(No Model.)

# H. HASELHORST & J. O. VOGEL.

## BOTTLE STOPPING APPARATUS.

No. 441,242. Patented Nov. 25, 1890.

Fig. 1

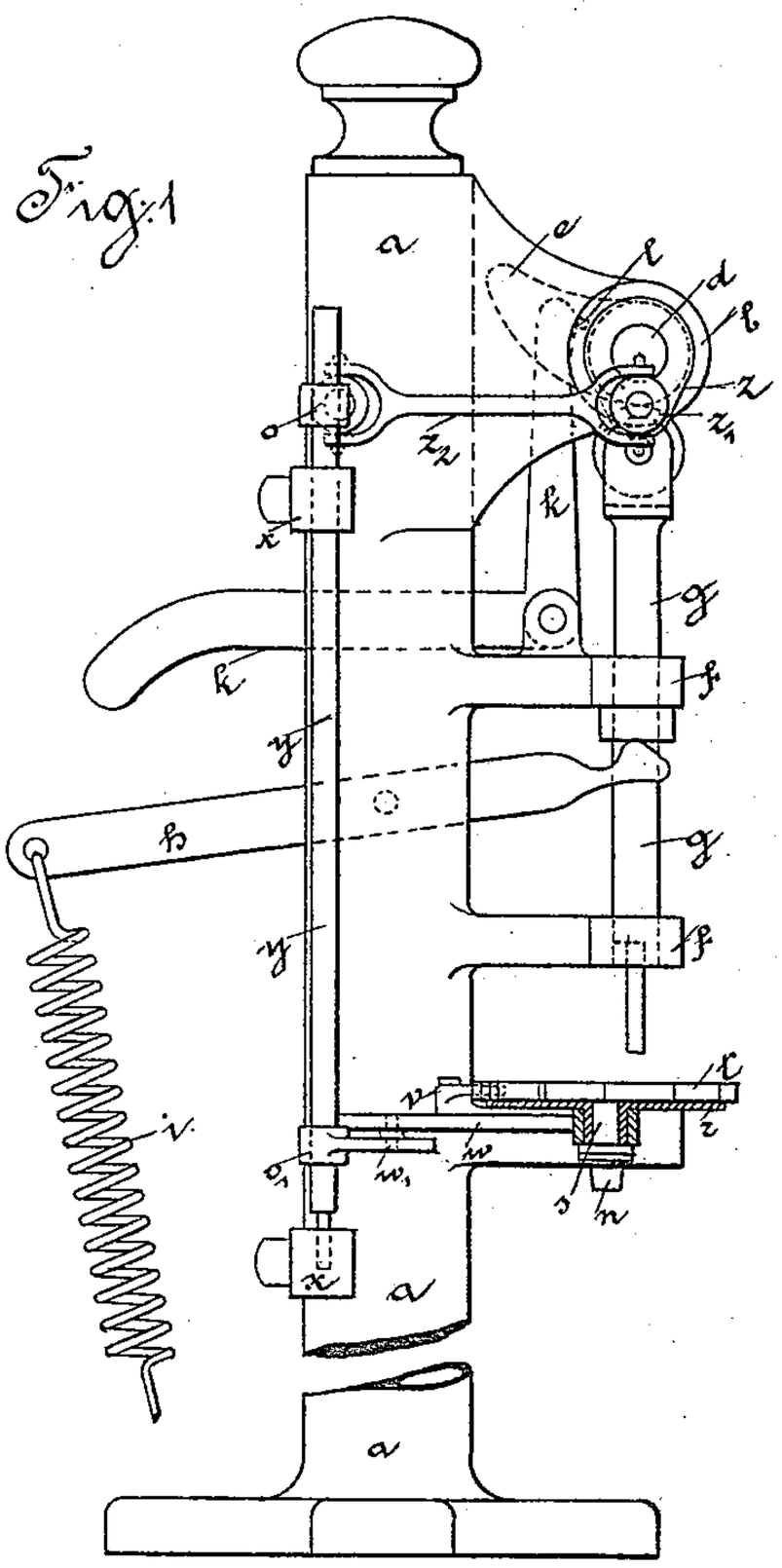


Fig. 2

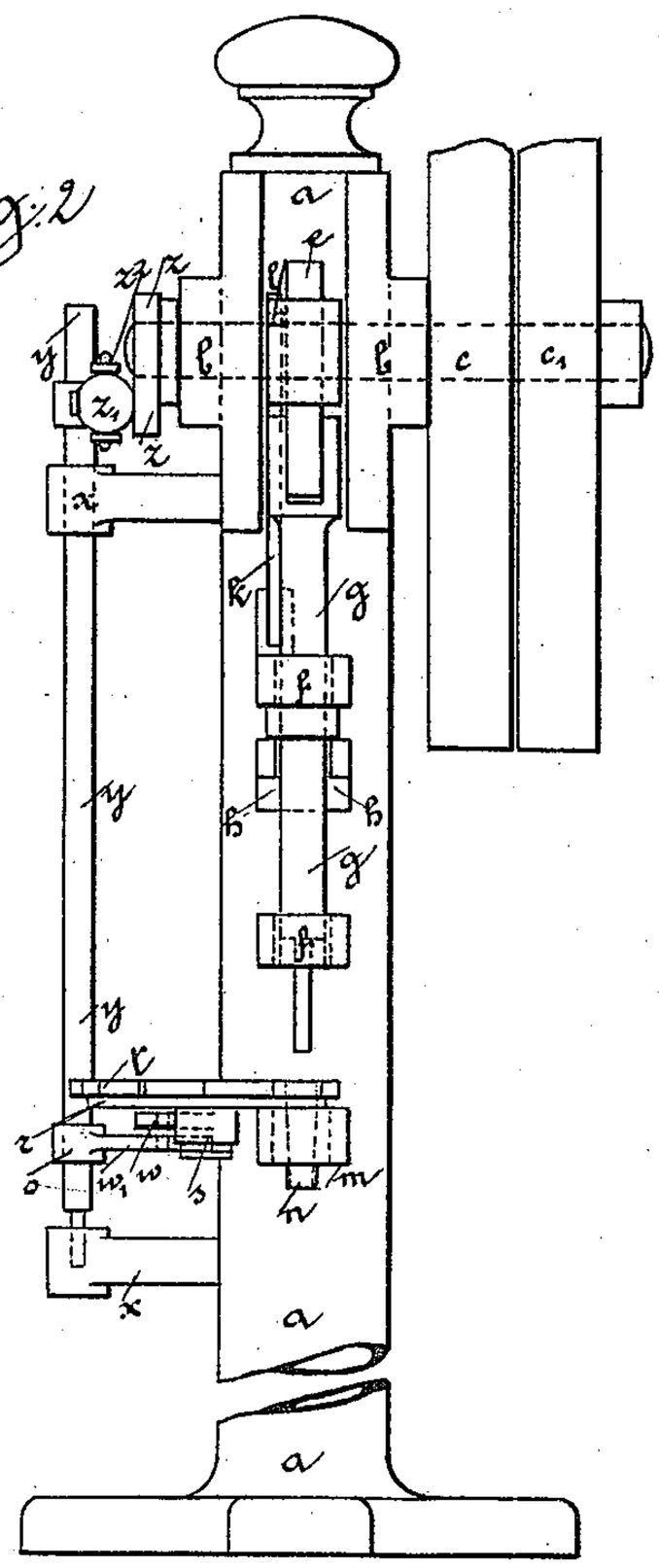


Fig. 3

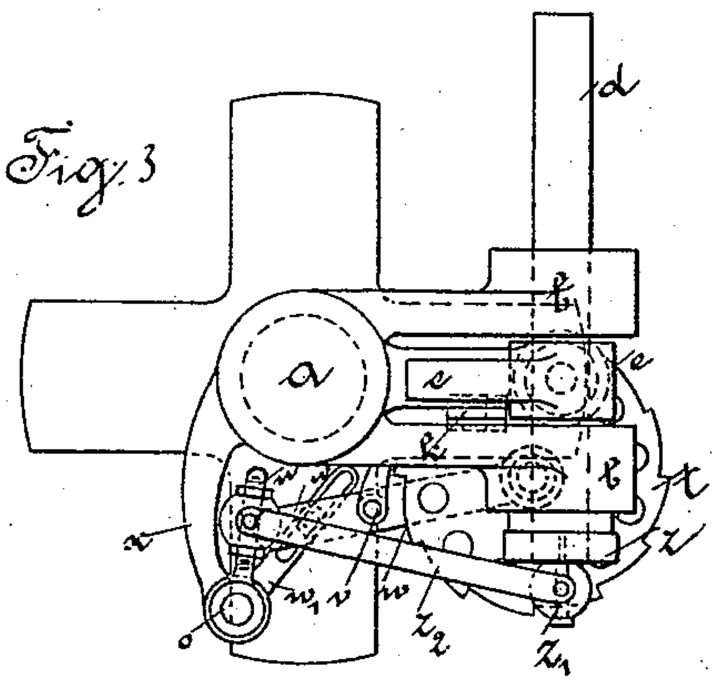
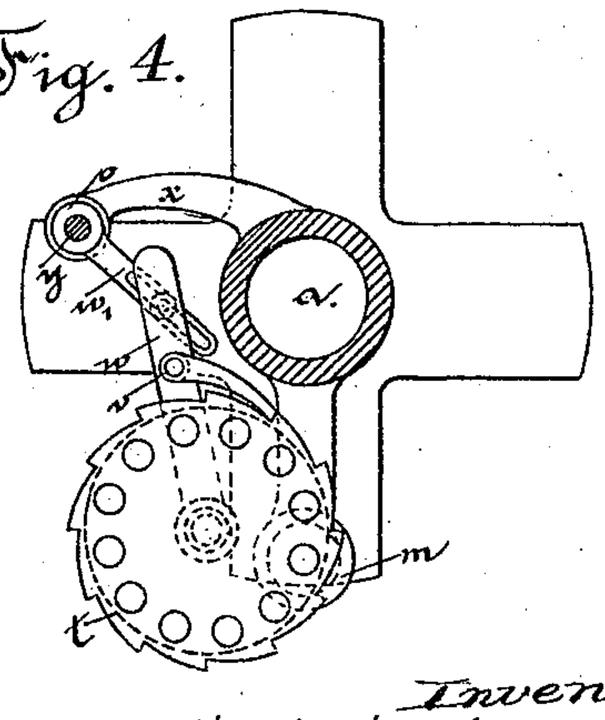


Fig. 4.



Witnesses:
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their Attys.

# UNITED STATES PATENT OFFICE.

HORST HASELHORST AND JULIUS OSCAR VOGEL, OF DRESDEN, GERMANY.

## BOTTLE-STOPPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 441,242, dated November 25, 1890.

Application filed May 7, 1890. Serial No. 350,937. (No model.)

*To all whom it may concern:*

Be it known that we, HORST HASELHORST and JULIUS OSCAR VOGEL, subjects of the King of Saxony, residing in the city of Dresden, in the Kingdom of Saxony, in the German Empire, have invented certain new and useful Improvements in Bottle-Stopping Apparatus, of which the following is a specification.

