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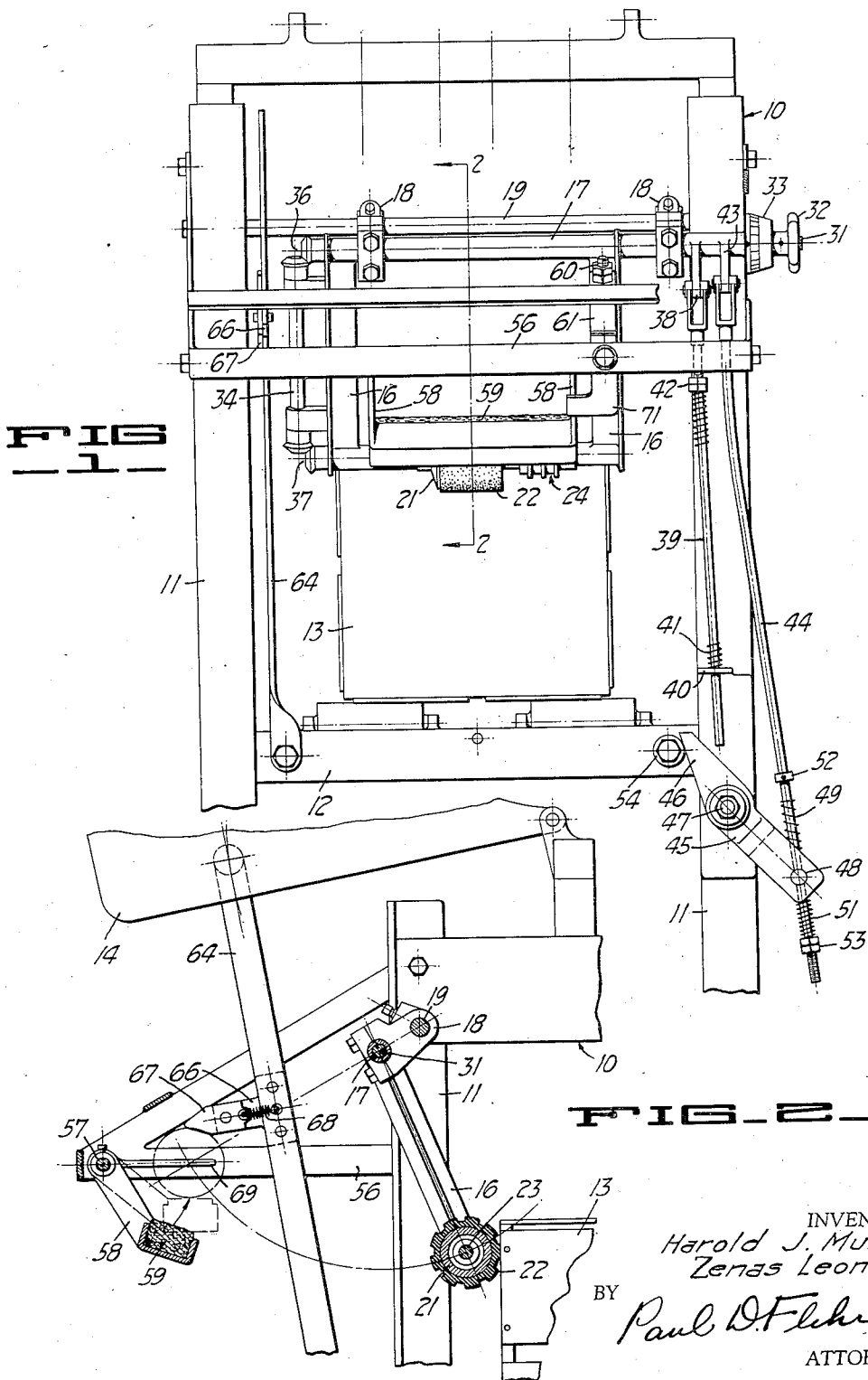
H. J. MUMMA ET AL

BOX MARKING APPLIANCE

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2,040,524

2 Sheets-Sheet 1



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FIG. 3.

