No. 707,631. Patented Aug. 26, 1902.

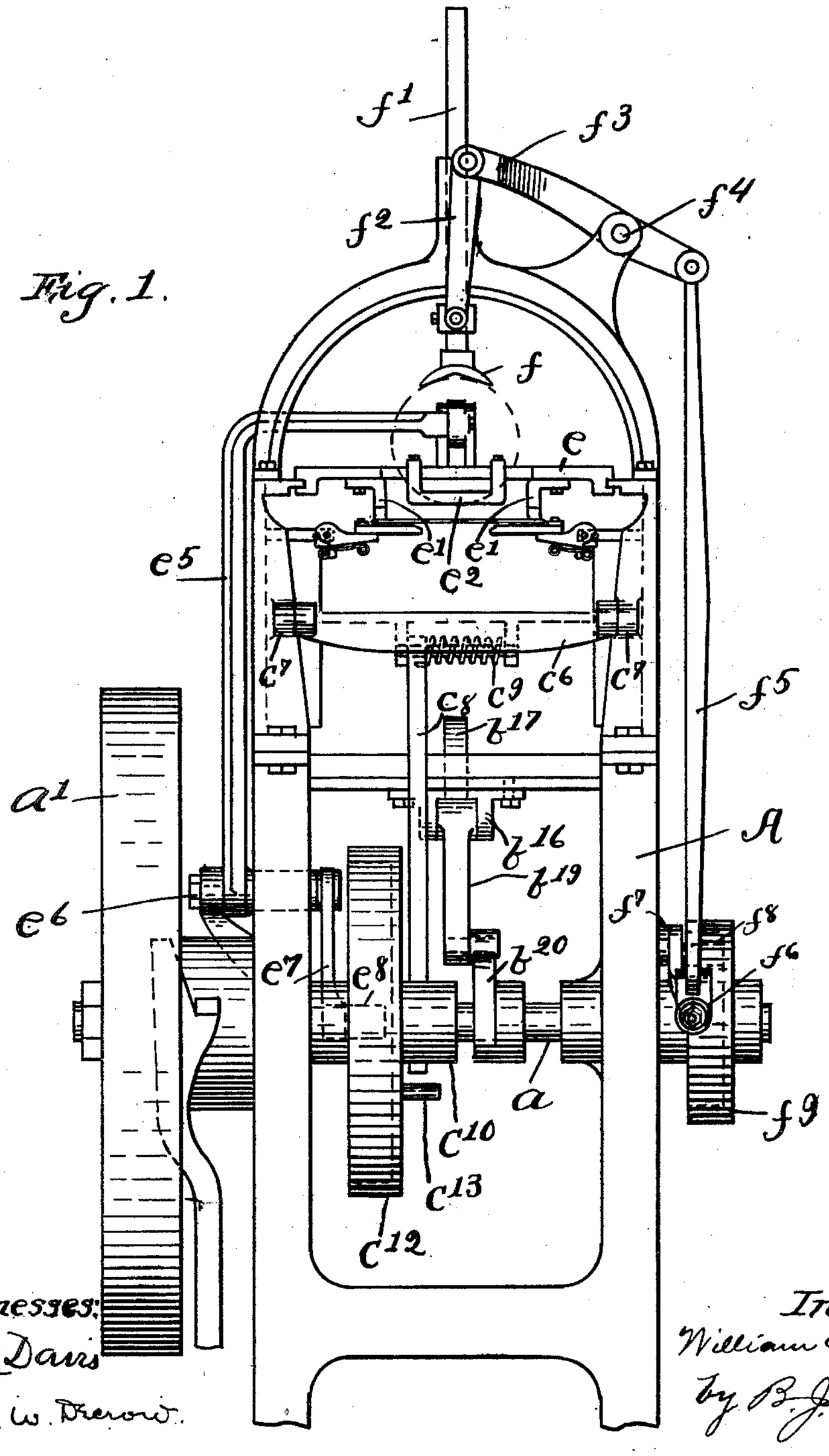
W. E. PETTEE.

BOTTLE LABELING MACHINE.

(Application filed Mar. 2, 1901.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.



