(No Model.)

C. VETTER.

CASING FOR CAVITIES.

No. 471,629. Patented Mar. 29, 1892

Fig. 1.

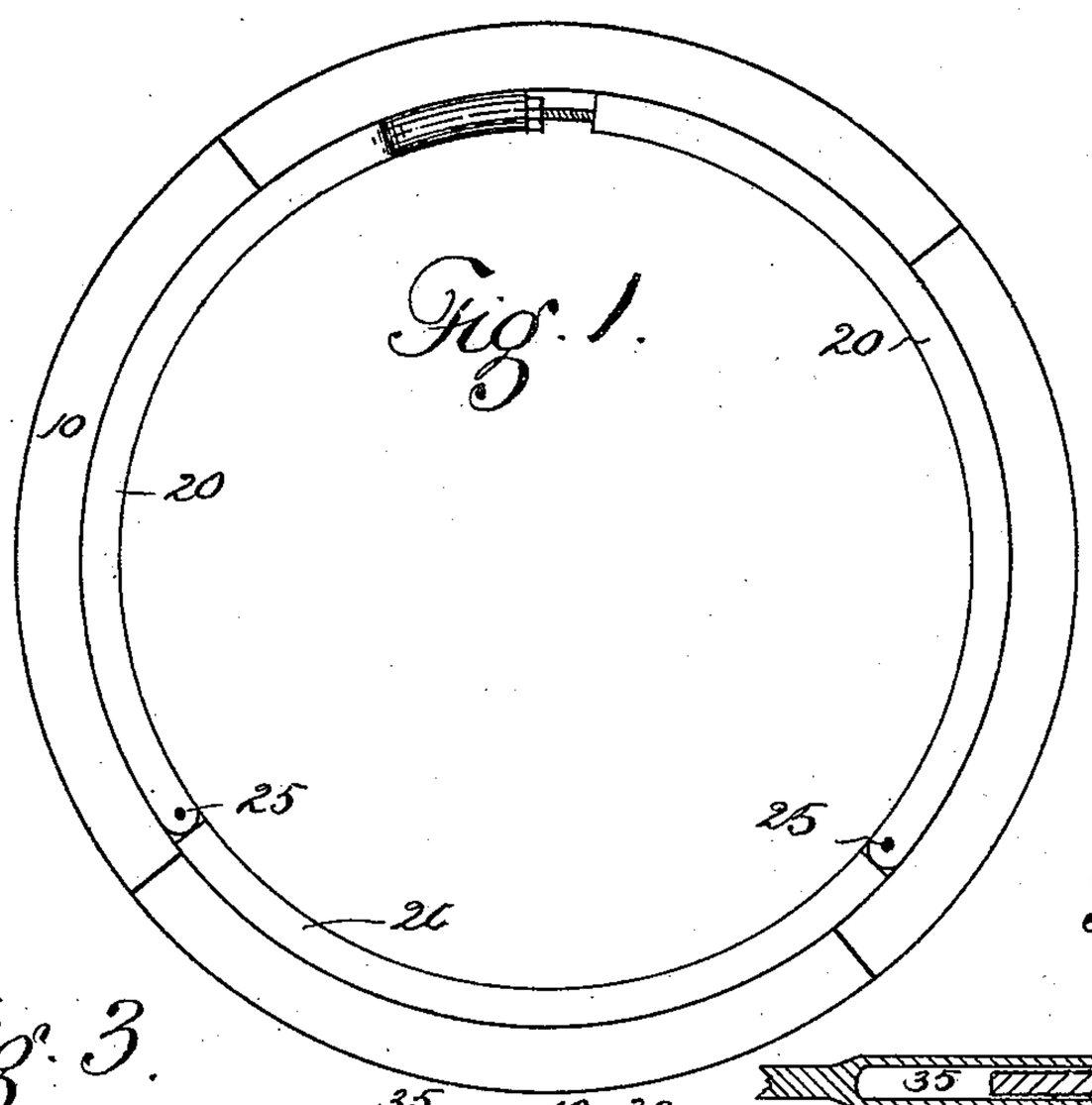


Fig. 3.

