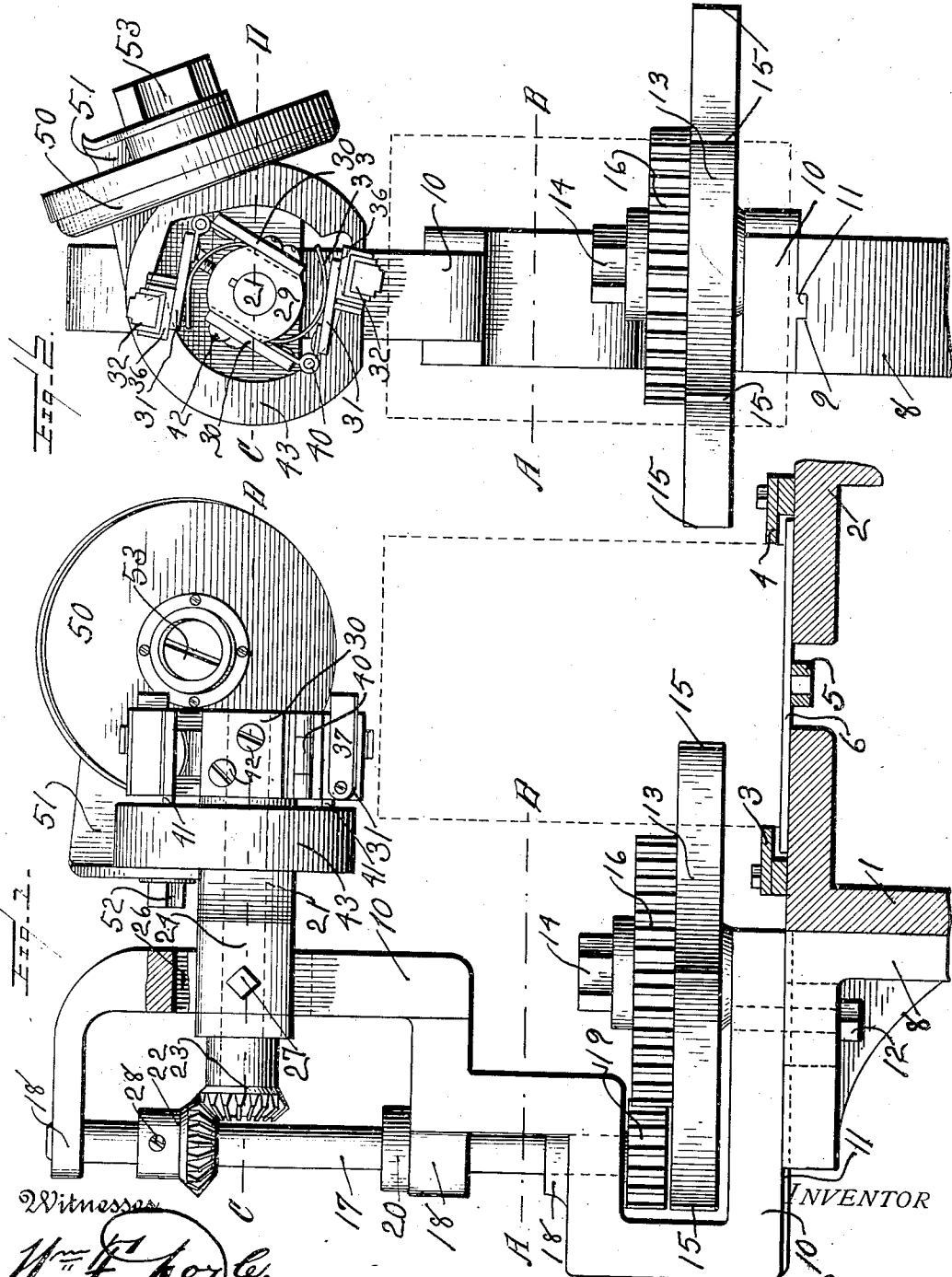


F. P. RYDER.
CAN MARKING MACHINE.
APPLICATION FILED MAR. 11, 1908.

1,049,924.

Patented Jan. 7, 1913.

3 SHEETS—SHEET 1.

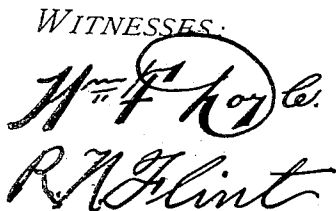


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1,049,924.

