

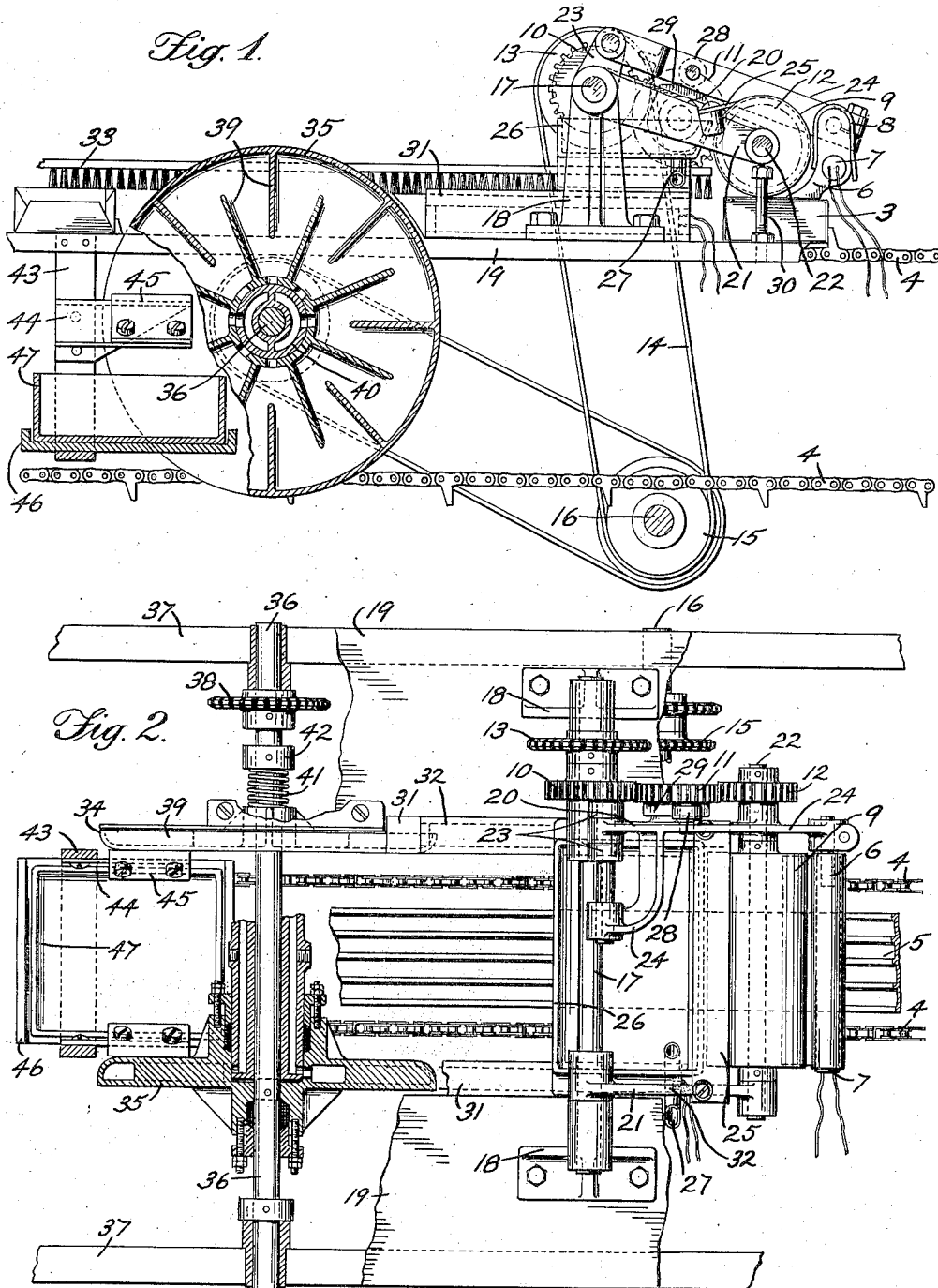
Oct. 26, 1926.

1,604,822

G. W. GWINN

SEALING DEVICE FOR WAX PAPER WRAPPING MACHINES

Filed Dec. 8, 1925



INVENTOR
George W. Gwinn
BY
Sydney Prescott
ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE W. GWINN, OF HEWLETT, NEW YORK, ASSIGNOR TO AMERICAN MACHINE & FOUNDRY COMPANY, A CORPORATION OF NEW JERSEY.

