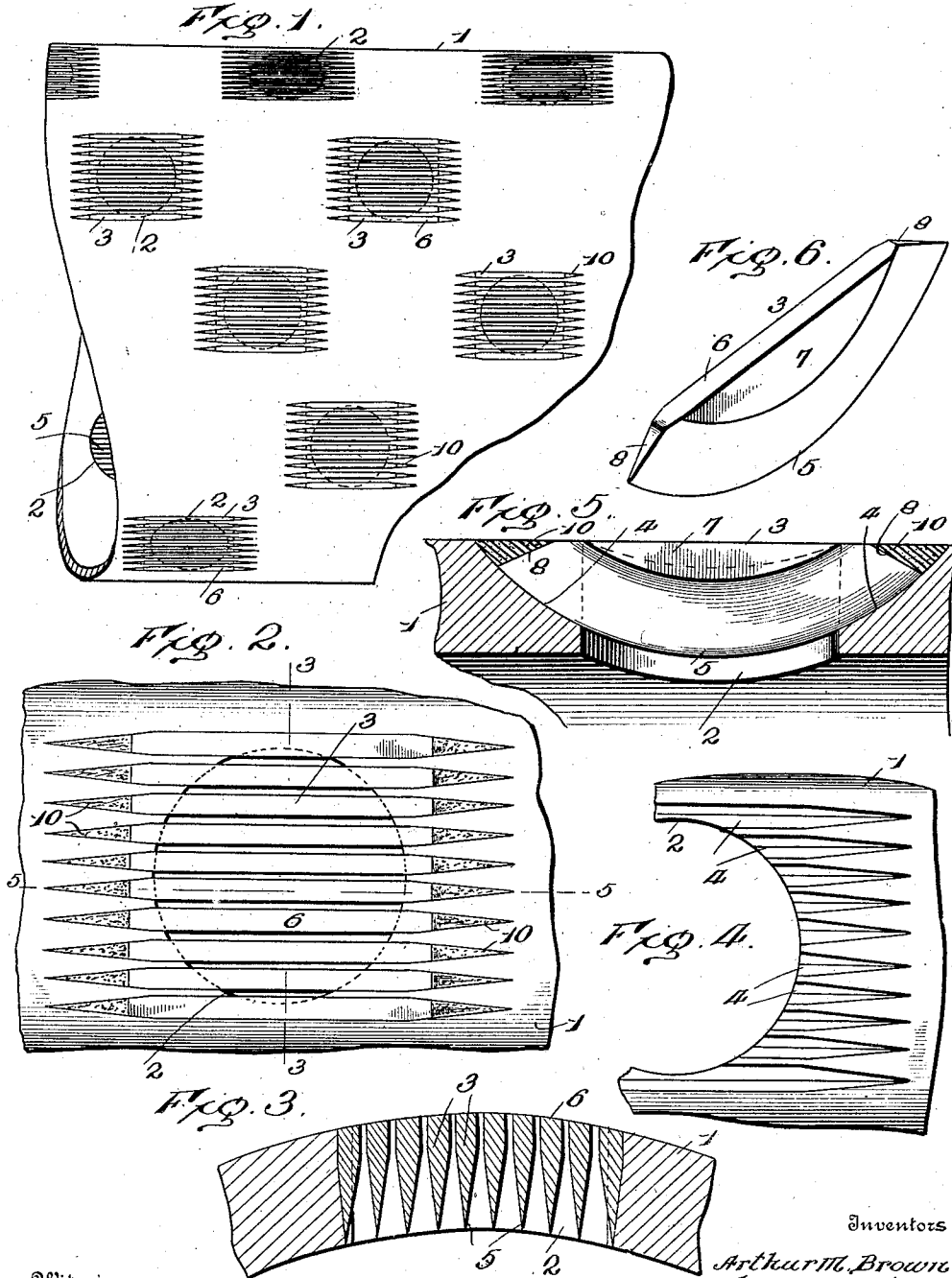


A. M. BROWN & F. HUNTER.
WELL STRAINER.
APPLICATION FILED SEPT. 24, 1907.

929,191.

Patented July 27, 1909.



Witnesses

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UNITED STATES PATENT OFFICE.

ARTHUR MELVILLE BROWN AND FRANK HUNTER, OF HOUSTON, TEXAS.

WELL-STRAINER.

No. 929,191.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed September 24, 1907. Serial No. 394,399.

To all whom it may concern:

Be it known that we, ARTHUR M. BROWN and FRANK HUNTER, citizens of the United States, residing at Houston, Harris county, State of Texas, have invented certain new and useful improvements in Well-Strainers; and we 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.

This invention relates to certain improvements in well screens or strainers; and the objects and nature of the invention will be readily understood by those skilled in the art in the light of the following explanation of the construction shown in the accompanying drawings as the preferred embodiment from among other structures and arrangements within the spirit and scope of our invention.

The invention consists in certain novel features in construction and in combinations and arrangements of parts as more fully and particularly set forth and specified hereinafter.

Referring to the accompanying drawings:—Figure 1, is a side elevation of a portion of a well tube or casing constructed to form a screen or strainer in accordance with the present invention. Fig. 2, is an enlarged elevation of a portion of said casing. Fig. 3, is a cross section on the line 3—3, Fig. 2. Fig. 4, is an elevation on an enlarged scale of a portion of the well casing adjacent to one of the perforations, before the strainer bars have been applied. Fig. 5, is a longitudinal section of the casing on the line 5—5, Fig. 2, one of the strainer bars appearing in side elevation. Fig. 6, is a detail perspective view of one of the strainer bars.