3 SHEETS—SHEET 2.

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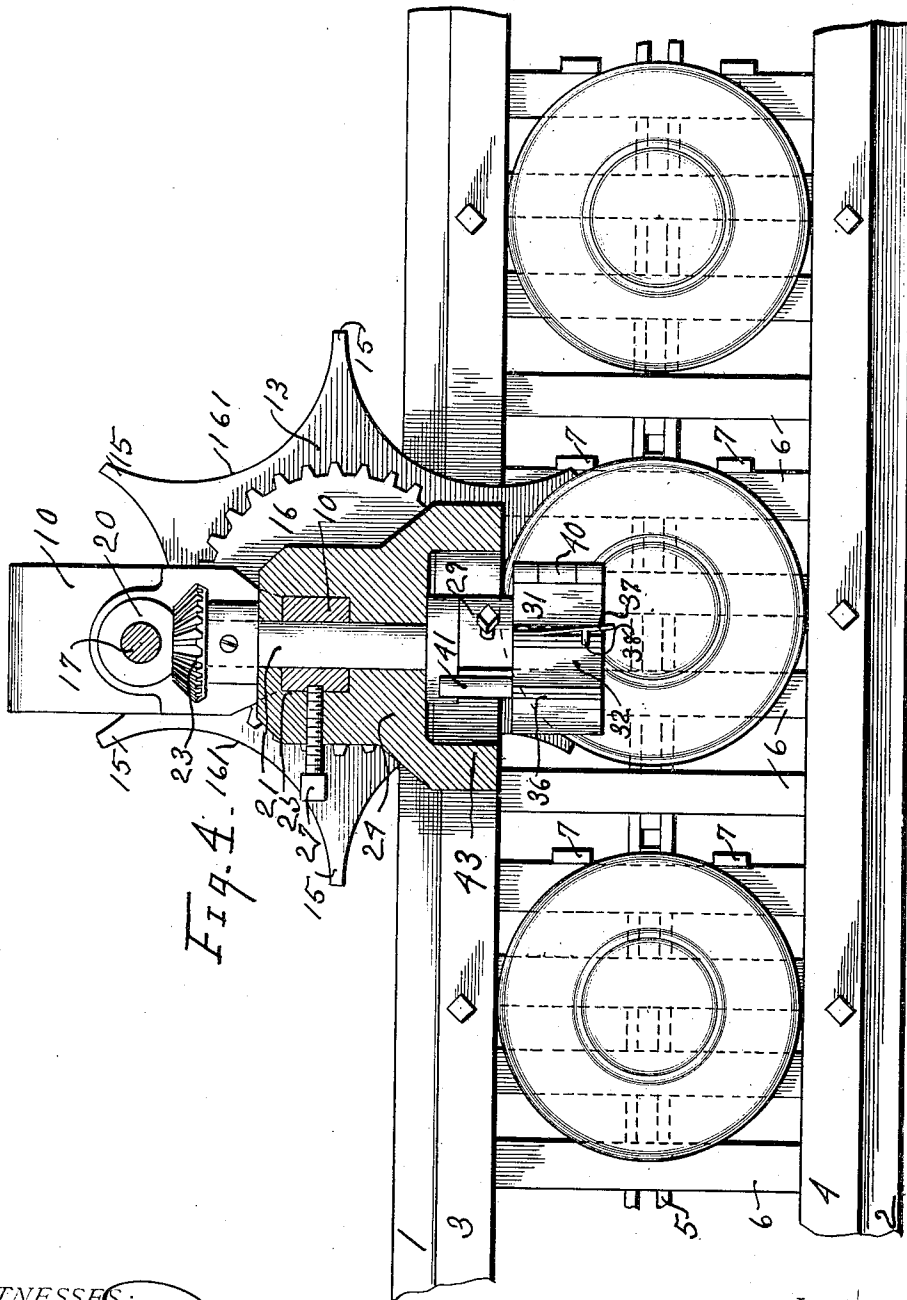
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3 SHEETS--SHEET 3.



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FRANK PITTIS RYDER, OF BOSTON, MASSACHUSETTS.

CAN-MARKING MACHINE.

1,049,924.

Specification of Letters Patent.

Patented Jan. 7, 1913.

