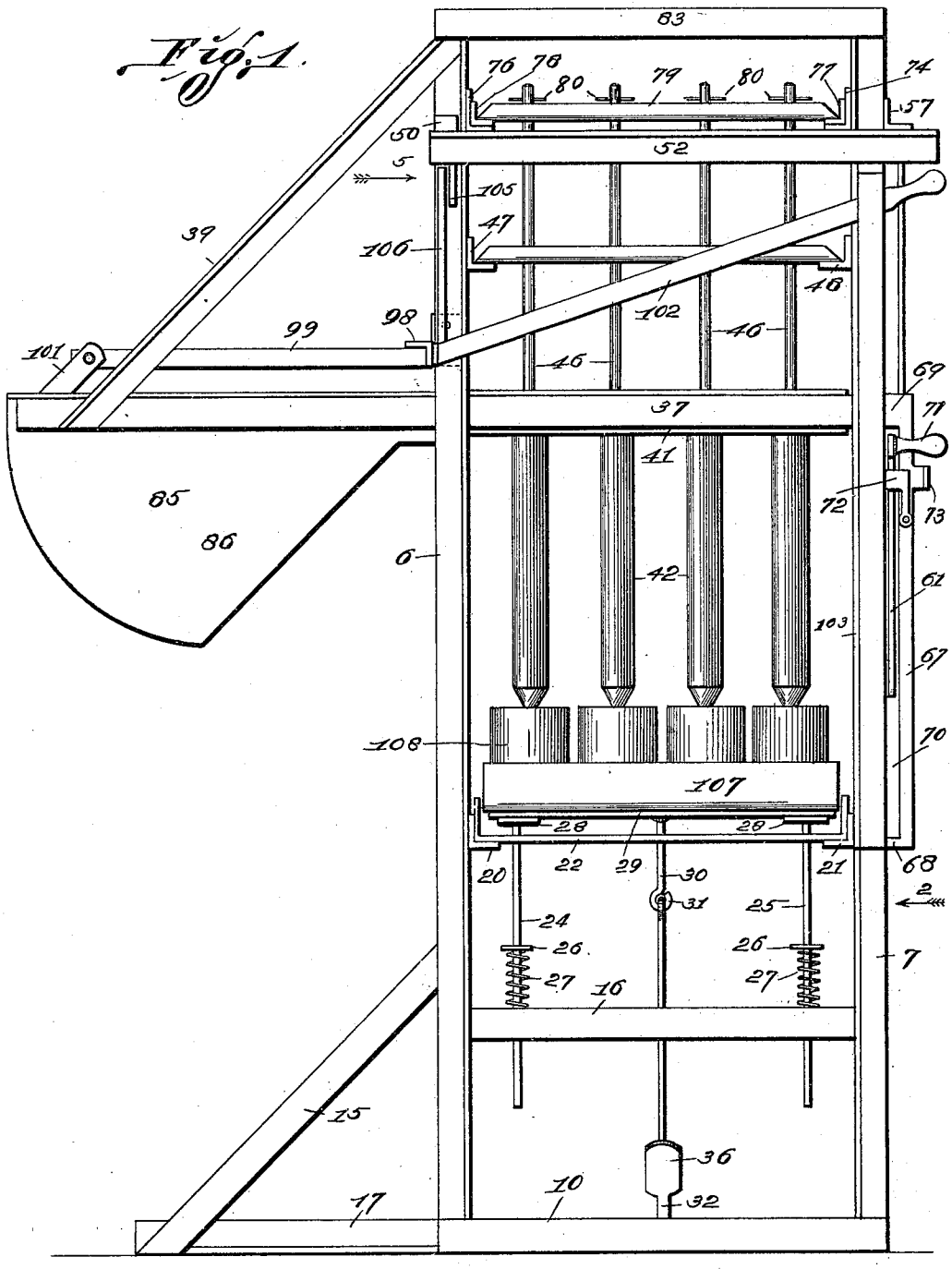
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E. WILDI.

CAN FILLING MACHINE.

No. 594,667. Patented Nov. 30, 1897.

Fig. 1.



Attest:
M. P. Smith.
S. G. Wells.

Inventor:—
Emil Wildi.
By Higdon, Longan & Higdon
Atty's.

