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G. W. GWINN

WAX SEAL COOLING MECHANISM

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Fig. 1.

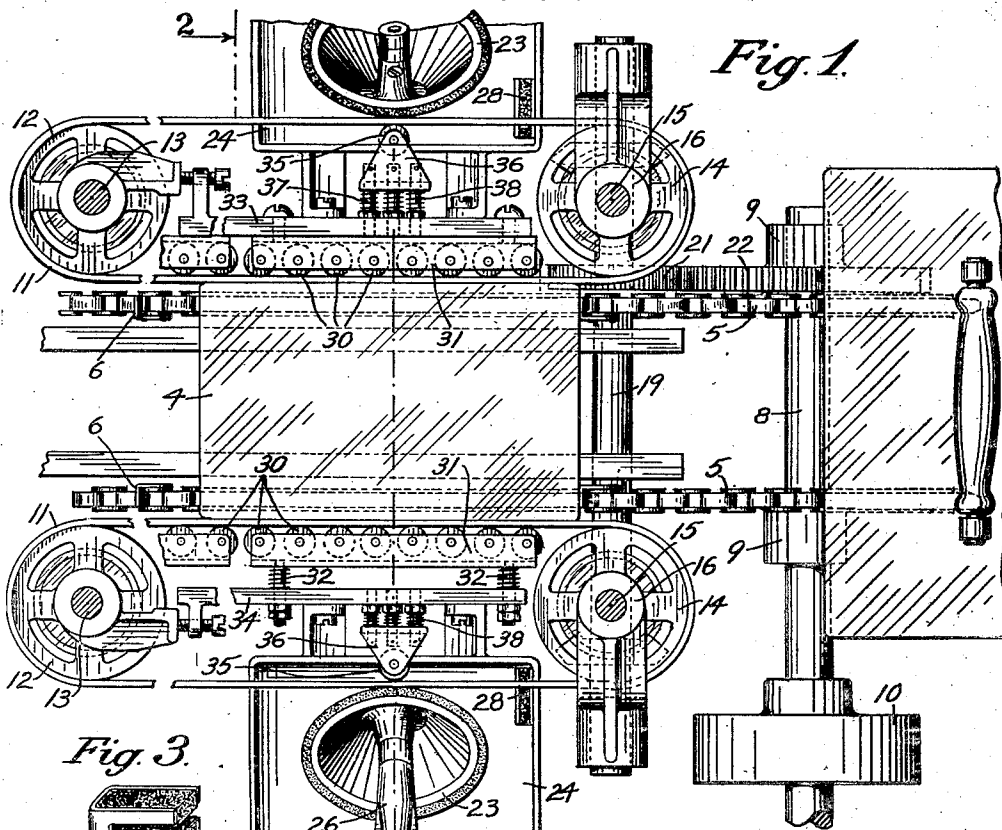


Fig. 3.

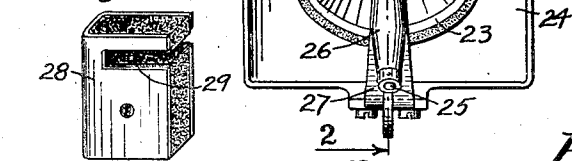
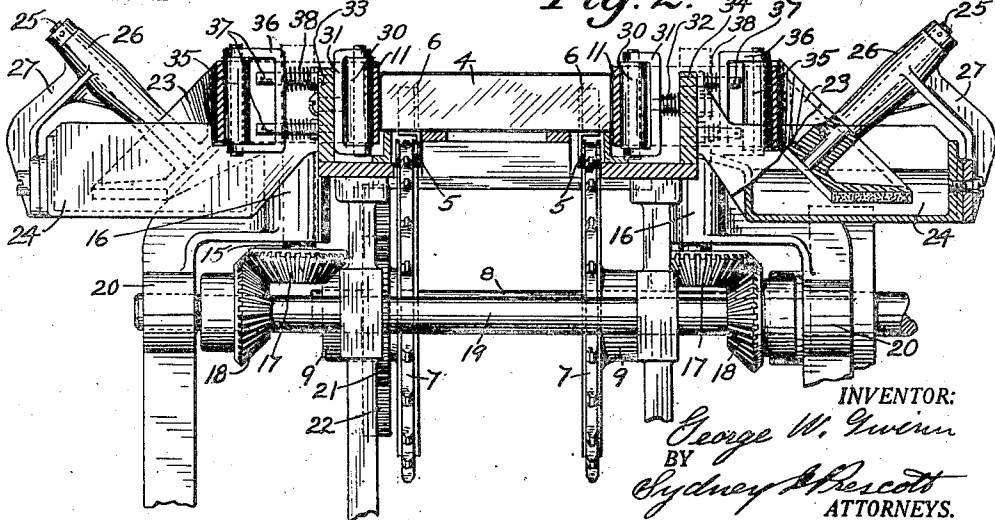


