C. P. PRICE.

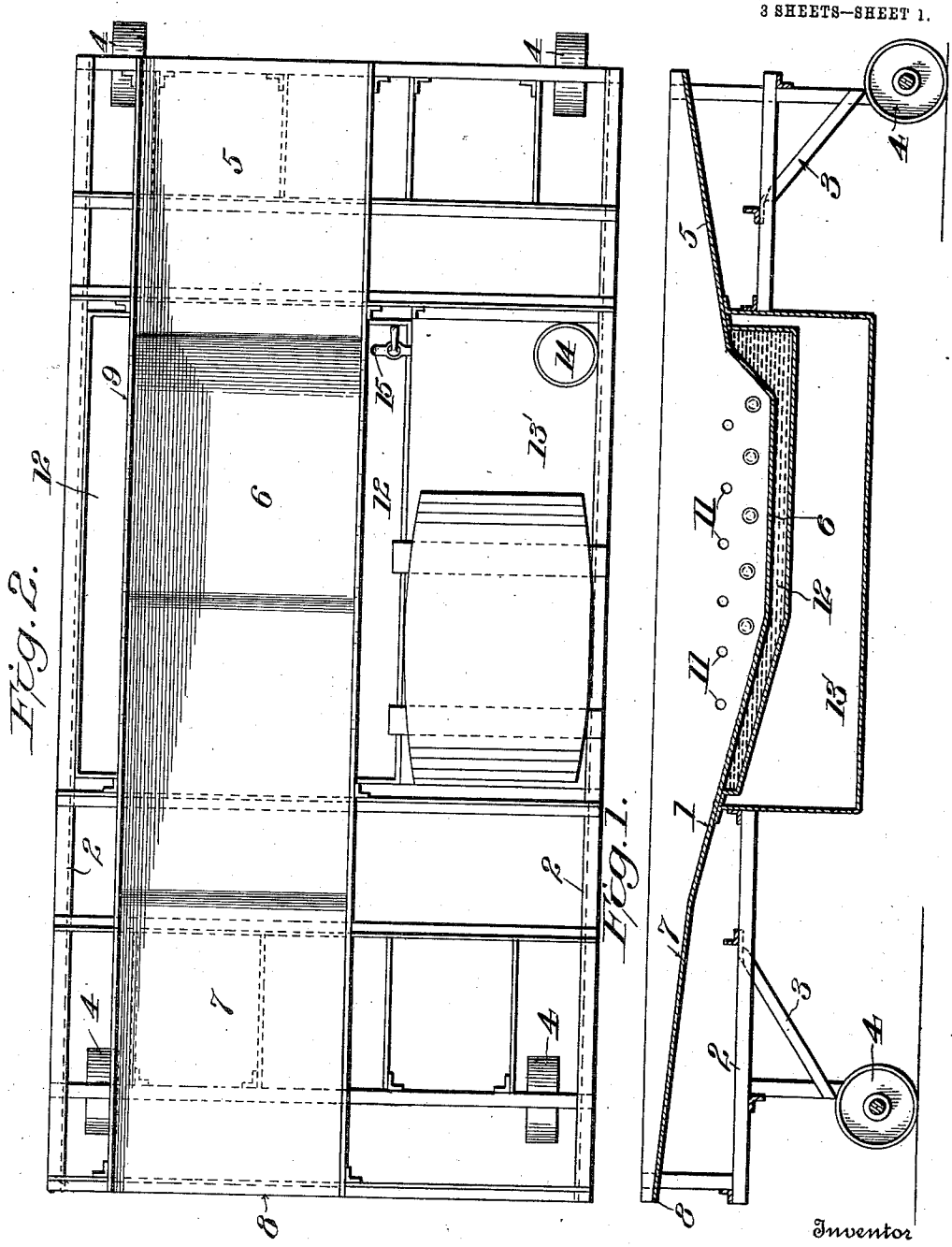
MACHINE FOR COATING OR MIXING MINERAL AGGREGATE WITH BITUMINOUS MATERIAL.

APPLICATION FILED FEB. 23, 1910.

1,019,522.

Patented Mar. 5, 1912.

