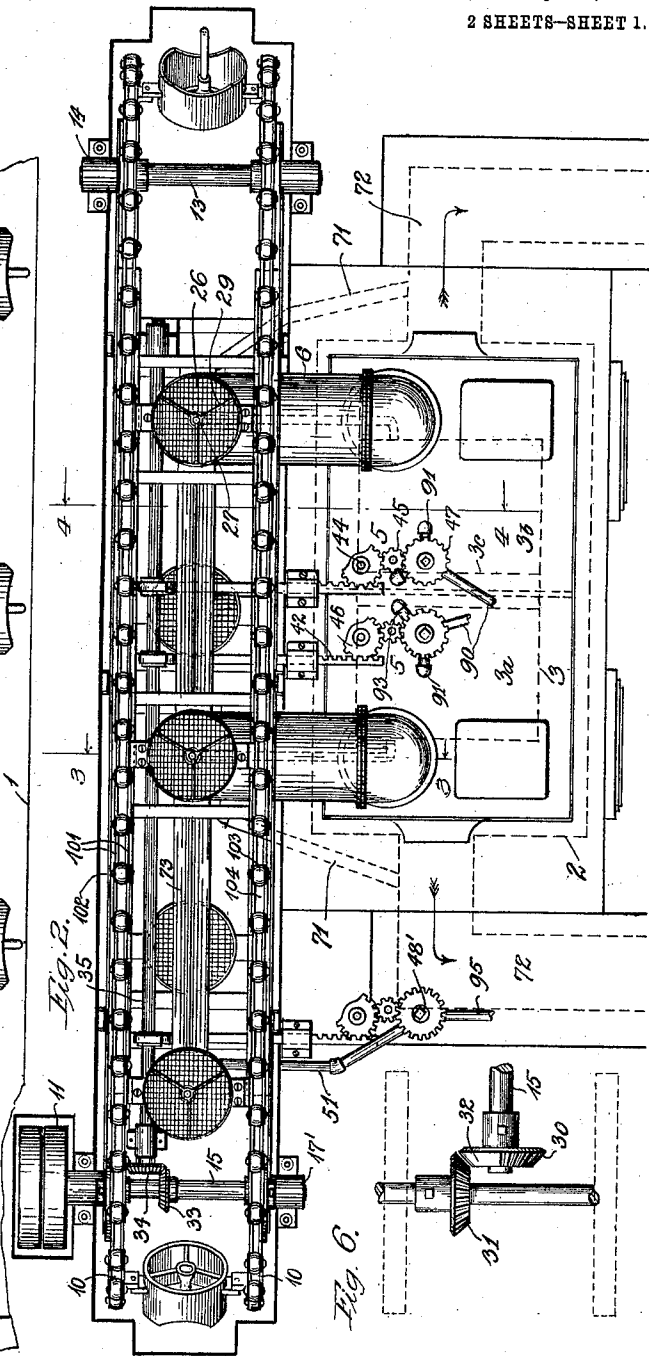
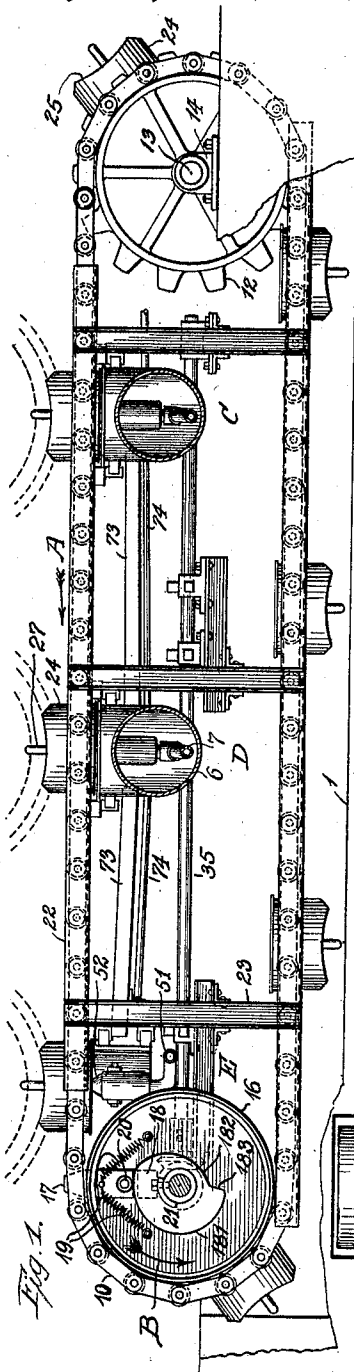


