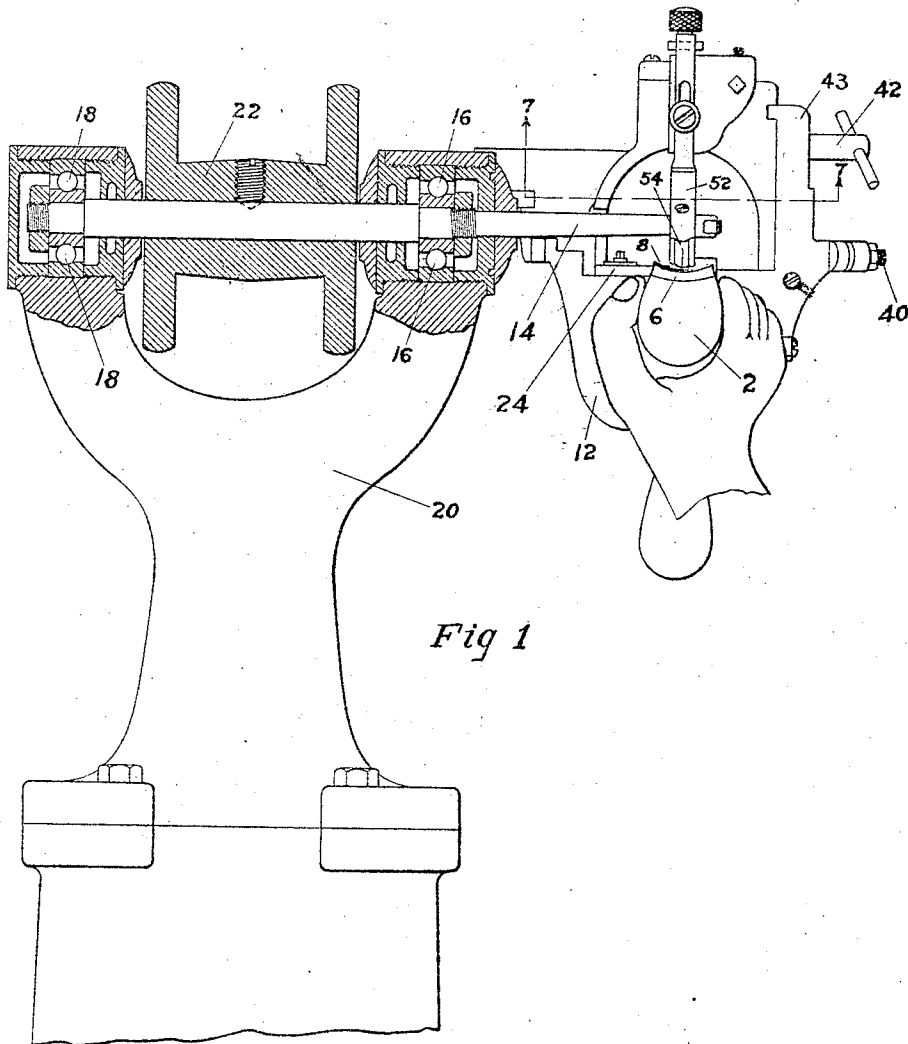


Fig 1

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3 Sheets-Sheet 2

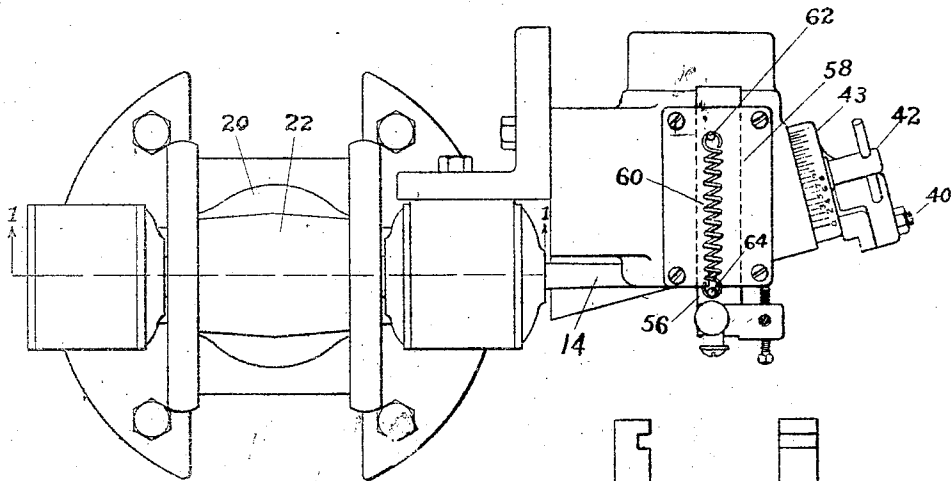


Fig 2

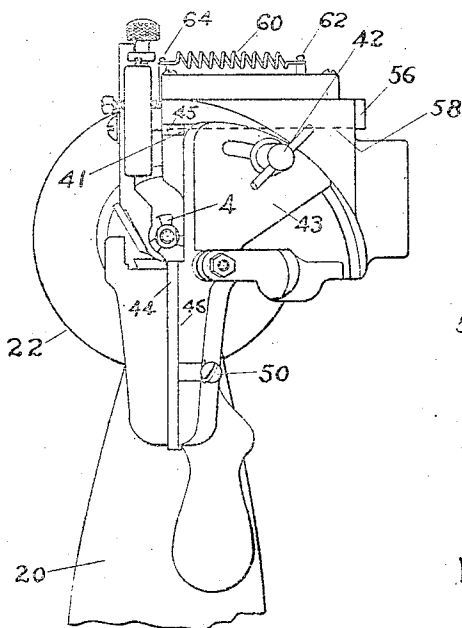


Fig 3

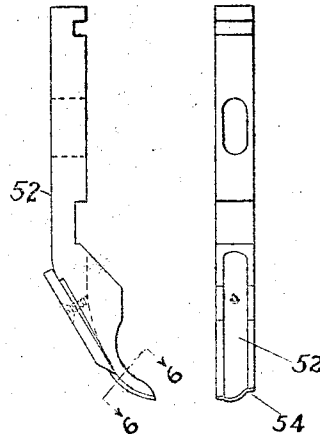


Fig 4

Fig 5



Fig 6

