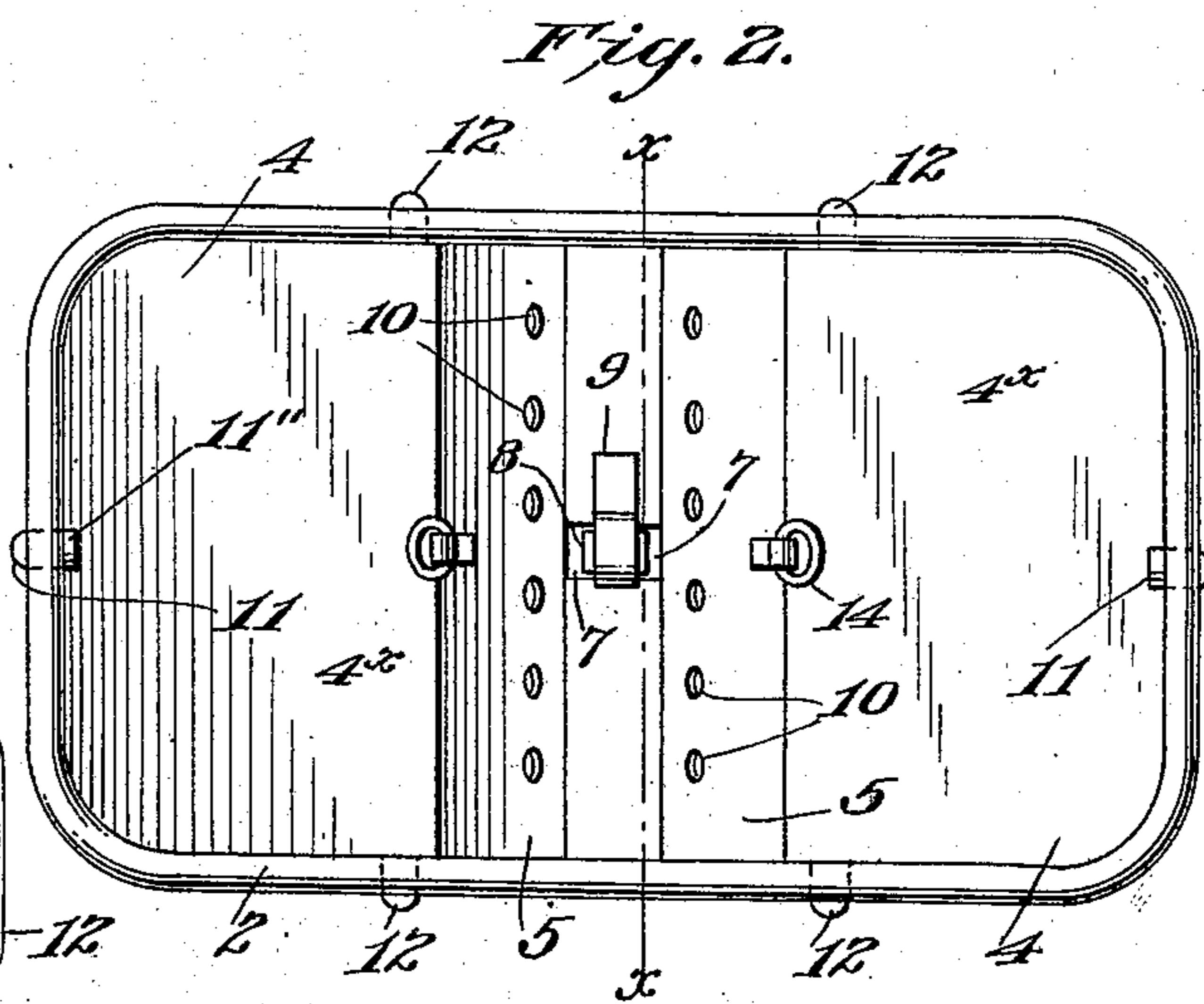