SEALING DEVICE FOR WAX-PAPER WRAPPING MACHINES.

Application filed December 8, 1925. Serial No. 74,076.

This invention relates to an improved sealing device for wax-paper wrapping machines.

In ordinary wax-paper wrapping machines, the nearly sealed and still hot wrapper, while being conveyed to the delivery end of the machine, comes into frictional contact with moving belts or with stationary guide members which produce scoring marks on the soft wax on the paper, thus marring the appearance of the package. Furthermore, the runways in time receive a coating of wax from the paper which impedes movement of the package and causes a drag on the wrapper which sometimes loosens the same. The main object of the present invention is the avoidance of these difficulties by thoroughly cooling and hardening the sealed seams before they are subjected to the friction of the conveyors or guides. This is accomplished by absorbing heat from the melted wax at the seams immediately after the latter are sealed, and by dissipating the heat absorbed by radiation. With this and other objects not specifically mentioned in view, the invention consists in certain constructions, parts, improvements 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 side elevation, shown partly in section, of a device constructed in accordance with the invention; and Fig. 2 is a plan view, also partly shown in section, of the structure shown in Fig. 1.

In carrying the invention into effect, there is provided means for melting the wax of the paper at the wrapper seams; that is to say, where adjacent edges are overlapped. There is further provided mechanism coming into action immediately after the seams have been sealed by melting the wax, said mechanism absorbing heat from the melted wax to cool the same, and dissipating the absorbed heat by radiation to the atmosphere. In the best constructions contemplated, the means for melting the wax of the paper at the wrapper seams includes a wax heating

device and means for moving the same in and out of operative position with respect to one of the seams of the wrapper, and also includes wax heating devices engaging their seams on opposite surfaces of a package. In the best constructions also, a rotative heat absorbing device engaging a sealed seam is employed and comes into action immediately after the seam has been sealed in order to cool and harden the wax at the seam before the packing is moved forward toward the delivery end of the machine in connection with which the device is used. These means, mechanism and parts may be widely varied in construction within the scope of the claims, for the particular device 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: A wrapped package 3, is forwarded by means of conveyor chains 4—4 on a runway 5, these chains and this runway being parts of a wrapping machine in connection with which the device is used. The conveyor chains 4 forward the package 3 into the range of action of a wax heating device including a seam-engaging shoe 6 and a removable electric heating means 7 for said shoe. An asbestos sheet 8 overhangs the upper part of this wax heating device in order to localize the heat emission to the sealing shoe in contact with the seam on the top of the package. The sealing shoe 6 is made of such shape as to permit close juxtaposition with a rotative heat absorbing cylinder 9 which contacts with the package seam and absorbs heat from the melted wax thereon, as soon as the package 3 begins to move forward from the sealing position. The surface of the heat absorbing cylinder 9, as it rotates, smooths the seam and causes it to harden as the heat is absorbed therefrom by the cylinder. The heat absorbed by the cylinder from the hot wax is dissipated by radiation to the atmosphere as the cylinder revolves. The cylinder 9 is driven by the gear train 10—11—12, which is actuated by the sprocket 13, driven by means of a chain 14, from a sprocket 15,

mounted on the shaft 16, which is one of the cam shafts of the wrapping machine in connection with which the device is used.