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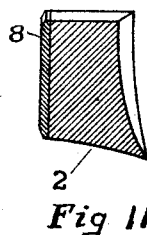
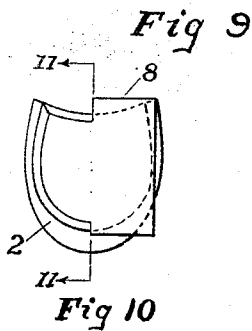
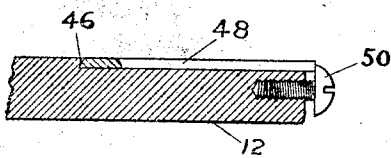
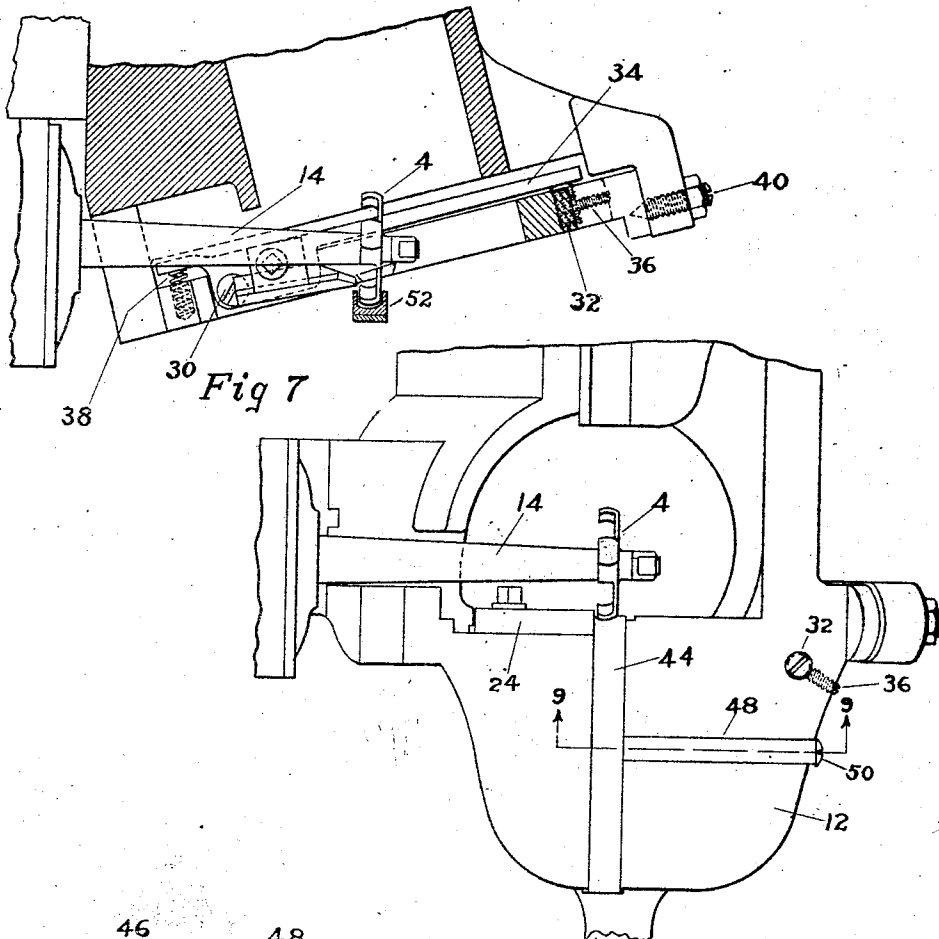
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W. J. SHAW

