

March 16, 1943.

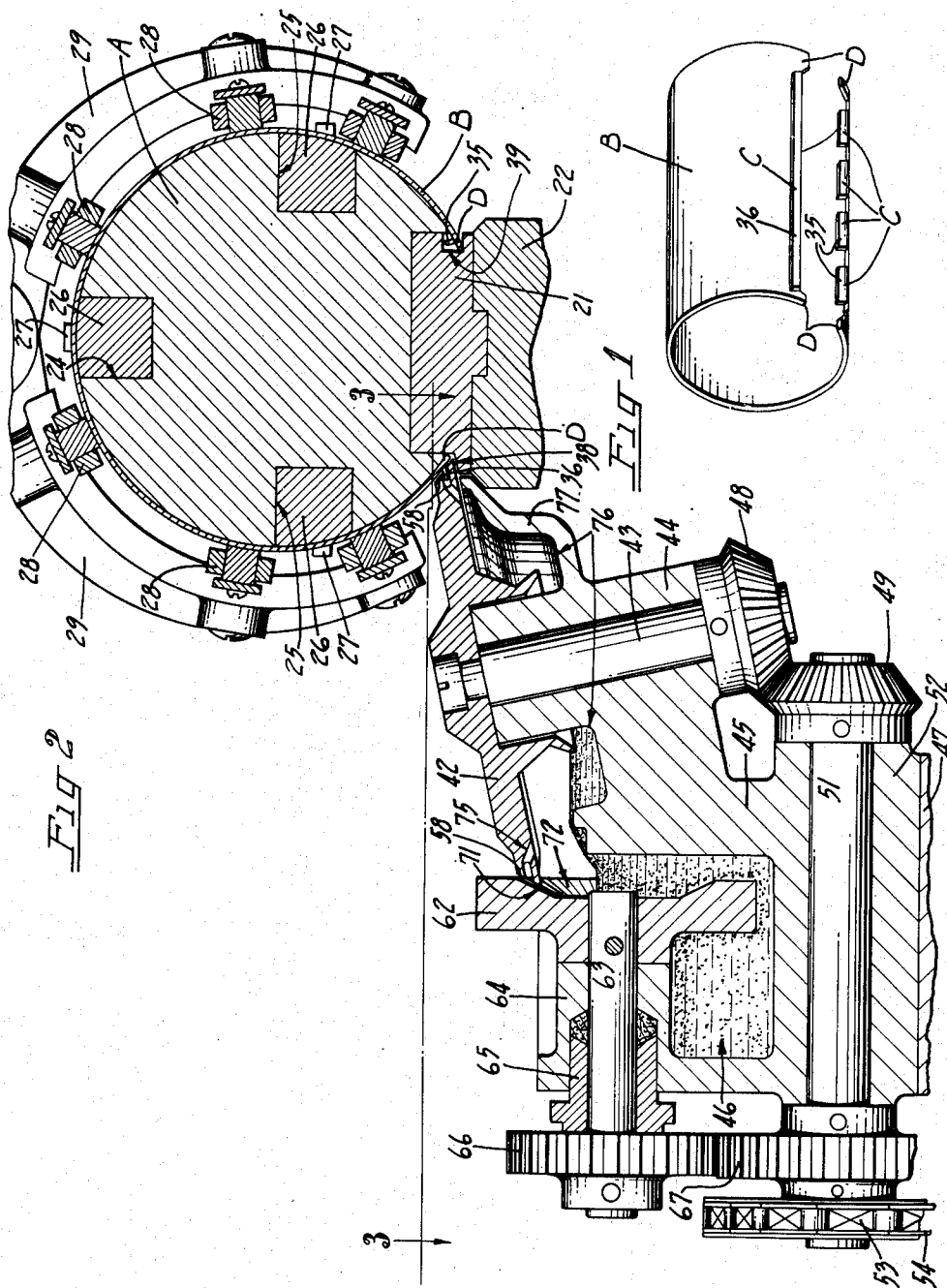
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FLUXING DEVICE

