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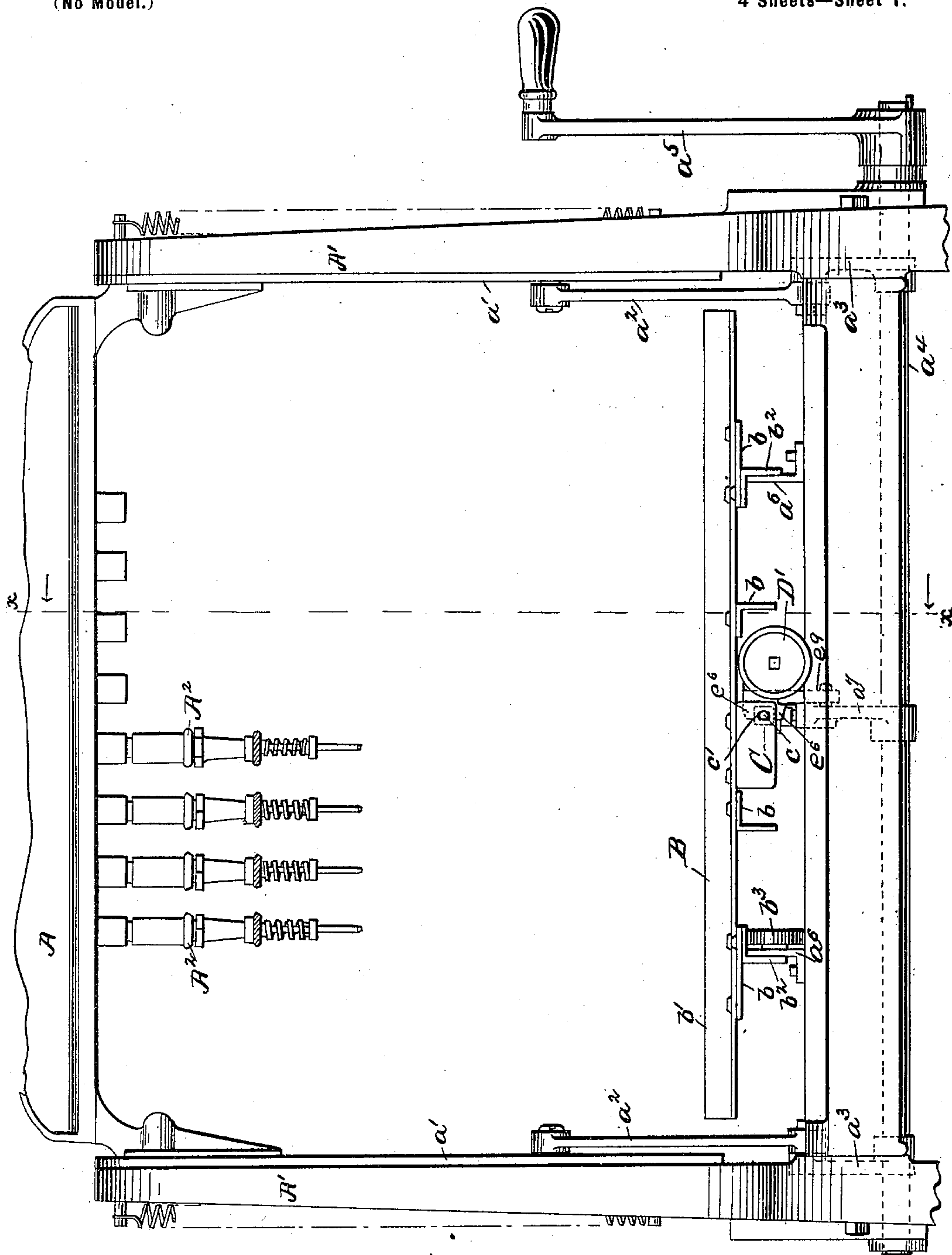
Patented Nov. 20, 1900.

F. L. NICHOLS & W. M. FOWLER.  
BOTTLE SUPPORT FOR BOTTLE FILLING MACHINES.

(Application filed May 23, 1900.)

(No Model.)

4 Sheets—Sheet 1.



WITNESSES  
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Fig. 1.

