No. 837,237. PATENTED NOV. 27, 1906.

U. S. MARKLAND.

MACHINE FOR CAPPING MILK BOTTLES.

APPLICATION FILED OCT. 18, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

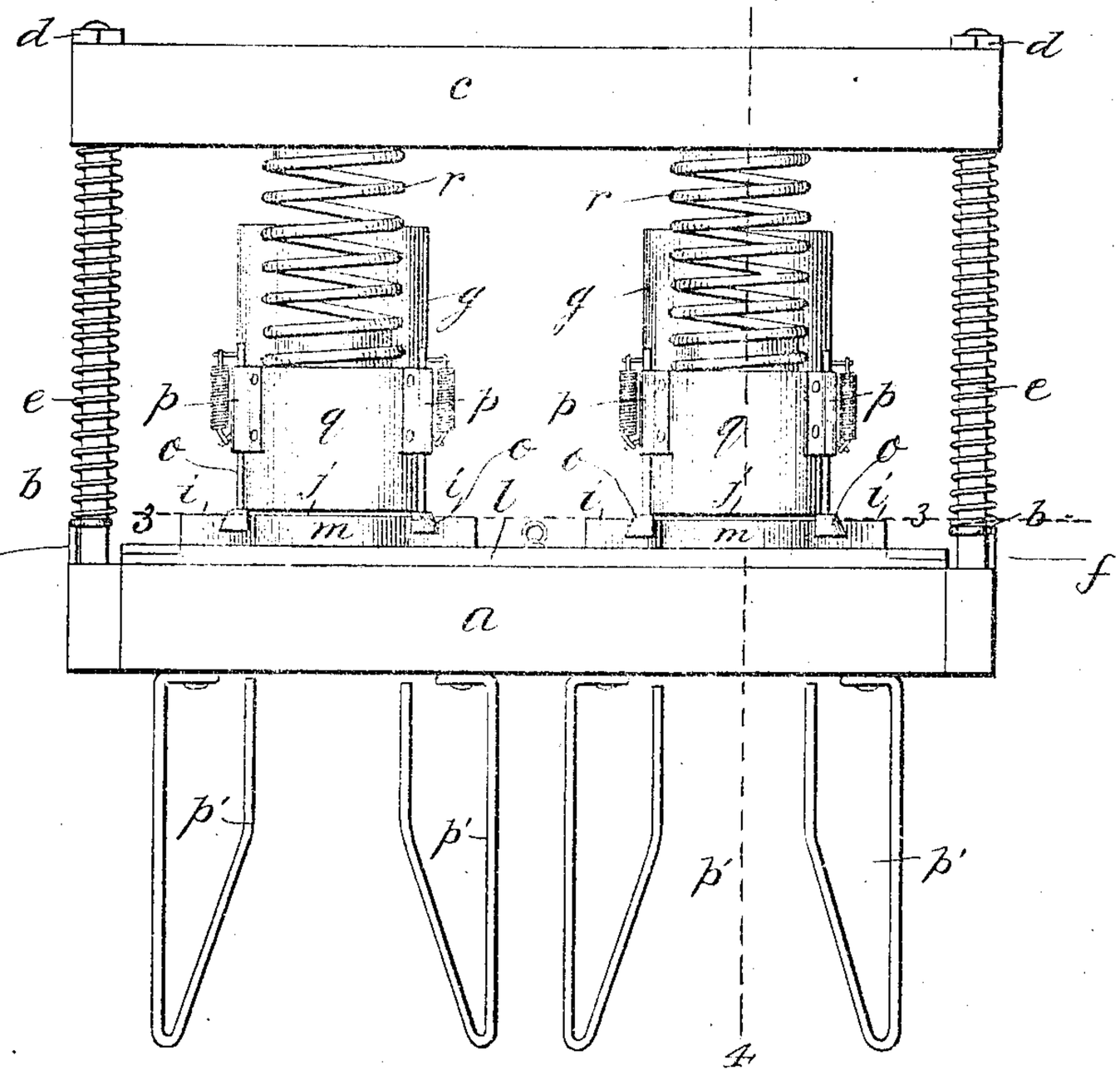
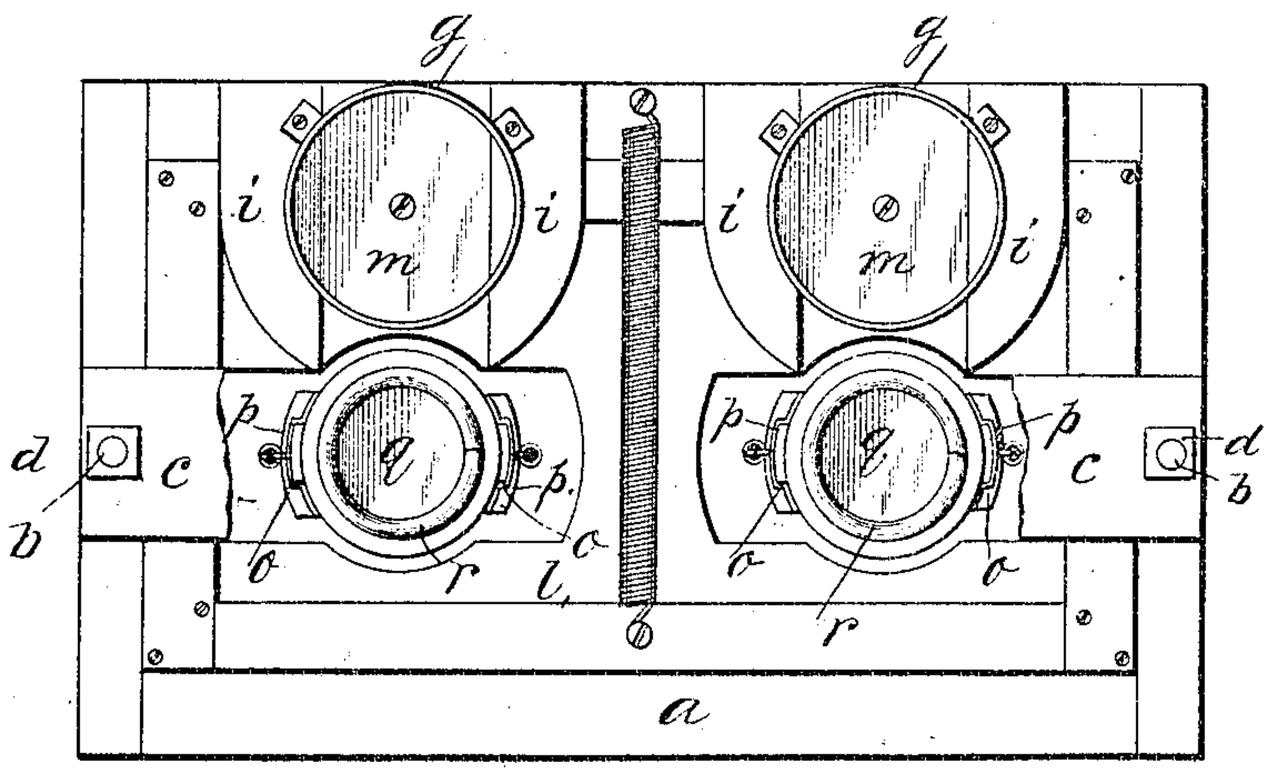


