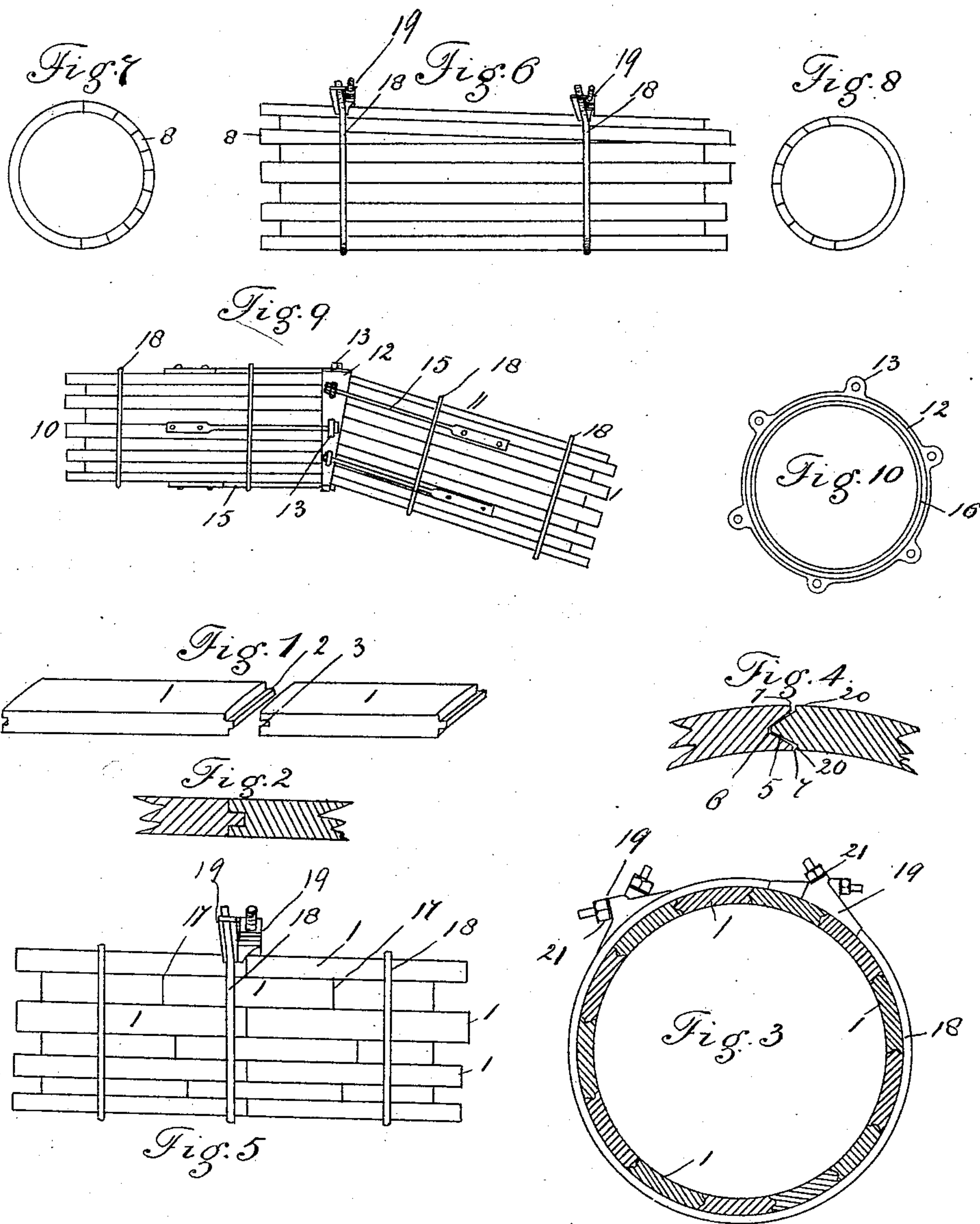


(No Model.)

C. W. DWELLE.
WOODEN PIPE.

No. 444,339.

Patented Jan. 6, 1891.



WITNESSES:

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CHARLES W. DWELLE, OF DENVER, COLORADO.

WOODEN PIPE.

SPECIFICATION forming part of Letters Patent No. 444,339, dated January 6, 1891.

Application filed January 28, 1890. Serial No. 383,423. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. DWELLE, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Wooden Pipes; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in wooden pipes, said improvements consisting of a new and improved means of uniting the staves of built-up pipes and of joining sections of pipe of different diameters and of forming joints in the pipe for the purpose of changing the direction of the same, and other features, all of which are hereinafter described and claimed.

The object of my improvement is to provide a wooden pipe forming a conduit for conducting water from a main supply source to a central reservoir centrally located for supplying cities with the necessary water for irrigation and domestic purposes.

In the drawings is illustrated an embodiment of the invention, in which—

Figure 1 is a perspective view of the ends of two staves, one of said ends being provided with a tongue and the adjacent end with a corresponding groove. Fig. 2 is a longitudinal section of the same, showing the tongue in place within the groove. Fig. 3 is a vertical section of the pipe, showing the edges united by tongues and grooves. Fig. 4 is an enlarged section showing the edges of two staves united by a tongue and groove of peculiar construction. Fig. 5 is an elevation of the pipe. Fig. 6 is an elevation of a section of pipe, illustrating the manner of joining two sections of different diameters. Fig. 7 is an elevation of the larger extremity of Fig. 6. Fig. 8 is an elevation of the smaller extremity of said figure. Fig. 9 is an elevation of two sections of pipe extending in different directions and united by my improved joint. Fig.

