J. BRENZINGER.

TOOL CARRIER FOR CAN HEADING MACHINES.

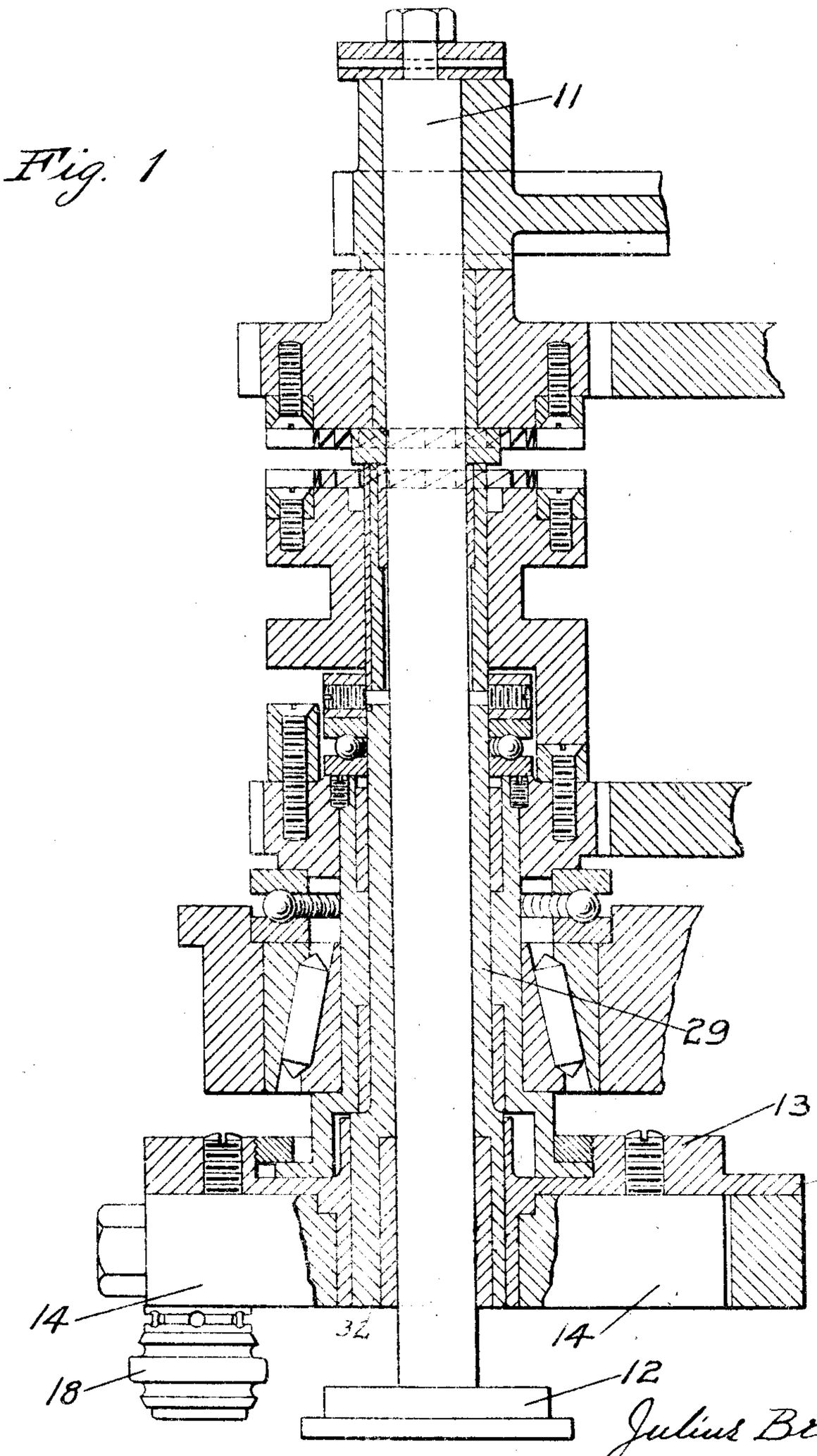
APPLICATION FILED SEPT. 29, 1913.

1,167,350.

Patented Jan. 4, 1916.

2 SHEETS—SHEET 1.

Fig. 1



Witnesses:

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2 SHEETS—SHEET 2.