Fig. 2.



Witnesses:
W. A. Curan d
Arthur W. Crossley.

Inventor:
U. S. Markland.

By Lewis Bagger & Co.,
Attorneys.

No. 837,237. PATENTED NOV. 27, 1906.

U. S. MARKLAND.

MACHINE FOR CAPPING MILK BOTTLES.

APPLICATION FILED OCT. 18, 1905.

2 SHEETS—SHEET 2.

Fig. 3.

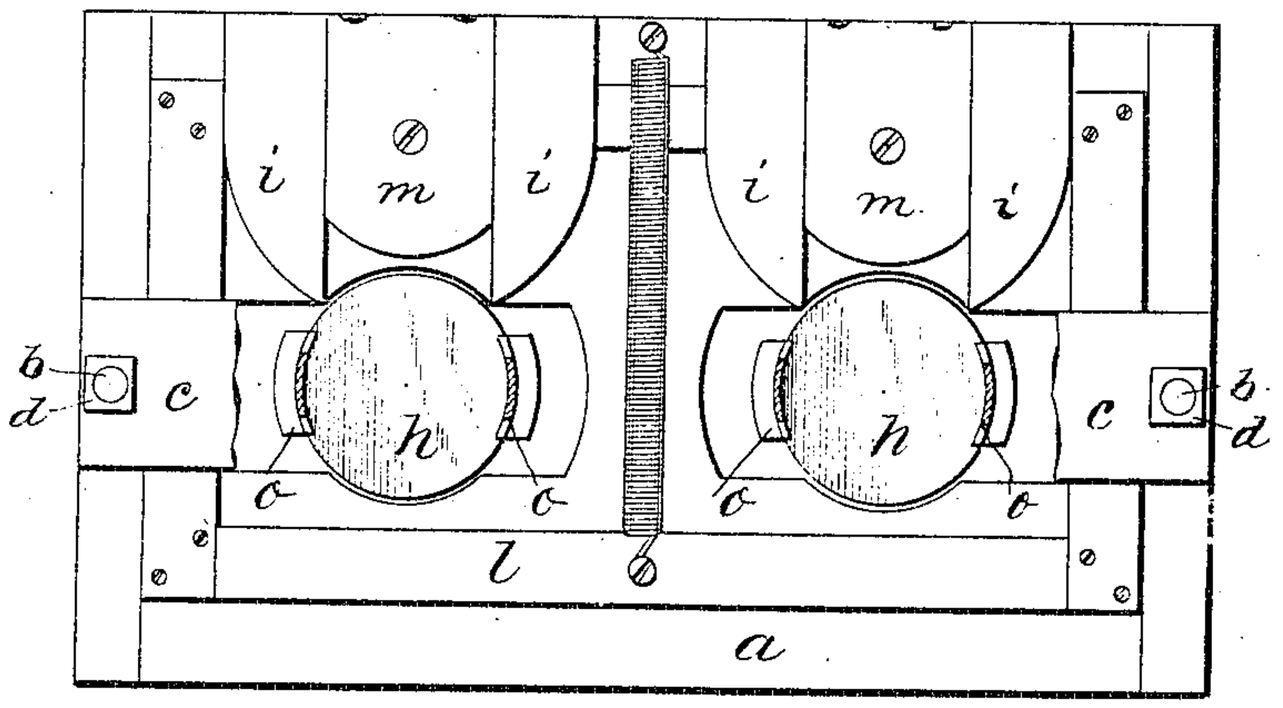


Fig. 4.

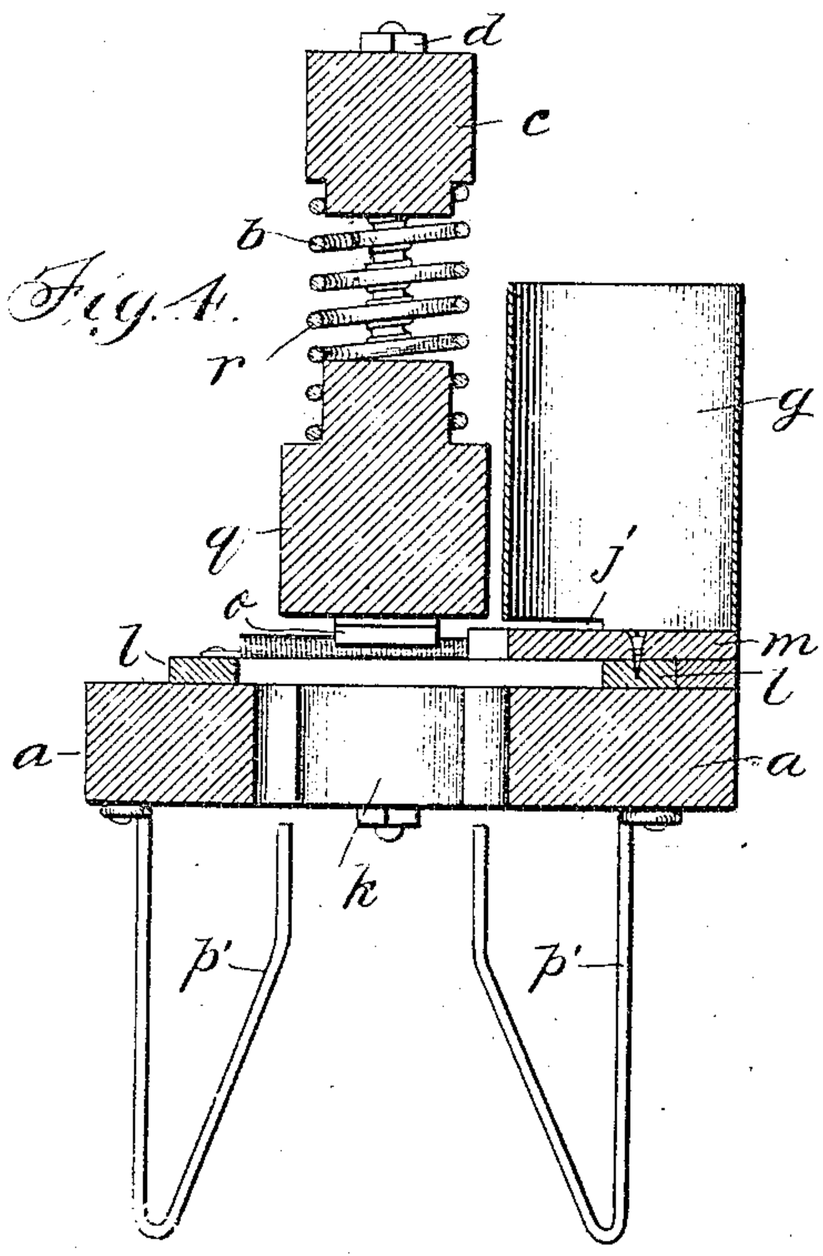
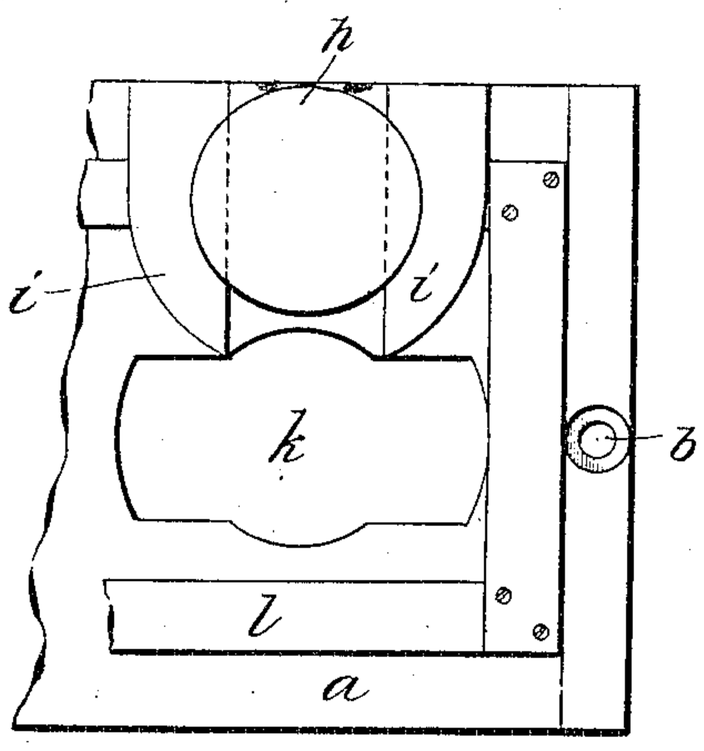