3 SHEETS—SHEET 1.



Witnesses

C. C. Walker

Grace P. Brereton

Charles P. Price

By Sturtevant & Mason

Attorneys

C. P. PRICE.

MACHINE FOR COATING OR MIXING MINERAL AGGREGATE WITH BITUMINOUS MATERIAL.

APPLICATION FILED FEB. 23, 1910.

1,019,522.

Patented Mar. 5, 1912.

3 SHEETS—SHEET 2.

Fig. 4.

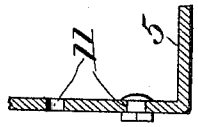


Fig. 6.

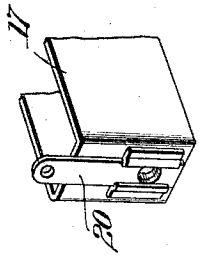


Fig. 3.

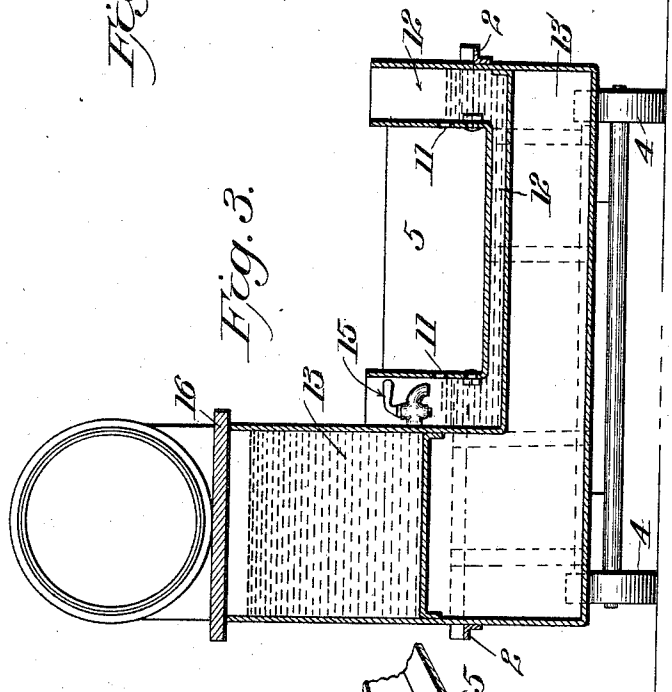


Fig. 5.

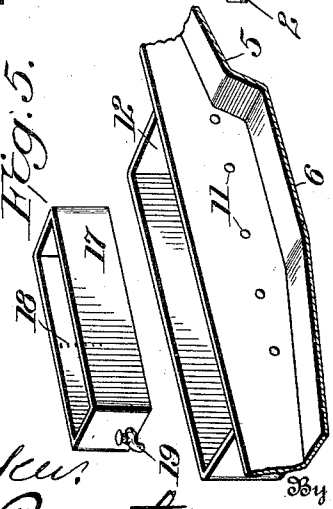
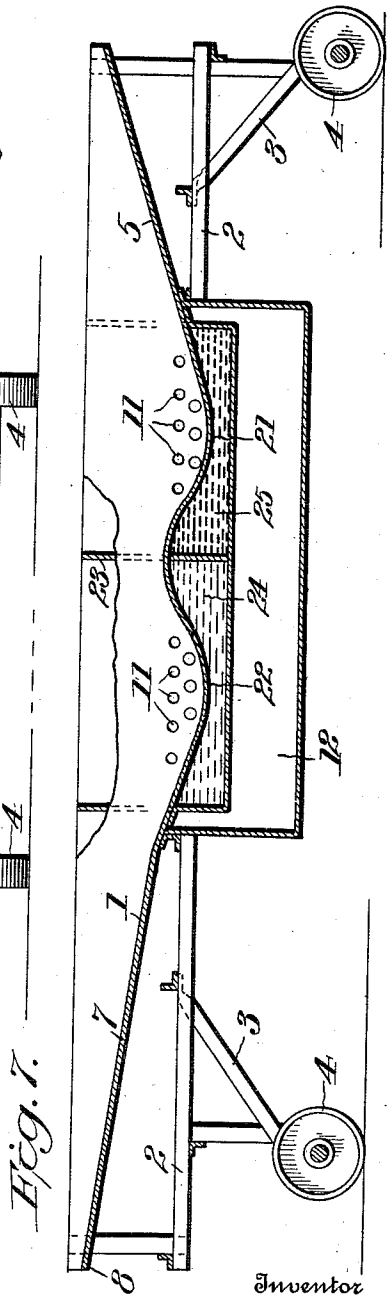


Fig. 7.



