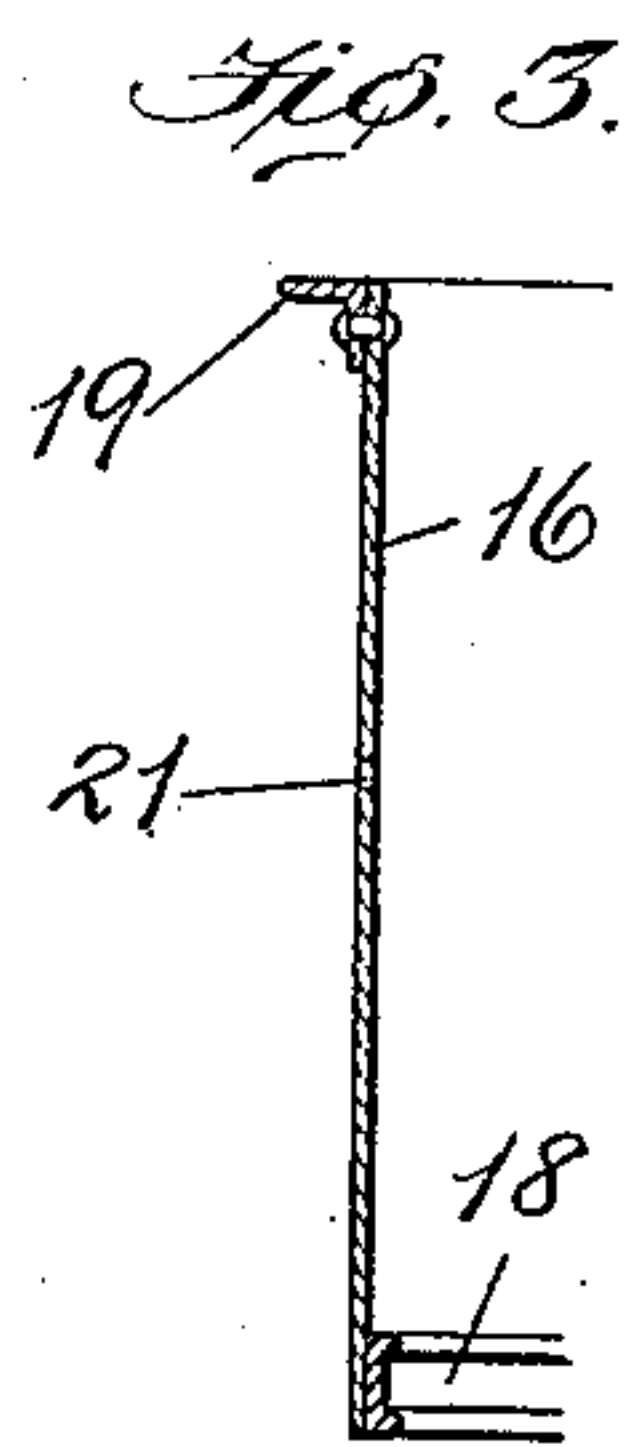
