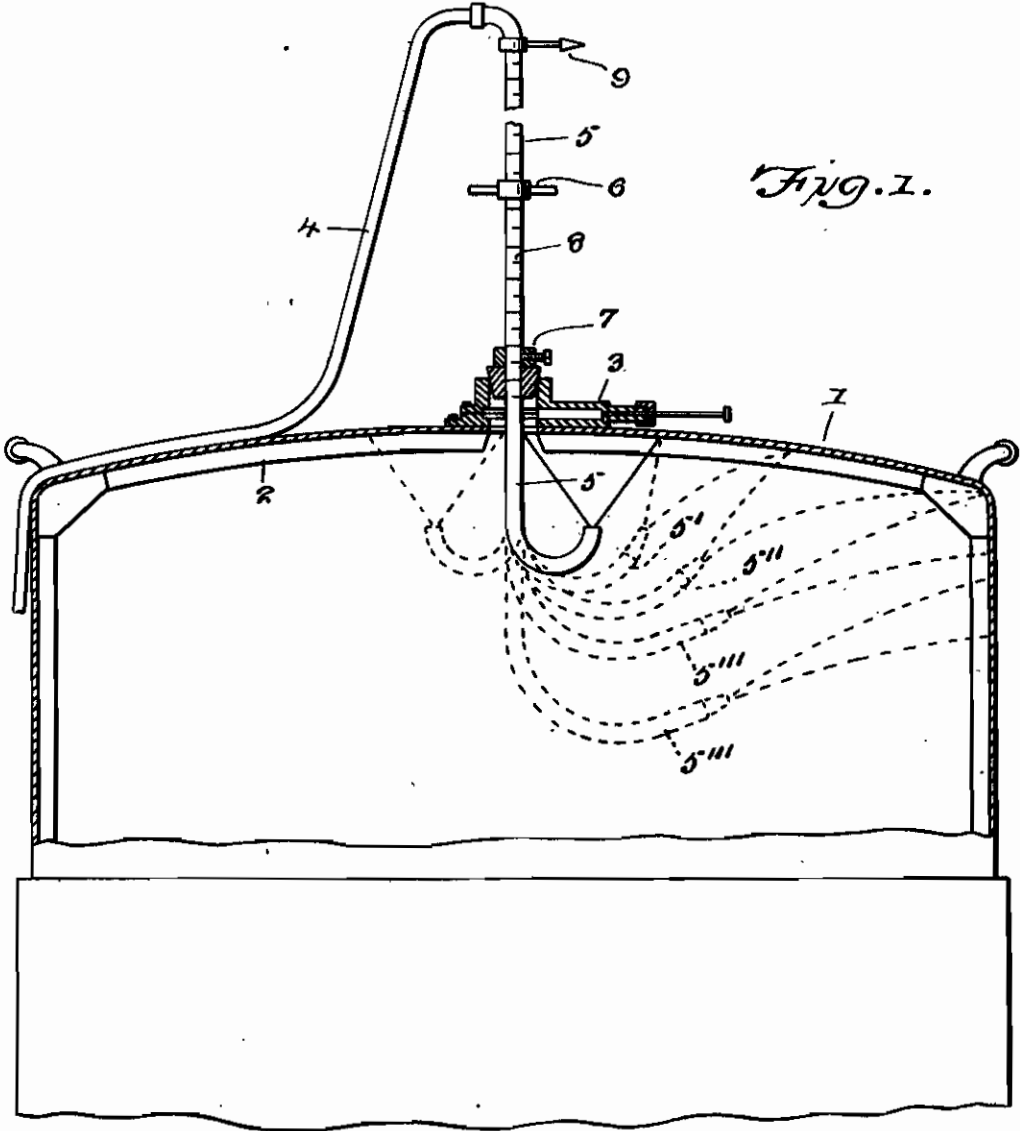


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PROCESS FOR SPREADING RUST PREVENTING
MEDIA UPON THE INSIDE OF GAS HOLDER
BELLS AND APPARATUS THEREFOR
Filed Sept. 28, 1938

