

No. 639,404.

Patented Dec. 19, 1899.

H. KOLLS.

MACHINE FOR SHAKING BABCOCK MILK TEST BOTTLES.

(Application filed Mar. 2, 1899.)

(No Model.)

FIG. 1.

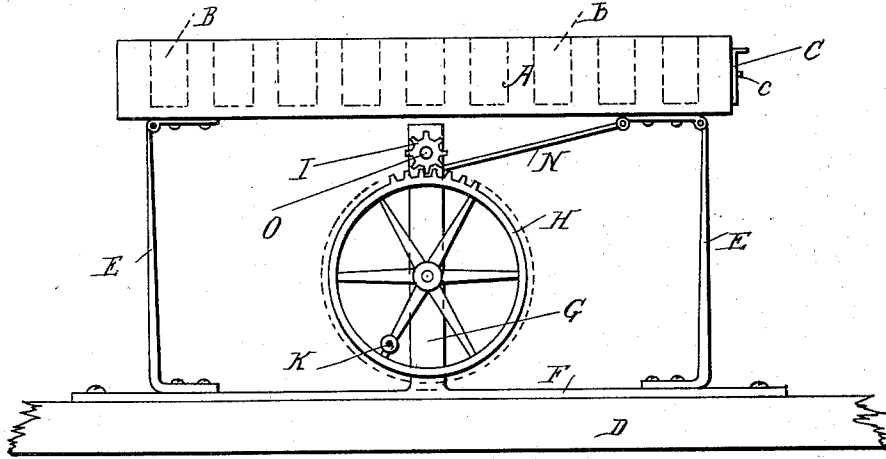


FIG. 2.

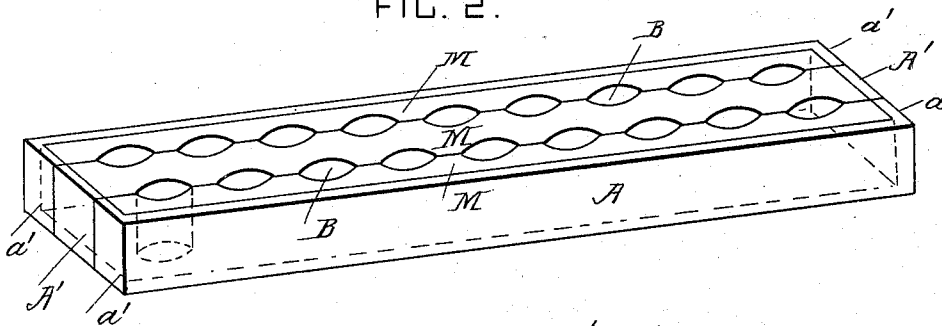
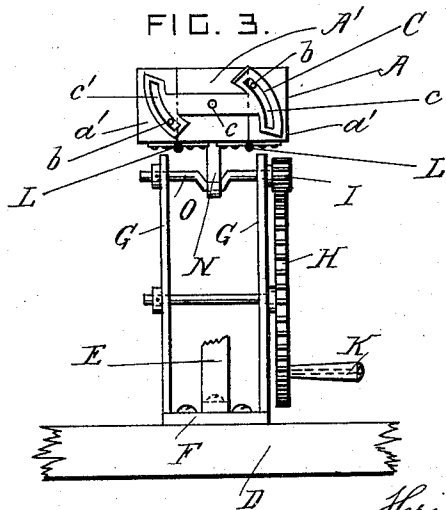


FIG. 3.



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# UNITED STATES PATENT OFFICE.

HERMAN KOLLS, OF McCUNE, KANSAS.

## MACHINE FOR SHAKING BABCOCK MILK-TEST BOTTLES.

SPECIFICATION forming part of Letters Patent No. 639,404, dated December 19, 1899.

Application filed March 2, 1899. Serial No. 707,548. (No model.)

To all whom it may concern:

Be it known that I, HERMAN KOLLS, of McCune, in the county of Crawford and State of Kansas, have invented certain new and useful Improvements in Shaking-Machines, of which the following is a specification.

This invention relates to machines for shaking milk in test-bottles used in the Babcock milk-testing process; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a side view of the machine. Fig. 2 is a perspective view of the bottle-clamp. Fig. 3 is an end view of the machine.

A is a clamp for the test-bottles. This clamp is formed of a middle section or part A' and two outer sections or parts a', having their lower edges connected to the lower edges of the part A' by hinges L.

C is a fastening device pivoted on a pin c, projecting from one end of the part A' and provided with eccentric slots c', which engage with pins b, projecting from the ends of the parts a'. This fastening device permits the parts a' to have a limited movement on the hinges L.

B are sockets in the adjacent faces of the parts A' and a' a' for holding the test-bottles, and M is elastic material, such as india-rubber, which forms linings for the sockets and facings between the adjacent parts of the clamp.

The clamp is supported upon two springs E, the lower ends of which are secured to a base-plate F, which is secured to the top D of a table. The upper ends of the springs are pivotally connected to the middle part A' of the clamp.

G is an upright projecting from the base-plate under the clamp.

H is a toothed wheel mounted on a shaft in the upright G and provided with a handle K for revolving it.

I is a toothed pinion which is secured on a crank-shaft O and which gears into the wheel H. The crank-shaft O is journaled in the up-

right and is operatively connected with the middle part A' of the clamp by a connecting-rod N.

When the wheel H is revolved, the milk and acid in the test-bottles are shaken by the reciprocating clamp in a very efficient manner, and the test-bottles can be very quickly inserted in the clamp and removed from it.

What I claim is—

1. In a shaking-machine, the combination, with a clamp formed of sections provided with sockets in their adjacent faces for holding bottles, and a fastening device for the said sections; of means for supporting the clamp, and driving mechanism operating to reciprocate the said clamp, substantially as set forth.

2. In a shaking-machine, the combination, with a clamp formed of sections provided with sockets for holding bottles, socket-linings and facings of elastic material carried by the opposed surfaces of the clamp-sections, and a fastening device for the said sections; of means for supporting the clamp, and driving mechanism operating to reciprocate the said clamp, substantially as set forth.

3. In a shaking-machine, the combination, with a clamp formed of a middle section, and two outer sections hinged to the middle section, said sections having bottle-sockets in their adjacent faces, and a fastening device for securing the said sections; of supports connected to the said middle section, and driving mechanism operating to reciprocate the said clamp, substantially as set forth.

4. In a shaking-machine, the combination, with a clamp formed of hinged sections having sockets for bottles in their adjacent faces, and a fastening device for the said sections; of supporting-springs connected to one of the said sections, and driving mechanism operating to reciprocate the said clamp, substantially as set forth.

HERMAN KOLLS.

Witnesses:

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E. MILLER.