

May 21, 1929.

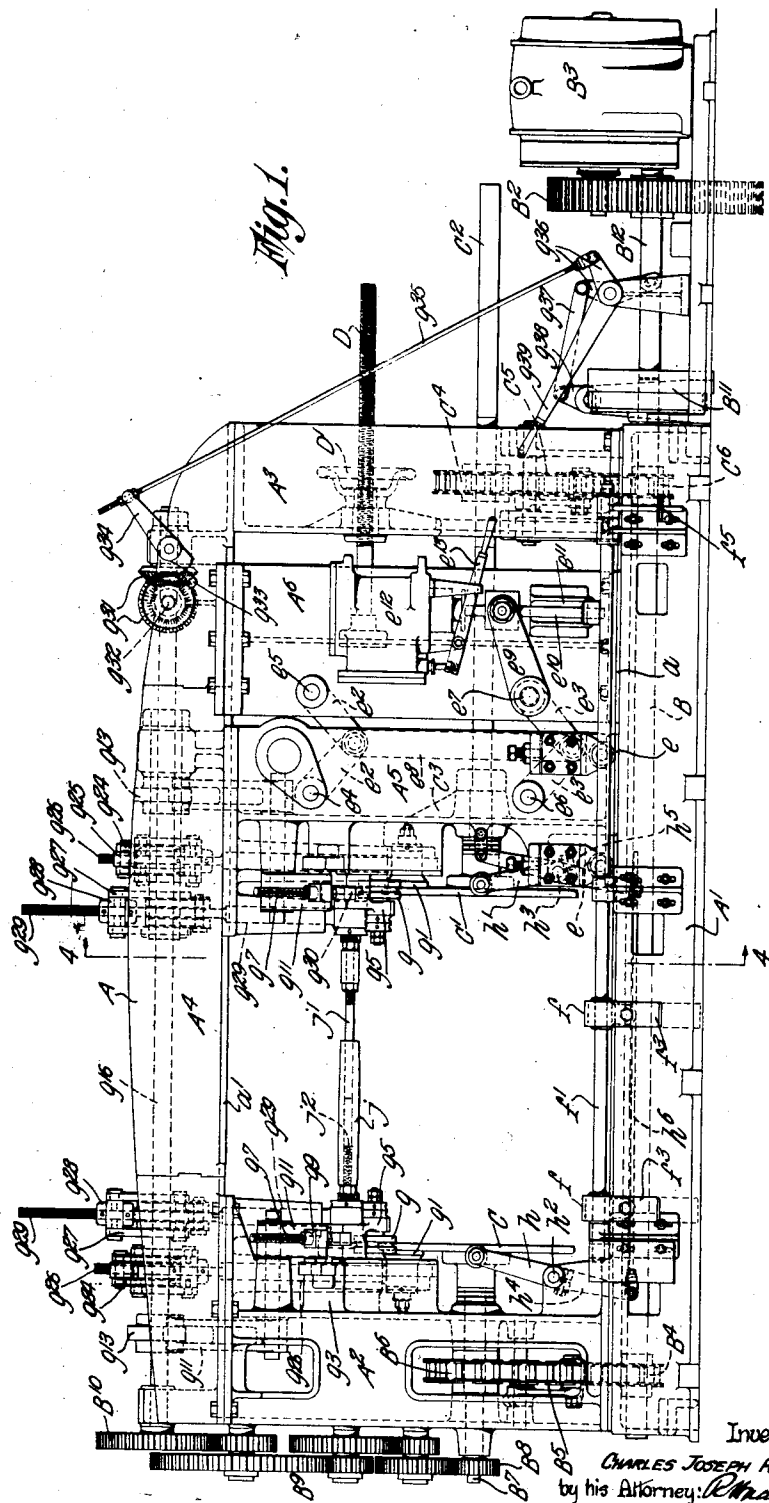
C. J. RHODES

1,713,625

FLANGING AND SEAMING OF SHEET METAL RECEPTACLES

Filed Aug. 2, 1927

3 Sheets-Sheet 1



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FLANGING AND SEAMING OF SHEET METAL RECEPTACLES

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3 Sheets-Sheet 2

Fig. 2.

