

(No Model.)

H. MÜLLER.
GAS HOLDER.

No. 530,284.

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Fig I.

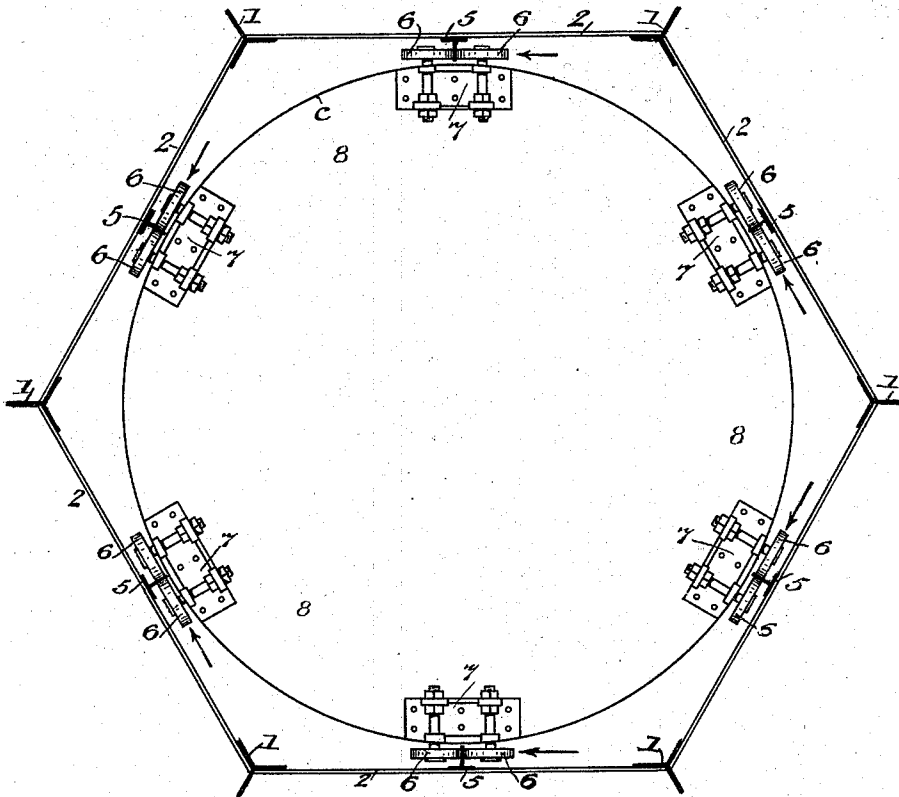
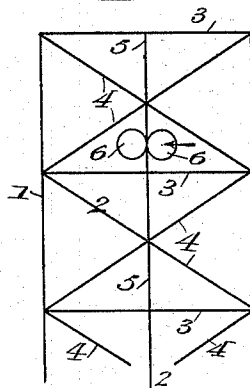


Fig II.



Witnesses

E. L. Brown
Thomas Combs

Inventor

Henrich Müller
by Geo. H. Benjamin
att'y.

UNITED STATES PATENT OFFICE.

HEINRICH MÜLLER, OF VILLENCOLONIE GRUNEWALD, NEAR BERLIN,
ASSIGNOR TO AUGUST KLÖNNE, OF DORTMUND, GERMANY.

GAS-HOLDER.

SPECIFICATION forming part of Letters Patent No. 530,284, dated December 4, 1894.

Application filed May 12, 1894. Serial No. 511,003. (No model.)

To all whom it may concern:

Be it known that I, HEINRICH MÜLLER, a subject of the Emperor of Germany, residing at Villencolonie Grunewald, near Berlin, Germany, have invented certain new and useful Improvements in Gas-Holders, of which the following is a specification.

My invention relates to that class of gas holders, such for instance as are shown in United States Patent No. 513,514, granted January 30, 1894, to August Klönne, and in which pairs of guide rollers are arranged to run on tracks or ways and in planes substantially parallel with the planes of the braces or lattice framework which connects the upright posts of the gas holder frame, and whereby lateral wind or other strains on the holder tank are distributed through the posts and their braces in a manner promoting the strength and stability of the entire apparatus.

This invention has for its more special object to improve the construction of the gas holder shown in the above named patent to Klönne in such manner as shall further increase the strength and stability of the apparatus by causing a more direct distribution of the lateral strains from the holder tank to its supporting framework, which makes it easier to closely calculate said strains and therefore promotes more accurate and satisfactory proportioning of all the parts, and also allows use of fewer posts or standards, thereby permitting the building of a lighter apparatus at a reduced first cost, all without sacrificing necessary strength and general efficiency.

The invention will first be described and then will be particularly defined in claims hereinafter set forth.

Reference is to be had to the accompanying drawings, forming part of this specification, and in which similar reference-numerals indicate corresponding parts in both the views.

Figure 1, is a plan view of my improved gas holder, parts being in horizontal section, and Fig. 2, is a diagrammatic side elevation, at a reduced scale, of one of the plane sides or faces of the framework, with the corresponding pair of holder-guiding rollers at the central or intermediate upright rail or guide.

The drawings show a hexagonal or six-sided framework comprising a series of six main posts 1, preferably having the cross-sectional form shown, and connected by a series of five bracing frames 2, each consisting of a series of horizontal bars 3, which are connected at opposite ends to the adjoining posts 1, and a series of diagonally disposed bars 4, also fastened at their ends to the posts 1, and preferably bolted together where they cross each other.

