

C. L. WERK & N. VERDIN.

Improvement in Bottle-Washing Machines.

No. 130,552.

Patented Aug. 13, 1872.

Fig. 1.

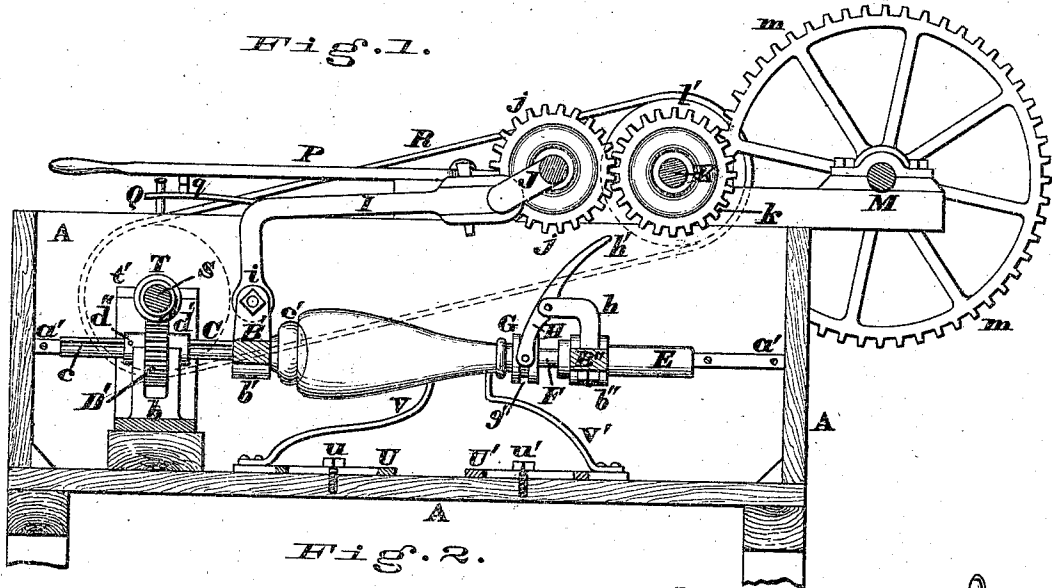


Fig. 2.

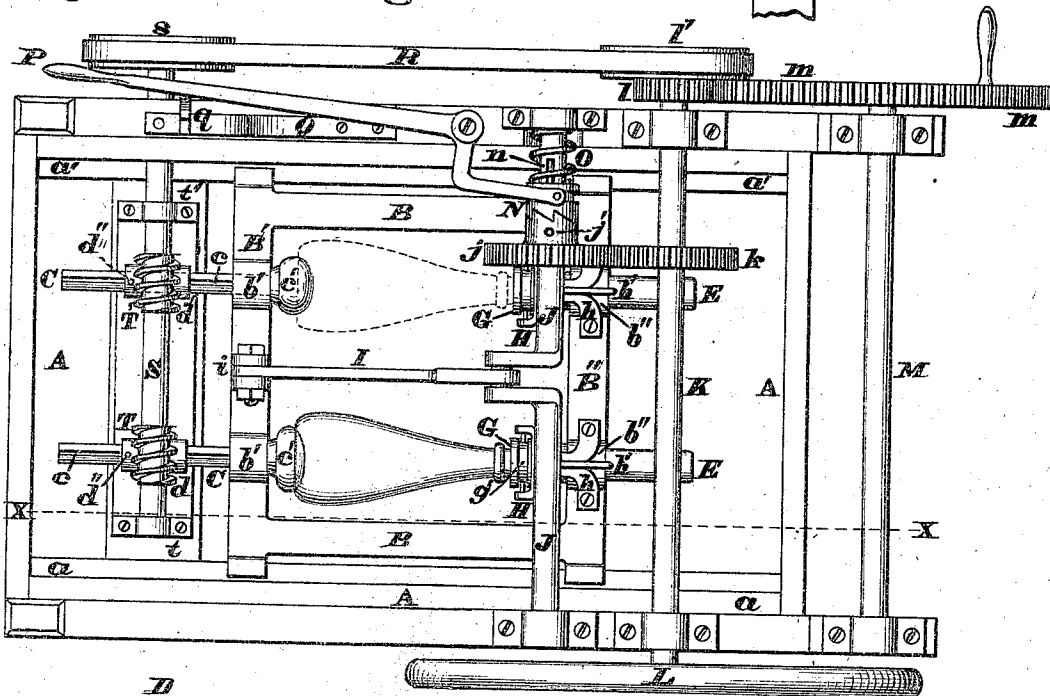
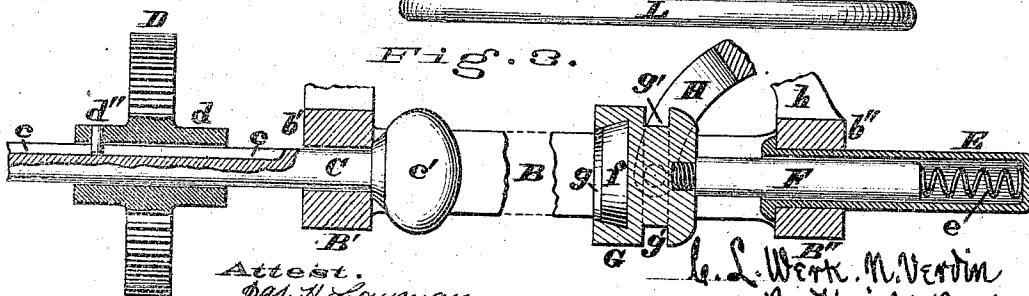