H. TORCHIANI.
PITCHING MACHINE.
APPLICATION FILED NOV. 9, 1911.

Patented May 20, 1913.

2 SHEETS-SHEET 1.

1,062,131.



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1,062,131.

2 SHEETS—SHEET 2.

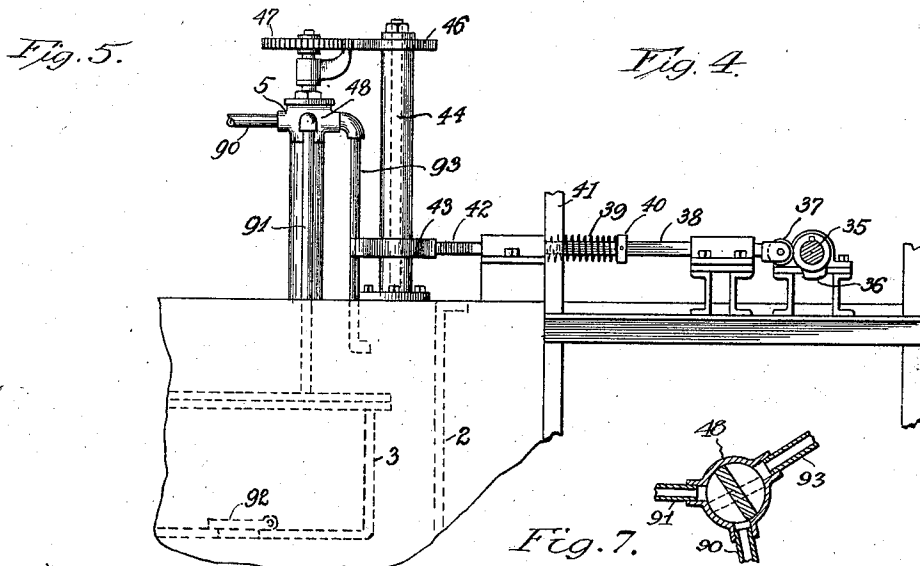
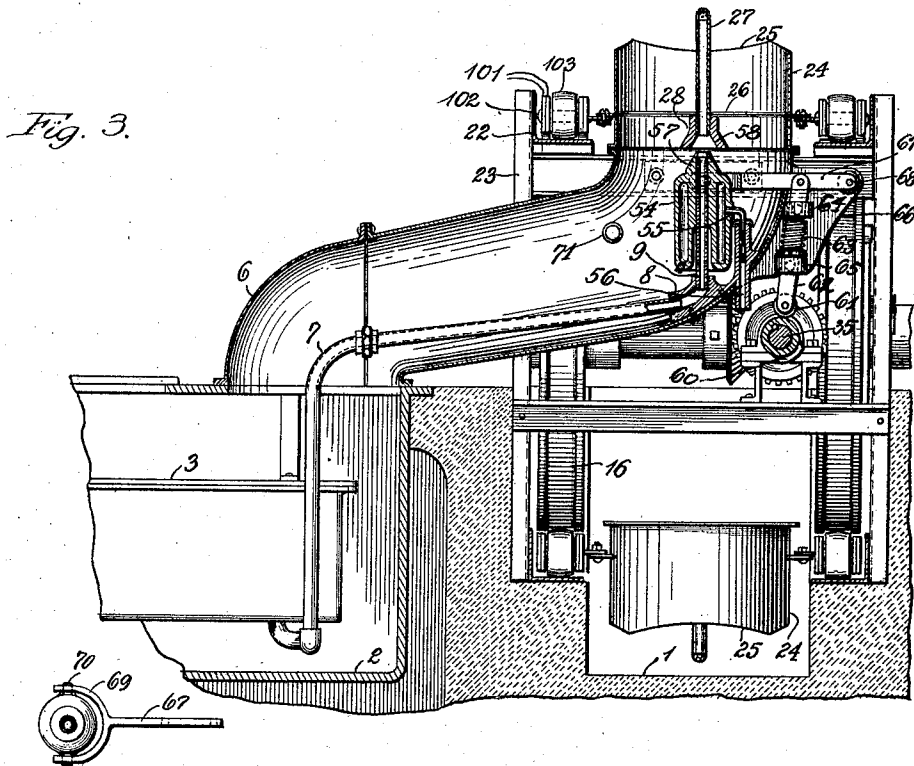


