Sept. 21, 1937. J. E. DIAMOND ET AL 2,093,422

APPARATUS FOR APPLYING SEALING FLUID TO CAN BLANKS

Filed Sept. 26, 1935

FIG. 1.

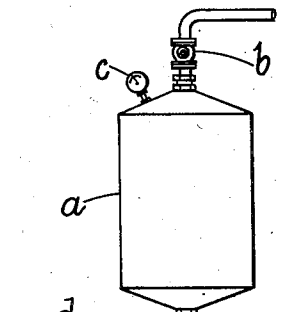


FIG. 7.

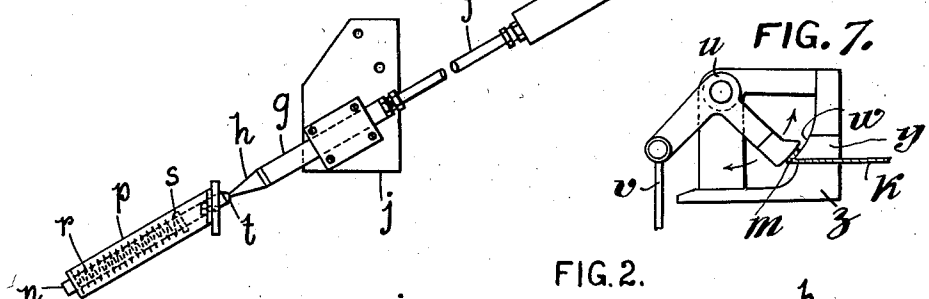
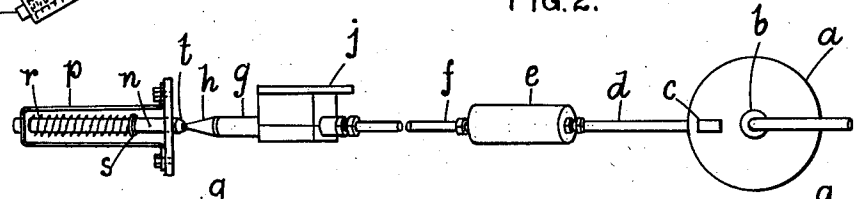


FIG. 2.



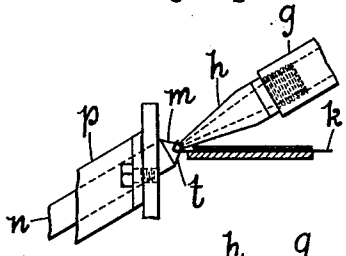


FIG. 3.

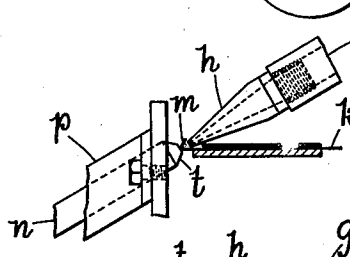


FIG. 4.

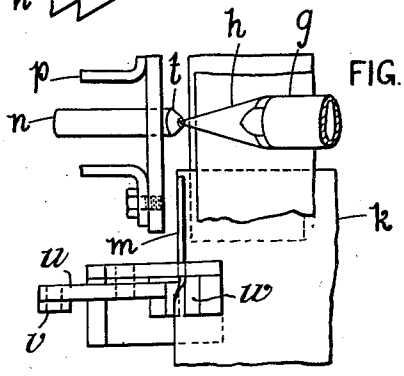


FIG. 5.

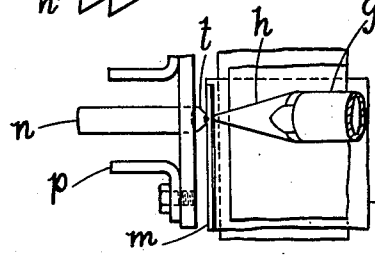


FIG. 6.

Inventors
JAMES EDWARD DIAMOND,
CHARLES WILLIAM PERKINS,
BY
Attorneys

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APPARATUS FOR APPLYING SEALING FLUID TO CAN BLANKS

James Edward Diamond, Gosforth, and Charles William Perkins, Balham, London, England, assignors to James Jermyn Pritty, Surrey, England

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5 Claims. (Cl. 113—1)

The bodies of cans and like containers are commonly formed from blanks appropriately shaped and bent so as to bring two edges together which edges are then coated with sealing material and joined. Preferably the edges of the blanks are bent to form channels adapted to be interlocked with each other. The edges are subsequently nipped together to form an airtight seam.

The object of our invention is to provide an improved apparatus for controlling the supply of sealing material and preventing the splashing and wastage.

The present invention consists in apparatus for applying sealing fluid to the preformed side seam elements of substantially flat blanks adapted to be subsequently bent to form the bodies of cans or like containers, the said apparatus comprising in combination a fixed nozzle provided with an outlet, means for supplying sealing fluid to the said nozzle, a beveled closure member for said outlet external to the nozzle and in substantially axial alignment therewith, a spring adapted normally to maintain the closure in contact with the nozzle outlet to maintain the same closed, and between which closure and the nozzle the preformed side seam elements of each of a plurality of can blanks are adapted to be passed in sequence to each open the outlet from the nozzle whereby sealing fluid is applied to the side seam elements, which outlet is subsequently closed by the spring projected closure in the intervals between the passage of the blanks.

A further feature of the invention consists in apparatus according to the preceding paragraph, wherein the sealing fluid is adapted to issue from the nozzle under pressure.

A further feature of the invention consists in apparatus according to the penultimate paragraph comprising means for bending the edge of the blank upwardly to define with the main portion of the blank an edge of substantially V-section, and means for directing the sealing fluid from the nozzle into the angle formed by said bent edge.

