

(No Model.)

3 Sheets—Sheet 1.

T. A. WEBER.
LABELING MACHINE.

No. 604,182.

Patented May 17, 1898.

Fig. 1.

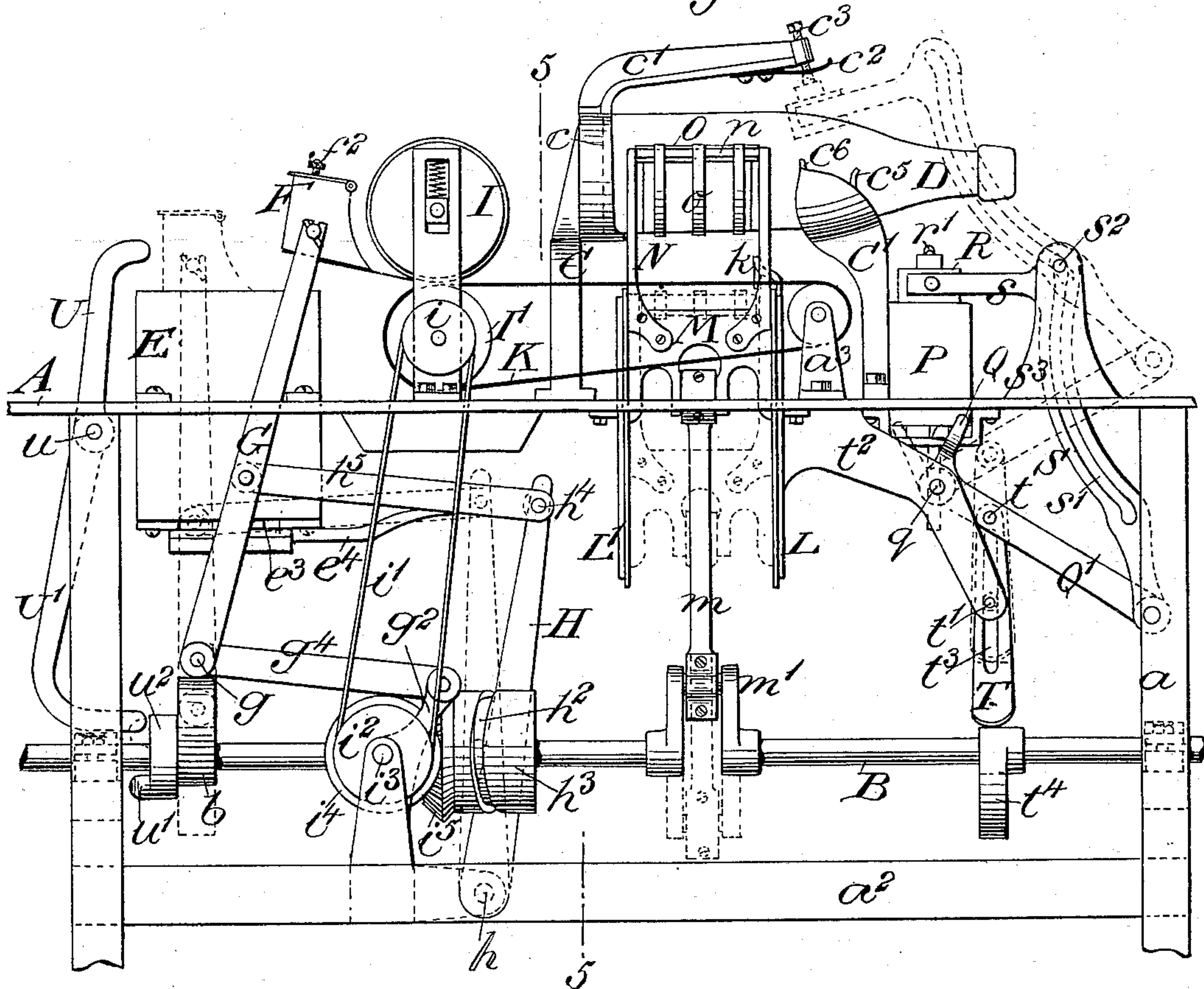
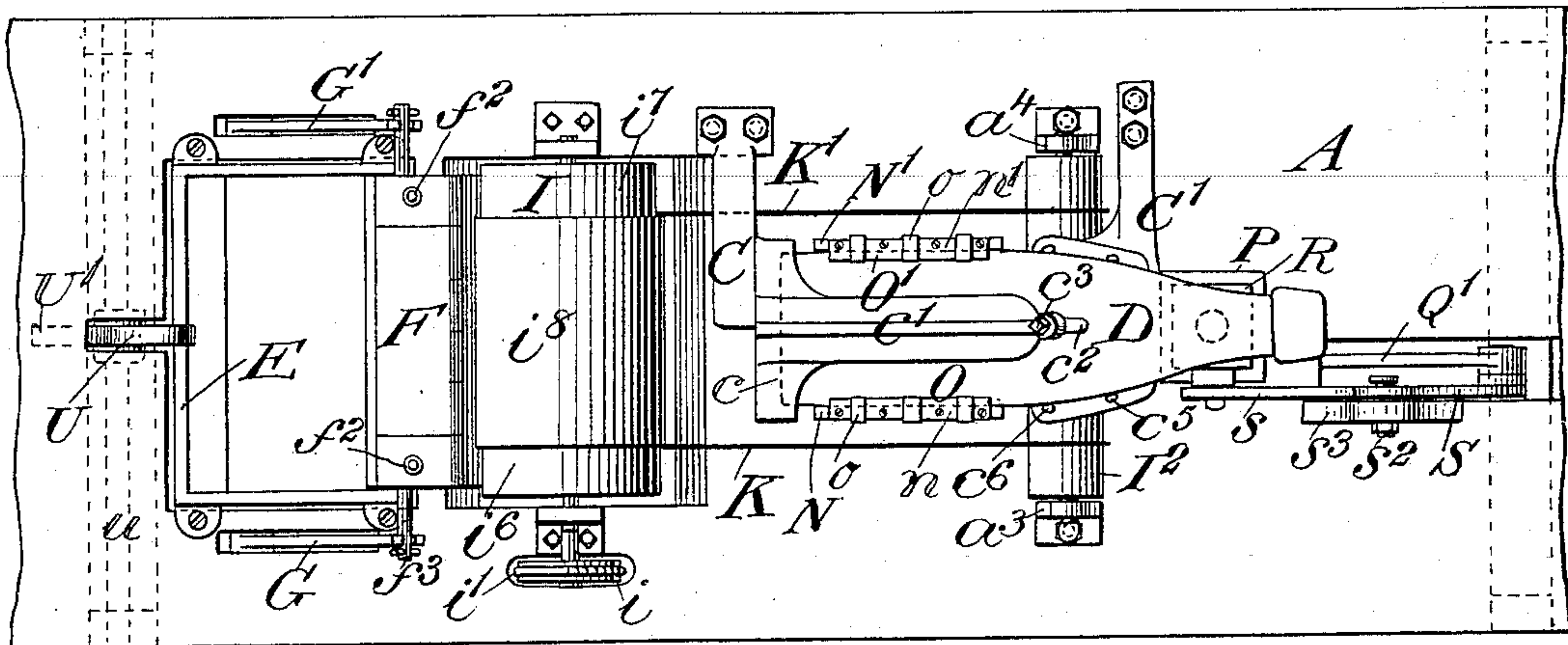


