

(No Model.)

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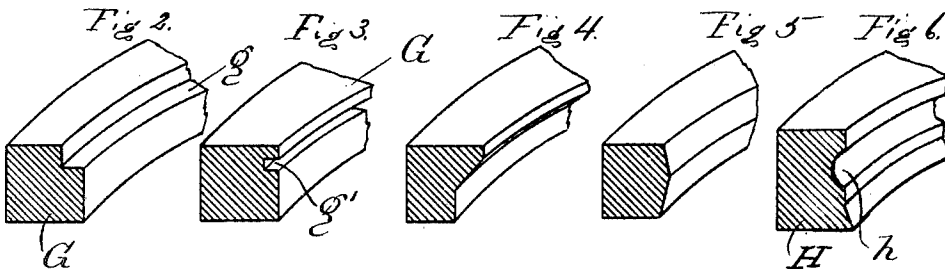
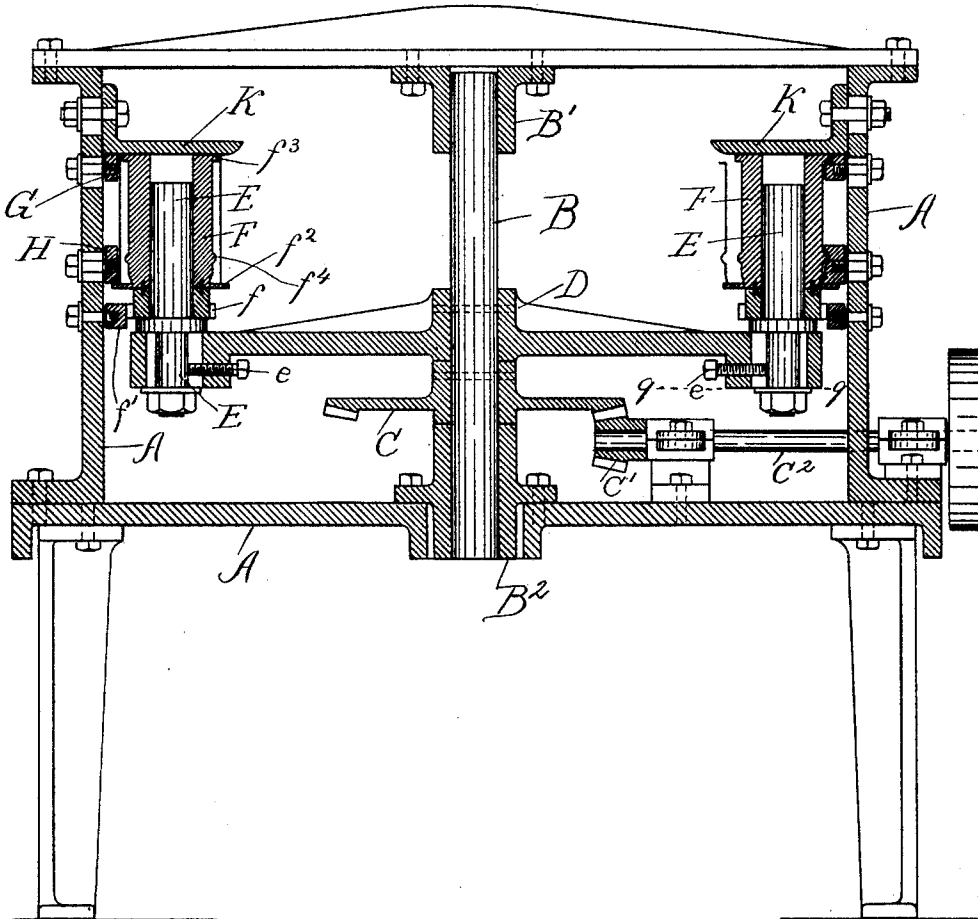
E. P. HOLDEN.

MACHINE FOR OPERATING ON SHEET METAL VESSELS.

No. 586,661.

Patented July 20, 1897.

Fig 1.



Witnesses
Florence King
Edward R. Guin

Inventor
Edward P. Holden
By his Attorney
Peter H. Kambelin

(No Model.)

