No. 736,209. PATENTED AUG. 11, 1903.

A. A. BUSCH, R. GULL & T. J. BARRY.

BOTTLE WASHING MACHINE.

APPLICATION FILED NOV. 13, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

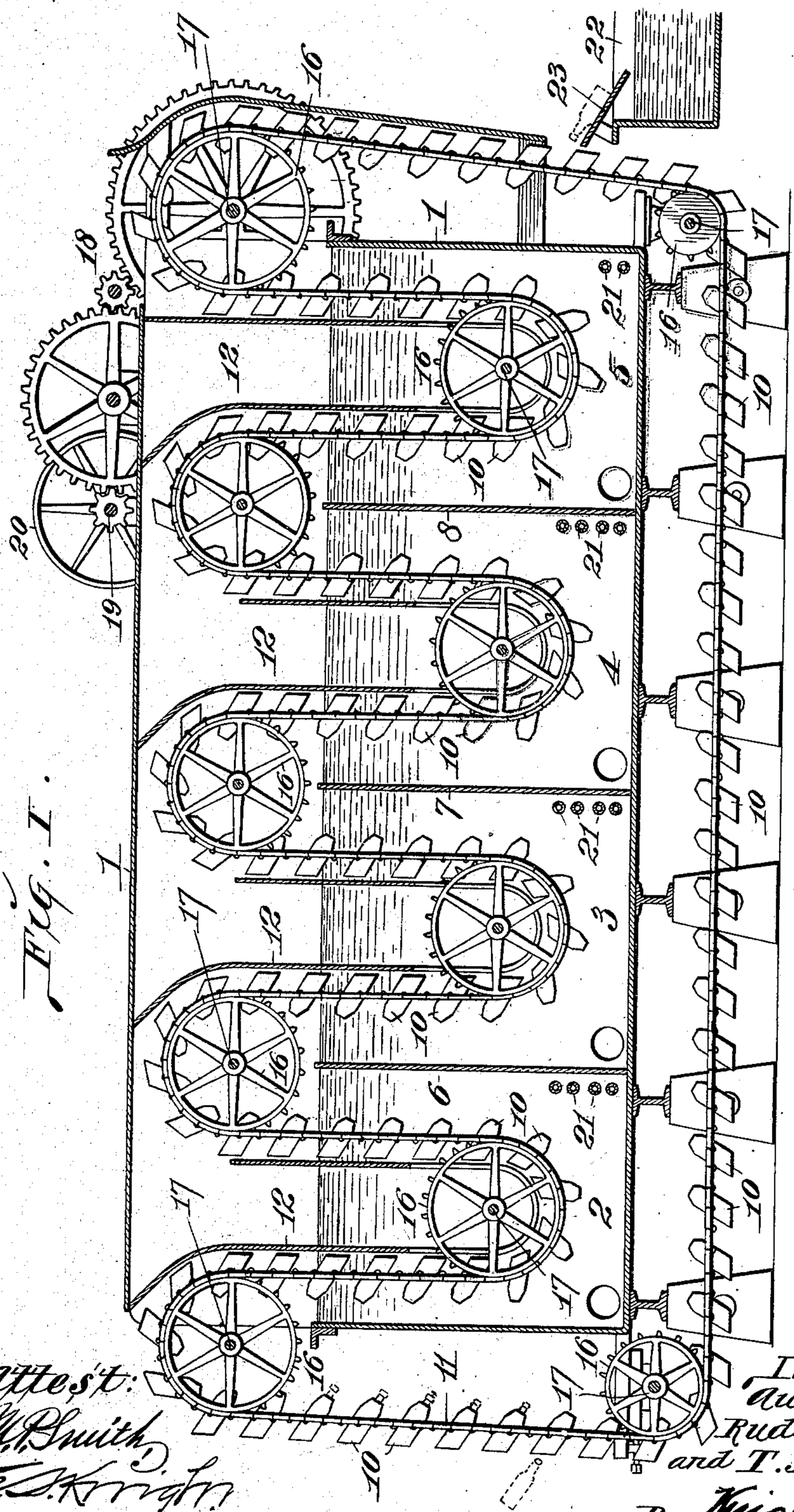

FIG. 1.

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NO MODEL.

2 SHEETS—SHEET 2.

Fig. II.