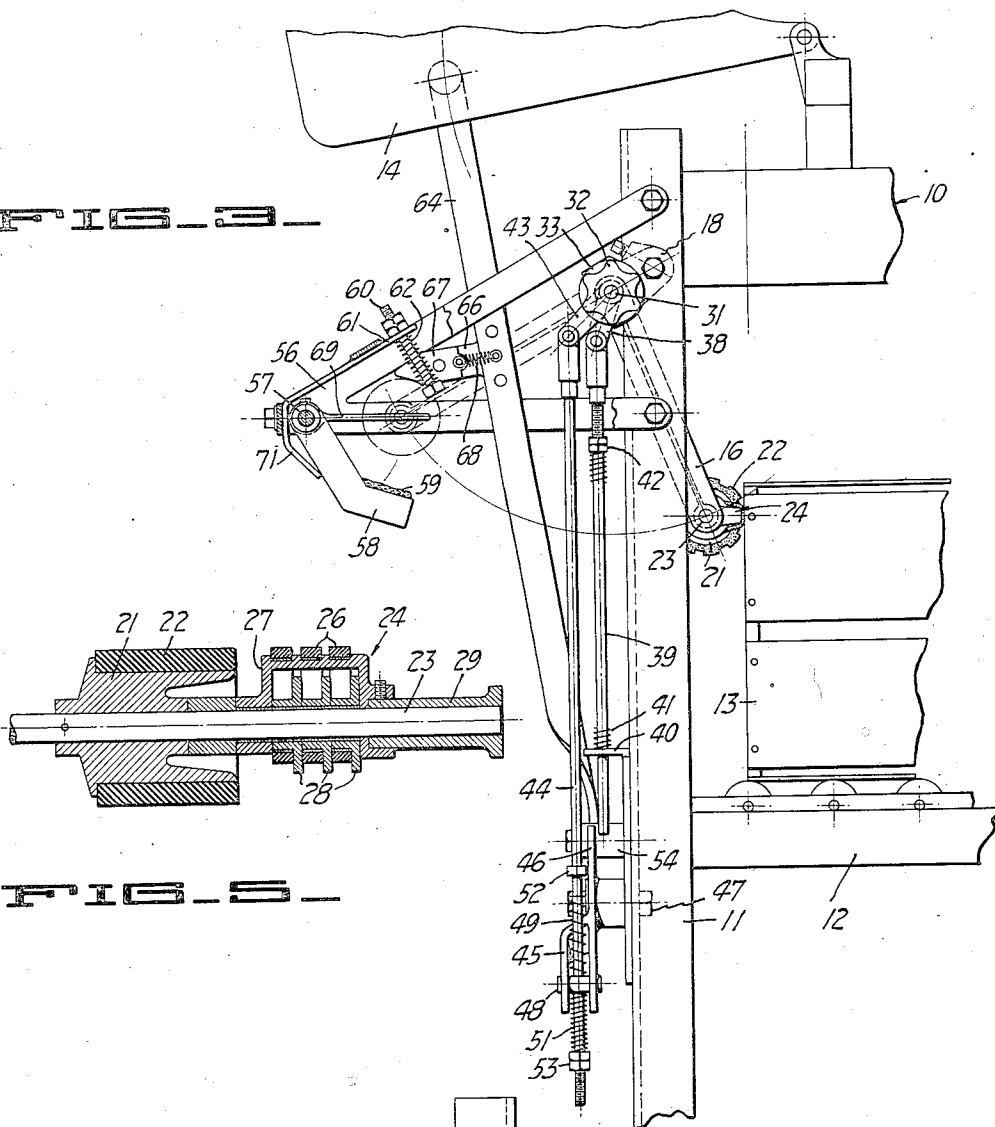


FIG. 5.

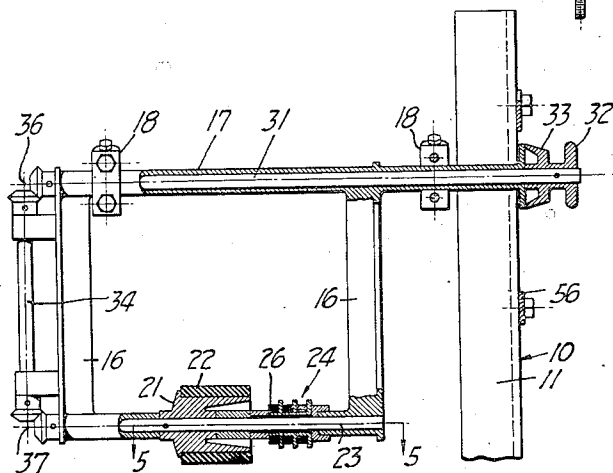


FIG. 4.

