

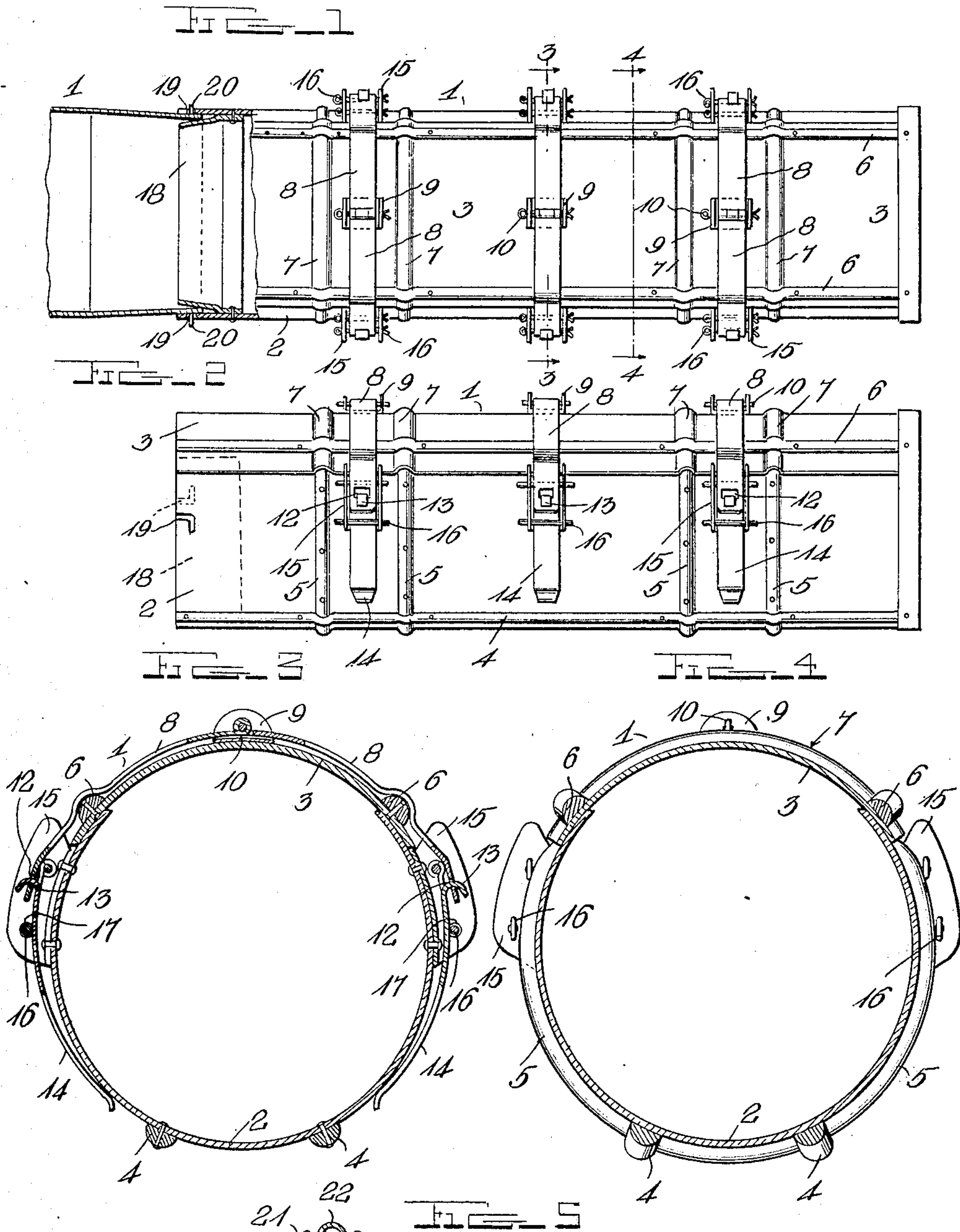
W. M. CASWELL.

METAL CONDUIT.

APPLICATION FILED NOV. 12, 1908.

913,359.

