June 5, 1956 R. A. WEST 2,748,828

HEAD JOGGLING MACHINE

Filed Dec. 10, 1952 3 Sheets-Sheet 1

Fig. 1.

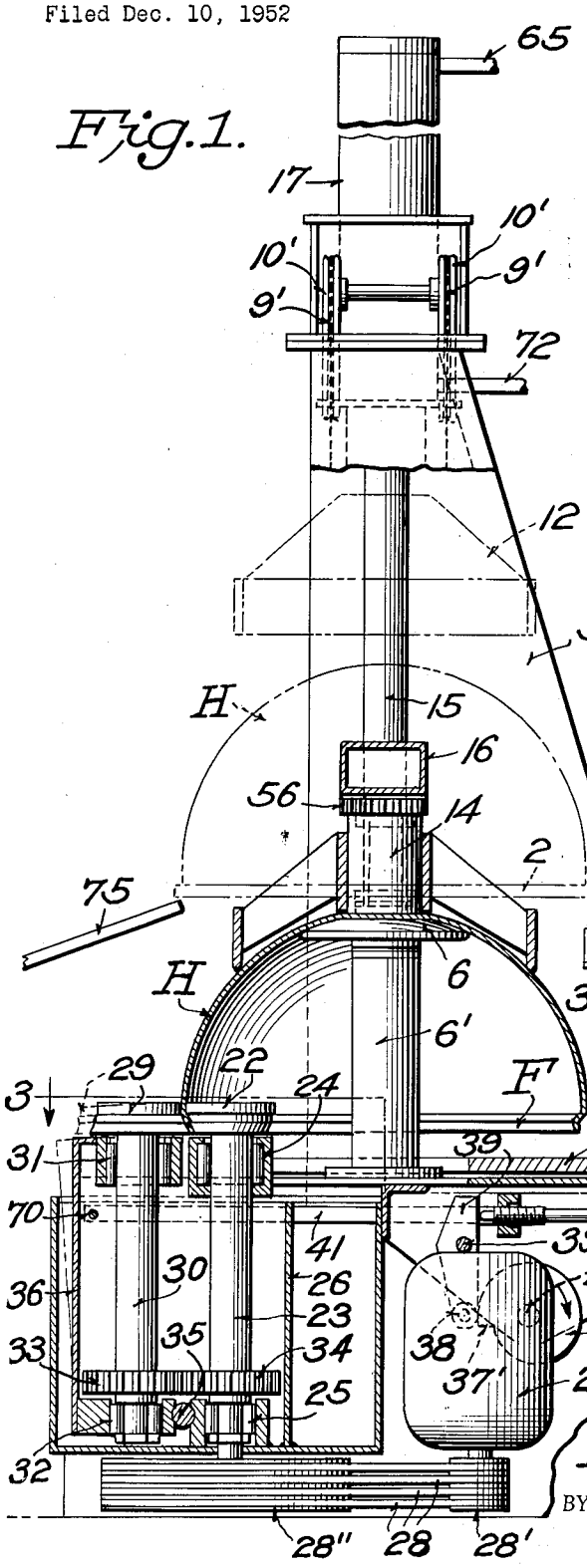
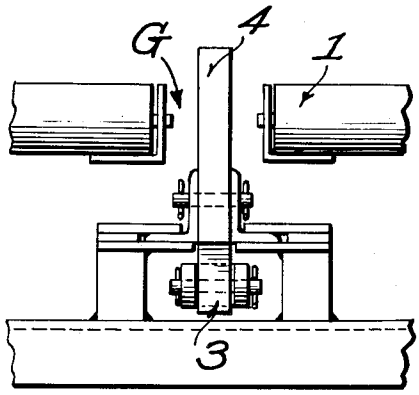
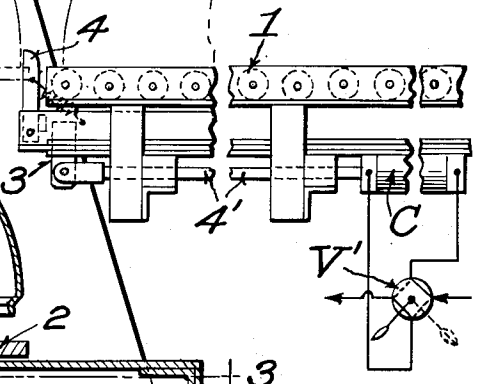


Fig. 5.





