

H. M. BORDEN.
PRINTING APPARATUS.
APPLICATION FILED OCT. 21, 1918.

Fig. 1

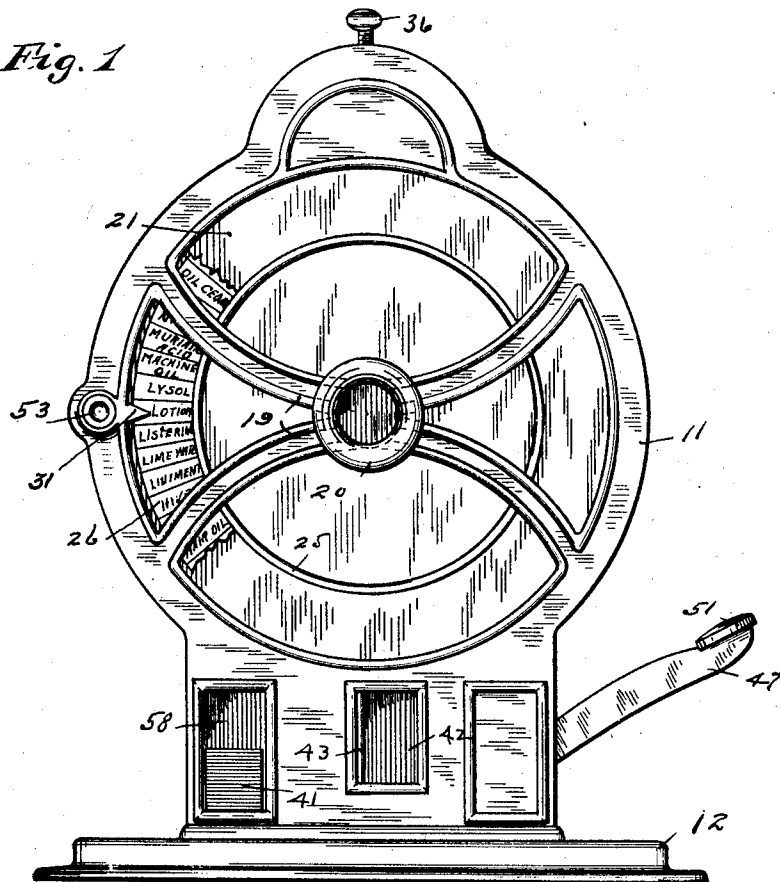
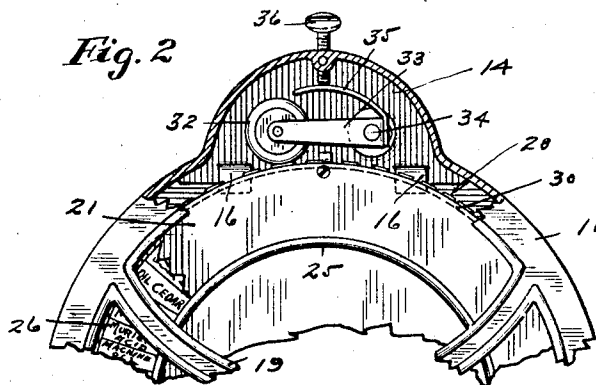


