

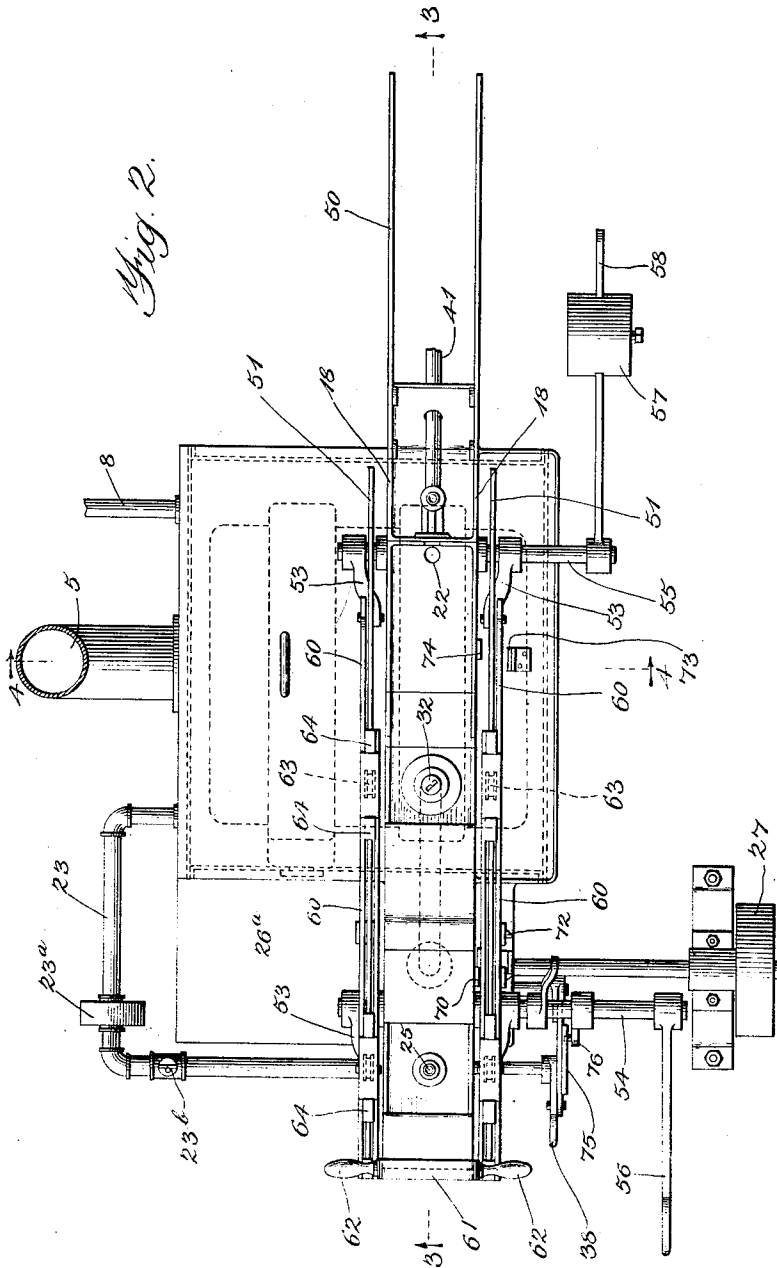


J. H. G. ZUNNER.  
PITCHING MACHINE.  
APPLICATION FILED NOV. 3, 1909.

1,026,729.

Patented May 21, 1912.

4 SHEETS—SHEET 2.



Witnesses:

J. C. Benick.

George L. Chindahl

Inventor:

