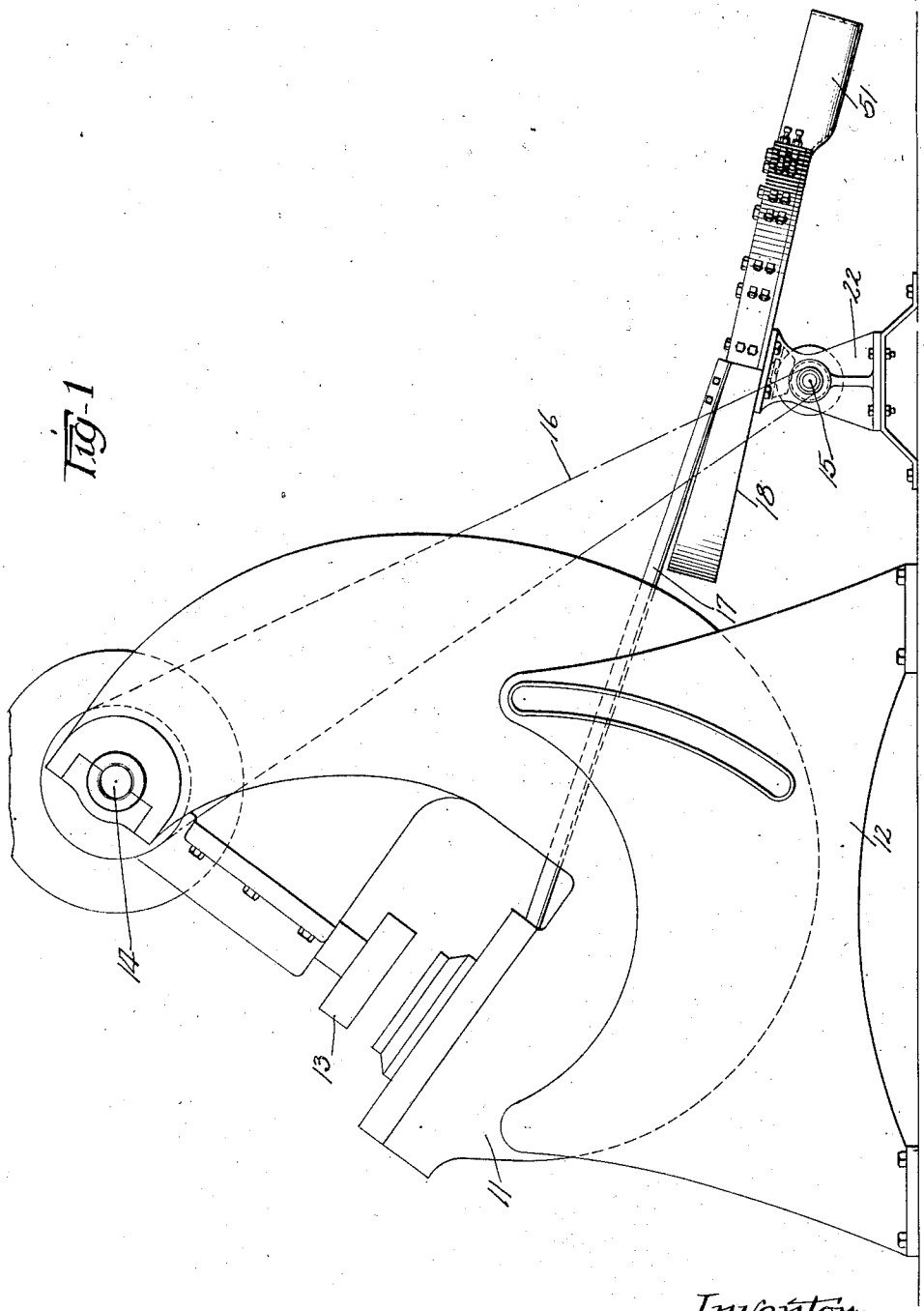
March 29, 1927. 1,622,540

J. F. PETERS

MACHINE FOR CURLING THE FLANGES OF CAN ENDS

Filed Sept. 1, 1922 3 Sheets-Sheet 1

Fig. 1



Inventor:-
John F. Peters
By:- Munday, Adams & Carpenter Atty's:-

March 29, 1927. 1,622,540