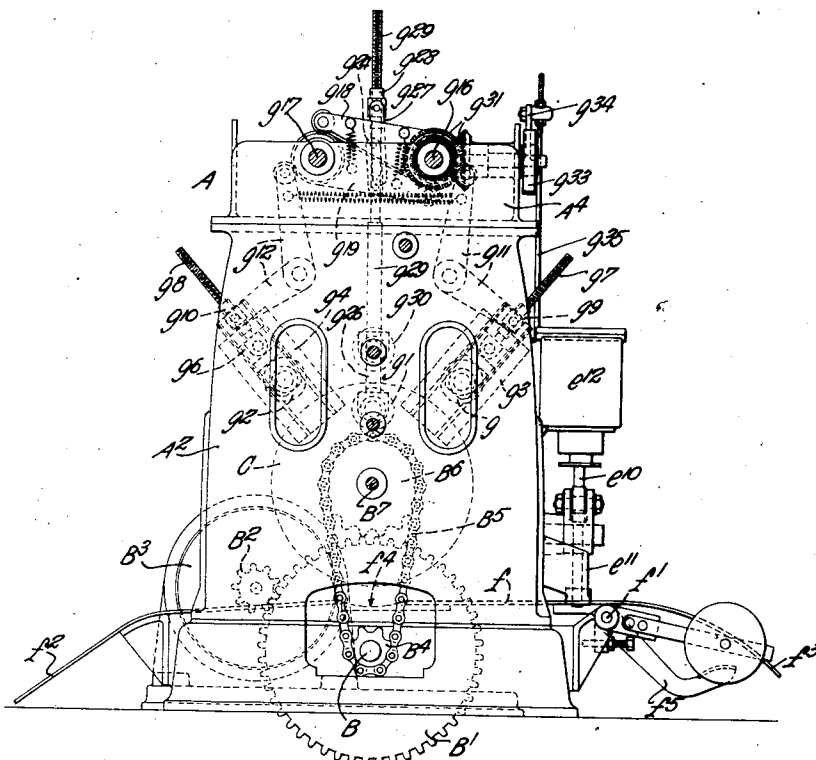
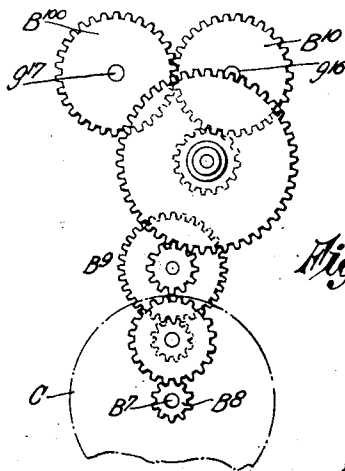


Fig. 3.

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May 21, 1929.

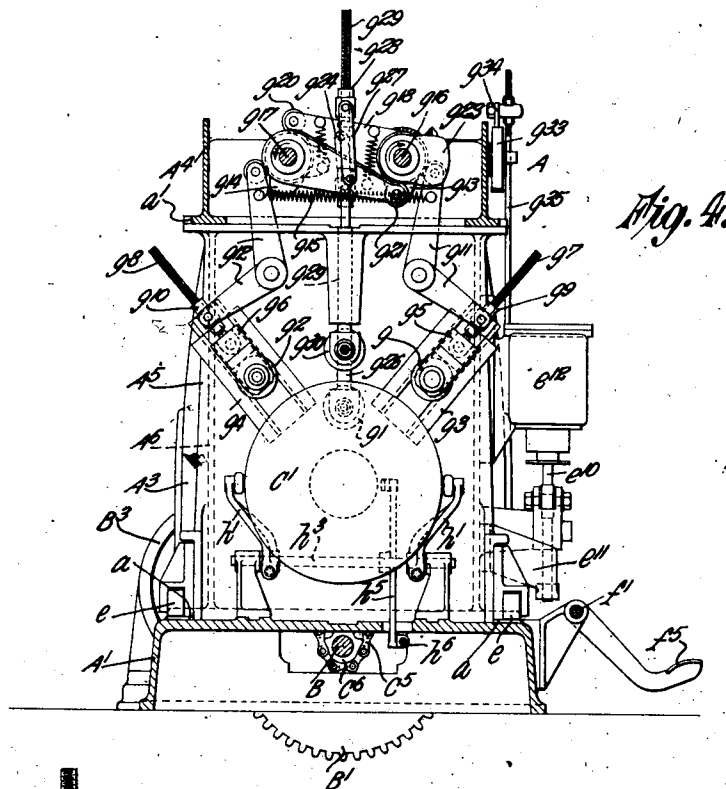
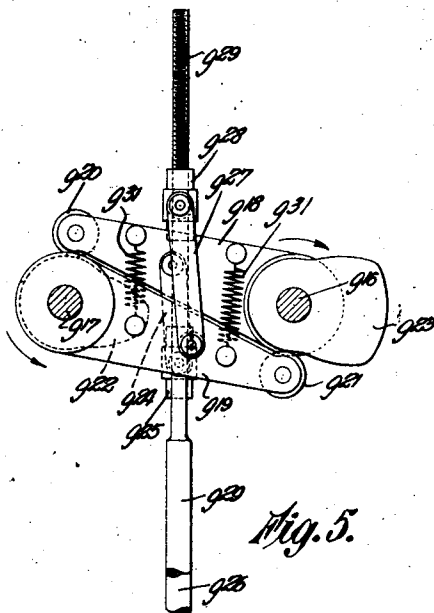
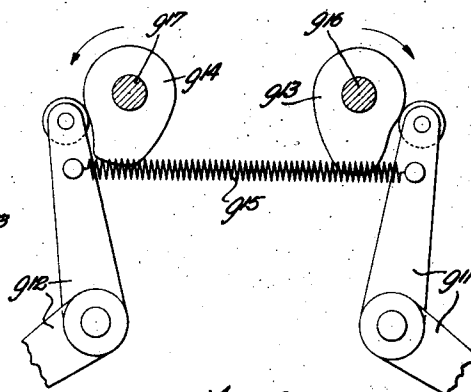
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1,713,625