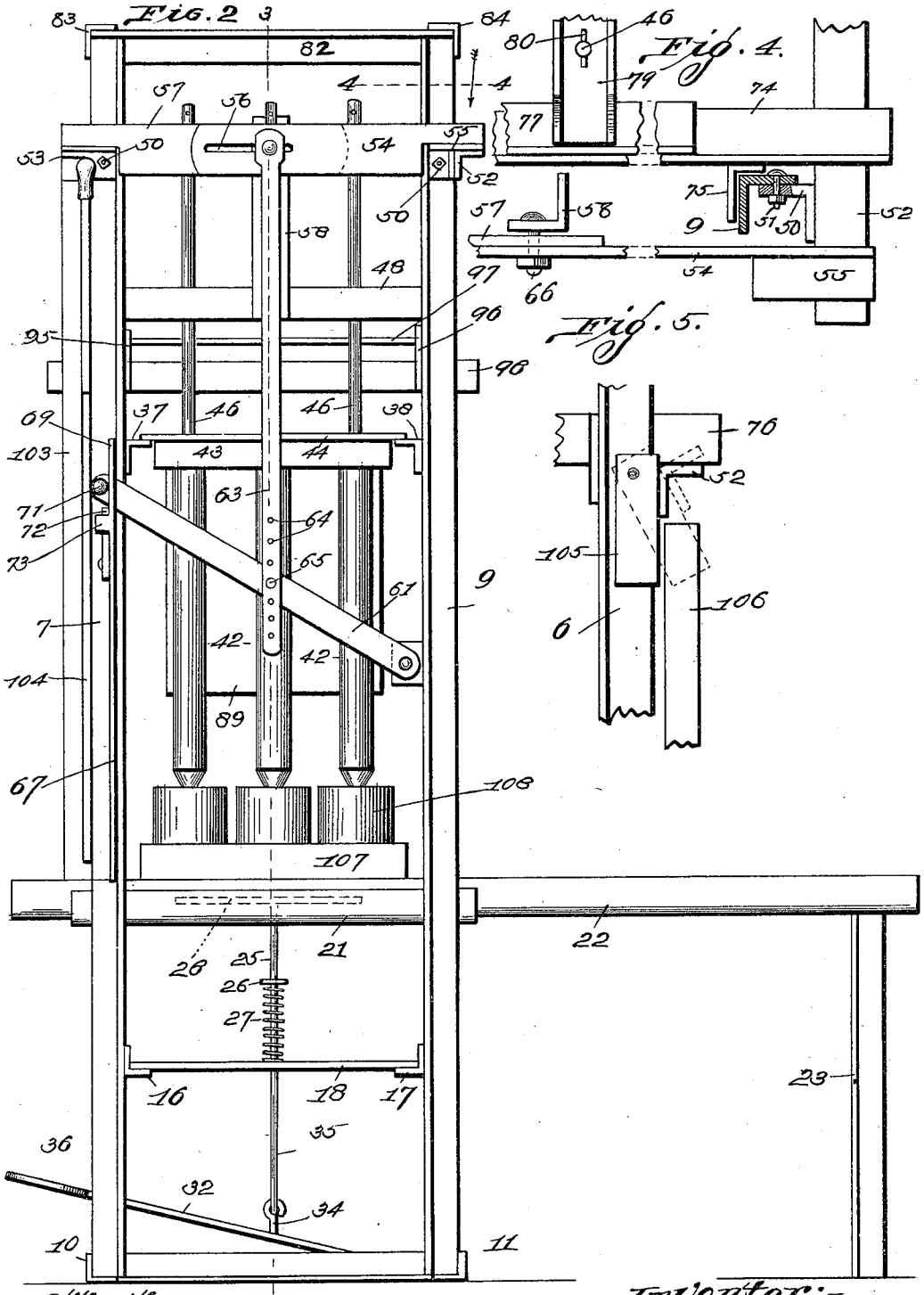
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CAN FILLING MACHINE.

No. 594,667. Patented Nov. 30, 1897.



Attest:
M. Smith
S. G. Wells.