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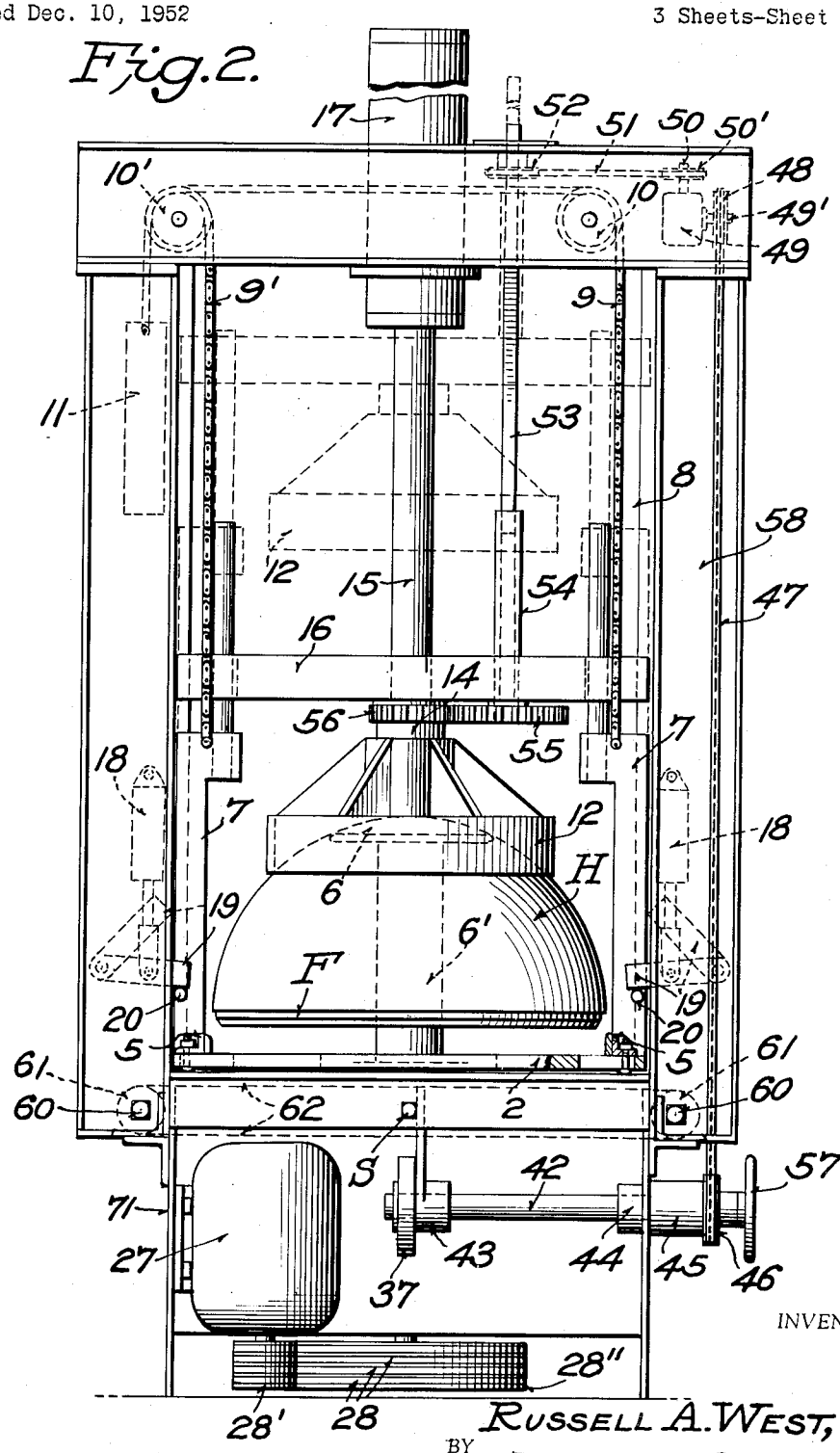
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HEAD JOGGLING MACHINE

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Fig. 2.



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HEAD JOGGLING MACHINE

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Fig. 3.

