

Sept. 15, 1925.

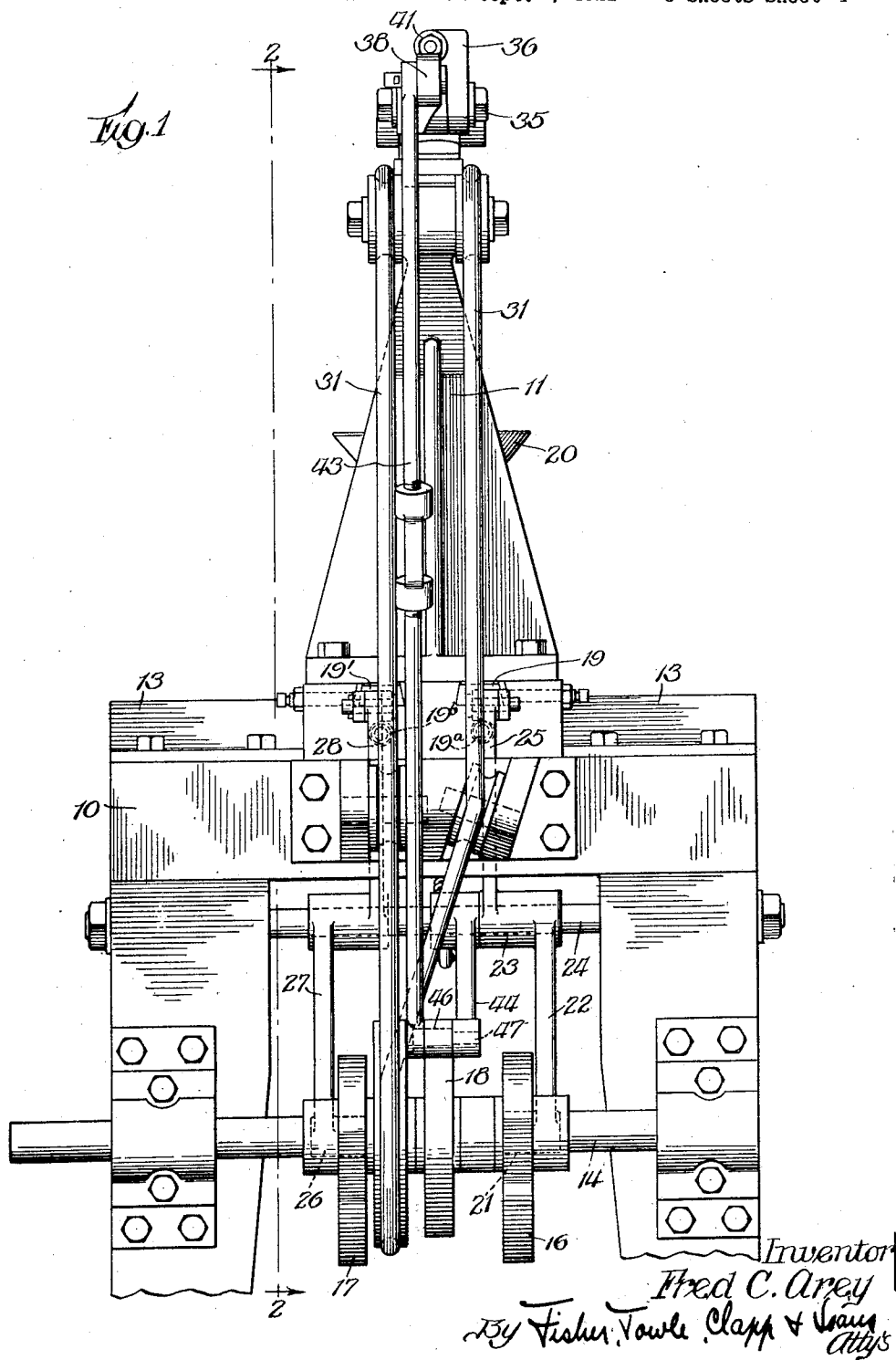
1,553,660

F. C. AREY

BOTTLE MOISTENING MACHINE

Original Filed Sept. 8, 1921

3 Sheets-Sheet 1



Inventor

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By Fisher, Towle, Clapp & Young
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Sept. 15, 1925.