Inventor:
Emil Wildi
By Higdon Cougan & Higdon
Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

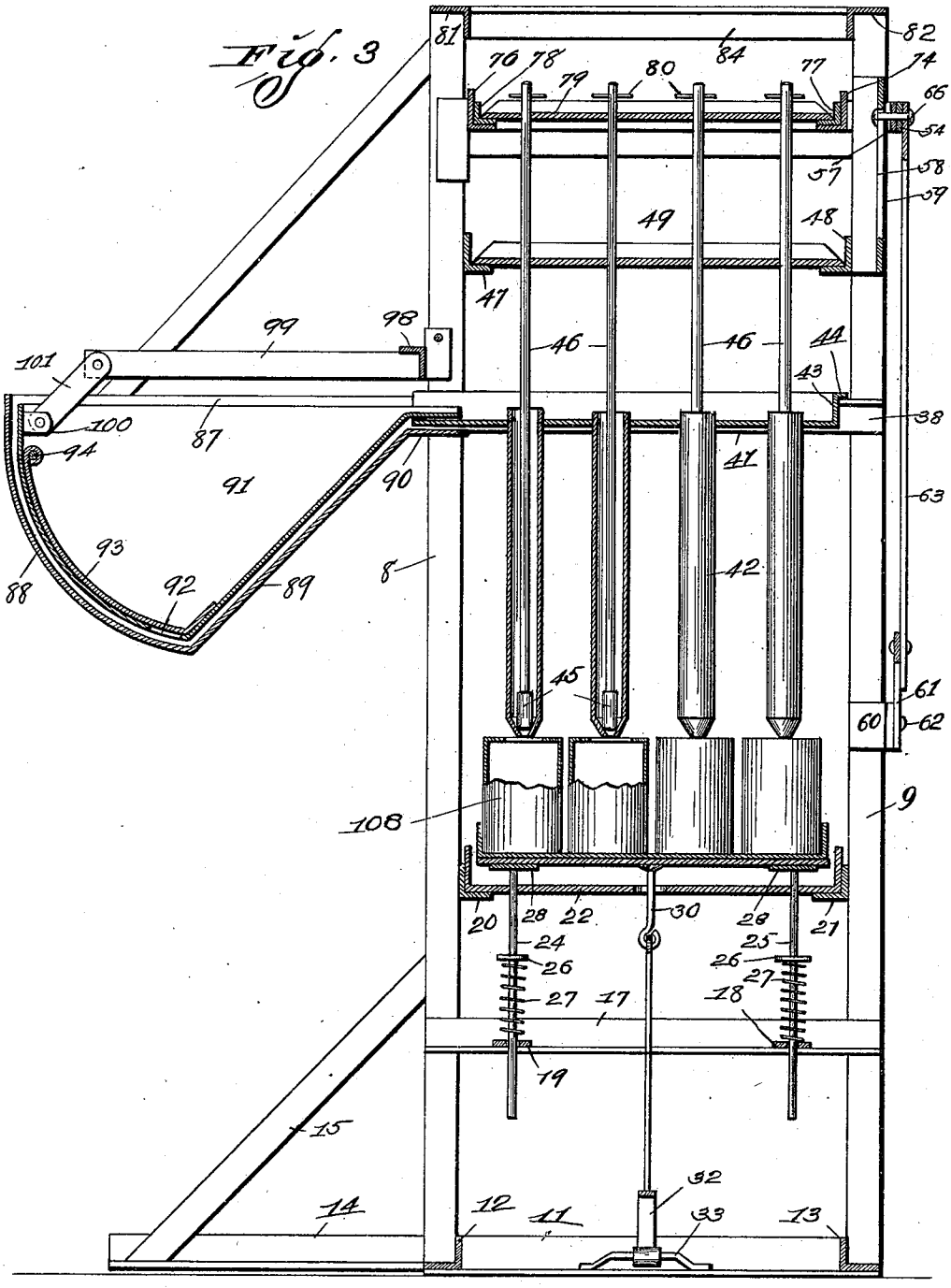
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E. WILDI.

CAN FILLING MACHINE.

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Fig. 3



Attest
W. P. Smith
S. G. Wells.

Inventor:-
Emil Wildi.
By Higdon, Corgan & Higdon
Attys

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UNITED STATES PATENT OFFICE.

EMIL WILDI, OF HIGHLAND, ILLINOIS.

CAN-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 594,667, dated November 30, 1897.

Application filed February 8, 1897. Serial No. 622,501. (No model.)

To all whom it may concern:

Be it known that I, EMIL WILDI, of the city of Highland, Madison county, State of Illinois, have invented certain new and useful Improvements in Can or Bottle Filling Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to can-filling machines; and it consists in the novel construction, combination, and arrangement of parts hereinafter shown, described, and claimed.