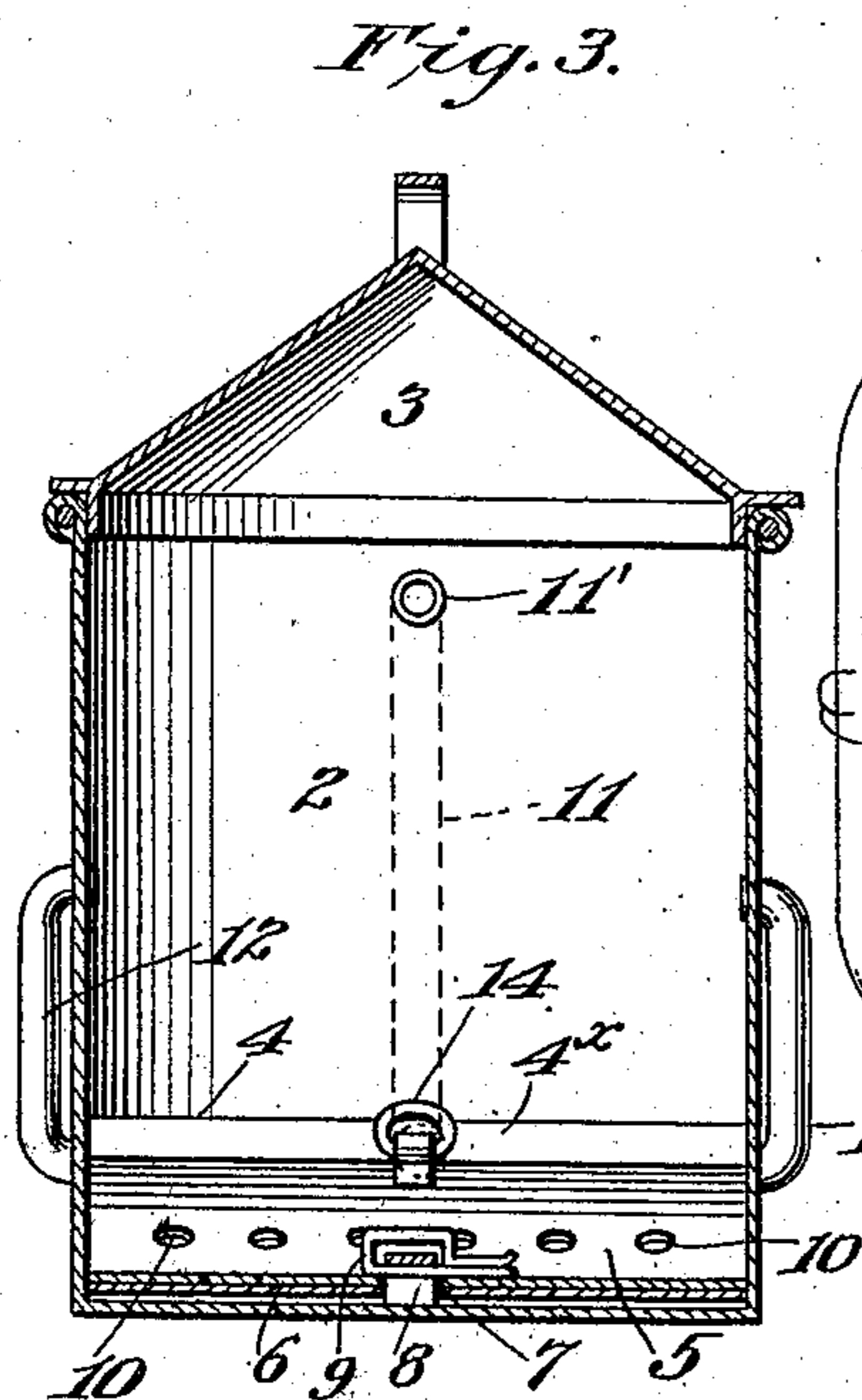