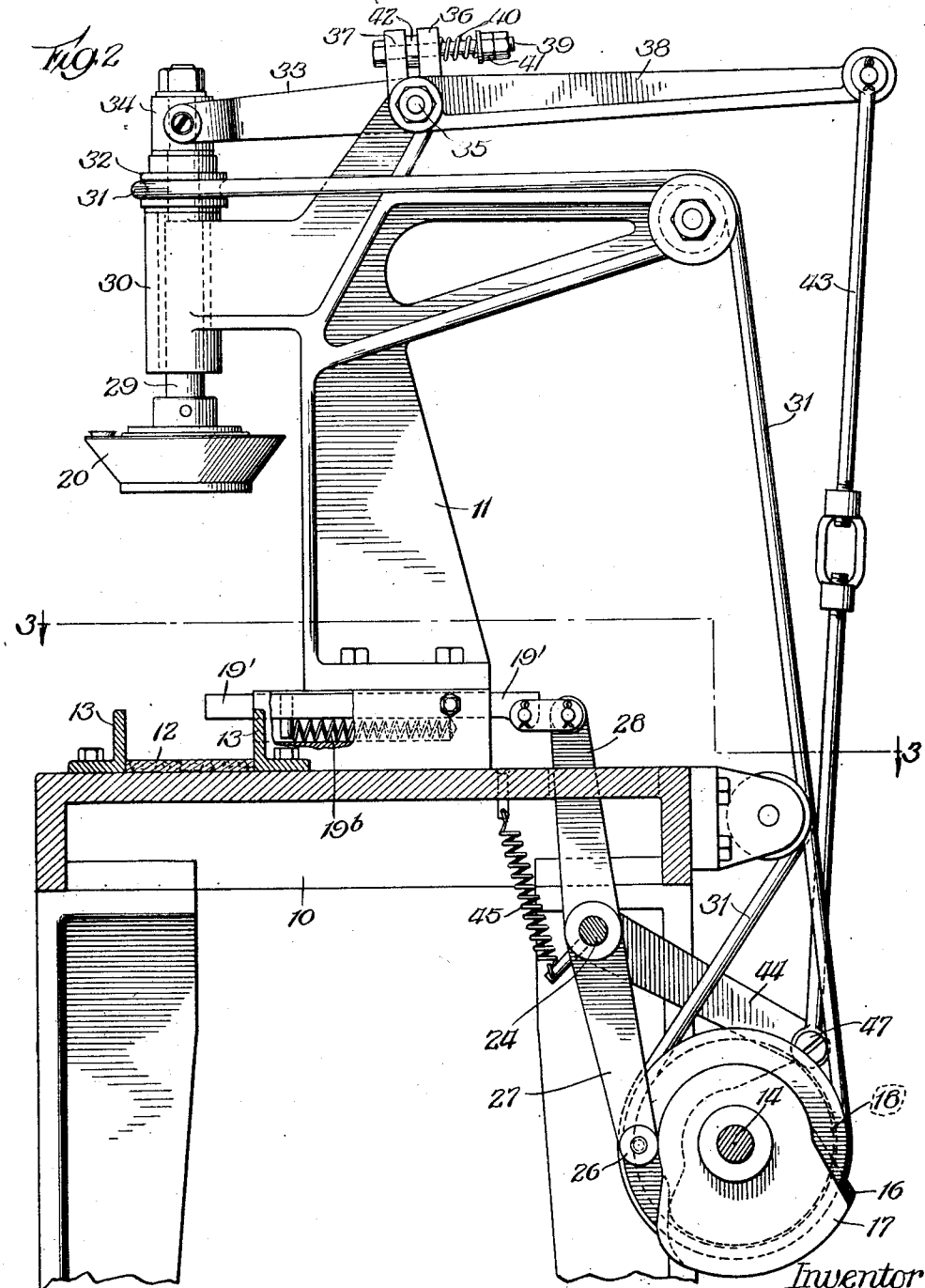
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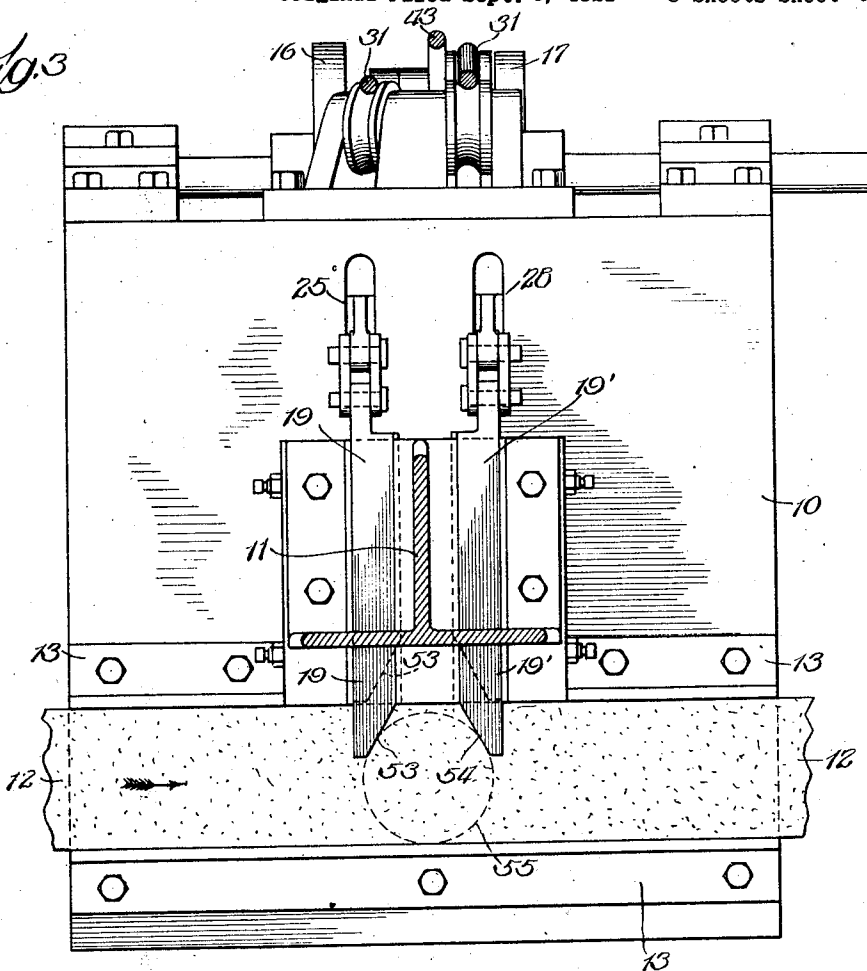
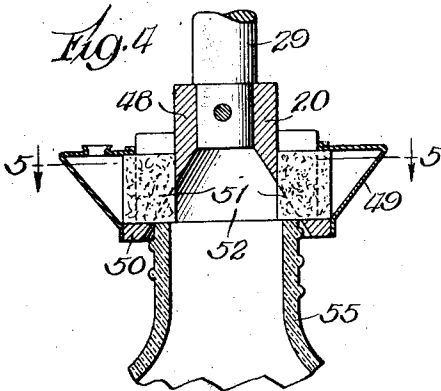
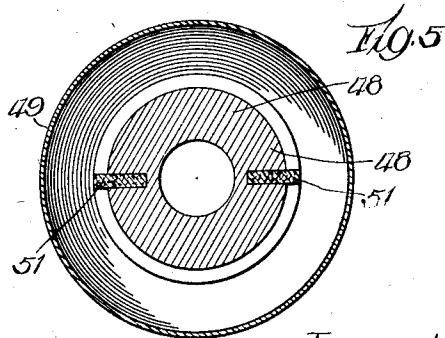
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Fig. 3