John H. G. Zunner  
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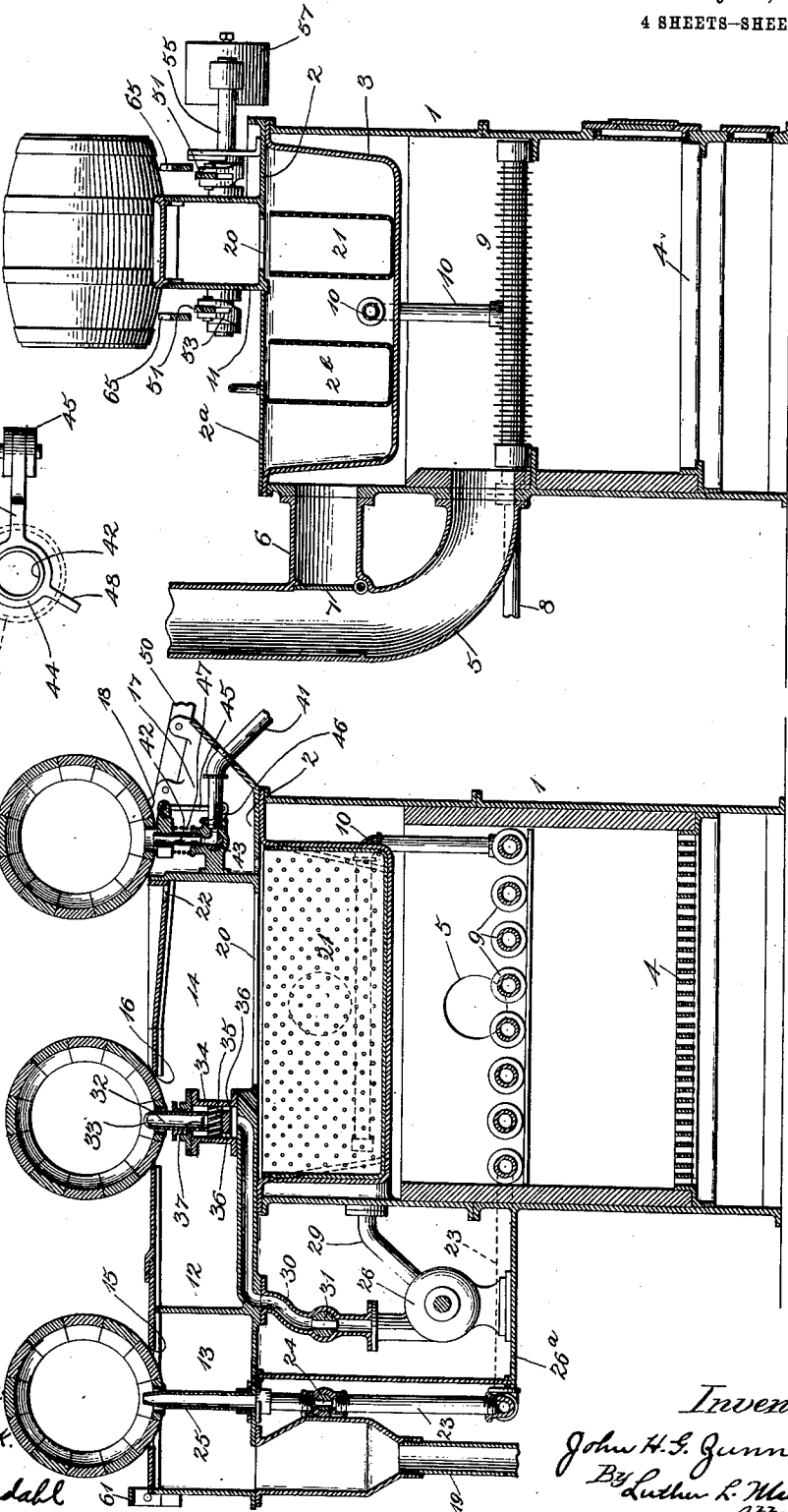
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4 SHEETS—SHEET 3.

Fig. 4.

Fig. 3.

Fig. 3.