Witnesses

C. M. Walker.

Grace P. Brereton

Inventor

Charles P. Price

By Sturtevant Mason

Attorneys

C. P. PRICE.

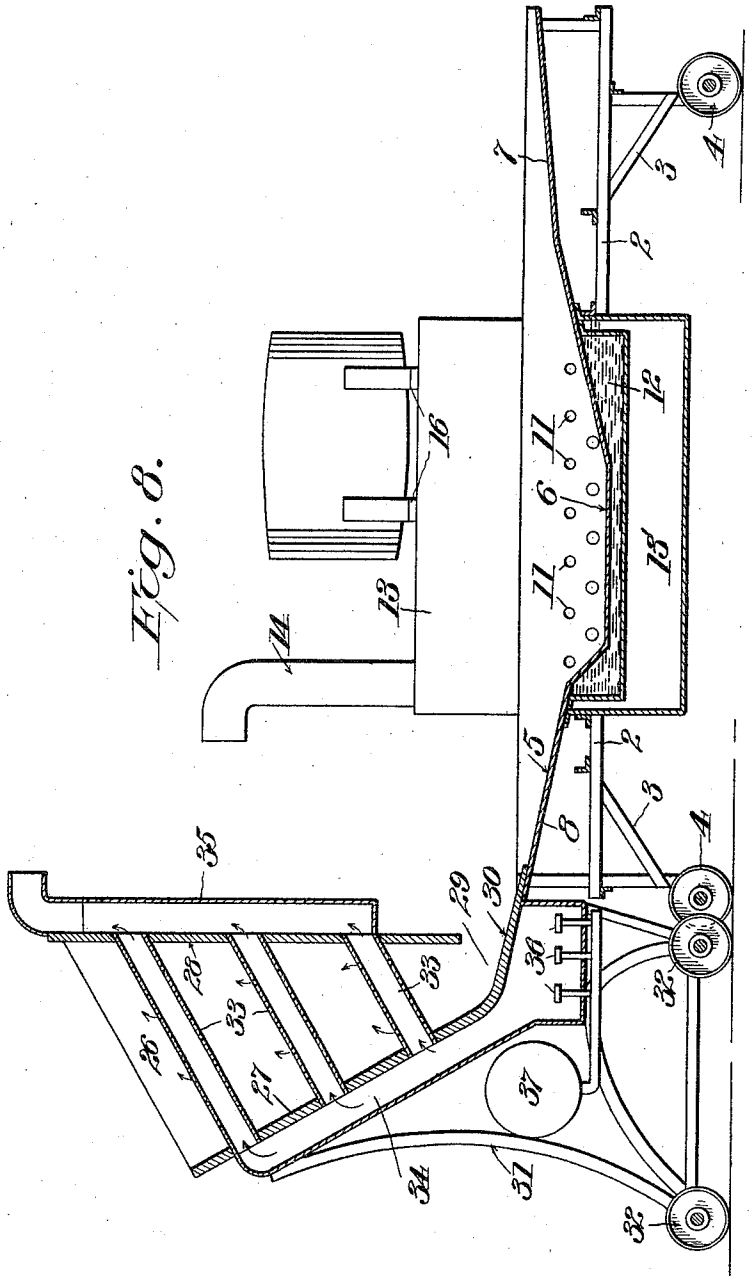
MACHINE FOR COATING OR MIXING MINERAL AGGREGATE WITH BITUMINOUS MATERIAL.

APPLICATION FILED FEB. 23, 1910.

1,019,522. Patented Mar. 5, 1912.

3 SHEETS—SHEET 3.

Fig. 8.



WITNESSES

C. M. Walker.

Grace P. Brereton

INVENTOR

Charles P. Price

By Stinchfield & Fraser

Attorneys

UNITED STATES PATENT OFFICE.

CHARLES P. PRICE, OF MALDEN, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO BITUMINOUS ROAD IMPLEMENT COMPANY, A CORPORATION OF MASSACHUSETTS.