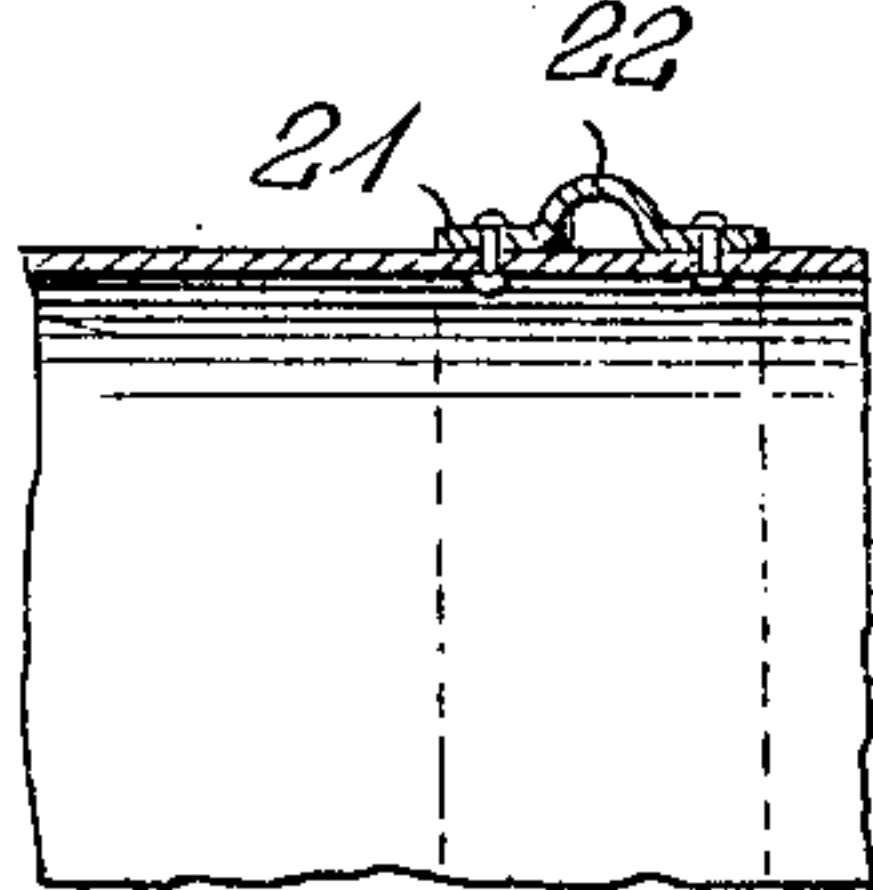
Patented Feb. 23, 1909.



Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM M. CASWELL, OF WARREN, PENNSYLVANIA.

## METAL CONDUIT.

No. 913,359.

Specification of Letters Patent.

Patented Feb. 23, 1909.

Application filed November 12, 1908. Serial No. 462,300.

*To all whom it may concern:*

Be it known that I, WILLIAM M. CASWELL, a citizen of the United States, residing at Warren, in the county of Warren and State of Pennsylvania, have invented certain new and useful Improvements in Metal Conduits; 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.

This invention relates to improvements in metallic conduits, culverts and the like.

The object of the invention is to provide a conduit of this character formed in separable upper and lower longitudinal sections, the upper one of which is detachably secured to the lower section by means of suitable fastening devices whereby said upper section may be readily removed from the lower section and the conduit thus opened for cleaning or other purposes.

A further object is to provide an arrangement of braces whereby the conduit is strengthened both longitudinally and transversely.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be described and particularly pointed out in the appended claims.

In the accompanying drawing, Figure 1 is a top plan view of a section of conduit constructed in accordance with the invention; Fig. 2 is a side view of the same; Fig. 3 is a cross sectional view on the line 3—3 of Fig. 1; Fig. 4 is a similar view taken through the fastening device of the conduit on the line 4—4 of Fig. 1; and Fig. 5 is a detail view of a modified form of strengthening brace.

Referring more particularly to the drawings, 1 denotes the conduit which is formed in suitable lengths and which are joined together in a manner hereinafter described. Each length of the conduit is formed in two parts, or sections, a lower section, 2, and an upper section, 3. The sections or parts are formed of galvanized sheet metal which may be suitably corrugated or made plain, as shown. The lower section, 2, is substantially cylindrical in shape, having its upper side cut out throughout its entire length to form an opening whereby access may be had to the interior of the conduit. The upper section, 3, is of segmental shape and is adapted to

cover the opening in the upper side of the lower section, and to lie over the upper edges of the latter whereby a tight closure is provided for the open upper part of the lower section.