Filed May 23, 1941

2 Sheets-Sheet 1



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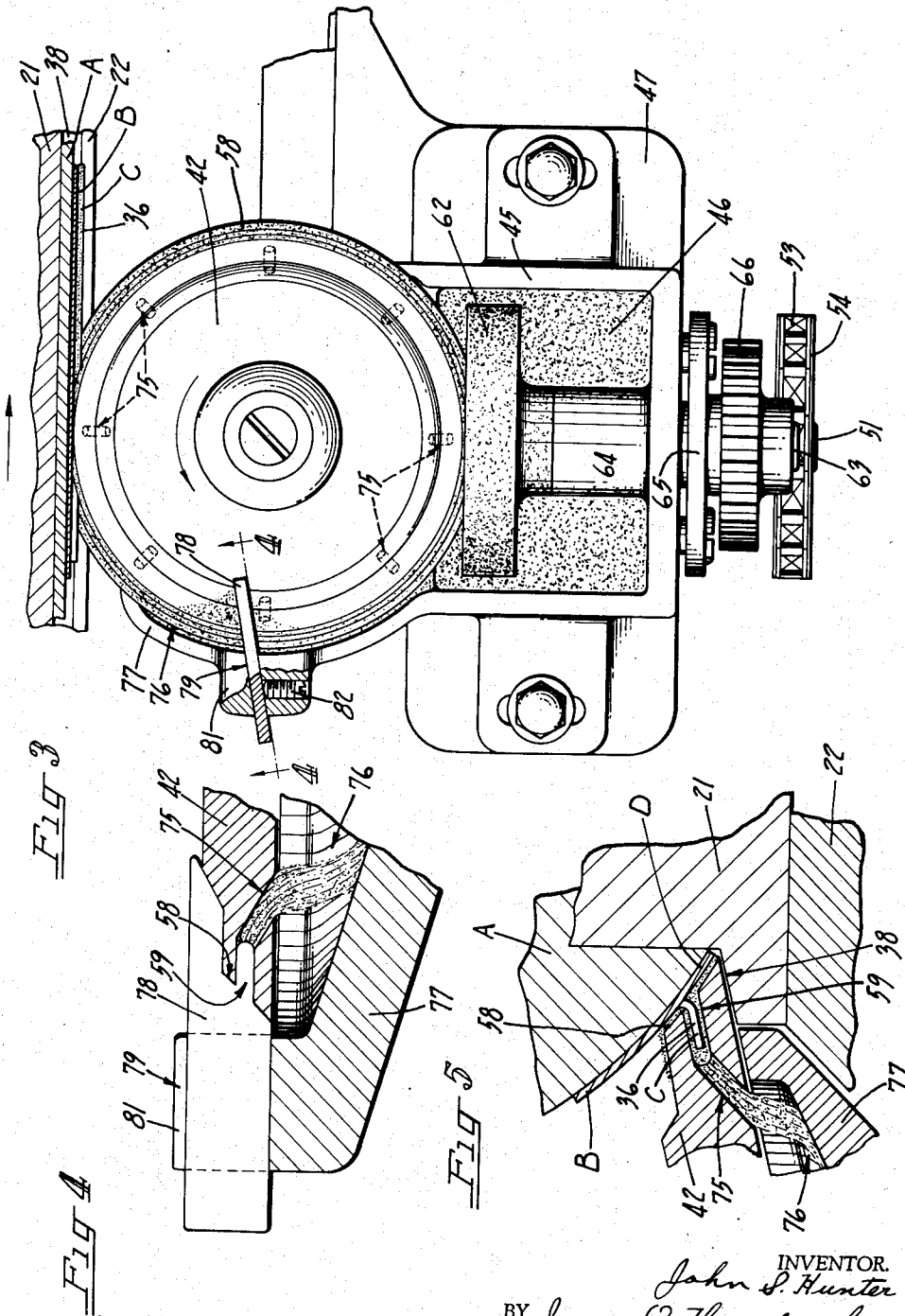
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UNITED STATES PATENT OFFICE

