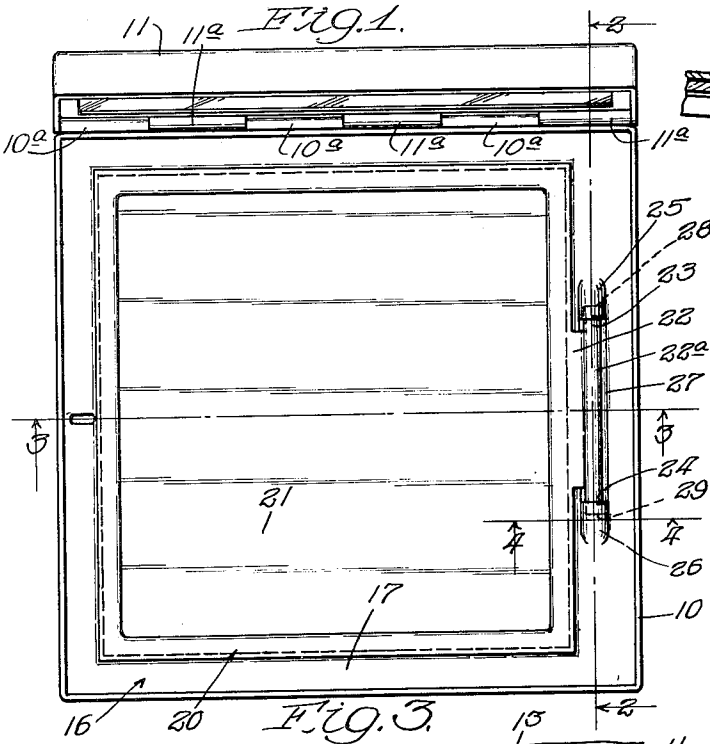
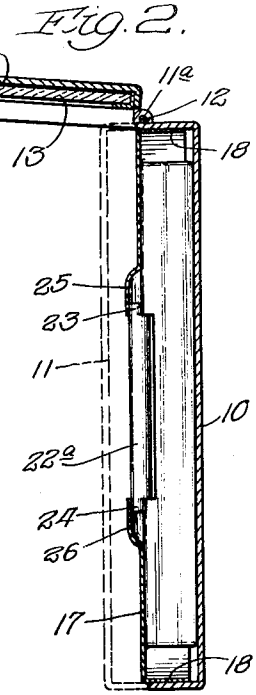
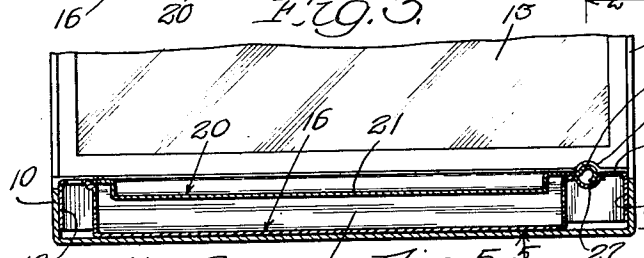
Jan. 13, 1953 E. S. IRELAN 2,624,908

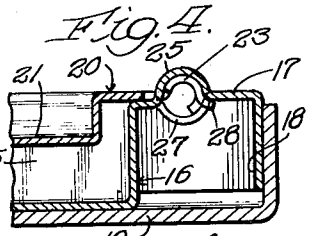
HINGE CONSTRUCTION

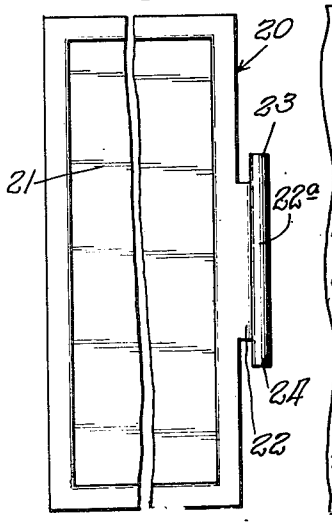
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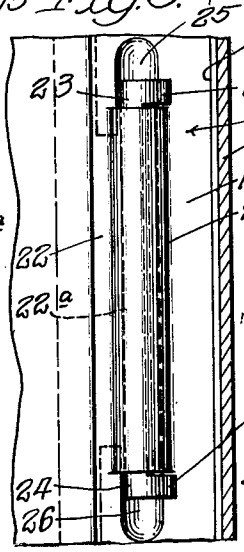