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3 Sheets-Sheet 1



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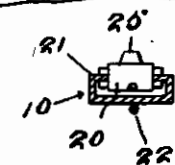
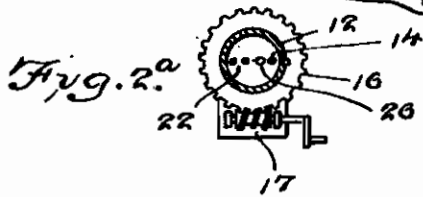
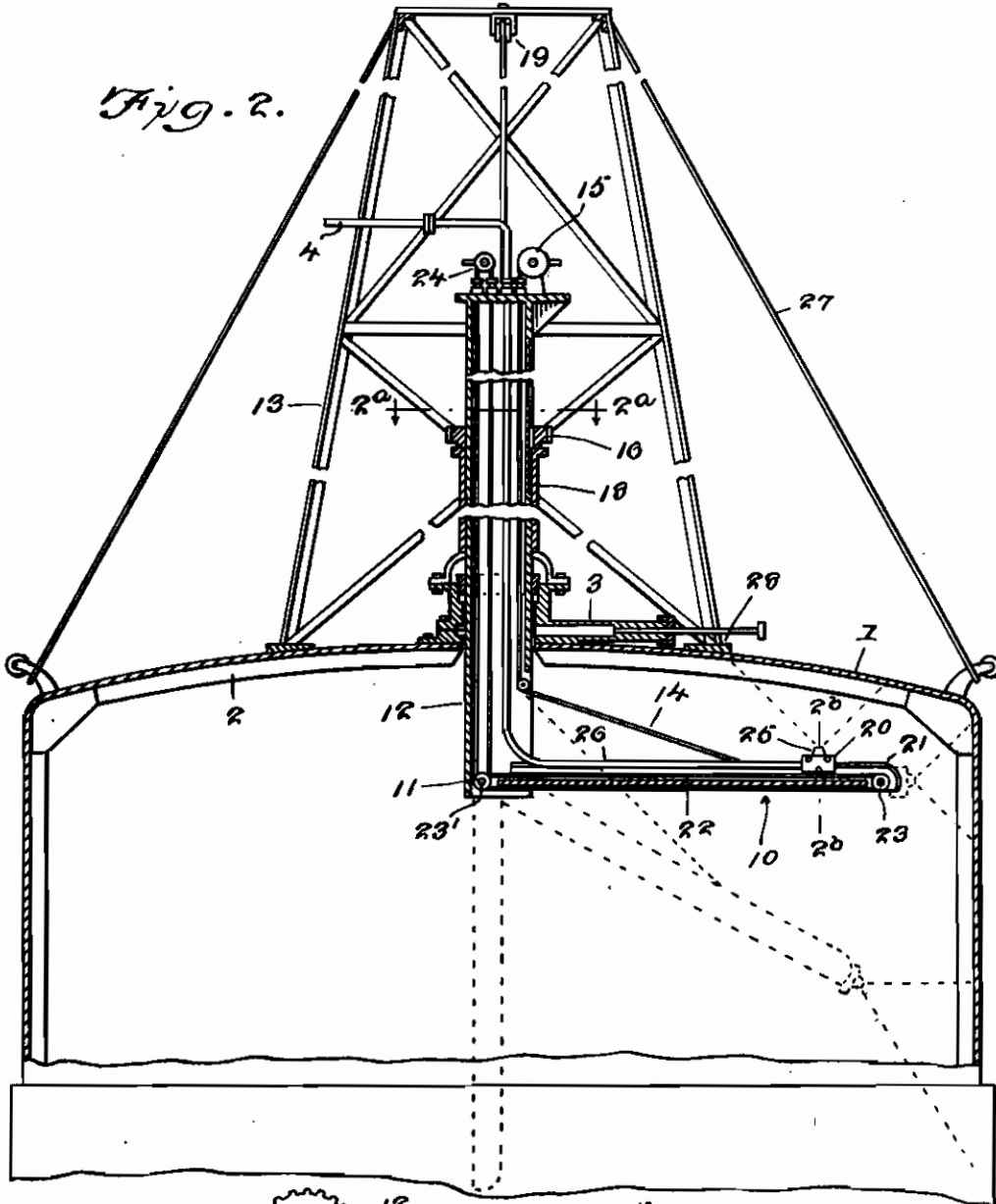


