(No Model.)

J. H. BOONE & E. BOONE, Jr.

STRAINER FOR WELLS.

No. 415,607. Patented Nov. 19, 1889.

Fig. 1.

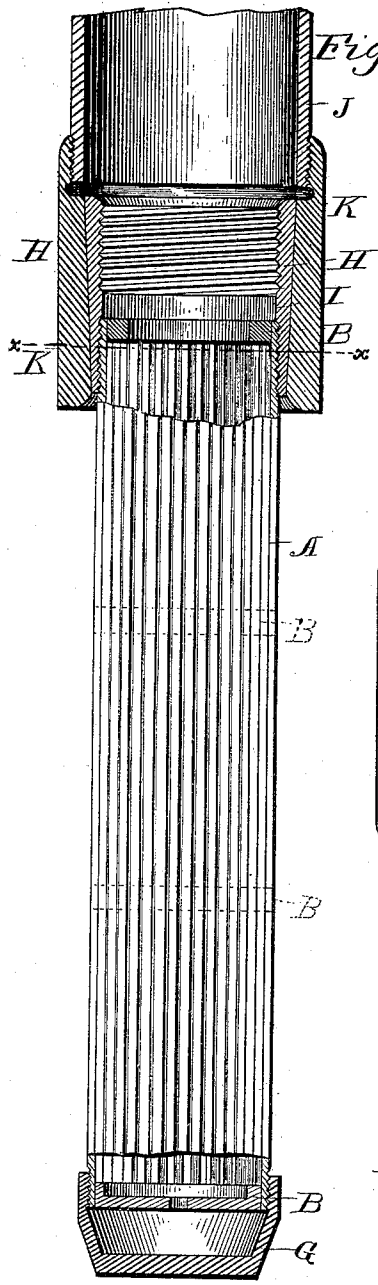


Fig. 2.

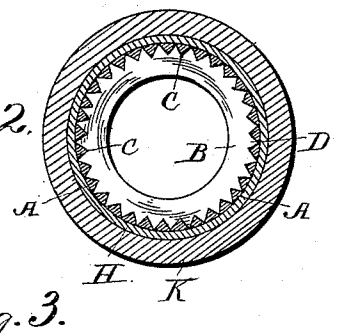


Fig. 3.

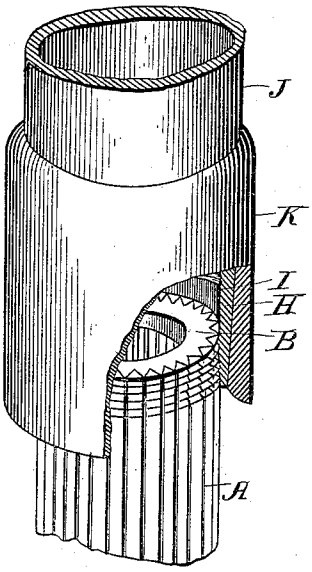


Fig. 4.

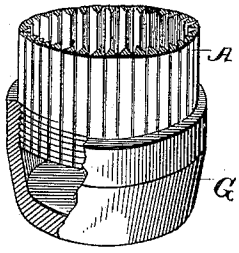
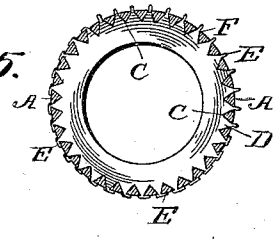


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

JOSEPH H. BOONE AND EMANUEL BOONE, JR., OF MEMPHIS, TENNESSEE.

STRAINER FOR WELLS.

SPECIFICATION forming part of Letters Patent No. 415,607, dated November 19, 1889.

Application filed May 29, 1889. Serial No. 312,626. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH H. BOONE and EMANUEL BOONE, Jr., citizens of the United States, residing at Memphis, in the county of Shelby and State of Tennessee, have invented a new and useful Strainer for Wells, of which the following is a specification.

This invention relates to strainers for wells; and it has for its object to provide a strainer for Artesian and other tubular wells which shall be simple in construction, and which may be readily placed in position after the well has been drilled and lined.

The invention consists in the improved construction of the said straining device, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a vertical sectional view of our improved straining device, showing the same in position for operation at the bottom of a well. Fig. 2 is a horizontal sectional view taken on the line *x x* of Fig. 1. Fig. 3 is a perspective detail view showing the upper portion of our improved strainer and adjacent parts, portions of the same having been removed for the purpose of better showing the construction. Fig. 4 is a similar view showing the lower end of the strainer. Fig. 5 is a horizontal sectional view showing a modification.

The same letters refer to the same parts in all the figures of the drawings.