Fig. 2.

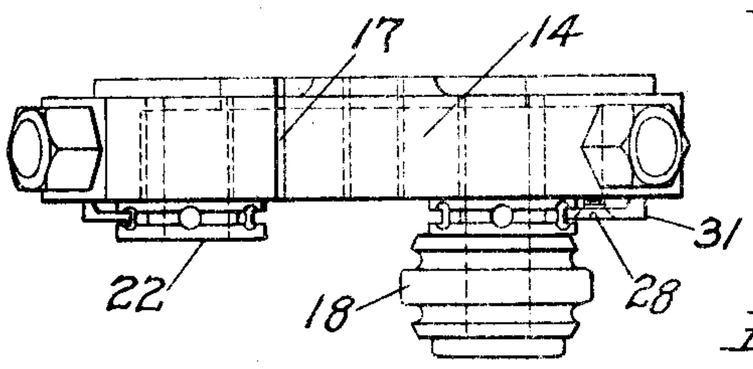


Fig. 3.

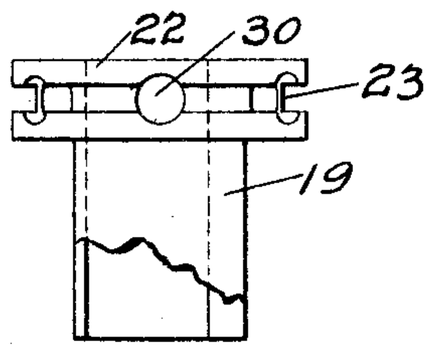


Fig. 4.

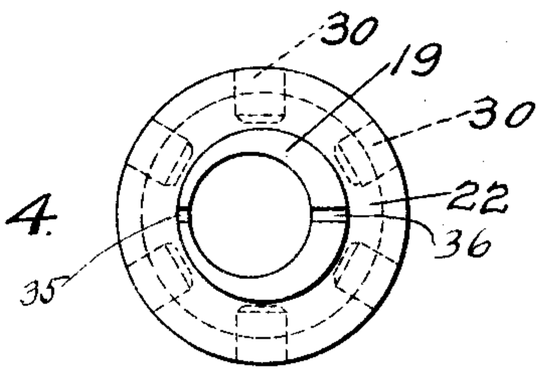


Fig. 5.