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BOX MARKING APPLIANCE

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4 Claims. (Cl. 101—35)

This invention relates generally to appliances for the marking of boxes, crates, or the like, with numbers or like designating characters for future identification. Appliances of this character are particularly useful in packing houses or other plants where various articles are packed in boxes or crates for distribution to the trade.

It is an object of the invention to provide a marking appliance of the above character, which will operate automatically in conjunction with a machine for fastening lids to boxes, crates, or the like.

A further object of the invention is to provide a marking appliance of the above character which can be readily adjusted to secure different kinds of markings which may be required.

Further objects of the invention will appear from the following description in which the preferred embodiment of the invention has been set forth in conjunction with the accompanying drawings.

Referring to the drawings:

Fig. 1 is a front view of a machine for fastening lids to boxes or crates, with our invention applied to the same.

Fig. 2 is a detail taken along the line 2—2 of Fig. 1.

Fig. 3 is a side elevational view of the machine illustrated in Fig. 1, certain parts being shown in cross-section.

Fig. 4 is a front view of the marking appliance, partly in cross-section, illustrating the manner in which adjustment can be made.

Fig. 5 is a cross-sectional detail taken along the line 5—5 of Fig. 4.

As previously indicated, the present invention is preferably in the form of an attachment to a machine for applying lids to boxes or crates by suitable fastening means, such as nails or flexible metal binders. Such machines are commonly known as "lidders" and are widely used in the citrus industry for applying lids to boxes or crates of citrus fruit. In the drawings, such a lidding machine has been indicated generally at 10, and while all of the parts have not been illustrated, the machine has been shown as including a frame 11, a table 12 for supporting a box or crate 13, and an oscillating nail tray 14. In certain lidding machines the elements serving to fasten the lid to the box or crate move downwardly with respect to the box, while the box remains stationary. In other lidding machines the box is lifted vertically against the nailing or binder applying elements. The latter type of machine has been illustrated, in which the table

12 moves vertically, as by means of a hydraulic plunger or screw, to elevate and subsequently lower the box 13 for a complete cycle of operation.

In applying the present invention to a lidding machine as described above, spaced arms 16 are provided, which serve to carry printing or marking means such as will be presently described. As representative of suitable means for forming a pivotal support, the upper ends of these arms are shown attached to a horizontal tubular shaft 17, which in turn is carried by the journal blocks 18. Journal blocks 18 are attached to a convenient part of the machine 10, as for example to a fixed horizontal rod 19.

The printing means carried by the free ends of arms 16 is preferably in the form of a roll 21 which is provided with a sleeve-like surfacing 22 of resilient rubber. Circumferentially spaced figures or letters are formed in relief upon the surfacing 22, similar to an ordinary rubber printing stamp. As representative of suitable mounting means, the roller is shown secured to a shaft 23, which is journaled to the extremities of arms 16.

Where it is desired to print additional data upon the box, other than that carried by the printing roll 21, an additional printing device 24 can be provided. This device can be similar to an ordinary dating stamp and is shown formed of a plurality of loops 26 of resilient rubber, carrying numerals or letters in relief on their outer surfaces, and entrained over a platen 27 and rollers 28. While the device 24 may be carried in part by shaft 23, the platen 27 is held rigid with respect to the arms 16, as for example by having the platen attached to a sleeve 29, which in turn is secured to the lower end of the adjacent arm 16.

In order to afford convenient means for selecting the particular characters on roll 21 to be printed upon the box, a manual selector is provided which can be constructed as follows:—Extending through the tubular shaft 17 (Fig. 4) there is a rod 31, one end of which carries an operating knob 32 and an index dial 33. Mounted on one of the pivoted arms 16, and extending parallel thereto, there is a rotatable shaft 34. Miter gears 36 serve to operatively connect the upper end of shaft 34 with the adjacent end of rod 31. Likewise, miter gears 37 operatively connect the lower end of shaft 34 with the adjacent projecting end of shaft 23. It is therefore apparent that when knob 32 is turned, printing roll 21 is turned with respect to the arms 16. Suitable detent means is preferably provided, as for example in conjunction with the index dial 33, whereby after

printing roll 21 is turned to a desired position by turning knob 32, the parts are retained in such position during subsequent printing operations.