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Patented Sept. 15, 1925.

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UNITED STATES PATENT OFFICE.

FRED C. AREY, OF OAK PARK, ILLINOIS, ASSIGNOR TO HORLICK'S MALTED MILK COMPANY, OF RACINE, WISCONSIN, A CORPORATION.

BOTTLE-MOISTENING MACHINE.

Application filed September 8, 1921, Serial No. 499,239. Renewed December 11, 1924.

To all whom it may concern:

Be it known that I, FRED C. AREY, a citizen of the United States, residing at Oak Park, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bottle-Moistening Machines, of which the following is a specification.

This invention relates to machinery for closing and sealing bottles, jars or other similar receptacles but more particularly to machines for applying moisture to the rim of the receptacle preparatory to the affixing of a gummed closure, and has for its primary object to provide a simple and effective mechanism for accomplishing this purpose.

In the packaging of materials susceptible to moisture such as malted milk and other similar food products the receptacle is generally sealed with paraffine after being initially closed by a thin paper cap or cover which forms the foundation for the paraffine coating. This cover may be attached to the receptacle in a variety of different ways but the gummed closure has been found to be particularly advantageous. A paper disk is preferably first inserted within the neck of the receptacle to exclude moisture during the sealing operation. The rim of the neck is then moistened and the gummed closure pressed thereon. The neck of the receptacle is next dipped in paraffine and a cap of metal or other suitable material placed thereon to protect the seal. It is particularly important that the moisture be uniformly applied to the rim in order to insure a complete closure by the gummed cover. I have devised a machine which performs this operation in a most satisfactory manner.

The many other objects and advantages of my invention will be better understood by reference to the following specification when considered in connection with the accompanying drawings illustrating a selected embodiment thereof, in which:—

Fig. 1 is a rear elevation of the moistening machine.

Fig. 2 is a section on the line 2—2 of Fig. 1.

Fig. 3 is a section on the line 3—3 of Fig. 2.

Fig. 4 is an enlarged detail vertical section of the moistener head, and

Fig. 5 is a section on the line 5—5 of Fig. 4.

Referring to the drawings, the moistening machine is provided with a base or table 10 on which is secured a vertical standard or frame 11. An endless feed belt 12 operates upon this table between oppositely disposed guides 13.

A cam shaft 14 is supported in bearings 15 on the rear of the table and is driven from any suitable source of power. Cams 16, 17 and 18 are mounted upon this shaft. The cams 16 and 17 are substantially identical in form and operate the fingers, 19 and 19' respectively, which halt the travel of the bottles on the feed belt and successively center them opposite the moistener head 20. A cam roll 21 is carried by an arm 22 connected to a hub 23 revolubly mounted on the shaft 24. An arm 25 is likewise connected to this hub 23 and its upper end is linked to the rear end of the finger 19. This cam roll 21 is actuated by the cam 16. A cam roll 26 is actuated by the cam 17 and operates the finger 19' through the medium of the arms 27 and 28 corresponding to the arms 22 and 25 for the finger 19. Springs 19^a and 19^b retain the cam rolls 21 and 26 in contact with their respective cams 16 and 17, and withdraw these fingers when the conformation of these cams will permit.

