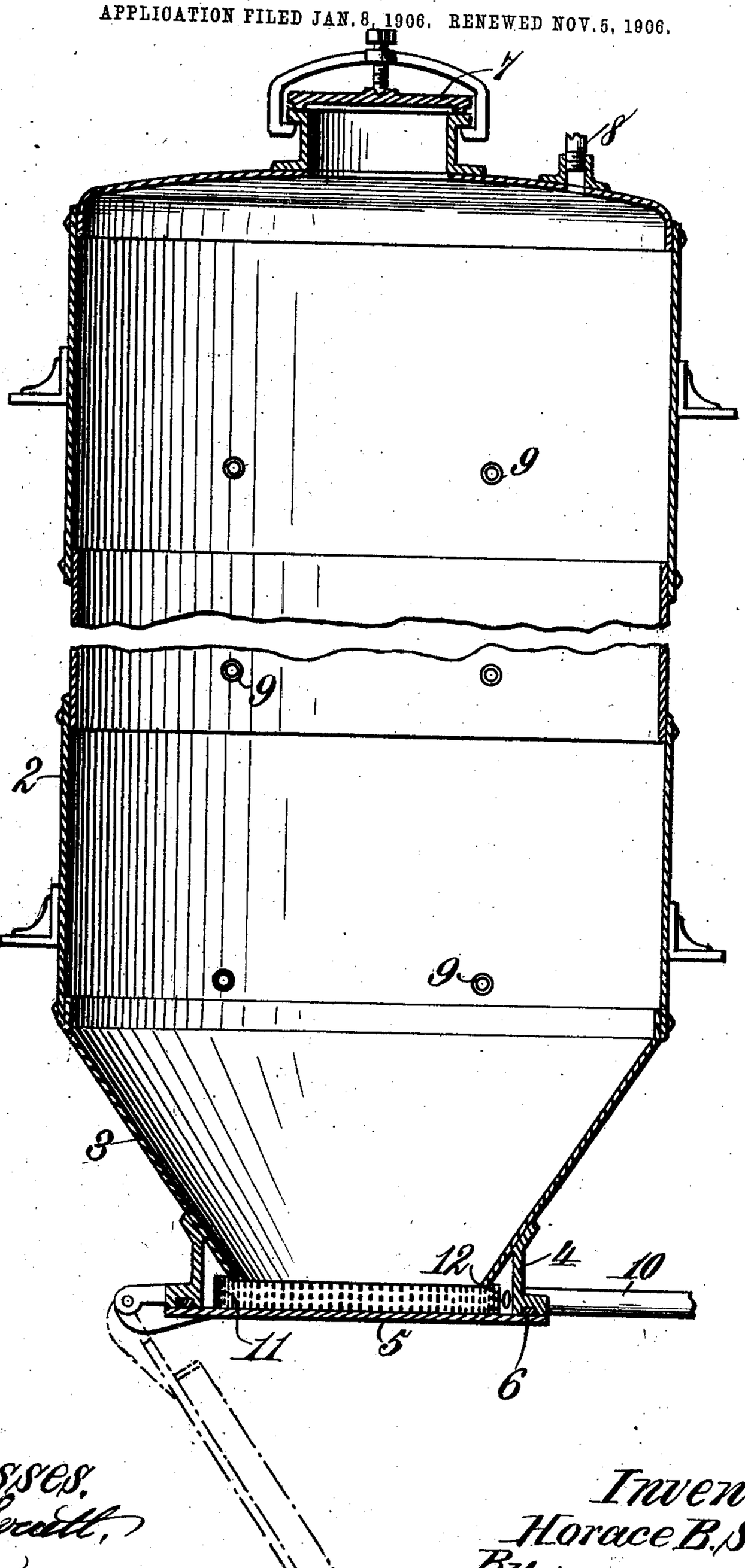
No. 840,391. PATENTED JAN. 1, 1907.

H. B. SNELL.

CHEMICAL APPARATUS.

APPLICATION FILED JAN. 8, 1906. RENEWED NOV. 5, 1906.



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UNITED STATES PATENT OFFICE.

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CHEMICAL APPARATUS.

No. 840,391. Specification of Letters Patent. Patented Jan. 1, 1907.

Application filed January 8, 1906. Renewed November 5, 1906. Serial No. 342,134.

