(No Model.)

# H. P. SCHAEFER.

## CISTERN.

No. 532,913. Patented Jan. 22, 1895.

Fig. 1

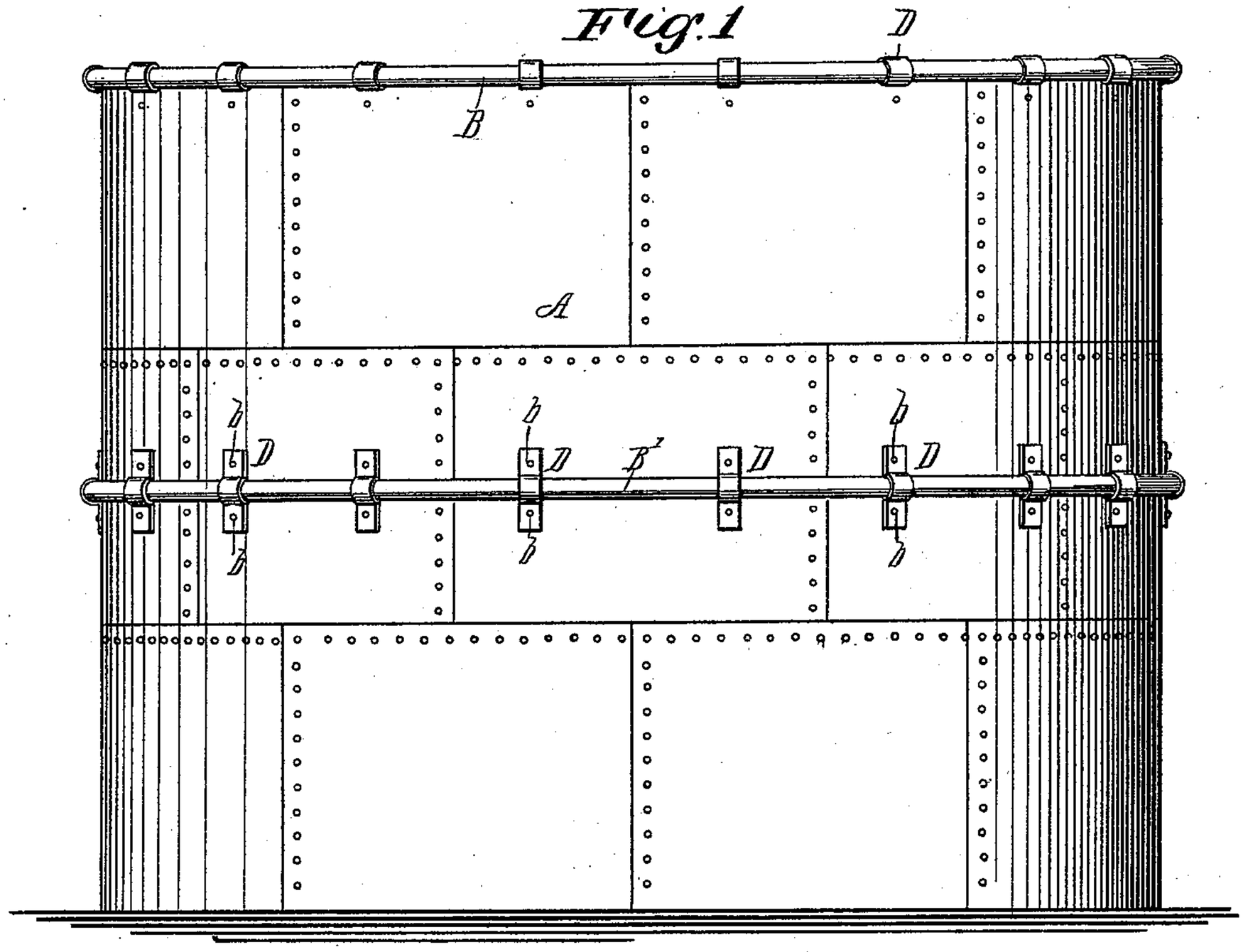
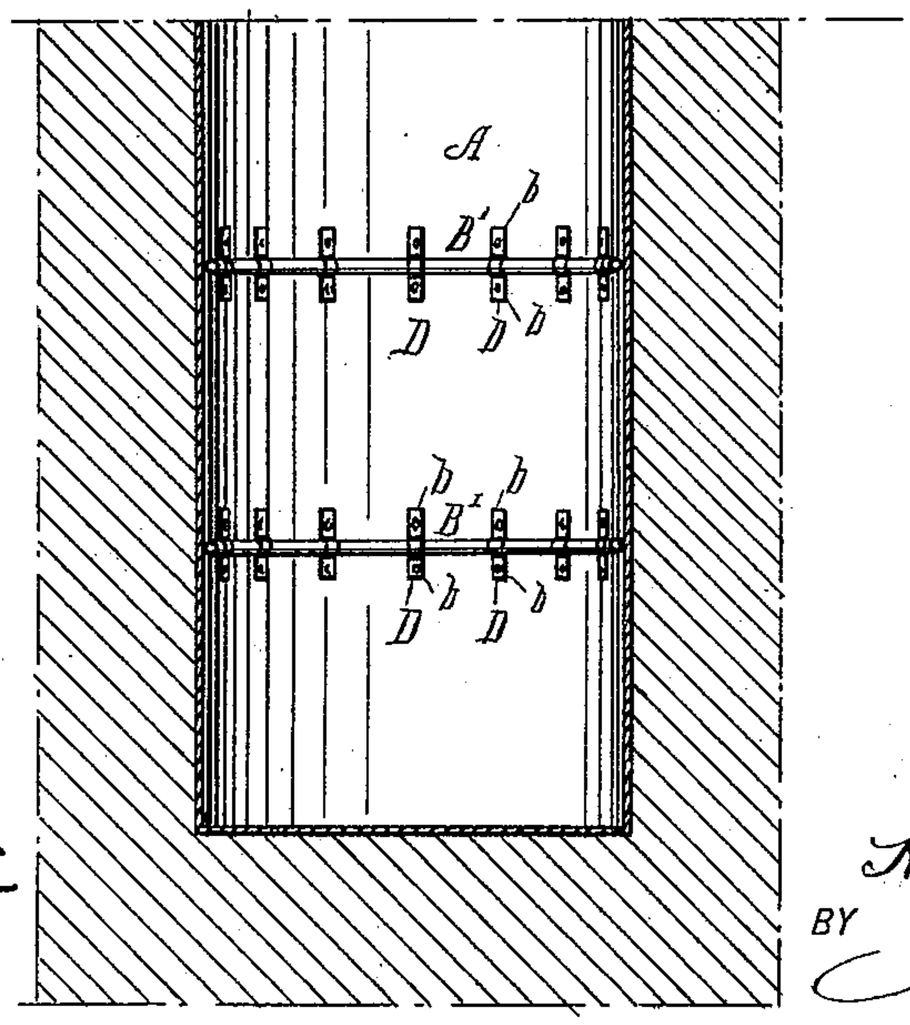