The moistening head 20 is mounted on the lower extremity of the vertical shaft 29 revolubly and slidably mounted in the bearing 30. This head is driven from the cam shaft 14 by the belt 31 which passes about the pulley 32 splined upon the shaft 29. The shaft 29 is raised or lowered by an arm 33 pivotally connected at its outer end to the sleeve 34 on the reduced upper end of this shaft and having its inner end pivoted on the pin 35 supported by the frame 11. A perforated lug 36 projects upwardly from the inner end portion of the arm 33 and is disposed opposite to a similar lug 37 on the inner end of the arm 38 likewise pivotally mounted on the pin 35. A bolt 39 passes through the lugs 36 and 37, and a spring 40 acts between the lug 36 and the nut 41 to provide a yielding pressure of the head 20 on a bottle or jar when the shaft 29 is depressed by the upward swinging movement of the arm 38. A washer 42 is placed upon the bolt 39 between the lugs 36 and 37. An operating rod 43 connects the outer end of

the arm 38 with the corresponding end of an arm 44 having its inner end pivotally mounted on the shaft 24. A spring 45 normally maintains the head 20 in its raised or inoperative position. This head is depressed by a cam roll 46 carried on the pin 47 connecting the rod 43 with the arm 44 and actuated by the cam 18 on the shaft 14. The spring 45 also retains this roll in contact with the periphery of the cam.

The moistening head 20 comprises a main head 48 which is secured to the end of the shaft 29, and a fluid holding receptacle 49. The receptacle 49 is preferably formed of sheet metal and has its bottom edge fitting closely about the flange 50 on the base of the head 48. The upper edge of the receptacle fits about the cylindrical outer wall of the head. The head is slotted to receive moisteners 51 of felt or other suitable material which project into the conical recess 52 in the base of the head and receive their supply of fluid from the receptacle 49.

The fingers 19 and 19' have their outer ends 53 and 54 respectively, beveled at their inner corners to engage the bottle 55 on the belt 12 and properly position this bottle beneath the moistening head 20 in the manner indicated in Fig. 3. As the bottle is advanced by the belt in the direction indicated by the arrow the finger 19' is first advanced from the retracted position indicated in dot to the extended position shown in solid lines. This finger halts the advance of the bottle on the continuously moving belt and, practically simultaneously with engagement of the bottle by the finger 19', the finger 19 is advanced to its extended position. As soon as the bottle has been halted and centered by the fingers, the rotating head 29 is brought by the cam 18 into engagement with the rim of the neck of the bottle, and sufficient moisture is wiped on this rim by the moisteners 51. Upon the completion of the moistening operation the head 29 is raised and the finger 19' retracted to permit the moistened bottle to be advanced by the belt. During the moistening operation described, the outer face 58 of the finger 19 has acted as a stop to interrupt the advance of the next succeeding bottle on the belt. Shortly after the release of the bottle 55 by the finger 19', the finger 19 is withdrawn to permit the advance to moistening position of the next succeeding bottle, and the finger 19' is advanced to its extended position in time to interrupt this advance in the manner described. The timing of the successive movements of the fingers 19 and 19' is accomplished by setting the cam 17 slightly in advance of the cam 16 on the shaft 14. An angle of 10° should be adequate.

The rotating moisteners quickly and uniformly apply the moisture to the rim of the

bottle or other receptacle. The bottles may be placed upon the feed belt without regularity, for the fingers will prevent interference with the bottle being moistened, and the finger 19 is so formed that it will enter between the bottle moving into position to be moistened and the next succeeding one, even though these bottles are advancing in contact. In case the bottles are not fed to the belt with sufficient rapidity to supply a bottle for each operation of the moistening head, no harm will be done. A bottle cannot enter the moistening position except at the proper time and, if it arrives at any other time, it is halted by the finger 19 and awaits the next cycle of operations. The term "bottle" is used in this application to include jar, can, or other form of receptacle or article and should be so understood.

While the present invention is particularly suited for the application of moisture to the rim of a bottle or other receptacle prior to the placing of a gummed closure thereon, it has a much larger field of usefulness, as will readily be appreciated.