FLANGING AND SEAMING OF SHEET METAL RECEPTACLES

Filed Aug. 2, 1927

3 Sheets-Sheet 3



Inventor:

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Patented May 21, 1929.

1,713,625

UNITED STATES PATENT OFFICE.

CHARLES JOSEPH RHODES, OF WAKEFIELD, ENGLAND.

FLANGING AND SEAMING OF SHEET-METAL RECEPTACLES.

Application filed August 2, 1927, Serial No. 210,030, and in Great Britain January 6, 1927.

This invention relates to apparatus for automatically flanging and seaming sheet metal receptacles for example the attachment of an end or ends, or base or cover to sheet metal drums of cylindrical and other regular section and of that type which includes two headstocks or the like embodying axially aligned chucks or equivalents between which the work is held and rotated and there acted upon by suitably shaped tools conveniently in the form of rollers by which the flanging and seaming operations are successively performed either at one end or at both ends of the work simultaneously.

rolled up and along same to a depression or recess below the axis of the chucks. This table or skid is adapted to be operated by a treadle or equivalent and intermediate connections to raise the work into proper position between the chucks, whereupon one or both of the latter is or are adjusted or moved to grip the work between them. After completion of the operations the chuck is withdrawn allowing the work to be released and lowered again onto and by the table or skid. An inclined or curved portion of this table or skid, or a separate table, extends to the other side of the machine to facilitate removal of the finished receptacles.

Such removal of the finished receptacles from between the chucks is however assisted by stripping means designed to obviate any tendency of the drums to stick to the chucks. Such stripping means suitably comprise for each chuck a double armed lever having at the outer end of one arm a roller or equivalent adapted to engage the end of the receptacle, said levers being so interconnected and automatically operated at the required times that the oppositely disposed rollers each pertaining to a chuck are forced towards one another and strip the finished article from the chucks. By the provision of the feeding and stripping means described it will be apparent that rapidity of operation is promoted, thus increasing the output of the machine.

A further feature of the present invention consists in the operation of one of the chucks with its associated working rollers or tools by fluid pressure such as that of steam or compressed air whereby said parts are operated with great ease and which compensates for slight variations of length of the work which occurs in practice (assuming the chuck has been set for work of a given size). The movable head-stock with the chuck and rollers are adjustable longitudinally of the machine as a unit for work of different sizes and the chuck and rollers are adjustable or movable independently of the head-stock for insertion and removal of the work and in carrying out the fluid operation feature of the invention a convenient method is to mount a steam or air cylinder on the adjustable head-stock the piston of said cylinder being under control of a suitable hand lever and the piston rod coupled to the movable chuck-supporting slide or head by means of a toggle system or parallel lever motion. Such move-

15 An example of such apparatus is disclosed in my Patent No. 1,643,470 issued to me September 27, 1927, the application for which patent was co-pending with the present application to which reference is directed and in which the various rollers for performing the operations of flanging, curling and flattening the metal joints are independent of each other, the flanging roller or rollers being located in the vertical axial plane of the machine and the curling and flattening rollers on opposite sides of said axial plane respectively but movable on paths converging toward said axial plane, all said rollers being operated by separate cams carried by shafts disposed on opposite sides of said axial plane.

According to the present invention the same general arrangement of rollers or tools as just described may be retained as regards their relation to the axial plane of the machine and cam operation but all said rollers and their operating mechanism including cams, cam shafts etc. are positioned overhead, or above the horizontal axis of the chucks which are placed low down or close to the bed or base of the machine. Such a construction presents the important advantage that scale or the like which may fall from the work during the flanging and seaming operations does not engage or foul any of the working parts but may be delivered directly to the ground or to the base of the machine from which it may be readily removed.