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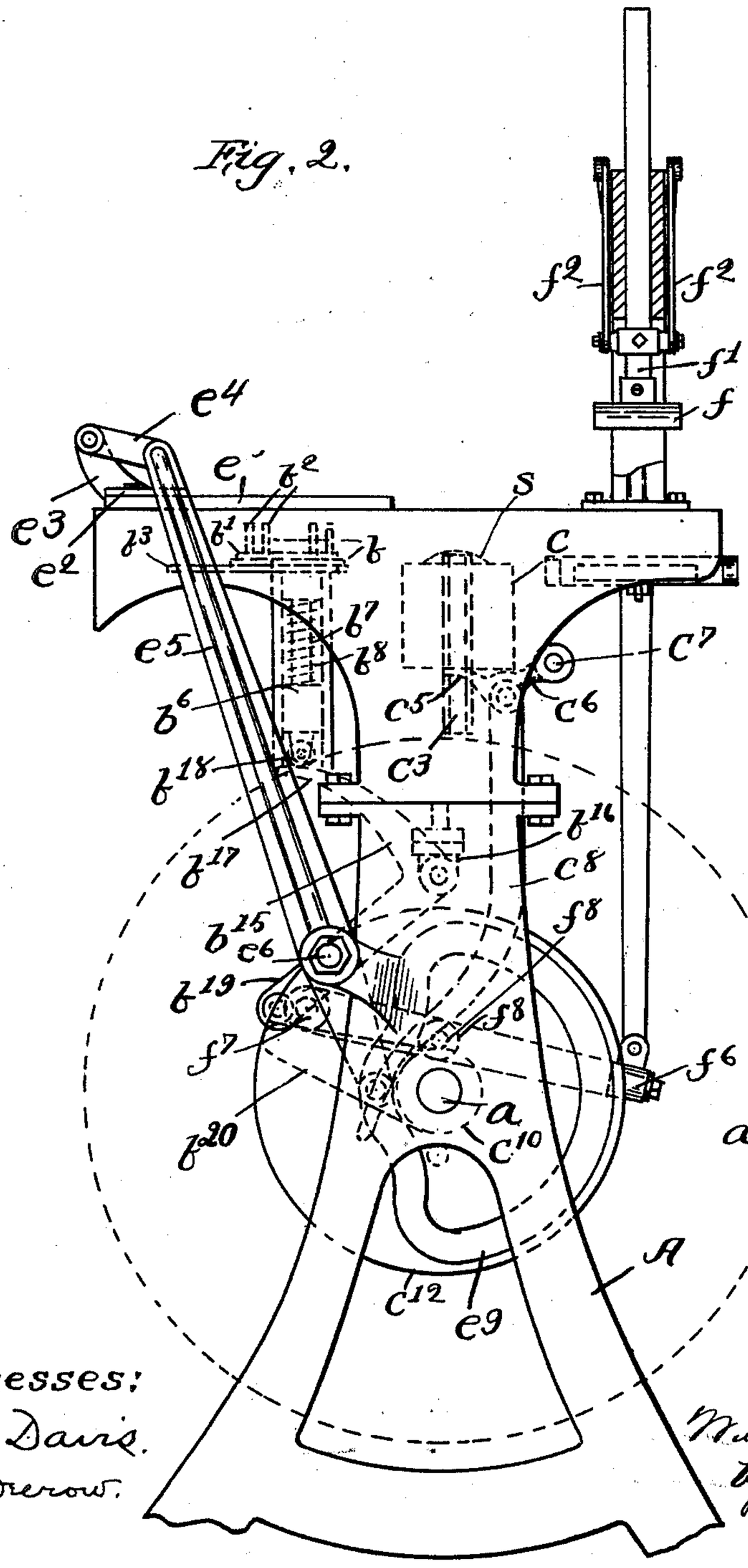
(No Model.) 3 Sheets—Sheet 2.

Fig. 2.



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(Application filed Mar. 2, 1901.)

(No Model.) 3 Sheets—Sheet 3.

Fig. 3.

