June 4, 1929. G. B. PICKOP 1,715,782

METAL SHIPPING CONTAINER

Filed April 16, 1924

Fig. 1.

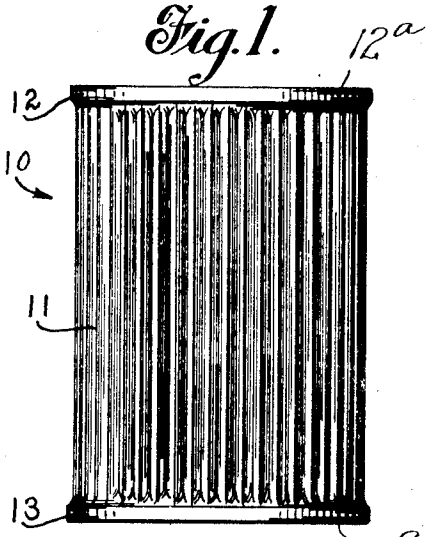



Fig. 4.

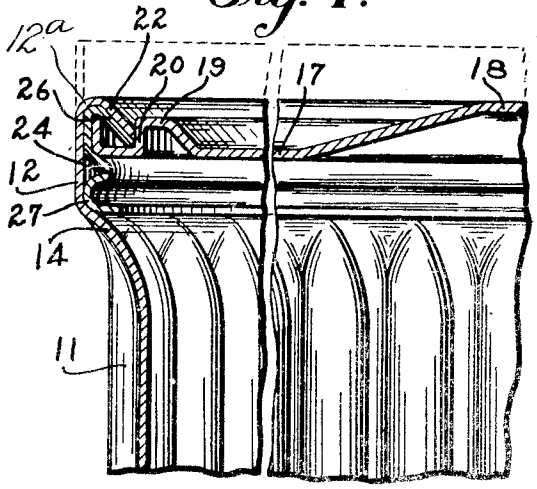



Fig. 2.

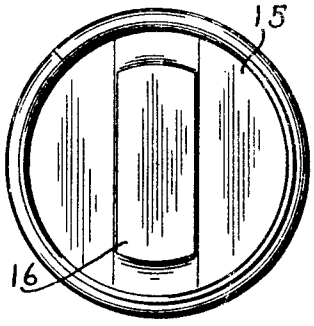



Fig. 5.

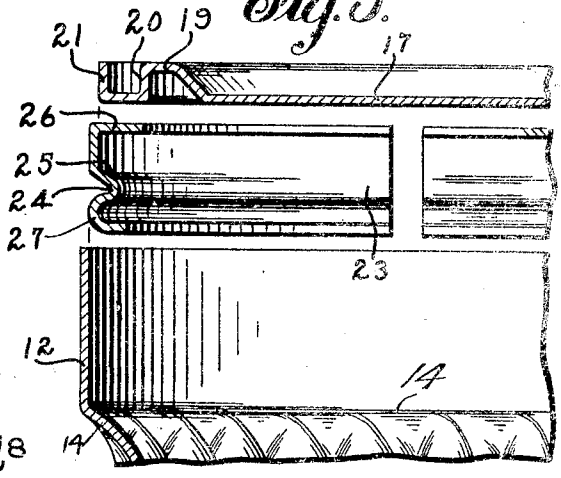



Fig. 3.

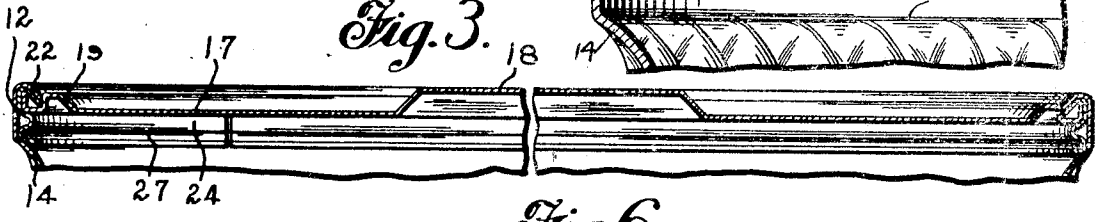
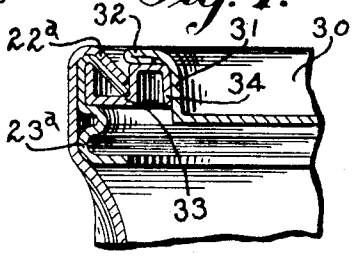



Fig. 6.




Fig. 7.




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# UNITED STATES PATENT OFFICE.

