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J. H. G. ZUNNER.

APPARATUS FOR USE IN PITCHING BARRELS AND THE LIKE.

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Fig 1.

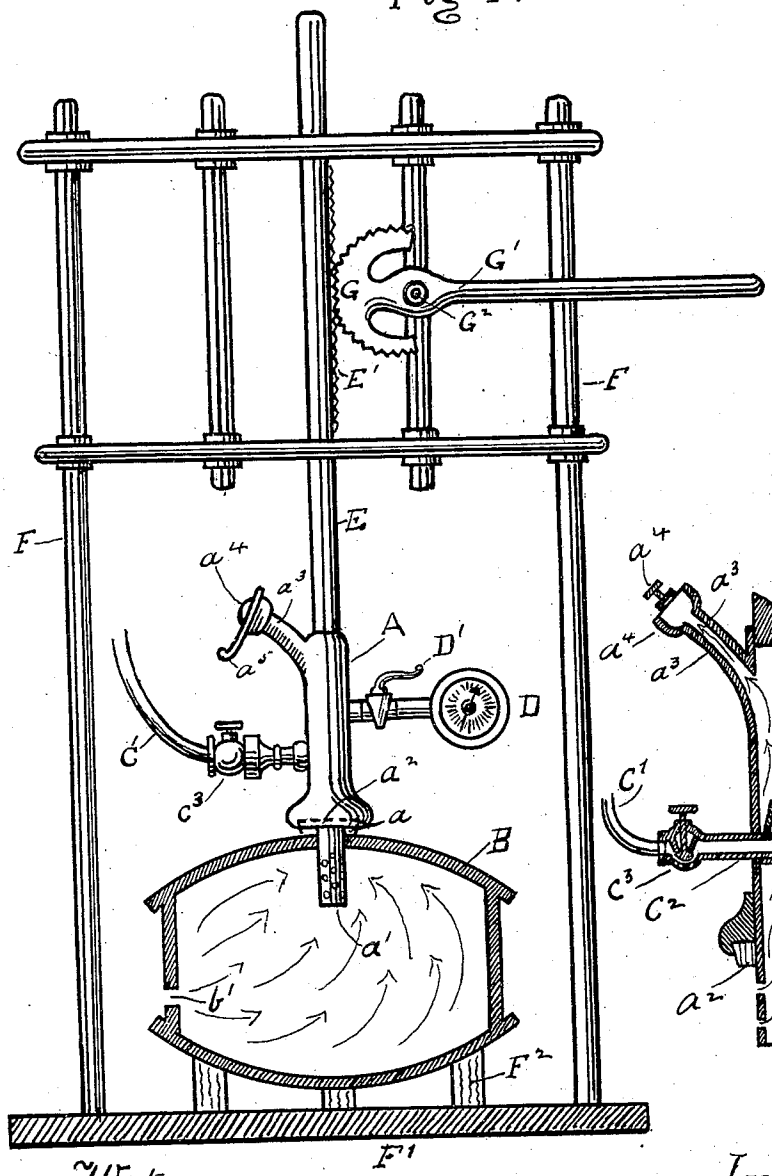
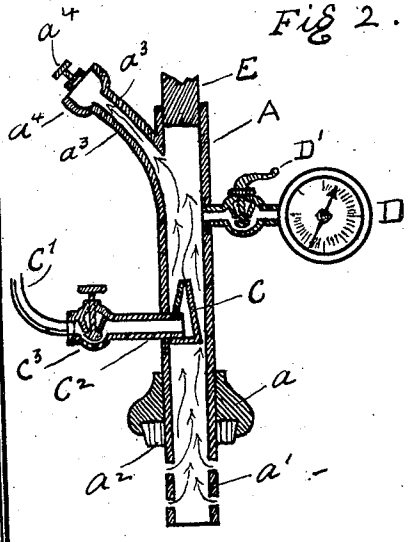


Fig 2.



Witnesses.

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APPARATUS FOR USE IN PITCHING BARRELS AND THE LIKE.

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To all whom it may concern:

Be it known that I, JOHN H. G. ZUNNER, a citizen of the United States, residing at Rochester, New York, have invented certain new and useful Improvements in Apparatus for Use in Pitching Barrels and the Like; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in apparatus for use in pitching barrels and like vessels.