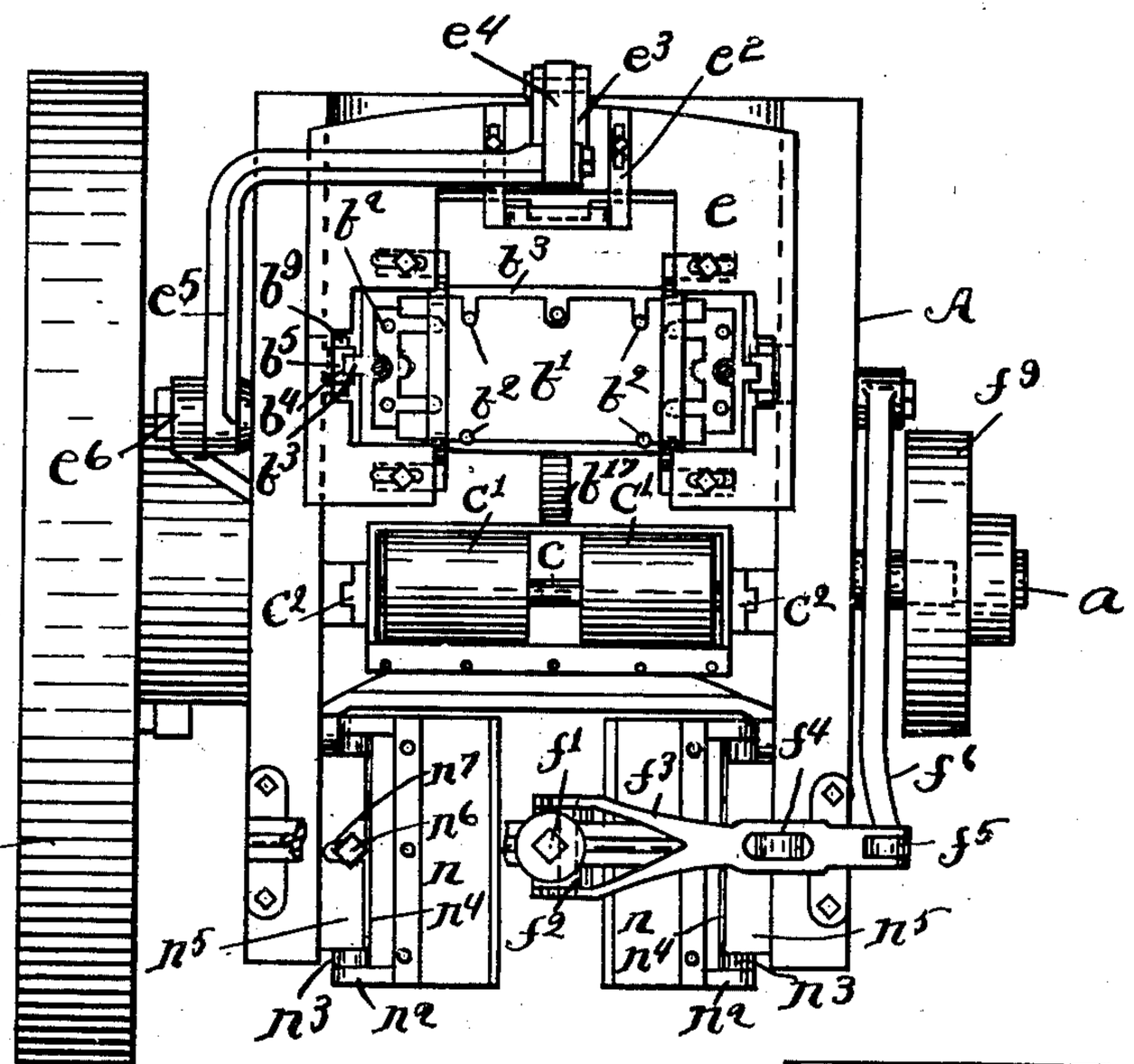


Fig 4.

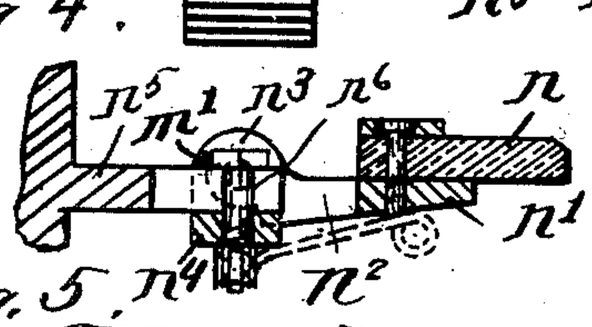


Fig. 5.