According to the invention also means are provided for easily feeding the work between the chucks, such means comprising a tilting or movable skid or table arranged at one side and suitably curved or inclined downwards towards the ground so that the work may be

ment of the chuck slide may also be caused automatically to operate the work stripping means above described.

In connection with the flanging rollers associated with opposing chucks there may be provided an adjustable tie rod for the purpose of taking up a certain amount of inward thrust or deflection on the flanging roller spindles. The said tie rod is adjustable so that receptacle bodies of different lengths or depths can be accommodated and its presence will provide for longer life of the flanging roller spindles.

Any appropriate mechanism may be employed for operating and controlling the moving parts of the machine, but the following are suitable arrangements for a practical embodiment. The machine may be driven from an electric motor through a friction clutch and brake manually controlled as by a hand starting lever and on a main drive shaft passing centrally through, and enclosed by, the base of the machine, this shaft extending the whole length of the machine and at the opposite end driving a train of gearing mounted on the fixed frame or tail-stock and operating two upper cam shafts disposed on opposite sides of the axis of the machine and carrying the cams for actuating the various working rollers or tools. The starting lever is adjustably coupled to another clutch device associated with the cam shafts so that when the latter have performed a certain number of revolutions corresponding to a complete operation of the machine the hand lever is actuated to stop the machine or alternatively this may be performed by manipulating the hand lever itself. The chuck control by means of the steam or air cylinder is independent of the main drive control.

Reference being made to the annexed drawings:

Fig. 1 is a side elevation of the improved machine, Fig. 2 is a left hand end elevation with gears removed. Fig. 3 is a detail view of these gears. Fig. 4 is a section on line 4—4 of Fig. 1. Figs. 5 and 6 are detail views of part of the cam mechanism. A represents the frame of the machine comprising the base A^1 , two end members A^2 A^3 these two members being bridged by and secured to the capping member A^4 . A base member A^1 and capping member A^4 are provided with slide ways a a^1 respectively along which slide the two intermediate frame members A^5 A^6 .

In bearings in the base of the machine is mounted the shaft B carrying at its outer end a clutch B^{11} , the counterpart of which is carried by a shaft B^{12} carrying a spur wheel B^1 meshing with a pinion B^2 on the shaft of the electric driving motor B^3 . The shaft B also carries a chain wheel B^4 geared by chain B^5 to the chain wheel B^6 on the shaft B^7 of the non adjustable chuck C, this shaft also carrying the pinion B^8 geared through the wheel

train B^9 with a spur wheel B^{10} on the shaft g^{16} carried in bearings in the capping member A^4 and whence motion is taken to the various cams for giving feed motion to the flanging and other wheels operating on the work as hereinafter described.

The adjustable chuck C^1 and its associated flanging and other rollers are carried by the sliding frame member A^5 , the shaft C^2 of the adjustable chuck C^1 being mounted in a bearing C^3 in the member A^5 and extending through the members A^6 and A^3 and carrying slidably keyed upon it a chain wheel C^4 mounted in the frame member A^3 and geared by chain C^5 to a chain wheel C^6 keyed upon the shaft B.

Driving motion may thus be communicated to the two chucks C C^1 from the motor irrespective of the position of chuck C^1 .

The frame member A^6 is adjustable to and from the end member A^3 by the following means. To the frame member A^6 is attached a screw threaded rod D engaging a hand operatable nut D^1 mounted revolvably in the member A^3 but incapable of moving endwise therein. By revolving this nut the member A^6 may be moved from or to the end frame member A^3 and thus adjusted in position with regard to the opposite end member A^2 .

The frame member A^5 is also movable to and from the member A^6 and for ease of movement is preferably mounted on running wheels *e e*. The members A^5 and A^6 are connected by two toggles each consisting of two arms e^2 e^2 , e^3 e^3 respectively, pivoted at e^4 e^5 e^6 e^7 respectively to the sides of members A^5 A^6 . The knees of the two toggles are connected by a link e^8 . One of the arms e^3 of one of the toggles is connected to a lever e^9 , the other arm of which is connected to a piston rod e^{10} . This piston rod is suitably guided as at e^{11} and is operated by a piston in the cylinder e^{12} carried on the side of frame member A^6 . Motive fluid may be admitted to said cylinder e^{12} by means not shown the admission being regulated by a double acting valve operated by hand lever e^{13} . The operation of the toggles e^2 e^2 causes the frame member A^5 to be moved towards or from the frame member A^2 according to the position of the hand lever e^{13} whereby the chucks C C^1 are caused to engage or disengage the drum.