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## METAL SHIPPING CONTAINER.

Application filed April 16, 1924. Serial No. 706,925.

This invention relates to containers and more particularly to a shipping container designed to hold relatively heavy material, such as, lime, semi-liquid substances, or metallic articles, such as, nails, pipe fittings or the like, and to this end is constructed in such a manner that it will be strong, durable and tightly made, and at the same time be relatively light and comparatively inexpensive. At the present time, such containers are made of wood or at least partly of wood, and as a result, are heavier and more expensive as well as less durable than those embodying my invention.

One object of the invention is to provide a shipping container which will be relatively light and inexpensive and at the same time be of great strength.

Another object of the invention is to provide a metal shipping container in which heavy material may be shipped, which will be of relatively light weight and at the same time be provided with tight joints to prevent leakage of the contents and which will be relatively cheap to manufacture.

A still further object of the invention is to provide an improved shipping container for heavy substances, which may be readily closed at one end after being filled and at the same time be opened with facility when it is desired to remove the contents.

Other objects of the invention are to improve generally shipping containers of the character specified so that they will be less expensive than those in use at the present time, and at the same time will possess greater strength and durability and be more easily opened and closed.

To these and other ends the invention consists in the novel features and combination of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a side elevational view of a shipping container embodying my improvements;

Fig. 2 is a bottom view of the same;

Fig. 3 is a transverse sectional view through the container top;

Fig. 4 is an enlarged sectional view of the upper portion of the container;

Fig. 5 is a composite view showing the assembly of the various parts of the top portion of the container;

Fig. 6 is a view similar to Fig. 3, showing a modified form of my invention, and,

Fig. 7 is a view similar to Fig. 4 of the modifications shown in Fig. 6.

The preferred embodiment of my invention which I have selected to illustrate and describe, comprises a metal container designated generally by the numeral 10, the wall of which is corrugated for the greater part of its height, as shown at 11, the top and bottom edges of the walls, however, being left plain to provide upper and lower flanges 12 and 13, which flanges are turned inwardly at the ends of the container to form the chimes $12^a$ and $13^a$. The process of corrugation tends to reduce the diameter of the corrugated part of the container to some extent, so that as shown in Fig. 5, an annular shoulder 14 is formed between the upper and lower flanges 12 and 13 and the corrugated portion 11. The bottom 15 of the container may be constructed in any approved manner so that it will be sufficiently strong to withstand the usage to which it will be subjected in shipping. It may, however, be constructed similarly to the top or head of the container, which will be described in detail hereinafter. Preferably the bottom will be provided with an outwardly pressed panel or section 16, the surface of which will, in the completed container, be substantially flush with the edge of the chime $13^a$ so as to rest upon the floor or support and assist in sustaining the weight of the contents. This construction will prevent the bottom of the container from being sprung or bulged downwardly at its central portion, due to the great weight which it must sustain when heavy articles are shipped therein.

The head or top of the container is shown at 17, and is provided with a raised panel 18 similar to that described in connection with the container bottom. The head is provided with an annular corrugation 19, adjacent its edge. The outer wall 20 of this corrugation will preferably be arranged in a substantially vertical position as shown, for a purpose to be more fully explained hereafter. The extreme edge of the head is

turned upwardly to provide the vertically extending flange 21 over which the upper edge portion 22 of the flange 12 may be turned to secure the head in place. Between the vertically extending portions 20 and 21 is formed a channel, the bottom of which provides means for supporting a head from the shoulder 14, as will be presently described.

Instead of securing the head directly to the chime a portion of the flange 12, however, I prefer to place between the two a reinforcing ring which not only serves to assist in securing the head properly in place but also serves to reinforce or strengthen the chime, so that there will be no danger of the top of the container being distorted out of its normal shape during the process of handling. This ring may be of an especially constructed design, as shown more particularly in Fig. 5, wherein the split ring 23 of substantially annular shape is provided with an inwardly extending corrugation 24 to provide the shoulder 25. The upper edge of the ring is turned over to provide the inwardly extending flange 26. Below the shoulder 25 may be formed one or more corrugations 27, which serve to give additional strength to the ring and thereby give added reinforcement to the container.