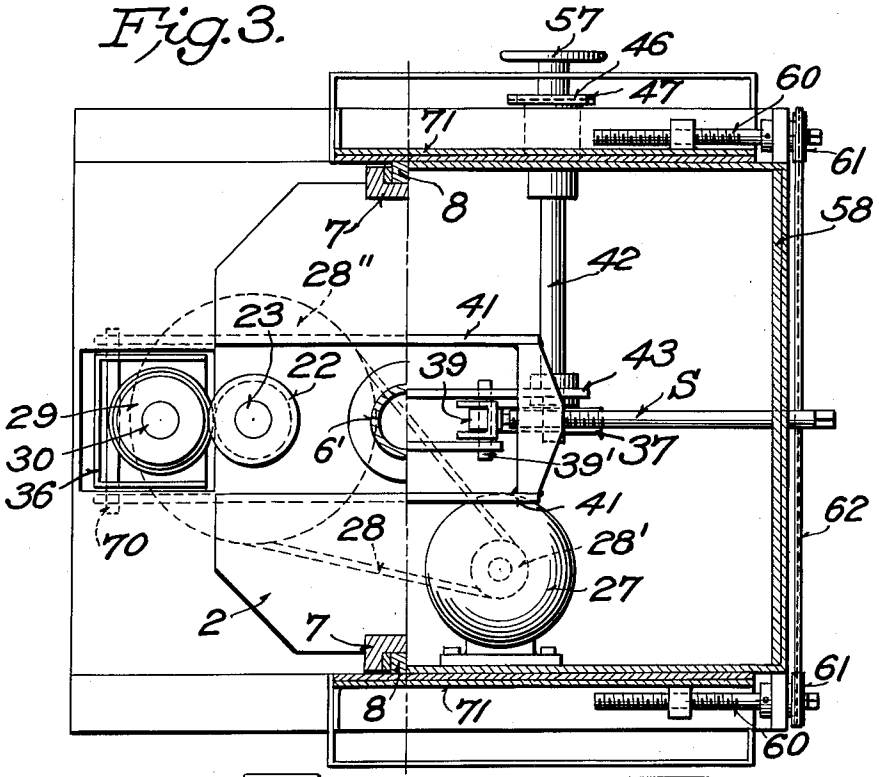
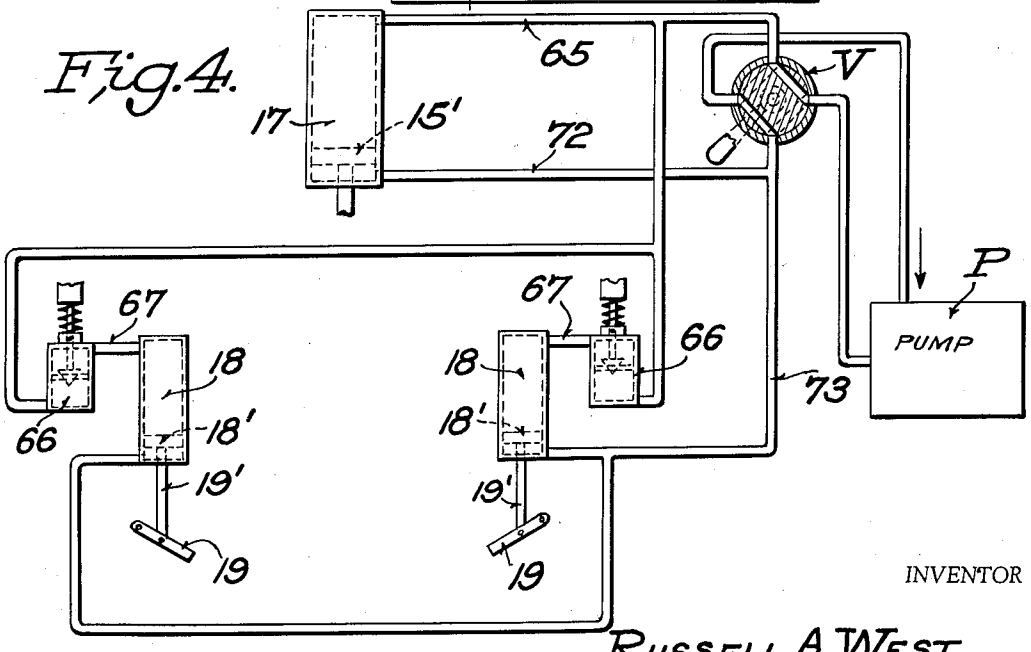


Fig. 4.



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HEAD JOGGLING MACHINE

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Application December 10, 1952, Serial No. 325,165

17 Claims. (Cl. 153—29)

This invention relates to an improvement in a head joggling machine. Such machines are used for rolling joggles, beads, or flanges into metal plates, tubes, domes, etc. My machine is intended for joggling the peripheral edges of hemispherical heads for cylindrical tanks, whereby the head may be readily attached to the tank prior to welding or otherwise fastening thereon or in the case of beads, for strengthening.

An object of the present invention is to provide a joggling machine having means for positioning the head in the joggling rolls.

Another object of the invention is to provide a joggling machine having suitable head carrying and centering means for receiving a head from a suitable conveyor and placing it in proper position for joggling.

An additional object is to provide a joggling machine having a positioning means movable vertically from head receiving positioning to joggling position and then to discharge position.

Another object is to provide means for gradually increasing the pressure of the rolls during the joggling cycle, and then releasing the rolls at the end of the cycle.

An important object is to provide a machine of the kind described which may be handled by a single operator.

A further object of the invention is to provide a joggling machine wherein the joggling cycle is controlled by movement of the head positioning means.

An additional object of the invention is to provide an interconnection between the joggling rolls and the head supporting means whereby the head is rotated and whereby the rolls are caused to approach each other to press them against the metal. In such operation the pressure is gradually increased during formation of the flange.

For a clear understanding of the invention, reference is made to the following specification taken with the accompanying drawings forming a part thereof and in which:

Figure 1 is a side elevation partly in section of the machine, showing the head in joggling position in full lines and in receiving position in dotted lines;

Figure 2 is a rear elevation looking from the right in Figure 1;

Figure 3 is a section on the line 3—3 of Figure 1;

Figure 4 is a diagram showing the various controls, and

Figure 5 is an end view of conveyor 1 looking from the left in Figure 1 and showing the position of the pusher.

