

No. 607,262.

Patented July 12, 1898.

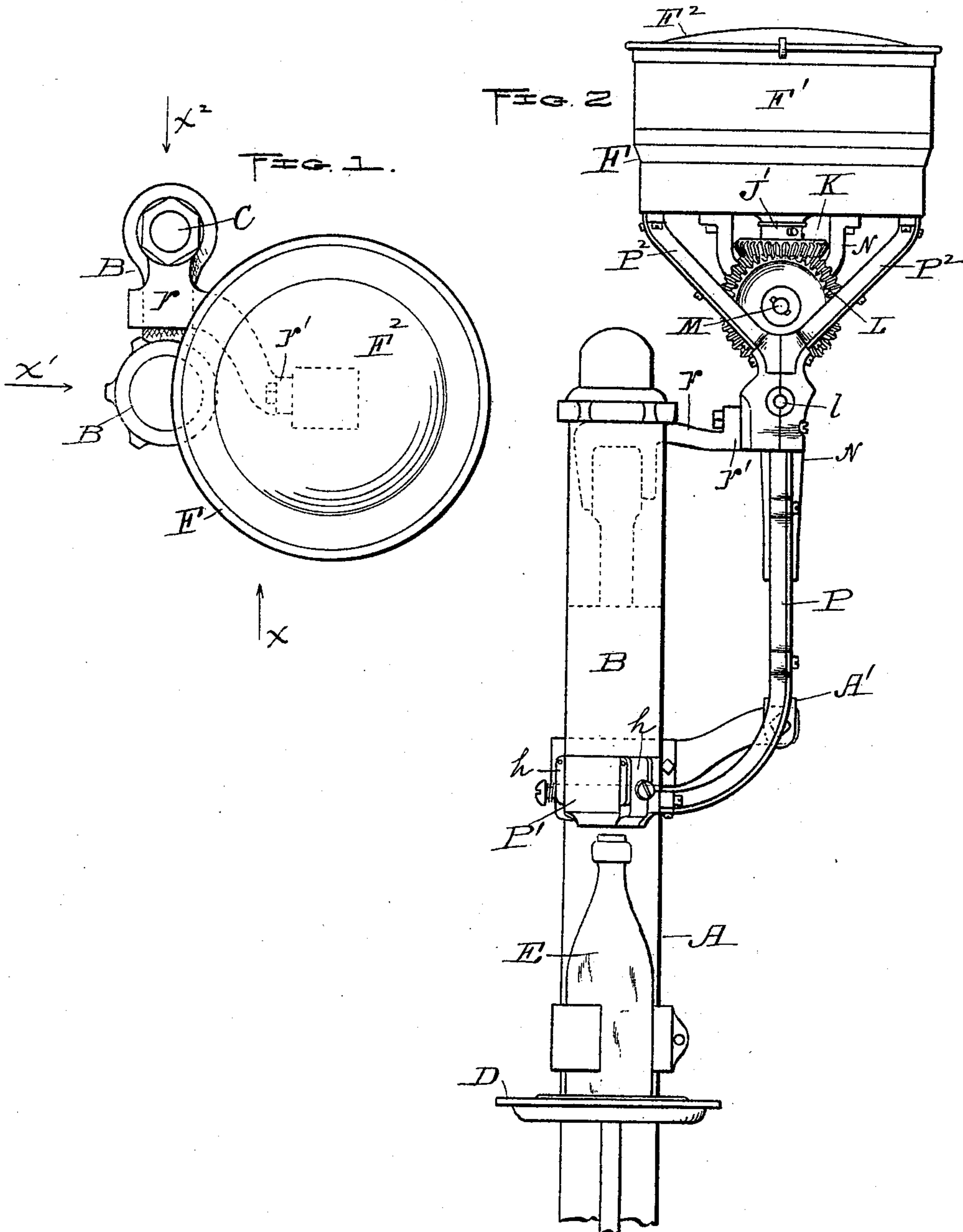
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(Application filed Oct. 20, 1897.)

(No Model.)

2 Sheets—Sheet 1.



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By A. A. Parker. Atty.