In assembling the parts which are constructed as described and shown more particularly in Fig. 5, the head 17 is placed within the reinforcing ring below the flange 26, with the bottom of the channel between the vertically extending portions 20 and 21 seating upon the shoulder 25, the ring being expanded for this purpose which expansion is readily permitted due to the fact that it is split or discontinuous as described. When the ring and head have been thus assembled they are placed within the upstanding chime portion of the flange 12, the lower part of the corrugation 27 of the ring resting upon the annular shoulder 14, previously described. The upper edge of the flange 12 is then turned over the head, as shown at 22 in Fig. 4, which operation also serves to turn downwardly the flange 26 until the edges of both flanges are seated against the upstanding wall 20 of the head, and preferably as nearly as possible in the angle formed by this upstanding wall and the adjacent horizontal portion of the head.

It will be apparent that by this construction, the head will be effectively secured in position and likewise the upper portion of the container will be reinforced not only by the head being positioned within and gripped by the edge of the container wall but also by the reinforcing ring used in connection therewith. Moreover, the joint between the head and the container will be relatively tight so as to prevent the leakage of the contents and to prevent the entry of any considerable amount of air to the contents, which might be undesirable in the shipment of such substances as lime, for example, which would be deleteriously affected. If a still tighter joint is required it will be obvious that a cord or other packing may be laid in about the head when the parts are assembled.

In opening the container it will only be necessary to straighten out the turned portion 22 of the chime, as shown in dotted lines in Fig. 4, by means of a claw hammer or the like, and the head together with the ring 23 may be readily removed. If desired, however, the part of the head within the corrugation 19 may be cut out with a chisel to remove the contents, as in many cases it will not be desired to use the container more than once for shipping purposes.

In Figs. 6 and 7 of the drawings, I have shown a somewhat modified form of my invention wherein the container is provided with a cover 30 designed to be held in place by friction so that it may be more readily removed when it is desired to empty the container of its contents. I prefer to use with this construction a reinforcing ring $23^a$, similar to the part 23 described in connection with that form of my invention, shown in Figs. 1 to 5. The head 30 is provided with a peripheral flange 31 and the edge may be turned over, as shown at 32, to provide a stiffening bead. The head may be made of sufficient diameter so that the flange 31 will fit snugly within the turned portion $22^a$ of the chime, but I prefer to use a supplemental reinforcing ring 33 corrugated and shaped in a manner similar to the edge of the head 17 and provided at its inner edge with an annular flange 34, designed to snugly receive the flange 31 upon the head so that the latter will be held securely in place by friction. It will be apparent that a container constructed in this way will possess all of the advantages described in connection with the form of my invention, shown in Figs. 1 to 5, and in addition the head may be more readily put into place and removed. As shown in Fig. 6 the head 30 is also provided with the raised panel 35 to assist in sustaining the weight of the contents if the container is turned up-side-down.

It will be apparent that a shipping container constructed according to my invention will be strong and durable, and at the same time may be made of relatively light metal, due to the fact that the parts which are subjected to the greatest strain are effectively reinforced to be able to withstand such strain. For this reason, and due to the simplicity of the structure, such containers may be made cheaply and they are, of course, of relatively light weight, which is a feature desired of such articles.

It will be seen that the chime of the bar-

the head, and secured within and below the upper edge portion of the receptacle and said ring being disposed between the inner surface of the receptacle wall and the periphery of the head.

7. A shipping container comprising a receptacle closed at the bottom, a head for said receptacle, and means for securing the head in place, comprising a split reinforcing ring encircling the head and provided with a channel in which the peripheral edge of the head is received and gripped, and said ring being secured within the upper edge portion of the receptacle, the said upper edge being turned downwardly over the ring to hold it in place.

8. A metal shipping container comprising a receptacle having a longitudinally corrugated body portion, closed at the bottom, an uncorrugated flange adjacent the upper edge thereof, and a projecting shoulder below the flange formed at the upper ends of the corrugations, a head for the receptacle, and means for securing said head in place, comprising a separately formed reinforcing ring adapted to embrace the head, said ring being seated on said shoulder and having the edge of the flange turned over the upper edge thereof to form the chime and secure the ring and head in place.

9. A metal shipping container comprising a receptacle having a longitudinally corrugated body portion, closed at the bottom, a flange at the upper edge of the body and separated from the corrugated portion by a projecting shoulder, a head for said receptacle provided with an annular channel adjacent its periphery, a reinforcing ring embracing the periphery of the head and provided with a flange extending over said channel, said ring being seated upon the shoulder of the receptacle, and the upper edge of the receptacle flange being turned over upon the ring flange, and both said flanges being pressed into said channel.