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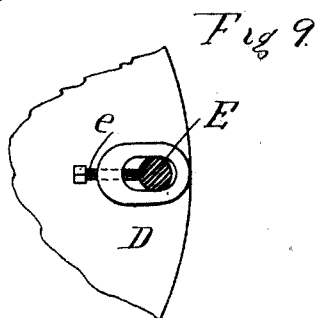
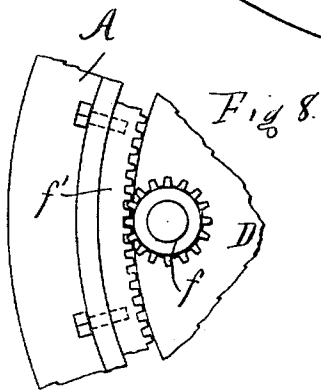
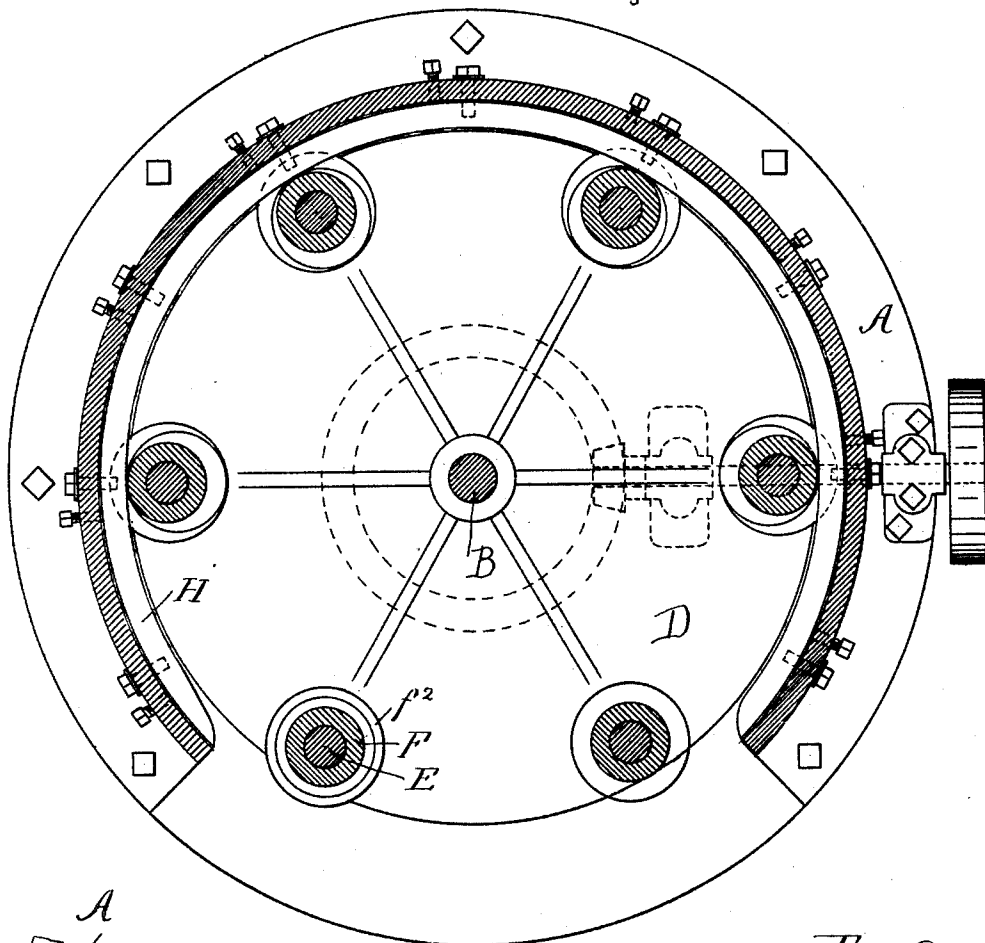
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MACHINE FOR OPERATING ON SHEET METAL VESSELS.

No. 586,661.

Patented July 20, 1897.

Fig 1.



Witnesses
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(No Model.)