Application filed March 11, 1908. Serial No. 420,524.

To all whom it may concern:

Be it known that I, FRANK PITTIS RYDER, a citizen of the United States, residing at Boston, in the county of Suffolk, State of Massachusetts, have invented certain new and useful Improvements in Can-Marking Machines, of which the following is a description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to can marking or numbering machines designed for use with canning machinery; and the purpose thereof is to print a certain word, number or mark upon the cans at some time during the canning process, which word, number or mark will indicate the kind of goods, grade, or other features of the contents of the can; the purpose of the mark being to enable the subsequent identification of the cans upon which it is printed, and not for the purpose of serving as a label to inform purchasers of the contents of the can.

With the above purpose in view, my invention consists in the can marking machine illustrated in the accompanying drawings, described in the following specification, and specifically claimed in the clauses of the concluding claim.

In the accompanying drawings: Figure 1 is an elevation of my improved can marking machine as seen looking along the line in which the cans travel, the movement of the cans being toward the observer. Fig. 2 is an elevation of my machine as seen from the right of Fig. 1, the movement of the cans being toward the left; Fig. 3 is a plan view illustrating so much of my machine as lies below the plane indicated by the line A—B Figs. 1 and 2, the movement of the cans being toward the left; Fig. 4 is a sectional view taken in the horizontal plane indicated by the line C—D, Figs. 1 and 2, certain of the parts, however, being omitted for the sake of clearness; Fig. 5 is an elevation of a cam appearing also in Fig. 2, the printing mechanism being omitted to show the construction of the cam more clearly; and, Figs. 6, 7, 8, 9, and 10 are views illustrating details of the type holding mechanism employed in my machine.

In the drawings 1 and 2 represent portions of the bed of any machine forming a part of canning apparatus and to which it is desired to attach my marking machine. It will be understood that these elements

may be a part of one of the numerous conveyers commonly used in canning plants, or they may be tracks provided for the express purpose of forming a support for my device. My improved marking machine is adapted for use in any location past which cans are moved.

The elements 1 and 2 will ordinarily be provided with guide strips 3 and 4 between which the cans pass, as will be understood from Figs. 1 and 3; and 5 is a feeding chain having a series of slats 6 attached thereto which travel over the upper surfaces of the members 1 and 2, and upon which slats the cans rest, certain of said slats being provided with lugs 7 to engage and move the cans along. The elements thus far described, while they are present in many machines used in the canning business, will be seen to form in effect a conveyor by means of which cans are caused to travel past a given point, at which point my can marking machine will be located.

My can marking machine is shown as secured to the member 1 by means of a bracket 8, the upper surface of which is provided with a groove 9 whereby my machine may be adjusted transversely to the members 1 and 2.

10 represents the main frame of my machine, which frame serves as a support for all the operating parts and is secured to the bracket 8 by means of the bolt 12; a tongue 11 which enters the groove 9 being provided which, in connection with an elongated slot for the bolt 12, permits the said frame to be adjusted transversely to the path along which the cans move.

13 is an element which I designate as a turnstile and which is secured to the frame 10 by means of a bolt 14 about which it is free to rotate. The turnstile is provided with projecting arms 15, and with depressed intermediate portions 161 shaped to conform substantially with the periphery of the cans to be operated upon; and it is so adjusted as by moving the frame 10 upon the bracket 8 that the arms 15 project over the conveyer along which the cans pass, so that successive cans will engage the arms 15 as they pass along and thus rotate the turnstile 13, as will be understood from Figs. 1 and 2, in which the cans are shown in dotted lines, and from Fig. 3 in which the cans are shown in plan.

16 is a gear secured to the turnstile 13, and 17 is a vertical shaft supported in bearings 18 carried by the frame 10.

19 is a pinion upon the lower end of the shaft 17 and in mesh with the gear 16.

20 is a collar for supporting the shaft 17.

21 is a horizontal shaft driven from the shaft 17 by means of miter gears 22, 23, which shaft extends to a point over the cans to be marked and carries the printing or marking mechanism hereinafter described. This shaft 21 may be supported in any suitable bearings carried by the frame 10. I, however, as a preferred construction, mount the shaft 21 in a vertically adjustable supporting member 24 which is shown as provided with a square opening 25 through which a correspondingly shaped portion of the frame 10 extends. In the construction illustrated, see Figs. 1 and 4, the shaft 21 extends through the frame 10, and an elongated slot 26 is formed therein the upper end of which is shown in Fig. 1; the frame 10 being shown broken away to illustrate this feature. The supporting member 24 is secured in position by means of a set screw 27, and the gear 22 is freely adjustable upon the shaft 17 to bring it into mesh with the gear 23 after the supporting member 24 is properly adjusted and secured in position.