To all whom it may concern:

Be it known that I, HORACE B. SNELL, a citizen of the United States, residing at Jacksonville, in the county of Duval and State of Florida, have invented new and useful Improvements in Chemical Apparatus, of which the following is a specification.

This invention relates to chemical apparatus.

The apparatus may be used with advantage in many different ways. For example, wood substantially in the form of sawdust may be delivered into the vessel of the apparatus, and steam may also be delivered in said apparatus for the purpose of extracting oils and other matters from such wood, the oil thus extracted being subsequently treated, as by distillation.

One of the principal features of the invention is the production of a simple and effective means for preventing the material in the vessel being blown therefrom during the steaming or other treatment thereof.

In the drawing accompanying and forming part of this specification I illustrate, in vertical central sectional elevation, an apparatus embodying my invention, which, to enable those skilled in the art to practice said invention, I will fully set forth in the following description, while the novelty of the invention will be included in the claims succeeding said description.

The apparatus shown in the drawing includes in its make-up a vessel or tank, as 2, the lower portion of which tapers inward, as at 3. I have shown as surrounding the tapered portion 3 of the vessel or tank 2 a ring, as 4, constituting a part of the vessel or tank and through which the mass of material after treatment in the tank is discharged.

Any suitable door may be provided for controlling the discharge of material from the vessel or tank 2. The door shown is designated by 5 and is of the drop-down type, it being hinged exteriorly of the ring 4 near the lower edge of the latter. When the door is closed, it stands horizontally, or substantially so. When, however, it is opened to its full extent, it assumes a steep pitch, so as to uncover to the greatest possible extent the discharge-opening of the vessel, which, as will be understood, is formed by the ring 4. The ring is vertically disposed, and in its under edge, which is laterally widened, is set an annular packing or gasket, as 6, of rubber or other suitable material and against which the door when shut fits, so that during such relation a steam-tight joint between the door and the tank or vessel is assured. Any desirable means may be provided for holding the door shut.

The charging-opening in the top of the vessel is closed by a removable lid or cover, as 7, held in place during the treatment of material in the vessel in some steam-tight manner. As this particular feature forms in itself no part of the invention, I deem it unnecessary to describe the same in detail.

Into the top of the vessel a steam-admission pipe, as 8, may lead, while I may connect with the body of the vessel at different levels other pipes, as 9, for the admission of steam, the construction being such that the steam will be delivered downwardly through the mass in the receptacle, and should the mass be sawdust the downwardly-directed steam will extract the oils from the sawdust, the steam laden with the oils being received by a discharge-pipe, as 10, opening into the interior of the vessel through the ring 4. I may, as common in the art, open up by suitable agitating means paths for the steam, so as to assure the steam reaching every particle of the mass.

I have shown as extending perpendicular from the upper or inner side of the door an annular flange, as 11, which is provided with a multiplicity of perforations or holes for the passage of steam, but not sufficiently large for the passage therethrough of the particles of the material being treated in the tank or vessel 2. The flange 11, therefore, permits free egress of the steam mixed with oils or other liquid material from the tank by way of the discharge-pipe 10, but prevents the solid material from being blown into said pipe. The lower end of the tapered portion of the vessel has a flange, as 12, which extends into the space defined by the flange 11, the latter being separated from the ring 4. The flange 12, therefore, prevents material in the vessel or tank from passing into the space between the flange 11 and ring 4.

What I claim is—

1. In an apparatus of the class described, a tank, a door for the tank, having an annular perforated flange, said flange when the door is closed being separated from the tank, a discharge-pipe leading from the tank, the perforated flange serving to permit steam to enter the pipe but preventing solid matter from being blown thereinto, and means upon

the tank for preventing solid matter in the vessel from entering the space between the flange and tank.

2. In an apparatus of the class described, a tank having an inwardly-tapered portion, a door for the tank having an annular perforated flange, said flange when the door is closed being separated from the tank, the inwardly-tapered portion of the tank being flanged to extend into the space defined by the flange, and a discharge-pipe leading from the tank substantially in horizontal line with the flange.

3. In an apparatus of the class described, a tank having an inwardly-tapered lower portion, a vertically-disposed ring fastened to and depending from the tapered portion, a door hinged to the ring and having a perforated flange to be located within and to be separated from the ring, the inwardly-tapered portion of the vessel having a flange to extend in the space defined by the perforated flange, and a discharge-pipe for the tank leading from said ring.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HORACE B. SNELL.

Witnesses:
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