2,313,751

FLUXING DEVICE

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Application May 23, 1941, Serial No. 394,946

5 Claims. (Cl. 113—95)

The present invention relates to a can body making machine or the like and has particular reference to a liquid flux applying mechanism which will deliver a regulated amount of liquid flux to the lap sections as well as to the lock sections of a lock and lap side seam of a can body passing through the can body making machine. This is an improvement on the fluxing device disclosed in United States Patent 2,135,995, issued November 8, 1938, to O. J. Witzke.

In making can bodies it is the usual practice to apply a liquid flux to the inside surfaces of one of the can body side seam hooks so that when the hooks are soldered, after having been interengaged and pressed into a side seam, the solder will flow readily into the seam and form a bond between the hooks. It has been found that for certain kinds of can bodies, the usual fluxing device does not apply a sufficient amount of flux on the lap portions of the can body side seam. When the amount of flux is regulated for the lap portions there is entirely too much applied to the hook portions.

The instant invention contemplates overcoming this difficulty by providing a drained fluxing wheel having a shaped periphery which will apply the correct amount of flux to the lap portion as well as to the hook portion of the side seam of can bodies passing through the body making machine.

An object therefore of the invention is the provision in a can body making machine of a fluxing device wherein a regulated and adequate amount of liquid flux will be delivered and properly distributed onto the lap portions and also onto the hook portions of the side seam of a can body passing through the body making machine so that solder when applied to the can body side seam will flow readily into the inner regions of the lap portions as well as of the hook portions and properly bond these side seam parts together.

Another object is the provision of such a fluxing device wherein the liquid flux is applied by a rotatable wheel having a shaped outer periphery which will simultaneously apply liquid flux to the lap portions and to the hook portions of the side seam of a can body, the periphery being drained to control the quantity of liquid flux applied to the side seam parts.

Numerous 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 perspective view of an open or incomplete can body with its side seam parts disengaged, this being the condition of the body before and during the fluxing operation;

Fig. 2 is a transverse sectional view taken through a can body maker horn and through a flux applying mechanism embodying the instant invention, with parts broken away;

Fig. 3 is a combination plan and sectional view taken substantially along the broken line 3—3 in Fig. 2, with parts broken away;

Fig. 4 is an enlarged sectional detail taken substantially along the line 4—4 in Fig. 3, with parts broken away; and

Fig. 5 is an enlarged sectional detail showing a side seam hook portion and a lap portion of a can body as arranged on a horn and as the body passes through the flux applying device.

As a preferred embodiment of the instant invention the drawings illustrate a portion of a can body making machine mandrel or horn A (Fig. 2) along which partially formed can bodies B (Fig. 1) having side seam hooks C and lap portions D are advanced past an improved fluxing device similar to that disclosed in the above mentioned Witzke patent. As a can body B moves along the horn A one of its hooks C and its adjacent lap portions D receive a deposit of flux.

The mandrel A is preferably mounted on a block 21 which is carried on a body making machine frame 22. The mandrel may be formed with longitudinal top and side grooves 24, 25 in the usual manner. Feed bars 26 operating in these grooves propel the can bodies B along the mandrel. These feed bars 26 are provided with the usual spring dogs 27 which engage behind the edge of a can body B and move it forward each time the bars move forward on a reciprocating stroke. During this passage of the can bodies B along the mandrel A they are held in place by guide rails 28 carried in side wings 29 mounted on a suitable support bar confined in the usual manner.

The side seam hooks C of the can body B may vary in style, size, etc., according to the kind of can being produced. One style of side seam hooks as shown in Fig. 1 comprises a series of spaced hook sections 35 which are turned inwardly and a long continuous hook section 36 which is turned outwardly. The lap sections D in this style of can body preferably are located adjacent the ends of the body. The flux for such a can body is applied to the long hook 36 and its adjacent lap sections D.