28 is a set screw for securing the gear 22 to the shaft 17.

29 is a rotary head carried by the shaft 21 and to which the printing mechanism is secured. This printing mechanism comprises arms 30 secured to the head 29 by the screws 42; together with swinging type supporting members 31 pivoted or hinged to the arms 30 at 40, whereby the said type supporting members are capable of movement independent of and relative to the shaft 21.

33, 33 are springs which in the embodiment of my invention illustrated I have shown as secured between the head 29 and the arms 30, the free ends of which springs engage the swinging type supporting members 31 and tend to force them outward.

The type supporting members 31 carry detachable type carriers 32 of box-like form in which the type for marking the cans are held. These type carriers 32 are provided with a longitudinal groove 34 which engages with a projection 35 in a rectangular holder 36 upon the free ends of the type supporting members 31, and 37 is a spring catch having a projection 38 adapted to engage a second groove 39 in the type carriers 32. The swinging type supporting members 31 are provided with projecting arms 41 to engage a cam to be next described:

The details of the mechanism for holding the type securely in place, as above described, while at the same time permitting the convenient removal of one kind of type

and the substitution of another kind when a different mark is to be printed on the cans, are illustrated in Figs. 2, and 6 to 10 of the drawing. These details may, of course, be varied considerably without departing from the spirit of my invention. It will be understood that a number of type carriers 32 will be provided for each machine, each type carrier having permanently secured therein an arbitrary sign or the letters to form a given word; and when it is desired to change the mark to be printed on the cans, the operator has only to release and remove one set of two type carriers and insert another set in the place of the one removed.

43 is a cam member for controlling the action of the printing mechanism and is preferably carried by and formed in one piece with the supporting member 24. This cam member is of annular form as will be understood from Figs. 2, 4, and 5, and the inner surface thereof is the operating surface. This inner surface is provided with two depressions 44 and 45 each of which depressions include a shoulder as 46 or 47 leading abruptly from the inner surface of the cam, and a more or less gradually rising surface as 48 or 49 leading back to the inner surface of the cam. It will however be understood that the form of these depressions is of secondary importance, so long as the functions hereinafter ascribed to the cam member as a whole are carried out.

The relative location of the rotary head 29 which carries the printing mechanism, and the cam 43, see Fig. 1, is such that when the machine is properly assembled the projecting arms 41 of the type supporting members 31 will slide over the inner surface of the cam 43 when the shaft 21 is rotated, and will be forced into the two depressions 44 and 45 when opposite those depressions, it being remembered that the springs 33 tend always to force the supporting members outward.

50 is an ink pad for supplying ink to the printing mechanism. This pad is supported by an arm 51 which I have shown as secured to the cam 43 by means of a stud bolt 52, and said pad is freely rotatable upon a bolt 53 whereby it is secured to the arm 51.

The construction of my can marking machine being as above disclosed, the operation thereof is as follows: Cans are fed along the conveyor formed by the tracks 1 and 2 and the feeding chain 5, the direction of movement being from right to left, Fig. 3. The cans engage and operate the turnstile 13, which operates the shafts 17 and 21 through the gears 16 and pinion 19, and the miter gears 22, 23 thereby rotating the head 29 carrying the printing mechanism, the rotation imparted thereto being in a

clock-wise direction. As the head 29 is rotated the projecting arms 41 of the type supporting members 31 move over the inner surface of the cam 43 until said arm (considering the upper members 31, Fig. 2) reaches the shoulder 46 of the depression 44, when the member 31 will be forced outward by its spring 33. This movement brings the type carried by the member 31 into position to engage the ink pad 50 and said type will engage and rotate the ink pad as the head continues to rotate, and will finally be moved away from the ink pad as the arm 41 moves up the incline 48 leading from the depression 44. The type supporting member is now moved forward until its arm 41 comes to the shoulder 47 of the depression 45, when the type supporting member will again be forced outward by its spring 33, the type this time being forced against the can to be marked. During further rotary movement of the head 29 the arm 41 moves up the inclined portion 49 of the depression 45, whereby the type carrier is moved away from the can.

