March 18, 1924. 1,487,591

J. NAGY

EMBOSSING MACHINE FOR MILK CANS

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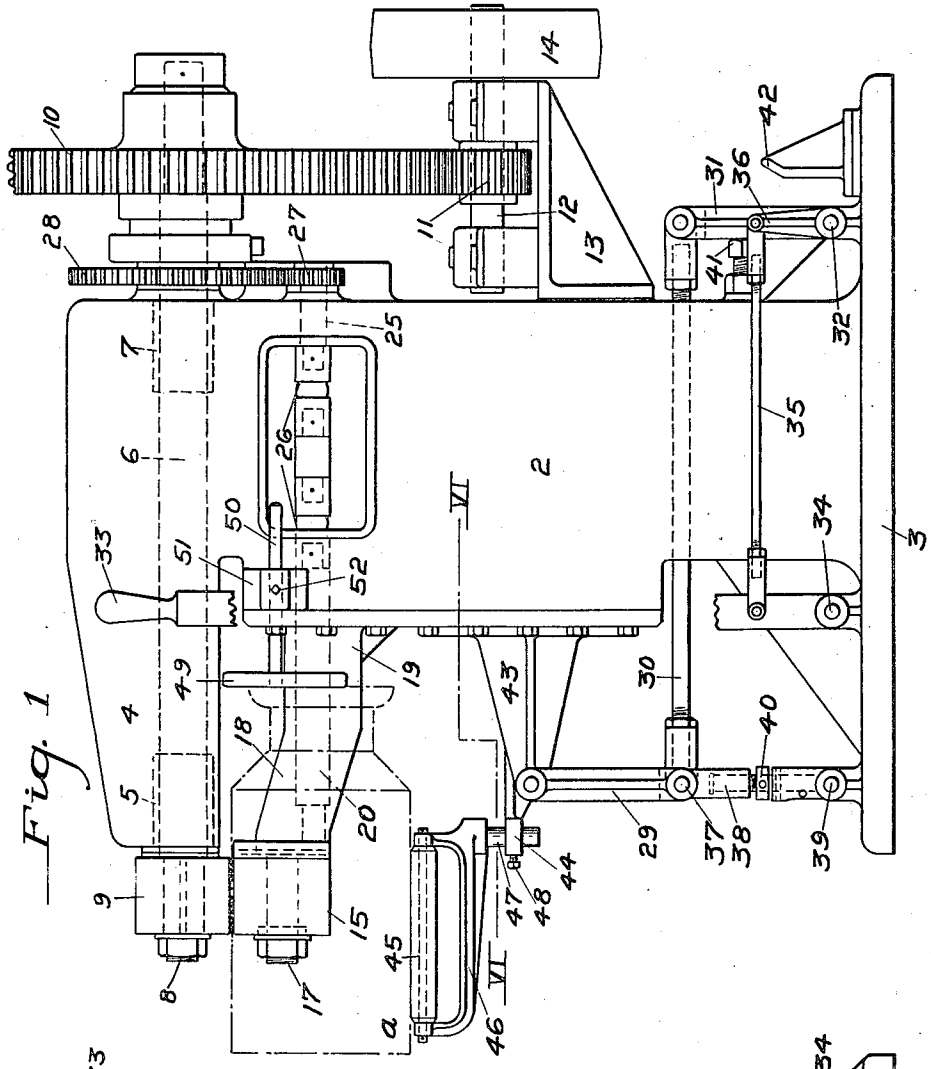