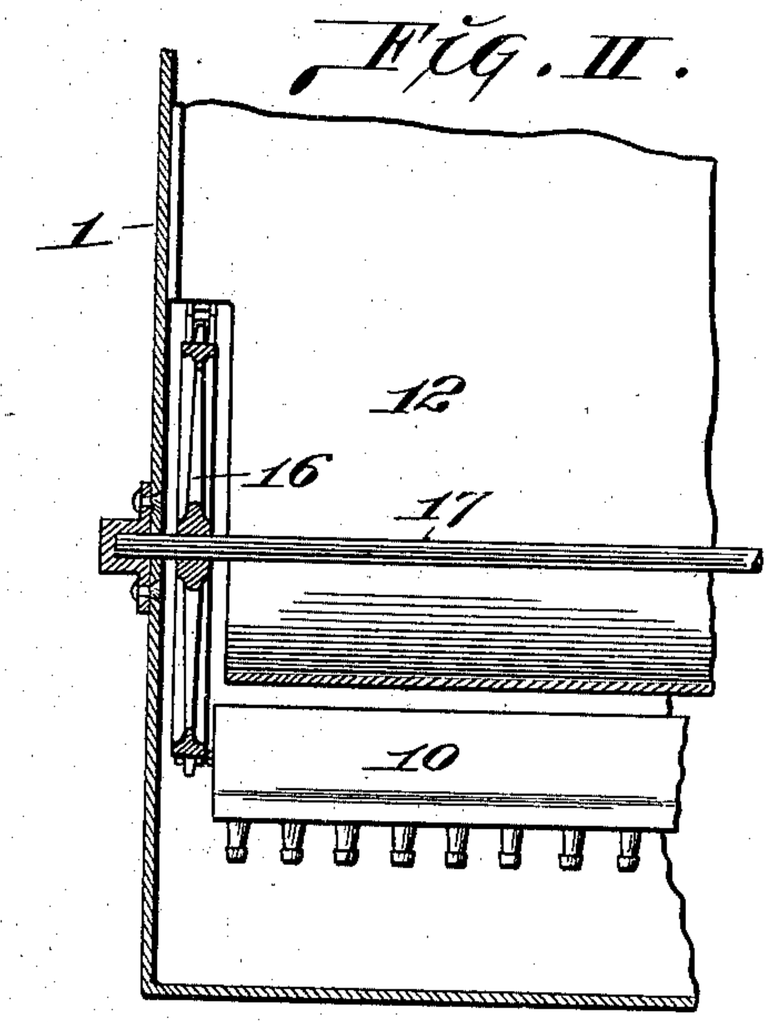


Fig. III.

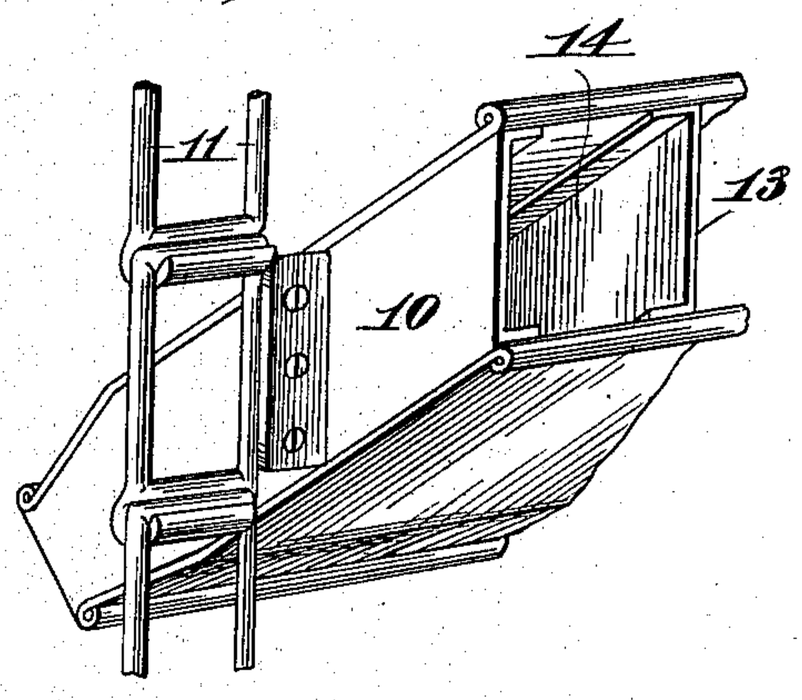


Fig. IV.