The gear shaft 17 is supported by brackets 18—18, mounted on the table 19 of the wrapping machine, and it carries the arms 20 and 21 in the ends of which the shaft 22 of the heat absorbing cylinder 9 is journaled, the rear arm 20 also carrying a stud 10 for supporting the intermediate gear 11. The fulcrum socket of the arm 20 is provided with lugs 23 in which is pivoted an arm 24 carrying the sealing shoe 6. This shoe, as well as the heat absorbing cylinder 9, may be easily lifted from their operative positions with respect to the package for inspection and adjustment. Near their outer ends, the arms 20 and 21 carry a knife-edged bar 25, which is set to act as a scraper on the heat absorbing cylinder 9 and to deposit the wax picked up by said cylinder from the hot seam into a removable trough or tray 26, the legs of which rest upon sealing shoes 31 in order to receive therefrom heat for melting the wax scrapings. This trough or tray 26 is provided with an outlet or pipe 27 to permit the melted wax to run into a receptacle provided for the purpose. The wax scrapings so melted, not only occupy less space, but are also much easier to remove than when in a more or less solid state, and this arrangement therefore constitutes a convenient, efficient means for disposing of the scrapings which otherwise would accumulate too rapidly and cause trouble. On the sealer arm 24 is mounted a cam bowl 28, tracking on the cam 29, which forms a part of the intermediate gear 11. This cam raises the shoe 6 from its operative position once in every revolution, just after a seam has been sealed, and just before a package begins to move forward. The shoe 6 constitutes a movable spot heater which has the advantage of heating only the seam to be sealed, and that only for a time sufficient to melt the wax at that place, the heater being lifted off the seam as soon as its object is accomplished, so that it will not scrape off the soft wax when the package moves forward. When no package is being passed under the cylinder 9, the arm 21 rests on the adjustable stop 30, and since the sealer arm 24, through the cam bowl 28 and cam 29, is supported by the arm 20 of the heat absorbing cylinder, said cylinder and the shoe 6 are always maintained in operative position with the path clear for an oncoming package. This construction, however, permits the machine operator to lift the cylinder 9 and shoe 6 at any time for inspection purposes.

After the top seam has been thus sealed and cooled, the package is carried forward by the chains 4—4 between two wax heating devices engaging seams on opposite surfaces

of the package, that is, where the end folds of the wrapper lie. These devices include the oppositely disposed shoes 31—31 and removable electric heating devices 32 associated therewith. When the package reaches this position, the already sealed and hardened seam on the top of the package is within the range of action of a brush carried by the cover plate 33, which holds the overlap of the same firmly in position as the wax hardens still more.

As a package emerges from between the shoes 31—31, it passes between the rotative heat absorbing discs 34 and 35, which are mounted on a shaft 36, supported by the side frames 37 of the machine, the shaft 36 being driven by the sprocket 38 from a sprocket on the shaft 16 before referred to. The disc 34 is shown as an air cooling device provided with a plurality of radial vanes 39 projecting from the back of the smooth heat absorbing surface. In cases where air cooling is inadequate, however, water cooling may be resorted to, the heat absorbing discs then being made as shown at 35, the discs rotating on a stationary hollow sleeve 40, through which the shaft 36 passes and to which, at either side of a divided partition, the water inlet and outlet pipes are connected. In this case, the radial vanes 39 alternately extend to the rim and hub of the disc and reach across from the heat absorbing surface to the back of the disc, thus forcing the water entering to divide and flow in zigzag fashion half way round the disc in order to reach the outlet at the other side. The spring 41, the tension of which is adjustable by means of the collar 42, is set to bear against the hub of the disc 34 in order to give just the proper tension between the rotative heat absorbing surfaces and the package. A bracket 43, which is fastened to the table or frame of the machine, carries the extensions 44, to which the scrapers 45 are attached, and supports the base 46 upon which the removable tray 47 rests. The scrapers 45 bear against the heat absorbing surfaces of the discs 34 and 35 and remove the thin film of wax adhering to them into the tray 47, thus keeping the heat absorbing surfaces smooth and clean at all times. By means of the device described, the wax at the seams is melted; the seams are thereby sealed; and immediately thereafter, they are cooled by the heat absorbing and dissipating means, before the package is subjected to frictional contact with the moving belts or stationary guide members, which have heretofore marred the appearance of the wax on the surface of the package wrapper and sometimes torn the latter. And since the thin film of wax which forms on the surfaces of the heat absorbing devices is immediately scraped therefrom, no unhardened wax is carried by the pack-

ages to the moving belts or stationary guides to there accumulate as heretofore.

What is claimed is:

1. A sealing device for wax-paper wrapping machines, comprising means for melting the wax of the paper at the wrapper seams, and self-cleaning mechanism for immediately thereafter absorbing heat from the melted wax and dissipating it by radiation.

2. A sealing device for wax-paper wrapping machines, comprising means for melting the wax of the paper at the wrapper seams, and mechanism for immediately thereafter absorbing heat from the melted wax and dissipating it by radiation, said means including a wax heating device, and means for moving said device in and out of operative position.