For convenience in placing a drum in position to be engaged by the chucks a pair of curved bars *f f* (see Fig. 2) are pivoted on a shaft f^1 and extend from the front to below the centre line of the machine being curved down at the outer ends as at f^3 towards the floor.

Beneath the centre line of the chucks the bars *f f* have a transverse depression f^4 . A drum rolled up the slope f^3 onto the bars *f* will rest temporarily in the depressions f^4 . The shaft f^1 carries a pedal lever f^5 . By depressing this pedal, the operator will cause

the drum held in the depressions f^4 to be lifted into alignment with the chucks C C¹ prior to the movement of member A⁵. After the drum has been seamed a similar movement of the bars f f will permit the drum to be received again into the depression f^4 when the member A⁵ recedes, and the seamed drum can then be rolled off the bars f onto the fixed rails f^2 and so discharged to the rear of the machine.

Mounted to operate on the drum held between the chucks C C¹ are three rollers at each end, one set being carried by the fixed frame member A² and the other by the movable frame member A⁵. These two sets are similar and a description of one of them will therefore suffice. Referring to Fig. 4, g is a curling roller, g^1 a flanging roller and g^2 a flattening roller. The rollers g g^2 are mounted in blocks g^5 g^6 adapted to slide in guide ways g^3 g^4 radial to the axis of the chucks C C¹. To the blocks g^5 g^6 are pivoted screws g^7 g^8 on which are threaded sleeves g^9 g^{10} to which are pivoted bell crank levers g^{11} g^{12} having rollers running on cams g^{13} g^{14} respectively (see Fig. 6). The rollers are held to the cams by spring g^{15} . The cams g^{13} g^{14} are carried by shafts g^{16} g^{17} to which motion is given as hereinafter described.

Loose on each shaft g^{16} g^{17} is also an arm g^{18} g^{19} respectively having at its end a roller g^{20} g^{21} bearing against a cam g^{22} g^{23} on the opposite shaft.

The arm g^{18} is connected by a link g^{24} to a sleeve g^{25} threaded on a screw threaded rod g^{26} which carries the flanging roller g^1 . The arm g^{19} is connected by a link g^{27} to a sleeve g^{28} threaded on a screw threaded rod g^{29} which carries a supporting roller g^{30} (Fig. 4). The arms g^{18} g^{19} are held to the cams by springs g^{31} .

The shaft g^{16} is driven as aforesaid through the gear train B⁹ and the shaft g^{17} is driven from shaft g^{16} through gearing B¹⁰ B¹⁰⁰ (Fig. 3). On the transverse shaft g^{32} of this bevelled gearing is a cam g^{33} operating upon a lever g^{34} connected by rod g^{35} to a bell crank lever g^{36} which is connected by link g^{37} to the releasing lever g^{38} of clutch B¹¹ so that on termination of each revolution of shafts g^{16} g^{17} the clutch B¹¹ is opened and the drive of the motor B³ is disconnected. The bell crank lever g^{36} can also be operated by hand lever g^{39} on the shaft thereof.

Contiguous to each clutch C C¹ is a releasing fork h h^1 pivoted at h^2 h^3 respectively and having tails h^4 h^5 connected to each other by a rod h^6 . On retirement of the frame member A⁵ the chuck C¹ carried thereby will be moved to a position beyond that of the fork h^1 which will then bear against the end of the drum and reacting with the fork h will ensure the stripping of the drum from the chucks.

During the return or upward movement

of the flanging rollers g^1 in the flanging operation the supporting rollers g^{30} are subjected to a considerable inward thrust which exerts a deflecting and bending stress on the carrier rods g^{29} for the supporting roller spindles and thus deflecting said rollers out of a vertical plane of rotation. To take up the stress and strain of this inward thrust on the supporting rollers the spindles on said rollers are provided with telescoping extensions arranged to permit the chucks to be brought into and out of receptacle supporting position, one of which extensions is adjustable to adapt said means for different lengths or depths of receptacle. For this purpose the spindles of one supporting roller has a threaded extension j^2 having threaded connection with one end of a sleeve j of a length less than the space between the spindles, and the spindle of the other supporting rollers is arranged with a similar extension threaded into one end of an adjusting sleeve and having a rod j^1 threaded into the opposite end also of a length less than the space between the spindles; the free end of which rod j^1 slidably engages in the sleeve j . By this arrangement the inward thrust on the supporting rollers is transmitted through the spindles thereof to the telescoping extensions j , j^1 of the spindles and taken up in such connection.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

1. In apparatus for automatically flanging and seaming the heads and bodies of sheet metal receptacles, the combination of a frame comprising a base member, two end members and a capping member, one of said end members forming a head stock, a tail stock movable in said frame between the base and capping member, chucks, shafts for said chucks carried by said head stock and tail stock respectively, means for rotating said chucks, two sets each comprising a supporting roller, a curling roller and a flanging roller carried by said head stock and tail stock respectively above the axis of the chucks, and means carried by the capping member for operating said rollers.