MACHINE FOR COATING OR MIXING MINERAL AGGREGATE WITH BITUMINOUS MATERIAL.

1,019,522. Specification of Letters Patent. Patented Mar. 5, 1912.

Application filed February 23, 1910. Serial No. 545,395.

To all whom it may concern:

Be it known that I, CHARLES P. PRICE, a citizen of the United States, residing at Malden, in the county of Middlesex, State of Massachusetts, have invented certain new and useful Improvements in Machines for Coating or Mixing Mineral Aggregate with Bituminous Material, of which the following is a description, reference being had to the accompanying drawing and to the letters and figures of reference marked thereon.

The invention relates to new and useful improvements in machines for coating or mixing mineral aggregate with bituminous material.

An object of the invention is to provide a machine wherein mineral aggregate may be passed through the machine, and coated or thoroughly mixed with a bituminous material, which bituminous material is heated so as to properly flow over the particles of the mineral aggregate so that said particles may be thoroughly coated.

A further object of the invention is to provide a machine of the above character wherein a platform serves as a support for the mineral aggregate, and a tank extends up the sides of said platform and underneath the same, which tank is adapted to contain the bituminous material for coacting the mineral aggregate and to provide means for heating said tank and also passages from the tank to the platform so that a small quantity of the liquid bituminous material may flow through said passages on to the mineral aggregate as it is moved over the platform.

A further object of the invention is to provide a machine of the above character with a main tank for supplying the auxiliary tank with the bituminous material which main tank is so disposed relative to the heating chamber that the bituminous material therein is liquefied.

A further object of the invention is to provide a device wherein a mineral aggregate may be coated successively with two different bituminous materials.

A further object of the invention is to provide means for heating the mineral aggregate and for coating the same with bituminous material, while in heated condition.

These and other objects will in part be obvious and will in part be hereinafter more fully described.

In the drawings which show by way of illustration one embodiment of the invention; Figure 1 is a longitudinal sectional view through my coating device. Fig. 2 is a top plan view of the same. Fig. 3 is a transverse sectional view; Fig. 4 is a detail showing the manner of closing the openings leading from the tank to the platform. Fig. 5 is a detail in perspective showing a modified form of supply tank, the tank being detached from the device for the sake of clearness. Fig. 6 is a detail showing a modified form of controlling valve. Fig. 7 is a longitudinal section through my device showing a modified form wherein two coating materials may be used. Fig. 8 is a longitudinal section through my coating device, and also through a heating device for the mineral aggregate which may be used in connection with the coating device.

In carrying out my invention, I have provided a platform 1 which is supported by a framework 2, mounted on brackets 3 which carry supporting wheels 4. Said platform 1 is herein shown as an inclined receiving portion or table 5, a central depressed portion 6, and an inclined portion 7 on to which the material may be drawn after it is coated. The outer end 8 of the inclined portion 7 is preferably of such height that the material may be readily drawn by means of hoes or rakes, into a wheel barrow so that the material may be conveyed to the place where it is desired to be used.

The platform 1 is provided with side portions 9 and 10 which are substantially parallel with each other. Each of the side portions has a series of openings 11 which as shown in Figs. 1 and 3 are arranged in two horizontal rows. A tank 12 extends underneath the platform, and up each side of the same as clearly shown in Fig. 3. The tank 12 as herein shown, is open at its upper end. Underneath the tank 12 is a heating chamber 13. Said heating chamber 13 may be heated in any desired way by building a fire therein or by using a hydrocarbon burner and a suitable supply tank.

The particular manner of heating the tank 12 forms no part of the present invention, and will not be further described.

When the auxiliary tank 12 is supplied with bituminous material, the same will be heated from the heat chamber 13 and if said tank is filled with the material above the openings 11, then the material will run through said openings and down the sides 9 and 10 of the platform.

In operating my device, the mineral aggregate to be coated is placed on the inclined portion 5 of the platform and is moved along by means of a hoe, rake or the like, through the depressed central portion 6 and up on to the inclined portion 7. The heated bituminous material in the auxiliary tank 12 gradually flows through the openings 11 and the mineral aggregate may be thoroughly mixed or coated by said bituminous material.