Witnesses:  
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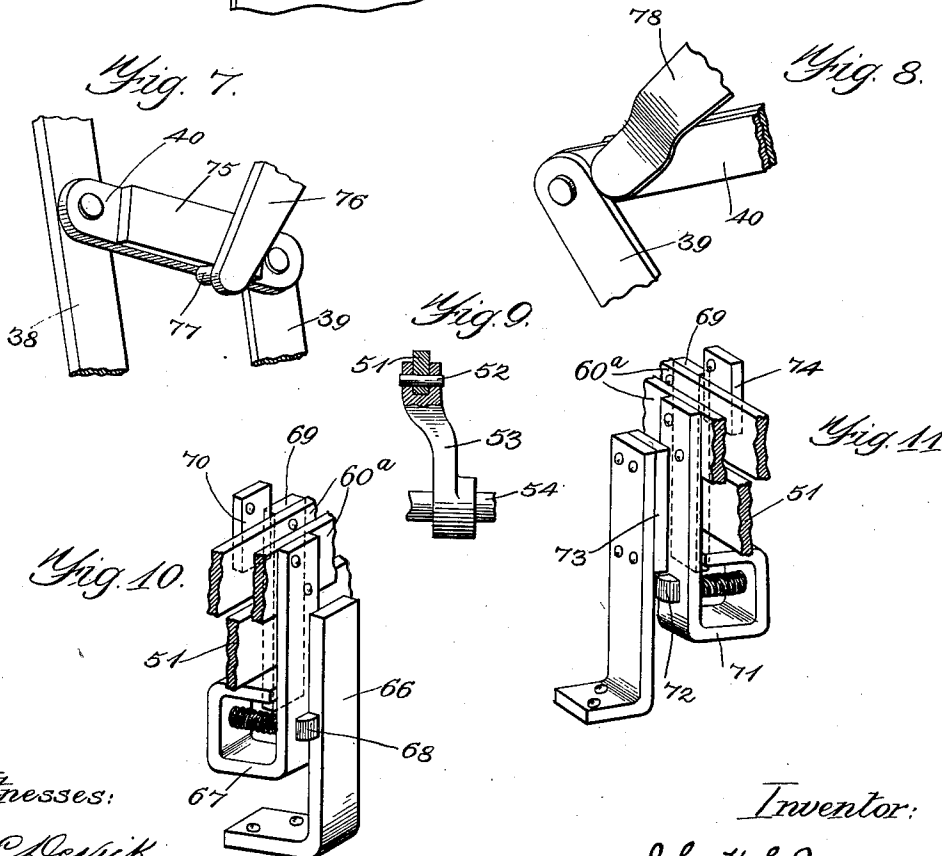
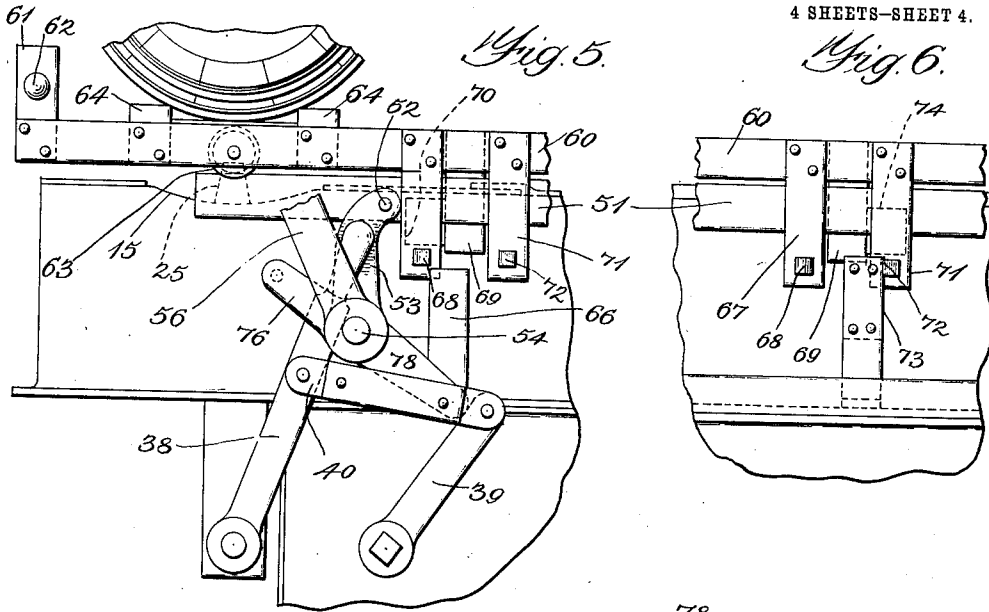
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# UNITED STATES PATENT OFFICE.

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## PITCHING-MACHINE.

1,026,729.