When such a can body B is advanced along the

fluxing section of the mandrel A, the hook sections 35, 36 are spread apart as shown in Fig. 2. The hook section 36 is guided by a shoulder 38 formed in one side of the block 21 while the hook sections 35 are guided in a groove 39 formed in the opposite side of the block.

The fluxing device is located adjacent the mandrel A and includes a rotatable fluxing wheel 42 (Figs. 2 and 3) which is disposed at an angle to the mandrel. The wheel is mounted on a short shaft 43 which is journaled in a bearing 44 formed on a flux pot or receptacle 45 containing a supply of liquid flux 46. This flux pot is supported on a bracket 47 which may be secured to the machine frame 22.

The fluxing wheel 42 is continuously rotated in the direction of the arrow shown in Fig. 3, by a bevel gear 48 which is secured to the lower end of the shaft. The bevel gear 48 meshes with and is driven by a bevel gear 49 which is secured to the inner end of a horizontal drive shaft 51. The drive shaft is journaled in a long bearing 52 in the flux pot 45. The outer end of the drive shaft carries a sprocket 53 which is driven by a chain 54. This chain may be driven in any suitable manner.

The outer periphery of the fluxing wheel 42 is formed with a sloping or bevel face 58 (see Fig. 5) which is parallel with and which operates against the outer surface of the can body B moving along the horn A. The wheel face 58 engages the passing can body adjacent the hook 36 and presses against the lap sections D adjacent the ends of the hook. The wheel face 58 is also formed with an annular peripheral groove 59 which is located in parallel alignment with the outwardly projecting hook 36 of the passing can body B. This groove is just wide enough and just deep enough to receive the hook. It is this wheel face 58 and groove 59 that applies the liquid flux 46 onto the inner and outer surfaces of the hook 36 and onto the outer surfaces of the lap sections D of the can body, as will now be explained.

The fluxing wheel 42 picks up the liquid flux 46 from the flux receptacle 45 by way of a roller 62 which rotates in the flux. The roller 62 is located in the flux receptacle and is mounted on the inner end of a short horizontal shaft 63 which is journaled in a bearing 64 in the receptacle. A stuffing box 65 in the bearing prevents leakage of the flux along the shaft. The outer end of the shaft carries a gear 66 which meshes with a gear 67 on the drive shaft 51. Through this connection the rotating drive shaft also drives the roller shaft 63 and the roller 62 carried thereon.

The inner face of the roller 62 is cut away to form an annular sloping face 71 which surrounds a recess 72. This face 71 is parallel with and engages against the sloping face 58 of the fluxing wheel 42.

Hence as the roller 62 rotates in the bath of liquid flux 46 in the flux pot 45, its sloping face 71 picks up a quantity of the flux and carries it up onto the engaging fluxing wheel. The pick-up flux is deposited on the sloping face 58 and in the annular groove 59 of the fluxing wheel. The fluxing wheel carries it toward the mandrel A and deposits it on the inner and outer surfaces of the hook 36, the outer surface of the can body adjacent the hook, and on the outer surfaces of the lap sections D of the passing can body B on the mandrel. In this manner all the surfaces of the can body that are required to be fluxed to effect a strong side seam when the latter is soldered, are properly covered with the flux.

In order to regulate the quantity of flux which is deposited on the side seam parts of the can body, the excess flux is drained away from the wheel face 58 and its groove 59. This draining is effected by a plurality of drain holes 75 (Figs. 2, 3, 4 and 5) which are formed in the bottom of the fluxing wheel 42 and which communicate with the groove 59. The excess flux drains away from the wheel face 58 into the groove 59 and from the groove by way of the drain holes and thus leaves on the wheel only sufficient flux to be applied in proper quantity to the side seam parts of the can body. This drained flux flows down into a reservoir 76 enclosed by an annular flange wall 77 formed on the bearing 44 of the flux pot 45. Excess flux received in this reservoir flows back into the flux pot and is used over again.