This machine embodies means whereby a substantially hemispherical tank head may be positioned for forming a flange on the lower edge thereof. When the head is properly positioned, means are operated to clamp it in position for forming. In such position the first positioning means is moved away from the head and the forming rollers are caused to grip the lower edge of the head. Rotation of the rollers causes the head to rotate, and connections from the head clamping means cause operation

of cam means which moves one roller toward the other during the forming operation. After a predetermined number of revolutions of the head, the cam means operates to release the rollers. The first positioning means is then operated to lift the head to discharge position, thus completing a single cycle of operation.

Substantially hemispherical tank heads are received from the mill on a roller conveyor 1 of conventional form, having a longitudinal gap G. A pusher 3 having a pivoted dog 4 connected to rod 4' is moved by a piston in cylinder C under the influence of fluid pressure controlled by valve V'. When pusher 3 is moved to the right in Figure 1, dog 4 passes under head H on conveyor 1 and engages behind it at the right. Movement of pusher 3 to the left places head H on carrier plate 2, which is raised, to dotted line position in Figure 1, by means of the weight 11, as later to be described.

Carrier 2 consists of a plate having an opening large enough to accommodate the turntable 6. The head H is centered on the carrier 2 by means of adjustable stops or centering lugs 5.

Carrier 2 is attached to vertically movable slides 7 which travel on vertical guides 8 attached to the auxiliary frame 58 of the machine. Carrier 2 is supported by chains 9, 9' operating over sprockets 10, 10', respectively, and attached to weight 11, which exceeds the weight of carrier 2 and holds it in position to receive the head.

Piston rod 15 extending from the lower end of cylinder 17 has at its lower end a yoke 16. Hold-down 12 is mounted on hub 14, rotatable on the lower end of rod 15. Fluid pressure from pump P operates against piston 15' to raise and lower hold-down head 12.

When head H is properly positioned on carrier 2, valve V is operated to admit fluid into the upper end of cylinder 17 to cause hold-down 12 to descend into engagement with head H. Continued downward movement causes head H and carrier 2 to move downwardly against the resistance of weight 11, until head H engages turntable 6, suitably mounted on the frame 58, by means of pedestal 6'. The head H is thus firmly clamped between hold-down 12 and turntable 6. When head H is thus clamped, pressure builds up in line 65 causing blow-off valves 66 to open whereby fluid is admitted through pipes 67 to cylinders 18 to depress levers 19 connected to pistons 18'. Levers 19 act as means to push carrier 2 downwardly away from head H. Head H is now in position for joggling.

The joggling or forming means consists of mating rolls 22 and 29, mounted respectively on shafts 23 and 30. Shaft 23 is rotatably mounted in anti-friction bearings 24 and 25, mounted in frame 26. Shaft 30 is rotatably mounted in bearings 31 and 32, mounted on pivoted frame 36, which frame is pivoted on the frame of the machine by means of pin 35. Shafts 23 and 30 are coupled for opposite rotation by gears 34 and 33 attached to each respectively. V-belts 28 connect pulley 28' on motor 27 with pulley 28'' on shaft 23 to rotate the forming or joggling rolls.

Cam 37, mounted on shaft 42, cooperates with cam follower 38 on one end of lever 39 pivoted on pin 39', suitably mounted on the machine frame. The other end of lever 39 bears against one end of screw S mounted on yoke 41' which is connected to one end of each of a pair of links 41. Operation of the screw S adjusts the gap between rolls 22 and 29. Links 41 are connected at their opposite ends by means of a pin 70 mounted in frame 36. The position of the cam 37 for maximum desired gap is determined by turning hand wheel 57. As the cam operates for only one cycle to the point of release of pressure, the above-mentioned adjustment determines the length of the cycle. The normal direction of

rotation of the cam is indicated by the arrow in Figure 1. When roller 38 drops off high point 37' of the cam, the cycle is completed and the rollers separate due to the position of pivot 35. The adjustment just mentioned is made possible by overrunning clutch 45 on shaft 42. Shaft 42 is rotatably mounted in bearings 43 and 44 on the machine frame, and is connected to sprocket 46 by means of overrunning clutch 45.

Shaft 42 is rotated by means now to be described. Chain 47 passes over sprocket 45 and also over sprocket 48, mounted on the output shaft 49' of reduction gear 49. A sprocket 50 is mounted on input shaft 50' of reduction gear 49. A sprocket chain 51 connects sprocket 50 with sprocket 52 suitably mounted in bearings on frame 58. Sprocket 52 has a polygonal opening therein to receive polygonal shaft 53. Shaft 53 slides in tubular shaft 54 which is suitably shaped to receive it. In the present instance, shaft 53 is square, but it is obvious that other polygonal shapes or other types of spline connections may be used. Tubular shaft 54 is rotatably mounted in yoke 16 and has on its end, below yoke 16, a gear 55 which meshes with gear 56 on hub 14. Gear 56 is attached to hold-down 12.