Fig. 2.



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Edward Cieser.

Inventor:-
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by attorneys
Brown & Devand

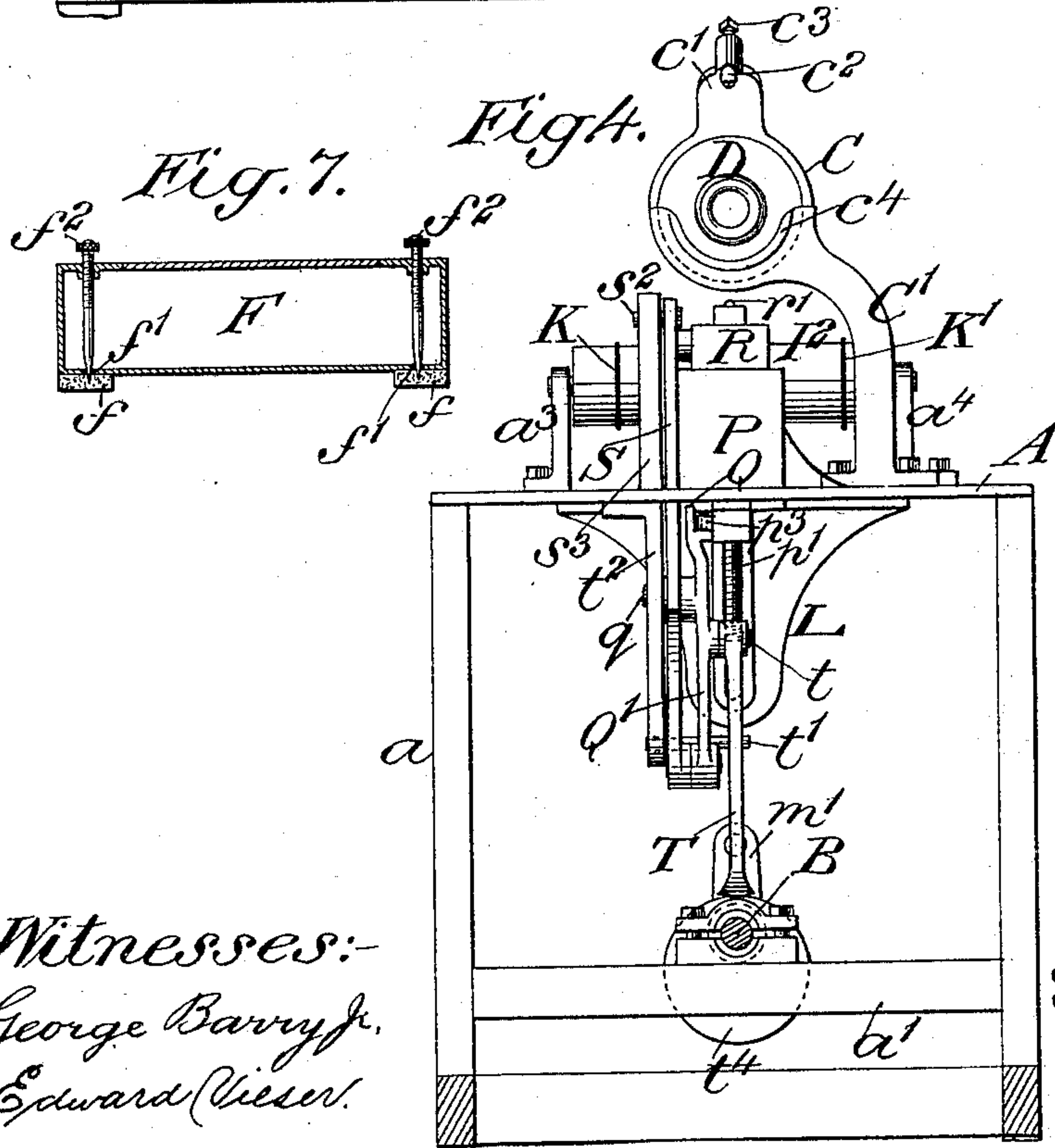
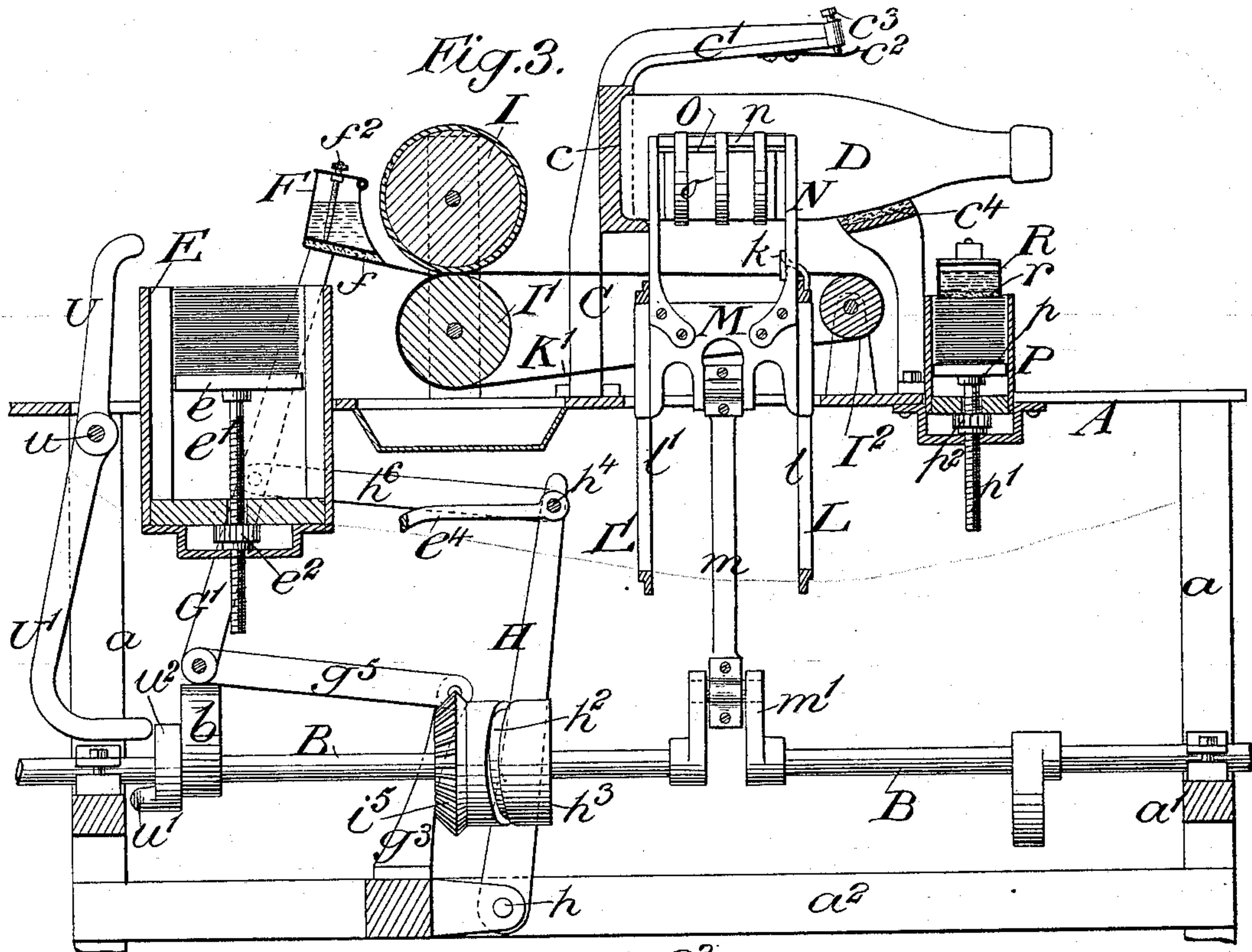
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3 Sheets—Sheet 3.