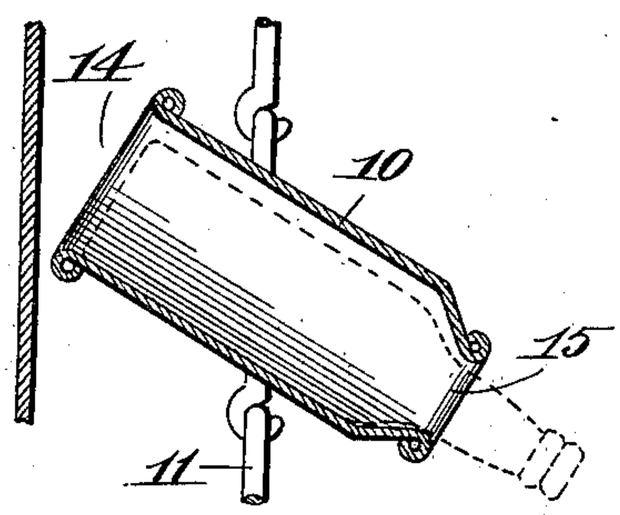
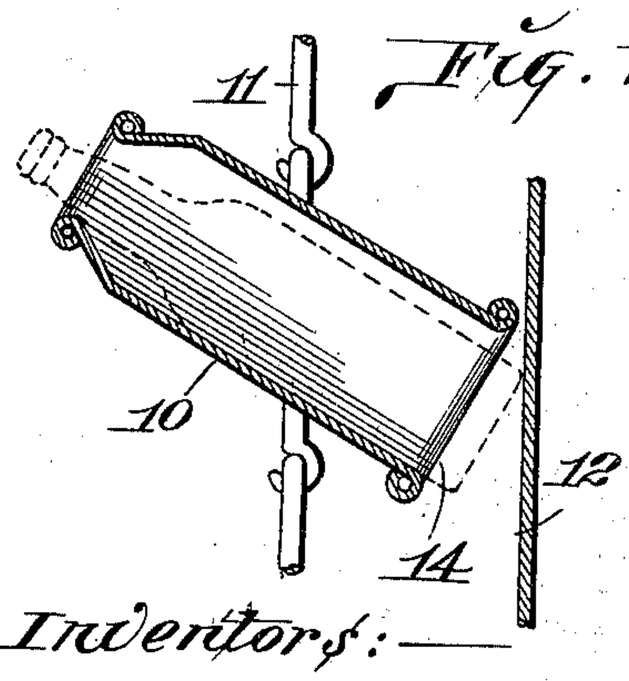


Fig. V.



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No. 736,209. Patented August 11, 1903.

UNITED STATES PATENT OFFICE.

AUGUST A. BUSCH, RUDOLF GULL, AND THOMAS J. BARRY, OF ST. LOUIS, MISSOURI.

BOTTLE-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 736,209, dated August 11, 1903.

Application filed November 13, 1902. Serial No. 131,105. (No model.)

To all whom it may concern:

Be it known that we, AUGUST A. BUSCH, a citizen of the United States, RUDOLF GULL, a citizen of Switzerland, and THOMAS J. BARRY, a citizen of the United States, all residing in the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Bottle-Washing Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Our invention relates to that class of bottle-washers in which the bottles are moved by a carrier through a tank divided into compartments in such a manner as to be alternately filled with liquid and emptied a number of times, so as to provide a perfect cleaning thereof by mechanical means without the necessity of the bottles being handled at any time during the cleaning operation.

One object of our invention is to so construct the carrier (composed of endless chains and baskets) that it and the plates or strips which hold the bottles in the baskets may be arranged in vertical planes, thereby shortening up the machine, which results in a saving of material and economy of space occupied by the machine, while at the same time the bottles are held at the proper inclination to be filled and emptied as they travel through the machine.

A further object of our invention is to construct a carrier that will hold the bottles in a manner that their mouth-beads will not contact with the baskets or other objects while going through the machine, thus avoiding danger of the heads being chipped or broken, which chipping is very objectionable, especially when the bottles after being filled with beer are closed by the use of crimped metallic caps.