Fig. 7.  Inventor:
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UNITED STATES PATENT OFFICE.

HARRY TORCHIANI, OF CHICAGO, ILLINOIS.

PITCHING-MACHINE.

1,062,131.

Specification of Letters Patent.

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To all whom it may concern:

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

This invention relates to machines for coating the interior of barrells, kegs or other packages with pitch.

An object of the invention is to provide a machine in which the packages are conveyed successively into opposition with spouts or nozzles by means of which the pitch in liquid form enters into the package.

Another object of the invention is to provide a machine in which the package is set at rest during the period in which the pitch is introduced into the package.

Another object of the invention is to provide means for introducing pitch into the packages by means of compressed air, and to cause an even distribution of the pitch coating on the wall of the package.

Another object of the invention is to provide devices driven by the conveying means for the packages for opening and closing valves controlling the means which force the pitch into the packages or distribute the pitch evenly on the walls of the packages.

Another object of the invention is to actuate heating means in predetermined periods, for the purpose of introducing the heating means into a nozzle which travels with the package.

Another object of the invention is to provide means for returning the overflow pitch from the package to the boiler, and for keeping this returning pitch in heated condition so as to prevent clogging of the return conduit.

Another object of the invention is to provide means for removing the smoke incidental to each pitching operation and which ordinarily is an obnoxious feature of pitching machines.

With these and other objects in view I have illustrated in the accompanying drawing an embodiment of this invention which consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawing: Figure 1 is a side elevation of the pitching machine, various parts being shown in section, Fig. 2 is a top plan

view of the same, Fig. 3 is a section on line 3—3 of Fig. 2, Fig. 4 is a section on line 4—4 of Fig. 2, Fig. 5 shows a detail of the auxiliary injecting means, Fig. 6 shows a modification of a driving gear, and Fig. 7 shows a section through a valve forming part of the machine.

The pitching machine preferably is erected on or close to the floor of the building, and part of the machine is disposed in a pit of the floor, the bottom of the pit being indicated by 1 in Fig. 1. Adjacent the machine and near the pit is a furnace shown in Fig. 2, which is used for heating and liquefying pitch and which may be of any ordinary or suitable construction, the furnace and kettle not forming part of this invention.

The boiler illustrated by way of example, is similar to the construction described in the United States Letters Patent 627781 of June 27, 1899, the pitch being discharged from the kettle 2 by means of compressed air intermittently conveyed into the reservoir 3. This reservoir is divided into a plurality of chambers 3^a, 3^b separated by a wall 3^c, and is controlled by means of valve mechanisms 5, shown in Figs. 2 and 4. Two outer tubes 6 extend from the kettle into the path of the conveying means for the packages and serve also for returning overflow pitch discharged from the package during the coating operation to the kettle. The pitch itself is conveyed by means of the conduit 7 located in the outer tubing 6 and passing through a nipple 8 into a nozzle 9 secured to said nipple, the nozzle extending preferably in vertical direction.