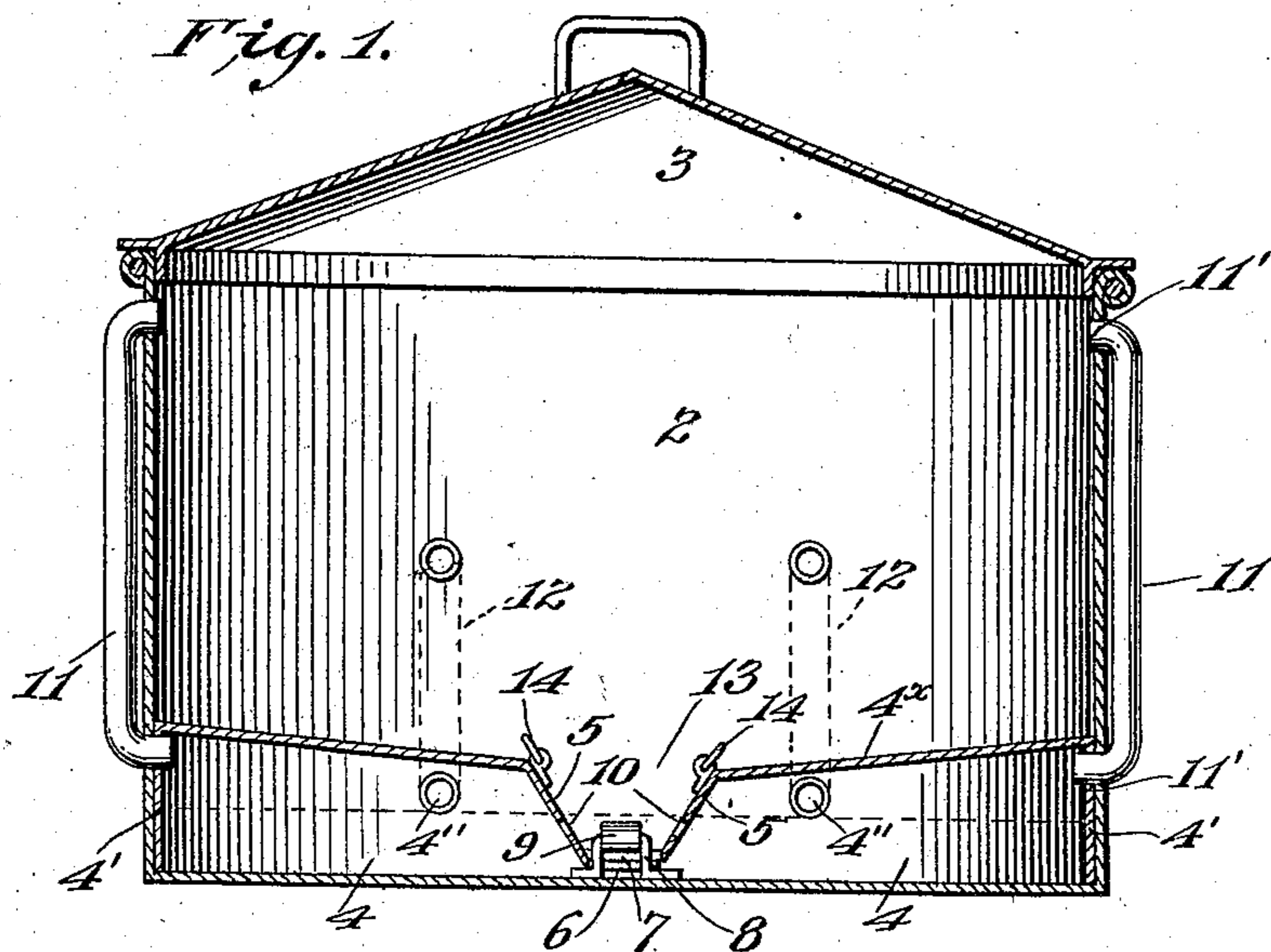