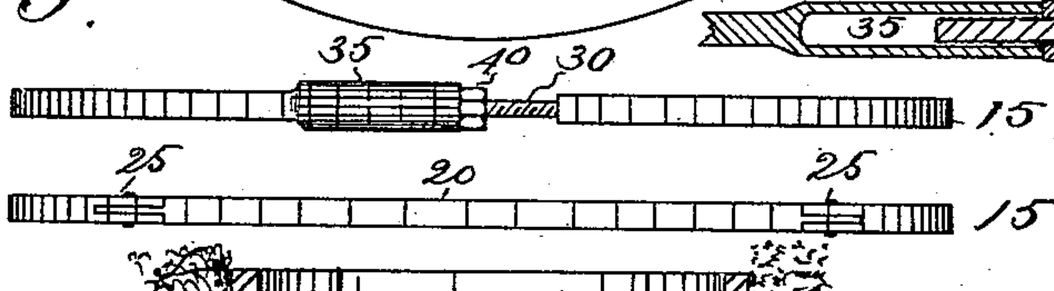


Fig. 4.

Fig. 5.

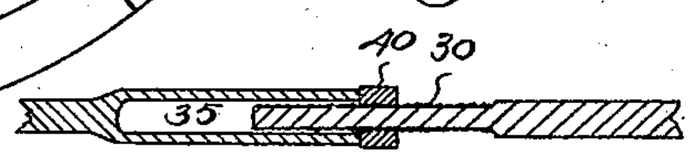
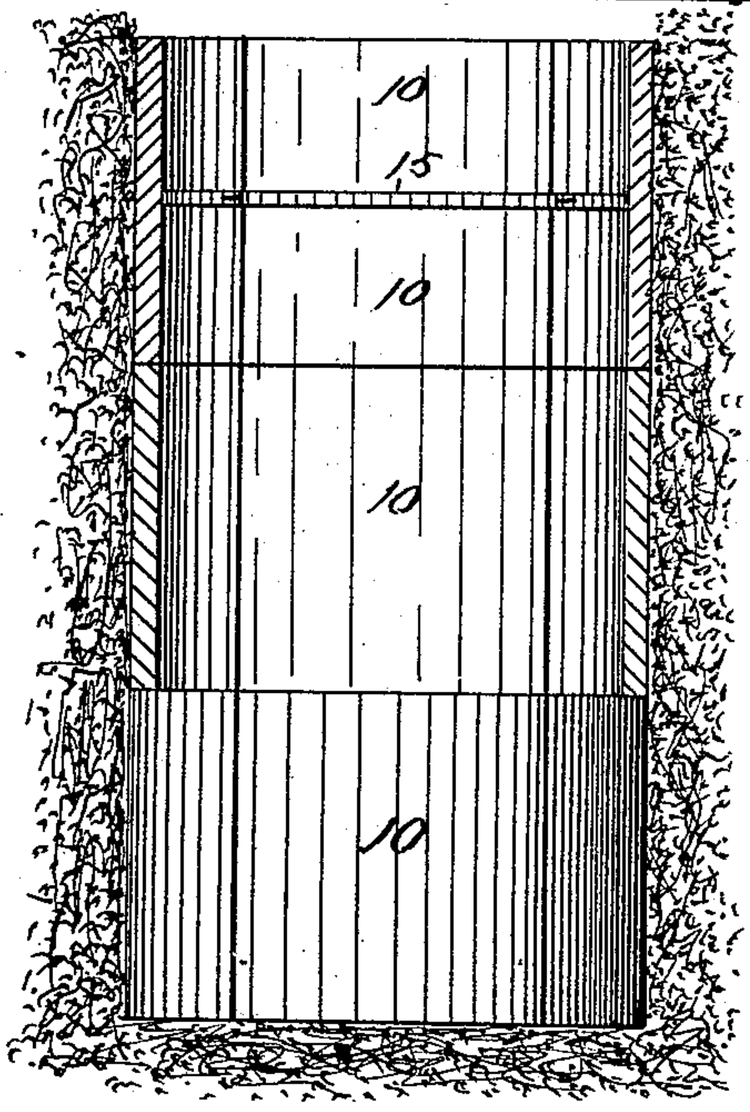


Fig. 2.



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UNITED STATES PATENT OFFICE.

CARL VETTER, OF DENVER, COLORADO.

CASING FOR CAVITIES.

SPECIFICATION forming part of Letters Patent No. 471,629, dated March 29, 1892.

Application filed June 18, 1891. Serial No. 396,771. (No model.)

To all whom it may concern:

Be it known that I, CARL VETTER, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Means for Casing Cavities; 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 means for casing or tiling wells, sewers, or other drains, water-conduits, &c.