The conveying means for the packages comprise a plurality of chains 10 in parallel arrangement and driven in synchronism by means of pulleys 11 which may derive its power from some suitable source, not shown. At that end of the machine which is opposite the driving means, the chains 10 are guided about sprockets 12 rotatable on a shaft 13 supported in bearings 14 on the floor of the building. Secured to the driving shaft 15 are the disks 16 about which the chains 10 are guided. The shaft 15 is rotatably mounted in the bearings 17, also preferably secured to the floor of the building. The movement of the disks 16 is communicated to the respective chain 10 by means of a pawl 17 slidably disposed in a

groove 18 on the disk and being continuously pulled toward its innermost position by means of the springs 19 fastened to the disks. The slidable pawl 17 is provided with an anti-friction roller 20 which, by reason of the springs 19 is maintained in permanent engagement with a cam 21 rigidly secured to a stationary part of the machine.

The links of the chains 10 may each be composed of parallel elements 101 united by joint pins 102 in a well known way. It will be seen from this that a space 104 is created confined by the parallel members 101 and by the pins 102 connecting the elements 101. The pins also serve as supports for rollers 103 which in the movement of the chain are guided on channel irons 22, so as to prevent sagging of the chain. As shown in Fig. 1 the upper and lower channels 22 are connected by a plurality of braces 23 which serve for imparting rigidity to the entire structure.

From the above description it will be understood that in the rotation of the disks 16, the pawl 17 by means of the stationary cam 18, is intermittently projected into one of the interspaces 104 and causes thereby movement of the chain in the direction indicated by the arrow A in Fig. 1 when the disks are rotated in direction of the arrow B. It is also obvious that the extent of the movement is dependent upon the shape of the cam 18, said cam, in the embodiment illustrated, comprising a concentric portion 181 of a comparatively large radius, an eccentric portion 182 which is shown as being of eccentric curvature, and a shoulder 183. It will be understood that the pawl 17 will cause a movement of said chain as long as the roller 20 is riding on the portion 181, while the pawl will be withdrawn from its engagement when the roller 20, by means of the springs 19, is brought into engagement with the circumferential portion 182 of the stationary cam.

Supports 24 for the packages are interposed between the two parallel chains 14 at regular intervals, said supports comprising in the embodiment shown, cylindrical elements having edges which are finished to fit the outline of the package placed on these supports. In the embodiment shown the upper edge 25 of these supports is curved so as to form a suitable seat for a barrel. The support contains a wire netting 26 or such like, and the pitch discharged from the barrel during the injecting operation returns through this netting into the outer conduit 6, as will be clearly understood by reference to Fig. 3. A nozzle 27 is preferably centrally disposed on the hub 28 in the support, said hub being in connection with the circumferential portion by means of the spokes 29. It is therefore obvious that

the nozzle 27 travels simultaneously with the package placed on the support.

In Fig. 6 I have shown a modification of the intermittent drive, this modification consisting of a pair of bevel gears 30 and 31, the gear 30 on the driving shaft 15 having one or more circumferential portions 32 which are smooth. It is evident that an intermittent rotation is communicated to the bevel gear 31 when the shaft 15 and the bevel gear 30 are driven continuously.

By means of a bevel gear 33 meshing with the bevel gear 34 on the shaft 35, movement is imparted to said last named shaft. The shaft 35 serves the purpose of actuating the valves 5, as will be clearly understood by reference to Figs. 2 and 4. Several of these valve mechanisms are shown in the drawing for controlling the discharge of pitch from the kettle and for controlling the discharge of compressed air through a nozzle for purposes to be described. But as all of these mechanisms are of practically the same construction, the description of one will be sufficient to enable a person skilled in the art to understand their construction and function.