I am aware that many changes may be made in the construction and arrangement of parts without departing from the spirit of my invention, and I reserve the right to make all such as fairly fall within the scope of the following claims.

I claim as my invention:

1. A machine of the class described comprising a rotary moistening head, means for conducting a bottle into position opposite to said head, and means for moving said head into operative engagement with the bottle in said position.
2. A machine of the class described comprising a rotary moistening head, an endless conveyor for conducting a succession of bottles into position opposite said head, and means for moving said head into operative engagement with the bottle in said position.
3. In a machine of the class described, the combination of a rotary moistening head, means for conducting a bottle into position opposite to said head, and mechanism for operatively engaging the head with the bottle by moving one toward the other.
4. In a machine of the class described, the combination of a moistener, means for conducting a bottle into position opposite said moistener, mechanism for operatively engaging the moistener with the bottle by moving one toward the other, and means for effecting a relative rotary movement of the bottle and moistener at the time of their operative engagement.
5. A machine of the class described comprising a rotary moistening head, a bottle feeding belt, fingers movable transversely of said belt to interrupt the travel of a bottle thereon and position said bottle with its axis in alignment with the axis of said head, and

means for moving said head into and out of operative engagement with the bottle in said position.

6. A machine of the class described comprising a rotary moistening head, an endless feed belt, means for interrupting the advance of a bottle on said belt and positioning said bottle relative to said head, and means for yieldingly moving said head into engagement with the positioned bottle.

7. In a bottle moistening machine, a revoluble shaft, a head secured upon said shaft, a fluid-holding receptacle, and a moistener pad projecting through the operating face of said head and receiving fluid from said receptacle.

8. In a bottle moistening machine, a revoluble shaft, a head secured upon the end of said shaft, moistener pads in said head and projecting through the operating face thereof, and a fluid holding receptacle communicating with said pads.

9. In a bottle moistening machine, a revoluble shaft, a radially slotted head secured upon the end of said shaft, moistener pads seated in the slots in said head, and a fluid holding receptacle fitting about said head and communicating with said pads.

10. In a bottle moistening machine, a revoluble shaft, a head secured upon the end of said shaft and having a substantially conical recess in its operating face, moistener pads carried by said head and projecting into said recess, and a fluid holding receptacle communicating with said pads.

11. A machine of the class described, comprising a moistening head, a bottle feeding belt, means successively movable relative to said belt for interrupting the travel of a bottle on said belt and positioning said bottle opposite said head and means for moving said head into engagement with the bottle in said position.

12. A machine of the class described, comprising a moistening head, a bottle feeding

belt, means successively movable transversely of said belt to interrupt the travel of a bottle thereon and position said bottle relative to said head and means for moving said head into and out of engagement with the bottle in said position.

13. A machine of the class described, comprising a rotary moistening head, a continuously moving feed belt, fingers successively movable transversely of said belt to interrupt the travel of a bottle thereon and position said bottle relative to said head, means for moving said head into and out of engagement with the positioned bottle, a shaft and cams on said shaft for actuating said fingers and said moving means.

14. In a machine of the class described, the combination with bottle moistening mechanism, of an endless belt for conducting a supply of bottles to said moistening mechanism and stops disposed at intervals along said belt and successively movable into the path of the bottles thereon to control the movements of said bottles.

15. In a machine of the class described, the combination with bottle moistening mechanism, of an endless belt for conducting a supply of bottles to said mechanism, stops disposed at intervals along said belt and successively movable into the path of the bottles thereon to control the advance of said bottles, a shaft and cams on said shaft for actuating said stops.

16. In a machine of the class described, the combination with bottle moistening mechanism, of an endless belt for conducting a supply of bottles to said mechanism, a pair of parallel fingers successively movable transversely of said belt in the path of the bottles thereon to halt the bottles on said belt at the moistening point and position said bottles relative to said moistening mechanism.

FRED C. AREY.