J. F. PETERS

MACHINE FOR CURLING THE FLANGES OF CAN ENDS

Filed Sept. 1, 1922 3 Sheets-Sheet 2

Fig-2

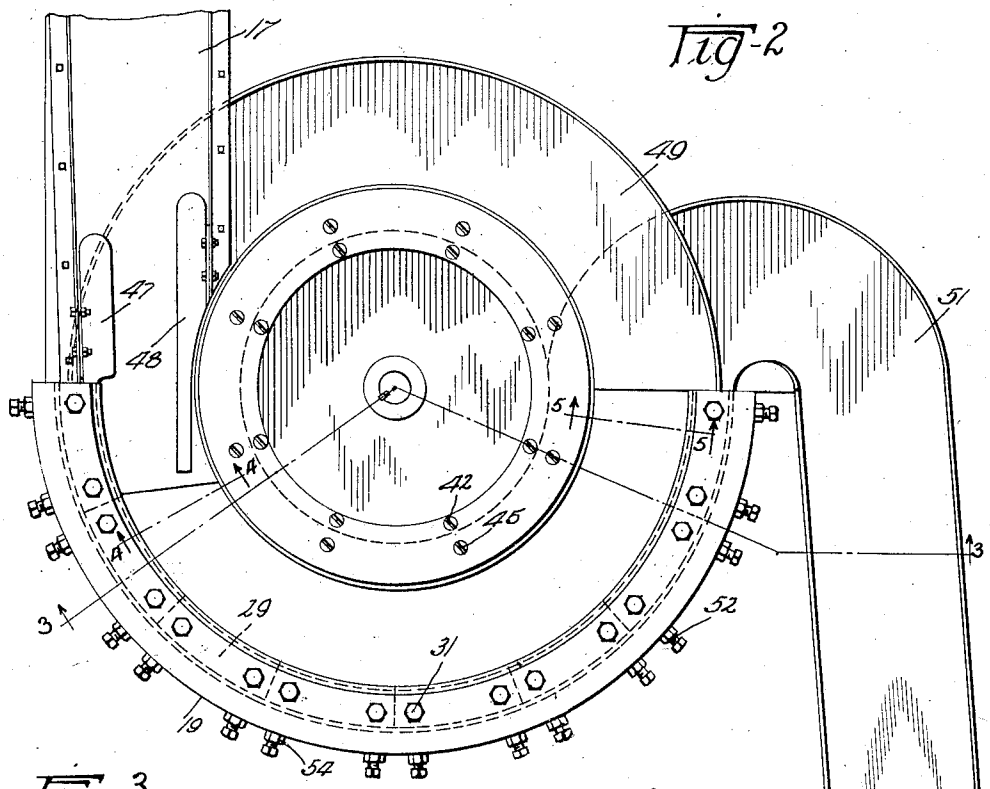
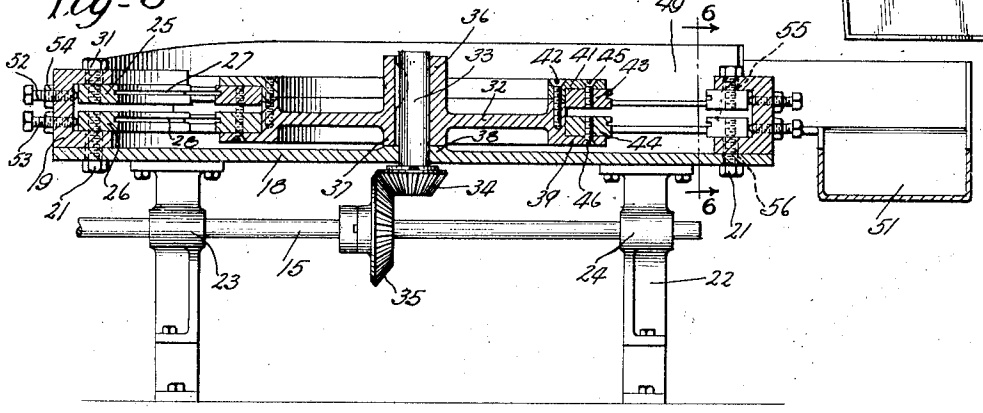


Fig-3



Inventor:-
John F. Peters
By:- Munday, Parker & Carpenter
Atty's.