Fig. 1

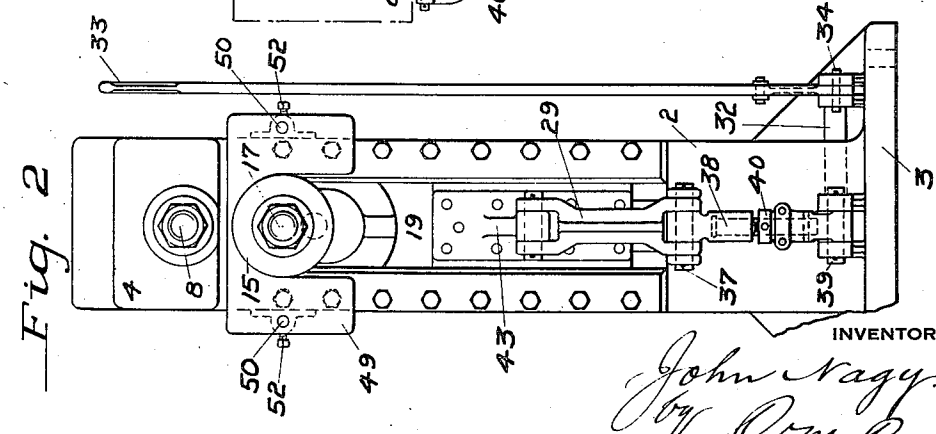


Fig. 2

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Fig. 4

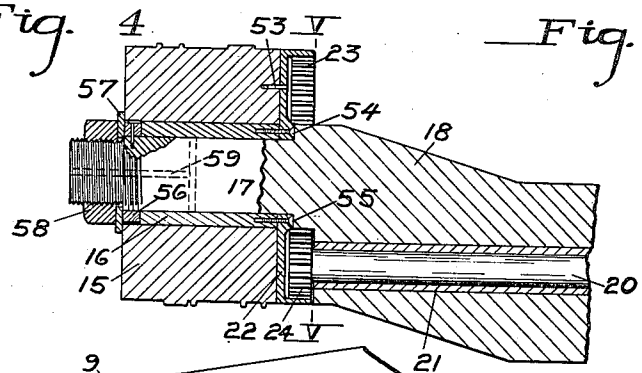


Fig. 5

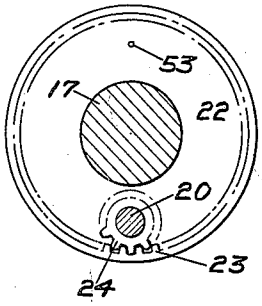


Fig. 3

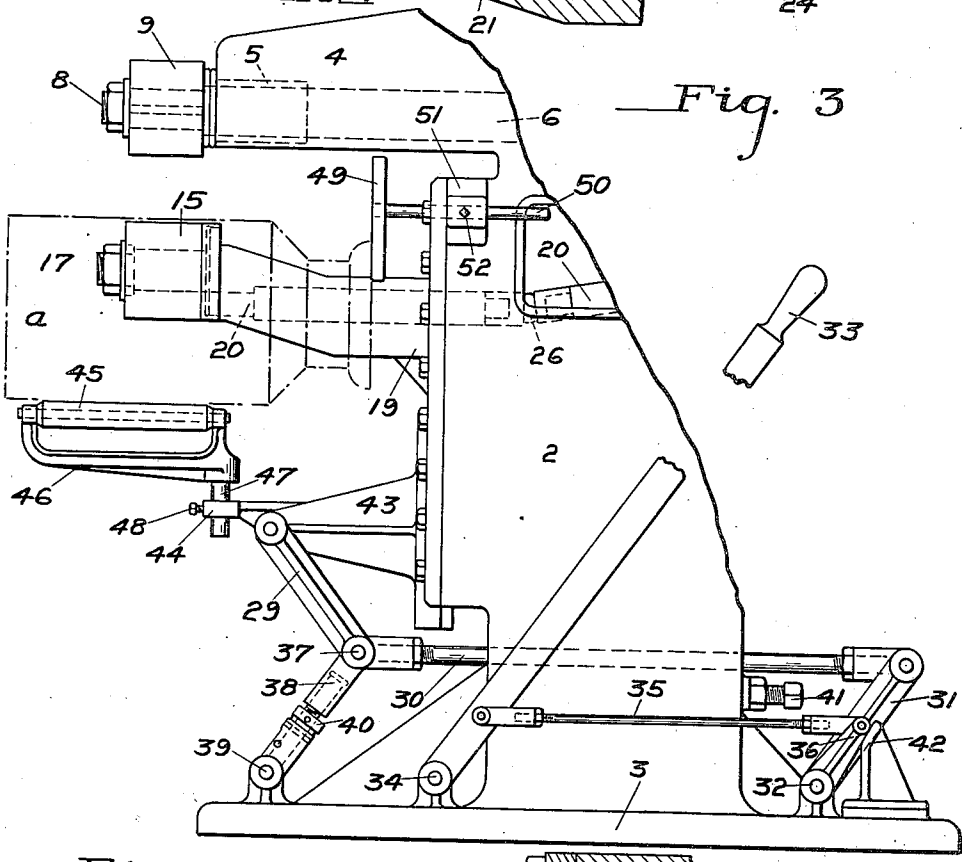
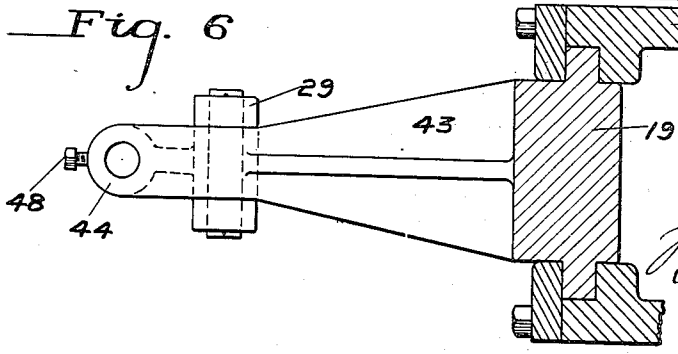


