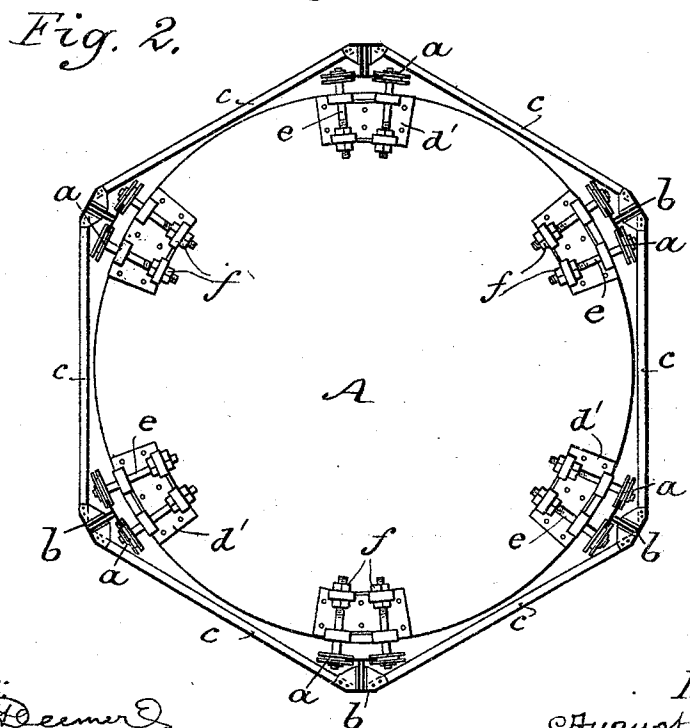
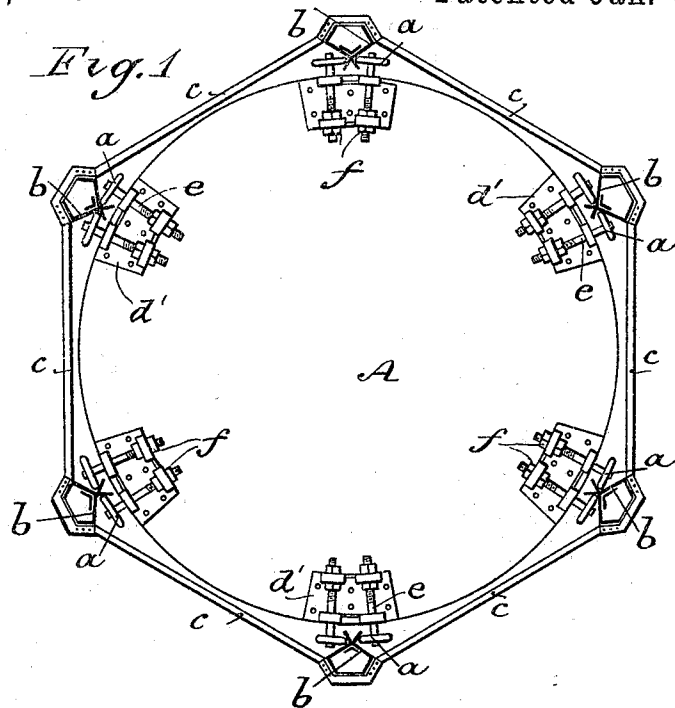


A. KLÖNNE.
GAS HOLDER.

No. 513,514.

Patented Jan. 30, 1894.



Witnesses:

John M. Deemer

Alvin K. Goodwin

Inventor:

August Klönne

By Attorney:

Wm. H. Burdette

(No Model.)

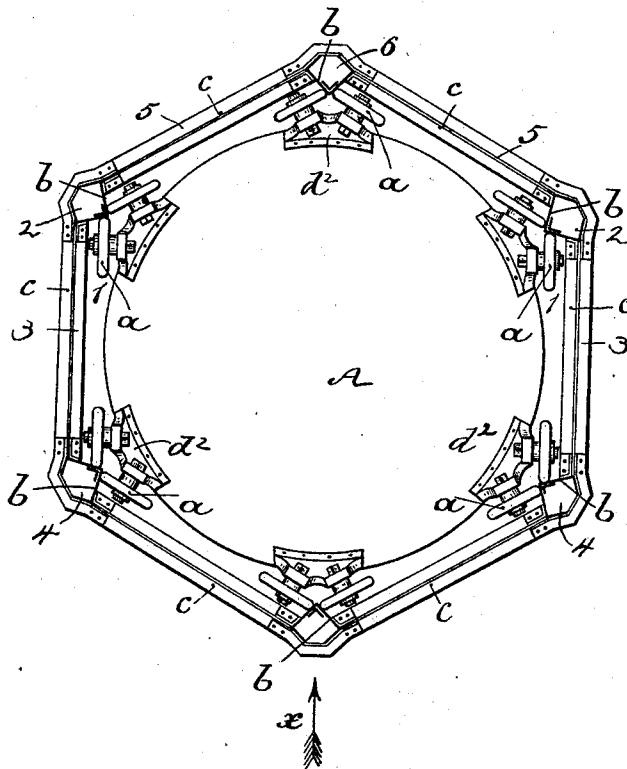
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3 Sheets—Sheet 2.