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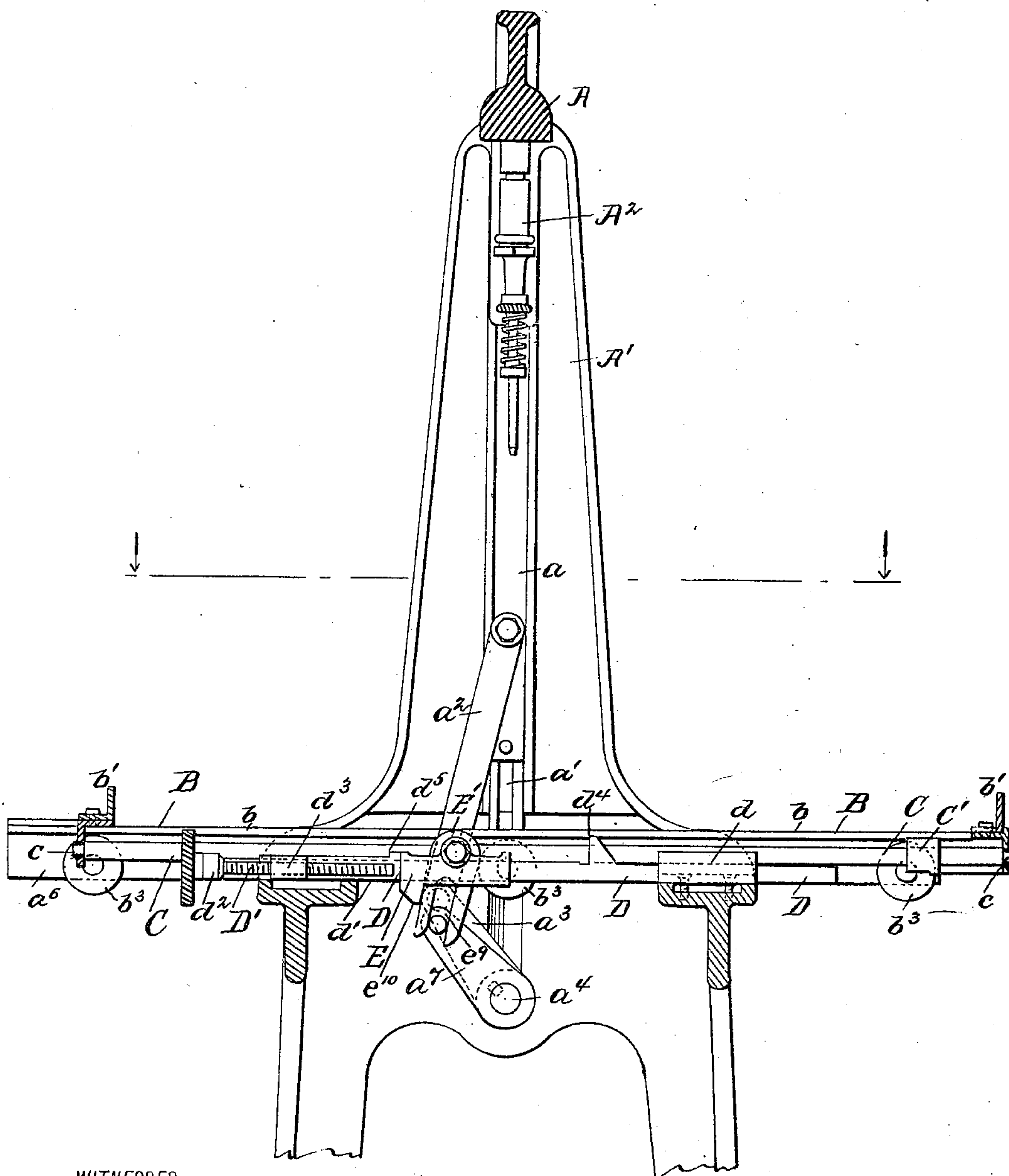
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4 Sheets—Sheet 2.



WITNESSES  
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*Fig. 2.*

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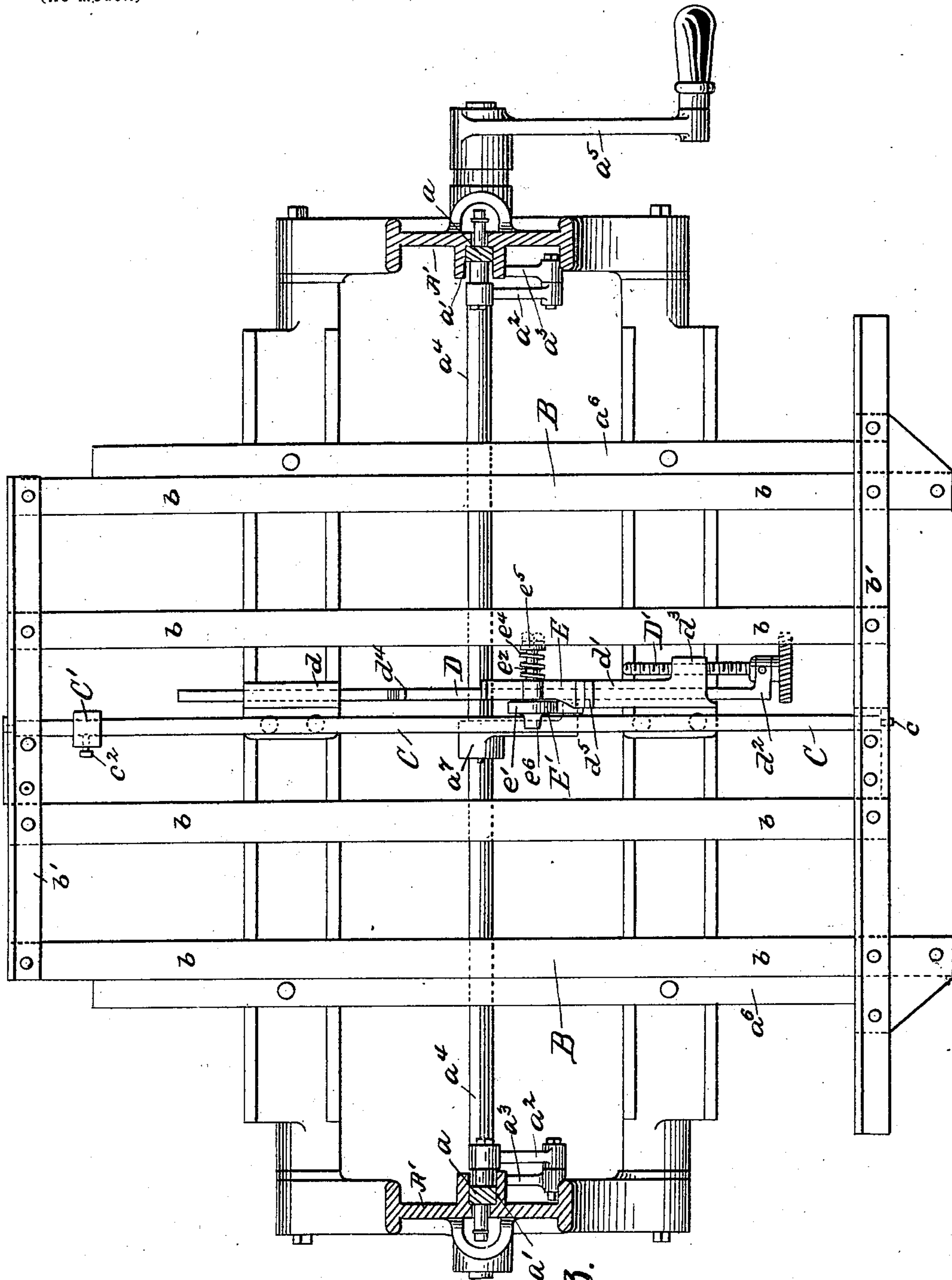