The mineral aggregate may if desired, be moved along the sides of the platform, so as to come more thoroughly in contact with the bituminous material. The heated chamber 13 will not only serve as a means for heating the auxiliary tank 12, but the platform 1 will also be heated so that the mineral aggregate as it is moved along the platform, will be heated sufficiently to receive a proper coating of the bituminous material. It is sometimes desirable to vary the height of the opening or passage between the tank and platform, and therefore, I have provided two rows of holes for openings 11, but when the upper holes are used, then the lower row of holes will be closed by means of bolts or washers such as shown in Fig. 4.

While I have shown the openings as formed in the sides of the platform for allowing the bituminous material to pass to the platform, it is obvious that other means may be provided for delivering the bituminous material on to the mineral aggregate as it is conveyed over the platform.

While I have shown my platform so constructed that the material being coated is conveyed by hand along the platform, it is obvious that mechanical means may be provided for conveying the material over the platform. The essential features of my invention consist in the platform over which the material may be moved, and the means for gradually feeding the bituminous material to the mineral aggregate as it is moved along the platform.

In order to supply the auxiliary tank 12 with the bituminous material, I have constructed a main tank 13′. Said main tank 13 is located on the supporting frame 2 of the device and at one side of the auxiliary tank 12. The heat chamber 13 extends underneath the main tank 13′, and the stack 14 for the heat chamber, passes up through said main tank. The heat chamber will therefore afford means for liquefying the bituminous material in the main tank.

A valve 15 is provided for controlling the flow of liquid from the main tank to the auxiliary tank. The top 16 of the tank 13′ may also serve as a storage for the bituminous material in the barrels in which it is shipped, and said bituminous material in the barrels will be heated sufficiently so as to be quickly emptied into the main tank 13′ when desired. In Fig. 5, I have shown a main tank 17, which is open at the top and provided with a series of graduations 18 by which the number of gallons in the main tank 17 may be determined.

When it is desired to coat a given quantity of bituminous material, the measuring tank 17 affords a means for determining the amount of bituminous material in the auxiliary tank 12. In Fig. 5, I have shown the measuring tank 17 provided with the ordinary stop cock 19, while in Fig. 6 I have shown a slide 20 for closing the opening from the measuring tank, which slide extends above the top of the tank so that the same may be more readily operated.

It is sometimes desirable to apply two coats of bituminous material of different kinds or grades to the mineral aggregate, and in order that this may be accomplished, I have shown in Fig. 7 my platform 1, provided with two depressions 21 and 22. I have also shown the auxiliary tank as divided by a partition 23 into two separate tanks 24 and 25.

A bituminous material of one kind or grade may be placed in the tank 24 and a bituminous material of a different kind or grade placed in the tank 25. The openings will deliver the bituminous materials to the mineral aggregate as it is drawn along the platform and said mineral aggregate will be provided with one coating and then with another on top of the first coating.

It is sometimes desirable to heat the broken stone or aggregate in order to facilitate the coating of the same with the bituminous material and in order that this may be quickly accomplished, I have provided a heating device shown in Fig. 8. Said heating device consists of a hopper 26, which is formed with inclined sides 27, 28. The inclined sides 27 and 28, approach each other at the lower end of the device, so as to form a contracted delivering opening 29.

The side 27 is bent at 30 so as to form a supporting shelf and the material in the hopper is retained on the shelf 30 by the vertical side 28 of the hopper. The material may be quickly removed from the hopper by means of a shovel or the like. Said hopper 26 is mounted on a frame 31, which is supported by wheels 32 so that the heated device may be readily moved from one place to another. The frame 31 is preferably so

constructed that the outer end of the shelf 30 will engage over the extreme outer end 8 of the platform 1 of the coating device, so that the material may be drawn from the hopper directly on to the platform 1 and through the coating portion thereof.

The hopper 26 has a plurality of perforated pipes 33, which extend transversely across the hopper as clearly shown in Fig. 8. A heating chamber 34 is connected with the pipes adjacent the wall 27 of the hopper, and a stack 35 connects with the other end of the pipes. The chamber 34 may be heated in any desired way, but as herein shown, I have provided a plurality of heating jets 36 which are supplied from the tank 37. As the heat from the chamber passes through the perforated pipes 33, it will pass out through the perforations therein, and come in contact with the broken stone or mineral aggregate in the hopper, thus thoroughly heating the same.