HEEL TRIMMING MACHINE

Filed July 10, 1924

3 Sheets-Sheet 3



Wesley J Shaw INVENTOR

BY David Rines ATTORNEY

UNITED STATES PATENT OFFICE.

WESLEY J. SHAW, OF HAVERHILL, MASSACHUSETTS, ASSIGNOR TO NEW ENGLAND
WOOD HEEL CO., OF HAVERHILL, MASSACHUSETTS, A CORPORATION OF MASSA-
CHUSETTS.

HEEL-TRIMMING MACHINE.

Application filed July 10, 1924. Serial No. 725,133.

To all whom it may concern:

Be it known that I, WESLEY J. SHAW, a subject of the King of Great Britain, and a resident of Haverhill, in the county of Essex and Commonwealth of Massachusetts, have invented a new and useful Improvement in Heel-Trimming Machines, of which the following is a specification.

The present invention, while having general fields of usefulness, is more particularly related to heel-trimming machines.

The invention will be more fully explained in connection with the accompanying drawings, in which Fig. 1 is a front elevation, partly in longitudinal, vertical section upon the line 1—1 of Fig. 2, looking in the direction of the arrows, of a machine constructed according to a preferred embodiment of the present invention; Fig. 2 is a plan of the same; Fig. 3 is a side elevation of the same; Fig. 4 is a side elevation of a preferred cutter guard; Fig. 5 is a rear elevation of the same; Fig. 6 is a section taken upon the line 6—6 of Fig. 4; Fig. 7 is an enlarged horizontal section taken upon the line 7—7 of Fig. 1, looking in the direction of the arrows; Fig. 8 is a similarly enlarged elevation of the mechanism shown in Fig. 7; Fig. 9 is a horizontal section taken upon the line 9—9 of Fig. 8, looking in the direction of the arrows; Fig. 10 is a view of a heel adapted to be trimmed by the machine of the present invention; and Fig. 11 is a section taken upon the line 11—11 of Fig. 10, looking in the direction of the arrows.

According to the preferred embodiment of the invention that is herein illustrated and described, the operator grasps a heel 2 in one hand, and moves it from right to left, as viewed in Fig. 1, meanwhile turning the heel about a rotary cutter 4 along a curve 6. This results in trimming from a leather sheet 8, that is nailed to the bottom of the heel, the portion that projects beyond the curve 6. Such leather sheets 8 are usually nailed to the bottoms of wood heels. During the trimming operation, the leather sheet 8 is guided along a plane guide 12. The left-hand upper portion of the heel shown in Fig. 1 would contact with the shaft 14 to which the rotary cutter 4 is fast if the plane guide 12 were in the same

plane therewith. The plane guide 12 is therefore inclined to the shaft 14 and to the plane of rotation of the cutter, as shown more particularly in Fig. 7, to prevent interference from the shaft 14. The shaft 14 is mounted in ball-bearings 16 and 18 of a standard 20, and may be driven by means of a pulley 22, an electric motor (not shown), or in any other desired manner.

