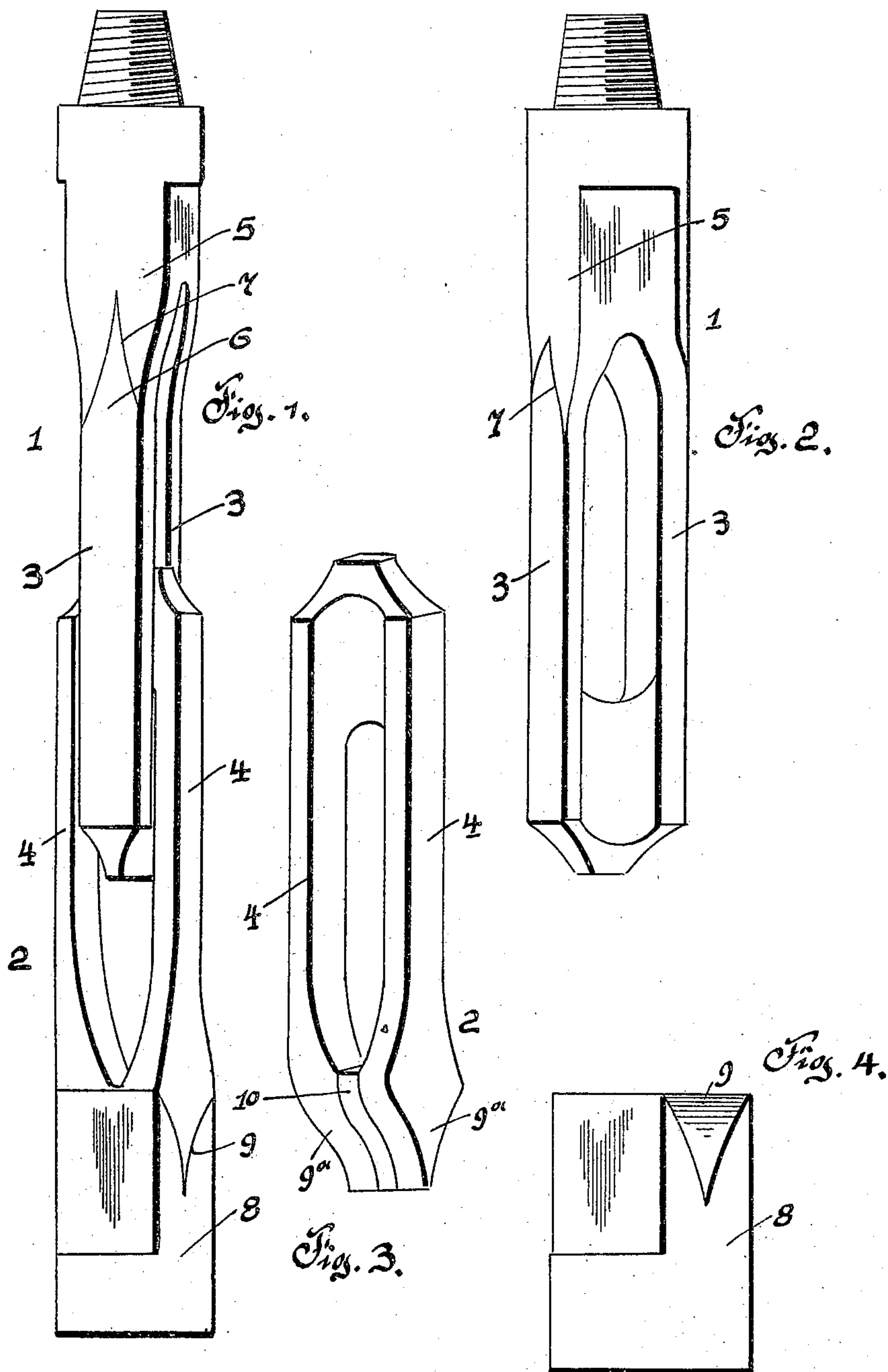


No. 820,180.

PATENTED MAY 8, 1906.

E. L. CLEVELAND.  
JAR OF DRILLING TOOLS.  
APPLICATION FILED FEB. 2, 1906.



Witnesses:  
C. Westermann.

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# UNITED STATES PATENT OFFICE.