10 is an end elevation of the metal joint uniting the sections of pipe shown in Fig. 9.

In the drawings, let the reference-numerals 1 1, &c., indicate the staves whose ends are united by tongues and grooves, the tongues 2 on one end of a staff being fashioned to engage or fit within a corresponding groove 3 in the adjoining end of another staff in the built-up pipe. The edges of the staves are also united by tongues 5 entering in corresponding grooves or slots 6 of the adjoining staves.

The tongues and grooves formed upon the edges of the staves may be of any suitable construction, or they may be so fashioned that the end of the tongue shall engage the bottom of the corresponding groove before the adjacent shoulders 20 of the parts come in contact, leaving a space 7 between said shoulders, as shown in Fig. 4. The object of the space 7 is to give the wood forming the staves an opportunity to swell before the shoulders come in contact, filling the spaces 7 without subjecting the bands or hoops to any strain.

The absorption of water by the staves is sure to follow the use of the pipe for the purpose herein specified. If the shoulders of the edges of the staves are in contact when the pipe is constructed, the strain upon the bands surrounding the same by reason of the swelling of the pipe during use is very great. The space 7 is left to obviate this difficulty and permit the pipe to swell without undue strain upon the hoops.

In uniting the edges of the staves by tongue and grooves the strength of the pipe is greatly increased, since, as shown in Fig. 5, the pipe in practice is built up of staves of unequal lengths, there being consequently no regularity about the location of the joints 17 formed by the contact extremities of the staves. Hence these joints 17 must be located at irregular intervals between the hoops 18 surrounding the pipe. It will be observed that great additional strength is given these joints 17 by reason of the edges of the staves being united by tongues and grooves, as before stated.

In building wooden pipe of the class herein set forth it is often necessary to change the diameter of the pipe. This is readily and

easily accomplished by the use of a joint of pipe in which one or more staves are eliminated by tapering to a point, as shown in Fig. 6. In this case I will suppose that the pipe of greater diameter is illustrated in Fig. 7, and the pipe of less diameter in Fig. 8. I will also suppose that by eliminating one stave from the larger pipe it will be reduced to the required size.

Let the numeral 8, Fig. 7, designate the stave to be removed. I now form a joint of pipe, as illustrated in Fig. 6, having its larger end of the same diameter as the larger pipe, and with one stave 8 of the required width gradually tapering to a point, being practically eliminated from the pipe beyond this point. The pipe having thus been reduced to the required diameter, the construction of the same is continued as before.

In changing the direction of the pipe, which is often necessary, I employ the means illustrated in Fig. 9, in which the numerals 10 and 11 designate two sections of pipe extending in different directions and united by the metal elbow-joint 12, provided with lugs 13, having apertures through which passes one extremity of rods 15, said rods being secured at their opposite extremities to the sections 10 and 11 of the pipe. The rods 15, after passing through apertures in the lugs 13, are secured in place by nuts screwed thereon and engaging the lugs.

Part 12 is preferably provided with an annular groove 16 in each end for the reception of the pipe-sections which it unites.

The hoops 18 are strap-bolts surrounding the pipe and threaded upon both extremities, which are united by the coupling-shoe 19, provided with shoulders 20 for the engagement of the nuts screwed upon the extremities of the strap-bolt. This strap-bolt and the coupling-shoe are shown in my previous application for Letters Patent, Serial No. 327,733, filed October 21, 1889.

I am aware of the patent to Allen, No. 359,590, dated March 22, 1887, wherein is shown a pipe made of wooden staves which are interlocked at each cross-joint by a concealed metallic tongue seated in grooves in the abutting stave ends and projecting a little at each side thereof into the edges of the adjoining staves. Hence I do not claim this construc-

tion, but emphatically disclaim any right thereto; but

What I do claim is—

1. A wooden pipe formed of staves having their adjoining ends united by tongues and grooves, the tongues being formed integral with the staves and entirely across their ends and the grooves formed by cutting out the abutting stave ends and fashioned to receive said tongues, substantially as described.

2. A wooden pipe formed of staves having their edges united by tongues and grooves, the tongues being of greater length than the depth of the grooves, so that a space shall be left between the shoulders of the adjoining edges, substantially as described, and for the purpose set forth.

3. The combination, with two sections of built-up wooden pipe of different diameters, of an intermediate section of pipe adapted to join said sections, the intermediate section having one or more of its staves tapering to a point, while the other staves remain of the same width throughout their length, substantially as described.

4. The means herein described of joining two sections of wooden pipe extending in different directions, said means consisting of the metal elbow part 12, provided with lugs 13, and rods 15, secured to the sections of pipe at one extremity, the opposite extremity passing through the lugs 13 and secured in place by nuts screwed thereon, substantially as described.

5. A wooden pipe built up of staves of unequal length and surrounded by suitable hoops, said staves having their adjoining edges and ends united by tongues and grooves, the tongues being formed integral with the staves and throughout their length, the grooves being formed within the abutting edges of the staves and fashioned to receive the corresponding opposite tongues, for the purpose of supporting the end joints of the staves between the hoops, substantially as described.

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

CHARLES W. DWELLE.

Witnesses:

FRED. W. FELDWISCH,
WM. MCCONNELL.