The bending of the edge of the blank upwardly has the added advantage that when during subsequent operations the blank is moved rapidly, the turning up of the edge to form a side seam hook prevents the sealing material from being thrown off in the outward direction as the blank is subjected to the subsequent operations.

We will more fully describe one embodiment of our invention with reference to the accompanying drawing wherein:

Figure 1 is a diagrammatic elevation showing one construction of apparatus in accordance therewith, and

Figure 2 is a plan thereof;

Figures 3 and 4 are elevations to a larger scale showing the valve and adjacent parts, the valve being closed in Figure 3 and open in Figure 4,

Figures 5 and 6 are plan views of Figures 3 and 4 respectively, and Figure 7 is a diagrammatic elevation of a side seam bending device.

Referring to the said drawing, in the example therein illustrated, a storage tank *a* for holding sealing material, e. g. a rubber or latex dope, or the like, is mounted on any suitable part of the can-making machine, said tank being pressure fed and kept at the required pressure by means of a reducing valve *b*. A pressure gauge *c* indicates the pressure in the tank. The sealing material is led through a pipe *d* to a strainer *e*, from which it flows through a pipe *f* to a nozzle holder *g*, one end of which is internally threaded and into which a nozzle *h* is screwed. The nozzle illustrated is of the single hole type, but may be provided with two or more holes. The nozzle holder *g* is mounted on a plate *j* attached to a stationary part of the machine in any suitable manner. One side edge of each blank *k* is turned up to form a side seam hook *m* (see Figs. 3–6). For this purpose a side seam bending device is positioned in the path of the edge of the blank in front of the nozzle *h*, as indicated in Fig. 5. Fig. 7 shows that this device consists of a bell crank *u* having one end operated by a connecting rod *v* from an eccentric (not shown) on the machine and the other end passing across a bevelled plate *w* at an angle of about 45°, thereby bending up the edge *m* of the blank *k* as it passes between supports *y* and *z*. The nozzle *h* is positioned so that the mouth of the nozzle *h* lies just clear of the side seam hook of each blank as it passes through the machine.

Adapted to coact with the mouth of the nozzle *h* is an external closure *n* co-operating with said nozzle *h* and forming a valve, said external closure being mounted in a holder *p* which forms a guide for the stem of the external closure and for a spring *r* which bears between a collar *s* around the stem of the external closure and the rear end of said holder. The holder *p* is suitably attached to a stationary part of the machine adjacent to the nozzle *h*. The head *t* of the external closure *n* is bevelled or rounded and has a central flat portion which is normally held against the mouth of the nozzle *h* by the spring *r*, thus shutting off

the supply of sealing material. The nozzle holder *g*, nozzle *h* and external closure *n* are set at such an angle as to allow the passage of the blanks *k* through the machine and to direct the sealing material into the channel formed by the side seam hook *m*. The head *t* of the external closure *n* is in the path of the side seam hook *m* of each of the blanks as it passes the nozzle *h*.

In operation, the supply of sealing material is normally cut off by the head *t* contacting with the nozzle *h*, but, when the leading edge of the side seam hook *m* of a travelling blank *k* strikes against the bevelled portion of the head *t*, it forces back the external closure *n* against its spring *r* and the bend of the side seam hook *m* allows the sealing material to flow from the nozzle into the channel of the side seam hook *m*, and a layer of sealing material is thus delivered into the channel. When the trailing edge of the travelling blank *k* leaves the head *t*, the spring *r* automatically closes the valve, and the valve remains closed until the next blank comes along.

It will be seen that no sealing material is wasted, as it is only delivered by the nozzle *h* into a preformed channel while each blank is passing the nozzle.

What we claim and desire to secure by Letters Patent is:—

1. Apparatus for applying sealing fluid to the preformed side seam elements of substantially flat blanks adapted to be subsequently bent to form the bodies of cans or like containers, the said apparatus comprising in combination a fixed nozzle provided with an outlet, means for supplying sealing fluid to the said nozzle, a bevelled closure member for said outlet external to the nozzle and in substantially axial alignment therewith, a spring adapted normally to maintain the closure in contact with the nozzle outlet to maintain the same closed, and between which closure and the nozzle the preformed side seam elements of each of a plurality of can blanks are adapted to be passed in sequence to each open the outlet from the nozzle whereby sealing fluid is applied to the side seam elements, which outlet is subsequently closed by the spring projected closure in the intervals between the passage of the blanks.

2. Apparatus according to claim 1 having means for supplying the sealing fluid under pressure to the nozzle.

3. Apparatus according to claim 1, comprising means for bending the edge of the blank upwardly to define with the main portion of the blank an edge of substantially V-section, and means for directing the sealing fluid from the nozzle into the angle formed by said bent edge.

4. Apparatus according to claim 1, having a substantially closed storage tank for the sealing fluid, a pipe for the application of pressure to the said tank, an outlet pipe from the said tank to the nozzle for the passage of sealing fluid to the said nozzle, the parts being arranged in such a manner that the sealing fluid is substantially enclosed prior to its emission from the nozzle outlet.

5. Apparatus according to claim 1, having a substantially closed storage tank for the sealing fluid, a pipe for the application of pressure to the said tank, an outlet pipe from the said tank, a strainer attached to that end of the pipe remote from the tank and an outlet pipe from the said strainer to the nozzle for the passage of sealing fluid thereto, the parts being arranged in such a manner that the sealing fluid is substantially enclosed prior to its emission from the nozzle outlet.

JAMES EDWARD DIAMOND.
CHARLES WILLIAM PERKINS.