Fig. 3.

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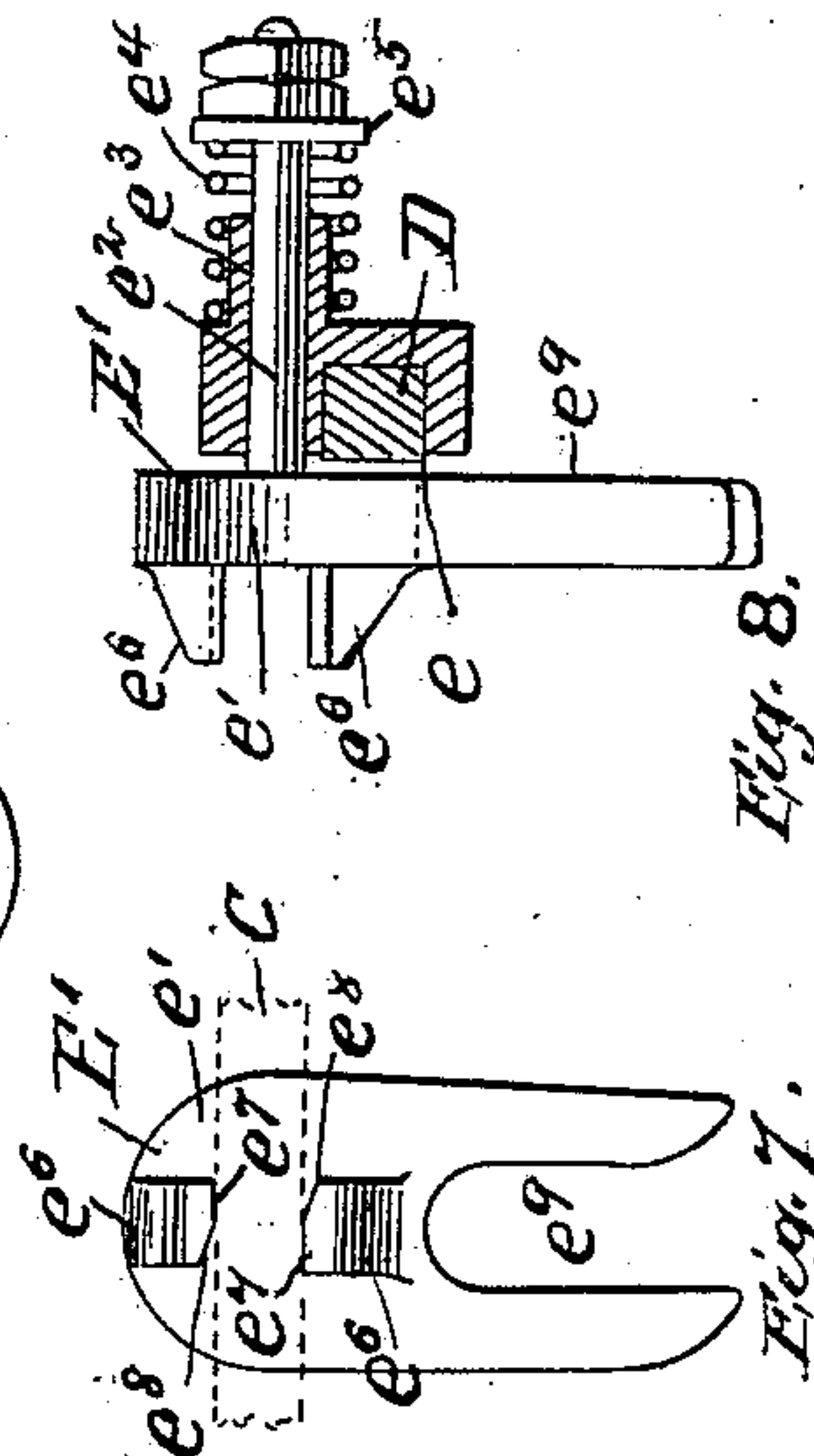
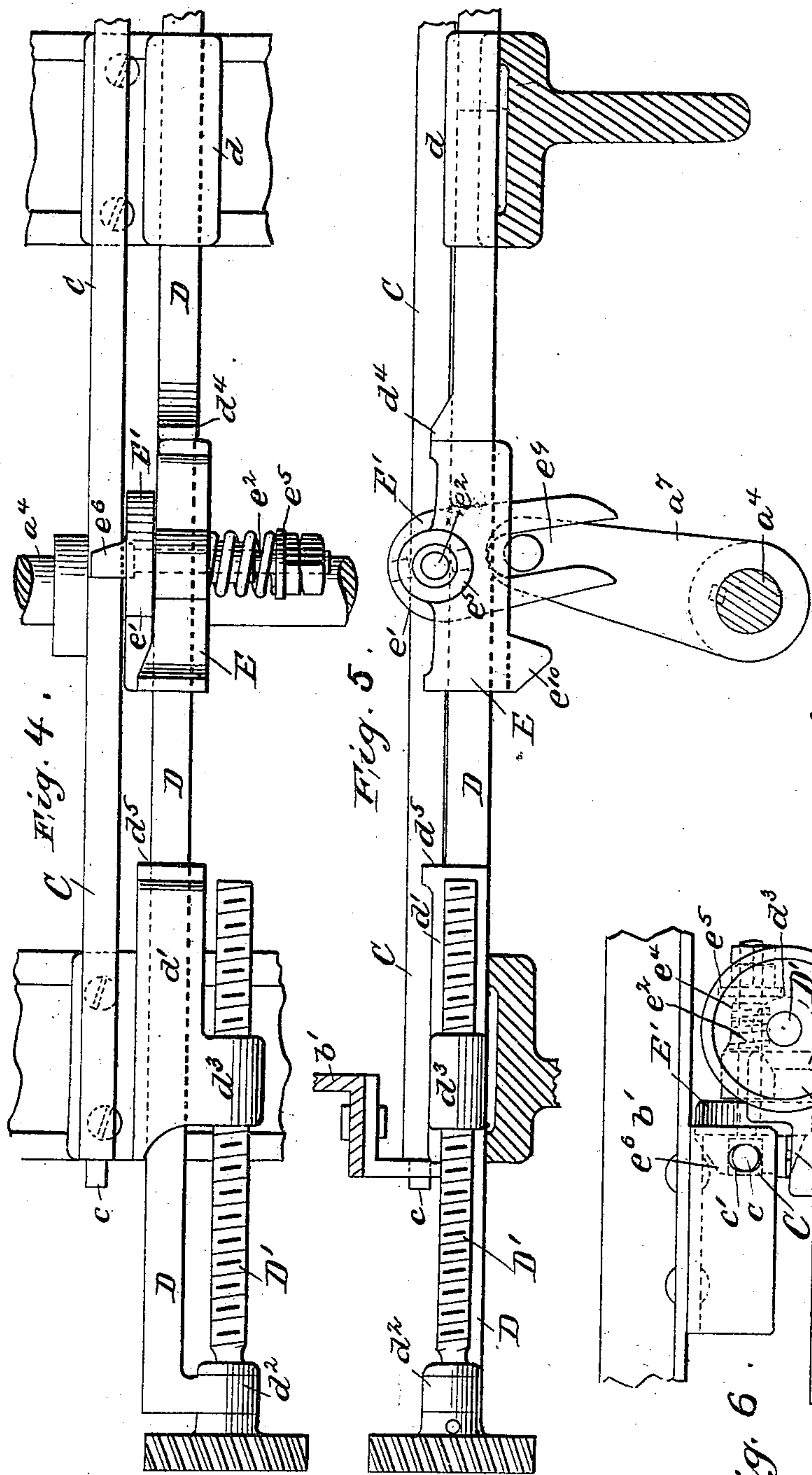
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(No Model.)

4 Sheets—Sheet 4.



WITNESSES  
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Fig. 6.

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# UNITED STATES PATENT OFFICE.

FRANK L. NICHOLS, OF NEW YORK, N. Y., AND WILLIAM M. FOWLER, OF STAMFORD, CONNECTICUT, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO THE NEW IDEAS MACHINE COMPANY, OF WEST VIRGINIA.

## BOTTLE-SUPPORT FOR BOTTLE-FILLING MACHINES.

SPECIFICATION forming part of Letters Patent No. 662,086, dated November 20, 1900.

Application filed May 23, 1900. Serial No. 17,630. (No model.)