March 29, 1927. 1,622,540

J. F. PETERS

MACHINE FOR CURLING THE FLANGES OF CAN ENDS

Filed Sept. 1, 1922 3 Sheets-Sheet 3

Fig. 4

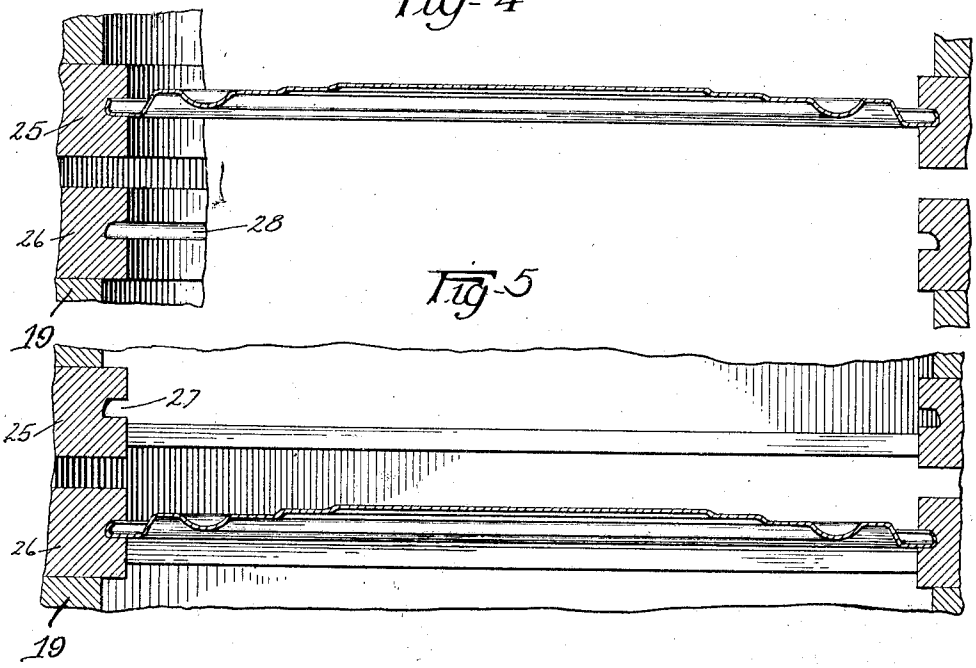
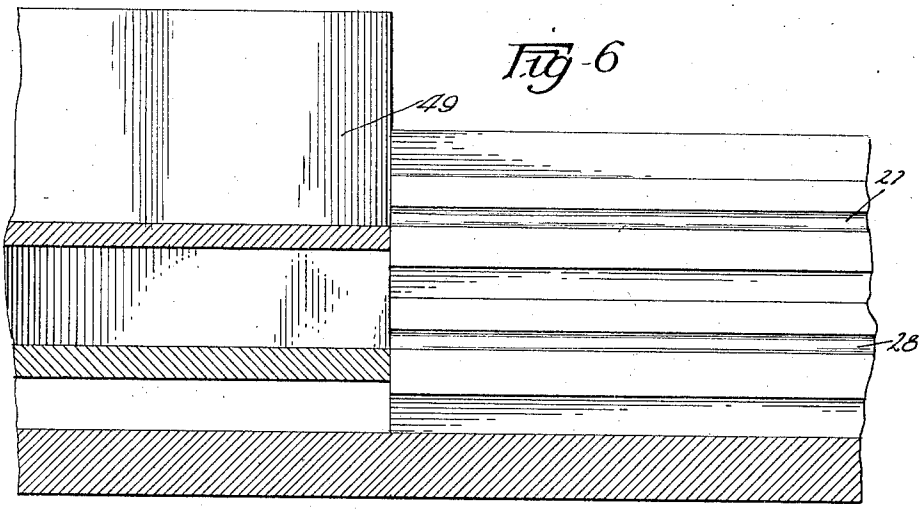


Fig. 5

Fig. 6



Inventor:-
John F. Peters
By:- Mimsley, Clarke & Carpenter
Atty's:-

Patented Mar. 29, 1927. 1,622,540

UNITED STATES PATENT OFFICE.