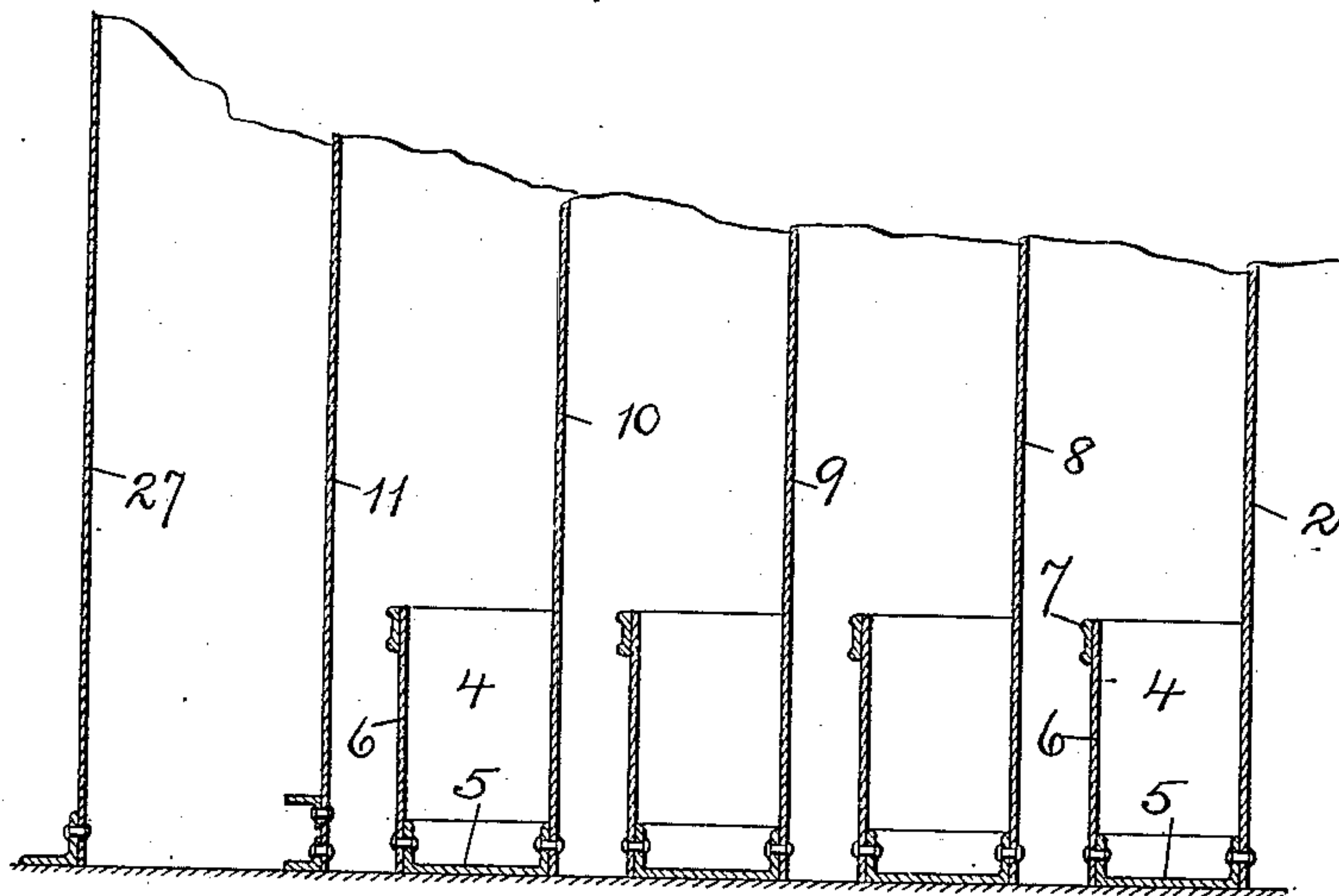
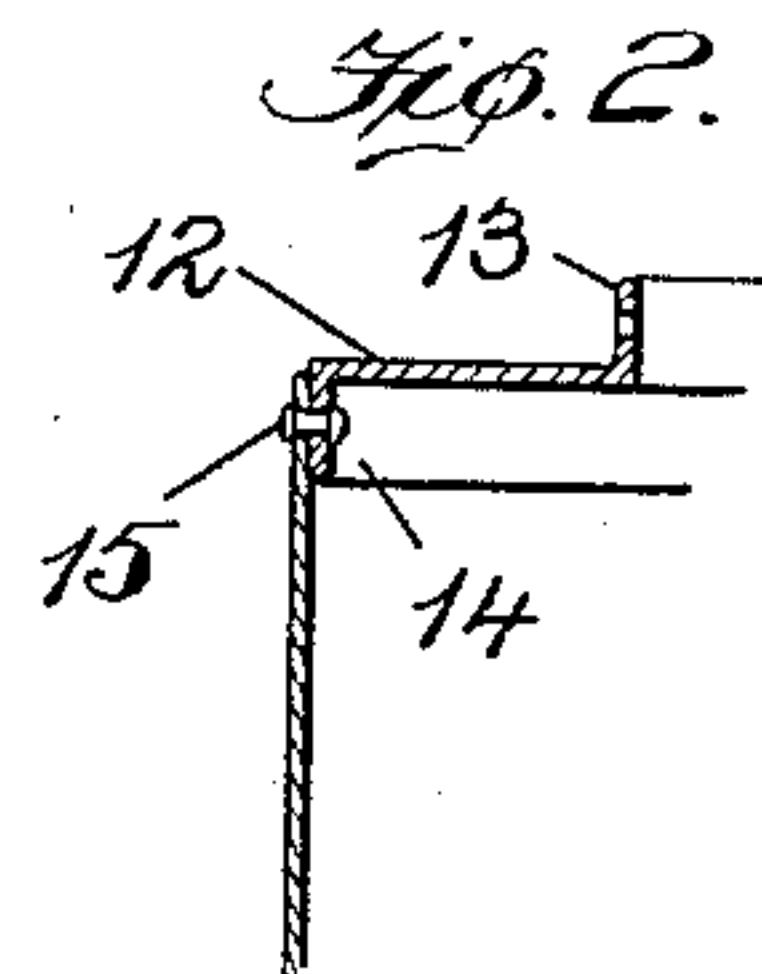