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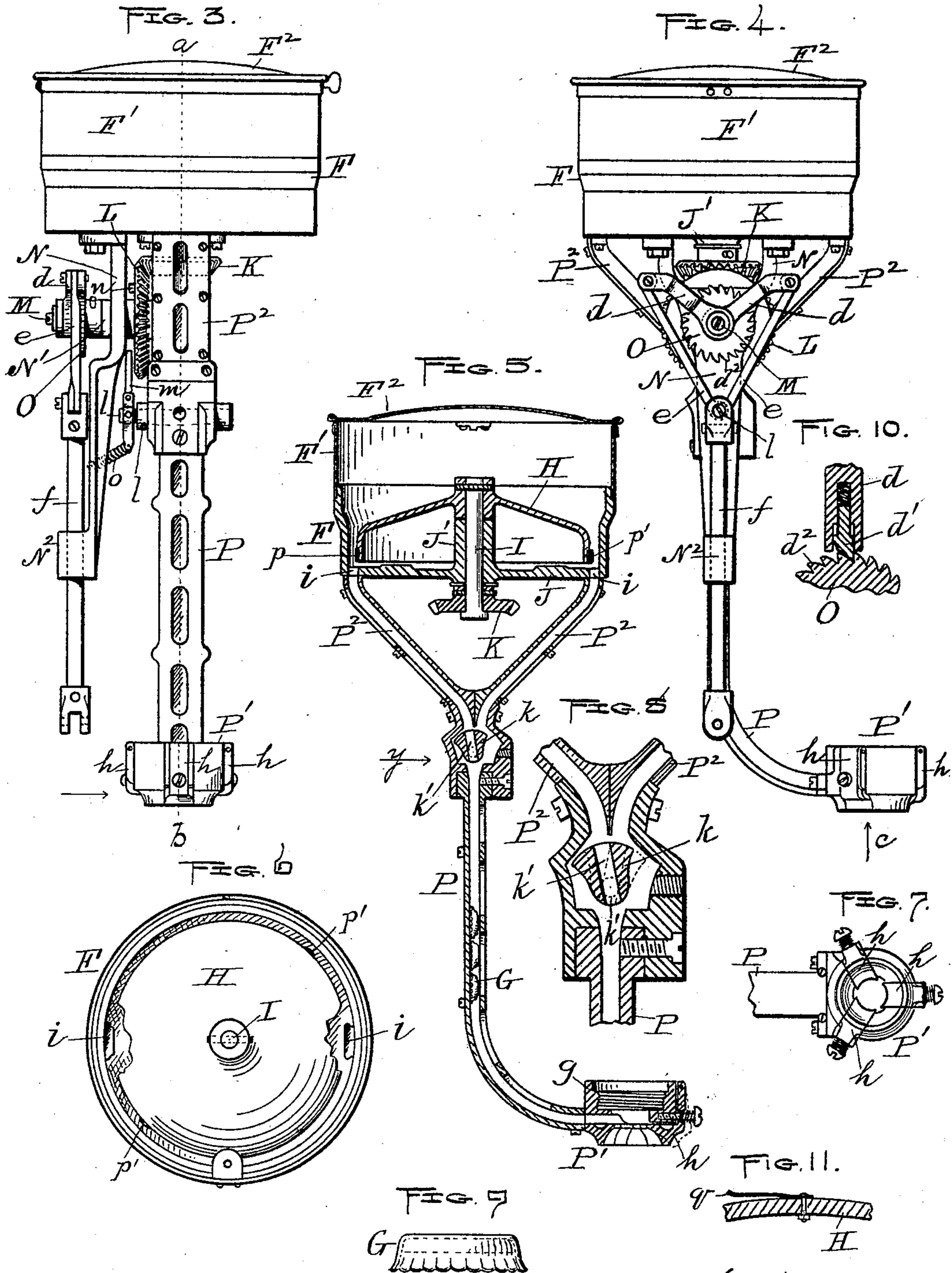
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UNITED STATES PATENT OFFICE.

NELSON MUSLAR, OF WEST BOYLSTON, MASSACHUSETTS, ASSIGNOR
TO JOHN JOYCE, OF ANDOVER, MASSACHUSETTS.

AUTOMATIC FEED DEVICE FOR BOTTLE-STOPPERING MACHINES.

SPECIFICATION forming part of Letters Patent No. 607,262, dated July 12, 1898.

Application filed October 20, 1897. Serial No. 655,823. (No model.)