Our improved strainer is composed of a series of vertical longitudinal metallic rods or bars, which may be triangular or trapezoidal in cross-section, and which are connected together by securing them to the outer edges or peripheries of a series of metallic rings B B, which are provided with notches or recesses C, forming seats for the said bars, which are to be firmly secured by means of soldering or in any other suitable manner in the said seats in such a manner that their outer edges shall be very close to the other, and yet a sufficient distance apart to admit of the passage of water, while sand and other impurities which may be held in suspension therein shall be excluded. The teeth D of the rings B, which separate the notches C in said rings, may be provided with outwardly-extending nibs or projections E, adapted to extend through notches F, formed in the rods or bars A, which latter may then be secured to the rings B by riveting or clinching the projecting ends of the nibs E, as will be seen in Fig. 5 of the drawings. In this manner the rods or bars A may be secured to the connecting-rings B in an exceedingly rigid and substantial manner and without the use of brazing or soldering. The bars A, as well as the supporting-rings B B, are preferably to be made of brass, although other suitable non-corrosive metal may be substituted.

It will be seen that by connecting the bars A A together in the manner described they will form a complete cylindrical strainer. The lower end of this is exteriorly screw-threaded and provided with a solid cap G, the lower end of which may be made tapering, as shown in Fig. 1 of the drawings, so that the device may be readily placed in position, as will be presently more fully described. The upper end of the cylindrical strainer is likewise screw-threaded and provided with a collar H, the outer side of which is made tapering, as will be clearly seen by reference to Fig. 1 of the drawings. The collar H is provided with an interior annular flange I, adapted to bear against the upper edge of the cylindrical strainer, as shown in Fig. 1.

J designates the well-casing, the lower end of which is provided with an annular shoe or collar K, constructed of steel and having a tapering inner side adapted to form a seat for the collar H at the upper end of the strainer, the outer side of which is to be ground so as to fit tightly in the said seat.

In operation, after drilling and lining the well our improved strainer may be brought into the lining. The lining or casing is then lifted or partially withdrawn until the shoe K at its lower end reaches the annular collar H, which automatically drops into its seat in the said shoe. The device is then in position for operation.

It is sometimes necessary to take water from all of the veins through which the well may pass, and in such cases it will be found necessary to use a strainer of considerable length. In such cases the cap G at the lower end of the strainer may be removed and any

desired number of strainer-sections be suitably connected by means of screw-threaded sleeves or couplings until a strainer of the requisite length is produced.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of our improved well-strainer will be readily understood. The construction is simple and inexpensive, and it will be seen that by securing the straining-rods to the outer sides of the connecting-rings they will be braced in such a manner as to enable them to resist any pressure which may be brought to bear upon them, either by caving of the well or from other causes. It will also be seen that our improved strainer may be readily placed in position for operation, and that when once in position it is not liable to become accidentally displaced.

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

1. A strainer for Artesian or tubular wells, comprising a series of vertical longitudinal triangular or trapezoidal bars mounted in notches or recesses in the outer edges of a series of connecting and bracing rings, substantially as and for the purpose set forth.

2. The combination, with a strainer composed of a series of longitudinal vertical bars mounted in recesses in the outer edges of a series of connecting-rings, of a solid exteriorly-beveled cap mounted upon the lower end of said strainer, substantially as set forth.

3. The combination, with a cylindrical strainer comprising a series of vertical longitudinal bars mounted in recesses in the outer edges of a series of connecting-rings and having an exteriorly-screw-threaded lower end, of an interiorly-threaded cap mounted detachably on the lower end of said strainer, substantially as herein set forth.

4. A tubular strainer comprising a series of vertical longitudinal bars mounted in recesses in the outer edges of a series of connecting-rings and having screw-threaded upper end, in combination with a sleeve or collar mounted upon the upper end of said strainer and having an interior annular flange bearing against the same, substantially as herein set forth.

5. A tubular strainer comprising a series of longitudinal bars mounted in recesses in the outer edges of a series of connecting-rings and having screw-threaded upper end, in combination with a sleeve or collar mounted upon the upper end of said strainer and having a beveled or tapering outer side, and an interiorly-tapering shoe or collar secured at the lower end of the well casing or lining and forming a seat for the collar at the upper end of the strainer, substantially as herein set forth.

6. A cylindrical tubular-well strainer comprising a series of vertical longitudinal bars mounted in recesses or notches in the outer edges of a series of connecting-rings and provided at its lower end with a solid cap and at its upper end with an exteriorly beveled or tapering collar having an interior annular flange bearing against the upper edge of said strainer, in combination with an interiorly beveled or tapering shoe attached to the lower end of the well casing or lining and forming a seat for the tapering collar at the upper end of said strainer, substantially as herein set forth.

7. In a cylindrical tubular-well strainer, the combination of a series of connecting-rings having notched or toothed outer edges, with the longitudinal vertical straining-bars mounted in said notches or recesses and retained therein by the clinched or riveted outer ends of the teeth separating said notches, substantially as set forth.

8. The combination, with the connecting-rings having notched or toothed outer edges, the teeth of which are provided with outwardly-extending nibs or projections, of the longitudinal vertical straining-bars adapted to be seated in the notches of the said connecting-rings and provided with notches for the passage of the nibs or projections of the teeth of the latter, substantially as and for the purpose herein shown and specified.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

JOSEPH H. BOONE.
EMANUEL BOONE, JR.

Witnesses:
J. M. COLEMAN,
A. D. ALLEN.