Simultaneously with the trimming operation, the leather sheet 8 is beveled by a stationary cutter 24 that projects beyond the plane of the plane guide 12. The stationary cutter is pivotally adjustable about a point 30 by means of an adjusting screw 32 that extends through the plane guide 12 into contact with an arm 34 upon which the knife 24 is carried. The adjusting screw 32 may be held in adjusted position by a set screw 36. A coil spring 38 maintains the arm 34 in contact with the adjusting screw 32.

The relative positions of the cutters and of the plane guide 12 may be adjusted by pivotally adjusting the plane guide about a pivot 40. The guide may be locked in adjusted position by a clamp 42. A projection 41 fast to an extension 43 of the guide 12 rides in a groove 45 to guide the pivotal movement of the guide about the pivot 40.

A gage 44, mounted in a groove 46 of the plane guide 12, cooperates with the cutters, and may be adjusted to correspond to the adjustment of the cutter 24 by means of a clamping plate 48. The clamping plate may be caused to bind against the gage 44 by a clamping screw 50, as shown more particularly in Fig. 9, or in any other desired manner.

The rotary cutter 4 is provided with a guard 52 that is more or less torus-shaped, as shown more particularly in Figs. 4, 5 and 6. This shape is admirably adapted to the type of trimming cutter 4 that is illustrated. The lower portion of the guard is cut away, as shown at 54, and terminates at a point near the plane guide 12. At this point, opposite to the effective cutting portion of the cutter 4, the uncut lower portion of the guard, near the plane guide 12, adjacent to the cut-away portion 54, engages the leather sheet 8. If the guard were not

cut at the portion 54, it would not be possible to move the leather sheet 8 into the cutter 4, which would prevent the trimming action altogether. It is at the cut-away portion 54 that access to the cutter 4 is rendered possible. In order that the leather sheet 8 may reach the cutter 4 at the cut-away portion 54, it is necessary to turn the heel a little in a clockwise direction, as viewed in Fig. 1. At the same time, the heel is maintained in contact with the uncut portion of the guard; near the portion 54. In Fig. 1, the heel is shown, for clearness, a little below the lowest portion of the guard, being purposely shown moved down from the position that it occupied when part of the leather sheet 8 was being cut by the cutter 4. During the cutting action, however, the heel is maintained in contact with the uncut lower portion of the guard, and is turned gradually, to conform to the exterior contour of the heel, such as is indicated at 6. During this turning movement, the uncut lower portion of the guard acts as a guide about which the heel is turned and along which the heel is advanced, and acts to steady the heel, so that it may be held firmly by the operator against the guide and not be torn out of the operator's hand by the action of the cutter. The small dimension of the uncut lower portion of the guard greatly facilitates this combined turning and advancing movement.

The guard 52 is mounted upon a slide 56 that is adapted to slide in a horizontally disposed groove 58. A spring 60, fastened at one end 62 to a stationary part of the machine, and at the other end 64 to the slide 56, maintains the guard in its normal position, but the guard may be moved out of its normal position, in opposition to the force of the spring.

Many modifications will occur to persons skilled in the art, and all such are intended to be embraced within the appended claims.

What is claimed is:

1. A machine of the class described having, in combination, a shaft, a cutter fast to the shaft so as to rotate therewith in a plane at right angles to the shaft, a substantially plane guide for guiding an article to the cutter, the shaft being nearly in but slightly inclined to the plane of the plane guide, whereby the cutter rotates nearly in but slightly inclined to a plane at right angles to the plane of the plane guide, and a member having a relatively small-dimensioned portion positioned opposite to the effective cutting portion of the cutter at a point near the plane guide, the small-dimensioned portion being constructed and arranged to be engaged by the article, whereby the article may be turned about the pivoting portion while it is guided by the plane guide so as to be held firmly against

the plane guide during the cutting action of the cutter, the shaft being substantially entirely to one side of the plane guide, whereby the article will not contact with the shaft during its turning movement about the small-dimensioned portion.