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OF ONE-HALF TO ROBERT LESLIE LAMBERTON, OF SISTERSVILLE,  
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## JAR OF DRILLING-TOOLS.

No. 820,180.

Specification of Letters Patent.

Patented May 8, 1906.

Application filed February 2, 1906. Serial No. 299,167.

*To all whom it may concern:*

Be it known that I, ERASTUS L. CLEVELAND, a citizen of the United States of America, residing at Sistersville, in the county of Tyler and State of West Virginia, have invented certain new and useful Improvements in Jars of Drilling-Tools, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in jars of drilling-tools; and the invention has for its primary object to provide a pair of jars which will be strong and durable and capable of withstanding the  
15 rough usage to which they are subjected.

My invention aims to increase the life of a pair of jars by constructing them whereby the weld of the jars will not be at the weakest point of the jars—for instance, the reins  
20 thereof.

Heretofore it has been the practice in connecting the two parts of the jars together to weld the reins to the body portion of the jar, and by this practice considerable trouble has  
25 been experienced on account of the weakening of the reins of the jars. As the reins are of less area than the cap of the jars, a greater stress and strain is exerted upon the reins, and as the weld is made in the reins the weld  
30 is often broken or opened. To obviate these defects, I join the two parts of the jars together above or below the reins in that part commonly known as the "cap," thereby adding greater rigidity to the jars and pro-  
35 viding a weld which cannot be readily broken or affected by the crystallization of the steel or metal from which the reins are made.

With the above and other objects in view, which will more readily appear as the nature  
40 of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts to be hereinafter more fully described, and specifically pointed out in the claim, and, referring  
45 to the drawings accompanying this application, like numerals of reference designate corresponding parts throughout the several views, in which—

Figure 1 is a perspective view of a pair of  
50 jars. Fig. 2 is a perspective view of one of

the links of the jars. Fig. 3 is a perspective view of an associate link, and Fig. 4 is a perspective view of a cap.

In the accompanying drawings the reference-numeral 1 designates the upper part of  
55 a pair of jars, and the reference-numeral 2 the lower part of said jars, these parts being connected together by the reins 3 3 of the part 1 and the reins 4 4 of the part 2. In order that the parts 1 and 2 may be connected  
60 together, it has been the practice heretofore to connect the reins 3 3 to the body portion or cap 5 of the part 1, this connection being made by tapering the ends of the reins  
65 3 3, as at 6 6, and providing the tapering recesses 7 7 in the body portion or cap 5 to receive the ends of the reins, said reins being welded therein. As the jars when used are  
70 inclined and subjected to the process of crystallization, the juncture of the reins with the body portion or cap 5 is affected and weakened, often causing the reins to separate from the body portion and incurring considerable trouble and expense in removing the  
75 body portion from a well. The reins are naturally the weakest point of the jars, and by connecting the reins to the body portion or cap of the jars in the manner described this point of the jars is further weakened.

My invention resides in entirely dispensing  
80 with connecting the reins to the body portion or cap and by making the weld in the body portion or cap 8 of the part 2 of the jars. This is accomplished by providing the part 8 with a wedge-shaped recess 9 to receive the  
85 wedge-shaped tongues 9<sup>a</sup> 9<sup>a</sup> of the reins 4, said reins being further connected together by an arm or steel plate 10, interposed between the tapering tongues 9<sup>a</sup> 9<sup>a</sup> of the reins and welded therein simultaneously with the  
90 operation of the welding of the reins in the wedge-shaped recess 9 of the cap 8.

The use of the jars and the many advantages of my improved construction will be apparent to those skilled in the art of well-  
95 drilling, and such changes in the details of construction as are permissible by the appended claim may be resorted to without departing from the spirit and scope of the invention.



What I claim, and desire to secure by Letters Patent, is—

The combination with the upper part of a pair of jars of a cap and reins adapted to be  
5 connected to the said upper part, said reins having tongue-shaped ends, a plate interposed between said ends, said cap having a wedge-shaped recess formed therein, to receive the tongues of said reins and said plate,

the ends of the reins and the said plate being welded, with the said cap, into a solid mass, substantially as described.

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

ERASTUS L. CLEVELAND.

Witnesses:

J. C. WAY,

G. L. LOWTHER.