A cam 36 adjustably mounted on the shaft intermittently engages a roller 37 at the end of a rod 38 producing thereby a movement of said rod in direction away from the shaft. After the cam has passed over said roller, the rod 38 is returned to normal position by means of the spring 39 interposed between the collar 40 on the rod and a stationary wall portion 41 as shown in Fig. 4. The opposite end of the rod 38 is connected with a rack bar 42, or it may be integral therewith, the teeth of said bar meshing with the teeth of the gear segment 43 on a shaft 44 rising from the pitch kettle, as shown in Fig. 4. By means of an intermediate gear 45, the rotation of a gear segment 46 also mounted on the shaft 44, is transmitted to the gear 47 mounted on the spindle of a valve 48 which in itself is of known construction and which does not form the subject matter of this invention. It is obvious that in the actuation of the rod 38 the valve 48 also is actuated and that the spindle of said valve is oscillated, causing thereby an opening or closing movement of said valve. When the valve is opened, compressed air from a tank not shown in the drawing, is admitted through a conduit 90 opening into the valve casing and from there through pipe 91 into the respective compartment. By means of this compressed air pitch which entered from the kettle 2 through valves 92 in said reservoir, is forcibly expelled into the conduit 7. After passing through the conduit the liquid pitch is discharged through the nozzle 9. When the valve is in normal position the interior of the reservoir communicates through conduit 91, the valve

and conduit 93 with the outer air, so that there is no pressure in the reservoir and pitch may enter the same through valves 92. Another pipe 51, leading from the third valve 48', extends to a third nozzle 52 which projects into the path of the supports for the packages and which is of a construction similar to the nozzle 9. Pipe 95 conveys compressed air to this valve 48' from a tank not shown.

For the purpose of preventing waste of the pitch and for the purpose of maintaining the pitch conveyed from the kettle to the traveling nozzle 27 in liquid condition, I provide a steam jacket which is slidably disposed on the nozzle 9. The steam jacket 54, shown in Fig. 3, is slidably mounted on the nozzle and steam is conveyed into the same by means of the elbow piping 55 slidably guided in the stationary pipe 56 which is mounted in the conduit 6 and which receives steam from some suitable source, not shown. It will be seen from Fig. 3 that the nozzle portion 57 of the steam jacket is shaped conically so as to be adapted for steam-tight engagement with the seat portion 58 of the hub which serves as support of the traveling nozzle 27. It is of advantage to raise this steam jacket into engagement with the hub 28 when the support 24 of the package has arrived in opposition to nozzle 9, so that the pitch which is kept at proper temperature by these heating means may be injected into the package without any waste. For this purpose a cam 60 is mounted on the shaft 35 near each of the nozzles 9 and a friction roller 61 on the lower end of a link 62 is maintained in continuous engagement with said roller by means of a spring 63 interposed between a collar 64 on the link and a stationary projection 65 on the bracket 66, the bracket preferably being attached to the conduit 6. The upper end of the link 62 is in pivotal connection with a lever 67 fulcrumed at 68 in the bracket and bifurcated at its opposite ends, as clearly shown in Fig. 5. Pins 70 project from the prongs 69 of the bifurcation into the jacket and it is obvious therefore that by the engagement of the cam 60 with the roller 61, the lever 67 will be lifted to raise the jacket or heating means into engagement with the seat portion 58 to prevent waste of the pitch.

For the purpose of eliminating the escape of smoke from the machine, conduits 71 extend from the outer conduits 6 to flues 72 of the pitch furnace and the draft of these flues causes the smoke to travel downwardly, as will be obvious for any expert in this art. Means are also provided for preventing waste of pitch in the travel period of the packages and these means, in the form illustrated, consist of channel irons 73 longitudinally interposed between the two conduits 6

and the nozzle 52 of the compressed air. To avoid that the pitch dripping from the barrels or packages upon these channels may cool down and harden, a steam pipe 74 is disposed adjacent said channels, as clearly shown in Fig. 1 and steam may be conveyed to said pipe from any suitable source.