Fig. 5.



Witnesses:
W. A. Durand.
Arthur W. Crossley.

Inventor:
U. S. Markland,
By Louis Bagger & Co.,
Attorneys

UNITED STATES PATENT OFFICE.

ULYSSES S. MARKLAND, OF BLOOMINGTON, ILLINOIS.

MACHINE FOR CAPPING MILK-BOTTLES.

No. 837,237. Specification of Letters Patent. Patented Nov. 27, 1906.

Application filed October 18, 1905. Serial No. 283,281.

To all whom it may concern:

Be it known that I, ULYSSES S. MARKLAND, a citizen of the United States, residing at Bloomington, in the county of McLean and State of Illinois, have invented new and useful Improvements in Machines for Capping Milk-Bottles, of which the following is a specification.

My invention has relation to bottle stoppering or capping machines generally, and particularly to that class of machines used to seal milk-bottles by inserting disks of pasteboard or cardboard in an annular groove formed in the mouths thereof.

It is the object of this invention to provide such improvements in the class of machines referred to as will not only simplify their construction, but will enhance their usefulness as well, in that they will feed the stopper-disks into place and then force them into the bottle-mouths with greater certainty than heretofore.

The invention consists of a machine of the kind specified provided with a plurality of cap-receiving magazines open at the bottom to an extent that will allow the lowermost cap to be pushed out and fed into place for the plunger to engage it to push it into the mouth of the bottle that will have been put in place below the pushed-out cap, the improved instrumentalities being characterized by certain novel and peculiar features and advantageous modes of operation, as will be hereinafter fully described, and pointed out in the subjoined claim.

Reference is to be had to the annexed drawings, forming a part of this specification, in which—

Figure 1 is a front elevation. Fig. 2 is a plan view, a part of the overbar being represented as broken away. Fig. 3 is a horizontal sectional view taken in the plane 3 3 of Fig. 1. Fig. 4 is a transverse vertical sectional view taken in the plane 4 4 of Fig. 1. Fig. 5 is a detail in plan of a part of the top of the machine with the magazine removed, a cap-stopper being shown by dotted lines in place.