2. A machine of the class described having, in combination, a substantially horizontally disposed shaft, a cutter fast to the shaft so as to rotate in a substantially vertically disposed plane, a substantially vertically disposed plane guide, the bottom of a heel being adapted to contact with the plane guide to cause the said bottom of the heel to be guided to the cutter, the shaft being nearly in but slightly inclined to the plane of the plane guide, whereby the cutter rotates in a plane nearly in but slightly inclined to a plane at right angles to the plane of the plane guide, and a guard for the cutter, the guard terminating at a point near the plane guide so as not to prevent the operation of the cutter upon the heel and having a relatively small-dimensioned portion positioned opposite to the effective cutting portion of the cutter at a point near the plane guide, the small-dimensioned portion being constructed and arranged to be engaged by the heel, whereby the heel may be turned about the small-dimensioned portion while it is guided by the plane guide so as to be held firmly against the plane guide during the cutting action of the cutter, the shaft being substantially entirely to one side of the plane guide, whereby the heel will not contact with the shaft during its turning movement about the small-dimensioned portion.

3. A machine of the class described having, in combination, a shaft, a cutter fast to the shaft so as to rotate therewith in a plane at right angles to the shaft, a stationary cutter, and a plane guide inclined to the shaft and to the plane of rotation of the rotary cutter and the plane of the guide passing through the active portion of the stationary cutter, the bottom of a heel being adapted to contact with the plane guide to cause the said bottom of the heel to be guided to the cutters in the plane of the guide, whereby the heel may be turned about the cutter during its guiding without contacting with the shaft to permit of trimming the heel by the rotary cutter and beveling of its said bottom by the stationary cutter.

4. A machine of the class described having, in combination, a substantially horizontally disposed shaft, a cutter fast to the shaft so as to rotate in a substantially vertically disposed plane, a substantially vertically disposed guide along which the bottom of a heel is adapted to contact and by which the heel is adapted to be guided to the cutter, and a member having a relatively

small-dimensional pivoting portion positioned opposite to the effective cutting portion of the cutter at a point near the guide, the pivoting portion being constructed and
 5 arranged to be engaged by the heel, whereby the heel may be turned about the pivoting portion while it is guided by the guide so as to be held firmly against the guide during the cutting action of the cutter, the shaft
 10 being substantially entirely to one side of the guide, whereby the heel will not contact with the shaft during its turning movement about the pivoting portion.

5. A machine of the class described having, in combination, a shaft, an anti-friction bearing for the shaft, a cutter fast to the shaft so as to rotate therewith in a plane at right angles to the shaft, a stationary cutter, and a plane guide inclined to the
 20 shaft and to the plane of rotation of the rotary cutter and the plane of the guide passing through the active portion of the stationary cutter, the bottom of a heel being adapted to contact with the plane guide to cause the said bottom of the heel to be guided
 25 to the cutters in the plane of the guide, whereby the heel may be turned about the cutter during its guiding without contacting with the shaft to permit of trimming the heel by the rotary cutter and beveling
 30 of its said bottom by the stationary cutter, and means for relatively adjusting the cutters and the plane guide.

6. A machine of the class described having, in combination, a shaft, an anti-friction bearing for the shaft, a cutter fast to the shaft so as to rotate therewith in a plane at right angles to the shaft, a plane guide, the
 35 bottom of a heel being adapted to contact with the plane guide to cause the said bottom of the heel to be guided to the cutter, whereby the heel may be turned about the cutter during its guiding to permit of trimming the heel by the cutter, and a guard for
 40 the cutter, the guard terminating at a point near the plane guide so as not to prevent the operation of the cutter upon the heel, the guard being constructed and arranged to be engaged by the heel during its turning
 45 movement, whereby the heel will be held firmly against the plane guide during the cutting action of the cutter.