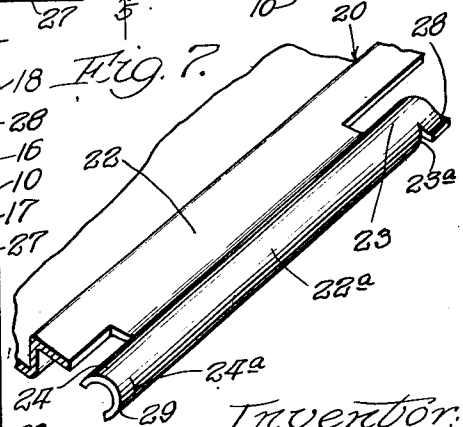




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# UNITED STATES PATENT OFFICE

2,624,908

## HINGE CONSTRUCTION

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10 Claims. (Cl. 16—128)

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This invention relates to a hinge construction, and more particularly to a hinge construction having positive locking means but no hinge pin.

One feature of this invention is that it provides an improved hinge construction; another feature of the invention is that it provides a hinge construction having positive locking means but no hinge pin; a further feature of the invention is that it provides a hinge construction between one member having a socket comprising a pair of pockets positioned with their open ends facing each other, and another member having tongues which are received in said pockets to form a hinge between said members, said tongues having means thereon for preventing lateral movement between the members; yet another feature of the invention is that lugs are provided on the tongues, said lugs being adapted to be bent to engage the socket and lock the tongues in the pockets, while permitting pivotal movement between the two members; still a further feature of the invention is that the distance between the open ends of the pockets and the distance between the tongues is such that the hinge can be assembled without bending the tongues or slitting the socket; and still another feature of the invention is that the socket includes a downwardly bent channel connecting said pockets for receiving an elongated projecting portion connecting the tongues, said tongues and the edge of said elongated portion between said tongues being curved to provide complementary bearing surfaces when the hinge is assembled.

Other features and advantages of the invention will be apparent from the following description and from the drawings in which:

Fig. 1 is a plan view of a powder compact incorporating the improved hinge construction, the case of the compact being open;

Fig. 2 is a section along the line 2—2 of Fig. 1, the case being shown open in solid lines and closed in broken lines; and part of the open case being broken away;

Fig. 3 is a section along the line 3—3 of Fig. 1, a portion of the top of the case being broken away;

Fig. 4 is an enlarged fragmentary section along the line 4—4 of Fig. 1;

Fig. 5 is an enlarged fragmentary section along the line 5—5 of Fig. 3;

Fig. 6 is a top elevational view of the cover member for the powder compartment, the center section being broken away; and

Fig. 7 is a fragmentary perspective of a portion of said cover member.

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Many compacts have a body member with a compartment for loose powder, which compartment may be closed by a hingedly mounted cover member designed to prevent loose powder from falling out of the powder compartment. In prior art constructions the cover which closes the powder compartment has been hinged to the back or to one side of the body member which provides the powder compartment by a hinge arrangement including alternate interleaved segments on the body member and on the cover member held together by a hinge pin extending through the segments. Getting the parts together in proper alignment and putting the pin in place is a time-consuming manual operation which adds considerably to the cost of construction of said compacts. Other hinge constructions have been known wherein the hinge pin was eliminated by providing a slit socket in the body member for receiving tongues on the cover member. Such hinge constructions have never been used commercially in compacts, and such constructions do not provide a hinge which would positively hold the cover member against movement laterally of the body member. Consequently the cover member would not provide a good seal and powder could escape from the powder compartment when the cover was closed.

I have devised and am herewith disclosing and claiming a hinge construction in which the hinge pin is eliminated, and which is readily adapted for fast and efficient production line assembly, thereby decreasing the cost of manufacture of such compacts. The hinge construction is sturdy and provides a self-locking arrangement which positively prevents lateral movement between the cover and the body member so that the cover properly closes the powder compartment opening. This construction includes a socket comprising spaced pockets on the body member and tongues on the cover member fitting into said pockets. A positive locking action against lateral movement is provided by lugs on the tongues which, when the parts are assembled, are bent into a position closely adjacent the socket to lock the cover member against lateral movement with respect to the body member.

Referring now more particularly to the drawings, the compact illustrated comprises an outer case having a rectangular box-like bottom portion 10 and a complementary top portion 11 which is hingedly mounted on the bottom portion along one edge by a hinge comprising alternate interleaved segments 10*a* on the bottom portion 10 and 11*a* on the top portion 11, and a

hinge pin 12 joining the portions together. A mirror 13 may be carried in the top portion 11 as is conventional.