The heating device herein shown forms no part of the present invention *per se*, but is shown, described and claimed in my copending application patented July 25th, 1911, No. 998,984.

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

1. A machine for coating mineral aggregate with bituminous material, including in combination, a platform and side portions, said side portions having openings therein at a distance above the platform, a tank having connections with said openings, and means for heating the tank.

2. A machine for coating mineral aggregate with bituminous material including in combination, a platform having an inclined receiving portion, an inclined delivering portion, and a central depressed portion, side portions connected to said platform and having openings therein at a distance above the platform, a tank having connections with said side portions, and means for heating said tank.

3. A machine for coating mineral aggregate with bituminous material including in combination, a platform having an inclined receiving portion, an inclined delivering portion and a central depressed portion, side portions connected to said platform and having openings therein at a distance above the platform, a tank extending underneath the platform and along the sides thereof, and having connections with said openings, and a heating chamber underneath the tank.

4. A machine for coating mineral aggregate with bituminous material, including in combination a platform, a frame on which the platform is mounted, wheels attached to said frame, said platform having a central depressed portion, side portions carried by the platform, and a tank located adjacent the central depressed portion, said side portions having passages leading to the tank.

5. A machine for coating mineral aggregate with bituminous material, including in combination a platform, a frame on which the platform is mounted, wheels attached to said frame, said platform having a central depressed portion, side portions carried by the platform, a tank located adjacent the central depressed portion, said side portions having passages leading to the tank, and means for heating the tank and platform.

6. A machine for coating mineral aggregate with bituminous material including in combination, a platform, side portions connected to said platform, a tank located adjacent said side portions, openings formed in said side portions leading to said tank, said openings being at a distance above the platform, and means for heating said tank and platform.

7. A machine for coating mineral aggregate with bituminous material including in combination, a platform, side portions connected to said platform, a tank extending along said side portions, said side portions having a plurality of rows of openings extending therethrough and leading to the tank, and means for closing one of said sets of openings.

8. A machine for coating mineral aggregate with bituminous material including in combination, a platform having a central depressed portion, side portions connected to said platform, a tank extending alongside of said side portions, said side portions having openings leading to the tank, a main supply tank having graduations, whereby the amount of material supplied to the first named tank adjacent the platform may be measured.

9. A machine for coating mineral aggregate with bituminous material including in combination, a platform having a central depressed portion, side portions connected to said platform, a tank extending alongside of said side portions, said side portions having openings leading to the tank, a main supply tank having graduations, whereby the amount of material supplied to the first named tank adjacent the platform may be measured, and a heating chamber extending underneath the platform and the main supply tank.

10. A machine for coating mineral aggregate with bituminous material including in combination, a platform having a central depressed portion, side portions connected to said platform, a tank extending alongside said side portions, said side portions having openings leading to the tank, a main supply tank having graduations, whereby the amount of material supplied to the first named tank adjacent the platform may be measured, and a slide valve for controlling

the flow of the measuring tank to the tank adjacent the platform, said slide valve extending to the upper side of the measuring tank.

11. A machine for coating mineral aggregate with bituminous material including in combination, a platform having a plurality of depressed sections, side portions connected to said platform and having openings extending therethrough, and independent tanks for feeding different grades of bituminous material through the openings to the respective depressed sections of the platform.

12. A machine for coating mineral aggregate with bituminous material including in combination, a platform having a plurality of depressed sections, side portions connected to said platform and having openings extending therethrough, independent tanks for feeding different grades of bituminous material through the openings to the respective depressed sections, and means for heating said tanks.

13. A machine for coating mineral aggregate with bituminous material including in combination, a platform having two adjacent depressed sections, side portions connected to said platform, a frame supporting said platform, wheels on which said frame is mounted, a tank extending underneath said platform and along the sides thereof, a partition extending through said tank intermediate the depressed section of the platform, openings leading from the two sections of the tank through the side portions of the platform, and a heating chamber extending underneath said tank.

In testimony whereof I affix my signature, in presence of two witnesses.

CHARLES P. PRICE.

Witnesses:
E. H. PARKINS,
E. G. MASON.