Fig. 6



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Patented Mar. 18, 1924. 1,487,591

UNITED STATES PATENT OFFICE.

JOHN NAGY, OF WEST VIEW, PENNSYLVANIA, ASSIGNOR TO PITTSBURGH STAMP COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

EMBOSSING MACHINE FOR MILK CANS.

Application filed March 16, 1923. Serial No. 625,627.

To all whom it may concern:

Be it known that I, JOHN NAGY, a citizen of the United States, residing at West View, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvement in Embossing Machines for Milk Cans, of which the following is a specification.

My invention consists of an improvement in stamping or embossing machines for milk cans or similar cylindrical sheet metal articles.

The objects in view are to provide for placement and removal of the can with relation to the embossing elements, providing for synchronized driving of the wheels and maintenance of the power connection, when in either closed or open position. Also, in the several combined features of construction facilitating easy adjustment and operation, without loss of time, as hereinafter more fully described.

Referring to the drawings, showing one preferred embodiment of the invention,

Fig. 1 is a view of the machine in side elevation, showing the embossing wheels closed together for operation;

Fig. 2 is an end view;

Fig. 3 is a partial view similar to Fig. 1, showing the embossing wheels separated;

Fig. 4 is a sectional detail view through the driving support for the adjustable embossing wheel;

Fig. 5 is a cross section on the line V—V of Fig. 4; and

Fig. 6 is a horizontal section on the line VI—VI of Fig. 1.

In the drawings, 2 is the base of the machine in the form of a hollow casting mounted by a broad pedestal 3 on the floor or other suitable foundation. At the upper portion of the machine is a forwardly projecting arm 4 extending beyond the front of the main machine and providing an outer bearing 5 for the front end of main shaft 6. Said shaft is journalled in front bearing 5 and rear bearing 7, and is provided with a front terminal stud 8 for the upper die or embossing wheel 9, of well known construction, keyed on the stud and retained by the terminal nut, as shown.

Shaft 6 is geared by wheel 10 with pinion 11 of shaft 12 carried in suitable bearings on brackets 13 of the main frame and having the pulley 14 for driving connection with any source of power.

The companion or co-acting embossing wheel 15 is secured upon a rotatable sleeve or bushing 16 carried by stud 17 of a horn 18, extending outwardly from the upper portion of a vertically adjustable slide plate or cross-head 19. The horn 18 is so shaped, as by deflecting its intervening body portion, to admit of its occupying the space within the contracted neck of the can *a* to be embossed, and to locate the lower embossing wheel 15 in operative position with relation to the upper wheel 9 and the intervening wall of the can *a*.