A compartment 15 for loose powder is formed as a well in the upper surface of a body member designated generally at 16. This body member is die stamped from metal or other suitable sheet material and is formed with a horizontal peripheral surface 17 bounding the well which forms the powder compartment 15, and outer downwardly turned flanges 18 which provide a snug friction fit within the upturned walls of the outer case 10. A cover member designated generally at 20 is provided to close the powder compartment. This cover member may have a well 21, as shown best in Figs. 3 and 4, for the reception of a powder puff.

The member 20 has an elongated portion 22 projecting along one edge, and tongues 23 and 24 extend longitudinally from each end of the projecting portion. As shown best in Figs. 6 and 7 the tongues are aligned and spaced from the edge of the cover 20 and are parallel thereto. As shown best in Fig. 7, the tongues and the edge 22*a* of the projecting portion between the tongues are arcuate in transverse section.

A socket is provided in one of the top flanges 17 of the body member 16, this socket comprising a spaced pair of pockets 25 and 26 punched upwardly out of the sheet metal and positioned with their open ends facing each other. A channel 27 (Figs. 3 and 4) is bent downwardly in the sheet metal of the body member 16 and connects the pockets. The channel 27 is as long as the projecting portion 22 and one of the tongues, and the socket is circular in transverse section at the junctures of the channel and the pockets, as seen in Figs. 3 and 4. The radius of the arcuate tongues 23 and 24 and portion 22*a* is substantially equal to the radius of the circular socket so that when the members are assembled a large bearing surface is provided to permit pivotal movement of the cover with no looseness.

The projecting portion 22 and tongues 23 and 24 may be formed in the cover member in the same die stamping operation which forms the cover member; and similarly the socket may be formed in the body member in the same die stamping operation in which the body member itself is formed.

Inasmuch as the distance between the open ends of the pockets 25 and 26 (or in other words the length of the channel 27) is equal to the length of the portion 22 plus one of the tongues, the cover and body member may readily be assembled merely by inserting one tongue (as the tongue 24) in the pocket 26 and pushing the cover member toward the pocket 26 as far as it will go so that the other tongue 23 may drop down into the channel 27. In this position, of course, the cover member will be off-center and the well 21 for the powder puff will not be centered in the well 15. The cover is then moved in the other direction to center it and to cause both tongues to lie within the respective pockets.

In order to prevent relative movement between the cover member and the body member in directions longitudinal of the elongated portion 22 and the tongues 23 and 24, means are provided on said tongues for preventing such movement. This means comprises lugs 28 and 29 shown best in Figs. 4, 5 and 7. During the stamping operation which forms the cover, the tongues are slit transversely of their longitudinal axis, as shown at 23*a* and 24*a* in Fig. 7. Of course, at this time the lugs



are not bent outwardly. Fig. 7 shows the lug 29 in the position in which it is formed, while the lug 28 is shown as being bent outwardly better to illustrate the construction, although the lug 28 would not be bent until after the cover has been assembled on the body member as above described.

When the parts are assembled as above described, the body member is turned over and the lugs 28 and 29 are tapped sharply with a small tool to bend them from the position of the lug 29 in Fig. 7 to the position of the lug 28 in Fig. 7. The lugs are shown best in bent position in Fig. 5, and when they are bent in a direction transverse of the longitudinal axis of the tongues they lie in a position closely adjacent the socket at the junctures of the channel 27 and the pockets 25 and 26, and lock the tongues 23 and 24 against longitudinal movement in the pockets, while permitting pivotal movement between the members 16 and 20 so that the cover may be opened to permit access to the powder compartment. Despite the fact that no hinge pin is utilized, a positive and efficient lock for the hinge is provided so that the parts cannot move laterally with relation to each other. The construction is simple and efficient and materially lowers the cost of assembly of compacts or other articles.

While I have shown and described certain embodiments of my invention, it is to be understood that it is capable of many modifications. Changes, therefore in the construction and arrangement may be made without departing from the spirit and scope of the invention as disclosed in the appended claims.

I claim:

1. A hinge construction of the character described, comprising: a first member having a spaced pair of tongues extending longitudinally along one edge, said tongues being aligned and being spaced from said edge and parallel thereto; a second member having a socket comprising a pair of pockets positioned with their open ends facing each other, said open ends being spaced apart a distance substantially equal to the distance between the inner ends of said tongues plus the length of one of said tongues, said tongues being received in said pockets to form a hinge between said members; and means on said tongues for preventing relative movement between said members in directions longitudinal of said tongues.