Figure 1 is a front elevation of my improved can-filling machine. Fig. 2 is a side elevation of the machine shown in Fig. 1 and looking in the direction indicated by the arrow 2. Fig. 3 is a vertical transverse sectional view taken approximately on the line 3 3 of Fig. 2. Fig. 4 is a horizontal sectional view in detail and upon an enlarged scale, taken approximately on the line 4 4 of Fig. 2 and looking in the direction indicated by the arrow. Fig. 5 is an enlarged detail view of a portion of the machine, looking in the direction indicated by the arrow 5 in Fig. 1, parts being broken away to economize space.

In the construction of a can-filling machine in accordance with the principles of my invention the vertical angle-bars 6, 7, 8, and 9 are arranged in the form of a rectangle, one bar at each corner of the rectangle, thus forming the posts of the frame. The posts 6, 7, 8, and 9 rest upon and are connected by the horizontal angle-bars 10, 11, 12, and 13, thus forming the sills of the frame. The sill 11 is approximately twice as long as the sill 10, and the portion 14 of said sill extends from the left side of the frame, thus forming an extension of the base to prevent the machine from tipping toward the left. The angle-bar 15 is inserted as a brace between the free end of the portion 14 and the post 8. The angle-bars 16 and 17 are mounted in horizontal alinement some distance above the sill, and the bar 16 connects the posts 6 and 7, while the bar 17 connects the posts 8 and 9. The bars 19 are interposed between the angle-bars 16 and 17, and the ends of said bars 18 and 19 rest upon the horizontal webs of said angle-bars 16 and 17, and said bars 18 and 19 each have a vertical aperture approximately in the center. The bars 18 and 19 are mounted a short distance inside of the posts. The angle-bars 20 and 21 are mounted in a horizontal position in alinement with each other some distance above the bars 16 and 17 and transversely of said bars, and the bar 20 connects the posts 6 and 8, while the bar 21 connects the posts 7 and 9.

The slide 22 is constructed of sheet metal in the form of a channel-bar, and the front end of said slide rests upon the horizontal webs of the angle-bars 20 and 21, while the rear end of said slide extends a considerable distance to the rear of the frame of the machine and is supported by the angle-iron posts 23. The rods 24 and 25 are slidingly mounted in a vertical position through apertures in the slide 22 and through apertures in the centers of the bars 18 and 19. Collars 26 are fixed upon the rods 24 and 25, one upon each rod, some distance above the bars 18 and 19, and coiled springs 27 are interposed between the collars 26 and the respective ones of the bars 18 and 19, the tension of said springs being exerted to elevate said rods 24 and 25.

The plates 28 are fixed in a horizontal position upon the upper ends of the rods 24 and 25 and above the slide 22. A sheet-metal plate 29 rests upon the plates 28, and a rod 30 is attached to the center of said plate 29 and extends downwardly through the opening in the slide 22 and has an eye 31 upon its lower end.

The foot-lever 32 is pivotally attached to the angle-bar 11 by means of the loop 33, which extends through a bearing in the end of said lever 32 and has its ends fixed to said angle-bar 11. An eye 34 is attached to said lever 32 at a point intermediate of its ends and a connecting-rod 35 connects the eyes 31 and 34. Pressure upon the free end 36 of the lever 32 will operate to depress the plate 29 until the plates 28 rest upon the slide 22. When the pressure is removed from said lever, the coil-springs 27 will operate to again elevate said plate 29.

An angle-bar 37 is placed in a horizontal position and connects the posts 6 and 7 and extends a considerable distance to the left of the machine, and a similar angle-bar 38 is mounted in horizontal alinement with said bar 37 and attached to the posts 8 and 9. An

angle-bar 39 connects the free end of the bar 37 with the upper end of the post 6, thus forming a brace to support the said free end, and a similar angle-bar 40 connects the free end of the bar 38 with the upper end of the post 8.

A plate 41 is mounted in a horizontal position between the bars 37 and 38 and a series of apertures are formed through said plate 41, in which apertures are fixed the upper ends of the measures 42.

A flange 43 extends upwardly from three edges of the plate 41, and a flange 44 extends outwardly from the upper edge of said flange 43 and said flange 44 rests upon the angle-bars 37 and 38, thus supporting the plate 41 and the parts thereto attached.