The form of the depressed portion 44 of the cam 43 should be such that the type will move for some little distance in contact with the ink pad 50 while the form of the depressed portion 45 should permit as brief a contact as practicable of the type with the cans. I, however, have so proportioned the parts of my machine that the type carriers 32 when in contact with the cans move in their path of travel at substantially the same speed as the speed at which the cans move forward; so that the type may be in contact with the cans for quite an appreciable time without blurring, as there is then substantially no relative movement between the type and the cans.

There being two printing devices carried by the head 29, and six arms upon the turnstile 13, it will be appreciated that the head 29 must rotate three times as fast as the turnstile in order that every can may be marked. I therefore make the ratio of the gear 16 and pinion 19 three to one.

The machine illustrated is obviously intended to operate upon a definite size of can, both as to diameter and height. The capability of adjustment of the frame 10 transversely and of the carrier 24 vertically is to adapt the machine for other sizes of cans. In case the difference of size is considerable I may use a second turnstile of larger diameter in place of the one shown, and in operating upon cans of certain standard sizes I use the form of type carrier shown in Fig. 9 in order to obtain a proportion of parts such that there will be no relative movement between the type and can when they are in contact, so that blurring will be avoided.

Having thus described my invention and

explained the mode of operation thereof, I claim and desire to secure by Letters Patent:—

1. In a can marking machine, a turnstile adapted to be engaged and operated by cans as they are fed along; a shaft operated by said turnstile; a second shaft operated from said first mentioned shaft; printing mechanism carried by said second shaft and located adjacent the cans to be marked but normally out of contact therewith; and a cam for controlling said printing mechanism.

2. In a can marking machine, a turnstile adapted to be engaged and operated by cans as they are fed along; a vertical shaft operated by said turnstile; a horizontal shaft extending transverse to the line of movement of and located above the cans and operated from said vertical shaft; printing mechanism carried by said horizontal shaft and located adjacent the cans to be marked but normally out of contact therewith; and a cam for controlling said printing mechanism.

3. In a can marking machine, a vertically extending supporting frame; a supporting member capable of vertical adjustment upon said frame; a rotary shaft supported by said supporting member; printing mechanism carried by said rotary shaft and located adjacent the cans to be marked but normally out of contact therewith; a cam carried by said supporting member and adapted to control the operation of said printing mechanism; a turnstile adapted to be engaged by cans as they are fed along; a vertically extending shaft operated by said turnstile; and gearing whereby said vertically extending shaft drives said first mentioned shaft.

4. In a can marking machine, a vertically extending supporting frame; a horizontally disposed supporting member capable of vertical adjustment upon said frame; a rotary horizontal shaft supported by said supporting member and extending above the cans to be marked; printing mechanism carried by said rotary shaft and located adjacent the cans to be marked but normally out of contact therewith; a cam carried by said supporting member and adapted to control the operation of said printing mechanism; a turnstile adapted to be engaged by cans as they are fed along; a vertically extending shaft; gearing between said turnstile and said vertically extending shaft whereby said shaft is operated; and gearing between said vertically extending shaft and said horizontal shaft whereby said horizontal shaft is operated.

5. In a can marking machine, a horizontally arranged rotary shaft; means for feeding cans past said rotary shaft; means engaged by the cans for rotating said shaft;

an arm carried by said shaft; a type supporting member hinged to said arm and adapted to swing in a vertical plane; a spring tending to swing said type supporting member about its hinge connection; a
5 vertically arranged cam adapted to restrain the swinging movement of said type supporting member; and an arm projecting from said type supporting member and
10 adapted to engage said cam.

6. The combination with a horizontally moving conveyer, of a revoluble element having a plurality of printing types arranged equidistantly upon its circumfer-

ence radially resilient in relation thereto 15
and adapted to engage cans carried upright upon the said conveyer, and means associated with the said element and adapted to trans-
pose the longitudinal movement of the conveyer into an intermittent rotative motion 20
of the said element.

This specification signed and witnessed
this 7th day of March A. D. 1908.

FRANK PITTIS RYDER.

In the presence of—

NATHAN C. LOMBARD,
Jos. C. JOHNSON.