Fig. 2.



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WAX-SEAL-COOLING MECHANISM.

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To all whom it may concern:

Be it known that I, GEORGE W. GWINN, a citizen of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Wax-Seal-Cooling Mechanisms, of which the following is a specification.

This invention relates to a wax seal cooling mechanism which is particularly adapted for use in machines operating to apply a waxed paper wrapper to packages or articles wherein the overlapping edges of the wrapper are sealed by melting the wax carried by the paper. The mechanism however, is capable of other uses which are contemplated.

Heretofore, in machines operating to apply wax paper to packages or articles as a wrapper therefor, the article, after the waxed paper has been applied and the wax at the overlapping parts of the wrapper has been melted to form a seal, has been immediately moved to a discharge position, passing between devices which press against the hot seals to give them time to solidify. Difficulty has been experienced in the use of such machines which is due to the fact that the seals, being still hot, are displaced, and some of the wax sticks to the devices which press against the hot seals during the movement of the article. The wrapper of the article is thus made unsightly, and the accumulation of wax on the pressure devices necessitates frequent stoppage of the machines to clean the wax off. It has been discovered that this difficulty can be overcome by a proper wax seal cooling mechanism which will not displace the hot wax, and on the operating surfaces of which there will be no accumulation of wax to necessitate machine stoppage. The main object of the present invention is the production of such a device. Another object is the production of a device of this general character in which the cooling means travels with, or at the same surface speed as, the wrapped article in order to prevent displacement of the wax seal. A further object is the production of a device of this general character in which the cooling means is kept damp to prevent the wax from sticking to the operating surface of said means. With these and other objects not specifically mentioned in view, the invention consists in certain construc-

tions and combinations which will be hereinafter fully described and then specifically set forth in the claims hereunto appended.

In the accompanying drawings, which form a part of this specification and in which like characters of reference indicate the same or like parts, Fig. 1 is a plan view of a mechanism constructed in accordance with the invention; Fig. 2 is a cross-sectional view taken on the line 2—2 in Fig. 1; and Fig. 3 is a detail perspective view of a wiping device for removing excess moisture from the operating surface of the cooling means.

In carrying the invention into effect, there is provided means for supporting articles bearing hot seals, cooling means associated therewith and contacting with the seals of the supported articles, and means for dampening the cooling means to prevent the wax from sticking thereto. In the best constructions, all of these means continuously move at the same surface speed, and means are also provided for pressing the cooling means against the seals. These various means may be widely varied in construction within the scope of the claims, for the particular mechanism selected to illustrate the invention is but one of many possible concrete embodiments of the same. The invention therefore is not to be restricted to the precise details of the structure shown and described.