To all whom it may concern:

Be it known that I, NELSON MUSLAR, of West Boylston, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Automatic Feed Devices for Bottle-Stoppering Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a plan of my said improved feed device and so much of a bottle-stoppering machine as is necessary to show the application of my invention thereto. Fig. 2 is a front view of the parts shown in Fig. 1, looking in the direction of arrow x in said Fig. 1. Fig. 3 is a detached side view of the feed device, looking in the direction of arrow x' , Fig. 1. Fig. 4 is a detached rear view thereof opposite from the view shown in Fig. 2, looking in the direction of arrow x'' , Fig. 1. Fig. 5 is a vertical section through the feed device, taken on line $a b$, Fig. 3, looking in the direction of the arrow in said Fig. 3. Fig. 6 is a plan of the hopper of the device, hereinafter more fully described, with the cover removed, portions of said hopper being broken away on two sides to show the outlet or discharge openings therein for the bottle-stoppers to pass through into the chute of the device, as will also be hereinafter more fully described. Fig. 7 is an under side plan view of the centering-head on the feed device which receives the heads of the bottles in the stoppering operation, looking in the direction indicated by arrow c in Fig. 4. Fig. 8 is an enlarged sectional view of that portion of the feed device shown in Fig. 5, indicated by arrow y in said figure. Fig. 9 represents upon a still larger scale a side or edge view of one style of bottle-stopper used for stoppering bottles by the use of my improved machine. Fig. 10 is an enlarged section through part of one of the ratchet-wheels and its spring-pawl; and Fig. 11 is an enlarged section through a part of the rim of the rotary disk, showing a modification in its friction device, hereinafter described.

My invention relates to improvements in feed devices for feeding the stoppers auto-

matically instead of by hand to the bottles in a bottle-stoppering machine; and the construction which is shown in the drawings for illustrating the embodiment of my invention consists of a suitable hopper or stopper-receptacle having a rotary disk arranged therein, and from which said stoppers may be successively discharged through suitable openings by the rotation of said disk, of suitable mechanism for rotating the disk by foot or other power connected therewith, and of a suitable chute for conducting said stoppers from said hopper to the bottles, said stopper-feed device being attached to the bottle-stoppering machine and operating in conjunction therewith, as will be hereinafter more fully set forth.

To enable others skilled in the art to which my invention appertains to better understand the nature and purpose thereof, I will now proceed to describe it more in detail.

In the drawings, A represents the main frame or standard of the bottle-stoppering machine, having the head B, the usual vertically-operating shaft C, and table D, upon which the bottle E to be stoppered rests.

In practice the shaft C has a constant upward pressure imparted to it to hold the same and the head B, which is attached to and moves with it, in its highest normal position, or, in other words, in the positions which said parts occupy preparatory to applying a stopper to one of the bottles. In applying said stopper the shaft and its head are moved down by pressure on a foot-treadle or other power connected therewith, so as to force the bottom of said head B down over the head of the bottle, said operation causing said bottle-head to be capped by the stopper (which has been previously placed therein) and also to be clamped or fastened thereon by the mechanism inside of said head B.

As the foregoing mechanism does not constitute a part of my invention, it is deemed unnecessary to illustrate or describe the same in detail, only such portions of the bottle-stoppering machine being shown, as before stated, to illustrate the application of my improved stopper-feed mechanism thereto.

By means of the feed mechanism hereinafter described the bottle-stoppers are fed au-

tomatically into the bottom of head B over the bottles preparatory to said capping and clamping operation, the latter operations being performed by the bottle-stoppering machine independent of my invention. Said feed mechanism is constructed and applied to the usual bottle-stoppering machines as follows:

F represents a hopper or stopper-receptacle, preferably circular in shape in horizontal section, as is shown in Fig. 1, which is provided in this instance with a sheet-metal cover F', having the hinged top F² for opening said hopper to fill the same with stoppers, as G. Within said hopper or receptacle is centrally arranged an inverted rotary cup-shaped disk H, the same being mounted on a vertical shaft I, fitted to turn in a bearing J' on the bottom J of the hopper-receptacle, as is shown in Fig. 5, said cup-shaped disk being keyed to the shaft, so as to turn with it, with the hub of said disk resting on the upper end of the hub forming the bearing J', in which said shaft I turns. Upon the bottom end of said vertical shaft I is mounted and secured a bevel-gear K, arranged to mesh with another bevel-gear L, preferably larger than bevel-gear K, mounted and secured on a short horizontal shaft M, fitted to turn in a bearing N' on frame N. Upon the outer end of said horizontal shaft is mounted and secured a ratchet-wheel O, with which a double knuckle-jointed pawl device engages to turn the same and through the aforesaid connecting parts rotating the disk H. Said pawl device consists of the two levers *d d*, each pivoted at one end to the outer end of horizontal shaft M and inclined upward and outward in opposite directions (see Fig. 4) and pivoted at their outer ends to the upper ends of the connecting-rods *e e*, which are in turn pivoted at their lower ends to the upper end of a vertical rod *f*, over which the bearing N² of frame N is fitted to slide.

Each lever *d d* is provided with a spring-pawl *d'*, (see Fig. 10,) which engages with the teeth *d²* of ratchet-wheel O, said spring-pawl being adapted to engage with said teeth to turn the wheel at each forward movement of the levers and to pass over the ends thereof without action thereon upon the return movements of the levers.

The lower end of the vertical rod *f* is attached to the outer end of a fixed bearing A', fastened to standard A, thus by the foregoing construction, as will be observed, forming a direct connection from said stationary standard A through the aforesaid rod *f*, ratchet-wheel, gearing, and other connections with the rotatable disk H of the hopper. This being the case it will also be apparent that in order to turn said disk (the rod *f* being held stationary) the hopper and parts connected therewith must be elevated and lowered together in order to operate the mechanism which causes the disk to be turned. Said result is obtained by attaching

the chute P, through which the stoppers are conducted from the hopper to the bottom of head B, to said head B, so as to elevate and lower said parts with the head by the usual operating mechanism of the bottle-stoppering machine.

The chute P is provided at its lower end where it connects with the head B with a centering device or head P', having the upper threaded hub *g*, whereby it may be screwed onto said head B, and the series of spring-pawls *h*, radially arranged, as is shown in Fig. 7, and pivoted to said hub *g*, as is best shown in Fig. 5, a spring being interposed between each of the pawls *h* and the head of its pivot-screw to exert a constant yielding pressure inward on each pawl to hold the same in the positions shown in Fig. 7 and by full lines in Fig. 5 to support the bottle-stoppers in position for capping, except when forced outward by the insertion of the head of the bottle in the stoppering operation. Said operation being well understood by those skilled in the art to which my invention appertains it will be unnecessary to describe the same. These springs which act on the pawls *h* are of equal strength, so that said pawls will yield equally as the bottle enters the centering-head P', and thus centering the bottle automatically with the centering-head.

From the centering-head P' the chute P extends upward to a point under about the center of the hopper, where it divides or branches off to opposite sides of said hopper, as is shown in Figs. 2 and 4, being attached to the bottom of said hopper in any suitable manner. In alinement with the upper terminus of each of said branches P² P² of the chute are formed openings *i i* in the bottom of the hopper, (see Fig. 6,) through which the stoppers may pass from said hopper into said branches of the chute and thence down through the main chute P into a space in the centering-head over the inner ends of the pawls *h*, previously described.

As will be observed, the discharge-openings *i i* in the bottom of the hopper are formed alike and are arranged in the same relative position, or, in other words, formed and arranged so that the stoppers will pass out of the hopper facing laterally in the same direction. They therefore always enter the head P' in their proper position, with the convex side up, or in the position shown in Fig. 9, ready for the stoppering operation.

It is obvious that in order that the stoppers may be discharged from the two branches P² P² into the single main chute P some device must be provided to direct them from first one branch and then the other into said main chute. To do this, I arrange a swivel-guide *k*, having a vertical slot *k'* therethrough and fastened near its bottom end to a stud *l*, fitted to turn in suitable bearings in the chute P, and which is provided with a spring-finger *m*, against which a pin *n* on the large bevel-gear L engages and causes said swivel-guide

to be swung to one side to bring it in line with one of the branches P^2 of the chute, as is shown in Figs. 5 and 8. A constant pressure is exerted to keep the swivel-guide in line with one of the branches of the chute until forcibly swung around, as aforesaid, by a spring o , attached so as to exert a constant yielding pressure to hold the stud upon which said swivel-guide k is mounted in one position, except when forced back by the pin n striking the spring-finger m , as aforesaid.