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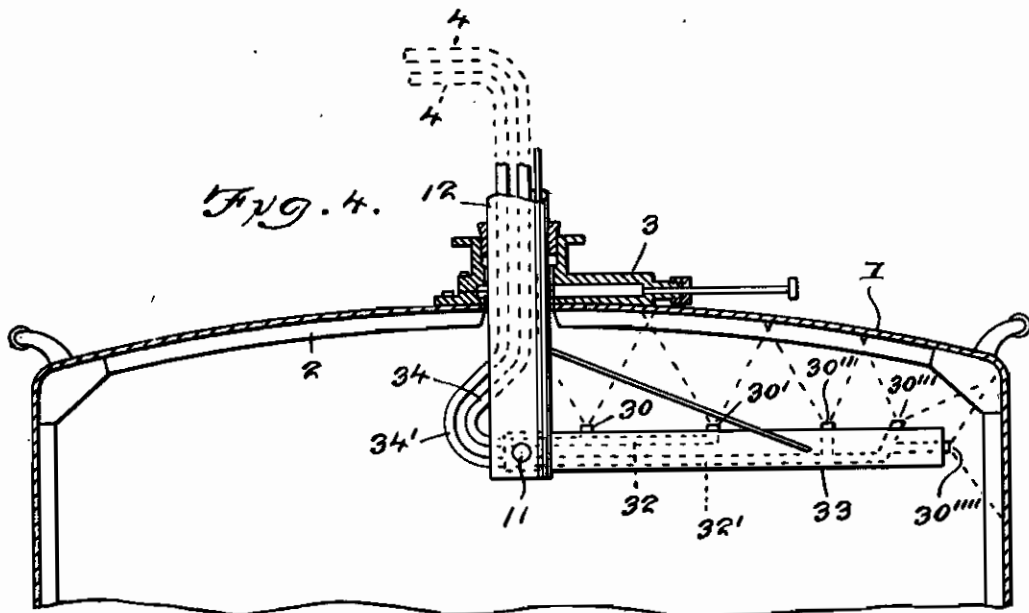
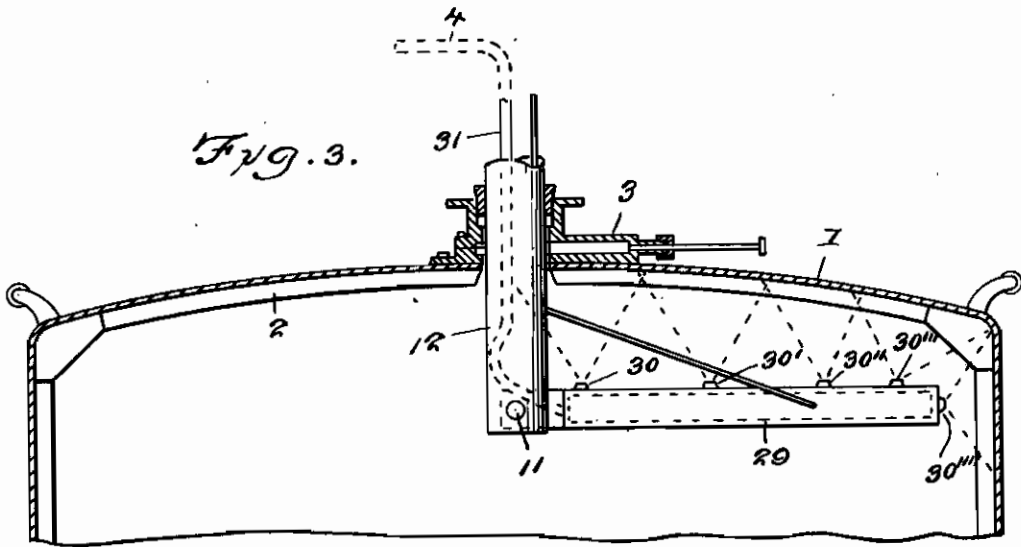
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ALIEN PROPERTY CUSTODIAN

PROCESS FOR SPREADING RUST PREVENTING MEDIA UPON THE INSIDE OF GAS HOLDER BELLS AND APPARATUS THEREFOR

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Application filed September 28, 1938

Gas holders in which a bell filled with a gas is closed at the bottom by means of a water seal are subjected in a high degree to the risk of rusting, and, therefore, need careful rust protection. Since it is very troublesome and can cause considerable operating loss when a gas holder must be placed out of operation, it was not formerly as a rule possible to renew with rust preventing coating the entire inner side of the gas holder bell, which from the moisture in the gas is especially strongly exposed to rusting. If leaks occur at the seams or rivets between the several sheets from ruts or deterioration of the packing strips, then gas losses arise by way of the covering or bell, which can become important in extent.