*To all whom it may concern:*

Be it known that we, FRANK L. NICHOLS, a resident of the city of New York, (Brooklyn,) county of Kings, State of New York, and WILLIAM MILES FOWLER, a resident of Stamford, county of Fairfield, State of Connecticut, citizens of the United States, have invented certain new and useful Improvements in Bottle-Supports for Bottle-Filling Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a machine for filling bottles or other vessels in which the operation of filling is effected by a series of filler-tips carried and reciprocated by a supporting-head relatively to the bottles or vessels to be filled, which are arranged in a group or bank composed of successive parallel ranks of bottles or vessels of uniform dimensions and which ranks are successively presented to the series of filler-tips, so that the mouths or filling-apertures of said bottles or vessels will severally register with and be entered by said filler-tips during a thrust of the tip-supporting head in the direction toward said rank.

This invention consists, primarily, in the combination, in a machine of the class stated, with the reciprocatory tip-supporting head carrying filler-tips in a series, of a bottle-support movable in the machine in the direction across the plane of the path of movement of said head, engageable means carried by said support, and engaging means slidably movable on the machine-frame within fixedly adjustable variable limits thereon to grip the engageable means on the support when said engaging means is moved in one direction and to release said engageable means when said engaging means is reversely moved, whereby bottles or vessels of any given lateral diameter arranged in successive ranks in a group or bank may be presented in said successive ranks to severally register with and have their mouths or filling-apertures severally entered by the filler-tips of the series thereof during a thrust of the tip-supporting head toward each said rank, so that a single machine will be capable of use to fill bottles or vessels of various and different di-

mensions; and the invention further comprises the combination, in a machine of the class stated, with the reciprocatory tip-supporting head, of a platform to support the bottles or vessels to be filled, ways to be traversed by said platform and extending on the machine-frame in the direction at right angles to the path of movement of said tip-supporting head, a bar or analogous means carried by and extending longitudinally of said platform and provided toward the rearward end thereof with a collar, which is fixedly adjustable longitudinally of said bar, and a projection carried on the machine-frame and engageable by said collar during the movement of the platform in the direction toward the front of the machine, whereby when bottles or vessels of any uniform lateral diameter are arranged in successive parallel ranks in a group or bank on said platform the limit of movement of the platform in the direction toward the forward side of the machine may be fixed at a point to cause the mouths or filling-orifices of the initial rank of said bottles or vessels to severally register with the filler-tips of a series thereof carried by the reciprocatory head; and the invention still further comprises the combination, in a machine of the class stated, with the reciprocatory tip-supporting head, a platform to support the bottles or vessels to be filled, ways to be traversed by said platform and extending on the machine-frame in the direction at right angles to the path of movement of said tip-supporting head and a bar or analogous means carried by and extending longitudinally of said platform, of a guide-bar extending longitudinally of and having longitudinal play on the machine-frame, a screw having bearing in an arm on said guide-bar and working in a threaded seat on the machine-frame, and a carrier slidably mounted on said guide-bar to play between a shoulder thereon and a stop on the machine-frame and provided with means to engage the platform-bar and move said platform in the same direction when said carrier is moved on the guide-bar toward the shoulder thereon and to release said platform-bar and so permit said platform to remain stationary during the movement of



said carrier in the opposite direction toward the stop on the machine-frame, whereby by means of said screw the guide-bar may be longitudinally adjusted on the machine-frame to vary the distance between the shoulder thereon and the stop on the machine-frame, and hence vary the limit of traverse of the carrier on said bar in the direction toward said shoulder thereon, and hence the limit of each successive movement of the platform in said direction, so that when bottles or vessels of any uniform lateral diameter are arranged in successive parallel ranks in a group or bank on said platform the platform may be successively moved the predetermined distances to cause the mouths or filling-orifices of the bottles or vessels in the successive ranks thereof to severally register with filler-tips of a series thereof in said reciprocatory head, and the invention still further comprises, in a machine of the class stated, in which the platform to support the bottles or vessels to be filled is movable on ways extending in the machine in the direction at right angles to the path of movement, of a reciprocatory tip-supporting head, and said platform is provided with a bar or analogous means extending longitudinally thereof and a guide-bar extends longitudinally on the machine-frame with a carrier slidably mounted on said guide-bar, the combination, with said carrier, of a clutch pivotally mounted and spring-tensioned on its said bearing in said carrier and provided with a radially-extending recess in its body on one side of its said pivot engageable by the pin of a crank-arm on a rock-shaft in the machine to oscillate the clutch and reciprocate the carrier on its guide-bar between a shoulder on said bar and a projection on the machine-frame, and said clutch having jaws on its body on the side thereof opposite to its said radial recess to grip the platform-bar when the clutch is oscillated and the carrier is thrown in the direction toward the said shoulder on a guide-bar and to release and traverse said platform-bar when said clutch is oscillated and said carrier is thrown in the opposite direction, whereby the said oscillation of the clutch will effect successive movements of the platform on its ways through a distance equal to that between the said projection on the machine-frame, and the said shoulder on the guide-bar and the invention still further comprises novel structural features in the particular devices employed in carrying out the same, as hereinafter specifically described and more at length recited in the claims.