In practice the hopper is filled with stoppers, and as the disk in said hopper rotates it keeps said stoppers in motion, so that first one and then another will be moved into the proper position to enter one or the other of the openings i , and, passing through, enters one of the branches of the chute P , thence down through the swivel-guide k and main chute into the centering-head P' preparatory to the bottle being moved up to apply said stopper thereto. One stopper after another is thus discharged continuously to keep the main chute P filled as they are taken from the bottom. The branches are also more or less filled all the time, according to the rapidity at which the stoppers are discharged from the hopper. Said rapidity of discharge is governed to a certain extent by the positions which said stoppers occupy in the hopper—as, for instance, if a stopper in being moved along by the rotation of the disk H comes over the discharge-opening in the reverse position that it should occupy in order to pass through it will be pushed along by the next succeeding one, and so on for each successive stopper until one arrives at the opening in position to drop through.

If a stopper comes in the wrong position to pass through one opening, it is obvious that when it arrives over the other opening it has been turned around in passing from one side of the hopper to the other into the proper position to pass through, and therefore no single stopper can pass around more than one-half the revolution of the disk without passing out, after it has reached the bottom of the hopper, between the vertical sides or rim of the disk and the walls of the hopper.

In case one of the branch chutes is full and the swivel-guide is held from turning by one of the stoppers of the series, when the pin n on the bevel-gear L comes in contact with the spring-finger m of said swivel-guide said spring-finger bends and allows the pin to pass by without operating said swivel-guide, and so continues until such time as it is free to be operated to the opposite branch of the chute.

To facilitate the stoppers being carried around in the hopper by the disk, as aforesaid, a friction-band p , of rubber, may be fitted over the lower peripheral edge of said disk, as is shown in Fig. 5, and in addition thereto one or more portions p' thereof may be made thicker to further facilitate said operation.

If preferred, instead of a rubber band being used, as aforesaid, one or more thin flat springs q (see Fig. 11) may be employed on the disk in lieu thereof or any similar means employed to effect the same end.

The upper part of the feed device is held in position laterally by means of a frame r , fastened at r' to said device and to the bottle-stoppering machine, as is shown in Figs. 1 and 2.

The operation, in brief, is as follows: The head B and parts connected therewith being operated up and down by the usual mechanism, previously described, causes the hopper and its chute to be likewise operated, while the rod remaining stationary causes the pivoted rods $e e$ and levers $d d$ to be operated, and in consequence turning the ratchet-wheel, bevel-gearing, and rotary disk H , as hereinbefore described, thereby causing the stoppers to be fed down through the chute to the centering-head B over the bottle to be stoppered, as also hereinbefore described, all by a continuous automatic operation.

Having now described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. An automatic feed device for bottle-stoppering machines; comprising in combination the following elements, to wit: a single hopper or stopper-receptacle having a suitable cover; a central, rotary, horizontal disk mounted on a vertical shaft fitted therein, said vertical shaft; gearing connecting said shaft with a horizontal shaft; said horizontal shaft; ratchet pawl and lever mechanism, connecting said horizontal shaft with a fixed vertical rod attached to the frame of the bottle-stoppering machine; said fixed rod; a bifurcated or fork-shaped chute extending from suitable openings in the bottom of the hopper to a point about under the center of said hopper and thence to the centering-head over the bottle attached to the head of the bottle-stoppering machine; a swivel-guide located at the juncture of the main chute with the bifurcated or forked end under the hopper, means connected with the mechanism for rotating the hopper-disk, for moving said swivel-guide from one side to the other to bring the same into alinement with one of the branches of the chute, and means for imparting a yielding pressure to hold said swivel in its normal position, substantially as set forth.

2. In a feed device for a bottle-stoppering machine, the combination of the head and frame thereof with a bottle-stopper chute, having a centering-head at its lower end attached to said machine-head, and bifurcated or fork-shaped at its upper end with its upper terminal ends connected with openings in a single hopper or receptacle for containing said bottle-stoppers, said hopper or receptacle; a swivel-guide located at the juncture of the main chute with said bifurcated or forked end, adapted to be moved into alinement with

one or the other of the branch chutes by means of suitable mechanism substantially as and for the purpose set forth.