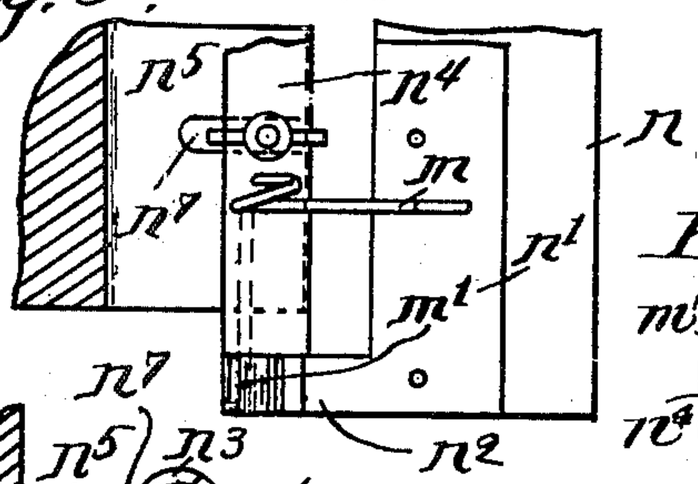


Fig. 6.

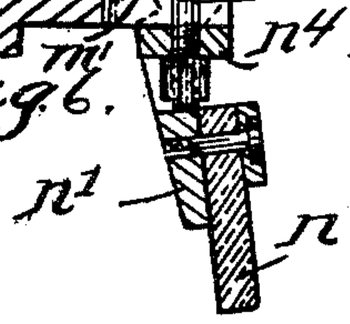
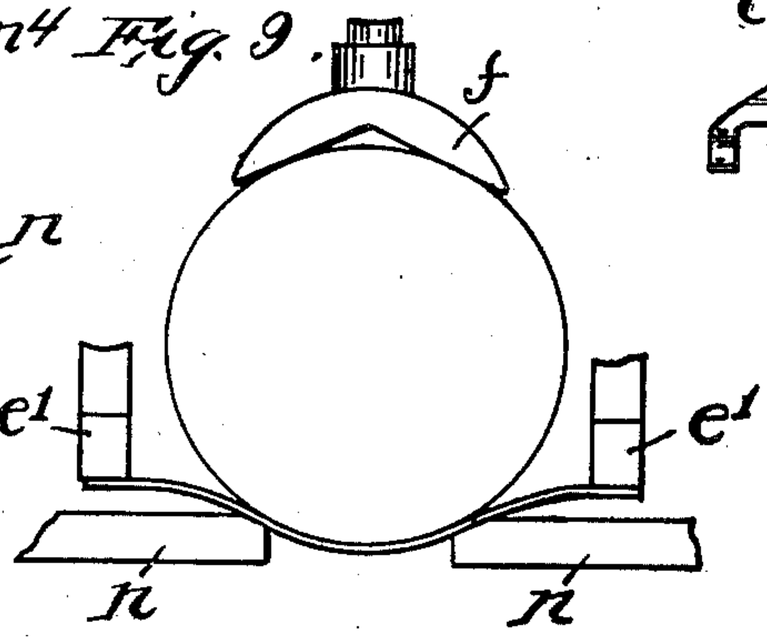


Fig. 9.



Witnesses:
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John W. Dewes.

Fig. 7.

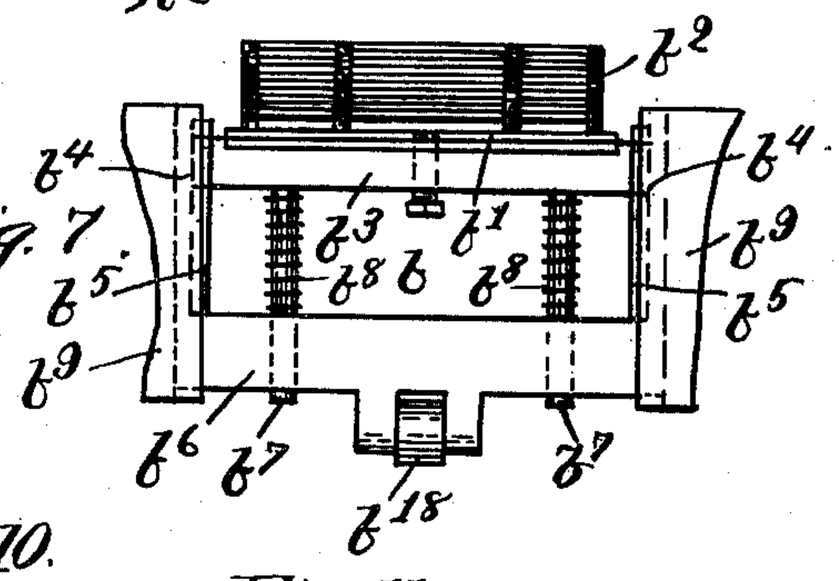
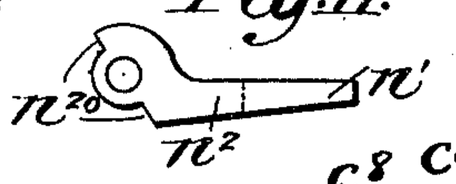


Fig. 10.