Specification of Letters Patent.

Patented May 21, 1912.

Application filed November 3, 1909. Serial No. 525,990.

### *To all whom it may concern:*

Be it known that I, JOHN H. G. ZUNNER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pitching-Machines, of which the following is a specification.

This invention relates to apparatus for interiorly coating or lining barrels, kegs and other packages with a suitable substance, such as pitch or glue, in order to fill the pores of the wood and thereby render the barrels fluid-tight.

The embodiment herein shown of the invention is especially adapted for removing the old coating from a barrel, coating the barrel with fresh material, removing from the barrel the vapors rising from the heated coating material, and cooling the coating material to cause it to set or harden.

The object of the invention is to produce apparatus for conveniently and expeditiously performing the operations just mentioned.

In the accompanying drawings, Figure 1 is a side elevation of an apparatus embodying the features of my invention. Fig. 2 is a top plan view thereof. Fig. 3 is a vertical sectional view taken substantially upon the plane of dotted line 3 3 of Fig. 2. Fig. 3<sup>a</sup> is a detail of the air nozzle and related parts. Fig. 4 is a view taken in the plane of dotted lines 4 4 on Figs. 2 and 3. Figs. 5 and 6 are fragmental side elevations illustrating the operation of the means for raising, lowering and horizontally shifting the packages, and the means for locking the valve-operating device. Fig. 7 is a fragmental perspective view illustrating the means for locking the package-raising devices from operation. Fig. 8 is a similar view representing the means for locking the valve-operating device from operation. Fig. 9 is a detail of a part of the package-raising means. Figs. 10 and 11 are detail views representing means for locking the package-shifting means from movement.

The embodiment which I have selected to illustrate the invention comprises a casing 1 having a top wall 2. Within the upper part of the casing 1 is a kettle 3 to contain the pitch or other coating material, a portion 2<sup>a</sup> of the top wall 2 being removable to permit access to the interior of the kettle. When starting up the apparatus, the lump

pitch, or other coating material may be placed in the strainer 2<sup>b</sup>. The kettle is herein represented as heated by means of a fire maintained below it, but it will be understood that any suitable means may be used for melting and heating the coating material. A grate 4 is provided in the lower part of the casing 1. Communicating with the combustion chamber within the casing 1 is a smoke flue 5, said flue having a connection at 6 with the upper portion of the casing 1. A damper or valve 7 is provided in order that the products of combustion may be caused to pass out through the connection 6 in close proximity to the kettle 3, and, when desired, to pass out directly through the smoke flue 5.

The medium used to melt the old pitch in barrels that are to be recoated may be superheated steam or superheated compressed air. Said medium is supplied from any suitable source through the pipe 8, which pipe communicates with one end of a superheating coil 9 arranged, as herein shown, in a horizontal position in the combustion chamber in a plane below the lower end of the smoke flue 5. The superheating coil may be of any suitable construction. A pipe 10 communicates with the superheating coil 9 and extends up into the kettle 3, the end of said pipe being closed as shown in Fig. 3. The pipe 10, as will be understood, assists to melt and heat the contents of the kettle 3 quickly.

Upon the top wall 2 of the casing 1 is a structure affording seats or rests for the packages undergoing treatment. Said structure, in this instance, consists of an elongated casing 11 divided by a partition 12 into chambers 13 and 14. The top outside walls of the chamber 13 are cut away to form a seat 15 for the package while the old coating is being removed. A similar seat 16 is provided on the chamber 14 to support the package while fresh material is being sprayed thereinto. Upon the end of the casing 11 are webs 17 in the upper edges of which are formed shallow recesses 18 to support the package while the vapor or "pitch smoke" is being removed and the new coating being hardened.

19 is an outlet for the old coating that drips from the package into the chamber 13.

20 is an opening in the floor of the cham-

ber 14 through which the surplus coating material that flows from the package into said chamber may return to the kettle. I preferably provide means for straining the coating fluid escaping from the barrel, as by using a perforated receptacle 21 arranged beneath the opening 20.