Fig. 4.



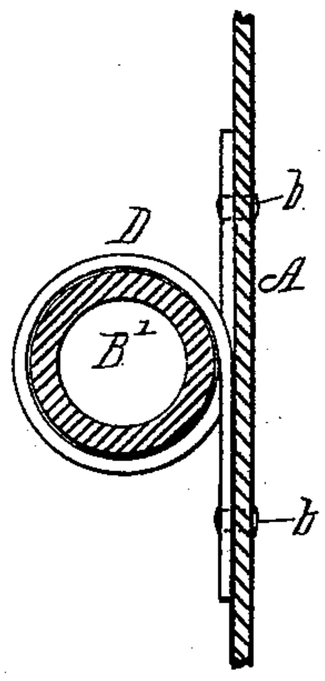




Fig. 2.

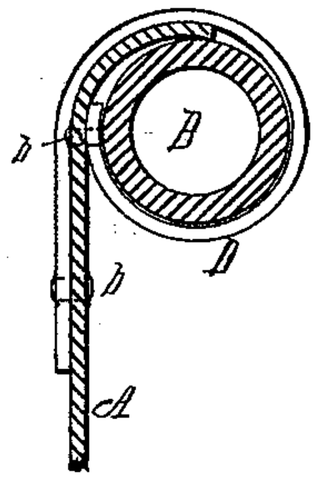



Fig. 3.

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## CISTERN.

SPECIFICATION forming part of Letters Patent No. 532,913, dated January 22, 1895.

Application filed July 30, 1894. Serial No. 519,028. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY P. SCHAEFER, of Schulenburg, in the county of Fayette and State of Texas, have invented a new and useful Improvement in Cisterns, of which the following is a full, clear, and exact description.