Referring to the drawings, means are provided for supporting articles coming from a wrapping mechanism and bearing hot seals at the overlapping portions of the wrapper of waxed paper. The particular device illustrated in the drawings is designed to handle rectangular packages and one such package is illustrated at 4, the wrapper of this package being overlapped and sealed along opposite sides. The mechanism illustrated is designed to perform its work while the package is in motion. There is therefore provided means for supporting the package 4 and continuously moving the same. This supporting means includes two chains 5, each provided with article engaging lugs 6 which engage the rear end of the packages and carry them along on the chains. These chains overrun and are driven by sprockets 7 fast on a shaft 8 journaled in suitable bearings 9—9 formed on the frame of the mechanism. The shaft 8 is driven by means of a pulley 10, overrun by a belt not shown

and deriving its motion from any suitable source. The chains also run over idle sprockets not shown, which are supported on a suitable shaft in the wrapping mechanism, from which the packages are moved into the range of action of the wax seal cooling mechanism.

There is further provided cooling means contacting with the seals of the supported article or package, and in the mechanism illustrated this cooling means includes a pair of oppositely disposed operating surfaces between which the articles or packages bearing seals on opposite sides are supported and moved. In the mechanism shown, therefore, the cooling means includes two belts 11—11, the operating runs of which are in contact with the hot wax seals of the packages, one on either side of the latter. The belts 11—11 run over idle pulleys 12—12 rotating on adjustable studs 13—13 supported from the frame of the machine in a well known manner. The belts 11—11 also run over and are driven by driving pulleys 14, each fast on a vertical shaft 15 journaled in a bearing 16 formed on the frame of the mechanism. The lower end of each shaft 15 carries a bevel gear 17 which is in mesh with another bevel gear 18, both of the latter being fast on a shaft 19 journaled in bearings 20 in the frame of machine. The shaft 19 carries a gear 21 which is in mesh with and driven by a gear 22 fast on the shaft 8 before referred to. The surface speed of the belts 11 is the same as the surface speed of the chains 5 supporting the article or package, so that any particular point on the operating run of each belt travels along at the same rate of speed as the package seal with which it is in contact; thus, no relative movement of the belt or cooling means and the hot wax seal is produced, and consequently the wax seal is in no way displaced during the travel of the package or article.

Means are further provided for dampening the cooling means to prevent the hot wax from sticking thereto. As shown, this mean includes two felt covered conical wheels 23 each dipping into a water reservoir 24 and each contacting with the inoperative run of one of the belts 11. Each wheel 23 is fast on a shaft 25 journaled in an inclined bearing 26 formed on a bracket 27 which is screwed to one of the water reservoirs 24. The wheel 23 is driven by the frictional contact of its felt surface with the belt 11, so that it also has the same surface speed as the belts, the chains, and the package.

Means are provided for removing excess water from the belts 11 which has been transferred thereto from the water reservoirs. As shown, this means consists in two wipers 28 of felt and each having a slot 29

through which the inoperative runs of the belts pass. The wipers 28 are secured to the walls of the reservoirs 24 and as the belt runs through them, any excess water which may have been applied to the belts by the wheels 23, is removed and drops back into the reservoirs.

To prevent the soft wax seals from opening up while passing through the mechanism, means are provided for pressing the cooling means against the seals. As shown, this means consists in a gang of rollers 30 contacting with the rear side of the operating run of each belt 11. Each gang of rollers is mounted in a frame 31. One of the frames 31 is pressed inwardly by means of springs 32, while the other is screwed fast on a stationary bar 33. Thus, one of the frames 31 is movable and the other is stationary. The springs 32 bear against the movable frame 31 and against the stationary frame 34 supported by the frame of the mechanism. The structure just described provides for a limited variation in the width of the packages as well as providing for the desired pressure of the cooling means against the hot wax seals.

For the purpose of keeping the inoperative run of each belt 11 in contact with its conical wheel 23, there is provided a roller 35 carried in a frame 36, the latter being mounted on three studs 37, one set of studs being carried by the bar 33 and one by the frame 34. Springs 38 coiled around these studs serve to press the rollers 35 against the belts 11, so that the wheel 23 will continuously apply water to the belts.

As the package 4 is carried along by the chains 5—5 between the belts 11—11, the damp surfaces of the latter progressively come into contact with the hot wax seals, the water is evaporated and the wax seal is cooled without any longitudinal displacement and without any transfer of the wax to the belt. It will be readily understood that the speed of operation of the present mechanism is the same as that of the wrapping mechanism in connection with which it is used, so that the wax seals are cooled as rapidly as the wrapping mechanism forms them.