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Fig. 3.



Witnesses

Johannes Deemer

Alvin K. Goodwin

Inventor

August Klönne

By

Attorney

Wm H. Benjamin

UNITED STATES PATENT OFFICE.

AUGUST KLÖNNE, OF DORTMUND, GERMANY.

GAS-HOLDER.

SPECIFICATION forming part of Letters Patent No. 513,514, dated January 30, 1894.

Application filed July 25, 1893. Serial No. 481,396. (No model.)

To all whom it may concern:

Be it known that I, AUGUST KLÖNNE, engineer, a subject of the German Emperor, residing at Dortmund, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Gas-Holders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to holders for manufactured or natural gas and relates particularly to the guides on the holders and their arrangement relatively to the posts or supports on which said guides run as the holder rises and falls in operation.

The object of the invention is to so construct the guides and arrange them relatively with the posts and their bracings as shall prevent wind pressure on the gas holder from exerting injurious lateral strains on the posts or holder.

The invention consists in an arrangement of the holder rollers with or in such relations to their post guides and the bracings which connect the posts, that lateral strains will be communicated in a line substantially parallel with the planes of the bracings which form polygonal sides of the holder frame, and whereby lateral strains on the holder will be largely taken up by or in these bracings and whereby at the same time the strains will be distributed to a maximum number of posts and bracings, thus relieving from excessive pressure or strains those parts directly in the line of the lateral strains and promoting the durability of the whole apparatus.

The invention also comprises means and mechanism whereby the holder rollers may be nicely adjusted to the post guides so as to work with minimum play and friction and thereby promote the easy operation and maximum stability of the holder.

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

Reference is to be had to the accompanying drawings forming part of this specification, and in which similar letters and figures of reference indicate like parts in the several views.

Figure 1 is a diagrammatic plan view of a

gas holder with posts, frame and guide rollers arranged in accordance with my invention. Figs. 2 and 3 are like views representing modifications of the invention; and Figs. 4 and 5 are detail sectional plan views drawn to a larger scale and showing preferred adjustable arrangements of the guide rollers relatively to the forms of posts shown in Figs. 1 and 2.

The gas holder or gasometer tank A, which may have any approved construction, is provided with a series of pairs of rollers *a, a* (six pairs being shown) running on six posts *b*, which are connected by braces *c* composed of latticed bars or metal frames of any suitable construction, the braces *c* shown in Fig. 3 being formed of crossed or duplex bars.

The holder posts may have various cross sections. Those shown in Fig. 1 and represented more correctly or to working scale in Fig. 4, are formed of two metal beams or plates having opposite edge flanges projecting in opposite directions, and bolted at their outer flanges to the bracing *c* and at their inner parts to an interior angle iron. The spaces or corners next the inner flaring flanges *b', b'* of the plates form ways along which the rounded peripheries of a pair of rollers *a, a* travel, and with which they interlock laterally as the holder A moves upward or downward. The posts *b* indicated in Fig. 2, and shown more clearly to scale in Fig. 5 of the drawings, are made of two opposing channel beams or irons set flanges outward and bolted to outer and inner face plates, and the peripherally grooved rollers *a, a* in this instance run along the inner flanges and plate at *b²b²*, and interlock laterally therewith as the gasometer A rises and falls. In Fig. 3 of the drawings the pairs of rollers *a, a* have rounded peripheries which ride on the right angularly disposed inner faces or parts of the supporting posts *b*. The rollers *a* in Fig. 3 are arranged in planes parallel to or with the braces *c* at the same sides of the posts, while the rollers in the other figures of the drawings approximate more or less these parallel positions relatively with the braces *c*, or approach parallelism therewith closely enough to have substantially similar effect in transmitting lateral wind pressure strains on the gasometer A to the polygonal side braces *c*. These braces take up the strains in their

facial planes, and thus do not have tendency to bulge laterally while they at the same time, and in view of the peculiar relations of the guide rollers *a*, *a* with them, do not exert harmful outward bulging strains on the posts. Such harmful strains are exerted by ordinary guide rollers arranged radially on the gasometer tank and bearing directly on the inner faces or parts of the posts, and whether each of said radial rollers be supplemented by two other rollers working along opposite side faces of the posts, or whether such supplemental rollers be not used. The ordinary radial rollers when used with supplemental side rollers, above named, are usually mounted all three upon one U-shaped frame fastened to the gas holder. The aforesaid radial rollers, either alone or when used with two supplemental side rollers in groups of three rollers at each post, do not relieve the posts and polygonal side bracings from injurious bulging strains, which are greatly relieved, if not wholly prevented by my plan of placing the guide rollers parallel, or as nearly as practicable in like planes, with the planes of the polygonal side bracings *c* of the holder or gasometer frame.

Referring to Fig. 3 of the drawings, it will be seen that a wind blowing in direction of the arrow *x*, will by pressure on the gasometer *A* cause the rollers *a*, marked 1, by bearing on the two posts *b*, marked 2, to distribute the strain to the braces *c*, marked 3, which will also exert a drawing action on the two posts *b*, marked 4; thus widely distributing the strains from the wind pressure upon most of the posts and braces of the structure, and imparting comparatively little of said strains through the farther braces 5 to the post 6 opposite and in line with the wind pressure.