A further object of our invention is to provide a carrier for a machine of this class which will be simple and durable and which will effectually perform its functions.

Our invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a vertical longitudinal section of our improved machine, the carrier being shown in edge view. Fig. II is an enlarged detail vertical section. Fig. III is a perspective view showing part of the carrier. Figs. IV and V are detail sections of the carrier made for the purpose of illustrating the operation of the machine.

1 represents the tank of the machine, which is divided into compartments 2, 3, 4, and 5 by means of partitions 6, 7, and 8. The compartments contain liquid of any suitable description, such as water; but we prefer to use cleaning solutions in a portion of the compartments and water in the remaining compartment or compartments. The compartment 2 may contain a strong alkali solution, such as caustic soda, compartments 3 a weaker solution of the same nature as that contained in compartment 2, and compartment 4 a still weaker solution, while the compartment 5 contains clear water for the final washing of the bottles.

In order that the bottles may be filled and emptied in each compartment, it is necessary that they should while passing through the various compartments assume an inclined position, and to keep them from falling out of their baskets while in this inclined position, it has been customary to provide plates or strips against which the bottles slide while the mouths of the baskets are lowermost. To get the baskets to assume this inclined position, it has heretofore been customary to arrange the retaining-plates at an inclination from the vertical, and it has generally been customary to arrange the baskets at right angles to the direction of the length of the carrier. This arrangement of the carrier and plates necessitates the use of a long tank to provide for the inclination and at the same time allow the bottles to be carried through the liquid in each compartment a necessary or requisite distance. According to our invention this inclination of the bottles is provided for while the carrier moves through the compartments in vertical planes, and the retaining-plates are also arranged vertically. This end we accomplish by securing the baskets 10 to the chains 11 on an angle of eighty degrees, more or less, from the horizontal, so that while the chains move vertically the baskets and the bottles they contain assume

an inclined position, as shown in the drawings, the bottles filling in their downward movement and emptying in their upward movement after they leave the liquid-level. As the bottles descend the open ends of the baskets, through which the bottles have been introduced, are lowermost; but the bottles are held from dropping out of the baskets by the vertical retaining-plates 12. As will be noticed from a glance at Fig. I, this plan of securing the baskets to the chains at an angle to the latter, thereby permitting for a vertical movement of the carrier, provides for a comparatively short machine, which results in a saving of material and economy of space.

There is a chain 11 arranged at each side of the tank, and each basket extends from chain to chain, the ends of the baskets being secured to links of the chains, as shown in Fig. III. Each basket is separated into a number of compartments—one for each bottle—by partitions 13, and the edge 14 of each basket through which the bottles are introduced is left open to receive the bottles, while the other edge, 15, is somewhat contracted, as shown in Figs. IV and V, to hold the bottles from falling through, while at the same time the mouths of the bottles project beyond the baskets and are out of engagement with the baskets or other objects while passing through the machine, and thus are not nicked or chipped off. The ends 15 of the baskets are left sufficiently open to permit the passage of labels, &c., and prevent their accumulation between the bottles and the baskets.

The chains 11 pass over and under chain-wheels 16, mounted on shafts 17, journaled to the frame of the machine, one of these shafts being connected by a train of gearing 18 to a power-shaft 19, provided with a driving-pulley 20.

21 represents steam-coils for heating the water in the various compartments of the tank.

22 is a water-tub to receive the bottles as they drop from the baskets into a slide 23.

We claim as our invention—

1. In a bottle-washing machine, the combination of a tank divided into a plurality of compartments, vertical retaining-plates depending into said compartments, a carrier consisting of endless chains and baskets secured to the chains, and means for guiding and moving said carrier through the several compartments of the tank in vertical planes, substantially as set forth.

2. In a bottle-washing machine, the combination of a tank divided into compartments, a carrier, and means for guiding and moving the carrier through the compartments of the tank; said carrier consisting of endless chains and baskets secured to the chains; said baskets being open at one edge to receive the bottles and having contracted openings at the other edge to prevent the passage of the bottles while the necks thereof are allowed to project beyond the baskets, substantially as and for the purpose set forth.

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In presence of—
E. S. KNIGHT,
M. P. SMITH.