Fig. 2



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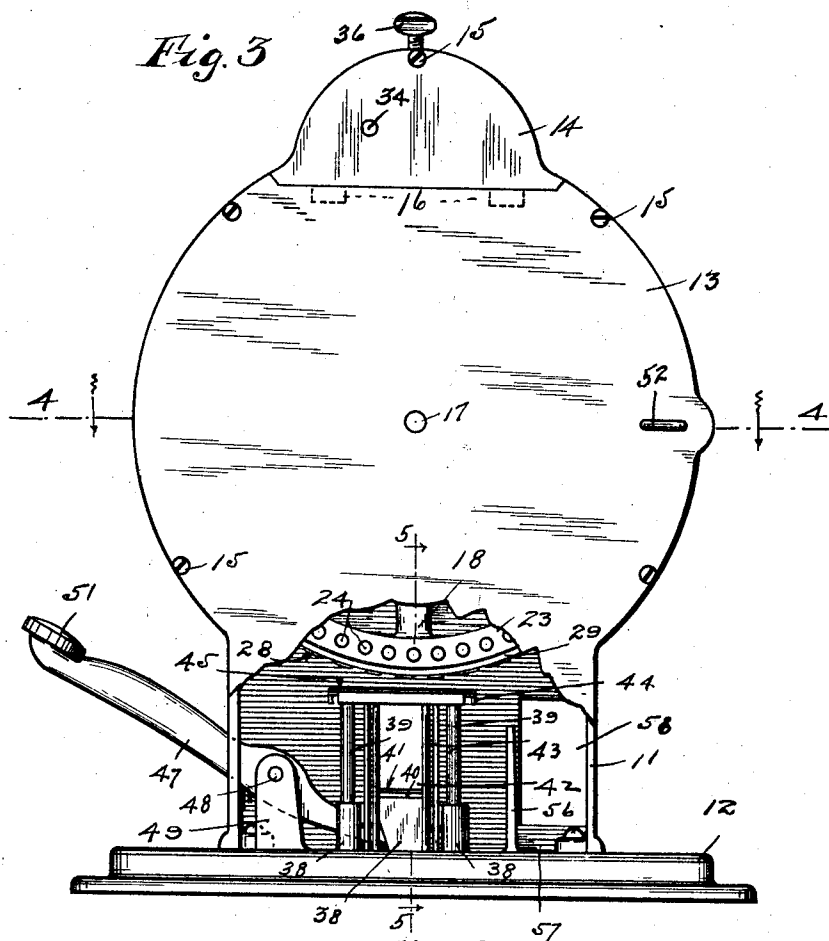
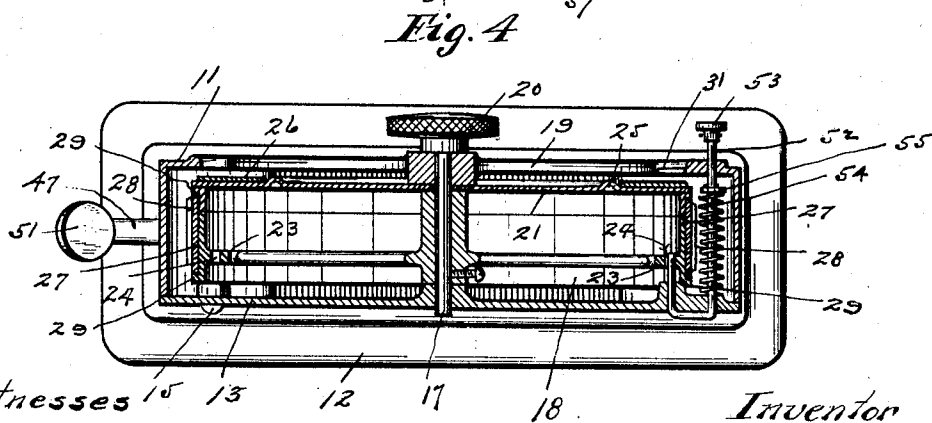
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1,333,009.

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Patented Mar. 9, 1920.
3 SHEETS—SHEET 2.