In the disclosure of my invention to those skilled in the art to which it appertains let *a* designate the platform, which may be of any shape and composed of any material suitable for the purpose.

b designates standards extending up from the platform through holes in the overbar *c* and having nuts *d* turned on their upper projecting screw-threaded ends.

e designates helical springs surrounding the standards between a wire support *f* at the bottom and the overbar *c*, supporting the latter, but at the same time allowing it to be depressed by force applied downwardly on the said overbar.

g designates magazines formed as cylinders of a diameter sufficient to allow the caps or stoppers *h* to fit nicely therein. The magazines are secured on guides *i* at their bases and have a segment of the thickness of a cap cut away from their forward lower edges, forming an opening, as at *j*, to permit the lowermost cap in the magazine to be fed forward from under those above it out through the opening *j* into position over the top or mouth of a bottle beneath a hole *k*, formed through the platform.

l designates a feed-frame supported on the platform and adapted to be slid backward and forward thereon. The said frame is at its rear connected with the slides *m* at the bottom of the magazines, upon which and the guides *i* the bottom caps rest and by which the said bottom caps are engaged. The feed-frame may be moved forward by a lever (not shown) or by pulling forward on a cord (not shown) connected therewith or by hand. It may be returned automatically by a spring engaged at its forward end therewith and connected at its rear end with a stationary part of the machine. In pulling the feed-frame forward the lowermost caps engaged by the feed-slides *m* will be drawn out through the openings *j*, their lateral edges resting upon the guides *i*, and forced into the grooves formed on the inner sides of the spring-pressed cap-holders *o*, the shanks of which are supported and guided in the clips *p* of suitable form on the sides of the plungers *q*.

The plungers are cylindrical in form and of a size to permit them to readily enter the mouths of the bottles to be capped, strong helical springs *r* surrounding and connected at their lower ends with the shanks of the plungers *q* and connected at their upper ends with the under side of the overbar *c*. The springs *r* support the plungers and permit of their depression and vertical movement in unison with the overbar.

With caps moved out into position over the mouths of the bottles and held at their edges in the grooves on the inside of the cap-holders and the feed-slide and its connections returned to rearward position the overbar *c* will be depressed by a lever or other suitable means, (not shown,) in the present case by hand, carrying down the plungers and cap-holders *o* until the latter engage the tops of the bottles and are raised, releasing the caps held by them, which latter will be depressed by the plungers into the mouths of the bottles until their edges engage the internal annular groove aforesaid. The overbar may now be released, when it will be raised by the springs surrounding the standards, and the plungers will be carried up by their helical spring *r*, and the cap-holders *o* will be depressed by the springs connected with and operating upon them, all ready for another operation.

Depending from the platform *a* are triangularly-shaped stiff wires *p'*, one arm of each of which extends at its upper end to near the margin of the holes formed through the platform, while the length or body of the arm inclines downward away from said hole. This construction and arrangement of the said wires *p'* is made in order to guide the necks of the bottles into position so that their mouths will be directly under the plungers and caps held by the cap-holders *o*.

The variation in the height of the bottles will be compensated for by the springs supporting the plungers. When the edges of a cap depressed by a plunger engages the annular groove on the inside of a bottle, it will hold its plunger against further descent, and another plunger not yet having forced its cap home will be allowed to be further pressed down until its cap is in final place in the mouth of the bottle.

Of course there will be as many capping means provided as it may be desirable or feasible to use at one operation; but two are illustrated in this case as being deemed sufficient to explain the construction and mode of operation of the invention. Moreover, the platform may be round if it should be thought best to arrange the capping means in a circle, and, again, if desired, the platform may be made rotary.

Any suitable means may be arranged in the magazines for depressing the caps or stoppers therein, if needed.

When a cap is withdrawn by the feed-slide, the cap next above that just withdrawn will be depressed so that its edges will rest upon the guides at the sides of the magazine and support it, so that when the feed-slide returns it will pass under the caps.

It is obvious that the machine as it is or with slight mechanical changes may be employed as a bottle-stoppering machine employing other shaped stoppers than caps commonly used on milk-bottles.

I claim—

A bottle capping or stoppering machine comprising a magazine having a lateral cap-delivering opening at its lower end, a spring-upheld plunger arranged laterally of, and contiguous to said magazine, a spring-upheld means adapted when depressed to actuate said plunger, spring-pressed holders grooved to receive a bottle-cap, the shanks of which holders are supported and guided by clips arranged upon said plunger, and means for withdrawing a bottom cap from said magazine and delivering it into said holders in alinement with said plunger in position for the action of the latter.

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

ULYSSES S. MARKLAND.

Witnesses:
HOMER K. HUSTON,
J. HALE TAGGART.