3. In a feed device for bottle-stoppering machines, the combination of a single hopper and the bifurcated or fork-shaped chute, with a hopper for holding bottle-stoppers, a movable disk within said hopper, a swivel-guide arranged at the juncture of the main chutes with said bifurcated or forked end and means connected therewith and with the mechanism for operating the hopper-disk for moving said swivel-guide into alinement with one or the other of the branch chutes, substantially as and for the purpose set forth.

4. In a feed device for a bottle-stoppering machine, the combination of the head and frame thereof, with the bifurcated or fork-shaped chute, the hopper attached to the bifurcated or forked ends of said chute having openings for the discharge of the bottle-stoppers in alinement with the terminal ends of said branch chutes; the centering-head mounted on the lower end of the main chute provided with a threaded hub for attachment to the head of the bottle-stoppering machine and consisting of a series of radial spring-dogs adapted to yield outward, when the head of the bottle is inserted therein, the swivel-guide arranged at the juncture of the main chute with the bifurcated or forked end, and means connected therewith and with the mechanism for operating the hopper-disk, for moving said swivel-guide into alinement with one or the other of the branch chutes, substantially as and for the purpose set forth.

5. In a feed device for bottle-stoppering machines, the combination of the head and frame thereof, with the bottle-stopper chute, the hopper mounted thereon, the rotary disk mounted on the end of a shaft within the hopper, the shaft fitted to turn in a suitable bearing on the hopper, gearing connecting said shaft with another shaft, said shaft fitted to turn in suitable bearings, ratchet wheel, pawl lever and rod mechanism operatively connecting said last-named shaft with a fixed rod connected with the frame of the bottle-stoppering machine, and said fixed rod, and a centering-head secured to the operating-head for receiving the stoppers from the chute and provided with a series of spring-pawls adapted to support the bottle-stoppers in position for capping and to yield upon the insertion of the head of the bottle.

6. In a feed device for a bottle-stoppering machine, the combination of a frame and head thereof with the bottle-stopper chute, the hopper mounted thereon, the rotary disk having a friction device on the outer side of its rim and mounted on the end of a shaft within the hopper; said shaft fitted to turn in a suitable bearing on the hopper; gearing connecting said shaft with another shaft, said shaft fitted to turn in suitable bearings; ratchet wheel, pawl, lever and rod mechanism, operatively connecting said last-named shaft with a fixed

rod connected with the frame of the bottle-stoppering machine, and said fixed rod, and a centering-head secured to the operating-head for receiving the stoppers from the chute and provided with a series of spring-pawls adapted to support the bottle-stoppers in position for capping and to yield upon the insertion of the head of the bottle.

7. In a feed device for bottle-stoppering machines, a single hopper for holding the bottle-stoppers, a main chute, branch chutes between said hopper and main chute, and means for controlling the passage of the stoppers from the branch chutes into the main chute.

8. In a feed device for bottle-stoppering machines, a single hopper for holding the bottle-stoppers, a main chute, branch chutes between said hopper and main chute, and means at the junction of said main chute and branch chutes for controlling the passage of the stoppers from the branch chutes into the main chute.

9. In a feed device for bottle-stoppering machines, an operating-head for capping the stoppers on the bottles, a single hopper for holding said bottle-stoppers, a main chute through which the bottle-stoppers pass to said head, branch chutes between said hopper and main chute, openings in said hopper registering with said branch chutes, means for keeping said stoppers in motion in said hopper to bring them over said openings, and means at the junction of said main chute and branch chutes for controlling the passage of said stoppers from the branch chutes into the main chute.

10. In a feed device for bottle-stoppering machines, an operating-head for capping the stoppers on the bottles, a single hopper for holding said bottle-stoppers, a main chute through which the bottle-stoppers pass to said head, branch chutes between said hopper and main chute, openings in said hopper registering with said branch chutes, means for keeping said stoppers in motion in said hopper to bring them over said openings, means at the junction of said main chute and branch chutes for controlling the passage of said stoppers from the branch chutes into the main chute, means for normally holding said controlling means in alinement with one of said branch chutes, and mechanism operated by the movement of said head for bringing said controlling means into alinement with another branch chute to allow the passage of bottle-stoppers from said branch chute into the main chute.