Frame 58, carrying carrier 2, pedestal 6', hold-down 12, yoke 16, and cylinder 17, is slidably mounted on machine frame 71 and is adjustably positioned by means of identical screw jacks 60 connected by sprocket chain 62 passing over sprockets 61 attached to jacks 60. Each jack is provided with a suitably shaped head to accommodate a wrench or hand wheel for adjusting. Adjustment by means of jacks 60 is desirable to accommodate heads of different sizes.

To operate the machine, jacks 60 are manipulated to adjust the frame 58 for heads of the size being joggled. Motor 27 is then started, which causes rotation of rolls 22 and 29. Carrier 2 is elevated to dotted line position in Figure 1, by manipulating valve V to admit fluid below piston 15'. In Figure 4, valve V is shown in the starting position. Fluid is admitted below pistons 15' and 18' by means of lines 72 and 73, respectively. When carrier 2 reaches its loading position, pusher 4 is operated to remove a head H from conveyor 1 and place it against stops 5. Valve V is then operated to admit fluid above piston 15' through line 65. This causes hold-down 12 to descend to clamp head H on turntable 6.

The clamping of head H against turntable 6 causes pressure to build up in line 65, which causes valve 66 to open, forcing pistons 18' downwardly to operate levers 19. This operation moves plate 2 out of the way below head H.

Cam 37 is manually adjusted to cause rolls 22 and 29 to grip the head. When the head is gripped by rolls 22 and 29, hold-down 12 and turntable 6 start to rotate, and with them gear 56 which drives gear 55 and shafts 53 and 54. Shaft 53 rotates sprocket 52 which, through chain 51, sprocket 50, reduction gear 49, sprocket 48, chain 47 and sprocket 46, rotates shaft 42 to drive cam 37. Rotation of the cam causes roll 29 to approach roll 22 and, due to the configuration of the rolls, a flange is formed on the edge of the head. After the desired number of revolutions of the head, cam follower 38 drops off point 37' of cam 37 and the rolls separate, as mentioned above. This stops rotation of the head and releases it for elevation to discharge position. Manipulation of valve V to admit fluid below pistons 15' and 18' raises the hold-down 12 and, by moving arms 19 to dotted line position in Figure 2, releases carrier 2, and weight 11 elevates carrier 2 and head H to the discharge position where head H may be pushed off onto conveyor 75. This is accomplished by means of positioning an unjoggled head on carrier 2, which, engaging the joggled head, pushes it out of the way onto conveyor 75. Said conveyor 75 may be a chute or a conveyor of any conventional type suitable for the purpose.

This completes one cycle of operation of the machine. The operator, after starting motor 27, has only valves V and V' and wheel 57 to manipulate in order to operate the machine after it is adjusted for a particular size of head.

In this machine, the head H is rotated a suitable number of times, while the pressure is gradually increased by the cam 37, so that the flange F is gradually formed without causing out-of-roundness or other undesirable distortion.

This machine is designed to enable a single operator to form flanges on a large number of heads in rapid succession with a minimum of effort.

Although the invention has been described in detail in connection with hemispherical heads, it is to be understood that the apparatus is adapted for use in connection with open cylinders or circular bodies generally or any body having a flange portion circumferentially whereby a deformation is desired in said portion. Further, referring to gears 33 and 34, they are constructed to remain in mesh throughout pivotal movement of frame 36, and it is to be noted that the extent of the pivot of the portion of the frame adjacent the gears is normally very slight.

The above description and drawings disclose a single embodiment of the invention as specific language has been employed in describing the several figures. It will nevertheless be understood that no limitations of the scope of the invention are hereby contemplated, and that various alterations and modifications may be made such as would occur to one skilled in the art to which the invention relates.

Having thus described the invention, what is claimed as new, and what is desired to be secured by Letters Patent is:

1. In a head joggling machine, a pair of forming rolls, drive means for said rolls, one of said rolls being movable toward and from the other, head positioning means, clamping means operably associated with said positioning means for clamping a head in forming position, drive means on said clamping means, said forming rolls rotating said head and said second mentioned drive means, cam means including a rotatable cam for moving said movable roll toward the other during the forming operation, means operatively connected to said cam for causing the rolls to grip the head to rotate said head and said clamping means connections between said second mentioned drive means and said cam, whereby rotation of said head causes rotation of said cam, said cam being shaped to release said movable pressure roll after a predetermined rotation, thus removing pressure thereof from said head and disconnecting the cam drive by stopping drive of the head.

2. In a head joggling machine, a pair of forming rolls, drive means for said rolls, one of said rolls being movable toward and from the other, rotatable means for clamping and positioning a tank head between said rolls, drive means on said rotatable means, a rotatable cam and a cam follower, connections between said cam follower and said movable roll whereby said cam moves said movable roller toward said other roller during the forming operation, said head and clamping means being rotated by engagement of said rollers with said head and means operatively connected to said cam for causing the rolls to grip the head to rotate said head and said head clamping means, driving connections between said second mentioned drive means and said cam, whereby said cam causes said movable roller to engage the edge of said head and to press it against said other roll to form a flange thereon.