Fig. 11.



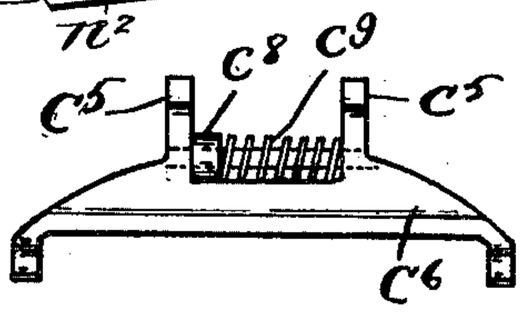


Fig. 8.

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UNITED STATES PATENT OFFICE.

WILLIAM E. PETTEE, OF NEWTON, MASSACHUSETTS.

BOTTLE-LABELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 707,631, dated August 26, 1902.

Application filed March 2, 1901. Serial No. 49,546. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. PETTEE, of Newton, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Bottle-Labeling Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to bottle-labeling machines, and has for its object to improve and simplify the construction of the same to the end that the label when brought into position to be applied to the bottle is held by the label-conveyer directly above a pair of label-engaging plates, into engagement with which it is moved by the bottle moving downward, and said plates by impinging the label against the bottle serve to hold said label in correct position thereon while it is being detached from the label-conveyer, said plates thereafter serving as wipers to apply the pasted edges of the label to the bottle as the bottle continues its downward movement between them.

The invention consists in the combination of a label-carrier having a pair of label-carrying shoes separated sufficiently to provide a passage between them for the bottle, a pair of yielding label-engaging plates over which the label is brought by said label-carrier, which project beyond the shoes into the downward path of movement of the bottle and which occupy a plane directly beneath the label borne by said label-carrier to thereby impinge the label against the bottle and hold it in correct position thereon while the downward-moving bottle is acting to detach said label from the label-carrying shoes and which thereafter serve as wipers for applying the pasted edges of the label to the bottle, and suitable extensions on the frame bearing said label-engaging plates, which provide an unobstructed space between them and below for the downward passage of the bottle and for its withdrawal from beneath said plates or wipers; also, in an improved form or construction of label-engaging plate or wiper; also, in a label-engaging plate or wiper adapted to be moved into and out of operative position and when in operative position to be yieldingly supported close to the label-carrying shoes and when out of operative position to be sufficiently removed from said label-carrying shoes to afford easy access thereto for the purpose of cleaning them or for any other purpose; also, in improved means for moving the paste-box; also, in improved means for moving the label-carrier, and also in improved means for operating the plunger.

Figure 1 shows in front elevation a bottle-labeling machine embodying this invention, the paste-box and label-holder being removed for clearness. Fig. 2 is a side elevation of the machine shown in Fig. 1. Fig. 3 is a plan view of the machine shown in Fig. 2. Figs. 4, 5, and 6 are details of one of the label-engaging plates or wipers. Fig. 7 is a front elevation of a label-holder which may be employed. Fig. 8 is a detail of a part of the means provided for moving the paste-box up and down. Fig. 9 is a detail showing a label supported by the label-carrying shoes, the bottle pressed down by the plunger and in the act of detaching the label from the label-carrying shoes, and the label-engaging plates impinging the label on the bottle and holding it in correct position thereon while said label is being detached from the shoes, said plates afterward acting as wipers for applying the pasted edges of the label to the bottle. Figs. 10 and 11 are details of parts of the label-engaging plates or wipers.