What is claimed is:

1. A wax seal cooling mechanism comprising means for supporting articles bearing hot seals, cooling means contacting with the seals of the supported articles, and means for dampening said cooling means.

2. A wax seal cooling mechanism comprising means for supporting articles bearing hot seals, cooling means contacting with the seals of the supported articles, means for dampening said cooling means, and means for continuously moving said supporting means.

3. A wax seal cooling mechanism compris-

ing means for supporting articles bearing hot seals, cooling means contacting with the seals of the supported articles, means for dampening said cooling means, and means for continuously moving said cooling means.

4. A wax seal cooling mechanism comprising means for supporting articles bearing hot seals, cooling means contacting with the seals of the supported articles, means for dampening said cooling means, and means for continuously moving said dampening means.

5. A wax seal cooling mechanism comprising means for supporting articles bearing hot seals, cooling means contacting with the seals of the supported articles, means for dampening said cooling means, and means for continuously moving said supporting means, said cooling means, and said dampening means at the same surface speed.

6. A wax seal cooling mechanism comprising means for supporting articles bearing hot seals, cooling means contacting with the seals of the supported articles, means for dampening said cooling means, and means for pressing said cooling means against the seals.

7. A wax seal cooling mechanism comprising means for supporting articles bearing hot seals, cooling means contacting with the seals of the supported articles, means for dampening said cooling means, means for continuously moving said supporting means, said cooling means, and said dampening means at the same surface speed, and means for pressing said cooling means against the seals.

8. A wax seal cooling mechanism comprising means for supporting articles bearing hot seals, cooling means contacting with the seals of the supported articles, means for dampening said cooling means, and spring-pressed means for causing said cooling means to press against the seals.

9. A wax seal cooling mechanism comprising means for supporting articles bearing hot seals, cooling means contacting with the seals of the supported articles, and means for dampening said cooling means, said supporting means including a pair of forwarding chains provided with article engaging lugs.

10. A wax seal cooling mechanism comprising means for supporting articles bearing hot seals, cooling means contacting with the seals of the supported articles, and means for dampening said cooling means, said cooling means including a pair of oppositely disposed operating surfaces between

which articles bearing seals on opposite sides are supported.

11. A wax seal cooling mechanism comprising means for supporting articles bearing hot seals, cooling means contacting with the seals of the supported articles, and means for dampening said cooling means, said cooling means including a belt and driving means therefor.

12. A wax seal cooling mechanism comprising means for supporting articles bearing hot seals, cooling means contacting with the seals of the supported articles, and means for dampening said cooling means, said cooling means including a belt, driving means therefor, and a spring-pressed gang of rollers bearing against the rear side of the operating run of said belt.

13. A wax seal cooling mechanism comprising means for supporting articles bearing hot seals, cooling means contacting with the seals of the supported articles, and means for dampening said cooling means, said dampening means including a water reservoir and means for transferring water from said reservoir to said cooling means.

14. A wax seal cooling mechanism comprising means for supporting articles bearing hot seals, cooling means contacting with the seals of the supported articles, and means for dampening said cooling means, said dampening means including a water reservoir and a felt-covered conical wheel for transferring water from said reservoir to said cooling means.

15. A wax seal cooling mechanism comprising means for supporting articles bearing hot seals, cooling means contacting with the seals of the supported articles, and means for dampening said cooling means, said dampening means including a water reservoir, means for transferring water from said reservoir to said cooling means, and means for removing excess water from said cooling means.

16. A wax seal cooling mechanism comprising means for supporting articles bearing hot seals, cooling means contacting with the seals of the supported articles, and means for dampening said cooling means, said dampening means including a water reservoir, means for transferring water from said reservoir to said cooling means, and a stationary wiper for removing excess water from said cooling means.

In testimony whereof, I have signed my name to this specification.

GEORGE W. GWINN.