The filling-tubes 42 are hollow cylinders or tubes having conical lower ends and apertures in the points of said conical ends. The valves 45 operate within the filling-tubes 42 and open and close said openings, and said valves 45 are operated by the valve-stems 46, which extend upwardly to some distance above the plate 41.

An angle-bar 47 connects the posts 6 and 8, and a similar angle-bar 48 connects the posts 7 and 9, said angle-bars 47 and 48 being in horizontal alinement and some distance above the plate 41. The channel-bars 49 connect the angle-bars 47 and 48 and have apertures forming bearings through which the valve-stems 46 operate.

A short piece of angle-bar 50 is mounted in a vertical position outside of each of the posts 6, 7, 8, and 9, and is pivotally connected to said posts by means of a bolt 51, as shown in Fig. 4. The angle-bar 52 extends transversely of the machine in a horizontal position and outside of the posts 8 and 9, with its vertical web projecting downwardly from its horizontal web, and said vertical web is fixed to the corresponding ones of the angle-bars 50, as required to form a pivotal connection between said bar 52 and said posts 8 and 9. A similar bar 53 extends in a position parallel with the bar 52 outside of the posts 6 and 7 and is attached to the corresponding ones of the angle-bars 50.

A flat metal strip 54 has the portion 55 of its outer end turned outwardly at right angles to the body of said strip, and said portion 55 rests upon the right-hand end of the horizontal bar 52 and is rigidly fixed to the horizontal web of said angle-bar. In the free end of the strip 54 is a longitudinally-extending opening 56, as shown in Fig. 2. A metallic strip 57, similar in every respect to the strip 54, is attached to the end of the angle-bar 53, the openings 56 in said strips 54 and 57 coming in alinement with each other.

An angle-bar 58 is mounted in a vertical position approximately half-way between the posts 7 and 9 and in alinement with said posts, and the lower end of said bar is fixed to the angle-bar 48. A vertically-extending aperture 59 is formed through one web of the bar 58, as shown in Fig. 3. A short piece of angle-bar 60 is attached to the post 9 a short distance above the bar 21, and a hand-lever 61 is pivotally attached to said angle-bar by means of a pin 62. A connecting-rod 63 has a series of openings 64 in its lower end, and said lower end is pivotally connected to the lever 61 at a point intermediate of its ends by means of the pin 65. A pin 66 is fixed in the upper end of the connecting-rod 63 and extends loosely through the openings 56 in the strips 54 and 57 and through the opening 59 in the angle-bar 58.

A vertical bar 67 is mounted beside the post 7, and outside of said post the ends of said bar are connected to said post by means of the arms 68 and 69, thus forming a slot 70, in which the free end of the lever 61 operates. A handle 71 is attached to the free end of said lever for manually operating the same.

A dog 72 is pivotally attached to the bar 67 near its upper end and in position to have its free end engage under the lever 61 to hold said lever inoperative when desired. An arm 73 projects from near the upper end of the bar 67 and forms a stop to limit the outward motion of the dog 72, the free end of said dog resting against said stop when said dog is moved out of the way of said lever. When the handle 71 is depressed, the free ends of the levers 54 and 57 are depressed, thus elevating the outer edges of the angle-bars 52 and 53.

An angle-bar 74 is placed against the inner faces of the posts 7 and 9 and upon the angle-bars 52 and 53. Short pieces of angle-bar 75 are vertically mounted and attached to the outer face of the angle-bar 74 and in positions to engage the facing surfaces of the posts 7 and 9, and thus form stops to limit the endwise motion of said angle-bar 74. An angle-bar 76, similar in every respect to the angle-bar 74, is placed against the inner faces of the posts 6 and 8 and upon the angle-bars 52 and 53, the vertical angle-bar 75, attached to said angle-bar 76, engaging the facing surfaces of said posts 6 and 8. The angle-bars 74 and 76 are mounted with their horizontal webs extending toward each other and their vertical webs extending upwardly from the outer edges of said horizontal webs. An angle-bar 77 is placed upon the horizontal web of the angle-bar 74, and with its vertical web against the vertical web of said angle-bar 74, and a similar angle-bar 78 is placed in a similar position relative to the angle-bar 76. The channel-bars 79 connect the angle-bars 77 and 78 and have their ends fixed to said channel-bars. Vertical apertures are formed through the central webs of the channel-bars 79 and form bearings in which the upper ends of the valve-stems 46 operate. The pins 80 are inserted through the upper ends of said valve-stems above said channel-bars. When the angle-bars 52 and 53 are elevated by the operation of the handle 71, the channel-bars 79 are elevated, thus raising the valves 45 and allow-