This invention relates to apparatus for stoppering bottles and the like in a continuous and uninterrupted manner. To obtain this result a plunger adapted to press the corks through a funnel-shaped or taper tube into the neck of the bottle is pressed down by a driving-shaft and raised again by the action of a spring. The feed of the corks is effected by a plate or disk on which the said corks are set, and which at each descent of the plunger is caused by a pawl connected with the driving-shaft to advance one tooth. All the operative attending to the machine has to do is to hold the bottle while it is being stoppered with one hand within the apparatus and arrange with the other hand a fresh supply of corks upon the said rotary disk. The apparatus is so constructed that the operative while thus handling the bottles and corks will be free from danger of being caught in the gearing, inasmuch as the operation of the mechanism is perfectly independent and self-supporting, and the corks are placed on the side of the disk which is opposite to the side facing the working parts.

While our apparatus differs from those hitherto used for the like purpose in the above details of construction, its operation is also unlike that of the analogous devices previously known. In these the bottles were generally placed upon a plate or dish and the stoppering device was placed upon and supported by them, and the corks were conveyed from the cylinder into the neck of the bottle direct. It has been seen that in our present arrangement the usual cork-guiding cylinder is, on the contrary, supplemented by a funnel-shaped extension, whereon the neck of the bottle is passed. As soon as about one-half of the cork on being placed in contact with the neck of the bottle has come out of the said funnel the latter slips off the bottle-neck, in which movement the other half of the cork is also withdrawn from the funnel-shaped tube. By this means the stamping action hitherto sustained by bottles in stoppering-machines is avoided and the frequent breakage consequent thereon obviated, the only part of the bottle still liable to break being the neck, in case there should be any cracks or exceptionally thin portions in that part. Thus the loss not only of the bottles broken, but also of their contents, is effectively prevented.