The main frame A of the machine is of suitable construction to support the working parts.

a represents the main shaft, which is driven by a belt-pulley *a'* or otherwise.

b represents a rising-and-falling label-holder, and in Figs. 2 and 7 a label-holder of suitable construction is shown which is well adapted for the present machine. The label-holder herein shown comprises a suitable bottom plate *b'* for the pile of labels, a number of pins b^2, rising from said plate to hold the labels correctly in a pile, a base-plate b^3, supporting said plate *b'*, and laterally-projecting lugs at opposite ends of said plate b^3, which enter and slide up and down in vertical guideways b^4, formed in arms b^5 b^5, rising from a base b^6, and a pair of guide-pins b^7 b^7, depending from the base-plate b^3, which freely pass down through holes in said base b^6, and

springs b^8, surrounding said pins b^7, which hold the plate b^3 and parts supported by it at a suitable elevation, yet permitting said plate to be depressed any desirable distance when pressing the pile of labels up against the label-carrier to deposit the uppermost label of the pile thereon. The base b^6 and upright arms b^5 b^5 rising from it constitute a frame for supporting the label-holder, and said upright arms b^5 b^5 are formed as guides which enter and slide up and down freely in suitable guideways provided in depending arms b^9 on the frame.

For moving the frame bearing the label-holder vertically in its guideways a bell-crank lever is pivotally supported by ears b^{16}, which are supported by the main frame, and one arm of said lever, as b^{15}, is provided with a curved end portion b^{17}, which engages a roll b^{18} on the base b^6, and the other arm, as b^{19}, of said lever has a laterally-projecting stud, with or without a roll thereon, which projects into the path of a cam b^{20}, secured to the main shaft a, so that as said shaft a revolves the bell-crank lever b^{15} b^{19} will be actuated to in turn raise the label-holder and thereafter permit it to fall by gravity.

The paste-box c is of any suitable shape and size and as herein shown contains two paste-rolls c' c', and said box c has at opposite ends laterally-projecting lugs c^2, which enter and slide up and down in vertical guideways provided in depending arms c^3 on the main frame. (See dotted lines, Fig. 2.)

For raising the paste-box c when it is desired to bring the paste-rolls into position to engage the label-carrying shoes and supply them with paste two or more fingers c^5, projecting rearwardly from the cross-bar c^6, bearing upon the under side of the paste-box c and normally supporting said box in its lowermost position, and said cross-bar c^6 is pivoted to ears c^7 on the main frame, so that it can rock, and the fingers c^5 thereby moved up and down. A long arm or lever c^8 (see dotted lines, Fig. 2) depends from said cross-bar c^6, it being pivotally connected thereto at its upper end, yet said arm or lever c^8 is yieldingly connected to said cross-bar, and to accomplish this a spiral spring c^9 is mounted on the pivot-rod upon which the arm or lever is supported, one end of which is connected to said arm or lever and the other end is connected to the cross-bar. Therefore connection of the arm or lever with the cross-bar is through the medium of the spring. The arm or lever c^8 extends downward some distance and is bent or offset more or less at or near its lower end, (see Fig. 2,) and its lower end portion normally rests upon the hub c^{10} of a disk c^{12}, which is secured to the main shaft a. A crank-pin c^{13} projects from said disk c^{12}, which engages said arm or lever c^8 each time said disk makes a complete revolution, and while in engagement therewith moves said arm or lever to in turn rock the cross-bar c^6 and lift the fingers c^5, and thereby lift the paste-box. It will be understood that the paste-box rests by gravity on said fingers and will fall by gravity when permitted.

The label-carrier consists of a horizontally-disposed plate e, formed with guides at opposite sides fitting and sliding horizontally in guideways provided in the main frame, and said plate e has a centrally-disposed opening or recess made wide enough for the passage of a bottle, and at the opposite sides of said opening or recess label-carrying shoes e' e' are adjustably secured to the under side of the plate e. These shoes are merely bars having at each end an arm through or into which a bolt passes to secure them to the plate e, and said plate e has slots for said bolts whereby provision is made for adjustment of the shoes toward and from each other for labels of different widths. At the rear end of the opening or recess in the plate e a stop e^2, of suitable construction, is provided, against which the end of the bottle may be brought to bear when introduced to be labeled, and said stop e^2 is made adjustable. The label-carrier is adapted to be moved rearwardly in a horizontal plane to a position above the label-holder, and while moving rearward to such position will pass over the paste-rolls, which will be elevated at the proper time, so that the shoes e' e' will engage said rolls and become smeared with paste. While the plate e dwells above the label-holder, the latter will be raised by the means heretofore described, and the uppermost label of the pile will be pressed upon the shoes, adhering thereto, so that as the plate e returns it will convey said label to a position to be applied to the bottle. By means of said shoes e' e' two narrow lines of paste will be deposited on the opposite edges of the back side of the label, and the central position of said label will be free from paste. For moving the label-carrier back and forth in a horizontal plane, I have provided at the rear end of the plate e a pair of upwardly-projecting ears e^3, they being located substantially midway between the opposite sides of the plate e, and to said ears a short link e^4 is loosely connected, which extends forward, and the forward extremity of said link e^4 is loosely connected to the upper end or extremity of a bent arm or lever e^5, which passes over the side of the machine-frame and down along the side of the machine and is pivoted at its lower end at e^6 to the frame. The pivoted shaft e^6 passes through the frame, and at its opposite or inner end a short arm e^7 is secured, which has a lateral projection e^8, with or without a roll thereon, which engages a cam-groove e^9, formed or provided in one side or face of the disk c^{12}. The cam-groove is so formed that during each revolution of the disk c^{12} the arm or lever e^5 will be moved to in turn move the label-carrier a complete excursion forward and back.