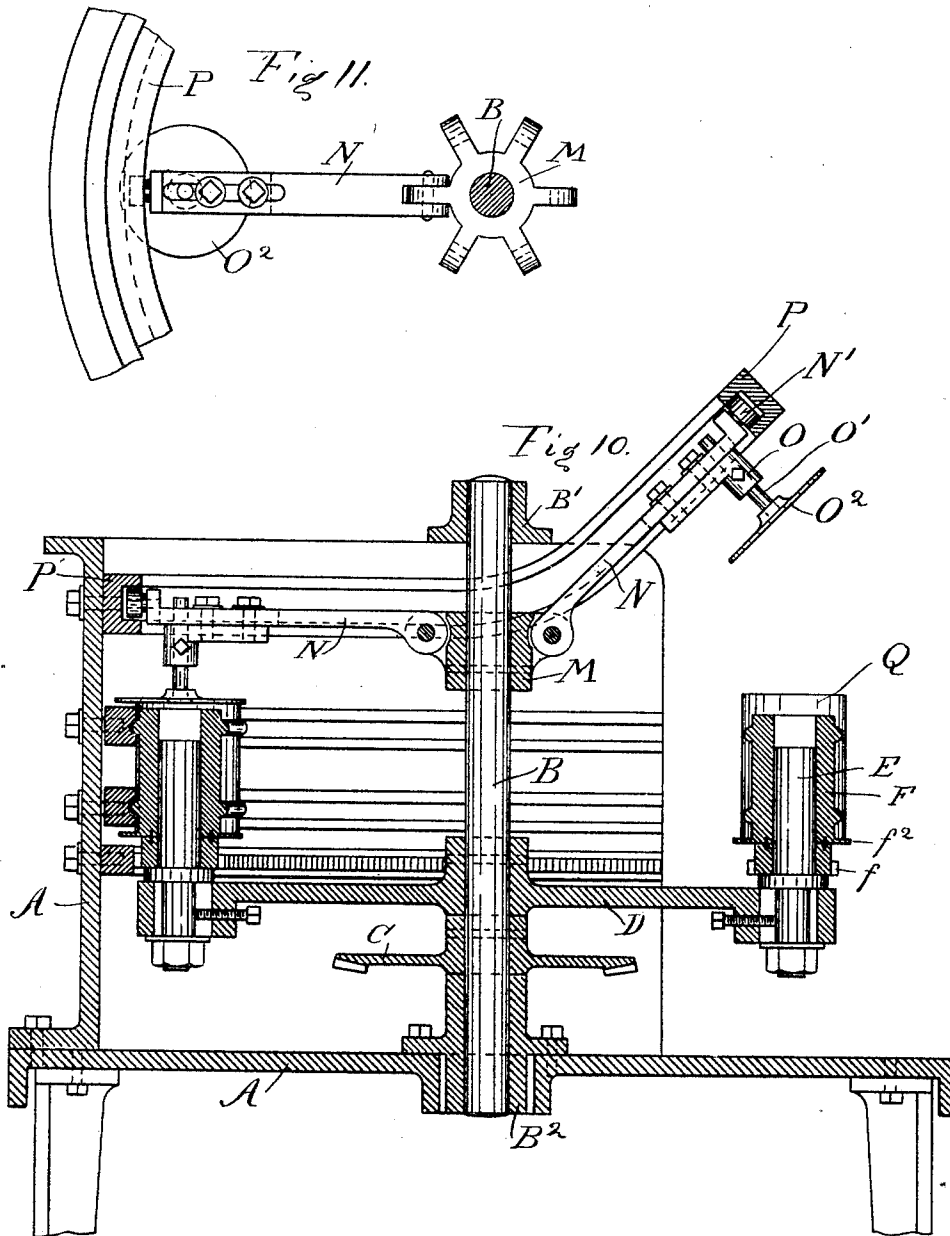
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E. P. HOLDEN.

MACHINE FOR OPERATING ON SHEET METAL VESSELS.

No. 586,661.

Patented July 20, 1897.



Witnesses.
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(No Model.)

4 Sheets—Sheet 4.

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MACHINE FOR OPERATING ON SHEET METAL VESSELS.

No. 586,661.

Patented July 20, 1897.

Fig. 12.

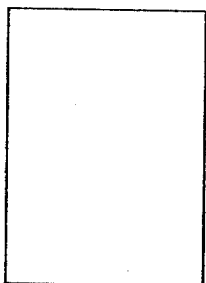


Fig. 13.

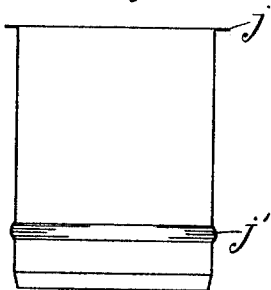


Fig. 14.

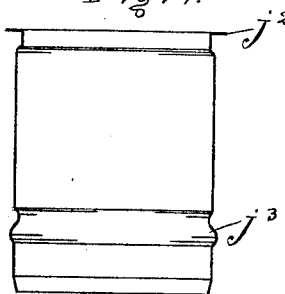


Fig. 15.