In order to normally urge arms 16 to swing outwardly, or in a direction away from box 13, a suitable spring bias is provided. For example, an arm 38 is shown attached to the tubular shaft 17, and this arm is in turn pivotally connected to an upright rod 39. The lower end of rod 39 extends through an apertured guide lug 40, and surrounding the rod there is a compression spring 41. The lower end of spring 41 presses upon lug 40, while the upper end engages an adjustable shoulder, such as the lock nuts 42.

As representative of suitable means for swinging arms 16 downwardly to effect printing engagement with the box, a second arm 43 is shown attached to the tubular shaft 17. This arm is pivotally connected to the upper end of a rod 44, the lower end portion of which is co-operatively connected with a lever 45. Lever 45 is provided with a projecting trip finger 46, and is pivotally carried by the frame of the lidding machine, by a bolt 47 or like means. To afford a certain amount of give in the connection between lever 45 and rod 44, the lever is shown forked and is provided with a pin 48 through which rod 44 slidably extends. Compression springs 49 and 51 are positioned upon the upper and lower sides of pin 48 and serve to transmit motion to the rod 44 through the adjustable collar 52 and lock nuts 53 respectively. Mounted upon the front side of the box elevating table 12, there is a roller 54, which in its path of movement serves to engage the trip finger 46. When the table 12 is elevated, it is evident that engagement of roller 54 with finger 46 serves to rotate lever 45 in a clockwise direction, as viewed in Fig. 1, to pull downwardly upon rod 44 and thus swing arms 16 downwardly to bring the printing roll 21 into engagement with the box being operated upon by the machine. Elevation of the table 12 to a position sufficiently high to permit finger 46 to escape by roller 54 enables compression spring 41 to immediately swing arms 16 outwardly and upwardly.

In addition to the parts of our appliance described above, provision is made for limiting outward and upward swinging movement of arms 16, and for effecting automatic inking. Thus, with the particular construction illustrated, a suitable bracket 56 is secured to the frame of the lidding machine, and this bracket carries a horizontal shaft 57 which extends parallel to the axis of tubular shaft 17. Spaced arms 58 secured to shaft 57 serve to support an inking pad 59. Likewise mounted upon bracket 56, there is a suitable stop means for limiting outward and upward swinging movement of arms 16. Thus in this instance there is a bolt 60, extending loosely through lug 61, normally projected into the path of movement of one of the arms 16, by means of compression spring 62. When the arms 16 are brought to rest by bolt 60, printing roll 21 immediately overlies the printing pad 59 (Fig. 3).

To afford the desired movement of printing pad 59 against the printing roll 21, it is preferable to derive movement from some element of the lidding machine which moves cyclically for each cycle of operation upon a box or crate. With a lidding machine of the type illustrated, the element may be the bar 64 which connects the elevating table 12 with the tilting nail tray 14. Thus, mounted upon this bar there is a laterally extending arm 66 which pivotally carries a trip finger 67. This trip finger is normally biased toward

an intermediate projected position by means of tension spring 68. Mounted upon shaft 57 and extending outwardly into the path of movement of trip finger 67, there is a lever 69. Clockwise rotation of lever 69, as viewed in Fig. 3, is limited by means of a suitable stop lug 71 carried by bracket 56.

Operation of our appliance can now be reviewed as follows:—Assuming that the appliance is used in the citrus industry, the characters on printing roll 21 may indicate the variety of the pack, while the characters on the printing device 24 may indicate a code number. If desired, a further printing device may be employed to impress a variety number. Assuming that the roll 21 has been selected to a desired position by knob 32 to indicate a desired variety, and that the desired code number has been secured by setting device 24, the operator introduces a box or crate into the lidding machine, and operation of this machine is then initiated. At this time the arm 16 and the printing roll 21 are positioned as illustrated in dotted lines in Fig. 3, table 12 is in a lowered position, roller 54 is considerably below the trip finger 46, and trip finger 67 is considerably below the co-operating lever 69. As the table 12 elevates to lift the box 13, trip finger 67 first engages lever 69, to momentarily elevate the inking pad 59 into engagement with the characters of the printing roll 21 and of the printing device 24, which are to effect the impression. Immediately following this operation, and after the inking pad has been permitted to drop, roller 54 engages trip finger 46 to swing arms 16 downwardly and inwardly, to bring the printing roll 21 and the printing device 24 into momentary engagement with the end of the box, as illustrated in Figs. 2 and 3. As the table 12 continues upwardly to final nailing position, roller 54 escapes the finger 46, thus permitting the arms 16 to be immediately returned to their normal positions, under the urge of compression spring 41. During subsequent lowering of the table or platform 12 to its initial position, no further operations occur with respect to the appliance, since trip finger 67 escapes over lever 69, and roller 54 escapes by finger 46.