A plunger f is preferably provided at the front of the machine, which is located above the label-engaging plates or wipers to be de-

scribed, which acts to press the bottle down between said plates or wipers; but as it is an easy matter to press said bottles down between the plates or wipers by hand, they being filled and quite heavy, I do not desire to limit my invention to the employment of a plunger. In practice I find that as an operator becomes expert in running the machine the necessity of employing the plunger gradually lessens, particularly when labeling heavy bottles. As herein shown, however, the plunger f is attached to the lower end of an upright rod or bar f', which passes freely up through a hole in the cross-bar of the main framework of the machine, and to said plunger-rod f' a pair of short links f^2 f^2 are loosely connected by a collar which is adjustably secured to the rod, and the upper ends of said links f^2 are loosely connected to the forked end f^3 of a lever pivoted at f^4 to the frame, the opposite end of said lever being connected by a long connecting-rod f^5 with an arm f^6, pivoted at f^7 to the frame. The arm f^6 has at a suitable point between its ends a lateral projection f^8, with or without a roll thereon, which enters a cam-groove formed or provided in one side or face of a disk f^9, secured to the main shaft a. As said disk f^9 revolves the plunger f will be caused to descend and then to ascend.

A pair of label-engaging plates or wipers are located at the front of the machine and disposed in a horizontal plane just below the path of movement of the label-carrier, so that the label which is brought forward by said label-carrier will occupy a position just above but very close to said label-engaging plates or wipers to be applied to the bottle, and said plates or wipers are supported by suitable extensions on the frame, which project forward and provide an unobstructed space between them and below for the downward passage of the bottle between said plates or wipers and for the withdrawal of the bottle beneath said plates or wipers. The two label-engaging plates or wipers are made alike, or substantially so. Each label-engaging plate or wiper consists of a flat plate n, of rubber or other yielding material, secured to a pivoted frame comprising a flat bar n', having at each end a laterally-projecting ear n^2. The ears n^2 of the frame are pivoted to ears n^3, rising from opposite ends of a plate n^4, which is disposed beneath a flat plate n^5, fixed to the main frame, and said plate n^4 is adjustably secured to said fixed plate n^5 by a bolt n^6, which passes through said plate n^4 and through a slot n^7 in said fixed plate n^5. Provision is thereby made for laterally adjusting said plate n^4 and parts attached to it. To the under side of the plate n^4 a spring-acting finger m is attached, the free end of which bears upon the under side of the plate n' and acts to hold said plate n' in substantially horizontal position, yet permitting it to yield. The ears n^2, projecting from the plate n', are cut away to provide two shoulders n^{20}, and a pin m' projects from one of the ears n^3 of the plate n^4, which enters said cut-away portion and which abuts against one or the other shoulder to limit the movement of the pivoted frame. The spring m is swiveled to the plate n^4, so that it may be turned to one side whenever desired, as shown in dotted lines, Fig. 5, to a position out of engagement with the plate n', and when so turned the plate n' is free to drop into a substantially vertical position, as shown in Fig. 6, and when in such position the label-carrying shoes e' e' will be fully exposed in order that they may be cleansed. The label-engaging plates or wipers are normally held in substantially horizontal position as close to the path of movement of the label-carrier as possible in order that the label, which is brought forward by said label-carrier, may be held by it just above said label-engaging plates or wipers, and said label-engaging plates or wipers project toward each other beyond the shoes into the downward path of movement of the bottle, as best shown in Fig. 9, far enough so that as the bottle first presses the label down ever so little said label will be brought into engagement with the yielding plates n n before it has become detached from the label-carrying shoes e' e'. As the label is thus pressed down into engagement with said plates n n they act to impinge the label on the bottle and hold it in correct position thereon while the label is being detached from the shoes by further downward movement of the bottle. In this respect the yielding plates n n serve as label-engaging plates. After the label has been detached from the shoes e e and while it is held in correct position on the bottle by said yielding plates n n the bottle is continued downward between said plates n n, and during such further downward movement of the bottle said plates act as wipers for applying the pasted edges of the label to the bottle. Therefore it will be seen that by disposing the plates n n very close to the path of movement of the label-carrier and projecting them toward each beyond the shoes and well into the downward path of movement of the bottle they are caused to successively perform two different functions, acting first as label-engaging plates to engage and hold the label while it is being detached from the shoes and subsequently as wipers.