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Fig. 5.

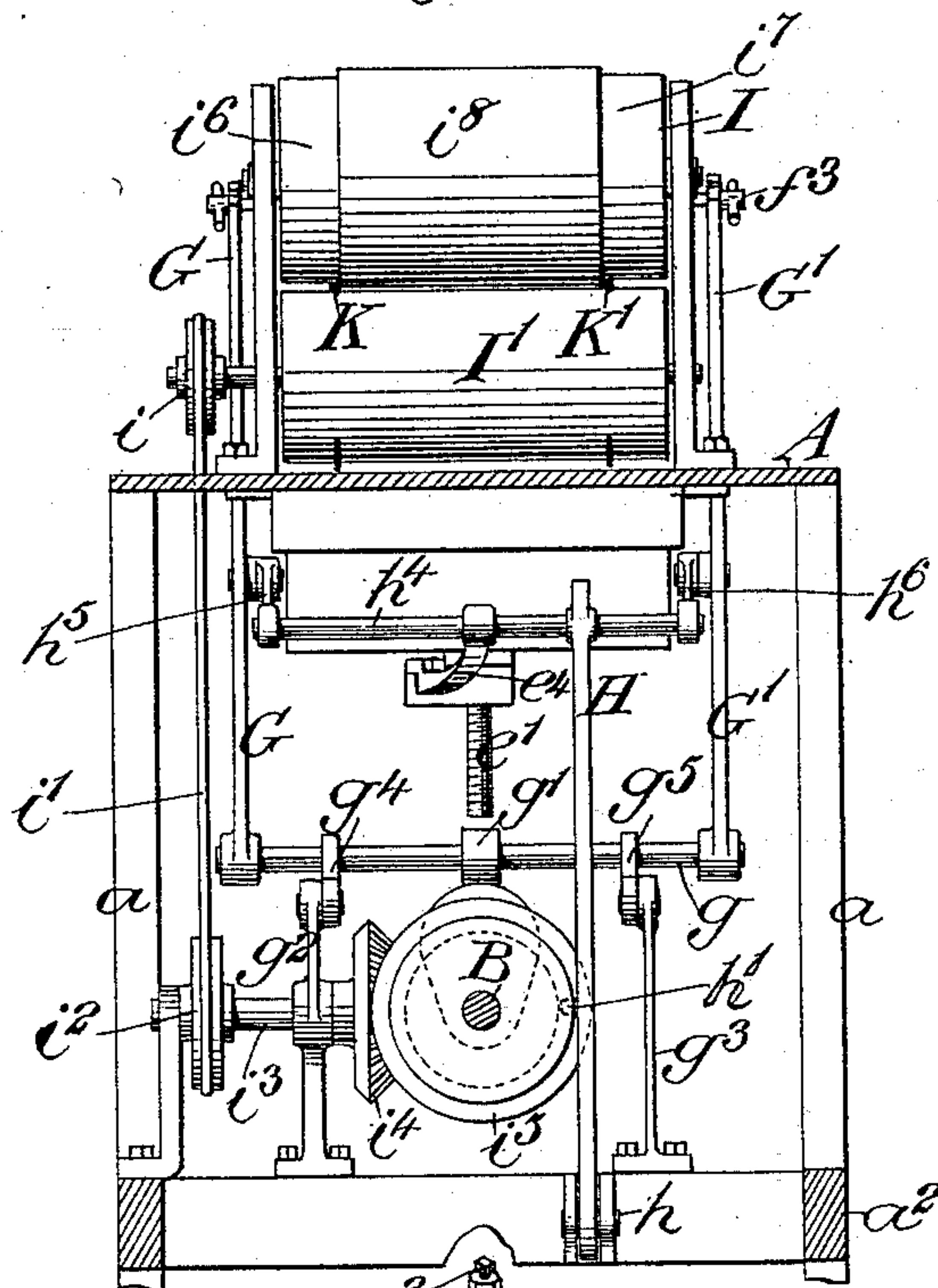
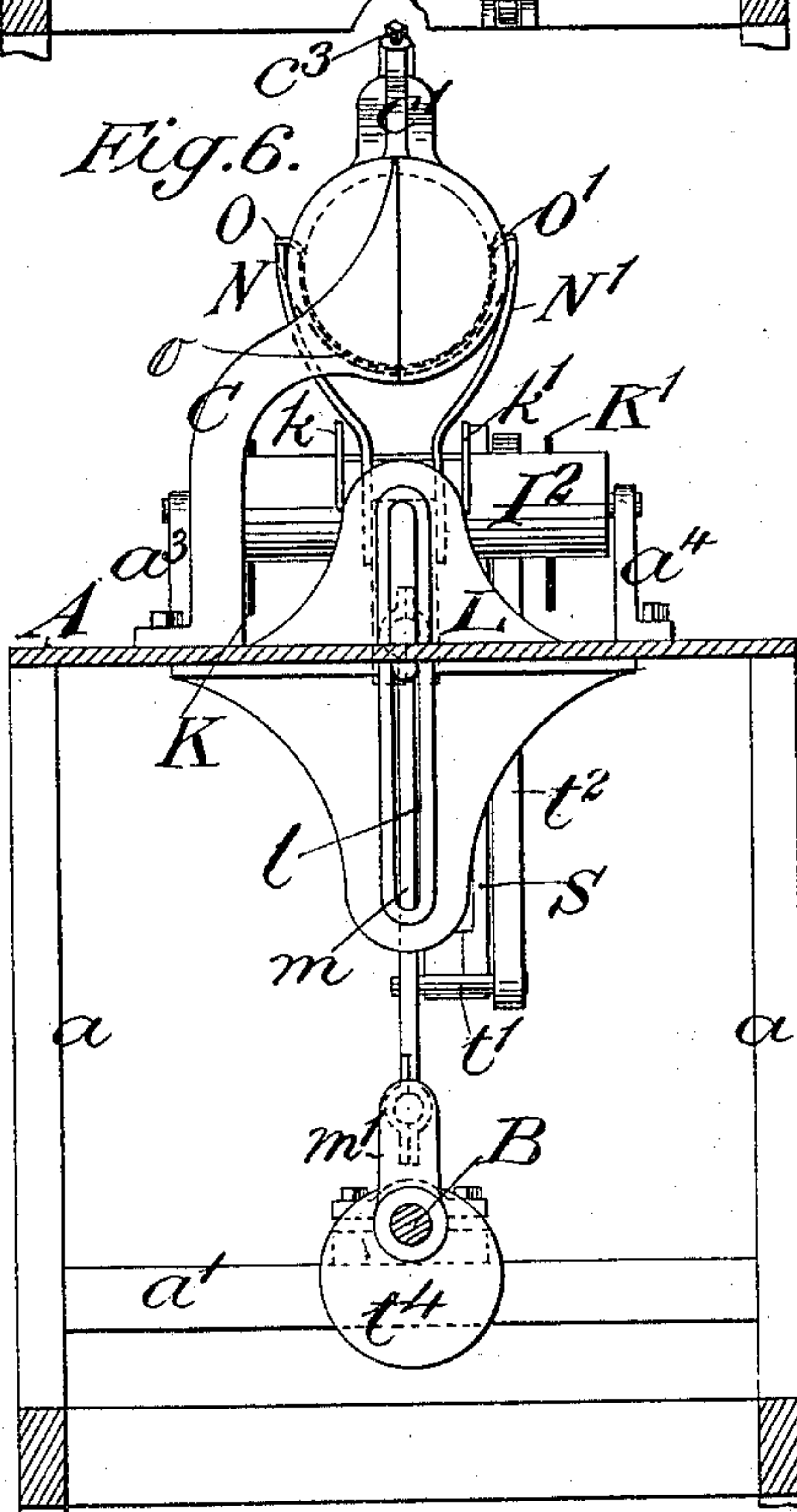


Fig. 6.



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UNITED STATES PATENT OFFICE.

THEODORE A. WEBER, OF NEW YORK, N. Y., ASSIGNOR TO FREDERICK HASBROUCK, OF SAME PLACE.

LABELING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 604,182, dated May 17, 1898.

Application filed June 5, 1897. Serial No. 639,537. (No model.)

To all whom it may concern:

Be it known that I, THEODORE A. WEBER, of New York, in the county and State of New York, have invented a new and useful Improvement in Labeling-Machines, of which the following is a specification.