Between the posts 1, 1, at each plane side of the holder frame is fastened a vertical guide rail 5, preferably having the T-form shown in the drawings and adapted at its inner radial portion to form a guide for a pair of rollers 6, 6, which are held to shafts journaled in suitable bearings 7, fastened to the top of the inverted tank holder 8, which thus is guided truly as it rises and falls, by the several pairs of rollers 6, 6, acting on the guide rails 5. These rails 5, are each fastened to the horizontal cross-bars 3, and to the diagonal bars 4 of the post braces 2, and preferably to those portions of said bars which cross each other, thus locating the guide rails about centrally between the main posts 1 of the holder frame. The brace bars 4, each being preferably made in one piece or length, pass over and are bolted or otherwise fixed to the outer flat plane sides or faces of the guide rails 5, as shown in Fig. 1 of the drawings. It will be noticed that with this construction the intermediate guide rails 5 also form substantial vertical tie bars for the holder frame between the main posts 1, 1, and at the same time the guide rails are supported against lateral thrusts or bending strains exerted by the rollers 6, at double the number of points for the same height of framework, as compared with other structures of like character known to me. This is clearly shown in Fig. 2 of the drawings, wherein the guide 5 is shown connected to the horizontal bars 3, and also to the diagonal bars 4 of the braces 2, which stay the main posts 1. Should the guide rails be fastened to or form parts of the main posts 1, as formerly done, a bracing support of the rails against lateral strains would be given only where the brace bars 3

are bolted to the posts and the strong bracing effect on the rails at the intermediate vertical points next the bars 4, now obtained, would not be realized. It will also be seen that in connection with this more frequent lateral bracing of the guide rails 5, their intermediate location between the posts brings the guides quite close to the curved side wall of the gas holder and much closer than is possible with the same number of posts when guide rollers travel directly on the posts themselves, as in the prior patent above named. This allows the pairs of rollers 6, 6 to be set much closer to the vertical plane of the side wall of the holder while having free action at opposite faces of the radial portion of the guide 5, thus promoting more steady movement of the holder and increased durability of the guide rollers and their shorter shafts and bearings. This arrangement also allows a gas holder tank of the same or larger size to be safely sustained by and within a less number of main posts 1, and brace frames 2, than otherwise would be possible. This reduced number of plane sides for the frame allows a more precise calculation of the wind or other strains and consequently a more accurate proportioning of the material to accommodate or safely resist them with a minimum weight of the whole framework, thus reducing the cost of manufacture of the gas holder.

It will be noticed that the rollers 6 are so arranged relatively to the post braces 2, that they rotate in the plane of said braces. Hence lateral strains from the holder tank coming from or through the rollers 6 onto their guides 5, are always distributed in the direct plane of the side braces 2, and not more or less tangential thereto. It follows that there are practically no outward bulging strains on the braces 2, and that lateral strains are distributed through the framework in a manner protecting the whole apparatus from injury. Supposing the wind to blow from right to left, the arrows in Fig. 1 of the drawings indicate how the strain on the holder tank 8 is distributed through or by the rollers to the side braces of the framework.

I am aware that guide rollers on the vertically movable receiving tank of a gas holder have heretofore been arranged for rotation on the posts of the supporting framework of the apparatus, and at times also in planes substantially parallel with the planes of the side braces which connect and stay the posts, but this construction lacks the lightness and the strain resisting power of my gas holder, in which the roller guides are arranged between the posts and are connected to the braces which tie the posts together and at places more numerous than the points of connection of the braces to the posts, thereby

preventing lateral bending of the roller guide rails and assuring more even distribution of lateral wind or other strains throughout all the braces of the structure and relieving the posts from a much larger than usual proportion of lateral strains.

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

1. A gas holder, constructed with a framework comprising posts, braces connecting the posts, vertical guide rails arranged between the posts and connected to the braces at places in the vertical plane coincident or level with the points of connection of the braces with the posts and also at intermediate places, whereby the rails have a larger number of points of connection with the braces than the braces have with the posts, a vertically movable receiving tank located within the framework, and rollers on the tank engaging the guide rails, substantially as described.

2. A gas holder, constructed with a framework comprising posts, braces connecting the posts, vertical guide rails arranged between the posts and connected to the braces at places in the vertical plane coincident or level with the points of connection of the braces with the posts and also at intermediate places, whereby the rails have a larger number of points of connection with the braces than the braces have with the posts, a vertically movable receiving tank located within the framework, and rollers on the tank engaging the guide rails and rotating in the facial planes of the post braces, substantially as described.

3. A gas holder, constructed with a framework comprising posts, braces connecting the posts and consisting of horizontal and diagonal bars, vertical guide rails arranged between the posts and connected to both the horizontal and diagonal brace bars, a vertically movable receiving tank located within the framework, and rollers on the tank engaging the guide rails, substantially as described.

4. A gas holder, constructed with a framework comprising posts, braces connecting the posts and consisting of horizontal and diagonal bars, vertical guide rails arranged between the posts and connected to both the horizontal and diagonal brace bars, a vertically movable receiving tank located within the framework, and rollers on the tanks engaging the guide rails and rotating in the facial planes of the post braces, substantially as described.

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

HEINRICH MÜLLER.

Witnesses:

MAX WAGNER,

WALTER TOEPFER.