The operation of the machine is as follows: An attendant positioned near the sprocket 12 places a package on that support which in the movement of the chain is ascending from the floor of the building. The package is placed on said support so that the nozzle 27 projecting from the support enters through the bung hole or some other suitable aperture into the package, preventing thereby the package from rolling on the support. A continuous rotary movement is imparted to the driving shaft 15, and by means of the device described, as for instance the pawl 17 or the mutilated gear 30, an intermittent movement is imparted to the support of the package. The elements controlling this movement are adjusted so, that the support is stopped in that instant where one of the packages arrives in opposition to the stationary nozzle 9 mounted on the conduit 6. The package arriving first at C is stopped in its movement and while it is at rest cam 36 actuates the four way valve 48, so that pitch through the conduit 7 and nozzle 9 is sprayed from the respective chamber into the package. This first coating of pitch mostly serves the purpose of heating the old coating in the package; the respective kettle compartment from which the pitch is conveyed to the package at C contains previously used liquid pitch. This additional coating of old pitch softens the coating of pitch in the package and in the travel of the package from C to D the coating of old pitch is removed from the interior of the package. Upon arrival of the package at D, a second stop occurs and a coating of new pitch is applied, the conduit 7 at position D opening into a compartment which is filled with new liquid pitch. The package finally travels to the position E where compressed air is blown in through the nozzle 52, this compressed air serving for distributing the still liquid coating in the interior of the barrel uniformly over the entire surface thereof. The chain then continues and in the downward movement of the respective support the barrel is by gravity discharged from the machine.

I prefer to time the operation by means of the cam 18 or of the mutilated gear 30, so that the intermission between two periods of travel lasts about twenty seconds.

It is obvious that on account of the cam 60 the heating means 54 for the nozzles 9 and 52, are raised in each spraying period, preventing thereby a clogging of the conduit 7 and the nozzle 9, and also preventing the

escape of pitch on the way from the nozzle 9 to the package. It will also be understood from the above description that there is continuously a plurality of packages subjected to the spraying operation, the several packages being, however, at different stages of the operation.

Various modifications of the invention and various combinations and uses of the mechanism herein described will readily suggest themselves to one who is skilled in the art. For these reasons the invention is claimed in its entirety and in its several component parts broadly and without limitation or restriction to the specific disclosure.

I claim:

1. A pitching machine comprising in combination, a plurality of traveling nozzles adapted to project into the packages to be coated with pitch, a kettle containing pitch, conduits extending from the kettle, nozzles on said conduits, means for moving said first named nozzles relatively to said conduits to bring the same successively into opposition with said second named nozzles and means for discharging pitch from the kettle through the nozzles into the packages.

2. A pitching machine comprising in combination, a plurality of traveling nozzles adapted to project into the packages to be coated with pitch, a kettle containing pitch, conduits extending from the kettle, nozzles on said conduits, means for moving said first named nozzles intermittently and relatively to said conduits to bring the same successively into opposition with said second named nozzles and means for discharging pitch from the kettle through the nozzles into the packages.

3. A pitching machine comprising in combination, a plurality of nozzles adapted to project into the packages to be coated with pitch, a kettle containing pitch, conduits extending from the kettle, nozzles on said conduits, means for moving said first named nozzles intermittently and relatively to said conduits to bring the same successively into opposition with said second named nozzles and for stopping the same when they are in said position, and means for discharging pitch from the kettle through the nozzles when said first named nozzles are at rest.

4. A pitching machine comprising in combination, a plurality of supports for the packages to be coated with pitch, nozzles secured to said supports and projecting into said packages, a kettle containing pitch, conduits extending from the kettle, nozzles on said conduits, conveying chains carrying said supports, continuously driven disks about which said conveying chains are guided, means for converting the continuous movement of said disks into an intermittent movement of said conveying chains, and

means for discharging pitch from the kettle through said nozzles when the conveying chains are at rest.

5. A pitching machine comprising in combination, a plurality of traveling nozzles adapted to project into packages to be coated with pitch, a kettle containing pitch, conduits extending from the kettle, nozzles on said conduits, means for discharging pitch through said conduits when said first named nozzles are in opposition to said second nozzles, and means for preventing loss of pitch between said first named and said second named nozzles.