11. In a feed device for bottle-stoppering machines, an operating-head for capping the stoppers on the bottles, a single hopper for holding said bottle-stoppers, a main chute through which the bottle-stoppers pass to said head, branch chutes between said hopper and main chute, openings in said hopper registering with said branch chutes, means for keeping said stoppers in motion in said hopper to bring them over said openings, means at the

junction of said main chute and branch chutes for controlling the passage of said stoppers from the branch chutes into the main chute, yielding means for normally holding said controlling means in alinement with one of said branch chutes, and mechanism operated by the movement of said head for bringing said controlling means into alinement with another branch chute to allow the passage of bottle-stoppers from said branch chute into the main chute.

12. In a feed device for bottle-stoppering machines, an operating-head for capping the stoppers on the bottles, a single hopper for holding said bottle-stoppers, a main chute through which the bottle-stoppers pass to said head, branch chutes between said hopper and main chute, openings in said hopper registering with said branch chutes, means for keeping said stoppers in motion in said hopper to bring them over said openings, means at the junction of said main chute and branch chutes for controlling the passage of said stoppers from the branch chutes into the main chute, and a centering-head for receiving the stoppers from the main chute.

13. In a feed device for bottle-stoppering machines, an operating-head for capping the stoppers on the bottles, a single hopper for holding said bottle-stoppers, a main chute through which the bottle-stoppers pass to said head, branch chutes between said hopper and main chute, openings in said hopper registering with said branch chutes, means for keeping said stoppers in motion in said hopper to bring them over said openings, means at the junction of said main chute and branch chutes for controlling the passage of said stoppers from the branch chutes into the main chute, and a centering-head secured to the said operating-head for receiving the stoppers from the main chute.

14. In a feed device for bottle-stoppering machines, an operating-head for capping the stoppers on the bottles, a single hopper for holding said bottle-stoppers, a main chute through which the bottle-stoppers pass to said head, branch chutes between said hopper and main chute, openings in said hopper registering with said branch chutes, means for keeping said stoppers in motion in said hopper to bring them over said openings, means at the junction of said main chute and branch chutes for controlling the passage of said stoppers from the branch chutes into the main chute, a centering-head for receiving the stoppers from the main chute, and yielding means on said centering-head for centering the bottle as it enters said centering-head.

15. In a feed device for bottle-stoppering machines, an operating-head for capping the stoppers on the bottles, a single hopper for holding said stoppers, a main chute through which the bottle-stoppers pass to said head, branch chutes between said hopper and main chute, openings in said hopper registering with said branch chutes, a disk within said

hopper for keeping said stoppers in motion to bring them over said openings, mechanism for operating said disk, a swivel-guide at the junction of said branch chutes and main chute for controlling the passage of said stoppers from said branch chutes into said main chute, means connected to said swivel-guide extending into the path of movement of the mechanism which rotates the disk within the hopper and adapted upon the contact therewith of said mechanism to move the swivel-guide from one branch chute to another.

16. In a feed device for bottle-stoppering machines, an operating-head for capping the stoppers on the bottles, a single hopper for holding said stoppers, a main chute through which the bottle-stoppers pass to said head, branch chutes between said hopper and main chute, openings in said hopper registering with said branch chutes, a disk within said hopper for keeping said stoppers in motion to bring them over said openings, mechanism for operating said disk, a swivel-guide at the junction of said branch chutes and main chute for controlling the passage of said stoppers from said branch chutes into said main chute and provided with an arm extending into the path of movement of the mechanism which rotates the disk within the hopper and adapted upon the contact therewith of said mechanism to move the swivel-guide from one branch chute to another.

17. In a feed device for bottle-stoppering machines, an operating-head for capping the stoppers on the bottles, a single hopper for holding said stoppers, a main chute through which the bottle-stoppers pass to said head, branch chutes between said hopper and main chute, openings in said hopper registering with said branch chutes, a disk within said hopper for keeping said stoppers in motion to bring them over said openings, mechanism for operating said disk, a swivel-guide at the junction of said branch chutes and main chute for controlling the passage of said stoppers from said branch chutes into said main chute and provided with an arm extending into the path of movement of the mechanism which rotates the disk within the hopper and adapted upon the contact therewith of said mechanism to move the swivel-guide from one branch chute to another, and a spring for holding said swivel-guide normally in alinement with one of the branch chutes and adapted to yield to the movement of said swivel-guide upon the contacting of the mechanism which rotates the disk with the said arm of said swivel-guide to move said swivel-guide to alinement with another branch chute.