Fig. 3.



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IMPROVEMENT IN BOTTLE-WASHING MACHINES.

Specification forming part of Letters Patent No. 130,552, dated August 13, 1872.

Specification of a new and useful Bottle-Washing Machine, invented by CASIMIR L. WERK, of Cincinnati, Hamilton county, Ohio, and NICLAUS VERDIN, of Yorkville, Dearborn county, Indiana.

In its most simple form our machine consists essentially of a tank having located within it a carriage, to which a horizontal reciprocating motion is imparted by suitable gearing, &c.; and said carriage is adapted to receive one or more bottles that are partially filled with shot or other substances which will assist in cleansing the interior of the bottles whenever said carriage is put in motion or operation. In order that the cleansing operation may be more thorough and uniform we propose, in some cases, to impart an axial rotation to the bottles, in addition to their reciprocating motion, as hereinafter more fully described, it being understood that the axial rotation is quite slow in comparison to the reciprocating movement. In addition to the above features we also provide the machine with a number of yielding scrapers, which serve to remove labels, foil, or other substance that may adhere to the exterior of the bottles.

Figure 1 is a longitudinal section of a machine embodying our improvements, the section being taken at the line X X. Fig. 2 is a plan of the machine, and Fig. 3 is an enlarged longitudinal section of the reciprocating carriage and its accessories, a portion of the carriage being broken away.

A represents a water-tight tank, which may be mounted upon a suitable frame or legs, and said tank has secured to its inner sides two longitudinal tracks, *a a'*, which serve to confine to a horizontal path a reciprocating carriage, B. This carriage, as shown in Fig. 2, consists of a rectangular frame, whose transverse bars *B' B''* are provided with enlargements *b' b''*, within the former of which, *b'*, are fitted spindles C having longitudinal grooves *c*. These spindles, after passing through the bar *B'*, enter the elongated hubs *d d'* of wheels D D', and said hubs are provided with inwardly projecting pins *d''*, which enter the grooves *c*. The hubs *d d'* are journaled in steps *b* that project upwardly from the bottom of the tank. The inner ends of the spindles C have attached to them rubber heads *e'*, of such form and dimen-