It will be noted by reference to Fig. 3 that the rear part of the top wall of the chamber 14 is slightly inclined, an opening 22 being provided at the lowest point to permit any coating fluid that may drip from the barrel while the barrel is being moved from the seat 16 to the seat 18 to enter the chamber 14 and thence return to the kettle.

The superheated steam is conducted from the coil 9 to a suitable discharge device through a pipe 23, said pipe having a rotary valve 24 therein. The upper end of the pipe 23 communicates with a nozzle 25 extending through the chamber 13 into position to extend a suitable distance into the bung hole or other opening of a package resting upon the seat 15. Preferably the upper end of the nozzle 25 is tapering so that in case the pressure of the steam be sufficient to raise the barrel slightly from the seat 15, such raising will provide an increased outlet around the tip of the nozzle, thereby relieving the pressure. A pressure gage 23<sup>a</sup> and a thermometer 23<sup>b</sup> (Fig. 2) may be attached to the steam pipe 23.

The means herein shown for conveying the hot fluid pitch to a package resting upon the seat 16 comprises a rotary pump 26, driven by a pulley 27 and a belt 28. The inlet of the pump is connected with the kettle 3 by means of a pipe 29, the outlet from the pump being connected with the discharge means through the medium of a conduit 30. In said conduit is a rotary valve 31. The discharge means, in this instance, consists of a nozzle 32 having a discharge slot or orifice 33 in its upper end, said nozzle being rotatably mounted within a casing 34 and having attached to its lower end a turbine wheel 35. The coating material passes upwardly through the openings 36 past the turbine wheel 35 and through one or more openings 37 in the nozzle, and thence upwardly through the nozzle. As the coating material is forced through the conduit 30 the nozzle is rotated, thereby throwing a sheet of the fluid coating material into contact with all portions of the interior walls of the package. The nozzle is of such diameter with relation to the opening through which it is inserted that space is provided around the nozzle through which the surplus coating material may flow from the package into the chamber 14.

The valves 24 and 31, in this instance, are arranged to be operated by means of arms

38 and 39, said arms being connected together by means of a link 40 for synchronous opening and closing movement.

The pump 26, the pipe 29 and a portion of the conduit 30 are inclosed within a chamber 26<sup>a</sup> in order that the melted pitch may be kept at a high temperature while it is being forced through the pump and pipe connections.

The means for removing from the barrel the "pitch smoke" or vapors rising from the heated coating material and for cooling the coating material so that it may harden may be of any suitable character, as, for example, a head such as is shown in Patent No. 859,164 issued to me on July 2, 1907, said head being arranged in operative relation to the seat 18. Herein, however, I have shown a means for discharging compressed air into the package, said means comprising a supply pipe 41 and a discharge tube or nozzle 42, a rotary valve 43 controlling communication between the pipe and the tube. A collar 44 is slidably mounted upon the tube 42 and is connected by means of a link 45 with an operating arm 46 fixed to the valve 43, said collar being held in a normally elevated position by means of a coiled spring 47. When the package is lowered upon the seat 18 the tube 42 projects to a suitable extent within the bung hole of the package, and the collar 44 is depressed, thereby rocking the valve 43 into position to permit the flow of compressed air into the package. The cool air thus entering the package drives out the pitch smoke and causes the coating adhering to the interior of the walls of the package to set. By reference to Fig. 3<sup>a</sup> it will be seen that the collar 44 has thereon projections 48 upon which the package bears, and that a space is provided between the bung hole and the nozzle 42 through which the pitch smoke is forced. In Fig. 3<sup>a</sup> the dotted circles 49 represent the position of the bung hole or bushing when the barrel is in place on the seat 18.

At the rear side of the seat 18 I have shown a runway 50 which may be of any suitable construction.

The means for lowering the packages onto the seats 15, 16 and 18, for raising the packages off said seats, and for moving each package successively onto said seats comprises two rails 51, one at each side of the casing 11, said rails being pivotally connected at 52 to crank arms 53 fixed upon rock shafts 54 and 55. A hand lever 56 fixed to the shaft 54 provides means for manually rocking said shafts to raise and lower the rails 51. The weight of the rails and the load carried thereby may be counterbalanced to the desired extent by means of a weight 57 which is adjustable upon an arm 58 fixed to the shaft 55.