3. In a head joggling machine, a pair of forming rolls. drive means for said rolls, means for positioning a head with the edge thereof between said rolls, movable clamping means operable to clamp said head in position between said forming rolls, one of said forming rolls being movable to engage said head between the rolls, drive

means on said clamping means, cam means including a rotatable cam for moving said movable roll toward said other roll during the forming operation, means operatively connected to said cam for causing the rolls to grip the head to rotate the head and said clamping means, connections between said second drive means and said cam, whereby rotation of said forming rolls rotates said head and clamping means, and, through said second drive means, said cam, said cam having a contour which releases said movable forming roll after a predetermined rotation, whereby the drive to said head is disconnected and the cam is stopped.

4. In a head joggling machine, a pair of rotatable forming rolls, drive means for said rolls, one of said rolls being movable toward and from the other, head positioning means, movable clamping means adapted to clamp said head in operating position between said forming rolls, fluid pressure means for moving said clamping means, drive means on said clamping means; said forming means rotating said head and said clamping means, rotatable cam means for moving said movable roll toward the other roll during the forming operation, means operatively connected to said cam means for causing the rolls to grip the head to rotate the head and said clamping means, drive connections between said second drive means and said cam means, whereby rotation of said head causes rotation of said cam means, connections between said cam means and said movable roll for causing said movable roll to approach said other roll, said cam means being proportioned to release said movable roll after predetermined operation, thus stopping rotation of the head and said cam means.

5. In a head joggling machine, a pair of forming rolls, drive means for said rolls, a head positioning and centering carrier, means for holding said carrier in head receiving and centering position, movable clamping means, fluid pressure means for moving said clamping means into engagement with a head on said carrier and for moving said head and carrier to forming position, fluid pressure means for moving said carrier away from said head during forming, one of said forming rolls being movable toward and from the other during the forming operation, a rotatable cam, connections between said cam and said movable roll, whereby varying pressure may be applied to the edge of the head between the rolls, drive means on said clamping means, means operatively connected to said cam for causing the rolls to grip the head to rotate the head and said clamping means, drive connections between said last mentioned drive means and said cam, whereby rotation of said rolls rotates said head, clamping means and said cam.

6. In a head joggling machine having means for supplying unjoggled heads, head positioning and centering means movable between a head receiving and a head forming position, a pair of forming rolls, drive means for said forming rolls, movable head clamping means, means for holding said head positioning and centering means in head receiving position, fluid pressure means for moving said clamping means into engagement with said head and then moving said head into forming position and clamping it there, fluid pressure means for moving said positioning and centering means clear of said clamped head; one of said rolls being movable toward and from the other, a rotatable cam, connections between said movable roll and said cam, whereby said cam moves said roll, drive means on said clamping means, driving connections between said drive means and said cam, manual means for adjusting said cam, and, thereby, said movable roll to grip the head between the rolls, said forming rolls rotating said head, clamping means and said cam, said cam being contoured to release said movable forming roll, thereby stopping rotation of said head and said cam.

7. In a head joggling machine, a pair of forming rolls, drive means for said rolls, one of said rolls being movable toward and from the other, a pivoted carrier supporting

said movable roll, means for moving said movable roll toward the other roll including a rotatable cam and a cam follower, links between said cam follower and said pivoted carrier, whereby said cam moves said movable roll, means for positioning and clamping a tank head with its edge between the rolls, said means having a rotatable portion, drive means on said rotatable portion, drive connections between said last mentioned drive means and said cam; means operatively connected to said cam for causing the rolls to grip the head, said head being rotated by engagement therewith of said rolls, said rotation being imparted to said cam through rotation of the drive means on said clamping means; said cam being contoured to apply pressure gradually to the rolls and, after a predetermined rotation to relieve said pressure to free the rolls from the head thus stopping rotation of the head and of the cam.

8. In a head joggling machine, a pair of flange forming rolls, drive means for said rolls, one of said rolls being movable toward and from the other, a pivoted frame carrying said movable roll, a stationary clamping element having a turntable at its upper end for supporting a tank head in forming position with the edge thereof between said forming rolls, a vertically movable positioning plate movable between a head receiving position and an inoperative position, a counterweight for holding said plate in head receiving position, means for placing a tank head edge down on said plate, a vertically movable clamping element above said stationary element, including a rotatable clamping head, means for moving said rotatable clamping element into engagement with a tank head on said plate and moving said tank head and said plate into forming position, and clamping said tank head between the rotatable clamping head and the turntable, means associated with said clamping element moving means for moving said plate below said tank head after clamping operation.