sions as to occupy the recessed bottom of an ordinary wine or other bottle. Fitted within the other enlargements *b''* of the carriage are cylinders E, which are directly in line with the spindles C, and said cylinders are furnished with springs *e* that bear against shafts *F'*, the latter being provided with chucks G. These chucks are recessed at *g*, and have fitted therein India-rubber cushions *f*. (See Fig. 3.) Circumferential grooves *g'*, extending around the chucks, receive the pins of yokes H, the latter being pivoted to standards *h* that project from the transverse bar *B''* of the carriage. These yokes are operated by the levers *h'*. Pivoted at *i* to the bar *B'* is a pitman, I, which is attached to the crank-shaft J, and said shaft carries a loosely-rotating wheel, *j*, which gears with one, *k*, on the countershaft K. Countershaft K carries at one end a fly-wheel, L, and at the other end a pinion, *l*, and pulley *l'*, the former of which, *l*, gears with the spur or driving-wheel *m* that is attached to the shaft M. All three of these shafts J, K, and M, are journaled transversely to the machine, as clearly shown in Fig. 3. The loosely-rotating wheel *j* may be preserved from longitudinal displacement upon its shaft J by a collar or by a pin, *j'*, that occupies a circumferential groove in said shaft. This wheel is caused to rotate by engaging with its hub a clutch, N, which is thrown in gear with said hub by the spring O. Attached to shaft J is a feather, *n*, which causes the clutch N to rotate in unison with said shaft. The clutch N is thrown out of gear with the wheel *j* by means of a lever, P; and a spring, Q, having a shoulder, *q*, serves to hold said lever in either of its two positions. Extending from the pulley *l'* is a band, R, which surrounds another pulley, *s*, the latter being attached to a shaft, S, that is armed with two worms, T T'. These worms gear with the wheels D D'. The shaft S is journaled in bearings *t t'*. Secured to the bottom of the tank A, by screws *u u'*, are adjustable slotted plates U U' to whose outer ends are attached spring-scrapers V V', which press upwardly against the under sides of the bottles. These scrapers may be made of steel, or other suitable elastic material.

The operation of our machine is as follows: The tank A is filled with water, about as high

as the ways *a*, after which the bottles are fitted in the carriage B, the bottles having been previously supplied with a proper quantity of shot and water. When applied to the carriage the rubber head *c'* enters into the recessed bottom of the bottles, while the necks thereof are fitted chucks G, and bear against the cushions *f*, the stress of the springs *e* serving to prevent accidental displacement of said bottles, and the elasticity of said heads and cushions prevents the bottles being broken by the rapid reciprocation of the carriage. By simply rotating the driving-wheel *m* a rapid reciprocating movement is imparted to the carriage B, and a slow rotation of the bottles is effected at the same time, and the result is that the shot in the bottles are so thoroughly agitated as to cleanse the bottles in the most thorough manner and uniformity, it being understood that the bottles are, during the entire operation, partially filled with water. During this reciprocating and rotary movement of the bottles the springs V V' are continually bearing against the under sides of the bottles, and act to remove from the exterior of the same any adhering labels, foil, &c. If at any time it should be desired to arrest the action of the carriage B without stopping the driving-wheel *m*, as when the machine is operated by power, the attendant has only to throw the free end of lever P toward the tank A, so as to engage said lever with the shoulder *q* of spring Q. This act disengages the clutch N from the hub of the wheel *j*, and the latter then rotates freely upon shaft J, with imparting motion thereto. The motion of the carriage having been thus arrested, the attendant can then remove any bottle therefrom by simply elevating its lever *h'* so as to retract the chucks G, which act allows the neck of the bottle to be withdrawn from the recess *g*. Dirty bottles being now substituted for the clean ones, and secured as previously described, the attendant then changes the position of lever P so as to throw the coupling N in gear with the shaft J, thereby imparting a reciprocating motion to the carriage.

For compactness of representation we have

shown the pitman coupled to the left-hand end of the carriage; but in practice we prefer to locate the drivers J *j* K *k* L *l* M *m* further to the right, and to couple the pitman to the right end of the carriage, so as that the pitman shall not interfere with the operations of the person in charge.

We have selected to illustrate our invention the form substantially such as employed successfully by us; but reserve the right to vary therefrom in non-essential particulars—for example, the carriage may be driven by direct connection with a rapidly reciprocating steam-piston, and the spindles may be rotated by a tappet secured to the inner right hand end of the tank; or by slow gearing connection with the prime mover.

Claims.

We claim as our invention—

1. A bottle-washing machine, consisting essentially of the tank A *a a'*, operating devices I J, and horizontally-reciprocating carriage B, which latter is adapted to receive one or more bottles, as and for the purpose specified.

2. In combination with the tank A and reciprocating carriage B, we also claim the devices C *c*, D, *d d'*, S, and T, for imparting an axial rotation to the bottle, substantially as herein explained.

3. In combination with the carriage B we also claim the rubber head *c'*, clutch F G *g g'*, cushion *f*, cylinder E, spring *e*, and yoke H *h*, or their equivalents, for attachment of the bottles to said carriage, as herein specified.

4. In combination with the tank A and reciprocating carriage B, we further claim the scrapers V V', whether fixed or adjustable, for the object designated.

In testimony of which invention we hereunto set our hands.

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Attest:

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JAMES H. LAYMAN.