In the drawings, Figure 1 is a front end elevation of the upper part of a bottling-machine containing the invention. Fig. 2 is a vertical sectional elevation of the same on the line  $x\ x$ , Fig. 1. Fig. 3 is a horizontal section taken on the line  $y\ y$ , Fig. 2. Fig. 4 is an enlarged plan of the devices preferably employed as adjustable means to effect the successive movements of the bottle-support-

ing platform through varying distances. Fig. 5 is a side elevation of the same. Fig. 6 is an end elevation of said devices. Fig. 7 is a side elevation of the oscillatory clutch preferably employed to effect the said movement of said platform, and Fig. 8 is a sectional edge view of the same and its pivotal and tensioning seat.

In the machine illustrated A is a head extending laterally of the machine between standards A' and supporting filler-tips A<sup>2</sup> in a series, as shown, and vertically reciprocatory in the machine, as by bars  $a$ , to which the opposite ends of the head are connected and which play in ways  $a'$  in said standards and are actuated through links  $a^2$ , severally pivotally connected to said bars and to crank-arms  $a^3$  on a rock-shaft  $a^4$ , having bearings in the machine-frame and operated by a handle-crank  $a^5$ .

B is a platform to support the bottles or vessels to be filled and may be constituted as a skeleton frame adapted to receive trays or holders in which the bottles to be filled are grouped in a bank consisting of successive parallel ranks of bottles of uniform lateral diameter and composed of longitudinal sections  $b$  and lateral end sections  $b'$ . The said platform is movable in the machine in the direction across the plane of the path of movement of the tip-supporting head A, and for this purpose ways  $a^6$  may be provided on the machine-frame, extending longitudinally thereof and at right angles to the path of movement of said tip-supporting head, with guides  $b^2$  on the platform to engage and traverse said ways. One of said ways is preferably furnished with friction-rollers  $b^3$  for engagement by one of the platform-guides, the other said guide resting throughout its length upon the upward face of the other said way, which is constituted in the form of a continuous rail, as shown. The platform in its movement on said ways will have a desirable ease of traverse, while the friction between one of its guides and the respective way serve to overcome any momentum the platform may acquire in its successive movements on the ways, so that in said movements it will not be projected beyond the desired and predetermined point of stoppage. Any other and equivalent means than the described platform may be employed for the support and progressive movements in the direction stated of bottles or vessels to be filled.

In carrying out a feature of the invention there is combined with the reciprocatory tip-supporting head adjustable means to successively move through a distance equal to the lateral diameter of bottles or vessels to be filled across the plane of the path of movement of said head bottles or vessels of different lateral diameters, and such adjustable means for said purpose desirably comprises the platform B, movable on ways on the machine-frame, as described, and the following-described devices—namely, a bar or analogous



means C, mounted on and extending longitudinally of said platform B, as by the ends *c* on the bar seated in the vertically-slotted apertures *c'*, formed in the end sections *b'* of the platform, so that the bar has a desirable play in its seat on the frame, a guide-bar D extending longitudinally of and having longitudinal play on the machine-frame, as in a sleeve-bearing *d* on the rearward side of the frame and a sleeve-bracket *d'* on the forward side of said frame, a set-screw D', having bearing in an arm *d<sup>2</sup>* on the forward end of bar D and working in a threaded seat on the machine-frame, as in a lug *d<sup>3</sup>* on the bracket *d'*, and a carrier desirably composed of a metal block having a longitudinal recess *e* in one side to fit and slidably mount the carrier on the bar D, whereon it has longitudinal play between a shoulder *d<sup>4</sup>* on said guide-bar D and a stop on the machine-frame, which said stop may be constituted by the rearward end *d<sup>5</sup>* of the sleeve-bracket *d'*, the said carrier being provided with means, such as a clutch, to engage the platform-bar C and move said platform in the same direction with the carrier when said carrier is moved on the guide-bar D in the direction toward the shoulder *d<sup>4</sup>* thereon and to release said platform-bar and so permit said platform to remain stationary on its ways during the movement of said carrier in the opposite direction toward the stop *d<sup>5</sup>* on the forward part of the machine-frame.

It is evident that by a manipulation of the set-screw D' the guide-bar D may be longitudinally adjusted on the machine-frame to vary the distance in any desired degree between the shoulder *d<sup>4</sup>* on said bar and the stop *d<sup>5</sup>* on the machine-frame, and hence to vary the limit of traverse of the carrier E on said bar rearwardly of the machine in the direction toward said shoulders on the bar, and consequently to limit each successive movement of the platform to a predetermined distance in said direction, so that when bottles or vessels of any uniform lateral diameter are arranged in successive parallel ranks in a group or bank on the platform B the platform may be successively moved the predetermined distances, equal to the lateral diameter of said bottles or vessels, to cause the mouths or filling-orifices of the bottles or vessels in the successive ranks thereof to severally register with filler-tips of a series thereof on said reciprocatory head A in effecting the filling operation of the bottles or vessels by said tips in the usual and well-known manner. The said clutch E', provided on the carrier E, is desirably composed of a body *e'*, which is pivotally mounted, as by a laterally-extending pivot-shaft *e<sup>2</sup>*, journaled in a transverse bearing-aperture *e<sup>3</sup>* in the carrier, preferably located above the guide-bar recess *e* therein, and the clutch is desirably tensioned on its said pivot in the carrier, as by a spring *e<sup>4</sup>* acting between a face of the carrier and a flange or washer *e<sup>5</sup>* on the pivot-shaft *e<sup>2</sup>*, to maintain the clutch in en-

