

UNITED STATES PATENT OFFICE.

JESSE NORRIS BOLLES, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO H. J. OCKERSHAUSEN.

JOINT OF PIPES FOR ARTESIAN WELLS.

Specification of Letters Patent No. 13,114, dated June 19, 1855.

To all whom it may concern:

Be it known that I, JESSE NORRIS BOLLES, of Philadelphia, in the State of Pennsylvania, have invented a new and Improved Mode of Constructing Artesian Wells by the Use of Cylinders, which I denominate "Flush Pipe;" and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in rendering the cylinders or tubes flush, or on a line upon their exterior surfaces by means of wrought iron hoops or bands, being shrunk upon the reduced ends of two cast iron tubes (see Figures Nos. 4 and 5 letters H and I), thus making it well nigh impossible for objectionable water to pass down by the side of the tubes, through impervious strata into the good water found below, which is often the case with the tubes commonly used for that purpose, (see Fig. No. 1, letters A and B).

I make my ordinary tubes of cast iron, in lengths of eight feet, and eight inches caliber at each end for three inches, (see Figs. Nos. 3, 4 and 5, letter F) the remaining portion of the pipe being eight and half inches caliber (see letter G). The tubes being $\frac{3}{8}$ of an inch in thickness, measure $8\frac{3}{4}$ inches outside diameter at the ends, and nine and one quarter inches in diameter, the remaining portions of the tubes. The ends of each tube having been squared up, or turned in a lathe are joined together, (see Fig. 5, letter I) by heating a wrought iron hoop or band, six inches wide and one quarter of an inch in thickness, to a proper heat, and while thus expanded, is placed upon the upper end of a pipe, when another

tube of like size, is lowered into the band, which, upon cooling, contracts to such a degree as to make, not only a perfectly tight joint, but one much stronger than by any other mode heretofore adopted, and thereby effectually accomplishing the principal object in boring for water, viz, to exclude all objectionable water and retaining only that obtained at the lower orifice of the tubes. The longer sizes, from four feet to thirty feet, and even larger, diameter may be made of iron or wooden cylinders and shod with iron (see Fig. No. 6, letters A to G) and may or may not be lined with brick and cement, as circumstances may require.

I am aware that tubes have been rendered flush, by means of screw joints and also that wrought iron bands have been shrunk upon straight tubes (see Fig. No. 1), the thickness of the bands projecting beyond the line of tubes and thus cut the impervious beds to such an extent that the objectionable water percolates down the outside of the pipe and mixes with the good water at the bottom and injuring or entirely spoiling the well.

What I claim as my invention and desire to secure by Letters Patent is—

The mode of rendering cylinders or tubes flush, or upon a line on their exterior surfaces for Artesian wells or for other purposes as herein described or any other mode substantially the same which will produce the same effect.

JESSE NORRIS BOLLES.

Witnesses:

H. J. OCKERSHAUSEN,
CHAS. WITTENDORFF,
WILLARD BLASDELL.