My invention relates to an improvement in labeling-machines in which provision is made for successively separating individual labels from a stack or supply, gumming them, and applying them to the bottle, whatever be the shape of the opposite edges of the label.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view of the machine in side elevation, the parts being in the position which they assume when one label is being applied to the bottle and a succeeding label is being fed onto the carrier to be advanced into position to be applied to another bottle. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical longitudinal section taken centrally through the machine, the main label-applying device being shown in elevation. Fig. 4 is a view in end elevation looking from right toward the left. Fig. 5 is a transverse section in the plane of the line 5 5 of Fig. 1, looking toward the left. Fig. 6 is a similar view looking toward the right; and Fig. 7 is a view in detail, showing a vertical sectional view of the label lifting and gumming device in a plane transversely of the machine.

The main frame of the machine consists of a table A, supported upon suitable legs a , the latter being connected by cross-braces a' and stringers a'' , as may be found desirable, to give the frame the necessary rigidity and located in position to afford convenient supports for the bearings of the operating parts. The table A may be extended beyond the portion here shown as convenience may require.

The main drive-shaft of the machine is denoted by B and is mounted in suitable bearings in the frame beneath the table A and driven from any suitable source. (Not shown.)

From the table A there uprises a bottle-supporting standard C, provided a short distance above the table with an overhanging portion in which there is formed a seat c for the base of the bottle D, to which the label is to be at-

tached. The standard C is further provided with an overhanging extension c' , which extends above the bottle toward the neck thereof and is provided on the under side of its free end with a spring-arm c^2 , which may be adjusted away from the under side of the arm by means of a screw c^3 , seated in the end of the arm for the purpose of operating a tripping-plunger in the head of the neck-label-applying device, to be hereinafter more particularly explained. There is provided also a second uprising standard C' , spaced a short distance from the standard C and provided at its upper end with a seat c^4 for the reception of the bottle D at the base portion of its neck, and from the seat c^4 there extend branches $c^5 c^6$ upon opposite sides of the neck of the bottle for the purpose of guiding the neck-label into its position on the seat c^4 , so that when the bottle D is placed in position to receive the main label on its body the auxiliary label may be at the same time attached to the bottle at its neck portion.

The labels to be applied to the body of the bottle are stacked in a holder E and are fed toward the open top of the holder by means of a follower e , actuated by a screw e' , the screw being in turn actuated by a ratchet-nut e^2 , which is engaged at each revolution of the shaft by a pawl e^3 , of any well-known or approved form, on the end of a reciprocating arm e^4 , the means for imparting motion to which will be hereinafter described.

The labels are lifted one by one from the top of the stack in the holder E, gummed, and carried to a pair of feed-rollers by means of the following mechanism:

A hollow label lifting, gumming, and carrying head (denoted by F) has at the opposite ends of its bottom strips f of some suitable yielding absorbent material—such, for example, as felt—the position of the strips f corresponding to the opposite ends of the label as it lies flat in the holder E. The hollow head F is provided with a solution of some suitable glue, which is fed gradually to the absorbent strips f through small openings f' in the bottom of the head F, the flow of the liquid glue through the openings f' being regulated by needle-valves f^2 , which have a screw-threaded engagement with sockets in the top of the

hollow head F. The head F is carried from a position of rest on the uppermost label in the receiver E upward and forward to the feed-rollers and belt and back again in position to pick up a succeeding label by means of a pair of upwardly-extending arms G G', in the upper end of which trunnions f^3 at the opposite ends of the head F are mounted, the lower ends of the said arms G G' being connected by a cross-rod g , provided with a bearing-collar g' , located in the present instance about midway of its length and in position to engage an operating-cam b , carried by the drive-shaft B. The rod g is held in position to engage the cam b and permitted to rise and fall by the action of the cam, through its connection with stationary supporting-standards $g^2 g^3$, by links $g^4 g^5$. While the lifting motion is going on by the cam b , there is a rocking motion lengthwise of the machine imparted to the arms G G' by means of a vibrating lever H, pivoted at h at the base of the frame and provided with a laterally-projecting pin h' , (see Fig. 5,) which is caused to travel in a cam-groove h^2 in the face of a disk h^3 , fixed to rotate with the shaft B. The free end of the lever H is provided with a cross-bar h^4 , the opposite ends of which are connected, respectively, with the arms G and G' by links $h^5 h^6$. The arm e^4 for operating the pawl to turn the feed-screw e' to feed the labels to the top of the holder E is connected to the cross-bar h^4 , so that the feed of the screw will take place during either the advance or return movement of the label-carrying head—in the present instance during its return movement—and while the label-carrying head is raised from the stack of labels in the holder. As the label-carrying head reaches the limit of its advance movement the front edge of the label carried thereby will be received between the faces of a pair of feed-rollers I I', the latter being positively driven by a pulley i on its shaft, connected by a belt i' with a pulley i^2 on a short shaft i^3 , which carries a bevel-gear i^4 , arranged to intermesh with a bevel-gear i^5 , carried by the drive-shaft B. The feed-roller I is driven by its contact with the positively-driven roller I' or by its contact with the label between the two rollers, and it has its opposite ends reduced in diameter, as shown at $i^6 i^7$, to keep the face of the roller away from the gummed edges of the label, the enlarged central portion i^8 of the roller being the part which engages the label intermediate of the gummed surfaces.