18. In a feed device for bottle-stoppering machines, an operating-head for capping the stoppers on the bottles, a hopper for holding said bottle-stoppers, a main chute through which the bottle-stoppers pass to said head, branch chutes between said hopper and main chute, openings in said hopper registering with said branch chutes and formed and ar-

ranged to cause the stoppers to enter both of said branch chutes in the same predetermined position, and means for keeping said stoppers in motion in said hopper to bring them over said openings.

19. In a feed device for bottle-stoppering machines, an operating-head for capping the stoppers on the bottles, a hopper for holding said bottle-stoppers, a main chute through which the bottle-stoppers pass to said head, branch chutes between said hopper and main chute, openings in said hopper registering with said branch chutes and formed and arranged to cause the stoppers to enter both of said branch chutes in the same predetermined position, means for keeping said stoppers in motion in said hopper to bring them over said openings, and means at the junction of said main chute and branch chutes for controlling the passage of said bottle-stoppers from the branch chutes to the main chute.

20. In a feed device for bottle-stoppering machines, an operating-head for capping the stoppers on the bottles, a hopper for holding said bottle-stoppers, a main chute through which the bottle-stoppers pass to said head, branch chutes between said hopper and main chute, openings in said hopper registering with said branch chutes and formed and arranged to cause the stoppers to enter both of said branch chutes in the same predetermined position, means for keeping said stoppers in motion in said hopper to bring them over said openings, means at the junction of said main chute and branch chutes for controlling the passage of said bottle-stoppers from the branch chutes to the main chute, and a centering-head at the lower end of said main chute and secured to the operating-head for receiving the bottle-stoppers from the main chute.

21. In a feed device for bottle-stoppering machines, an operating-head for capping the stoppers on the bottles, a hopper for holding said bottle-stoppers, a main chute through which the bottle-stoppers pass to said head, branch chutes between said hopper and main chute, openings in said hopper registering with said branch chutes and formed and arranged to cause the stoppers to enter both of said branch chutes in the same predetermined position, means for keeping said stoppers in motion in said hopper to bring them over said openings, means at the junction of said main chute and branch chutes for controlling the passage of said bottle-stoppers from the branch chutes to the main chute, a centering-head at the lower end of said main chute and secured to the operating-head for receiving

the bottle-stoppers from the main chute, and yielding means on said centering-head for centering the bottle as it enters said centering-head and adapted to support the bottle-stoppers in position for capping.

22. In a feed device for bottle-stoppering machines, an operating-head for capping the stoppers on the bottles, a hopper for holding said bottle-stoppers, a main chute through which the bottle-stoppers pass to said head, branch chutes between said hopper and main chute, and openings in said hopper registering with said branch chutes and formed and arranged to cause the stoppers to enter said branch chutes in the same predetermined position.

23. In a feed device, a single hopper for holding the articles to be fed, branch chutes leading from said hopper, a main chute with which said branch chutes communicate, openings in said hopper registering with said branch chutes and formed and arranged to cause said articles to enter said chutes in the same predetermined position, and means for controlling the passage of articles from the branch chutes into the main chute.

24. In a feed device for bottle-stoppering machines, an operating-head for capping the stoppers on the bottles, a bottle-stopper chute, a hopper containing bottle-stoppers and communicating with said chute for supplying the same with bottle-stoppers, means for keeping said stoppers in motion in said hopper, and a centering-head secured to said operating-head and to said chute for receiving the stoppers from said chute and provided with a series of spring-pawls adapted to support the bottle-stoppers in position for capping and to yield upon the insertion of the head of the bottle and center the same.

25. In a feed device for bottle-stoppering machines, a reciprocating operating-head for capping the stoppers on the bottles, a bottle-stopper chute, a hopper containing bottle-stoppers and communicating with said chute for supplying the same with bottle-stoppers, means for keeping said stoppers in motion in said hopper, and a centering-head secured to said operating-head and to said chute for receiving the stoppers from said chute and provided with a series of spring-pawls adapted to support the bottle-stoppers in position for capping and to yield upon the insertion of the head of the bottle and center the same.

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