9. In a head joggling machine, a movable head positioning carrier having means thereon for centering a tank head, and being movable between head receiving and inoperative positions through a forming position, means for holding said carrier in head receiving position, movable means having rotatable clamping means thereon, fluid pressure means for moving said movable means, means for placing a tank head on said carrier, means for supplying fluid under pressure for moving said movable means into engagement with the head on said carrier to move said head and carrier to the forming position; a pair of power driven forming rolls at said forming position, one of said rolls being movable toward and from the other; stationarily mounted clamping means below said movable means and having a rotatable portion, said movable clamping means holding said head against the rotatable portion of said stationary clamping means, when said head is in forming position, valve means for relieving pressure built up after clamping operation and diverting excess fluid, further fluid pressure means, connections between said valve means and said further pressure means for operating said further pressure means by said diverted fluid, connections between said further pressure means and said carrier whereby said carrier is lowered below said head during forming operation.

10. In a joggling machine having means for supplying tank heads to be joggled, a pair of forming rolls, one movable toward and from the other, drive means for said rolls, a movable head positioning and centering carrier and movable head holding and clamping means above said carrier adapted to position and clamp a head in position between said forming rolls, stationary clamping means below said movable clamping means, said carrier having an opening therein to clear said stationary clamping means, said stationary clamping means comprising a pedestal having a turntable rotatably mounted at its upper end, a fluid pressure cylinder having a piston therein and a piston rod depending therefrom, said movable clamping

means being rotatably mounted on the piston rod, means for supplying fluid pressure to said fluid pressure means, further fluid pressure means for moving said carrier clear of the head when in forming position, valve means for admitting fluid above the piston in said first mentioned fluid pressure means, whereby said movable clamping means is lowered to engage said head and move same into clamping engagement with said stationary clamping means, pressure relief means associated with said valve means whereby pressure builds up after clamping is relieved, connections from said relief means to said further pressure means, whereby the excess pressure operates said further pressure means to move said carrier clear of said head.

11. In a head joggling machine, a pair of flange forming rolls, drive means for said rolls, one of said rolls being movable toward and from the other, a pivoted frame carrying said movable frame, a stationary clamping element comprising a pedestal having a turntable at its upper end, for supporting a tank head in forming position with the edge thereof between the forming rolls; a positioning plate movable vertically between a head receiving and an inoperative position, a weight operatively connected to said plate for holding it in head receiving position, means for placing a tank head, edge down, on said plate, vertically movable clamping means having a rotatable clamping element at its lower end, fluid pressure means for moving said movable clamping means into engagement with a head on said plate, and further moving said plate and said head into forming position, said fluid pressure means holding said head clamped between said rotatable clamping element and said turntable, means for supplying fluid under pressure to said fluid pressure means, a pressure relief valve for by-passing excess fluid as pressure buids up after the clamping operation, a further fluid pressure means, connections between said pressure relief valve and said further fluid pressure means whereby said by-passed fluid operates said further fluid pressure means after the clamping operation, connections between said further fluid pressure means and said plate whereby said plate is lowered below said head during forming.

12. In a tank head joggling machine, a main frame, an auxiliary frame adjustably mounted thereon, a pair of forming rolls on said main frame, one of said rolls being movable toward and from the other, a carrier for said movable roll, pivoted at its lower end, drive means for said rolls; a head positioning plate carried by said auxiliary frame and provided with adjustable stops for a tank head, means for placing a tank head on said plate, said plate being vertically movable between a head receiving and an inoperative position, a weight operatively connected with said plate for holding it in head receiving position; vertically movable clamping means carried by said auxiliary frame having a rotatable clamping element at its lower end, a stationary supporting and clamping element mounted on said auxiliary frame comprising a pedestal having a turntable at its upper end for supporting said head in forming position; a fluid pressure cylinder above said movable clamping means, a piston and rod in said cylinder, said movable clamping means being rotatably mounted on said piston rod, means for supplying fluid under pressure, valve means for admitting fluid to said cylinder, said piston being movable by said fluid to engage a head on said plate and to move said head and said plate downwardly to engage said head with said stationary clamping means, a pressure relief valve connected with said fluid supplying means for by-passing fluid as pressure builds up during the clamping operation, a pair of cylinders mounted on said auxiliary frame having pistons and rods therein, pivoted levers connected to said piston rods, stop members associated with said plate, said levers engageable with said stop members when the head supported thereon has reached forming position, connections between said relief valve and said pair of cylinders where said by-passed fluid moves the pistons to engage the levers with the stop members to lower said plate below the head during the forming operation.