7. A machine of the class described having, in combination, a shaft, a cutter fast to the shaft so as to rotate in a plane at right angles to the shaft, a plane guide, the bottom of a heel being adapted to contact with the plane guide to cause the said bottom of the heel to be guided to the cutter, whereby
 55 the heel may be turned about the cutter during its guiding to permit of trimming the heel by the cutter, and a substantially torus-shaped guard for the cutter, the guard terminating at a point near the plane guide and
 60 being cut away at its terminal portion so as

not to prevent the operation of the cutter upon the heel, the guard being constructed and arranged to be engaged by the heel during its turning movement, whereby the heel
 70 will be held firmly against the plane guide during the cutting action of the cutter.

8. A machine of the class described having, in combination, a plane guide, a cutter mounted upon the guide and projecting from the plane of the guide, whereby an article may be guided along the guide to the
 75 cutter, means for adjusting the cutter upon the guide, and means for maintaining the cutter in adjusted position upon the guide.

9. A machine of the class described having, in combination, a plane guide, a cutter pivotally mounted upon the guide so as to project from the plane of the guide, whereby an article may be guided along the guide to the cutter, means for pivotally adjusting
 85 the cutter, means for yieldingly maintaining the cutter in pivotally adjusted position, a gage, and means for adjusting the gage to correspond to the adjusted position of the cutter.

10. A machine of the class described having, in combination, a shaft, an anti-friction bearing for the shaft, a cutter fast to the shaft so as to rotate therewith in a plane at right angles to the shaft, a plane guide, and
 95 a cutter projecting from the plane of the guide, the bottom of a heel being adapted to contact with the plane guide to cause the said bottom of the heel to be guided to the cutters in the plane of the guide and the cutters being so constructed and arranged as to trim the heel and bevel its said bottom.

11. A machine of the class described having, in combination, a shaft, an anti-friction bearing for the shaft, a cutter fast to the shaft so as to rotate therewith in a plane at right angles to the shaft, a plane guide inclined to the shaft and to the plane of rotation of the rotary cutter, a cutter projecting from the plane of the guide, the bottom of a heel being adapted to contact with the plane guide to cause the said bottom of the heel to be guided to the cutters in the plane of the guide, whereby the heel may be turned about the cutter during its guiding without contacting with the shaft to permit of trimming the heel by the rotary cutter and beveling of its said bottom by the projecting cutter, a gage, means for adjusting the projecting cutter, means for adjusting the gage to correspond to the adjusted position of the cutter, a substantially torus-shaped guard for the cutter, the guard terminating at a point near the plane guide and being cut away at its terminal portion so as not to prevent the operation of the cutter upon the heel, means for adjusting the guard, and means for yieldingly maintaining the guard in adjusted position.

12. A machine of the class described hav- 130

ing, in combination, a shaft, a cutter fast to the shaft so as to rotate therewith, a guide inclined to the shaft and to a plane at right angles to the shaft so as to guide an article to the cutter along a line at an angle to the shaft, and means for pivotally adjusting the guide about an axis nearly parallel to the shaft.

13. A machine of the class described having, in combination, a shaft, a cutter fast to the shaft so as to rotate therewith, a guide inclined to the shaft and to a plane at right angles to the shaft so as to guide an article to the cutter along a line at an angle to the shaft, the guide being provided with a projection, a frame having a groove for slidably receiving the projection, means for adjusting the guide on the frame, the projection being adapted to slide in the groove to guide the

adjustment of the guide, and means for locking the guide in adjusted position. 20

14. A machine of the class described having, in combination, a shaft, a cutter fast to the shaft so as to rotate with the shaft, a substantially plane guide for guiding an article to the cutter, the shaft being nearly in but slightly inclined to the plane of the guide and substantially entirely to one side of the guide, whereby the article may be turned while it is guided without contacting with the shaft, and a stationary cutter the active portion of which is substantially in the plane of the guide for beveling the article while it is guided. 25 30

In testimony whereof, I have hereunto subscribed my name this 5th day of July, 1924. 35

WESLEY J. SHAW.

Certificate of Correction.

It is hereby certified that in Letters Patent No. 1,581,330, granted April 20, 1926, upon the application of Wesley J. Shaw, of Haverhill, Massachusetts, for an improvement in "Heel-Trimming Machines," an error appears in the printed specification requiring correction as follows: Page 2, line 64, claim 1, for the word "pivoting" read *small-dimensioned*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 25th day of May, A. D. 1926.

[SEAL.]

WM. A. KINNAN,
Acting Commissioner of Patents.