W. B. GROVER.
CLOTHES STEAMER.
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915,763.

Patented Mar. 23, 1909.



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UNITED STATES PATENT OFFICE.

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CLOTHES-STEAMER.

No. 915,763.

Specification of Letters Patent.

Patented March 23, 1909.

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To all whom it may concern:

Be it known that I, WILLIAM B. GROVER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Clothes-Steamers, of which the following is a specification.

This invention relates to clothes steamers or washing apparatus, and particularly to a device of this kind wherein the steam is generated within the receptacle and forced through the clothes contained therein.

The main object of my invention is to provide a clothes washing device wherein the clothes shall be subjected to the action of steam, steam being the most powerful cleansing agent known, the steam circulating within the boiler in such manner that it will thoroughly permeate the clothes, loosening and removing the dirt and carrying it to the bottom of the boiler.

Another object attained by my device is the deposition of the dirt at the bottom of the receptacle and the constant provision of pure clean water in the form of steam conducted to different portions of the boiler and into contact with the clothes.

Still another feature of the device consists in means for carrying the steam direct from the generator to the middle layers as well as the upper layers of the clothes, whereby the clothes receive a more thorough and uniform treatment and the clean steam, direct from the generator, is more thoroughly distributed.

Another feature is the provision of two independent steam generating compartments or casings, removable from the receptacle whereby they and the bottom of the boiler or receptacle may be kept entirely clean.

This construction further results in the provision of a water collecting trough into which the water of condensation flows, carrying with it the dirt washed out from the clothes, the trough preventing the clothes from contact with the dirty water.

A still further object is to prevent the generating chambers from being forced up by the pressure of steam beneath.

My invention consists in the arrangement of parts and details of construction set forth in the accompanying specification and particularly specified in the claims appended.

My improved steamer or washer is shown in the accompanying drawings wherein—

Figure 1, is a longitudinal vertical section. Fig. 2, is a top view with the cover removed. Fig. 3, is a transverse vertical section on line $x-x$ of Fig. 2.

My improved steam washer consists of a receptacle 2 preferably oblong in plan and having the general exterior shape of an ordinary wash boiler. This receptacle is provided with a removable cover 3.

Supported on the bottom of the boiler are two boxes constituting generating chambers 4—4. These entirely cover the bottom of the receptacle 2, are each open at the bottom and have the downwardly extending sides 4' which fit closely against the side of the receptacle, and the slightly inclined top plates 4^x to be hereafter referred to. The ends of the generating chambers which confront each other are inclined downwardly reversely to each other as at 5, and the lower edges of the inclined ends are flanged outward as at 6 and fit one upon the other, see Fig. 1.

In order that the generating chambers may be locked to the bottom of the boiler I slot or cut away the flanges 6 at 7. To the bottom of the boiler is attached a staple or U-shaped metal piece 8 which is so located as to project up through the slots 7 when the chambers 4 are in their proper position in the receptacle.

A spring clip 9 is put through the staple as shown and holds the confronting ends of the chambers 4 solidly in place. This clip however is easily removed and then the chambers 4 may be quickly detached from the receptacle 2. Of course it will be understood that I may use other means of attaching the forward ends of the generating chambers to the bottom of the receptacle if desired.

The inclined ends of the chambers are each provided with a series of perforations 10 located toward the bottom of the chambers whereby the condensed water accumulating beneath the clothes may find its way back into the chamber for revaporization. The sides 4' of the chamber 4 are formed with openings into which project the steam pipes 11 and 12 now to be described.

My aim is to carry the generated steam not up through the clothes, but downward through them, and to this end the steam must be conducted to the upper part of the boiler or that portion lying above the generating chambers and then returned. I provide for this purpose opposed end pipes 11, whose lower ends project into the lower end of the boiler or receptacle and engage with

the adjacent generating chamber by a slip joint as at 11', and pipes 12 later referred to.

The pipes 11 are located outside the boiler shell and extend upward to the upper end of the casing where they enter the casing as at 11". While these pipes might be made detachable from the receptacle 2 so that they can be drawn out therefrom, I prefer that they shall be fixed permanently in place.

In order to carry steam to intermediate layers of clothes, I provide the pipes 12 which are of the same character as pipes 11 except that they do not extend up to the top of the receptacle 2, but into the middle portion thereof, and also that if fixed in place they do not project through the wall of the receptacle and engage with the side openings 4" of the generating chambers, therefore do not interfere with the easy removal of these chambers. The ends 11' of the pipes 11 project through the rear walls of the generating chambers. In connection with the overlapping flange 6 and the locking members 7 and 8, they securely hold the generating chambers against the upward pressure of steam, thus preventing all escape of steam and forcing the steam to flow up pipes 11 and 12.

While I have shown the end pipes 11 as extending to the upper portion of the boiler and the pipe 12 to the middle portion, I of course wish it understood that this arrangement might be reversed and also that I may use any number of end pipes or side pipes desired and am not limited to the numbers shown.

It will be seen from Fig. 1 that the steam openings of the chambers are placed in the upper portion of the chambers 4 while the openings 10 are relatively lower, thus the steam openings are above the water level in the generating chambers (shown by the dotted line), while openings 10 are below. It will also be seen from this figure that the top plates 4^x of the chambers 4 are slightly inclined from the rear to the end 5 and that thus any water dropping upon the top of the chamber will be conducted to the central collecting trough 13 formed by the inclined ends 5 from which it will pass into the chambers through the openings 10 in said ends. Rings 14 are attached to the chamber so that they may be easily lifted and removed from the receptacle. It will be obvious the device may be modified in many ways without departing from the spirit of my invention and I do not wish to limit myself therefore to the details of construction which are shown.