By the following described process and apparatus a rotatory spraying apparatus with one or more nozzles is introduced through a slide valve or short piece of tube attached to the gas holder bell and communicating with the interior of the bell, through which apparatus the rust preventing liquid can be applied to the inner surfaces of the bell even during the use or operation of the gas holder.

In the drawings forming part of this description of the invention, four modifications of apparatus embodying the invention are illustrated. In these drawings

Figure 1 illustrates a gas holder or reservoir with the usual bell, provided, according to the invention with a spraying tube which is bent at an angle and which is provided with a jet or nozzle,

Figure 2 illustrates another modification of the invention with a hinged or jointed spraying apparatus applied to a gas holder or reservoir, said spraying apparatus comprising a movable spraying nozzle.

Figures 3 and 4 illustrate respectively two other forms of the invention having jointed or hinged spraying apparatus with spraying nozzle in fixed position in the spraying apparatus.

The gas holder or reservoir bell to be coated within its interior with a rust preventing liquid is designated in Figures 1 to 4 inclusive by the numeral 1. In Figures 1 to 4 are also shown the rafters 2, which carry the sheet metal covering, the slide valve 3 upon the bell or movable part of the gas holder, and the inlet tube or pipe 4 for the rust preventing liquid or liquid composition.

Figure 1 shows the slide valve 3 in open position and a tube or pipe 5 introduced therethrough into the bell or top of the gas holder. The tube 5 is bent at or near its end at an angle in such

a manner that rust preventing liquid issuing therefrom will be directed towards and upon the interior walls of the bell 1. The rust preventing liquid is pumped under suitable pressure through the pipe 5 from the inlet pipe 4. By rotating the tube 5 by means of the handle 6 thereon the rust preventing liquid or liquid composition is uniformly distributed upon the interior surfaces of the bell 1. By lowering or raising of the tube 5, which is attained by suitable shifting of the ring 7, the range of the liquid jets is positively regulated. For treating of the entire inner surface of the bell 1 a plurality of tubes 5, 5', 5'', 5''', etc., with bent portions of different radii of curvature are used. The depth to which the apparatus is lowered or the position of the apparatus on turning is indicated upon the graduations or scale 8 or by the pointer 9.

If rust preventing liquid is pumped through the tube 4, it passes through the spraying tube 5 or 5', 5'', 5''' etc., and by rotation of the tube by means of the handle 6 is distributed upon the inner surface of the bell 1.

The introduction of the tube 5 or 5' etc., through the slide valve 3 is possible in spite of the curvatures of the tube because the height of structure of the valve 3 is small and its clear interior width is relatively large.

An excessive escape of gas through the valve 3 upon introduction of the tube 5, 10 or 12 is prevented by a divided and elastic packing collar or sleeve of known construction placed upon the tube.

In the case of large gas holders, in order to give the spraying apparatus a large radius of action, there can be employed, instead of the rigid bent tube 5, the apparatus described below and illustrated in Figure 2.

This apparatus consists essentially of the rocking boom 10 with hinge or pivotal connection 11 on the rotatable column 12 which is suspended from the towerlike superstructure 13 resting upon the container bell 1.

By means of the pivotal connection 11 and the steel-wire ropes or cables 14 and 14' the boom 10 can be placed in any position from a vertical position directly below the column 12, in which position the boom 10 and the column 12 are introduced into the gas holder, to almost a vertical position above the lower end of the column 12, as shown in broken lines in Figure 2. The adjustment of the boom 10 is effected by means of cables 14 and 14' wound upon a winch 15 of usual construction. The winch 15 is attached on the end of the part of the rotatable column 12 which

projects out of the container. The wheeling around of the boom 10 takes place by a suitable known driving gear, the wheel 16 of which sits slidingly on the rotatable column 12 and the worm 17 of which is fast upon the bearing column 18 screwed to the gas holder bell. Owing to the wheel 16 of the driving gear being slidably attached upon the column 12, the lowering or raising of the apparatus in the working position is rendered possible by means of the block and tackle 19 suspended on the towerlike superstructure 13.