10. A metal shipping container comprising a receptacle, the body portion of which is provided with a longitudinally corrugated wall, a flange at the upper edge of the wall and separated from the corrugated portion by a projecting shoulder, a reinforcing ring adapted to be placed within said flange and seat upon said shoulder, said ring being provided with a seat for the container head and a part above said seat to abut the container flange, a head for the receptacle adapted to rest upon said seat and provided with a peripheral flange adapted to abut the said part of the ring, and the upper edges of the reinforcing ring and the flange of the wall of the receptacle being turned over the flange of the head whereby the head is secured in place and the chime is formed of the outer wall of the receptacle, the wall of the reinforcing ring, and the peripheral flange upon the head.

11. A metal shipping container comprising a receptacle the wall of which is provided with longitudinal corrugations and with a flange at its upper edge, a reinforcing ring adapted to seat upon the upper ends of the corrugations, said ring being provided with supporting means for the head of the receptacle, and with a wall portion adapted to abut the flange, a head adapted to rest upon said means and provided with an upwardly projecting peripheral flange to abut the wall portion of the ring, the outer edges of the receptacle flange and the wall portion of the ring being turned over the head flange, whereby the parts are secured firmly together and a chime is formed of the wall flange of the receptacle, the wall of the ring, and the flange of the head.

12. A metal container having a longitudinally corrugated wall and a flange at the upper edge thereof, a reinforcing ring within the upper portion of the container and having oppositely disposed corrugations therein, the lower of said corrugations being seated upon the upper ends of the corrugations of the wall, a head member seated upon the upper corrugation of the ring, and the flange of the container being turned inwardly over the ring and head to hold said members in place.

13. A metal shipping container comprising a receptacle having its wall outwardly displaced adjacent the upper end thereof to provide an interiorly arranged upwardly facing shoulder, and a sheet metal head within the container above the shoulder and supported from the shoulder, said head being provided with a peripheral vertically extending flange disposed adjacent the container flange, the upper edge of the latter flange being turned over the vertically extending flange of the head to form the chime and to secure the head against the outward displacement, said head also being provided with a vertically extending portion spaced from the flange to provide a channel portion therewith, and said head being supported at said channel portion against inward displacement.

14. A reinforcing element for metal containers, comprising a split ring adapted to be secured within the container adjacent the edge thereof, said ring being provided with a seat for the container head and with a reinforcing corrugation below said seat, and having a wall portion above the seat adapted to be turned inwardly over the edge of the head to secure the latter in place.

15. A reinforcing element for metal containers comprising a split ring adapted to be secured within the wall of the container and adjacent the edge thereof, so as to lie

rel, which is that part of the lateral wall which projects beyond the head, is particularly strong and rigid, in that it consists of at least three thicknesses of material the exterior layer of which is the flange portion 12 of the barrel, next, that part of the reinforcing ring below the flange 26, and third, the upwardly extending flange 21 of the head 17. These three parts of the chime are held tightly together by means of the turned over portions 22 and 26 of the flange 12 and the reinforcing ring, and the chime will be further strengthened by these two additional layers of material. As the strength of the chime of the container is an important factor in the ability of the structure to withstand strain, it will be seen that by including within the chime parts of the three elements of which the end of the container is made, this part of the structure will be particularly strong and durable.

Moreover, it will be apparent that as the reinforcing ring is seated at its lower end upon the shoulder 14, formed by the upper end of the corrugations, that the strain to which the chime is subjected is transmitted immediately not only through the flange 12, but through this reinforcing ring to the corrugated body 11 of the barrel, to be resisted thereby instead of by the plain or uncorrugated flange 12. The strain, therefore, upon the edge 22 is transmitted by the reinforcing ring as well as by the upper flange 12, and for this reason the use of the reinforcing ring is especially advantageous, as it not only gives lateral support to the flange 12, but also transmits the strain directly to the corrugated body portion of the container.

By reason of the simple character of the structure of the ends of the container and the ease by which the end portions are assembled, I can ship the containers in a knocked-down condition, and they may be readily assembled when it is desired to use them, the body portion of the container being provided with the usual interlocking edge portions for this purpose. The body portions of the barrels are sprung outwardly so that a number of them may be nested together and the reinforcing rings and heads may be likewise packaged together so that a great economy in space results.

While I have shown and described some preferred embodiments of my invention, it will be understood that it is not to be limited to all the details shown but is capable of modification and variation within the spirit of the invention and within the scope of the appended claims.

What I claim is:

1. A sheet metal shipping container comprising a receptacle closed at the bottom, a head for said receptacle secured therewithin, and means for securing said head in the receptacle mouth including a reinforcing ring surrounding the head and secured at the periphery of the receptacle mouth between the inner surface of the receptacle wall and the head to reinforce the wall, the container wall being provided with inwardly extending projections above and below the ring to hold the latter in place.