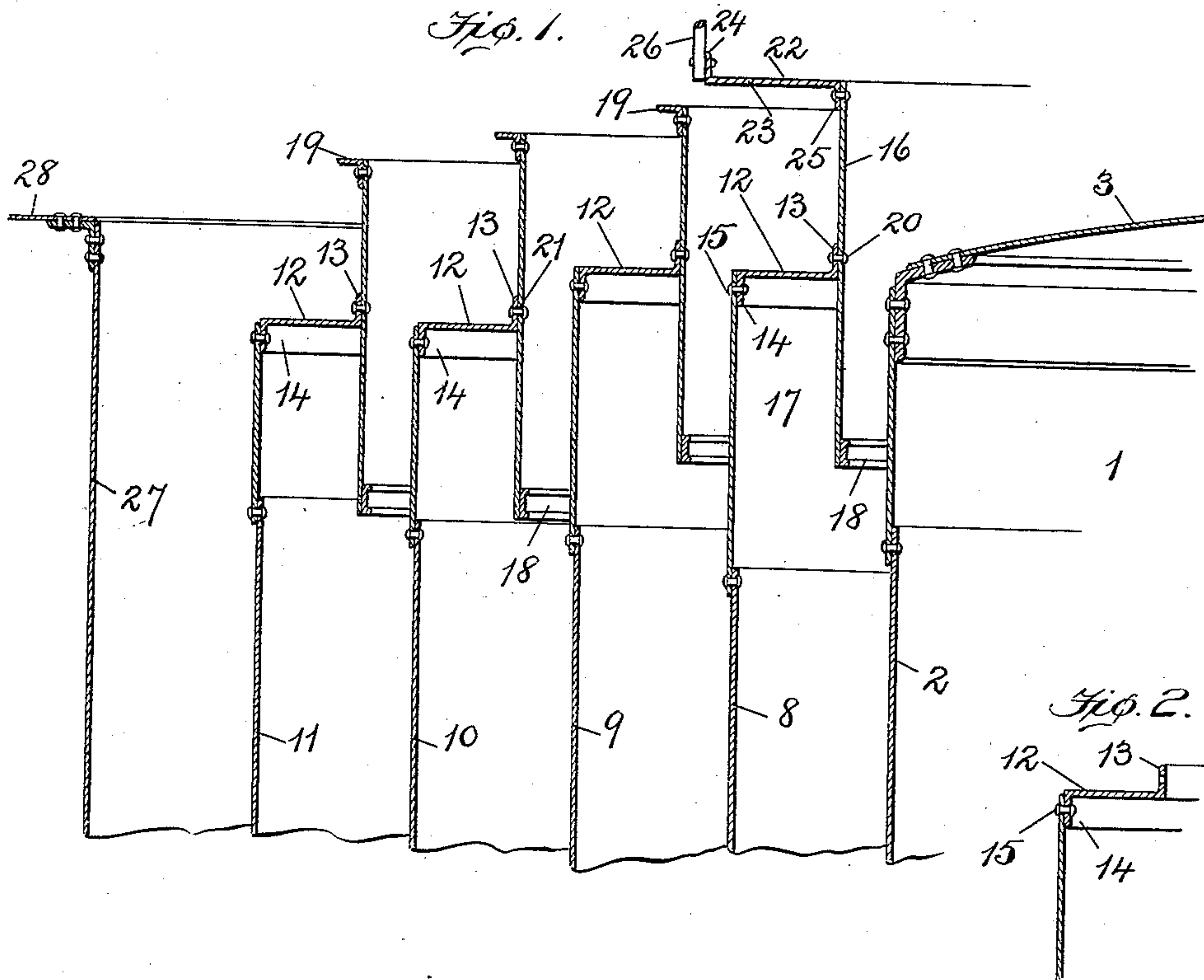