In the ordinary process of pitching or coating the interior of barrels, the pitch is first heated to about 400 or 425° F. and then supplied to the interior of the barrel, as for example, by spraying it or pouring it into the barrel, after which the barrel is moved about either by hand or by suitable machinery in order to bring the pitch into contact with all portions of the inner surface of the barrel, this rolling or moving about of the barrels being continued for some time after the coating has been applied in order to allow the coating a sufficient time to cool and thereby lose its plastic condition. Owing to the fact that the pitch is confined within the barrel, which is of wood and a poor conductor of heat, the pitch cools but slowly and therefore the rolling or movement of the barrels must continue for some time. This delay in the cooling of the pitch in each barrel is a serious inconvenience, as it necessitates either a much larger machine for rolling or a larger rolling space and more men when the barrels are rolled by hand in order that the pitching apparatus may proceed continuously. Furthermore, during the rolling of the barrels the vapors or pitch smoke condense on the interior walls of the barrel and thus contaminate the coating to such an extent that it is generally necessary to fill the barrels with water after they are coated in order to wash out the condensed products of the smoke or vapors and even this treatment is not always successful in removing all contaminations.

The principal object of my invention is to avoid these disadvantages, which are well known to those skilled in the art and hence have been but briefly set forth above.

With this general object in view, and some others which will be obvious from the description hereinafter, my improved apparatus is arranged to carry out a process of pitching barrels which consists in first applying a coating of pitch to the interior of the barrels and then exhausting the heated air and vapors from the barrel and admitting cooler air, as for example, the outside air, to the interior of the barrel, while maintaining in the barrel a pressure below that of the incoming air which thus expands as it enters the barrel and thus assists in cooling the coating.

By this process, the vapors and smoke are quickly removed from the barrel while still hot and before having had any opportunity to condense, and also the heated air is removed and replaced by cooler air, which in turn is removed as rapidly as it becomes heated. In this manner the coating of pitch is quickly cooled to such an extent that it hardens so that it cannot flow from one part of the interior of the barrel to another part.

Although I have described this new process, I do not claim it herein as it forms the subject matter of a separate application.

For the purpose of conveniently carrying out this process, I have devised a new apparatus which constitutes the subject matter of the present application. This apparatus is shown in the accompanying drawings, in which

Figure 1 is a side elevation of the device connected to a barrel, the latter being shown in section. Fig. 2 is a central sectional view of the operating head of my device.

Referring to the drawings, A is a head provided with means for engagement with the barrel B or other vessel, said means consisting in the present case of a flanged or extended shoulder a from which projects a tube a' arranged to extend a distance into the vessel, this tube in the device shown being closed at one end and provided with a series of perforations. The tube a' is made of such a diameter that it may be conveniently inserted in the opening in the vessel, as for example, into the bung hole of the barrel, as shown in Fig. 1. The shoulder or flange a, however, is larger than this opening or bung hole and between it and the outside of the vessel is placed a packing device, a^2, as for example, a gasket of rubber or other suitable elastic material, which in the present case is shown as partly received in a recess in the shoulder a as indicated by the dotted lines in Fig. 1. The head A is hollow, and has a discharge outlet, as indicated at a^3 provided with means for closing it and for opening it quickly, such means consisting in the present example, of a gate valve a^4 operated by its handle a^5.

Suitable means is provided for creating a suction in the head A so that the vapors and smoke may be drawn from the vessel and discharged through the discharge outlet a^3. This suction creating means connected with the head A, consists, in the present example, of a jet device and more particularly of a jet device arranged to operate with compressed air. In the embodiment of my invention shown in the drawings, this jet device consists of a jet tube C arranged to discharge upward or in a direction away from the barrel B and toward the discharge outlet a^3. The jet tube C is provided with fluid under pressure from any suitable source, as for example, by means of a flexible conductor such as

the hose C′ which is connected with the jet tube C by means of a pipe C^2 passing through the wall of the head A. The hose C′ is intended to be supplied with fluid under pressure, as for example, compressed air from any suitable source not shown. A valve C^3 is placed at any convenient point in order to control the supply of air or the like to the jet tube.

To the head A is connected a gage D by which the pressure or vacuum in the head A may be ascertained. Between the gage D and the head A is placed a cock D′ whereby the communication between the head and the gage may be cut off. The head A is mounted in such a manner that it may be firmly pressed against the barrel or other vessel and removed therefrom. In the example shown, the head A is mounted on the end of a bar E longitudinally movable in a frame-work F, the bar E being provided with suitable mechanisms for moving it longitudinally, as for example, by supplying the bar E with a rack E′ engaged by a toothed segment G mounted on a lever G′ fulcrumed at G^2 upon the frame work, the free end of the lever G′ serving as an operating handle.