In operation enough water is placed within the receptacle 2 to raise the level to a point just below the steam openings. This water is raised to a boiling point and soap is shredded into the same so that the soap will be thoroughly dissolved. The clothes having been previously thoroughly saturated with water so that they will not absorb the water

already in the boiler, or the water which is formed by the condensation of the steam, are placed in the receptacle and the lid closed. The boiler is then heated until steam is generated in the chambers 4, this steam being gradually forced by the steam behind through the steam tubes 11 and 12 and up into the upper and middle portions of the boiler. Steam must come through these tubes and not hot water. This is particularly essential where clothes are very much soiled and is fully attained by my construction. This steam passes up through the tubes, comes into contact with the upper and middle portions of the clothes loosening the dirt therein, passes down and finally becomes condensed upon the upper surface 4" of the chambers, and then runs downward to the trough 13 carrying the dirt, grease, etc. with it in the lowest part of the boiler. It will also be seen that the lower portion of the trough 13 forms in a way a dirt trap as the water of condensation will be retained somewhat in this trough, and the dirt will sink, while the surface water will flow inward through openings 10 into the generating chambers. It will also be seen that the clothes will not come in contact with the dirt or other matter collected in trough 13 or in the generating chambers, but that they can only be acted upon by live steam or by the condensed water. It will be seen that steam will circulate constantly through the clothes until the temperature is sufficiently reduced to condense the steam into water, and it will also be seen that the amount of water in the lower portion of the generating chambers or boilers will be constantly replenished by the condensation of the steam. The clothes are not usually submitted to the steaming action once, but the steam is constantly passing upward into the receptacle, downward through the clothes, being condensed and the water thereof once more being vaporized.

My improved clothes washer is particularly effective in use. It requires no rubbing or other manual treatment of the clothes, the clothes are not subjected to wear and tear and yet the steam with the soap dissolved in the water will absolutely clean the clothes whether they are composed of coarse fabric or of the finest laces.

My construction is simple, cannot get out of order, can be easily cleaned in every part and is extremely effective. It provides for retaining the dirt passing from the clothes, so that only clean steam is used as the cleansing agent; it provides for a proper distribution of steam; and it prevents the generating chambers from being forced up by the steam pressure, and the steam circulated in the wrong direction and ineffectively. A minor though very important advantage lies in the fact that the generating chambers are open so entirely when removed from the boiler

that they can be kept perfectly clean, and the dirt in the bottom of the boiler easily removed.

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

1. A clothes steamer, comprising a receptacle for clothes, opposed boxes serving as steam generating chambers supported on the bottom of the receptacle, with their confronting ends reversely inclined to each other to form a water collecting trough between the chambers, said confronting ends having apertures leading into the steam generating chambers, and pipes on the outside of the receptacle directing the steam from the upper part of the boxes upwardly into the receptacle at varying heights.

2. In a clothes steamer, a receptacle for the clothes having a cover, two oppositely disposed open bottomed boxes forming steam generating chambers removably arranged on the bottom of said receptacle, and together entirely covering the bottom thereof, the confronting ends of said boxes being reversely inclined to each other and provided with inlet apertures on their inclined faces, pipes outside of the receptacle and connecting the upper portions of the said boxes with the space in the receptacle above the boxes.

3. A clothes steamer comprising a receptacle for the clothes, two oppositely disposed open-bottomed boxes forming steam generating chambers having sides fitting against the sides of said receptacle and removably arranged on the bottom of said receptacle, pipes leading from the upper portion of the receptacle down into the lower portion of the receptacle, the ends of said pipes projecting into and through the walls of the boxes, the confronting ends of said boxes being reversely inclined to form a water collecting trough and provided with inlet apertures in said inclined faces, the lower edges of the inclined faces being provided with outwardly projecting flanges adapted to rest one upon the other, both of said flanges being slotted, a locking device attached to the bottom of the receptacle and projecting up through said slots, and a clip adapted to engage with the locking device to hold the confronting ends of the boxes in place.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM B. GROVER.

Witnesses:

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