2. A hinge construction of the character described, comprising: a member having an edge of sheet material with an elongated portion projecting therealong and a tongue extending longitudinally from each end of said projecting portion, said tongues being aligned and being spaced from said edge and parallel thereto; a second member having a side of sheet material with a socket therein comprising a pair of pockets punched out of said sheet material and positioned with their open ends facing each other, said open ends being spaced apart a distance greater than the length of said projecting portion, but less than the overall length of said projecting portion and tongues, said tongues being received in said pockets to form a hinge between said members; and means on said tongues for preventing relative movement between said members in directions longitudinal of said projecting portion.

3. Apparatus of the character claimed in claim 2, wherein the open ends of said pockets are

spaced apart a distance substantially equal to the length of said projecting portion and one of said tongues, and wherein the means for preventing longitudinal movement comprise lugs on said tongues adapted to be bent outwardly in a direction transverse of the longitudinal axis of said tongues and to extend beyond the portion of the sheet metal side intermediate said pockets to lock said tongues in said pockets, while permitting pivotal movement between said members.

4. Apparatus of the character claimed in claim 2, wherein said socket is generally arcuate in transverse section, and wherein said tongues and projecting portion are arcuate in transverse section, said tongues each having a radius slightly smaller than that of the corresponding pocket and fitting snugly therein with a pivotal relationship thereto.

5. A hinge construction of the character described, comprising: a member having an edge of sheet material with an elongated portion projecting therealong and a tongue extending longitudinally from each end of said projecting portion, said tongues being aligned and being spaced from said edge and parallel thereto, and said tongues and the edge of said projecting portion between said tongues being arcuate in transverse section; a second member having a side of sheet material with a socket therein comprising a spaced pair of pockets punched upwardly out of said sheet material and positioned with their open ends facing each other, and a channel bent downwardly in said sheet material and connecting said pockets, said channel being at least as long as said projecting portion and one of said tongues, and said socket being arcuate in transverse section, the arcuate edge of said projecting portion being received in said channel and said tongues entering said pockets to form a hinge between said members; and means on said tongues engaging said socket at the junctures of said channel and pockets to lock said tongues against longitudinal movement in said pockets while permitting pivotal movement between said members.

6. Apparatus of the character claimed in claim 5, wherein said locking means comprise lugs on said tongues adapted to be bent outwardly in a direction transverse of the longitudinal axis of said tongues and to extend beyond the portion of the sheet metal side intermediate said pockets.

7. Apparatus of the character claimed in claim 5, wherein the radius of the arcuate tongues and projecting portion is slightly less than the radius of the arcuate socket so as to fit snugly therein and have a pivotal relationship thereto.

8. A hinge construction of the character described, comprising: a sheet metal member having an elongated portion projecting along one edge and a tongue extending longitudinally from each end of said projecting portion, said tongues being aligned and being spaced from said edge and parallel thereto, and said tongues and the edge of said projecting portion between said tongues being arcuate in transverse section; a second sheet metal member having a portion providing an opening adapted to be closed by



said first mentioned member and having a socket adjacent said opening comprising a spaced pair of pockets punched upwardly out of said sheet metal and positioned with their open ends facing each other, and a channel bent downwardly in said sheet metal and connecting said pockets, said channel being as long as said projecting portion and one of said tongues, and said socket being arcuate in transverse section at the junctures of said channel and pockets, the curved edge of said projecting portion being received in said channel and said tongues entering said pockets to form a hinge between said members; and lugs on said tongues adapted to be bent in a direction transverse of the longitudinal axis of said tongues and to extend beyond the portion of the sheet metal side intermediate said pockets to lock said tongues against longitudinal movement in said pockets while permitting pivotal movement between said members.

9. A hinge construction of the character described, comprising: a member having an elongated portion projecting along one edge thereof and a pair of aligned tongues projecting from opposite ends of said elongated portion and spaced from said edge; a second member having a side portion including a pair of spaced pockets each open at one side and one end with the open ends facing each other, the tongues being held in said pockets; and means on at least one of said tongues and engaging an adjecent part of said side portion of the second member for preventing relative movement between said members in directions longitudinal of said elongated projecting portion.

10. A hinge construction of the character described, comprising: a member having an elongated portion projecting along one edge thereof and a pair of aligned tongues projecting from opposite ends of said elongated portion and spaced from said edge; a second member having a side portion including a pair of spaced pockets each open at one side and one end with the open ends facing each other, the tongues being held in said pockets; and a lug on each tongue projecting beyond the part of said second member between the pockets and bearing thereagainst for preventing relative movement between said members in directions longitudinal of said elongated projecting portion.

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