The deflected shape of the horn 18 is also of advantage in providing for the location of drive shaft 20 journalled in the lower portion of the horn, preferably within an inserted sleeve 21 therein. At the inner end of bushing 16 is an enlarged ring 22 having an internal or shrouded gear 23 engaged by a pinion 24 secured to the outer end of shaft 20, by which wheel 15 is rotated in a direction opposite to that of wheel 9.

Shaft 20 is connected with a driving shaft or stud 25 at the rear end of the machine by a series of universal joint couplings 26, so that, as the horn 18 is lowered or raised, the wheel 15 will always be in driving connection with said shaft 25 at any position. Shaft 25 is geared with main shaft 6 by gears 27—28 of the same relative proportions as to diameter and number of teeth as gears 24—23 so as to ensure synchronous revolutions of embossing wheels 9 and 15 as will be readily understood.

For the purpose of vertically adjusting the horn 18 for insertion or removal of the can *a*, its supporting slide plate 19 is connected by toggle link 29 with centrally arranged connecting rod 30 of a rear actuating lever 31 secured to rock shaft 32. Said rock shaft is actuated by a manually operated lever 33 pivoted at 34 to the pedestal 3 and connected by rod 35 to lever 36 of rock shaft 32, at one side of the machine. The front end of rod 30 is pivoted at 37 to the lower end of toggle link 29 and the upper end of a co-acting toggle link 38, pivoted at 39 to the pedestal 3, as shown.

Toggle link 38 is preferably made adjustable as to length by means of an adjusting screw 40 acting in the manner of a turn-

buckle, whereby to accurately locate the slide 19 and its supported horn and wheel in exact operative position, in using the machine. Lever 33 will be maintained in its erected position, as in Fig. 1, by the limiting set screw or bolt 41, and lever 36 will rest back against abutment 42 when the slide is lowered, as in Fig. 3.

Toggle link 29 is connected to slide 19 by a bracket arm 43, which also serves as a support, by extension 44, for the roller 45 upon which the can *a* is rotatably supported in action. Said roller is journalled at each end in the bracket 46 mounted for vertical adjustment by stud 47 secured by set screw 48 in the socket of extension 44.

A plate 49 is mounted by supporting rods 50 in supporting brackets 51 at each side of the main frame, having sockets for the rods and securing set screws 52. By this means, the plate 49 may be located outwardly or inwardly to the proper distance, and serves as an abutment for the inner end of the can neck, to locate the body portion in proper position for action of the embossing wheels.

Referring again to the vertically adjustable embossing wheel 15, it is mounted endwise on the bushing 16 and rotatably connected with the gear 22 by interfitting dowel pins 53. The bushing 16 is preferably of bronze or other non-friction metal, and is secured to the gear by screws 54, while the bushing and gear are retained against endwise movement by a shoulder 55 at one end and a ring nut 56 secured on the end of the stud 17. An outer washer 57 and retaining nut 58, with sufficient clearance between the washer and the wheel, serve to maintain the wheel in freely rotatable condition, while the dowel pins are so located as to ensure proper positioning of the wheel with relation to its companion wheel 9.

An oil duct 59 provides for lubricant between the spindle 17 and the bushing.

The construction and operation of the machine will be readily understood from the foregoing description. The embossing wheels are removable from their spindles, of course, for the application of any desired arrangement or conformation of the stamping or embossing type, or for change of wheels, as will be readily understood. The operating gearing being continuously in mesh, whether the wheels are together or separated, ensures against any variation in registering co-operation of the wheels with each other, such continued intermeshing being due to the flexibility of the universal joint connection.

The manipulation of the actuating mechanism is simple and rapid, the machine is easily operated, and requires no special skill, and is adapted to a considerable range of sizes of cans, etc.

It may be changed in detail construction by the skilled mechanic to adapt it to various conditions of use, or otherwise, but all such changes are contemplated within the scope of the following claims.