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GAS HOLDER.  
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917,687.

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# UNITED STATES PATENT OFFICE.

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## GAS-HOLDER.

No. 917,687.

Specification of Letters Patent.

Patented April 6, 1909.

Application filed January 20, 1909. Serial No. 473,240.

*To all whom it may concern:*

Be it known that I, FREDERICK H. WAGNER, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Gas-Holders, of which the following is a specification.

This invention relates to improvements in the construction of gas-holders and particularly to that class of gas-holders having a plurality of telescoping cylinders or lifts.

In the construction of the plural lift gas-holders the lower end of the inner lifts and the upper end of the surrounding lift are provided with oppositely-disposed annular co-acting cups. The cups on the lower ends of the inner lifts or cylinders forming annular receptacles for liquid, such as water, into which the inverted cups at the lower ends of the surrounding lifts project so as to effect a liquid seal to prevent the gas from escaping.

The liquid seal feature is common, and is in use to a very great extent, but the construction of the annular cups and the fact that the holders are very large in diameter has heretofore been the source of great inconvenience accompanied by necessarily heavy expense,—the construction of the cups being such that the riveting of the cup-parts could not be effected from the outside which necessitated labor expense of blocking up of sections and the use of expensive lowering devices.

One object therefore of the present invention is to provide an improved construction of liquid seal cups for gas-holders that may be readily placed and secured in position in the field, instead of in the shop as heretofore thus facilitating the handling in the shop, in transportation and in the field.

Another object is to provide an improved construction of liquid-seal cup for gas-holders that will enable the riveting and calking of all seams from the outside, and a further object is to provide an improved connection between the dip-sheet of the gas-holder cup and the vertical wall of the lift or cylinder.

With these and other objects in view, the invention is illustrated in the accompanying drawing in which,—

Figure 1, is a vertical cross-section through one side of a cylindrical gas-holder comprising a plurality of telescoping sec-

tions and shows the same provided with my improved construction of liquid-seal cup. Fig. 2, is a sectional detail through the end of one of the lifts and the connection to which the dip-sheet is to be secured, and Fig. 3 is a vertical section through one of the annular dip-sheets.

Referring to the drawing the numeral, 1, designates the tank comprising the vertical cylindrical wall, 2, and the dome or crown, 3, all of which may be of any suitable or well-known construction. At the lower end, the cylindrical wall of the tank is provided on its outer side with an upturned annular cup, 4, which in the present instance, comprises an annular U-shaped or channel plate, 5, and an annular vertical wall, 6, riveted thereto. A plate or bead, 7, may be provided at the upper edge of the wall, 6, for the obvious purpose of reinforcing or stiffening the same.