The roller I serves to actuate an endless belt for advancing the label to its position beneath the bottle, the said belt consisting in the present instance of a pair of elastic bands, (denoted, respectively, by K K',) which extend around the roller I' and around a second roller I², mounted in suitable standards $a^3 a^4$, uprising from the table A and located at such a distance from the roller I' as to convey the label thereon into the desired position be-

neath the body of the bottle. As the label is drawn from the carrying-head F by the feed-rollers I I' it will be received on the upper side of the bands K K', and by them will be continued to its position beneath the bottle.

The label is arrested in the desired position by means of stop-pins $k k'$, fixed to one of the brackets L L'—in the present instance to the bracket L—and projecting upwardly above the plane of the bands K K'. The brackets L L' are fixed on the table A and are provided with vertically-elongated slots ll' , which serve as ways for the vertically-reciprocating movement of the cross-head M, which carries the label-applying device. The cross-head M is driven by a pitman m , connected with the wrist-pin of a crank m' on the shaft B.

The label-applying device consists of spring-arms, in the present instance four spring-arms being employed, one pair for each side of the bottle. The members of one pair of these arms are denoted by N and the members of the opposite pair by N'. They are secured at their lower ends to the opposite sides of the vertically-reciprocating head M, and the members of each pair are connected at or near their upper ends by rods or bars, (denoted, respectively, by $n n'$.) For the purpose of smoothing the label on the bottle the rods or bars $n n'$ are each provided with an inwardly-extending yielding cushion, (denoted, respectively, by O O',) consisting in the present instance of flat strips of india-rubber, fastened at their outer edges to the rods $n n'$, leaving their inner edges free to bend downwardly as they are brought into engagement with the opposite sides of the bottle. The bars $n n'$ are connected by elastic straps o , spaced a short distance apart and adapted to lift the label from the carrier-belt into engagement with the side of the bottle.

The pairs of arms N N' normally rest with their free ends sufficiently near together to permit them to pass upwardly between the bands K K', which form the label-carrier, and when the label has been carried by the elastic straps o into engagement with the side of the bottle the free ends of the pairs of arms will gradually separate, passing along up the opposite sides of the bottle, the elastic straps o stretching to permit such movement, and the smoothing cushions or flaps O O' tending to press the opposite ends of the label smoothly into contact with the opposite sides of the bottle.

When the head M is depressed, the free ends of the pairs of arms N N' gradually approach each other and finally assume their normal position below the belt, remaining there until a succeeding label has been brought into position above them ready to be lifted into engagement with a bottle.

For the purpose of applying a neck-label to the bottle simultaneously with the applying of a body-label thereto I provide a stack of neck-labels in the holder P, toward the open top of which they are fed in a manner

quite similar to that hereinbefore described in respect to the body-labels by a follower p , actuated by a screw p' , which screw is in turn actuated by a ratchet-nut p^2 , rotated step by step by a pawl p^3 , of any well-known or suitable structure, reciprocated by an arm Q , actuated in a manner hereinafter described.

A label-carrying head R , provided with a face r , of some suitable yielding absorbent material—such, for example, as felt—and having a charge of some suitable liquid glue, which is permitted to percolate through the bottom of the head R and keep the felt r saturated therewith, is carried by a branch s of an arm S from a position in engagement with the uppermost label of the stack in the holder P to a position over the seat c^4 in the neck-rest C' . The arm S is provided with an elongated curved slot s' , through which a stationary guide-pin s^2 projects, the guide-pin s^2 being fixed to a standard s^3 , uprising from the table A .

The arm S is operated by means of the arm Q' of an angle-lever pivoted to a fixed bracket at q , another arm Q of said angle-lever being the arm hereinbefore referred to which carries the pawl for operating the ratchet-nut to feed the neck-labels toward the top of the holder.

The angle-lever $Q Q'$ is reciprocated by means of a tappet T , pivoted at its upper end to the arm Q' at the point t and having a sliding engagement with a stationary pin t' on a stationary depending bracket t^2 through an elongated slot t^3 in the tappet. The tappet T is actuated at proper intervals by means of a cam t^4 , fixed on the drive-shaft B . As the lever $Q Q'$ is operated by the tappet T to throw the arm S , and hence the label-carrying head R , upwardly into the position shown in dotted lines in Fig. 1 a label-releasing plunger r' is brought into engagement with the spring-cushion c^2 on the overhanging arm c' , and the said plunger is caused by such engagement to strip the label from the face of the felt r and cause it to fall onto the seat c^4 with its glued side uppermost in position to become attached to the neck of the bottle when the latter is held in its position shown in Figs. 1, 2, 3, and 4.