Upon the rails 51 is mounted a carriage 59 (Fig. 1) which may consist of two side members 60 connected together by means of an end bar 61 having handles 62 thereon. Each of the side members 60 consists of two bars 60<sup>a</sup> (Figs. 10 and 11) spaced apart and secured together in parallel relation. The carriage 59 is mounted upon the rails 51 by means of rollers 63. Upon said carriage are chock blocks 64, and on the forward end of the carriage are projections 65 adapted to engage a barrel resting upon the seat 18 and push said barrel off the seat and onto the runway 50. A guide bar 66 (Figs. 5 and 10) is rigidly fixed to the supporting frame of the machine. To the carriage 59 is fixed a bracket 67 in which is slidably mounted a spring-pressed bolt 68. When the carriage is in its lowered position, as indicated in Fig. 1, the head of the bolt lies in contact with the guide bar 66, and when the carriage is raised through the elevation of the rails 51 said bolt moves upward along the edge of the guide bar and thus causes the carriage to rise in a straight line. The head of said bolt is inclined or rounded so that it may yield inwardly to pass the guide bar 66 when the carriage is returned to its initial position, as will appear more clearly hereinafter. It will be seen that when the bolt 68 is in engagement with the guide bar 66 longitudinal movement of the carriage in one direction is prevented. The means herein shown for preventing longitudinal movement of the carriage in the opposite direction consists of a guide bar 69 fixed to one of the side members 60 of the carriage and adapted to slide in contact with a stop block 70 fixed to the side of the casing 11. Attached to the carriage 59 is a bracket 71 carrying a spring-pressed bolt 72 which is beveled upon one side, as indicated in Fig. 11.

73 is a stop fixed upon the machine frame arranged to be engaged by the bolt 72, and 74 is a fixed stop arranged to be contacted by the stop 69 on the carriage.

Referring to Fig. 1: when the handle 56 is swung upwardly the rails 51 are lifted to raise the carriage 59, said carriage moving upward in a straight line by reason of the engagement of the bolt 68 with the guide bar 66 and the engagement of the guide bar 69 with the stop block 70. The upward movement of the carriage is limited by the engagement of the lower edges of the rails 51 with the closed ends of the forked crank arms 53, as best shown in Fig. 9. When the carriage is fully elevated, the packages supported thereby are clear of the ends of the nozzles 25 and 32, and the bolt 68 is above the upper end of the guide bar 66, as shown in Fig. 5. The operator taking hold of the handles 62, now pushes the carriage rearwardly or to the right (Figs. 1 and 5) in

the course of which movement the bolt 72 slips past the stop 73, said bolt springing up at the side of said stop as soon as the bolt is past the stop, as shown in Fig. 6. At the same time that the bolt thus springs out behind the stop 73, the guide or stop 69 comes into contact with the stop 74. The carriage is now locked against horizontal movement, and the two barrels supported by the carriage are directly above the pitch-spraying nozzle 32 and the cooling nozzle 42. The operator now swings the hand lever 56 downwardly, the carriage descending as the rails 51 are lowered by the operator, the descending movement of the carriage being in a straight line because of the action of the stops 72 73 and 69 74. The packages are thus lowered onto the nozzles 32 and 42, the carriage descending just far enough so that the chock blocks 64 can clear the barrels as the carriage is returned to its initial position. When the carriage is in its lowered position, the bolt 72 is below the lower end of the stop 73, as shown in Fig. 11. Grasping the handles 62, the operator draws the carriage into its initial position, the bolt 68 yielding inwardly when it strikes the guide bar 66 and springing up at the side of said guide bar as soon as the carriage reaches the initial position, as shown in Fig. 1. The operator now takes another barrel, positions it upon the rest 15, and opens the steam nozzle 25 and the pitch nozzle 32 by swinging the handle 38 from the position it is shown to occupy in Fig. 5 to that represented in Fig. 1. When the packages have been sufficiently heated and sprayed, the operator raises the carriage, pushes it rearwardly, thereby bringing the ends of the carriage in engagement with the barrel upon the seat 18 and dislodging said barrel, lowers the carriage to place the packages supported thereby onto the nozzles 32 and 42, and returns the carriage to its normal position.