As the fluxing wheel 42 rotates any unused flux which remains on the wheel face 58 and in the groove 59 after the wheel has engaged a passing can body, is removed to prevent building up of the flux on the wheel. The removal of this residual flux is effected by a stationary scraper blade 78 (Figs. 3 and 4) which is shaped to fit the wheel face and its groove. This scraper is mounted in a slot 79 in a lug 81 formed on the reservoir flange 77. A setscrew 82 in the lug locks the scraper blade 78 against displacement.

Hence as the wheel rotates past the scraper blade 78, the latter scrapes away all residual flux and thereby assists in regulating the quantity of flux deposited on the side seam parts of the can bodies B. The removed flux flows out through the drain holes 75 and also flows over the outer face of the wheel and down into the reservoir 76 from which it is returned to the flux receptacle 45.

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 or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A flux applying mechanism for lock and lap side seam can bodies, comprising in combination, a flux applying wheel having a peripheral groove adapted to receive the inner and the outer surfaces of the side seam lock hook of a can body and to deposit flux thereon, said wheel also having an outwardly beveled peripheral portion of greater radius than the radial dimension of said groove extending beyond the hook of the can body for engaging against and depositing flux upon the side seam lap portions of the can body, and means for supplying liquid flux to the groove and to the said peripheral portion of said wheel for deposit onto the described side seam parts of the body.

2. A flux applying mechanism for lock and lap side seam can bodies, comprising in combination, a flux applying wheel having a peripheral groove adapted to receive the inner and the outer surfaces of the side seam lock hook of a can body and to deposit flux thereon, said wheel also having an outwardly beveled peripheral portion of greater radius than the radial extent of said groove extending beyond the hook of the can body for engaging against and depositing flux upon the side seam lap portions of the can body, said wheel further having a plurality of openings

spaced around the wheel and connecting with said peripheral groove for draining excess flux away from the wheel, and means for supplying liquid flux to the groove and to the periphery of said wheel for deposit onto the aforesaid side seam parts of the body.

3. A flux applying mechanism for lock and lap side seam can bodies, comprising in combination, a flux receptacle for retaining a liquid flux, a flux supply roller rotatably mounted in said flux receptacle and having an angular face for carrying flux up out of said receptacle, a flux applying wheel mounted on said flux receptacle at an angle to said flux supply roller and having a peripheral groove adapted to receive the inner and the outer surfaces of the side seam lock hook of a can body and to deposit flux thereon, said wheel also having a beveled periphery engaging against the angular face of said flux supply roller for receiving flux in the wheel groove and on its beveled face, said beveled face extending beyond the hook of the can body and engaging against the side seam lap portions of the can body to deposit the flux thereon.

4. In a can body making machine, the combination of a mandrel for supporting can bodies having side seam hooks, means for advancing can bodies along said mandrel, a fluxing wheel disposed adjacent said mandrel for applying a liquid flux onto one of said can body side seam hooks, 30

and means for applying said liquid flux to said fluxing wheel, said fluxing wheel having a peripheral groove therein for receiving a quantity of the flux and for receiving said hook as said can body advances along said mandrel thereby depositing the flux on the hook, said fluxing wheel further having a beveled peripheral portion extending radially outwardly beyond the outer portion of said groove for receiving a quantity of flux, said beveled wheel portion beyond the hook of the can body to engage the side seam lap portions of the body for depositing the received flux thereon.

5. A flux applying mechanism for lock and lap side seam can bodies, comprising in combination, a rotatable flux applying wheel having a peripheral groove adapted to receive the inner and the outer surfaces of the side seam lock hook of a can body and to deposit flux thereon, said wheel also having a plurality of openings spaced around the wheel and connecting with said peripheral groove for draining excess flux away from the groove, means for supplying liquid flux to the groove for deposit on the can body hook, a scraper blade fitting into the groove in said wheel for sweeping out residual flux from the groove and for discharging it by way of said drain holes as the wheel rotates, and a reservoir adjacent said wheel for receiving the excess and residual flux drained away from the groove.

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