In the accompanying drawings, Figure 1 is a side view, Fig. 2 a front view, Fig. 3 a top view, and Fig. 4 a cross-section, of our improved stoppering-machine.

An upright post or column *a* carries in bearings *b b* the shaft *d*, provided with the fast and loose pulleys *c c'*. A cam *e* is also set upon this shaft between the bearings. This cam is adapted to press down the plunger *g*, supported in the guides *f f*, while the forked lever *h* causes the said piston or plunger to rise again through the action of the spring *i*, acting on the opposite or back end of the lever *h*. A bell-crank lever *k*, pivoted upon the upper guide *f*, is adapted to be shifted by the pin *l*, provided upon the cam *e*, so that its backwardly-extending arm will press upon the lever *h* and insure the operation thereof. Below the plunger a collar or socket *m* is supported by the column or post *a*. Into this socket is fitted the funnel-shaped or taper tube *n*, adapted to convey the corks to the neck of the bottle. Upon an arm *w* a plate or disk *r* is arranged, reaching beyond the collar or socket *m*, and provided with an opening of a size corresponding to the adjacent opening of the tube *n*. The said arm *w* also supports above the disk *r*, through the medium of pin *s*, a plate or disk *t*, having a toothed edge. This plate or disk is adapted to receive a number of corks, for which purpose it is provided with perforations of a diameter corresponding to that of the corks used. The said corks are retained in these perforations by the disk *r*, situated underneath the disk *t*, only one cork at a time being allowed to drop into the funnel-shaped tube *n* when it comes opposite the opening provided therefor in the said disk *r*.

With the toothed edge of the disk *t* engages a pawl *v*, pivoted to the arm *w*, which

is itself adjustably connected to a second arm $w'$ within a guide-slot provided in the latter. This arm $w'$ is connected by means of a collar $o'$ to the spindle $y$, movably held in the bearings $x\,x$. A rocking motion is imparted to this spindle through a crank or eccentric $z$, mounted upon the driving-shaft, which crank moves backward and forward a rod $z^2$, universally jointed to a screwed arm $u$, so that an oscillatory—*i. e.*, a partial rotary—motion in both directions alternately will be transmitted through the boss or collar $o$ of said arm $u$ to the shaft $y$.

According to the diameter of the corks a larger or smaller disk $t$ may be used, the number of perforations in it being also immaterial.

To enable the disk $t$ to be changed according to requirements, it is loosely and removably placed upon the arm $w$, which arm in its turn is adjustable at its connection with the arm $w'$ by means of the slot in said arm $w'$. In the same way the speed of motion of the disk or plate $t$ can be varied by giving the pawl $v$ more or less play, for which purpose it is sufficient to adjust one of the bearings or joints $z'$ upon the screwed arm $u$ of the shaft $y$.

We claim—

1. In a bottle stopping or corking machine, the combination, with the drive-shaft, reciprocating plunger driven thereby, rotary cork-carrying disk, and funnel-shaped tube through which the cork is driven by the plunger, of a crank on the drive-shaft, a rod connected thereto, a vertical shaft Y, connected to said rod, a crank on the lower end of said shaft Y, a movable pawl engaging the cork-carrying disk, and connections between the pawl and the crank-arm shaft Y, whereby the disk is given a step-by-step movement to bring the successive corks into alignment with the funnel-shaped tube.

2. In apparatus for stoppering or corking bottles, the combination, with the plunger $g$ and spring-controlled forked lever $h$ for raising it, of a bell-crank lever $k$ and a crank-pin, cam, or equivalent $l$, carried on the main driving-shaft $d$, substantially as and for the purpose specified.

3. In an apparatus for stoppering or corking bottles, the combination, with the drive-shaft, reciprocating plunger driven thereby, and cork-carrying disk, of the crank $z$ on the drive-shaft, the shaft $y$, having means for rotating the cork-carrying disk, and the link or rod $z^2$, universally jointed at one end to the crank and at the opposite end adjustably jointed to arm $u$ on the shaft $y$, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

HORST HASELHORST.
JULIUS OSCAR VOGEL.

Witnesses:
RÜD. SCHMIDT,
ERNST LEHMANN.