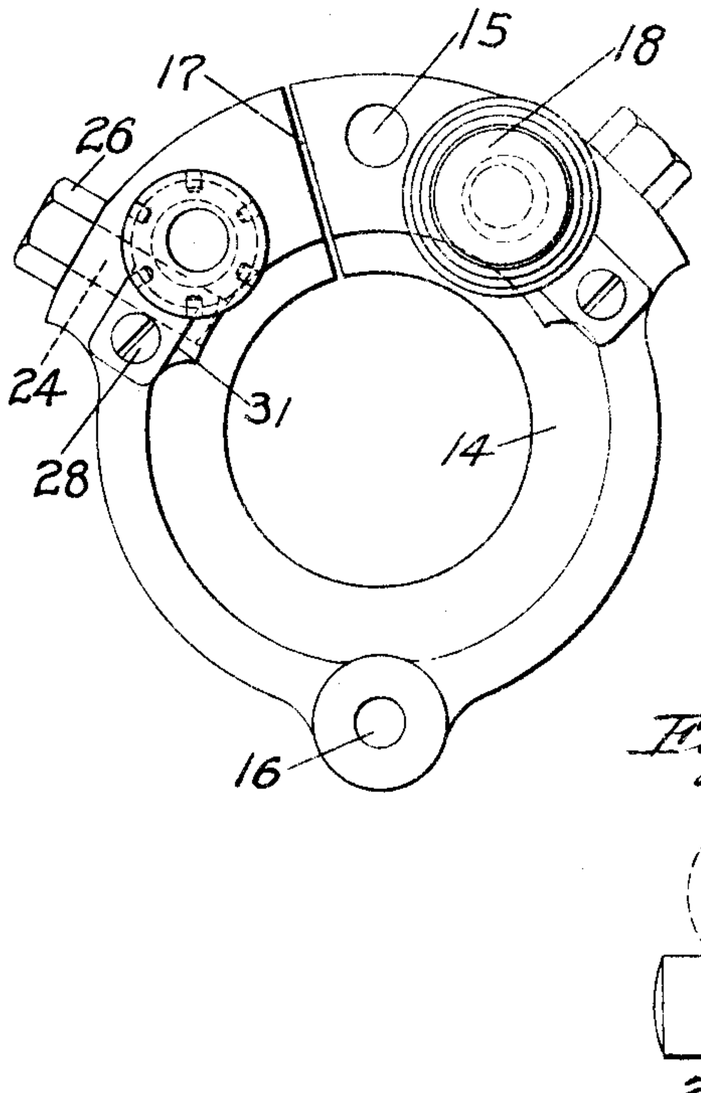


Fig. 6.

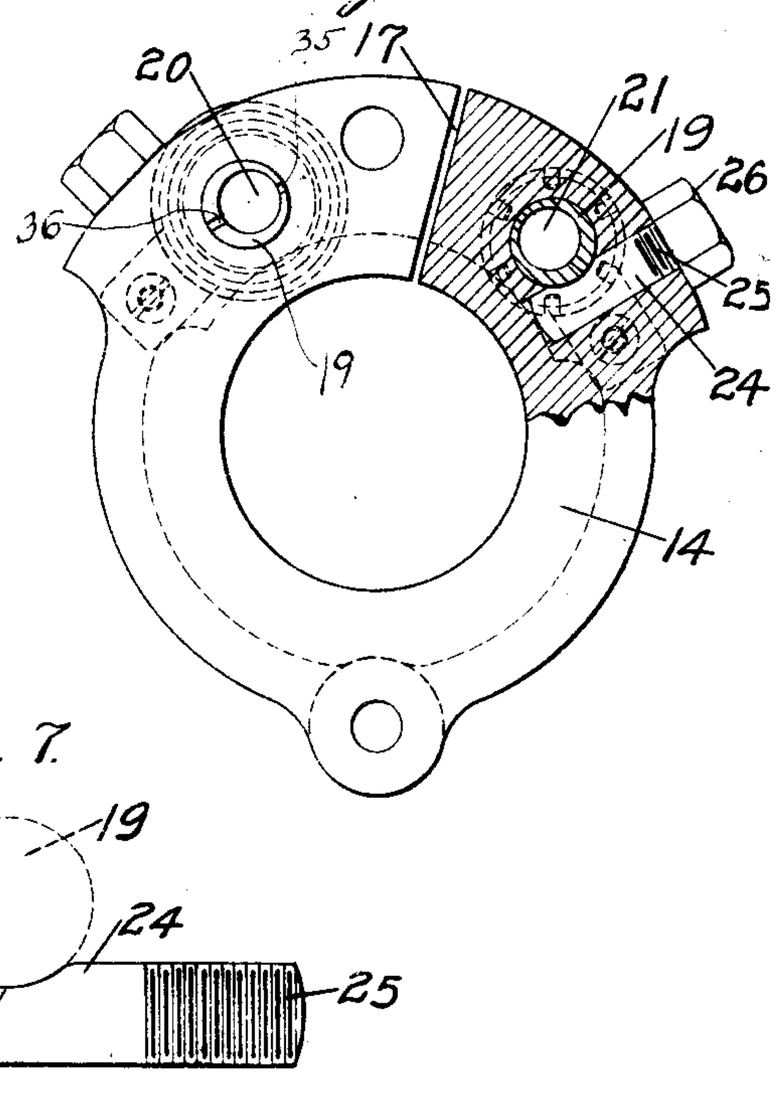
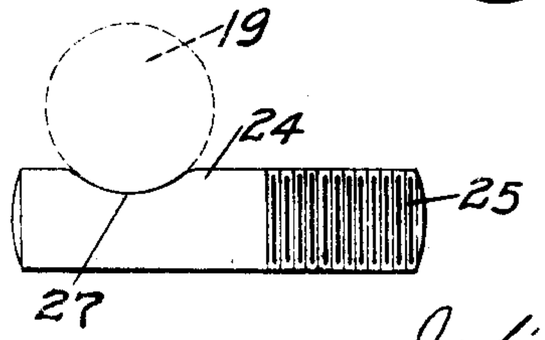


Fig. 7.



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UNITED STATES PATENT OFFICE.