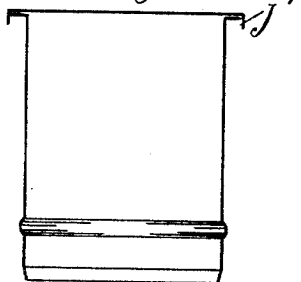


Fig. 16.

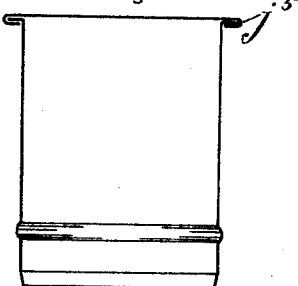


Fig. 17.

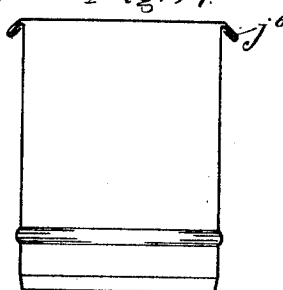


Fig. 18.

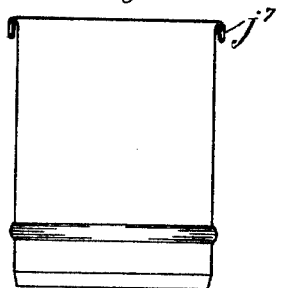


Fig. 19.

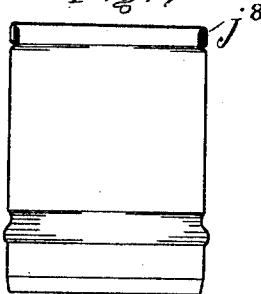
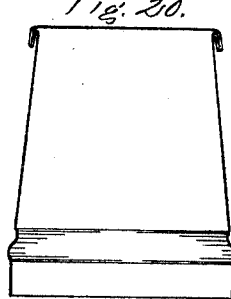


Fig. 20.



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UNITED STATES PATENT OFFICE.

EDWARD P. HOLDEN, OF CHICAGO, ILLINOIS.

MACHINE FOR OPERATING ON SHEET-METAL VESSELS.

SPECIFICATION forming part of Letters Patent No. 586,661, dated July 20, 1897.

Application filed November 23, 1894. Serial No. 529,703. (No model.)

To all whom it may concern:

Be it known that I, EDWARD P. HOLDEN, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented a certain new and useful Improvement in Machines for Operating on Sheet-Metal Vessels; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object the production of a can-seaming machine which shall be adapted to operate upon cylindrical cans (whether with straight sides or with tapered sides) to form either the bead in the body of the can, to flange the end of the can-body, to engage the head and body of the can together, or to crimp the flange of the head onto the body.

It consists, essentially, in revolving the can against the forming-flange, the latter being shaped to form the desired result.

The invention consists in a combination of devices and appliances hereinafter more particularly described and claimed.

In the drawings, Figure 1 is a vertical section of a machine embodying my invention. Figs. 2, 3, 4, 5, and 6 are details showing the different forms of forming-flanges. Fig. 7 is a horizontal section. Fig. 8 is a view of the under side of a portion of the machine, showing the means for revolving the spools. Fig. 9 is a view of the under side of a portion showing the adjustability of the pins, being a section on the line 9 9 of Fig. 1. Fig. 10 is a vertical section of a variation showing the preferred form of mechanism for holding the vessel onto its support. Fig. 11 is a plan view of a portion of the same. Figs. 12 to 20, inclusive, show the construction of the cans and in connection with Figs. 2 to 6, inclusive, illustrate some of the various results that may be accomplished on the machine.

In carrying out the invention A represents a suitable framework by which the operative mechanism is supported. This framework is preferably circular in form. B is a shaft revolving in the boxings B' B³ and preferably located in a vertical position.

C is a pinion or gear keyed to the shaft and meshing with a pinion C' on the driving-shaft C², the latter being driven from any suitable source of power.

Keyed to the shaft B is a revolving wheel or disk D. At regular intervals on the peripheral edge of this disk D is a vertical pin E, made adjustable on the disk by the set-screw *e*. Revolving on this pin is a spool F, provided on its lower end with a pinion *f*, which meshes with a stationary rack-bar *f'* on the frame. (Shown in detail in Fig. 8.) This spool F is provided with a projecting flange *f*², which forms a support for the lower end of the can-body when placed thereon. It will now be observed that when the disk D is revolved the spools F and the cans placed thereon are carried in a circular direction around the machine, and by virtue of the rack-bar *f'* and pinion *f* the spools and cans are revolved.