3. A sealing device for wax-paper wrapping machines, comprising means for melting the wax of the paper at the wrapper seams, and mechanism for immediately thereafter absorbing heat from the melted wax and dissipating it by radiation, said means including a wax heating device, and cam-actuated means for moving said device in and out of operative position.

4. A sealing device for wax-paper wrapping machines, comprising means for melting the wax of the paper at the wrapper seams, and mechanism for immediately thereafter absorbing heat from the melted wax and dissipating it by radiation, said means including a seam-engaging shoe, removable means for heating said shoe, and means for moving said shoe in and out of operative position.

5. A sealing device for wax-paper wrapping machines, comprising means for melting the wax of the paper at the wrapper seams, and self-cleaning mechanism for immediately thereafter absorbing heat from the melted wax and dissipating it by radiation, said means including wax heating devices engaging seams on different surfaces of a package.

6. A sealing device for wax-paper wrapping machines, comprising means for melting the wax of the paper at the wrapper seams, and self-cleaning mechanism for immediately thereafter absorbing heat from the melted wax and dissipating it by radiation, said means including stationary wax heating devices engaging seams on opposite surfaces of a package.

7. A sealing device for wax-paper wrapping machines, comprising means for melting the wax of the paper at the wrapping seams, and self-cleaning mechanism for immediately thereafter absorbing heat from the melted wax and dissipating it by radiation, said means including shoes engaging seams on different surfaces of a package, and removable means for heating said shoes.

8. A sealing device for wax-paper wrapping machines, comprising means for melting the wax of the paper at the wrapper seams, and mechanism for immediately thereafter absorbing heat from the melted wax and dissipating it by radiation, said means including a wax heating device and means for moving said device in and out of operative position, and also including wax heating devices engaging seams on opposite surfaces of a package.

9. A sealing device for wax-paper wrapping machines, comprising means for melting the wax of the paper at the wrapper seams, and self-cleaning mechanism for immediately thereafter absorbing heat from the melted wax and dissipating it by radiation, said mechanism including a rotative heat-absorbing device engaging a seam.

10. A sealing device for wax-paper wrapping machines, comprising means for melting the wax of the paper at the wrapper seams, and mechanism for immediately thereafter absorbing heat from the melted wax and dissipating it by radiation, said mechanism including a rotative heat-absorbing device engaging a seam, and means for adjustably locating said device in operative position and permitting its removal from operative position.

11. A sealing device for wax-paper wrapping machines, comprising means for melting the wax of the paper at the wrapper seams, and mechanism for immediately thereafter absorbing heat from the melted wax and dissipating it by radiation, said mechanism including a rotative heat-absorbing cylinder engaging a seam, an arm supporting said cylinder, and an adjusting screw engaging said arm to locate said cylinder in operative position and permit oscillation of said arm to move said cylinder out of operative position.

12. A sealing device for wax-paper wrapping machines, comprising means for melting the wax of the paper at the wrapper seams, and mechanism for immediately thereafter absorbing heat from the melted wax and dissipating it by radiation, said mechanism including a rotative heat-absorbing device engaging a seam, and means for removing wax from said device.

13. A sealing device for wax-paper wrapping machines, comprising means for melting the wax of the paper at the wrapper seams, and mechanism for immediately thereafter absorbing heat from the melted wax and dissipating it by radiation, said mechanism including a rotative heat-absorbing device engaging a seam, means for scraping wax from said device, and a heated receptacle for said wax.

14. A sealing device for wax-paper wrapping machines, comprising means for melting the wax of the paper at the wrapper

seam, and self-cleaning mechanism for immediately thereafter absorbing heat from the melted wax and dissipating it by radiation, said mechanism including rotative heat-absorbing discs engaging seams on different surfaces of a package, one of said discs being spring-pressed.

15
5
10 15. A sealing device for wax-paper wrapping machines, comprising means for melting the wax of the paper at the wrapper seams, and self-cleaning mechanism for im-

mediately thereafter absorbing heat from the melted wax and dissipating it by radiation, said mechanism including rotative heat-absorbing discs engaging seams on opposite surfaces of a package, one of said discs being spring-pressed.

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

GEORGE W. GWINN.