JULIUS BRENZINGER, OF MOUNT VERNON, NEW YORK, ASSIGNOR TO THE MAX AMS MACHINE COMPANY, A CORPORATION OF NEW YORK.

TOOL-CARRIER FOR CAN-HEADING MACHINES.

1,167,350. Specification of Letters Patent. **Patented Jan. 4, 1916.**

Application filed September 29, 1913. Serial No. 792,294.

To all whom it may concern:

Be it known that I, JULIUS BRENZINGER, a citizen of the United States, residing at Mount Vernon, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Tool-Carriers for Can-Heading Machines, of which the following is a specification.

This invention relates generally to machines for securing the end portions to the body portions of sheet-metal containers, commonly known as tin cans, by what is known as the double-seaming process, and more particularly to improvements in the manner of mounting and carrying the seaming rollers.

It is of course obvious to any one skilled in this art that the seaming rollers of a double seaming machine, particularly when the rollers are revolved around a stationary chuck, require a certain nicety of adjustment in order to perform their proper functions, and while this adjustment must be permanent for any series of operations, there should not be too great rigidity in view of very slight variations in the sizes of the parts operated upon and not perfect uniformity in the sheet metal against which these rollers act. Furthermore, particularly where a single seaming machine is employed for heading cans of different sizes, difficulty is experienced with present types of machines in adjusting the same for the heading of cans of different dimensions.

The principal objects of the present invention are, first, the provision of a roller-carrier which may be easily and readily mounted in and removed from the machine, whereby through the provision of carriers of different sizes, the machine may be quickly adapted to operate upon any one of a number of different sizes of cans; second, to provide a carrier which, while possessing sufficient rigidity to insure the seaming rollers performing their proper functions, is still sufficiently yielding to provide for slight variations in sizes, as hereinbefore suggested; third, to provide for ready adjustment of the rollers and firmly retain the same in any position of adjustment, subject to ready readjustment at any time desired; and, fourth, to simplify generally present methods of mounting these seaming rollers.

My invention will be more readily understood by reference to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a central sectional elevation of the seaming mechanism of a can heading machine; Fig. 2 is an elevation or an edge view of a roller-carrying ring embodying my invention. Fig. 3 is a side view and Fig. 4 an end view of the eccentric bushing employed for purposes of adjustment, as hereinafter described; Fig. 5 is a bottom plan view of Fig. 2; Fig. 6 is a top plan view thereof, partly in section; and Fig. 7 is a detail plan view of the device for clamping each seaming-roller axle, as hereinafter described.

There are two general ways in which the double seaming operation may be performed, one being that of rotating the chuck and therewith the can body and subjecting the can parts to the action of the seaming rollers which are brought into and out of cooperative positional relation to the same, and the other by revolving the seaming rollers around a stationary chuck. This last mentioned method is preferable for many reasons, not least among which is that of preventing the discharge of the contents of an over-filled can due to centrifugal forces generated by the rotating can body prior to the clamping of the cover thereon, and also because this type of machine is better adapted to be used in connection with devices for automatically feeding the assembled can parts to the seaming mechanism.

Where the chuck is rotated and the rollers are brought successively into coöperative relation thereto, it will be apparent that the adjustment of the rollers does not involve any very serious difficulties, while when the rollers are revolved around a stationary chuck, it becomes a much more difficult proposition to secure and retain a proper adjustment.

It will be apparent that my invention may be employed in connection with many different types of machines in which the seaming rollers are revolved around a stationary chuck, but I have selected for purposes of illustration seaming mechanism which includes a stationary shaft 11 carrying at its lower end the usual chuck 12 which coöper-

ates with the seaming rollers in a well known manner to double-seam the can tops to the bodies of the cans. Rotatable on this shaft 11 is a sleeve 29, terminating at its lower end in a circular eccentric 32 upon which is journaled a seaming head 13, each of these elements being either positively rotated in the same direction at slightly different velocities, as fully shown and described in my co-pending application filed July 5, 1910, Serial No. 570,343, or the seaming head 13 is held against rotation while the shaft 11 is being rapidly and the sleeve 29 relatively slowly rotated in the same direction, as fully shown and described in another co-pending application filed June 7, 1911, Serial No. 631,752, whereby the relative position of the seaming head with respect to the shaft 11 and chuck 12 is periodically varied for the purpose of periodically bringing the seaming rollers successively into and out of coöperative relation to said chuck. As this mechanism and its operation are shown and described in detail in my co-pending applications aforesaid, it will be unnecessary to describe the same in detail in connection with this application.