The object of the invention is to provide a simple, inexpensive, and practicable means for walling these shafts, conduits, or drains whereby the work may be completed from the top downward, thereby avoiding all danger of the caving in of the walls, as often happens in the case of well-shafts, the walls of which are often left in the imperfect natural state until the well has been dug to a considerable depth beneath the surface.

My improvement is specially designed for use in walling circular cavities. The tiles for use are therefore made in sections having any desired surface area, said sections being concavo-convex in shape, and having the radii of their curves determined by the size of the cavity to be tiled. These sections are arranged in series surrounding and engaging the natural walls of the cavity, the sections being cemented at the joints. Each circumferential series is held in place against the natural walls of the cavity by an adjustable ring engaging the inner periphery of the sections and crowding them out against the natural wall sufficiently tight to hold them securely in place until the joints between the sections which are cemented together are dry and hard. In the mean time other series of sections may be placed in position and the work continued indefinitely. It will thus be seen that by the use of my improved adjustable ring a vertical shaft may be tiled or walled from the top downward, as it is formed without difficulty. For instance, the vertical cavity is first formed to a depth equal to the length of the sections, ordinarily about two or three feet. The sections are then placed in position, their joints cemented, and the ring adjusted, as before stated. The depth of the cavity is then increased to receive another series of these tile-sections, the upper series being prevented from sliding downward by the pressure of the adjustable ring. In this manner the entire shaft is walled by locating the series of sections in succession from the top downward as fast as the cavity is formed.

My improvement will be fully understood by reference to the accompanying drawings, wherein is illustrated an embodiment of the invention.

In the drawings, Figure 1 is an end view of a series of tile-sections, the adjustable ring being shown in place. Fig. 2 is an elevation, partially in section, of a shaft walled after the manner of my improvement. Figs. 3 and 4 are edge views of the adjustable ring, and Fig. 5 is a fragmentary sectional view illustrating the adjustable joint.

In the views, wherein similar reference characters indicate like parts of the mechanism, let the numeral 10 designate the tile-sections, which may be constructed of any suitable material, as cement, sand, and gravel, molded to the proper shape and size and dried to a suitable hardness. The adjustable supporting-ring 15 consists of any suitable number of hinged sections 20, the joints 25 being formed in any suitable manner. A suitable construction, as shown in the drawings, consists in forming a central tongue on the extremity of one section and a corresponding groove or socket in one end of the other section for the reception of the tongue. The parts are then united by a pivot and so fashioned as to form a joint having perfect freedom of movement. This ring when disconnected from the tiles it is designed to support may be opened readily, since one extremity 30 of one section 20 telescopes in the hollow or the tubular portion 35 of the adjoining section. Extremity 30 is threaded and provided with a nut 40, correspondingly threaded and screwed thereon. When the ring is in position for use, the threaded extremity 30 extends into socket 35, which is large enough to receive it without

friction, and the nut engages the end of the ring in which the socket is formed. It is evident that by turning this nut the size of the ring may be increased or diminished at pleasure.

In tiling vertical cavities a series of sections extending around the cavity is first located, the joints cemented, and the ring placed in position and adjusted, so as to cause sufficient friction between these sections and the natural walls to prevent the sections from moving when the cavity is formed deeper by removing the foundation originally supporting the sections and engaged by their lower extremities.

In walling sewers, drains, &c., the sections 10 forming the lower portions of the wall are first placed in position and the ring 15 located and adjusted. The sections 10 forming the upper portion of the wall are then placed in position outside of the ring which supports them in place. After the cement uniting the joints of the tile-sections has become hard the ring is loosened and removed, and may then be employed in walling another portion of the cavity. Hence in ordinary cases only a few of these rings will be necessary since each ring may be employed an indefinite number of times.

It is evident that ring 35 may have more than one adjustable telescoping joint. One, however, is considered preferable.

Having thus described my invention, what I claim is—

The combination, in a means for walling cavities, of the wall-sections and the supporting-ring consisting of a plural number of hinged parts having a single screw-adjustable telescoping joint, one extremity of one of the parts of said ring containing a socket, the adjoining extremity of one of the other parts being threaded and provided with a nut, the threaded extremity of one part being adapted to enter the socket of the other part during the adjustment of the ring, which is accomplished by turning the nut, substantially as described.

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

CARL VETTER.

Witnesses:
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