6. A pitching machine comprising in combination, a plurality of traveling nozzles adapted to project into the packages to be coated with pitch, a kettle containing pitch, conduits extending from said kettle, nozzles on said conduits, means for discharging pitch from said kettle through said conduits and second named nozzles into said first named nozzles, and means for heating said second named nozzles to prevent clogging of the same and of said conduit.

7. A pitching machine comprising in combination, a plurality of supports for the packages to be coated with pitch, a kettle containing pitch, conduits extending from the kettle, nozzles on said conduits, nozzles rigidly carried by said supports and adapted to project into the packages, heating means for said first named nozzles, means for moving said heating means into engagement with said second named nozzles and means for discharging pitch from the kettle through said second named nozzles into the packages.

8. A pitching machine comprising in combination, a plurality of supports for the packages to be coated with pitch, a kettle containing pitch, conduits extending from the kettle, nozzles on said conduits, nozzles rigidly mounted on said supports, means for discharging pitch from the kettle through said first named nozzles into said second named nozzles, movable heating jackets on said first named nozzles, and means for bringing said heating jackets into engagement with said second named nozzles to prevent waste of pitch leaving said first named nozzle to enter said second named nozzle.

9. A pitching machine comprising in combination, a plurality of traveling nozzles adapted to project into the packages to be coated with pitch, a kettle containing pitch, a plurality of conduits extending from the kettle, nozzles on said conduits, means for moving said traveling nozzles successively into opposition with said second named nozzles, means for discharging pitch from the kettle through the nozzles into the packages, an additional nozzle, a pipe supplying compressed air to said additional nozzle, means

for conveying the packages into opposition with said additional nozzle, and means for forcing compressed air into the package when the same is in opposition with said additional nozzle.

10. A pitching machine comprising in combination, a plurality of traveling nozzles projecting into the packages to be coated with pitch, a kettle containing pitch, conduits extending from the kettle, nozzles on said conduits, means for moving said traveling nozzles intermittently and relatively to said conduits to bring the same successively into opposition with said second named nozzle, means for discharging pitch from the kettle through the second named nozzles into the packages, additional conduits surrounding said first named conduits for returning overflow pitch from the package to the kettle, and smoke conveying pipes opening into said additional conduits.

11. A pitching machine comprising in combination, a plurality of traveling nozzles projecting into the packages to be coated with pitch, a kettle containing pitch, conduits extending from the kettle, nozzles on said conduits, means for moving said traveling nozzles intermittently and relatively to said conduits to bring the same successively into opposition with said second named nozzles, means for discharging pitch from the kettle through the second named nozzles into the packages, additional conduits surrounding said first named conduits for returning overflow pitch from the packages to the kettle, flues in connection with said kettle and smoke conveying pipes leading from said additional conduits into said flues for re-

moving the smoke incidental to the pitching operation.

12. A pitching machine comprising in combination, a plurality of traveling nozzles projecting into the packages to be coated with pitch, a kettle containing pitch, conduits extending from the kettle, nozzles on said conduits, means for bringing said traveling nozzles successively into opposition with said second named nozzles, a nozzle for introducing compressed air into the packages after the same are coated with pitch, and means for returning overflow pitch from the packages during their travel between said nozzles.

13. A pitching machine comprising in combination, a plurality of traveling nozzles projecting into the packages to be coated with pitch, a kettle containing pitch, conduits extending from the kettle, nozzles on said conduits, means for bringing said traveling nozzles successively into opposition with said second named nozzles, means for injecting pitch from the kettle into the packages when the same are in opposition to said second named nozzles, a nozzle for introducing compressed air into the packages after the pitching operation, means for conveying the packages into opposition with the compressed air nozzle, a conduit for returning overflow pitch from the packages in their travel between said nozzles, and means for heating said pitch returning conduit.

Chicago, Illinois, November fourth, 1911.

HARRY TORCHIANI.

Witnesses:

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FRANCES STAPEL.