The boom 10 serves for the reception of a sliding carriage 20 movable longitudinally thereof in track 21, said carriage being provided with a spraying nozzle 25. The carriage 20 can be moved from the middle to the ends of the boom 10 or inversely by an endless towing line 22 which passes over the guiding roller 23 and roller 23', and rising in the column 12 is wound upon or off of a drum 24.

The free end of the boom 10 is so formed that the sliding carriage 20 can be tilted from a horizontal to a vertical position, whereby the device may also be used to spray the vertical walls. The position of the sliding carriage 20, the inclination of the boom 10 and its position upon rotation, as well as the depth of the apparatus are indicated in known manner by apparatus corresponding to the object in view.

By this regulation of the different movements an exact, uniform and economical distribution of the rust preventing agent in all corners and joints of the bell 1 and of the rafters 2 is effected. The supply of the working material to the nozzle 25 built in the sliding carriage 20 takes place through a flexible pipe or hose 26 situated on the boom 10 between the sliding carriage tracks 21. This hose extends upwardly in the column 12, connecting with the inlet pipe 4, and contains enough slack to follow the motion of the carriage 20 to the free end of the boom 10.

By means of the guys 27 the stability of the superstructure 13 and of the whole apparatus is made certain.

In order not to call excessively upon the covering 1 of the gas holder, the load of the superstructure 13 and of the apparatus proper is distributed uniformly by a stiff carrying frame 28 upon the rafters 2 of the bell 1.

A further possibility of the modification of the spraying apparatus illustrated in Figure 2 is shown in Figure 3. Instead of a boom 10 for receiving a movable nozzle 25 there is a tube 29

along the length of which at certain distances several nozzles 30, 30', 30'' etc., are built in, which can be set in operation either all simultaneously, according to Figure 3, or in groups of 2 or 3 of the row as illustrated in Figure 4. In the case of simultaneous connection of all the nozzles 30, 30' etc., the working material is lead to them through the interior of the tube 29, which is connected with the inlet pipe 4 by a hose 31 rising in the columns 12. In the case of connecting the nozzles in groups, as shown in Figure 4, as many small conducting tubes 32, 32' etc., are disposed inside of the boom 33 formed as a tube as there are groups of nozzles present. The connection between the individual conducting tubes 32, 32' etc., built in the boom 33, and the inlet pipe 4 outside of the container is established by as many hoses 34 and 34' etc., rising in the column 12 as there are conducting tubes 32, 32' etc., present. The tubular booms 29 and 33, shown respectively in Figures 3 and 4, are hinged or pivotally connected to the rotatable column 12 in the same manner as boom 10 in Figure 2 is connected to the column 12.

The mode of operation of the spraying apparatus illustrated in Figure 2 is as follows:

If the guiding tower 13 and the carrying frame 28 are erected upon the container bell 1, and the spraying apparatus with the aid of the block and tackle 19 suspended from the tower 13, either in folded up or extended condition, is introduced into the gas holder through the valve 3 and the bearing column 18, then the boom 10 is brought into working position by the winch 15 and the lines 14 and 14'. If the rust preventing liquid is pumped under pressure through the inlet pipe 4 and the hose 26 to the nozzle 25, which in its initial position is at the middle of the boom 10, then by simultaneous rotation of the column 12 the rust preventing material is distributed uniformly upon the inner surface of the container bell 1 in a circular ring surface. This process with displacement of the nozzle 25 is repeated until the roof as well as the cylindrical portion or vertical wall portion of the bell 1 is treated with a plurality of annular coatings lapping over one upon the other. By using the boom shown in Figures 3 and 4 the entire inner surface is treated in one or two operations.

Any of the known rust preventing liquids can be used for coating of the gas holder bells so long as they can be sprayed.

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