What I claim is:

1. An embossing machine for cans having a pair of co-acting cylindrical stamping rollers, means for continuously maintaining them in driving connection and in parallelism, and means for adjusting one roller with relation to the other.

2. An embossing machine for cans having a pair of co-acting cylindrical stamping rollers, means for continuously maintaining them in parallelism and in driving connection including a universal joint connection, and means for adjusting one roller with relation to the other.

3. An embossing machine having a rotatable stamping roller and a driving shaft therefor, a movable support conveying a co-acting roller and a drive shaft therefor parallel with said driving shaft and having a universal joint connection, gearing connecting said rollers and arranged to drive them together, and means for adjusting the movable support.

4. An embossing machine having a rotatable stamping roller and a driving shaft therefor, a movable support conveying a co-acting roller and a drive shaft therefor parallel with said driving shaft and having a universal joint connection, gearing connecting said rollers and arranged to drive them together, and means including toggle lever mechanism for adjusting the movable support.

5. An embossing machine having a rotatable stamping roller and a driving shaft therefor, a movable support conveying a co-acting roller and a drive shaft therefor parallel with said driving shaft and having a universal joint connection, gearing connecting said rollers and arranged to drive them together, lever actuated toggle joint mechanism for erecting the movable support and for retracting it, and limiting and adjusting devices for such mechanism.

6. In combination with a stamping roller and its shaft, a co-acting roller, a movable support therefor, a can support on the movable support, gearing flexibly connecting said rollers, and means for adjusting the movable support and its roller towards and from the other roller.

7. In combination, a main frame provided with a drive shaft having a terminal marking roller, a sliding cross head having a roller support, a marking roller carried thereby, constantly connected gearing between the drive shaft and said roller embodying a universal joint section, a can supporting roller on the cross head, an adjustable limiting plate for the can, and mechanism for actuating the cross head.

8. In combination, a main frame provided with a drive shaft having a terminal marking roller, a sliding cross head having a roller support, a marking roller carried thereby, constantly connected gearing between the drive shaft and said roller embodying a universal joint section, a can supporting roller on the cross head, an adjustable limiting plate for the can, toggle lever mechanism for raising and lowering the cross head, an actuating lever, and means connecting it with the toggle lever mechanism.

9. A slide plate provided with an extended horn having an offset portion and provided with a terminal marking wheel, gearing therefor and a shaft extending through the horn, a pair of toggle links for raising and lowering the slide plate, a connecting rod engaging the inner ends of said links, and lever actuating mechanism for the connecting rod.

10. A slide plate provided with an extended horn having an offset portion and provided with a terminal marking wheel, gearing therefor and a shaft extending through the horn, a pair of toggle links for raising and lowering the slide plate, a connecting rod engaging the inner ends of said links, lever actuating mechanism for the connecting rod, and a limiting stop for said mechanism at the end of its lowering throw.

11. In an embossing machine for cans, the combination with a frame having a spindle provided with an embossing wheel and a gear, of a stub shaft having a gear meshing with said gear, a vertically movable wheel-supporting horn having a stud, an embossing wheel journalled thereon provided with a gear, a pinion engaging said gear, and driving connections between said pinion and the stub shaft gear embodying a universal joint connection.

12. In an embossing machine for cans, the combination with a frame having a spindle provided with an embossing wheel and a gear, of a stub shaft having a gear meshing with said gear, a vertically movable wheel-supporting horn having a stud, an embossing wheel journalled thereon provided with an internal gear, a pinion engaging said internal gear, a shaft therefor, and universal joints connecting said shaft with the stub shaft.

13. In an embossing machine for cans, the combination with a frame having a spindle provided with an embossing wheel and a gear, of a stub shaft having a gear meshing with said gear, a vertically movable cross-head having an extended horn provided with a stud, means for raising and lowering the cross-head, an embossing wheel journalled on the stud and provided with an internal gear, a driving pinion therefor having a shaft journalled in the horn, and a series of universal joint connections between the inner end of said shaft and the stub shaft.

In testimony whereof I hereunto affix my signature.

JOHN NAGY.