Mounted within or carried by the seaming head 13 is the ring 14. This ring is split, as shown in Figs. 2, 5 and 6, and is preferably secured to the seaming head 13 at two points, as indicated, through the holes 15 and 16, the former being located adjacent to the split 17 and the latter substantially diametrically opposite thereto for the purpose of giving substantial rigidity to that section of the ring upon which the "first-operation" seaming roller 18 is mounted, and more or less resiliency to the other ring section upon which the second-operation seaming roller (not shown in the drawings) is mounted. As shown, each of these seaming rollers is designed to be located near one or the other of the contiguous ends of the ring 14, and for purposes of adjustment I have shown this ring provided with removable eccentric bushings 19 within which are mounted the axles 20 and 21 of the seaming rollers. I have shown each of these bushings provided with a head 22, having the circumferential groove 23, for purposes which will be hereinafter explained, this head providing the means for rotating this bushing and thus varying the relative position of the seaming roller with respect to the ring 14. The head 22 is also preferably provided with an annular series of apertures 30 for the insertion of a pin to facilitate rotation of the head and bushing. The bushing 19 is also split throughout the major portion of its length, as indicated in Figs. 3 and 4, these splits 35 and 36 being preferably located diametrically opposite each other. Intersecting the bore in which the eccentric bushing 19 is located is a transverse bore within which is the pin 24, which is provided at its outer end with the screw thread 25 for the reception of the nut 26. This pin is provided with the circular recess 27 into which projects a portion of the bushing 19. It will be apparent that if through the nut 26 the pin 24 is forced in either direction, it will operate through the yielding bushing sections to rigidly clamp the axle 21 of the seaming roller within the bushing 19 in whatever rotative position the latter may occupy. I have also shown a clamp 31, one end of which is adapted to enter the groove 23 in the bushing head 22, and by means of the screw is adapted to clamp the bushing head rigidly against the face of the ring 14. This double clamping is for the purpose of permitting the removal of the rollers with their axles without disturbing the adjustment of the bushings. Of course, the pin 24 must be moved to free the bushing 19 before the axle 21 of the roller can be withdrawn, and during this operation the clamp plate 31 continues to clamp the bushing head and bushing in its adjusted position. The bushing itself may be removed by loosening the pin 24 and withdrawing the plate 31. It is to be understood, of course, that the other bushing, bushing head, seaming roller and clamping means are identical with those just described, except that the working peripheral groove in this "last-operation" or compression roller usually differs slightly in cross-sectional configuration from that of the "first-operation" or forming roller 18 in a common and well-known manner.

In availing myself of the improvements and advantages of a construction and arrangement of seaming mechanism such as shown and described in my co-pending applications aforesaid, it is essential that the seaming rollers be located in comparatively close proximity to each other. It follows, therefore, almost as a natural consequence, that I can avail myself of the advantages resulting from having the "last-operation" roller yieldingly mounted by merely so relatively positioning the rollers on the ring 14 that the split 17 in said ring will be interposed between said rollers—or between the "first-operation" roller and the "last-operation" roller, if more than two rollers are employed—and securing said ring to the seaming head 13 in the manner described. Furthermore, in locating these rollers in close proximity to each other, particularly in a machine in which these rollers are designed to be revolved around the can parts, I have found it most desirable—if not actually essential to a maintenance of proper correlation of parts during the steps of the seaming operation—to counterbalance the weight of these rollers, and I have therefore shown the seaming head 13 provided with a projecting flange 33, on the side thereof oppo-

site to the rollers, to which flange is secured in any suitable manner the counterbalancing weight 34.

From the above description it will be apparent that I have provided a carrier for the seaming rollers which may be readily attached to and detached from the seaming head, in which rollers can be easily and readily adjusted and which, when once adjusted, will retain such adjustment indefinitely or as long as may be desired. It will furthermore be apparent that with the provision of one of these rings for each particular size of can in connection with the heading of which it is desired to use the machine, the latter may be very readily and quickly adjusted for any regular size of can desired. It will furthermore be apparent that the provision of a split ring, secured to the seaming head in the manner described, provides the necessary rigidity to the "first-operation" seaming roller, which merely has the effect of bending or curling the superposed flanges of metal, and the necessary resiliency to the "second-operation" seaming roller, which compresses folded layers and therefore acts upon substantially solid metal which may vary slightly in dimensions, as suggested.