On the frame of the machine adjacent to the path of the revolving can are one or more operating-flanges G H. The shape in cross-section of these flanges depends entirely on the work to be done. For instance, if it is desired to flange the upper end of the can, as shown at *j*, Fig. 13, and at the same time provide the can with a bead *j'*, as shown in the same figure, the flanges G H would be shaped as shown in Figs. 2 and 6—that is, the flange G would in its upper inside corner have a recess *g*. The upper end of the spool F would be provided with a projecting flange *f*³, corresponding with the recess or groove *g* in the flange G. The flange H would be provided with a recess *h*, while the spool would be provided with a correspondingly-shaped projection *f*⁴. As will be seen, the spool has a smaller diameter than the can, and the can will therefore readily slip over the flange *f*³ and rest upon the flange *f*². As the disk D revolves the can and spool F will be revolved by the pinion *f* and rack-bar *f'* and the can, rolling against the flanges G H, as shown in Figs. 1 and 7, will be bent to the desired shape—that is, with the flange *j* and bead *j'*. In case it is desired to form a flange on the can, as shown at *j*³, Fig. 14, and a bead, as shown at *j*³, Fig. 14, the flanges G H and spool F would be altered accordingly. So, also, if it is desired to unite the seams of the head and body,

as shown in Figs. 15 and 16 at $j^4 j^5$, a flange G would be provided with a groove, as shown at g' , Fig. 3; or if it is desired to first turn the head-flange under the body-flange, as in Fig. 16, and then turn it down, as shown at $j^6 j^7$, Figs. 17 and 18, the flange g could be the necessary shape in cross-section to first turn the head-flange j^5 to the position shown in Fig. 16. Then the cross-section of the flange G could be altered to turn the flange to the position shown at j^6 , Fig. 17, and then to the position shown at j^7 , Fig. 18, or j^8 , Fig. 19, so that by starting the can in at one end of the flange in the shape shown in Fig. 15 when it reached the other end of the flange G it would be the shape shown in Figs. 18 or 19. So, also, either cans with parallel sides or cans with tapered sides can be acted upon, necessitating only the change of spools on the disk D and the adjustment of the various parts.

To hold the cans down to their work, either an arm or projection K may be provided, as in Fig. 1, or the machine might be constructed as shown in Fig. 10, (and I prefer this latter form,) in which the vertical shaft B is provided with a fitting or collar M, and to this is pivoted radial arms N. Each of these arms is provided on its outer end with a fitting O, carrying a stem O', on the lower end of which is a disk O² of somewhat larger diameter than the diameter of the can to be operated upon. The outer end of each arm is also provided with an antifriction-roller N'.

P is a stationary cam-track, on which the roller N' travels. Now, as will be seen, when the shaft B revolves these arms these arms, following the shape of the track P, are elevated sufficiently so that the can can be slipped onto the spool, as shown at Q, Fig. 10, and then as the disk carrying the cans revolves the same shaft carries the arms N around until the cam-track has depressed the arm to the position shown on the other side of Fig. 10, and the disk O² bears upon the end of the can and holds the latter to its work. The particular advantage in this last-described construction lies in the fact that the disk O² may be given any desired elevation or depression by simply changing the cam-track, and therefore the space which must be taken up when the can is shortened by beading, as shown in Fig. 10, could be compensated for very easily and the disk O² always be kept against the end of the can to hold the latter in place.

It will thus be seen that by simply a change in the flanges G H and in the spool F any desired work may be done upon either a straight-sided or tapered can and upon any-sized can, since the flanges are all adjustable as well as the plate K and the pin E on which the spool F is located.

It is obvious that in this machine, as in other machines of this class where the operation is effected by a motion of one part with respect to another, the pin carrying the cans might be stationary and the operating-flanges be

movable instead of the operating-flanges being stationary and the pins movable about a common center, and I would contemplate by my invention any such obvious change.

What I claim is—

1. In a machine for operating upon sheet-metal vessels, the combination with a series of individual vessel-supports, of a flange concave in the direction of its length against which the vessel is held and by which it is operated upon, said supports and flange movable with respect to each other, substantially as described.

2. In a machine for operating upon sheet-metal vessels the combination with a vessel-support capable of revolution on its longitudinal axis of a flange concave in the direction of its length against which the vessel is held and by which it is operated upon, said vessel-support and flange movable with respect to each other, substantially as described.

3. In a machine of the class described the combination with a series of individual vessel-supports shaped to enter the interior of and support the vessel of a flange concave in the direction of its length against which the vessel is held and by which it is operated upon, said support and flange movable with respect to each other, substantially as described.