ing the contents of the filling-tubes 42 to pass downwardly and out of said funnels. The upper ends of the posts 6 and 8 are connected by the angle-bar 81, and the upper ends of the posts 7 and 9 are connected by a similar angle-bar 82. The upper ends of the posts 6 and 7 are connected by the angle-bar 83, and the upper ends of the posts 8 and 9 are connected by the angle-bar 84.

A sheet-metal tank 85 is attached to and supported by the free ends of the angle-bars 37 and 38, said tank being positioned to the left side of the main frame of the machine, as shown in Figs. 1 and 3. The front wall 86 and the rear wall 87 of the tank 85 are substantially vertical and have horizontal upper edges. The outer wall 88 of the tank 85 is substantially a segment of a circle, and its lower edge is curved inwardly to approximately the center of the tank, and said wall connects the outer edges of the walls 85 and 87. The inner wall 89, which is opposite the outer wall 88, is substantially straight and is placed at an angle of approximately forty-five degrees relative to a horizontal line, and said wall 89 connects the free edges of the walls 86 and 87. Extending from the upper edge of the wall 89 to a position below the edge of the plate 41 is a plate 90, which should be nearly horizontal, but inclines sufficiently toward the tank 87 to prevent the liquid which runs from the plate 41 toward the tank from passing outwardly over the free edge of said plate 90. The dipper 91 is substantially the same shape as the tank 85 and fits within said tank. In the bottom of the dipper 91 is formed an opening 92 to allow the liquid from the tank to pass through said opening into said dipper. A sheet-metal valve 93 is hinged in position by means of the rod 94 passing through a bead formed by curling its upper edge, and the valve 93 is held normally in position to close the opening 92 by the force of gravity.

A short piece of angle-bar 95 is placed against the post 6 a short distance above the angle-bar 37, and a similar angle-bar 96 is placed against the post 8 in horizontal alinement with said bar 95, and a rod 97 passes through said posts 6 and 8 and through the upper ends of said angle-bars 95 and 96, as required to form pivotal connections between said angle-bars 95 and 96 and said posts. An angle-bar 98 is placed against the outer face of the posts 6 and 8 and is securely attached to said angle-bars 95 and 96. An arm 99 has one of its ends attached to the center of the bar 98 and extends nearly to the opposite side of the tank 85. An ear 100 is attached to the inner face and near the upper edge of the outer wall of the dipper 91, and a connecting-rod 101 connects said ear with the free end of said arm 99. A hand-lever 102 is attached to the front end of the bar 98, and the free end of said lever extends to a position to the right of the post 7. A bar 103 is mounted in a position parallel with the post 7, and the ends of said bar are connected to said post 7, thus forming the slot 104, in which said lever 102 operates. An arm 105 extends downwardly from the angle-bar 50, which is attached to the post 6, and an arm 106 extends upwardly from the angle-bar 98. When the handle 71 is depressed, the free end of the arm 105 swings outwardly, as indicated by dotted lines in Fig. 5, and should the operator attempt to depress the free end of the hand-lever 102 before elevating the handle 71 the free end of the arm 106 will strike said arm 105 and prevent said lever 102 from being depressed, thus preventing the dipper 91 from being operated to flood the filling-tubes 42 while the valves 45 are in their elevated position.