The tank as usual, is surrounded or encircled by the lifts or cylindrical sections of which, in the present instance, there are four in number and designated by the numerals, 8, 9, 10 and 11 respectively. Obviously the number of these lifts may vary and may be more or less than that shown without departing from the invention. As the construction of the several lifts, 8, 9 and 10, is alike a description of one of them is deemed sufficient. These lifts are composed of a series of plates which are lapped, calked and riveted together in the usual manner, so as to form vertical cylindrical shells. At the upper end, each lift carries a Z-shaped grip-bar or plate, 12, which has an annular or ring formation and which in the present instance extends horizontally at the inner side of the lift and toward the central tank. Each grip-bar is provided at its inner edge with an upturned flange, 13, while the outer edge thereof is also provided with a flange, 14. When the grip bar which is formed in sections, is completed it will thus be provided with an upturned flange at its edge having the smallest diameter and a down-turned flange at the edge of the greatest diameter. The down-turned flange, 14, at the outer edge of the grip bar seats against and is secured to the inner side and upper edge of the lift or cylinder by means of rivets, 15.

The dip-sheet, 16, which by projecting below the grip bar forms a cup, 17, is provided at its lower edge with a stiffening plate, 18,



and an angle plate, 19, for a similar purpose is provided at the upper edge of said dip sheet. These dip sheets are annular shells having a vertical position in the liquid spaces between the respective sections of the holder, and each is sustained by the upward-projecting annular flange, 13, at the inner edge of grip bar. As the upward-projecting grip-bar flange has position against the outer side of the dip sheets the joint between the two may be readily calked and secured together by rivets, 20, passing through perforations, 21, see Fig. 3. It will thus be seen that as the joint between the dip sheets and grip bar can be reached from the outside, this work may be done in the field and handling of the sections is very much simplified. By reference to Fig. 1 it will also be seen that the gallery usually provided in gas holders and indicated by the numeral, 22, may be formed by employing an annular Z-bar or plate 23, having an upturned flange, 24, at its outer edge, or the edge of its greatest diameter, while the inner edge or the edge of the smallest diameter is provided with a down turned flange, 25. Stanchions, 26, for sustaining the usual hand rail, not shown, are bolted to the up-turned flange, 24, while the down-turned flange, 25, is riveted or bolted to the upper edge of the dip sheet, 16. An outer cylindric shell, 27, encircles all the lifts and may be provided with the usual gallery, 28.

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

1. In a gas-holder the combination with the central movable tank having an outwardly-projecting sealing cup around the wall thereof, of a cylindrical lift section encircling said tank and carrying a grip bar adjacent its upper end,—said grip bar having an upwardly-projecting annular flange at its inner edge and a dip sheet secured to the upwardly-projecting flange of the grip bar.

2. In a gas-holder the combination with the central movable tank having a sealing cup around its outer side, of a cylindrical lift section encircling said tank; a grip bar

secured to the upper edge of the lift section and extending inwardly toward the central tank and having an annular flange at its inner edge which projects above the upper surface of the inwardly-extending portion thereof and an annular dip sheet projecting above and below the grip bar and secured to the upwardly-projecting flange of the latter and above the said inwardly-extending portion thereof.

3. In a gas-holder the combination with the central movable tank having a sealing cup around its outer side, of a vertical cylindrical lift section encircling the tank and sealing cup, a dip sheet projecting above and below the upper edge of the lift section and a grip bar having a Z-shape with a down-turned flange at its outer edge and an up-turned flange at its inner edge,—the up-turned inner flange being secured to the dip-sheet and the down-turned flange of said grip bar being secured to the wall of the lift section.

4. In a gas-holder the combination with a central tank, of a plurality of cylindric sections telescopically encircling the tank and the wall of each section securing one edge of a laterally-projecting Z-shaped bar,—said bar being provided with flanges that project in opposite directions at the inner and outer edges respectively, and a vertical plate secured to the flange of the Z-bar that is removed from the section walls.

5. In a gas-holder the combination with a central tank, of a plurality of cylindric lift sections telescopically encircling the tank and each section having a coacting liquid-sealing cup, dip sheets between adjacent lift sections and also between the innermost lift section and the tank and the upper edge of at least one of said dip sheets carrying a Z-shaped annular plate forming a laterally-projecting annular gallery.

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

FREDERICK H. WAGNER.

Witnesses:

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