gageable position relatively to its actuating means, presently described, when said clutch is disengaged by said means, as presently set forth, and the body of the clutch carries laterally-projecting twin jaws *e<sup>6</sup>*, respectively, having the opposed and parallel faces *e<sup>7</sup>*, which when the clutch is oscillated in one direction are parallel to, fit snugly upon, and grip the upper and under faces of the platform-bar C and cause the said bar and the platform B to move on the machine-frame with the carrier E in the direction toward the stop-shoulder *d<sup>4</sup>* on the guide-bar D, and said clutch-jaws respectively have the faces *e<sup>8</sup>* at opposite edges of the respective jaws outwardly and similarly inclined from the faces *e<sup>7</sup>* thereon, so that when the clutch is reversely oscillated and said faces *e<sup>8</sup>* of the jaws are brought parallel to the upper and under faces of the platform-bar the jaws will disengage from said faces of said bar and permit the bar and the platform to remain stationary on the machine-frame while the carrier and its clutch are reversely moved on the guide-bar toward the stop *d<sup>5</sup>*, and the clutch is also desirably formed with an extension on its body on the side thereof opposite of the pivot to the part carrying the jaws, and in said extension is formed a radially-reaching recess *e<sup>9</sup>*, which is engageable by the pin of a crank-arm *a<sup>7</sup>* on a rock-shaft, which may be the heretofore-described rock-shaft *a<sup>4</sup>*.

In the operation of the machine when the crank *a<sup>5</sup>* is manipulated to oscillate the shaft *a<sup>4</sup>* in the direction to effect a downward thrust of the head A the crank-arm *a<sup>7</sup>* on said shaft will during the initial portion of said oscillation of said shaft engage the radial recess *e<sup>9</sup>* in the clutch E' and oscillate the clutch in the direction to cause it to engage the platform-bar C and to move the carrier E and platform B in the direction toward the shoulder *d<sup>4</sup>* on the guide-bar D, and when the said crank *a<sup>5</sup>* is then manipulated to reversely oscillate the shaft *a<sup>4</sup>* to effect an upward movement of the said head A the crank-arm *a<sup>7</sup>* will in traversing the clutch-recess *e<sup>9</sup>* oscillate the clutch in the opposite direction to an engagement of the recessed extension thereof with a laterally and downwardly projecting shoulder *e<sup>10</sup>* on the carrier and will then move said carrier on the guide-bar in the direction toward the stop *d<sup>5</sup>* on the machine, the said crank-arm *a<sup>7</sup>* thereupon escaping from said clutch-recess during the further oscillation in the same direction of shaft *a<sup>4</sup>* in elevating the head A, and the tension-spring of the clutch serving to maintain said clutch in position on the carrier E to be reengaged by said crank-arm in the next succeeding oscillation of the rock-shaft. Any other and equivalent form of clutch device to perform the functions described may be employed in place of that herein specifically shown and described without material variation from this feature of the invention.

In carrying out a further feature of the in-



vention a radially or laterally projecting means, as a collar or slotted block C', is combined with the bar C, preferably toward the end thereof to the rearward of the path in the machine of the reciprocatory head A, and said means is capable of longitudinal movement on said bar and is given fixed adjustability thereon, as by a set-screw c<sup>2</sup>, and a projection or shoulder may be desirably also provided on the machine and may conveniently be constituted by the laterally-projecting jaws of the clutch, which reach across said bar C, as hereinbefore set forth, to be engaged by said means on said bar in the retraction movement of the platform and its bar C toward the front of the machine, and hence to check the movement of said platform in said direction.

It is evident that when bottles or vessels of any uniform lateral diameter are arranged in successive parallel ranks on the platform B the said adjustable means C' on the bar C may be fixed at a point thereon to limit the movement of the platform in its retraction toward the front of the machine to a position whereat when the platform is successively retracted to the limit of its movement in such direction in the continuous operation of the machine the mouths or filling-orifices of the initial rank of said bottles or vessels will always severally register with filler-tips of a series thereof carried by the reciprocatory head A, and it is evident that a single supporting and movable platform containing the described invention may be employed in a machine of the class stated without extraneous adjuncts to present bottles or vessels of any given uniform lateral diameter arranged in successive parallel ranks on the platform to filler-tips of a series thereof carried by a reciprocatory head to have the mouths or filling-orifices of said bottles or vessels severally register with said filler-tips in the operation of filling in the well-known manner.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a bottle-filling machine the combination with a reciprocatory tip-supporting head carrying filler-tips, in a series, of a bottle-support movable in the machine in the direction across the plane of the path of movement of said head, engageable means carried by said support, and engaging means slidably movable on the machine-frame within fixedly-adjustable variable limits through any determinate distance, to grip the engageable means on the said support when said engaging means is moved in one direction, and to release said engageable means when said engaging means is reversely moved.