One might not expect a good impression to occur in view of the fact that the box in the modification described is moving upwardly when contacted with the printing devices. However, a good impression is secured because the contact with the box is momentary, with the arms 16 immediately rebounding toward an out-of-the-way position. Such action is secured by properly timing escapement of finger 46 past roller 54, and because of the resilience afforded by springs 49 and 51 in conjunction with spring 41. Thus, in general, finger 46 should escape past roller 54 at or about the instant that printing contact is made with the box.

We claim:

1. In a box marking appliance, for use with a lidding machine having members reciprocating cyclically for each lidding operation, an arm pivotally carried by the machine, a marking stamp carried by the free end of the arm, spring means for biasing the arm in a direction to cause the same to swing towards an out-of-the-way position with respect to a box being operated upon by the machine, an inking pad, arms to which the pad is secured, means serving to support said last mentioned arms for pivotal movement about an axis parallel to the axis of pivotal movement of said first mentioned arm, means actuated during

the initial part of the cycle of operation of the machine for actuating said last mentioned arms to swing the inking pad into inking contact with said marking stamp, and means operated during
 5 a subsequent part of the cycle of operation of the machine for swinging said first mentioned arm to impact the stamp against the box.

2. In a box marking appliance, for use with a box lidding machine having a vertically movable
 10 box elevating table, a tilting nail tray, and a reciprocating bar connecting the table with the nail tray, the combination of an arm pivotally carried by the machine, a marking stamp carried by the free end of the arm, spring means for bias-
 15 ing the arm in a direction to cause the same to swing toward an out-of-the-way position with respect to a box being operated upon by the machine, an inking pad movably carried adjacent said out-of-the-way position, means including a
 20 trip member carried by the bar for moving the inking pad into inking contact with said marking stamp, and trip means actuated responsive to elevation of said table for swinging the arm to impact the stamp against the box.

3. In a box marking appliance, for use with a box lidding machine, in which a table elevates a box for a lidding operation, an arm pivotally supported to swing on a horizontal axis, a print-
 25 ing stamp rotatably carried by the free end of the arm, the axis of the stamp being parallel to the pivotal axis of the arm, spring means for biasing the arm to swing upwardly through an angle of substantially 90° toward an out-of-the-way posi-
 30 tion with respect to a box being operated upon by the machine, an inking pad, arms pivotally supported on an axis parallel to the pivotal axis of said first mentioned arm and adapted to carry said pad into a position generally underlying the
 35 printing stamp when said first arm is in said out-

of-the-way position, actuating means for swing-
 ing said inking pad upwardly against said stamp and for swinging said first named arm down-
 wardly to impact the stamp upon a box, and
 5 means including a member rotatably carried on an axis concentric with the horizontal axis of the first mentioned arm for adjusting the angular setting of the printing stamp relative to the same.

4. In a box marking appliance, for use with a
 10 box lidding machine, in which a table elevates a box for a lidding operation, and in which a tilting nail tray is connected to the table by means of a reciprocating bar, the combination of
 15 an arm pivotally supported to swing on a horizontal axis, a printing stamp rotatably carried by the free end of the arm, the axis of the stamp being parallel to the pivotal axis of the arm, spring means for biasing the arm to swing up-
 20 wardly through an angle of substantially 90° toward an out-of-the-way position with respect to a box being operated upon by the machine, an inking pad, arms pivotally supported on an axis parallel to the pivotal axis of the first mentioned
 25 arm and adapted to carry said pad into a position generally underlying the printing stamp when said first arm is in said out-of-the-way position, actuating means including a trip member carried by said bar for swinging said inking pad
 30 upwardly against said stamp, actuating means operating responsive to elevation of said table for swinging said first mentioned arm downwardly to impact the stamp upon a box, and means in-
 35 cluding a member rotatably carried on an axis concentric with the horizontal axis of the first mentioned arm for adjusting the angular setting of the printing stamp relative to the same.

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