Witnesses
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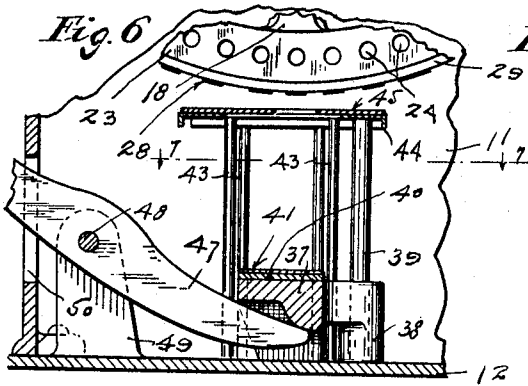
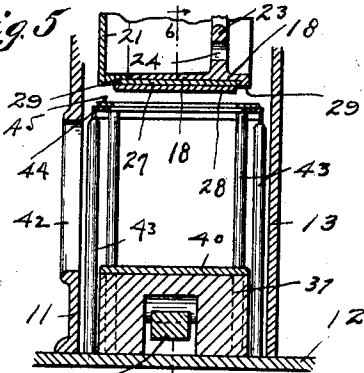
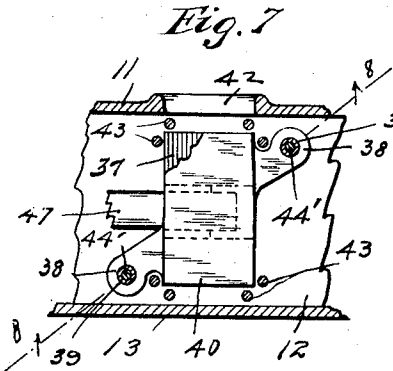
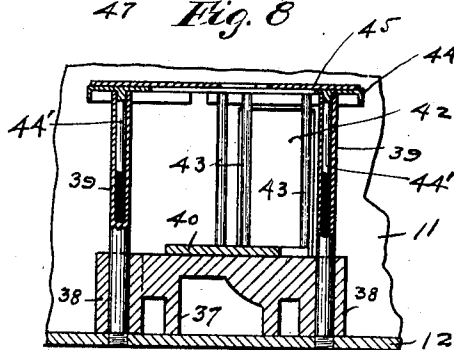
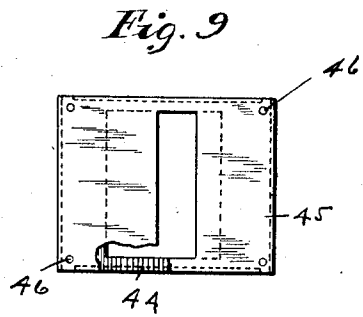
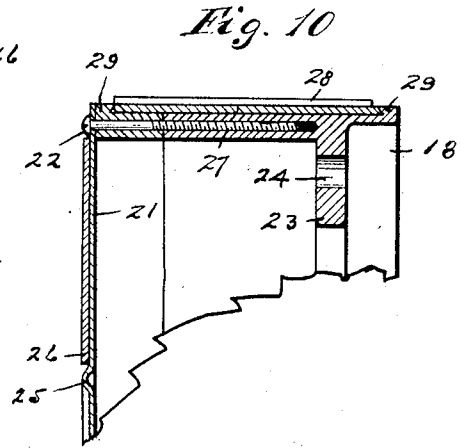
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UNITED STATES PATENT OFFICE.

HENRY M. BORDEN, OF MINNEAPOLIS, MINNESOTA.

PRINTING APPARATUS.

1,333,009.

Specification of Letters Patent.

Patented Mar. 9, 1920.

Application filed October 21, 1918. Serial No. 259,002.

To all whom it may concern:

Be it known that I, HENRY M. BORDEN, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Printing Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in printing apparatus intended for general use but especially adapted for use in printing labels and the like. To the above end, generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings,

Figure 1 is a front elevation of the invention;

Fig. 2 is a fragmentary front elevation with some parts broken away to expose the inking roller;

Fig. 3 is a rear elevation with some parts broken away;

Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 3;

Fig. 5 is a detail view principally in section taken on the line 5—5 of Fig. 3;

Fig. 6 is a detail view partly in elevation and partly in vertical section taken on the line 6—6 of Fig. 5;

Fig. 7 is a detail view partly in plan and partly in horizontal section taken on the line 7—7 of Fig. 6;

Fig. 8 is a detail view principally in section taken on the oblique line 8—8 of Fig. 7;

Fig. 9 is a plan view of the guard plate removed from the apparatus;

Fig. 10 is a fragmentary detail view in section taken radially through the printing wheel.

The numeral 11 indicates a casing detachably secured to a base 12 and having a displaceable back comprising a lower or primary section 13 and an upper or secondary section 14. These back sections are secured in position by screws 15 and lugs 16, the latter of which are formed on the lower

edges of the back sections. The lugs 16, on the back section 14, are offset inward and engage the back section 13 to hold the lower end of said back section 14 against outward swinging movement. The lugs on the back section 13 are not shown, but it may be here stated that they extend into apertures formed in the base section 12 and hold the lower end of said base section against outward movement.