It will be evident that should the carriage be raised while the steam nozzle and the pitch nozzle were in operation, serious injury might be occasioned. In order to prevent such an occurrence, I provide means for preventing the raising of the carriage until the valves 24 and 31 have been closed. In this instance, the locking means is constructed as follows: Upon the outer side of the link 40 is a locking block 75 (Fig. 7). Fixed to the rock shaft 54 is a locking arm 76 carrying a pin 77 which is arranged to underlie the locking block 75 when the parts are in the position shown in Figs. 1 and 7. When the parts are in such position, it will be evident that the shaft 54 cannot be rocked to raise the carriage. When the handle 38 is swung into the position shown in Fig. 5 to close the valves 24 and 31, the block 75 is moved rearwardly out of the path of the

pin 77, thus rendering it possible to swing the hand lever 56 to elevate the carriage.

In order to prevent the opening of the valves 24 and 31 while the carriage is elevated, I provide means consisting, in this instance, of a stop arm 78 fixed on the shaft 54 and arranged to lie in front of the arm 39 when the carriage is elevated. When the handle 56 is thrown down to lower the carriage, the stop arm 78 swings up out of the path of the arm 39.

It will be seen that the apparatus herein described constitutes means for rapidly and conveniently removing old pitch from barrels, for repitching the cleaned barrel, for removing the pitch smoke and for causing the coating of pitch in the barrel to harden. When new barrels are to be operated upon, the steam nozzle is rendered inoperative in any suitable way, as by shutting off the supply of steam or air to the superheater coil 9.

While I have described the invention with some particularity, it will be understood that the invention is not limited to the details and combinations of parts hereinbefore set forth.

I claim as my invention:

1. The combination of means for removing an old coating from a package; means for placing a new coating on the package; and a package-support movable from one of said means to the other.

2. The combination of means for coating a package; means for cooling the coating; and a package-support for moving the package from the coating means to the cooling means.

3. The combination of a nozzle; a package-seat adjacent said nozzle; and a package-support movable to place a package on said seat, said support being arranged during its placing movement to remove a package theretofore placed on said seat.

4. The combination of a nozzle; a package-seat adjacent said nozzle; and a package-carriage which is reciprocable to place a package on said seat, said carriage being arranged to push a package off said seat during its placing movement.

5. The combination of means for coating a package; means for cooling the coating; and a package-support for moving the package from the coating means to the cooling means, said support being arranged to discharge a package from said cooling means.

6. The combination of a package-coating means; a coating-cooling means; and a carriage arranged to transfer the package from the coating means to the cooling means, said carriage being arranged to contact with the package at the cooling means and push said package out of operative relation to said cooling means.

7. The combination of coating-removing means; package-coating means; means for

cooling a coating; and a movable support adapted to receive two packages and carry said packages from one of said means to another.

8. The combination of two package-spraying nozzles; and a package carriage supported for vertical and horizontal movement to place packages on said nozzles, to remove them from said nozzles, and transfer packages from one nozzle to the other.

9. A package-coating apparatus comprising coating means and a vertically and horizontally-movable package carriage.

10. In a package-coating apparatus, in combination, coating means, vertically-movable supporting means; and a package carriage supported for horizontal movement on said supporting means.

11. In a package-coating apparatus, in combination, coating means, rails arranged for vertical movement; and a package carriage arranged to roll in a horizontal direction upon said rails.

12. In a package-coating apparatus, in combination, rock shafts; arms fixed on said rock shafts; rails pivoted to said arms; means for rocking said shafts; and a package-support movably supported on said rails.

13. In a package-coating apparatus, in combination, a package carriage arranged for vertical and horizontal movement; means for locking the carriage against horizontal movement while in its lowered position at one end of its horizontal movement; and means for locking said carriage against horizontal movement when in its elevated position at the other end of its horizontal movement.

14. In a package-coating apparatus, in combination, a reciprocable package carriage; a stationary part; and a yieldably-mounted locking member on said carriage arranged to pass said stationary part when the carriage is moving in one direction and adapted to prevent movement of the carriage in the opposite direction after said yieldably-mounted member has passed said stationary part.