In the accompanying drawings, 1, is a section of a well tube or casing formed to permit inflow of water, oil or other fluid through the walls thereof. This casing or tube section is usually arranged at the lower end of the well tube or casing to form the intake end thereof, and is formed with any suitable number of radial perforations or intake holes 2, drilled or otherwise formed in the casing at regular intervals or arranged or spaced in any desirable manner and of the desired diameter to suit conditions or the requirements of the particular well. Means are provided to screen each perforation, or in other words,

each perforation is provided with its separate individual strainer or screening surface. The strainers of the various perforations are preferably similar in construction and formation, and each strainer preferably consists of a series of parallel closely arranged similar bars 3, usually arranged lengthwise or longitudinally of the casing and fixed therein bridging the perforation, and usually with their outer edges approximately flush with and conforming to the curvature of the outer surface of the casing, as more particularly illustrated by Fig. 3, of the drawings.

As at present advised, we prefer to employ strainer bars 3, similar in shape and dimensions, and each bar can be formed of any suitable material, such as brass or any other suitable metal not quickly deteriorated by the action of water or oil. In the example illustrated, the bar 3, is in length greater than the diameter (or greatest width) of a perforation 2, so that its opposite ends can be inserted and fit down in slots or grooves 4, formed in the outer surface of the casing adjacent each perforation. These slots or grooves 4, are preferably arranged longitudinally or lengthwise of the casing and the grooves of the series at each perforation are parallel and are substantially uniformly spaced apart. Each groove or slot at one end opens into a perforation and usually gradually tapers or decreases in depth away from the perforation, and each groove is usually V-shaped in cross section to center and hold the bar therein, although we do not so wish to limit all features of the invention. These grooves or slots can be formed at each perforation and in the outer surface of the well casing in any suitable manner and by any suitable means to permit the strainer bars being inserted in the casing and rigidly secured or fixed therein. In the specific example shown, each bar is in the form of a narrow flat elongated plate longitudinally curved at its inner edge throughout its length and at both side faces transversely beveled to form a V-shaped inner edge 5. The bar is formed with a straight flat longitudinal outer edge 6, and with flat side faces 7, adjacent the outer edge, while the ends of the bar can be cut off or tapered inwardly and outwardly to form inclined ends 8, which form pockets, at the ends of the grooves or slots to receive solder 10, by which each bar can be sweated, brazed or

soldered in the pipe casing. However, we do not wish to limit all features of our invention to inserted strainer bars of any particular shape nor to any particular means or method of securing the bars in the casing bridging the perforations. We prefer to arrange the inserted bars vertically, that is lengthwise of the well casing, and also as at present advised prefer to so arrange and form the bars that the straining surface at each perforation is formed by vertical narrow slits, each gradually flaring outwardly transversely (see Fig. 3) at its inner side to permit free rapid flow into the casing carrying sediment from the slits. A strainer involving these inserted bars can be easily cleaned and does not readily become fouled by clay, mud or other sediment, and is exceedingly durable in construction and can be manufactured economically.

It is evident that various changes and modifications might be resorted to, and that elements might be added or omitted, without departing from the spirit and scope of our invention, hence we do not wish to limit ourselves to the exact construction shown and described.

What we claim and desire to secure by Letters Patent of the United States is:—

1. A well strainer having a pipe with holes and slots opening thereinto and extending therefrom, and bars separately inserted and secured in said slots and bridging said holes to form strainer surfaces.
2. A well strainer comprising a pipe having an inlet opening and spaced V-shaped slots in its outer wall and extending from said opening, and spaced bars inserted and secured in said slots and bridging said opening to form a strainer surface therein.
3. A well strainer comprising the perforated pipe having spaced slots arranged lengthwise thereof and extending from a perforation and strainer bars bridging said perforation arranged lengthwise of the pipe and secured in said slots.
4. A well casing having series of inlet openings, strainer surfaces for and in each opening each surface composed of spaced bars bridging the opening and set and secured permanently in the adjacent walls of the casing said bars arranged between the planes of inner and outer surfaces of the casing.
5. A well casing having series of separate inlet perforations, and separate series of strainer bars for said perforations, each bar being inserted and separately secured in the casing adjacent to the perforation bridged thereby.

6. A well strainer comprising a casing having inlet openings, and strainer surfaces for said opening, each surface composed of a series of similar bars bridging and projecting beyond the opening with its projected ends seated and soldered down in the casing.

7. A well strainer comprising a casing having an inlet opening, and strainer surface for said opening flush with the outer surface of the casing and consisting of a series of similar separately formed parallel bars inserted in the casing.

8. A well strainer comprising a casing having inlet perforations, and separate strainer surfaces for said perforations, each strainer surface comprising separately formed similar parallel bars bridging the perforations and inserted in the adjacent walls of the casing and having their outer edges substantially flush with the outer surface of the casing.

9. A well strainer comprising a casing having an inlet opening, and a strainer surface thereover composed of a series of parallel separately-formed similar strainer bars bridging said opening and at their opposite ends inserted and secured down in the adjacent wall of the casing, each bar having its side faces transversely converging to the longitudinal inner edge, and having the longitudinal inner surfaces of its ends curving outwardly.

10. A well strainer comprising a casing having an inlet opening, the wall of the casing having depressed seats extending from said opening, a strainer surface for said opening consisting of a series of separately-formed bars bridging the opening and at their ends fitted in said seats, the extremities of the bars being depressed, and means inserted in said seats over said depressed ends to secure said bars in the casing, substantially as described.

11. A well strainer comprising a casing having series of radial inlet openings with depressed outer seats in the walls adjacent thereto, and strainer bars bridging said openings with their ends resting in said seats and having reduced end portions at their outer edges, said bars being secured by solder on said reduced end portions.

In testimony whereof we affix our signatures, in presence of two witnesses.

ARTHUR MELVILLE BROWN.
FRANK HUNTER.

Witnesses:

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