2. A sheet metal shipping container comprising a receptacle having an inwardly extending projection adjacent the upper end thereof, a reinforcing ring having a lower corrugation seated on said projection and an upper corrugation to support the container head, a head seated on the upper corrugation and embraced by the ring, and means for locking the ring and head in place, said ring being disposed between the inner surface of the receptacle wall and the periphery of the head.

3. In a metal shipping container, a receptacle having at its upper end an outwardly offset vertically extending flange, and an inwardly directed shoulder below said flange, a sheet metal head for said container positioned within the flange, said head having a channel adjacent its edge formed between vertically extending portions, the bottom of said channel being supported from the inwardly directed shoulder with the outer of said vertically extended portions being disposed closely adjacent the flange of the container, and the upper end of said flange being turned over the outer of said vertically extending portions to form the chime and secure the head against outward displacement.

4. A shipping container comprising a receptacle having longitudinally corrugated walls, a head for said receptacle, and means for securing the head in place comprising a separately formed reinforcing ring seated on the ends of the corrugations and embracing the periphery of the head, and said ring being secured within the upper edge portion of the receptacle and having the receptacle wall turned inwardly thereover to hold it in place.

5. A sheet metal shipping container comprising a receptacle closed at the bottom, a head for said receptacle, and means for securing the head in place comprising a separately formed reinforcing ring surrounding the head and provided with a seat upon which the head is received, and said ring being held in place between inwardly extending projections on the receptacle wall, said ring being disposed between the inner surface of the receptacle wall and the head.

6. A sheet metal shipping container comprising a receptacle closed at the bottom, a head for said receptacle, and means for securing the head in place, comprising a separately formed reinforcing ring encircling the head and provided with means to grip

between the wall of the container and head, said ring being provided with a seat for the container head and with a terminal inwardly extending flange above said seat, said terminal flange being adapted to be turned over the periphery of the head to secure it firmly upon its seat.

16. A metal shipping container comprising a receptacle provided with a flange at its upper end, a head for said receptacle, said flange adapted to be turned over the edge of the head to form a chime, and means for reinforcing the chime, comprising a separately formed split ring adapted to be inserted between the receptacle wall and the head, said ring being provided with means to grip the head and secure it in place, and means for securing the ring to the flange of the receptacle.

17. A metal shipping container comprising a receptacle and a head therefor, means to secure said head within the upper edge of the receptacle comprising a separately formed reinforcing ring adapted to support the head, means for supporting said ring upon the wall of the receptacle, and the upper edge of the receptacle being turned inwardly over the ring to secure it in place.

18. A metal shipping container comprising a receptacle the wall of which is provided adjacent its upper end with an interior upwardly directed shoulder, and a vertically extended outwardly offset flange above said shoulder, a head for the container made of sheet metal, the material adjacent the edge of the head being turned downwardly and then upwardly to provide a channel and a peripheral vertically extending flange, said channel being supported from said shoulder against inward displacement, and the upper edge of the receptacle flange being turned over the peripheral flange of the head and lodged within said channel to form the receptacle chime and to secure the head against outward displacement.

19. A metal shipping container comprising a longitudinally corrugated receptacle, having said corrugations terminating adjacent their upper ends in an interior upwardly directed shoulder, and an outwardly offset flange adjacent said shoulder, a sheet metal head for the receptacle disposed within said flange, said head being formed with spaced vertically extending portions adjacent its edge to provide a channel therebetween, the bottom of said channel being supported from the receptacle shoulder against inward displacement, and the edge of the receptacle flange being turned over the outer of said vertically extending portions of the head into the said channel and there lodged against the inner of said vertically extending portions to form the chime of the receptacle and to secure the head against outward displacement.

20. In a metal shipping container, a body having an end portion thereof shaped to form an outwardly offset vertical chime and an intermediate upwardly facing internal shoulder, and a sheet metal head having an integral rim supported from said shoulder and embraced by said chime, said rim embodying separate parallel related members and said chime having its terminal edge turned into overlying seated relation to said rim.

21. In a metal shipping container, a body having an end portion thereof shaped to form an outwardly offset vertical chime and an intermediate upwardly facing internal shoulder, and a head having an integral rim supported from said shoulder and embraced by said chime, said rim embodying separate parallel related members and said chime having its terminal edge turned into overlying relation to one of said parallel members and seated against said head between said members.

In witness whereof, I have hereunto set my hand this 11th day of April, 1924.

GEORGE B. PICKOP.