The frame-work F of the apparatus, in the preferred embodiment of my invention, comprises a base F′ upon which the barrel B may be mounted upon suitable chock-blocks as indicated at F^2. The tap-hole of the barrel B is shown at *b*.

In carrying out my process by the aid of the apparatus described the barrel is first supplied with an interior coating of pitch in the usual way, as for example, by pouring the heated pitch at a temperature of about 400 to 425° Fahr. into the barrel, through the bung-hole, the tap-hole being plugged. The barrel is quickly rolled about and also oscillated end ways sufficiently to bring the hot pitch into contact with every part of the inside of the barrel. Then the latter is quickly placed upon the blocks F^2, with its bung-hole upward, the head A at this time being elevated so as to be out of the way, by pulling down the lever G′. As soon as the barrel is in place, upon the blocks F^2 the head A is rapidly depressed by releasing the lever G′, whereupon the head A will descend by its own weight, or its movement may be hastened by pushing upward on the lever G′. The tube *a*′ enters the bung-hole of the barrel and the packing device a^2 comes into contact with the outside of the barrel. By pressing upward on the lever G′, the said packing device a^2 is firmly compressed between the shoulder *a* and the barrel, thus making an air-tight or substantially air-tight connection between the head and barrel. The plug being removed from the tap-hole of the barrel, the compressed air is turned into the jet tube by opening the valve C^3, the discharge outlet a^3 also being opened by opening its gate valve a^4. The escape of the compressed air upward through the jet tube C and outward through the discharge outlet a^3 causes a suction on the well known principle of an injector and thus exhausts the vapors, smoke and heated air from the interior of the barrel and discharges the same through the discharge outlet a^3. At this time, the cooler air from the outside rushes through the tap-hole into the barrel, but as the area of this opening is restricted compared with the discharge capacity of the jet-device, the restricted tap-hole acts as an expansion valve and the incoming air expands slightly as it enters the barrel. The immediate removal of the vapors and smoke prevents condensation of the same upon the coating of the barrel, and the removal of the said vapors, smoke and heated air, and the influx of cool air causes the rapid cooling of the soft pitch. The continued action of the jet-device causes a flow of the cooler air from the outside into the barrel through the tap-hole and outward through the discharge outlet a^3 so that the said air is continuously removed as rapidly as it becomes warmed by the heat which it abstracts from the coating.

The gage D, may be put in communication with the head A at any time by opening the cock D′ in order to measure the vacuum which is being produced by the jet-device.

My improved apparatus has an additional feature which adds to its value, as will now be explained. Some of the experts in this art prefer to submit the interior of the barrel to a pressure such as the pressure of compressed air after the pitch coating is in place and before the same has been entirely hardened. With my apparatus, this can be done at any time desired, by merely closing the gate-valve a^4 and the tap-hole *b* of the barrel, whereupon the jet-device ceases to function as an injector and the compressed air is confined in the head A and barrel B until the pressure in the latter is equal to that of the supply of compressed air. The gage D serves to indicate and thus allow the control of this pressure.

When the treatment of the barrel is completed, the lever G′ may be pulled down thus lifting the head A and its tube *a*′ clear of the barrel, whereupon the latter may be removed from the blocks and the apparatus is ready to receive the next barrel to be treated.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In an apparatus of the class described, the combination with a head having a discharge outlet, of a jet-device connected to the head, and means for connecting the head to the vessel to be treated.

2. In an apparatus of the class described, the combination, with a head, means for pressing the head against the side of the vessel to be treated, and a packing device between said head and said vessel, of means for creating a suction within the head.

3. In an apparatus, of the class described, the combination, with a head having a discharge outlet, of a jet-device connected to the head, a valve for closing the discharge outlet, and means for putting the interior of the head in communication with the interior of the vessel to be treated.

4. In an apparatus of the class described, the combination, with a head having a discharge outlet, of a jet-tube within said head, means for supplying fluid under pressure to the jet tube, and means for putting the interior of the head in communication with the interior of the vessel to be treated.

5. In an apparatus of the class described, the combination, with a head having a discharge outlet and means for closing and opening said discharge outlet, of a jet-device connected to said head, means for supplying fluid under pressure to said jet-device, means for putting the interior of the head in communication with the interior of the vessel to be treated, and a gage connected to the head.

In testimony whereof I affix my signature to this specification, in the presence of two witnesses.

JOHN H. G. ZUNNER.

Witnesses:

PATRICK CAULEY,

WALTER STACY.