2. In apparatus for automatically flanging and seaming the heads and bodies of sheet metal receptacles, the combination of a frame comprising a base member, two end members and a capping member, one of said end members forming a head stock, a tail stock movable in said frame between the base and capping member, chucks, shafts for said chucks carried by said head stock and tail stock respectively, means for rotating said chucks, two sets each comprising a supporting roller, a curling roller and a flanging roller carried by said head stock and tail stock respectively above the axis of the chucks and shafts carried by the capping member for operating

said rollers, a shaft in the base member, means for rotating the latter shaft, and gearing connecting the shaft in the base with the shafts in the capping member and the shafts of the chucks.

3. In apparatus for automatically flanging and seaming the heads and bodies of sheet metal receptacles, the combination of a frame comprising a base member, two end members and a capping member, one of said end members forming a head stock, a tail stock movable in said frame between the base and capping member, chucks, shafts for said chucks carried by said head stock and tail stock respectively, means for rotating said chucks, two sets each comprising a supporting roller a curling roller, and a flanging roller carried by said head stock and tail stock respectively above the axis of the chucks, means carried by the capping member for operating said rollers, a movable frame member adjustable in distance from one of the end frame members, toggles connecting said movable frame member and tail stock, and fluid operated mechanism for moving the tail stock to and from said movable frame member.

4. In apparatus for automatically flanging and seaming the heads and bodies of sheet metal receptacles, the combination of a frame comprising a base member, two end members and a capping member, one of said end members forming a head stock, a tail stock movable in said frame between the base and capping member, chucks, shafts for said chucks carried by said head stock and tail stock respectively, means for rotating said chucks, two sets of rollers each set comprising a supporting roller, a curling roller and a flanging roller carried by said head stock and tail stock respectively above the axis of the chucks, means carried by the capping member for operating said rollers, and means to release the drum from the chucks as they recede from one another.

5. In apparatus for automatically flanging and seaming the heads and bodies of sheet metal receptacles, the combination of a frame comprising a base member, two end members and a capping member, one of said end members forming a head stock, a tail stock movable in said frame between the base and capping member, chucks, shafts for said chucks carried by said head stock and tail stock respectively, means for rotating said chucks, two sets of rollers each set comprising a supporting roller, a curling roller and a flanging roller carried by said head stock and tail stock respectively above the axis of the chucks, means carried by the capping member for operating said rollers, and levers pivoted on said base member for lifting and lowering a drum with respect to the chucks.

6. In apparatus for automatically flanging and seaming the heads and bodies of sheet

metal receptacles, the combination of a frame comprising a base member, two end members and a capping member, one of said end members forming a head stock, a tail stock movable in said frame between the base and capping member, chucks, shafts for said chucks carried by said head stock and tail stock respectively, means for rotating said chucks, two sets of rollers each set comprising a supporting roller a curling roller and a flanging roller carried by said head stock and tail stock respectively above the axis of the chucks, means carried by the capping member for operating said rollers, bars pivoted on said base member having depressions to receive a drum and formed as ramps, and a pedal for operating said bars for lifting and lowering a drum with respect to the chucks.

7. In apparatus for automatically flanging and seaming the heads and bodies of sheet metal receptacles, the combination of a frame comprising a base member, two end members and a capping member, one of said end members forming a head stock, a tail stock movable in said frame between the base and capping member, chucks, shafts for said chucks carried by said head stock and tail stock respectively, means for rotating said chucks, two sets of rollers each set comprising a supporting roller, a curling roller and a flanging roller carried by said head stock and tail stock respectively above the axis of the chucks, shafts carried by the capping member for operating said rollers, a shaft in the base member, a clutch, means for rotating the shaft in the base member through said clutch, gearing connecting the shaft in the base member with the shafts in the capping member and the chuck shafts respectively, automatic disengaging gear for said clutch operatable by the shafting in the capping member, hand operatable striking gear for said clutch, a movable frame member adjustable in distance from one of the end frame members, toggles connecting said movable frame member and tail stock, fluid operated mechanism for moving the tail stock to and from said movable frame member, and drum releasing gear operative to detach the drum from the chucks as they recede from one another.