15. In a package-coating apparatus, in combination, a package carriage; supporting means for said carriage, said supporting means being arranged to raise and lower said carriage; a stationary locking member; and a yieldably-mounted locking member carried by said carriage, said member being arranged to yield when passing said stationary locking member in one direction, said supporting means being arranged to elevate said carriage to raise said yieldably-supported locking member above said stationary locking member.

16. In a package-coating apparatus, in combination, a package carriage; supporting means for said carriage arranged to



raise and lower said carriage; a stationary locking member; a yieldably-mounted locking member carried by said carriage, said member being adapted to yield when passing said stationary locking member in one direction, said carriage-supporting means being arranged to lower said package to bring said yieldably-mounted locking member below said stationary locking member.

17. In a package-coating apparatus, in combination, a package-spraying nozzle; a package-seat adjacent to said nozzle; and a package carriage supported for horizontal and vertical movement, said carriage having package-supporting means thereon, which package-supporting means is clear of the package when said carriage is in its lowered position.

18. In a package-coating apparatus, in combination, package-spraying means; means controlling the operation of said spraying means; means for moving a package into and out of operative relation to said spraying means; and means for rendering said package-moving means inoperative when said spraying means is in operation.

19. In a package-coating apparatus, in combination, a package-sprayer; means for moving a package into and out of operative relation to said sprayer; sprayer-controlling means; and means for rendering said controlling means inoperative when said package-moving means has been operated to move a package out of operative relation to the sprayer.

20. In a package-spraying apparatus, in combination, a sprayer; means for moving a package into and out of operative relation to said sprayer, said moving means comprising a rock shaft; a lever for controlling the operation of said sprayer; a stop member carried by said rock shaft; and a stop member movable with said lever into and out of locking relationship to the first mentioned stop member.

21. In a package-spraying apparatus, in combination, a sprayer; means for moving a package into and out of operative relation to said sprayer, said moving means comprising a rock shaft; a sprayer-controlling lever; and a stop member fixed on said rock shaft and movable into and out of position to prevent movement of said sprayer-controlling lever.

22. In a package-spraying apparatus, in combination, a sprayer; sprayer-controlling means; means for moving the package into and out of operative relation to the sprayer; means operable with the sprayer-controlling means for rendering the package-moving means inoperative; and means operable with the package-moving means for rendering the sprayer-controlling means inoperative.

23. In a package-coating apparatus, in combination, means for cooling a coating, said means being operable by the weight of a package placed in operative relation to said means; and means for placing a package in operative relation to said means.

24. A package-coating apparatus having a nozzle, a valve controlling said nozzle, means for placing a package on and removing a package from said nozzle, a member arranged to be controlled and moved by the weight of a package when the latter is placed in operative relation to the nozzle, and a connection between said member and the valve for opening the latter when said member is moved by a package.

25. A package-coating apparatus having a nozzle adapted to discharge a cooling medium into the package, a valve controlling said nozzle, a member movably supported adjacent to said nozzle in position to be moved by a package when the latter is placed in operative relation to the nozzle, and a connection between said member and the valve for opening the latter when said member is moved by a package, and means tending to move said member to close the valve.

26. A package-coating apparatus having a nozzle, a valve controlling said nozzle, a collar slidable on said nozzle and arranged to be moved by a package when the latter is placed in operative relation to the nozzle, an operating connection between said collar and the valve, and a spring tending to move said collar to close the valve.

27. In a package-coating apparatus, in combination, two package-seats; a package-spraying nozzle adjacent each seat; two valves each controlling one of said nozzles; and means for simultaneously operating said valves.

28. In a package-coating apparatus, in combination, a nozzle for discharging a superheated fluid for melting an old coating in a package; piping for supplying fluid to said nozzle comprising a superheater coil; and means for heating said coil.

29. In a package-coating apparatus, in combination, a nozzle for discharging a superheated fluid for melting an old coating in a package; piping for supplying fluid to said nozzle comprising a superheater coil; a nozzle for spraying coating material into the package; a melting kettle operatively connected with the last mentioned nozzle; and a furnace for heating said superheater coil and said kettle.

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Witnesses:

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