13. In a tank head joggling machine, a main frame, an auxiliary frame adjustably mounted thereon, a pair of forming rolls on said main frame, one of said rolls being movable toward and from the other during the forming operation, a carrier for said movable roll, pivoted at its lower end, drive means for said rolls; a head positioning plate carried by said auxiliary frame and provided with adjustable stops for a tank head, means for placing a tank head on said plate, said plate being vertically movable between a head receiving and an inoperative position, a weight operatively connected with said plate for holding it in head receiving position; vertically movable clamping means carried by said auxiliary frame having a rotatable clamping element at its lower end, a stationary supporting and clamping element mounted on said auxiliary frame comprising a pedestal having a turntable at its upper end for supporting said head in forming position; a fluid pressure cylinder above said movable clamping means, a piston and rod in said cylinder, said movable clamping means being rotatably mounted on said piston rod, means for supplying fluid under pressure, valve means for admitting fluid to said cylinder, said piston being movable by said fluid to engage a head on said plate and to move said head and said plate downwardly to engage said head with said stationary clamping means, a pressure relief valve connected with said fluid supplying means for bypassing fluid as pressure builds up during the clamping operation, a pair of cylinders mounted on said auxiliary frame having pistons and rods therein, pivoted levers connected to said piston rod, stop members associated with said plate, said levers engageable with said stop members when the head supported thereon has reached forming position, connections between said relief valve and said pair of cylinders where said by-passed fluid moves the pistons to engage the levers with the stop members to lower said plate below the head during the forming operation; a gear on said rotatable clamping means, a rotatable cam, driving connections between said gear and said cam, a cam follower; means operatively connected to said cam for causing the rolls to grip the head to rotate the head, said forming rolls rotating said head when in engagement therewith, such rotation being transmitted through the head and rotatable clamping means to said cam; connections between said cam follower and said pivoted carrier whereby rotation of the cam draws the movable roll toward the other roll; said cam being contoured to gradually increase the pressure on the head and after a predetermined revolution to release same, thus stopping rotation of the head and the cam.

14. In a head joggling machine, a main frame, forming rolls on said frame, drive means for said rolls, one of said rolls being movable toward and from the other during the forming operation, rotatable cam means for moving said movable roll; an auxiliary frame adjustably mounted on said main frame and having mounted thereon movable head receiving and positioning means and head clamping means; yieldable means for holding said receiving means in head receiving position, said head clamping means comprising a vertically movable rotatable member above said receiving means and a stationary member below said movable member and having a rotatable turntable at its upper end, means for positioning a head on said receiving means, means for moving said movable clamping member against said head and forcing it against said stationary clamping member to hold it in position for forming, with its edge between the forming rolls, and means to lower the head receiving and positioning means below the head during the forming operation.

15. In a head joggling machine, a main frame, forming rolls on said frame, drive means for said rolls, one of said rolls being movable toward and from the other during the forming operation, rotatable cam means for moving said movable roll; an auxiliary frame adjustably

mounted on said main frame and having mounted thereon movable head receiving and positioning means and head clamping means; yieldable means for holding said receiving means in head receiving position, said head clamping means comprising a vertically movable rotatable member above said receiving means and a stationary member below said movable member and having a rotatable turntable at its upper end, means for positioning a head on said receiving means, means for moving said movable clamping members against said head and forcing it against said stationary clamping member to hold it in position for forming, with its edge between the forming rolls; driving means on said movable clamping member, driving connections between said last mentioned driving means and said cam means, connections between said cam means and said movable roll, said cam means being adjustable to move the movable roll and cause the rolls to grip the head and to drive it in rotation, said rotation causing rotation of said cam, a portion of said cam releasing said movable roll after a predetermined operation, whereby rotation of the head and cam are stopped.

16. In a head joggling machine, a main frame, forming rolls on said frame, drive means for said rolls, one of said rolls being movable toward and from the other during the forming operation, rotatable means comprising a cam for moving said movable roll; an auxiliary frame adjustably mounted on said main frame and having mounted thereon movable head receiving and positioning means and head clamping means; yieldable means for holding said receiving means in head receiving position, said head clamping means comprising a vertically movable rotatable member above said receiving means and a stationary member below said movable member and having a rotatable turntable at its upper end, means for positioning a head on said receiving means, means for moving said movable clamping member against said head and forcing it against said stationary clamping member to hold it in position for forming, with its edge between the forming rolls; driving means on said movable clamping member, means operatively connected to said cam for causing the rolls to grip the head to rotate the head and the clamping means, driving connections between said last mentioned driving means and said cam means, connections between said cam means and said movable roll, said cam means being adjustable and proportioned to cause the movable roll to grip the head and to drive it in rotation, said rotation causing rotation of said cam, a portion of said cam releasing said movable roll after a predetermined operation, whereby rotation of the head and cam are stopped; means for moving said movable clamping means away from said forming position; said receiving means being moved by its holding means to receiving position, and the positioning of a new head forcing the joggled head onto a suitable conveyor.

17. A machine for joggling a body comprising a pair of forming rolls, drive means for said rolls, body positioning means, clamping means for clamping the body in forming position, said forming rolls functioning to rotate said body, means for causing said rolls to grip the body and to rotate the body, means for moving one of said forming rolls toward the other during the forming operation, second drive means operatively connected to said moving means for operating the latter upon said rolls rotating the body, said moving means comprising means to release said movable roll after a predetermined time, thus removing pressure from said body.

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