2. In a bottle-filling machine, the combination with a reciprocatory tip-supporting head carrying filler-tips in a series, of a bottle-supporting platform, ways traversable by said platform and extending in the direction at right angles to the plane of the path of movement of said head, engageable means carried

by and extending longitudinally of said platform, a bar extending longitudinally of and having fixed longitudinal adjustability on the machine-frame, and means slidably mounted on said bar to play between a shoulder thereon to the rearward of said plane of the path of movement of said head and a stop on the machine forward of said plane and to engage said engageable means on said platform when said slidable means is moved on said adjustable bar in the direction toward the shoulder thereon and to release said engageable means on the platform when said slidable means is reversely moved on said bar.

3. In a bottle-filling machine the combination with a reciprocatory tip-supporting head carrying filler-tips in a series, of a bottle-supporting platform, ways traversable by said platform and extending in the direction at right angles to the plane of the path of movement of said head, a bar carried by and extending longitudinally of said platform, a guide-bar extending longitudinally of the machine-frame and having longitudinal play thereon, a set-screw having bearing in an arm on said guide-bar and working in a threaded seat on the machine-frame, and a carrier slidably mounted on said guide-bar to play between a shoulder thereon to the rearward of said plane of the path of movement of said head and a stop on the machine-frame forward of said plane, and provided with means to engage the platform-bar and move the platform in the same direction when said carrier is moved on the guide-bar toward the shoulder thereon, and to release said platform-bar and permit the platform to remain stationary during the movement of the carrier in the opposite direction on the guide-bar.

4. In a bottle-filling machine in which the bottle-supporting platform is movable in the direction across the plane of the path of movement of a reciprocatory head carrying the filler-tips and is provided with a bar extending longitudinally thereof and a guide-bar extends longitudinally on the machine-frame with a carrier slidably mounted thereon, the combination with said carrier, of a clutch comprising a body which is pivotally mounted to oscillate on said carrier and provided with laterally-projecting twin jaws respectively having opposed and parallel faces to fit upon and grip the upper and under faces of the platform-bar when the clutch is oscillated in one direction and with faces at opposite edges of the respective jaws and similarly outwardly inclined from said gripping-faces thereon and which are parallel to and free of said faces of the platform-bar when said clutch is reversely oscillated.

5. In a bottle-filling machine in which the bottle-supporting platform is movable in the direction across the plane of the path of movement of the reciprocatory head carrying the filler-tips and is provided with a bar extending longitudinally thereof and a guide-bar ex-



tends longitudinally on the machine-frame with a carrier slidably mounted thereon, the combination with said carrier, of an oscillatory clutch, tensioned thereto at its pivotal bearing thereon and having laterally-projecting twin jaws to engage and grip said platform-bar when the clutch is oscillated in one direction and to disengage and release said bar when said clutch is reversely vibrated, and provided with a radially-projecting extension having therein a radially-extending recess, together with a crank-arm on a rock-shaft in the machine-frame to engage in said recess and oscillate said clutch, to engage its jaws to the platform-bar and move said carrier in one direction on said guide-bar with said platform, when said rock-shaft is oscillated in one direction, and to reversely oscillate said clutch, to disengage its jaws from said platform-bar and to reversely move said carrier on said guide-bar, by engagement of the clutch, in its said reverse oscillation, with a projection on said carrier, and then to escape from said recess in said clutch, when said rock-shaft is reversely oscillated.

6. In a bottle-filling machine the combination with a reciprocatory head carrying filler-tips, and a bottle-supporting platform movable on ways in the direction across the plane of the path of movement of said head and carrying a bar extending longitudinally thereof, of a guide-bar extending longitudinally of the machine-frame and having longitudinal play in bearings and a sleeve-bracket fixed on the forward side of said frame, a set-screw having bearing in an arm on the forward end of said guide-bar and working in a threaded seat in a lug on said sleeve-bracket, and a carrier slidably mounted on said guide-bar to play between a shoulder thereon and the rearward end of said sleeve-bracket and provided with means to engage the platform-bar when said carrier is moved on the guide-bar toward the shoulder thereon and to release said platform-

bar when said carrier is reversely moved on said guide-bar.

7. In a bottle-filling machine the combination with a reciprocatory head carrying filler-tips, and a bottle-supporting platform movable in the machine in the direction across the plane of the path of movement of said head and in one direction within fixedly-adjustable variable limits through any determined distance, of a bar carried by and extending longitudinally of said platform and provided with radially or laterally projecting means thereon having fixed adjustability longitudinally thereof and a stop on the machine-frame to be engaged by said projecting means on said platform-bar during a movement of said platform in the opposite direction in the machine.

8. In a bottle-filling machine in which the bottle-supporting platform is movable across the plane of the path of movement of a reciprocatory head carrying filler-tips and has a bar carried by and extending longitudinally of said platform, and a bar mounted on the machine-frame extends longitudinally thereof alongside said platform, the combination therewith, of a carrier composed of a block which is longitudinally recessed at one side to fit and slidably mount the block upon the said bar on the machine-frame, and a clutch on said carrier engaging said platform-bar to grip it and carry said bar and platform with it during successive movements of the carrier on the bar on the machine-frame in the direction across the plane of the path of movement of said tip-supporting head.

Signed at New York city, State of New York, this 11th day of May, A. D. 1900.

FRANK L. NICHOLS.  
WILLIAM M. FOWLER.

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