The upper or main portion of the casing 11 is of annular form and a horizontal rearwardly projecting shaft 17 is located at the axis thereof. Mounted on the shaft for rotation therewith, in the casing 11, is a printing wheel 18. In the front of the casing 11, is an annular opening, the axis of which is located at the axis of the printing wheel 18 and exposes substantially the entire face of said printing wheel. Extending through the opening in the casing 11, is a spider bracket 19 in which the front end portion of the shaft 17 is journaled. The other or rear end of the shaft 17 is journaled in a bore in the back section 13, which affords a seat therefor. A knurled knob 20, on the projecting front end of the shaft 17, affords means by which the printing wheel 18 may be rotated in either direction.

The printing wheel 18 comprises a circumferentially divided cast rim, hub and spokes, and has a pressed metal face plate 21 detachably secured by screws 22 to the rim thereof. These screws 22 also detachably connect the two sections of the wheel rim. Also cast with the rim of the printing wheel 18, near the back edge thereof, is an intumed flange 23, to which the outer ends of the spokes are directly secured. This flange 23 is provided with a multiplicity of circumferentially spaced lock detents 24 in the form of bores provided for a purpose that will presently appear.

Pressed from the face plate 21 concentric with the axis thereof, is a rib 25 which assists in positioning outward thereof an index ring 26. This index ring 26 may be made of celluloid or other suitable material and has marked thereon a multiplicity of radial lines which divide said ring into spaces circumferentially arranged and in each of which is printed, as shown, the name of a drug.

Mounted on the periphery of the printing wheel 18, is an annular type plate 27 having

circumferentially spaced thereon lines of type characters 28 that correspond to the type characters on the index ring 26. This type plate 27 is made in segmental sections 5 and which sections are removably and securely held in position on the printing wheel 18 by a pair of annular flanges 29 integral with the edges of said wheel and with which the type plate has dove-tail interlocking engagement. Obviously, by loosening the screws 22 the sections of the printing wheel 18 may be separated to receive the type plate 27 between the flanges 29 thereof, then by tightening the screws 22, said flanges 15 may be clamped onto the type plate.

A pointer 31 is integrally formed on the left side of the casing 11 and located in horizontal alignment with the axis of the printing wheel 18 for cooperation with the index ring 26 in positioning the names thereon. It may be here stated that when one of the names on the index ring 26 is brought into alignment with the pointer 31, a like name on the type plate 27 is brought into a printing position, which is at the bottom of the printing wheel 18 in vertical alignment with the axis thereof.

The top of the casing 11 is upwardly bulged to afford clearance above the printing wheel 18 for an inking roller 32 thereof. This inking roller 32 extends transversely of the printing wheel 18 and is journaled in the prongs of a U-shaped bracket 33, which, in turn, is pivoted on a horizontal stud 34 rigidly secured to the back section 14. By detaching the back section 14 from the casing 11, the inking roller may be removed from the casing, for the purpose of inking or repairing the same. The inking roller 32 is free to move radially with respect to the printing wheel 18 and is yieldingly held in contact with the characters in the type plate 27 by a flat spring 35 secured to the transverse portion of the bracket 33. This spring 35 is held under the desired tension by a thumb screw 36 having screw-threaded engagement with the casing 11.

Normally resting on the base 12, is a relatively heavy label carrying platen 37 having at diagonally opposite corners a pair of ears 38 with bores through which project guide posts 39 rigidly secured to said base. Loosely resting on the platen 37, is a pad 40 of leather or other suitable material, and on top of this pad is placed a label 41 to be printed. Labels are placed on the platen and removed therefrom through a door opening formed in the front of the casing 11. Labels are held properly positioned on the platen 37 by eight slender guide rods 43, rigidly secured to the base 12 and arranged in groups of two, between which the corners of the platen project, as best shown in Fig. 7, and hold the labels thereon.

Normally resting on the upper ends of

the guide posts 39 and guide rods 43, is a horizontally disposed guard plate 44 having an upper facing 45 of leather or other suitable material secured thereto by rivets 46. Rectangular openings are formed in the guard plate and facing and have a common length sufficient to freely receive therein one of the lines of type characters 28, during the printing action. It will be noted that the opening in the guard plate 44 is considerably wider than the opening in the facing, to permit said facing to yield when brought into contact with the type characters 28, and thereby not interfere with the printing of the labels. On the under side of the guard plate 44, are two depending pins 44', which extend into the tubular post 39, as best shown in Fig. 8, and guide said guard plate.