By adopting the construction shown in Figs. 1 to 5 inclusive, or by a forked or interlocking construction or arrangement of the posts and rollers, a lateral strain from any side on the gasometer *A* will be communicated to all or nearly all the posts and braces of the structure. This effect, while resulting in some degree from the interlocking of the rollers and post flanges alone, is materially aided by the mutually helpful arrangement of the rollers as nearly as may be in parallel planes with the polygonal side braces *c* of the structure. In addition to such parallel and interlocking arrangement of the rollers above named, I prefer to make the rollers at each post independently adjustable thereon.

In Figs. 1 and 2 of the drawings, each roller *a* is journaled on a shaft *e*, which is screw-threaded at its inner part, and the two shafts of each pair of rollers are fitted in lugs of plates *d'* bolted to the top of the gasometer. Nuts *f*, *f* on the threaded end of each roller shaft *e* permit endwise or radial adjustment of the shaft to properly adjust the interlocking roller relatively with the adjacent post flange *b'* or *b''* on which it runs.

In Fig. 3 the guide rollers are held non-adjustably to bearings *d''* fixed to the gasometer.

Figs. 4 and 5 of the drawings, illustrate how the guide rollers are arranged for both radial and tangential adjustment by pivoting the bearing plates *d*, *d* in which the roller shafts *e*, *e*, are held to the gasometer, both bearing plates on one shaft or pin *d''*, as in Fig. 4, or each plate on its own pivot pin *d'*, as shown in Fig. 5. The roller shafts *e* are adjustable endwise or radially, and are secured by nuts *f* thereon. At their free outer ends the bearing plates *d* fit loosely over or upon screw-threaded shafts *h*, held to the gasometer and having locking nuts *g*, which secure the plates at any position to which they may be adjusted horizontally by rocking them on their pivots. Bolts *i* held to the gasometer and passing through segmental slots of the bearing plates and having nuts (shown in dotted lines) above the plates, assist the detents *h*, *g* in securing the adjusted plates. The detents *h* or *i* may alone be used as desired.

It is obvious that with the duplex adjustment above described, the guide rollers *a*, *a* may independently be fitted with accuracy to the flange tracks of the holder posts to assure the best or most equable distribution of lateral strains upon the gasometer *A* to or through all the polygonal side braces *c* and posts *b*, while assuring the most smooth or easy travel of the guide rollers on the posts during operation of the apparatus.

Having thus described my invention, I claim—

1. A gas holding apparatus comprising a gasometer; a frame therefor composed of a number of posts, and laterally arranged connecting braces therefor; and guide rollers secured to the gasometer and arranged to run on the said posts and to revolve in planes substantially parallel with those of their adjacent connecting braces and having laterally interlocking peripheral engagement with the posts, whereby the lateral strain on said posts is exerted longitudinally of the braces.

2. Gas holder apparatus comprising a gasometer, posts, braces connecting the posts, and radially adjustable guide rollers held to the gasometer and having a laterally interlocking peripheral engagement with the posts, substantially as described.

3. Gas holder apparatus comprising a gasometer, posts, braces connecting the posts, and radially adjustable guide rollers held to the gasometer and having a laterally interlocking peripheral engagement with the posts, said rollers running in planes parallel or nearly parallel with the braces, substantially as described.

4. Gas holder apparatus comprising a gasometer, posts, braces connecting the posts, horizontally adjustable pivoted bearing plates on the gasometer, guide rollers held to said bearing plates and running on the posts, and detents holding said plates, substantially as described.

5. Gas holder apparatus comprising a gas-

ometer, posts, braces connecting the posts, horizontally adjustable pivoted bearing plates on the gasometer, guide rollers held to said bearing plates and having a lateral interlocking peripheral engagement with the posts, and detents holding the bearing plates, substantially as described.

6. Gas holder apparatus comprising a gasometer, posts, braces connecting the posts, horizontally adjustable pivoted bearing plates on the gasometer, radially adjustable guide rollers held to said bearing plates, and detents holding said plates, substantially as described.

7. Gas holder apparatus comprising a gasometer, posts, braces connecting the posts, horizontally adjustable pivoted bearing plates on the gasometer, radially adjustable guide rollers held to said bearing plates and having a laterally interlocking peripheral engagement with the posts, and detents holding the bearing plates, substantially as described.

8. Gas holder apparatus comprising a gasometer, posts, braces connecting the posts, horizontally adjustable pivoted bearing plates on the gasometer, guide rollers held to said bearing plates and running in planes parallel or nearly parallel with the braces, and detents holding said plates, substantially as described.

9. Gas holder apparatus comprising a gasometer, posts, braces connecting the posts, horizontally adjustable pivoted bearing plates on the gasometer, radially adjustable guide rollers held to said bearing plates and running in planes parallel or nearly parallel with the braces, and detents holding said plates, substantially as described.

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

AUGUST KLÖNNE.

Witnesses:

KONRAD WOLFF,
HERMAN KUSTERER.