JOHN F. PETERS, OF ROCHESTER, NEW YORK, ASSIGNOR TO AMERICAN CAN COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

MACHINE FOR CURLING THE FLANGES OF CAN ENDS.

Application filed September 1, 1922. Serial No. 585,627.

My invention relates in general to machines for curling the flanges of can ends to provide a channel for receiving a gasket, or compound lining, which is deposited therein prior to its application to a can body.

A principal object of the invention is the provision of a machine of this character in which a plurality of sets of flange curling members are arranged in superposed relationship to provide a lengthened curling track within practical machine dimensions and in which members of each set may be individually adjusted, so that the curling action of each set may be separately regulated.

Other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings,

Figure 1 is a side elevation of a flange curling machine in which my invention is embodied, said machine being shown in conjunction with an end cutting and forming press from which the ends are received;

Fig. 2 is a plan view of the curling mechanism and directing chute;

Fig. 3 is a sectional view taken substantially on the line 3—3 of Fig. 2;

Fig. 4 is an enlarged partial section taken substantially on the line 4—4 of Fig. 2;

Fig. 5 is a similar section taken substantially on the line 5—5 of Fig. 2; and

Fig. 6 is an enlarged section taken substantially on the line 6—6 of Fig. 3.

For the sake of complete illustration, I have shown upon the drawings a cutting and forming press 11, supported in a frame 12 and having an active die member 13 operated from a driven shaft 14, from which an operating shaft 15 of the flange curling machine is driven by means of a suitable belt 16.

The ends, after being partially formed in the press, are directed by a chute 17 into the curling machine, which comprises a frame 18, which, in the present instance, is of circular formation and has around a portion of its periphery a template 19, which is secured in place by means of cap screws 21. The frame 18 is preferably arranged in somewhat inclined position and is suitably mounted upon supports 22, which also provide bearings 23 and 24 for the shaft 15.

Secured in the template 19 are first and second operation segments 25 and 26, which are provided respectively with grooves 27 and 28, by means of which the can ends are curled to a desired extent, it being understood that these grooves are adapted to successively accomplish different amounts of curling action. Said segments are formed of a plurality of shorter segments 29 and said segments are secured to the member 19 by means of cap screws 31 and the screws 21. Mounted centrally in the frame 18 is a rotatable member 32, which is carried upon a short shaft 33, the latter being rotated by means of a bevel pinion 34 and a gear 35, which is carried by the shaft 15. Said member 32 is provided with a hub part 36, which has a lower extension 37 resting upon a slight upward projection 38 on the bottom frame member 18 and spacing the member 32 from said bottom frame. The periphery of the member 32 is flanged, as indicated at 39, and an upper flanged member 41 is secured thereto by means of screws 42, to provide a circumferential recess in which grooved rings 43 and 44 are secured by means of screws 45 and 46. The grooves in these rings correspond to those in the outer ring segments 25 and 26 and are adapted to cooperate therewith to perform the first and second operations on the can end flanges.

The ends are delivered through the chute 17 and directed by guides 47 and 48 into the groove 27 and the corresponding groove in the ring 43. The member 32 is rotated by the gearing heretofore described and the can end is thus moved around the groove 27 and rotated, whereby the flange, which has been slightly curled in the formative operation, is further curled to the desired degree in the first operation and is ejected from the groove 27 into a transfer chute 49 by which it is lowered to the level of the groove 28 into which it is directed by the centrifugal force imparted by the member 32. The groove 28 and co-operating groove in the member 44 accomplish further curling, the action being the same as that of the superposed first operation curling elements. In this manner, the complete curling opera-

tion is performed by mechanism arranged within the practical limits of the frame member 18, it being unnecessary to enlarge the proportions to accomplish the second operation upon the end flanges. The finished end is delivered from the groove 28 into a delivery chute 51, in which said ends may accumulate in stacked formation and from which they may be removed in any desired manner.