8. In apparatus for automatically flanging and seaming the heads and bodies of sheet metal receptacles, the combination of a frame comprising a base member, two end members and a capping member, one of said end members forming a head stock, a tail stock movable in said frame between the base and capping member, chucks, shafts for said chucks carried by said head stock and tail stock respectively, means for rotating said chucks, rollers carried by said head stock and tail stock respectively and movable towards the axis of said chuck from positions above the axis of the chucks, and means carried by the capping member for operating said rollers.

9. In apparatus for automatically flanging and seaming the heads and bodies of sheet metal receptacles, the combination of a frame comprising a base member, two end members and a capping member, one of said end members forming a head stock, a tail stock movable in said frame between the base and capping member, chucks, shafts for said chucks carried by said head stock and tail stock respectively, means for rotating said chucks, supporting rollers movable downwardly in the vertical plane of the chuck centres, curling rollers and flanging rollers movable obliquely downwardly towards the axis of the chucks means carried by the capping member for operating said rollers, and adjustable distance regulating means between the said supporting rollers. 65 70 75
13. In apparatus for automatically flanging and seaming the heads and bodies of sheet metal receptacles, the combination of a frame comprising a base member, two end members and a capping member, one of said end members forming a head stock, a tail stock movable in said frame between the base and capping member, chucks, shafts for said chucks carried by said head stock and tail stock respectively, means for rotating said chucks, two sets of rollers each comprising a supporting roller, a curling roller and a flanging roller carried by said head stock and tail stock respectively above the axis of the chucks and movable downwardly with respect to the chucks, shafts carried by the capping member for operating said rollers, a shaft in the base member, a clutch, means for rotating the shaft through said clutch, gearing connecting the shaft in the base with the shafts in the capping member, automatic disengaging gear for said clutch operatable by the shafting in the capping member, hand operatable striking gear for said clutch, a movable frame member adjustable in distance from one of the end frame members, toggles connecting said movable frame member and tail stock, means for moving the tail stock to and from said movable frame member, bars pivoted on said base member having depressions to receive a drum and formed as ramps, a pedal for operating said bars for lifting and lowering a drum with respect to the chucks, and drum releasing gear operative to detach the drum from the chucks as the chucks recede from one another. 80 85 90 95 100 105 110 115 120 125
14. In apparatus for securing closures to sheet metal receptacles, rotatable chucks one of which chucks is movable relative to the other for releasably supporting a receptacle body with a flanged disk in the ends thereof, rollers arranged above the axis of the chucks for flanging laterally the contiguous portions of the flange of the closure disks and receptacle end, curling and flattening said flanged portions, and means arranged above said rollers for reciprocating said rollers in a direction toward and away from the axis of the chucks.
15. In apparatus for securing closures to sheet metal receptacles as claimed in claim 14, a support for a receptacle below the axis
10. In apparatus for automatically flanging and seaming the heads and bodies of sheet metal receptacles, the combination of a frame comprising a base member, two end members and a capping member, one of said end members forming a head stock, a tail stock movable in said frame between the base and capping member, chucks, shafts for said chucks carried by said head stock and tail stock respectively, means for rotating said chucks, supporting rollers movable downwardly in the vertical plane of the chuck centres, curling rollers and flanging rollers movable obliquely downwardly towards the axis of the chucks, and means carried by the capping member for operating said rollers. 20 25 30 35
11. In apparatus for automatically flanging and seaming the heads and bodies of sheet metal receptacles, the combination of a frame comprising a base member, two end members and a capping member, one of said end members forming a head stock, a tail stock movable in said frame between the base and capping member, chucks, shafts for said chucks carried by said head stock and tail stock respectively, means for rotating said chucks, supporting rollers movable downwardly in the vertical plane of the chuck centres, curling rollers and flanging rollers movable obliquely downwardly towards the axis of the chucks, shafts carried by the capping member for operating said rollers, a shaft in the base member, a clutch, means for rotating the shaft through said clutch, gearing connecting the shaft in the base with the shafts in the capping member, and automatic disengaging gear for said clutch operatable by the shafting in the capping member. 40 45 50 55 60
12. In apparatus for automatically flanging and seaming the heads and bodies of sheet metal receptacles, the combination of a frame comprising a base member, two end members and a capping member, one of said end members forming a head stock, a tail

of the chucks and operative to position a receptacle relative to and for the engagement of the chucks and receive a receptacle from the chucks.

5 16. In apparatus for securing closures to sheet metal receptacles, the combination of a supporting frame, a fixed head stock, a tail stock movable in the frame relative to the fixed head stock, chucks rotatably carried by
10 said stocks to support a receptacle body with flanged disks in the ends thereof, and fluid pressure operated means to move the tail stock relative to the head stock.