Many modifications of minor details in my improved seaming ring will doubtless readily suggest themselves to those skilled in the art to which it appertains, and I therefore do not desire to limit my invention to the specific construction herein shown and described.

I claim as new and desire to secure Letters Patent:

1. In a machine of the character described, the combination, with a seaming head, means for supporting therein the assembled parts of a can to be headed, and means for rotating one of said elements, of a tool-carrier having a plurality of tools thereon, said carrier having rigid connection with and forming a detachable part of said head, and means for imparting bodily movement to said head to advance and retract said tools successively to and from work-engaging positions.

2. In a machine of the character described, the combination, with a seaming head, means for supporting therein the assembled parts of a can to be headed, and means for rotating said head, of a tool-carrier having rigid connection with and forming a detachable part of said head whereby a tool thereon is revolved around the supported can parts, and means for imparting bodily movement to said head independent of rotation thereof to advance and retract said tool to and from work-engaging position.

3. In a machine of the character described, the combination, with a seaming head, means for supporting therein the assembled parts of a can to be headed, and means for rotating said head, of a tool carrier having a plurality of tools thereon, said carrier having rigid connection with and forming a detachable part of said head whereby said tools are revolved around the supported can parts, and means for imparting bodily movement to said head independent of rotation thereof to advance and retract said tools successively to and from work-engaging positions.

4. In a machine of the character described, the combination, with a seaming head, means for supporting therein the assembled parts of a can to be headed, and means for rotating one of said elements, of an annular tool-carrier having rigid connection with and forming a detachable part of said head, a plurality of tools on said carrier located in proximity to each other on one side thereof, and means for imparting bodily movement to said head to advance and retract said tools successively to and from work-engaging positions.

5. In a machine of the character described, the combination, with means for supporting the work, a seaming head, and means for rotating one of said elements, of a tool carrier in the form of a split ring rigidly and detachably secured to said head throughout a portion only of its length, a seaming tool mounted on said ring near the unsecured end thereof, and means for moving said head to advance and retract said tool to and from work-engaging position.

6. In a machine of the character described, the combination, with means for supporting the work, a seaming head, and means for rotating one of said elements, of a tool-carrier in the form of a split ring rigidly and detachably secured to said head throughout a portion only of its length, a plurality of tools mounted on said ring and located in proximity to each other on both sides of the split in said ring, and means for moving said head to advance and retract said tools successively to and from work-engaging positions.

7. A seaming roller carrier for double seaming machines comprising a split ring on which all rollers are mounted, and means for detachably securing said carrier to the seaming head so that the section thereof carrying at least one roller is substantially rigid and the section carrying another roller is resilient.

8. A seaming roller-carrier for double seaming machines comprising a ring carrying the seaming rollers, the axles of each of said rollers being mounted in an eccentric bushing, and separate means for clamping said bushing in said ring and said axle in said bushing.

9. A seaming roller-carrier for double seaming machines comprising a split ring carrying the seaming rollers, the axles of each of said rollers being mounted in an ec-

centric bushing, accessible means for rotating said bushings, and separate means for clamping said bushing in said ring and said axle in said bushing.

10. A seaming-roller carrier for double seaming machines comprising a detachable member carrying the seaming rollers, the axle of each of said rollers being mounted in an eccentric bushing, accessible means for rotating said bushing to vary the relative position of the roller therein, means for clamping said bushing in any position of adjustment, and means for clamping said axle in said bushing.

11. A seaming-roller carrier for double seaming machines comprising a detachable member carrying the seaming rollers, the axle of each of said rollers being mounted in an eccentric bushing, said bushing being split longitudinally throughout the major portion of its length, means coöperating with the bushing-sections to clamp said axle in said bushing, and means for clamping said bushing in said member.

In testimony of the foregoing, I have hereunto set my hand in the presence of two witnesses.

JULIUS BRENZINGER.

Witnesses:
J. E. PINCKNEY,
L. R. WATKYNS.