It is desirable that the segments of the upper and lower tracks be independently adjustable, in order to accurately control the extent of curling action in each operation and, for this purpose, I provide adjusting screws 52 and 53, which extend through the wall of the member 19 and bear against the segmental curling steels 29, suitable adjusting nuts 54 being provided upon these screws and two of the screws being employed for each segment 29.

In the inwardly extending flanges of the member 19 and in the bottom plate 18, there are provided slots 55 and 56 permitting the required movement of the screws 31 and 21 to permit adjustment of the outer ring segments. It is thus possible to control the distance between the opposed curling elements of each set, which is of great practical importance, both from the standpoint of variable requirements in the degree of curl to be provided in the can end flange and from the standpoint of taking up wear, which might occur in the individual elements. Furthermore, it becomes possible to a certain extent, to operate upon can ends of different diameter. The independent adjustment permitted by the construction just described is of particular importance in the commercial operation of the machine, it being thereby possible to meet the exacting requirements of operation upon various can ends in which a nicety of dimension is essential.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention, the form hereinbefore described being merely a preferred embodiment thereof.

I do not claim broadly herein the inner and outer curling units having a plurality of sets of cooperating curling grooves and arranged at different levels, the same being the subject in part of my Patent No. 1,515,695, dated Nov. 18, 1924.

I claim:

1. A can end flange curling machine, comprising a plurality of sets of grooved curling steels arranged in superposed relationship, means for moving the can ends successively through the grooves of said steels, and means for adjusting said steels individually to vary the extent of flange curling action by each thereof.

2. A can end flange curling machine, comprising a plurality of grooved curling segments arranged in superposed relationship, means for passing the ends through the curling grooves of said segments successively, and means for individually adjusting said segments.

3. A can end flange curling machine, comprising a plurality of grooved curling segments arranged in superposed relationship, means for passing the ends through the curling grooves of said segments successively, and means for individually adjusting said segments to vary the extent of flange curling action by each thereof.

4. A can end flange curling machine, comprising a plurality of sets of grooved flanging members arranged in superposed relationship, means for passing the can ends between the members of each of said sets, and means for individually adjusting a member of each said set to vary the degree of curling action.

5. A can end flange curling machine, comprising grooved curling elements co-operating to move the can end therebetween and curl the flanges thereof, said elements being arranged in double-deck formation and certain elements at each level being individually adjustable to vary curling action thereof.

6. A can end flange curling machine, comprising a chute for the can ends, flange curling devices operating upon the ends delivered from said chute, said devices comprising individual sets arranged in superposed relationship, and means for individually adjusting each set of said devices.

7. A can end flange curling machine, comprising a frame of circular formation having outer grooved members arranged in superposed relationship, a rotary curling device arranged inwardly from said grooved members and being correspondingly grooved to co-operate therewith to curl the can end flange, and means for individually adjusting said outer grooved members to vary the distance thereof from said rotary curling device.

8. A can end flange curling machine, comprising a frame having a plurality of outer grooved members arranged one above the other, a correspondingly grooved rotary member disposed inwardly from said outer grooved members and adapted to co-operate therewith to move and operate upon the can ends, means for transferring the ends from one of said outer grooved members to another, and means for individually adjusting said members to vary the distance thereof from said co-operating rotary member.

9. A can end flange curling machine, comprising a chute for delivering the can ends,

a plurality of sets of curling members arranged in superposed relationship, and means for individually adjusting the members of said sets to vary the distance therebetween.

10. A can end flange curling machine, comprising means for delivering the can ends, flange curling devices adapted to engage the delivered ends and being arranged in separate sets in superposed relationship, means for adjusting the members of one of said sets relative to the members of another set, and means for transferring the ends from one set of said devices to another.

JOHN F. PETERS.