I claim—

1. In a bottle-labeling machine, the combination of a label-carrier having a pair of label-carrying shoes, separated to provide a passage between them for the bottle, a pair of yielding label-engaging plates over which the label is brought by said label-carrier, which project beyond the shoes, into the path of movement of the bottle, and which occupy a plane directly beneath a label borne by said label-carrier to thereby impinge the label against the bottle and hold it in correct position thereon while said label is being detached

from the label-carrying shoes by a downward movement of the bottle, and which thereafter act as wipers for applying the pasted edges of the label to the bottle, and forward extensions on the frame bearing said label-engaging plates which provide an unobstructed passage for the bottle substantially as described.

2. In a bottle-labeling machine, the combination of a label-holder, a paste-box containing paste-rolls, and a reciprocating label-carrier having a pair of label-carrying shoes, separated to provide a passage between them for the bottle, means for moving said paste-box and label-holder successively toward and from said label-carrier, a pair of pivotally-supported label-engaging plates over which the label is brought by said label-carrier, which project beyond the shoes, into the path of movement of the bottle, and which occupy a plane directly beneath a label borne by said label-carrier, to thereby impinge the label against the bottle and hold it in correct position thereon while said label is being detached from the label-carrying shoes by a downward movement of the bottle, and which thereafter act as wipers for applying the pasted edges of the label to the bottle, and forward extensions on the frame bearing said label-engaging plates which provide an unobstructed passage for the bottle, substantially as described.

3. In a bottle-labeling machine, the combination of a label-carrier having a pair of label-carrying shoes separated to provide a passage between them for the bottle, a pair of pivotally-supported label-engaging plates over which the label is brought by said label-carrier, which project beyond the shoes into the path of movement of the bottle and which occupy a plane directly beneath the label borne by said label-carrier, to thereby impinge the label against the bottle and hold it in correct position thereon while said label is being detached from the label-carrying shoes by a downward movement of the bottle and which thereafter act as wipers for applying the pasted edges of the label to the bottle, and stationary supports for said label-engaging plates constructed and arranged to provide an unobstructed passage for the bottle, substantially as described.

4. In a bottle-labeling machine, a label-carrier, and a pair of label-engaging plates over which the label is brought by said carrier, each label-engaging plate comprising the yielding plate n, pivoted spring-supported frame bearing it, the plate n^4 to which said frame is pivoted, and the plate n^5 to which said plate n^4 is adjustably secured to afford adjustment of said label-engaging plates toward and from each other, substantially as described.

5. In a bottle-labeling machine, a label-carrier having a pair of label-carrying shoes, a pair of pivoted label-engaging plates over which the label is brought by said carrier, means for holding said label-engaging plates in horizontal position beneath the label-carrier, and for releasing them whereby they may swing on their pivots into approximately vertical position, substantially as described.

6. In a bottle-labeling machine, a label-carrier having a pair of label-carrying shoes, a pair of pivoted label-engaging plates over which the label is brought by said carrier, springs, movable into and out of engagement with said label-engaging plates, for holding said plates in horizontal position beneath the label-carrier when in engagement therewith and for permitting said label-engaging plates to occupy a position remote from said label-carrier when disengaged therefrom, substantially as described.

7. In a bottle-labeling machine, a rising-and-falling paste-box, a rocking cross-bar having fingers engaging said paste-box, a lever resiliently connected to said cross-bar, and means for moving it to in turn move the cross-bar and thereby lift the paste-box, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM E. PETTEE.

Witnesses:
B. J. NOYES,
JOHN W. DECROW.