4. In a machine of the class described the combination with a series of vessel-supports each capable of revolution on its own axis, of a flange concave in the direction of its length against which the vessel is held and by which it is operated upon, and means for moving the vessel-support past the operating-flange, substantially as described.

5. In a machine of the class described the combination with the main support capable of revolution about its own axis, said support carrying a series of individual vessel-supports, and a flange concave in the direction of its length against which the vessel is held, substantially as described.

6. In a machine of the class described, the combination with the main support, and means for revolving it about its own axis, said support carrying a series of individual vessel-supports, each capable of revolution about its own axis, of a flange concave in the direction of its length against which each vessel is held, substantially as described.

7. In a machine of the class described, the combination of a series of movable, individual vessel-supports of two flanges each concave in the direction of its length against which the vessel is held, substantially as described.

8. In a machine of the class described the combination of a series of individual vessel-supports of a flange concave in the direction of its length against which the vessel is held, said flange made adjustable, substantially as described.

9. In a machine of the class described the combination of a series of individual vessel-supports, each capable of revolution on its

longitudinal axis, of a flange concave in the direction of its length against which the vessel is held, said flange being adjustable, substantially as described.

10. In a machine of the class described, the combination with a main support, and means for revolving it about its own axis, said main support carrying a series of individual vessel-supports, and means for revolving the latter about their own axis, of one or more flanges each concave in the direction of its length past which the vessels are moved and against which they are held, said flanges being adjustable, substantially as described.

11. In a machine of the class described, the combination with a revolving main support, carrying a series of pins on its periphery, and each of said pins supporting a vessel-support, and means for revolving the latter on their longitudinal axis, of a flange concave in the direction of its length against which the vessel is held and past which it is moved, substantially as described.

12. In a machine of the class described the combination with a series of individual vessel-supports, each capable of entering the interior of the vessel which it supports, said support being of considerably less diameter than the diameter of the vessel whereby the latter will fit the support loosely, of a flange concave in the direction of its length against which and past which the vessel is moved, substantially as described.

13. In a machine of the class described the combination with a series of individual vessel-supports, each capable of entering the interior of the vessel which it supports and each capable of revolution on its longitudinal axis, said support being of considerably less diameter than the diameter of the vessel whereby the latter will fit the support loosely, of a flange concave in the direction of its length against which and past which the vessel is moved, substantially as described.

14. In a machine of the class described the combination of a series of individual vessel-supports, each provided with a flange for supporting one end of the vessel, and each entering the interior of the vessel supported, and another holding-flange for holding the opposite end of the vessel after it has been placed upon its individual support, of a flange concave in the direction of its length against which and past which the vessel is moved, substantially as described.

15. In a machine of the class described, the combination with a series of individual vessel-

supports, each provided with a flange for supporting one end of the vessel, and each entering the interior of the vessel supported, and a flange concave in the direction of its length against which and past which the vessel is moved of another holding flange or disk provided with means for bringing it against the opposite end of the vessel after the latter has been placed upon its support, substantially as described.

16. In a machine of the class described the combination with the main support carrying a series of individual supports each adapted to enter the interior of the vessel and each provided with a flange or disk for supporting one end of the vessel, means for revolving said individual supports on their longitudinal axes of a series of disks or flanges, one for each individual support, said disks or flanges provided with means for first carrying them away from the support until the vessel is placed thereon, and then to the support for holding the opposite end of the vessel, and a flange concave in the direction of its length against which the vessel is rolled, substantially as described.

17. In a machine of the class described the combination of a main shaft carrying a main support, the latter carrying a series of pins on its periphery, each pin carrying a vessel-support, and each vessel-support carrying a flange for supporting one end of the vessel, a collar on the main shaft keyed thereto and adapted to revolve therewith and with the main support and provided with a series of pivoted radial arms, each carrying a disk on its outer end for supporting the opposite end of the vessel, a cam-track for engaging the outer ends of the arms and adapted to move the said disks toward or from the vessels as the main support is revolved, and a flange concave in the direction of its length against which the vessel is rolled, substantially as described.

18. In a machine of the class described, the combination with a main support provided on its periphery with a series of pins carrying individual can-supports, said pins capable of lateral adjustment, and an operating-flange against which and past which the vessel is moved, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

EDWARD P. HOLDEN.

Witnesses:

W. H. CHAMBERLIN,
FLORENCE KING.