This invention relates more particularly to sheet-iron upright cylindrical cisterns, and consists in the application to and around the upper open end of the cistern and also if desired at different places around the body of the cistern, of a strengthening ring made of either wrought iron or steel or other suitable metal tubing or piping, to stiffen the cylindrical cistern, said piping or tubing being suitably fastened to the cistern and being arranged around the outside or inside of the same, but preferably around the outside and closely hugging said cistern, substantially as hereinafter described and more particularly pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents an exterior elevation of a sheet-metal cylindrical cistern, with a wrought iron pipe applied as a rim to its upper end on the exterior, and secured thereto by a strip-like cleat. Said view also shows a like pipe similarly applied to and around the body of the cistern. Fig. 2 is a sectional view of the body part of the cistern, with the strengthening pipe which encircles it externally and with the attaching cleat applied. Fig. 3 is a like view of the upper part of the cistern with its rim-like pipe and the cleat for attaching the latter to the cistern; and Fig. 4 is a sectional elevation in part, of a like cistern sunk in the ground and with like strengthening pipes applied to its body internally and similarly secured by cleats.

In the construction of cylindrical sheet-metal cisterns as herein referred to, it has heretofore been customary to strengthen them at their rim or mouth end, or at their rim and body, by bending a flat iron band or a length of angle-iron, to encircle the cylindrical cistern at such parts, and riveting the same to the cistern. A bent flat iron bar or band, however, gives very inadequate strength, while if angle-iron is used it is very expensive, not always accessible, and difficult to apply, as it has to be hammered to a circular form either by hand or by special expensive machinery, as well as to be punctured for the rivets by which it is attached to the cistern.

By using a pipe or tube of wrought iron, steel or other suitable metal, as a strengthening device however, as a rim around the top of the cistern and, if necessary one or more such pipes around the body of the cistern, either internally or externally, these and other objections are or may be avoided. These pipes or tubes are always readily obtainable, give great strength to the cistern when applied thereto, and may be curved or bent at comparatively small expense to conform to the circular shape of the cistern, inasmuch as they may be bent by an ordinary tire bender such as is used for instance even in small country blacksmith-shops. These pipes or tubes may be secured to the cistern either by riveting directly or otherwise, but preferably by means of strip-like cleats as shown in the drawings. If found desirable, however, the cleats may be dispensed with and the tubes or pipes secured to the cistern by means of any suitable solder.

In Figs. 1, 2 and 3, A indicates the cylindrical sheet metal cistern, and B the pipe or tube bent to form a strengthening rim to and all around the upper end of the cistern. B′ is a similar pipe or tube, bent like the rim tube or pipe to encircle the cylinder or cistern at its body portion. These tubes or pipes are shown as arranged externally around the cylinder or cistern, but they might be arranged internally as shown in Fig. 4, and there might be any number of body strengthening pipes or tubes B′ at suitable distances apart, as also shown in Fig. 4; or the body strengthening tubes or pipes might in some cases be altogether omitted. These several pipes or tubes are represented as secured to the cistern externally or internally by means of strip-like sheet-metal cleats D, bent to more or less clip or hug the pipes or tubes, and cut to form one or more leaves or legs that are fastened by rivets *b* to the cistern to secure the pipes or tubes closely in place against the walls of the cistern. Manifestly the cleats

may be made straight as shown in Fig. 1 or somewhat spiral as shown in Fig. 4, the construction shown in Fig. 1 being effected by bending or casting or otherwise forming the cleat between its ends with a seat for the pipe or tube, and that shown in Fig. 4 by simply bending a strap around the pipe or tube. These cleats form a simple and easy means of attaching the pipes or tubes to the cistern, and avoid the necessity of making holes in the pipes or tubes for the insertion of fastening rivets.

As shown most clearly in Fig. 3, the upper edge of the cistern is bent or curved outward forming externally a curved downwardly facing seat which serves as a bearing for the strengthening tube and co-operates with the latter when clamped in place to secure the desired rigidity of the rim of the cistern. The tubular form of the band is particularly desirable at the rim and in connection with the outward curvature thereof as it furnishes a band of considerable diameter for the curved portion of the rim without any undue or excessive weight in such band, any acute bending of the upper edge of the cistern being thus avoided.

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

1. A metal cistern having the upper edge or rim deflected, substantially as described, combined with a tubular strengthening band and independent securing means by which said band is held firmly to the under side of the said deflected portion, or rim, substantially as set forth.

2. A sheet metal cistern having its free edge deflected and provided with a tubular metal hoop or band conformed in cross section to and fitted under said deflected portion and independent fastenings for securing the said band in position, substantially as set forth.

3. A metal cistern having the upper edge or rim deflected outward, substantially as described, combined with a band of tubular metal and independent fastenings whereby said band is held firmly to the outer under side of said deflected portion or rim, substantially as set forth.

4. A cistern of metal having its upper edge or rim curved outward, the band of tubular metal fitted snugly beneath the said outwardly curved portion and fastening cleats secured at one end to the cistern passed thence below and up along the outer side of said tubular band, thence over the said band and the curved portion of the rim and secured at their other ends to the cistern, substantially as and for the purpose set forth.

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