For the purpose of separating the uppermost label in the holder E from the one next beneath it without any liability of lifting the one beneath it when the uppermost one is lifted by the carrier-head I provide a tappet, the upper arm U of which is adapted to give the carrier-head F a slight push forward just before it is lifted by the cam b , the said tappet being pivoted at u and the lower arm U' being in a position to be operated by a slanting face u' , carried by a disk u^2 , fixed to rotate with the shaft B .

The operation of the several parts has been quite fully set forth in connection with the description of the parts hereinbefore given. The operation of the machine as a whole may be briefly stated as follows: Supposing the

parts to be in the position shown in full lines in the drawings, with the label-applying device at the limit of its upward stroke, the label-carrying head F presenting a succeeding label to the feed-rollers $I I'$, and the neck-label head R in position in engagement with the uppermost label in the holder P , the further rotation of the shaft B will lower the label-applying device from the bottle D and at the same time return the label-carrying head F into the position shown in dotted lines in Fig. 1. The bottle to which the label or labels has or have been applied may be then removed. While the succeeding label is being advanced by the carrier-bands $K K'$ into position to be applied, the cam t^4 on the shaft B will by a quick movement lift a neck-label and deposit it onto the seat c^4 and return again to its position shown in full lines. The bottle to receive the labels may then be placed in position ready for the upward movement of the cross-head M , carrying the label-applying device, which in its upward movement takes the label from the carrier-bands and smoothly applies it to the under side of the bottle. While this label is being applied to the bottle, the label-carrier head F receives a slight forward push from the tappet-arm U and then its upward and forward movements by the cams b and h^2 , carrying a succeeding label into the position shown in Fig. 1. The feed of the screws for elevating the stacks of labels in the respective holders takes place step by step as the label-carrying heads are lifted to carry their labels into the position to be applied to the bottle.

By the above structure and arrangement of parts I am enabled to successfully feed the labels having any desired contour of border at their opposite ends, the felts f being shaped to correspond to the shape of the borders and the central raised portion i^3 of the feed-roller I being made of such length as to pass freely between the gummed portions at the ends of the label.

What I claim is—

1. The combination with mechanism for applying the label to the bottle and means for supporting labels in a stack, of a label-carrier comprising a hollow head for receiving a charge of liquid glue, absorbent material secured to the bottom of said head and in communication with the liquid glue through openings in the bottom of the head, valves for controlling the admission of the liquid glue to the absorbent material and means for moving the label-carrier head toward and away from the top of the stack of labels, substantially as set forth.

2. The combination with the label-feeding rollers, one of said rollers being provided with a raised central portion, a label-applying mechanism and means for supplying the labels, of a label-carrying head provided on its face with strips of absorbent material spaced apart a distance equal to or greater than the said raised portion on the feed-roller, means

for supplying liquid glue to the said strips of absorbent material and means for conveying the label-carrier from the supply of labels to the feed-rollers, substantially as set forth.

5 3. The combination with suitable means for feeding and applying the labels, means for holding a supply of labels in the form of a pile or stack and a label-carrying head adapted to engage the uppermost label to re-
10 move it to the feeding and applying mechanism, of a tappet adapted to push the label-carrying head slightly along the plane of the top of the stack to separate the uppermost label of the stack from the next succeeding
15 label, means for operating the tappet and means for lifting the carrier-head, substantially as set forth.

4. The combination with the seat for receiving the bottle to be labeled and the skeleton carrier-belt for advancing the label into
20 position to be applied to the bottle, of a label-applying device comprising spring-arms adapted to engage the opposite sides of the bottle, elastic straps connecting the said arms
25 in a transverse direction beneath the bottle and means for moving the said arms through an opening in the skeleton carrier-belt to lift the label from the belt into engagement with the bottle, substantially as set forth.

30 5. The combination with the skeleton carrier-belt, means for feeding the labels to the

belt from the label-receptacle and means for holding the bottle in position to receive the label, of a stop located in position to arrest the
35 movement of the label carried by the belt in a position opposite that portion of the bottle to which it is to be applied and a reciprocating label-applying device arranged to remove the label from the belt and apply it to the bottle,
40 substantially as set forth.

6. The combination with a seat for receiving a bottle to be labeled, of means for conveying one label into position spaced from
45 the bottle-seat and a second label into position on the bottle-seat and means for moving the first-named label from its position spaced from the bottle-seat into engagement with the bottle, substantially as set forth.

7. The combination with a seat for receiving a bottle to be labeled and a stack or supply
50 of labels, of an abutment located above the bottle-seat, a label-carrying head provided with a label-discharge plunger and means for conveying the said label-carrying head into a position over the bottle-seat with
55 the discharge-plunger in engagement with the said abutment, substantially as set forth.

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