The tray 107 is designed to slide onto the plate 29 from the front end of the machine, and said tray is designed to carry a series of the cans 108. In passing the tray 107, carrying the cans 108, onto the plate 29 the foot-lever 36 should be depressed, thus lowering the plate 29 and allowing the upper edges of the cans to pass under the points of the filling-tubes 42. After the tray has been brought into the desired position the lever 36 is released, thus allowing the coil-springs 27 to elevate the plate 29 and bring the conical points of the funnels 42 into the openings in the tops of the cans. The operator then grasps the handle upon the free end of the lever 102 and depresses said handle, thus raising the dipper 91 and dumping the contents onto the plate 41, from which plate said contents will pass into the filling-tubes 42. The operator then releases the lever 102, allowing the dipper to return to its normal position within the tank 85, and the surplus of material upon the plate 41 will run back into the tank down the inclined wall 89 and pass upwardly into the dipper through the opening 92. The filling-tubes 42 are graduated to hold a sufficient quantity of the material to be canned to fill the cans. After the filling-tubes have been filled, as described, the operator grasps the handle 71 and depresses the lever 61, thus elevating the channel-bars 79 and raising the valves 45 and allowing the material within the filling-tubes to run within the cans. After the tray of cans have been filled the plate 29 is again depressed, the tray is pushed toward the rear of the machine and onto the slide 22, and another tray is inserted from the front end of the machine into position. One end of the dipper rests upon the plate 41, and when the lever 102 is depressed the outer end of said dipper is raised, thus allowing the dipper to turn upon said plate 41 as upon a fulcrum and allow the material which is within the dipper to be discharged from said dipper upon said plate.

In the construction of my improved can-filling machine I prefer to use light angle-bars, as shown and described, but it is obvi-

ous that other forms of bars may be used without departing from the spirit of my invention.

I claim—

1. In a can-filling machine, a suitable frame, a plate fixed in a horizontal position upon said frame, filling-tubes fixed in and depending through said plate and having apertures in their lower ends, walls projecting upwardly from the edges of said plate, valves operating in said filling-tubes to regulate the passages through said apertures in said tubes, valve-stems extending upwardly from said valves, a frame connecting the upper ends of said valve-stems, means of raising and lowering said frame whereby said valves are operated, means of flooding said plate, and means of bringing cans into position under the apertures in said filling-tubes; said last-mentioned means consisting of the slide 22 constructed of sheet metal in the form of a channel-bar, suitable supports for said slide, the rods 24 and 25 slidingly mounted in a vertical position through apertures in said slide 22, collars fixed upon said sliding rods and below said slide 22, expansive coil-springs upon said sliding rods and operating to elevate said collars and said rods 24 and 25, plates fixed in horizontal positions upon the upper ends of said rods 24 and 25, the sheet-metal plate 29 resting upon the first-mentioned plate, the rod 30 attached to the center of said plate 29 and extending downwardly through the slide 22, a lever connected to the lower end of said rod, and a suitable can-carrying tray resting upon said plate 29, substantially as specified.

2. In a can-filling machine, a suitable plate, filling-tubes fixed in and depending through said plate and having apertures in their lower ends, valves operating within said filling-tubes and controlling the passages through said apertures, means of bringing cans into position under the apertures in said filling-tubes, means of flooding said plate; said latter means consisting of the sheet-metal tank rigidly mounted in position at one side of said plate, the dipper 91 fitting into said tank and having an opening in its bottom, the valve 93 hinged in position to close said opening, and means of raising and lowering the outer side of said dipper as required to empty its contents upon said plate, substantially as specified.

3. In a can-filling machine, a suitable plate, filling-tubes fixed in and depending through said plate and having apertures in their lower ends, a suitable frame supporting said plate, walls projecting upwardly from the edges of said plate, valves operating in said filling-tubes to regulate the passages through said apertures in said tubes, valve-stems extending upwardly from said valves, a frame connecting the upper ends of said valve-stems, means of flooding said plate, means of bringing cans into position under the apertures in said filling-tubes, and means of raising and lowering said frame whereby said valves are operated; said latter means consisting of the angle-bars 50 mounted in vertical positions outside of each of the posts of the frame and pivotally connected to said posts, the angle-bars 52 and 53 mounted in positions transversely of the machine and fixed to said angle-bars 50, the flat metal strip 54 having one of its ends rigidly fixed to the horizontal bar 52 and having the longitudinally-extending opening 56 in its opposite end, the flat metal strip 57 having one of its ends fixed to the horizontal bar 53 and having the longitudinally-extending opening in its opposite end, said openings in the free ends of said strips 54 and 57 being normally in alinement and the plate to be raised and lowered being supported by said angle-bars 52 and 53, the connecting-rod 63 mounted in vertical position, the pin 65 fixed in the upper end of said connecting-rod and operating in the slots in the free ends of the metal strips 54 and 57, and a lever connected to the lower end of said connecting-rod as required to raise and lower said connecting-rod, substantially as specified.

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

EMIL WILDI.

Witnesses:
M. E. SPILLMAN,
MAUD GRIFFIN.