17. Apparatus for securing closures to
15 sheet metal receptacles as claimed in claim 16, wherein the fluid pressure operated means to move the tail stock comprises toggle links connected with said tail stock and a fixed part, fluid pressure cylinders, and pistons in said
20 cylinders connected with the toggle links.

18. In apparatus for securing closures to sheet metal receptacles, a pair of rotatable axially arranged chucks one of which chucks is movable axially relative to the other for releasably supporting a receptacle body with
25 flanged disks in the ends with the flanges thereof and receptacle ends in contiguous relation, rollers operative to flange the disk flanges and contiguous receptacle ends laterally, curl and flatten such flanged portions,
30 and means to release the receptacle from the chucks as one recedes from the other.

19. In apparatus for securing closures to sheet metal bodies, a pair of rotatable axially
35 arranged chucks for releasably supporting a receptacle body with flanged disks in the ends, one of which chucks is axially movable toward and away from the other chuck, adjustable means for positioning one chuck relative
40 to the other, rollers operative to laterally flange the disk flanges and contiguous receptacle ends, curl and flatten said laterally flanged portions, said rollers being arranged above and having movement in a direction toward and away from the axis of the chucks,
45 and a receptacle support below the axis of the chucks and operative to position a receptacle thereon for engagement by the chucks and to receive a receptacle from the chucks.

20. In apparatus for securing closures to receptacle bodies, a frame embodying a pair of opposed members one of which is fixed and arranged with a head stock, and the other of said members adjustable toward and away
50 from the fixed member, and an intermediate member carrying a tail stock in opposed relation to the head stock, said intermediate member being movable toward and away from the head stock carrying member.

21. In apparatus as claimed in claim 20, means carried by the adjustable frame member and connected with the tail stock carrying member operative to move said latter member toward and away from the head stock
55 carrying member.

22. In apparatus for securing closures to receptacle bodies, a frame embodying a base, a pair of opposed end members, and a cap member secured to the end members in opposed relation to the base, a head stock carried by one of the end members, a member intermediate the end members and mounted on the base and cap member to have adjustment longitudinally thereof intermediate the end members, a member adjustably mounted
70 between the base and cap member between the intermediate and head stock carrying frame members, and a tail stock carried by said latter member.

23. In apparatus for securing closures in
80 the end of receptacle bodies as claimed in claim 25, wherein the inwardly directed members associated with the spindles of the supporting rollers to take up lateral inward thrust on the rollers comprises a rod connected
85 to the spindle of one of the supporting rollers and a sleeve connected with the spindle of the other roller for slidable engagement of the rod, and said rod and sleeve being of a length less than the space between the roller
90 carrying spindles, and one being adjustable to accommodate said thrust take up means to receptacles of different length.

24. In apparatus for securing flanged closures to the ends of receptacle bodies, a pair
95 of frame members carrying chucks for supporting a receptacle body with closures inserted in the ends thereof, one of which members is fixed and the other member movable toward and away from the fixed member,
100 means operative to move the movable member toward and away from the fixed member, flanging, supporting, curling and flattening rollers carried by each of said frame members above the axis of the chucks, actuating
105 shafts for said rollers rotatably carried by said frame members and relative to which the movable frame member is longitudinally movable, and means associated with the spindles of the supporting rollers to take up the
110 stress and strain of the inward thrust on the supporting rollers during the flanging operation.

25. In apparatus for securing closures in the ends of receptacle bodies, a fixed
115 frame member rotatably carrying a receptacle supporting chuck, a frame member movable toward and away from the fixed frame member and rotatably carrying a receptacle supporting chuck co-axially of
120 the chuck carried by the fixed frame member, means operative to move the movable frame member and chuck carried thereby toward and away from the fixed frame member, flanging and supporting rollers supported by
125 said frame members to have movement in the direction of the plane of rotation of said rollers, and, inwardly directed members associated with the spindles of the supporting rollers arranged to take up the stress and
130

strain of the inward lateral thrust on the supporting rollers during the flanging operation.

26. Apparatus for securing closures in the ends of receptacle bodies as claimed in claim
5 25, wherein the means for taking up the stress and strain of the thrust on the supporting rollers comprises a sleeve connected with the threaded extension of the spindle of one of

said rollers, and a rod adjustably connected with the spindle of the other supporting 10 roller slidably engaging in the sleeve and adapted for sliding movement relative to each other.

In witness whereof I have signed this specification.

CHARLES JOSEPH RHODES.