The platen 37 is elevated by a lever 47 fulcrumed on the intermediate portion of a bearing pin 48, the ends of which are secured in a pair of laterally spaced lugs 49 cast with the base 12. The short or inner end of the lever 47 extends into a recess formed in the under side of the platen therefor. The other or long end of the lever 47 extends through an opening 50 in the right side of the casing 11 and has on its extreme outer end a finger piece 51.

To positively hold the printing wheel in predetermined printing positions, there is provided for cooperation with the lock detents 24 a U-shaped lock bolt 52, having a relatively long prong and a relatively short prong mounted in a pair of horizontally spaced bores in the back section 13. The long prong of the lock bolt 52 is also mounted in a bore formed in the front of the casing 11 and has a finger piece 53 removably secured to its forwardly projecting end. The free end of the short prong of the lock bolt 52 is arranged to enter any one of the lock detents 24, as shown in Fig. 4, and thereby lock the printing wheel 18 in predetermined printing positions.

A coiled spring 54, encircling the long prong of the lock bolt 52, is compressed between an abutment 55 on said prong and the back section 13 and yieldingly holds the lock bolt in one of the lock detents 24. The transverse portion of the lock bolt 52 engages the back section 13 to limit the projecting movement thereof. By pressing inward on the finger piece 53, against the tension of the spring 54, the lock bolt 52 may be released from the printing wheel 18.

A partition wall 56 on the base 12 divides the lower portion of the casing 11 to afford a label storing compartment 57, access to which may be had through a door opening 58 in the casing 11.

To print a label, one thereof is removed from the stack in the compartment 58 and placed on the platen 38 through the door

opening 42. The finger piece 53 is then pressed inward to release the printing wheel and said wheel is rotated by the knob 20 to bring the desired name on the index ring into registration with the pointer 31. Then by releasing the finger piece, the printing wheel is automatically locked in the desired printing position. With the apparatus thus set, a downward movement on the lever 47 will carry the respective label into contact with the proper type characters to print on the label the desired name or information. During the upward movement of the platen, the guard plate is picked up thereby and carried against the printing wheel to prevent the label, during the printing process, from getting soiled against the printing wheel or adjacent type characters. After the label is printed, the lever 47 is released and which lever, together with the platen and guard plate, are returned to normal position, under the action of gravity. With the return of the platen to normal position, the printed label may be removed therefrom through the door opening 42.

The above described apparatus has, in actual usage, proven highly efficient for the purpose had in view.

What I claim is:—

1. In a printing apparatus, the combination with a casing having a displaceable back section, of a printing wheel journaled in the casing and having type characters and circumferentially spaced lock detents, a U-shaped lock bolt having a long prong and a short prong, said long prong being mounted in bores formed in the casing and its back section for endwise movement, said short prongs also being mounted in a bore formed in the back section for coöperation with the lock detents to secure the printing wheel in predetermined set positions, and a spring yieldingly holding the lock bolt in an operative position.

2. In a printing apparatus, the combination with a casing having a displaceable back section, of a printing wheel journaled

in the casing and having type characters and circumferentially spaced lock detents, a U-shaped lock bolt having a long prong and a short prong, said long prong being mounted in bores formed in the casing and its back section for endwise sliding movement and for removal from the casing with the back section, said short prong also being mounted in a bore formed in the back section for coöperation with the lock detents to secure the printing wheel in predetermined set positions, and a coiled spring encircling said long prong and compressed between an abutment thereon and the back section, the intermediate portion of the lock bolt serving as a stop to limit the projecting movement thereof.

3. In a printing apparatus, the combination with a casing, of a printing wheel journaled in the casing and having peripheral type characters, a movable platen, guides secured to the casing for the platen, a guard plate located between the platen and the printing wheel, and guides for the guard plate having sliding interlocking engagement with the guides for the platen, said guard plate arranged to be picked up by the platen and carried toward the printing wheel.

4. In a printing apparatus, the combination with a casing, of a printing wheel journaled in the casing and having peripheral type characters, a movable label-carrying platen, guides secured to the casing for positioning a label on the platen, a guard plate located between the platen and printing wheel and normally resting on the label-positioning guides and arranged to be picked up by the platen and carried toward the printing wheel.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY M. BORDEN.

Witnesses:

EVA E. KÖNIG,
HARRY D. KILGORE.