The lower section, 2, of the conduit is provided with a series of longitudinally disposed brace bars or rods, 4, and a series of transversely disposed brace rods or bars, 5, said brace rods 4 and 5 being preferably formed of half round metal rods which are riveted or otherwise suitably fastened to the lower section or conduit. The upper section, 3, is provided with a series of longitudinally disposed brace bars, 6, which are also formed of half round metal rods. The upper section is also provided at intervals along its length with transversely disposed grooves or corrugations, 7, which form strengthening ribs for said section. Instead of the corrugations, 7, I may employ transverse brace rods for the upper section, such as are employed in connection with the lower section.

The upper section, 3, is detachably secured to the lower section by means of suitable fastening devices, which consist of metal straps, 8, the inner ends of which are hingedly connected to bearing brackets, 9, secured to the upper section, 3, midway between its opposite edges by means of cotter pins or other suitable fastening devices, 10. The straps, 8, are of sufficient length to project beyond the opposite edges of the upper section and in the ends of said straps are formed apertures, 12, which are adapted to be engaged by hook-shaped lugs, 13, on clamping levers, 14, which are pivotally mounted in suitable bearing brackets, 15, secured to the outer sides of the lower section adjacent to its upper edges. The hook-shaped lugs, 13, are arranged eccentrically to the pivotal connection of the levers so that when said lugs are engaged with the apertures in the fastening straps, 8, and the levers swung outwardly against the opposite sides of the lower section, said straps will be drawn tightly around the loose section of the conduit, thereby securely clamping said section into engagement with the lower section. When the clamping levers have thus been actuated to secure the fastening strap, the levers are held in their operative position by means of locking pins, 16, which are inserted through aligned apertures, 17, formed in the bearing brackets, 15, as shown. The upper section of the conduit when thus



secured will be held in tight engagement with the lower section and may be readily removed by releasing the clamping levers and straps.

5 In forming the lengths of the conduit, one end is made of slightly less diameter than the opposite end so that the smaller end of one length may be inserted in the larger end of the next adjacent length to form a close-fitting connection which is made fluid-tight in the lower sections of the conduit by means of a segmental guard flange, 18, which is secured in the larger end of each of the lengths of the conduit and is adapted to overlap the smaller end of the next adjacent length when said smaller end is inserted in the larger end of the next section. In the larger end of the lower section of each length of the conduit are formed oppositely-disposed bayonet slots, 19, with which are adapted to be engaged locking studs, 20, formed on the smaller end of the adjoining section whereby said sections are securely locked together.

25 While I have shown the sections of the conduit as being provided with longitudinal and transversely disposed half-round brace rods, I may, if desired, employ other forms of bracing devices, one form of which is illustrated in Fig. 5 of the drawings, and consists of a strip, 21, of sheet metal having formed through its center a bead or corrugation, 22. Said strips are riveted along their side edges to the sides of the conduit.

35 While I have shown and described my invention as a conduit, it is obvious that the same may be employed as a culvert, or when made of sufficient size may be employed as a silo.

40 From the foregoing description, taken in connection with the accompanying drawing, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

45 Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as defined in the appended claims.

50 Having thus described my invention, what I claim as new and desire to secure by Letters-Patent is:

1. A conduit comprising a lower section, an upper section removably engaged with said lower section, means whereby said sections are braced longitudinally and transversely, a series of fastening straps secured to said upper detachable sections, and means whereby said straps are fastened to secure the upper section in place on the lower section.

2. A conduit of the character described comprising a lower section having formed in its upper side a longitudinally disposed passage or opening, a removable cover section adapted to be engaged with said lower section to close said passage, a series of fastening straps pivotally connected at their inner ends to the upper section, clamping levers pivotally connected to the opposite sides of the lower section, eccentrically arranged strap-engaging lugs secured to said levers and adapted to be engaged with the outer ends of the straps whereby the latter are drawn to an operative position to secure the upper section in place on the lower section, and means to lock said levers in an operative position.

3. A conduit of the character described, comprising a lower section having a series of transversely disposed brace rods fastened thereto at intervals along its length, a series of longitudinally disposed brace rods secured thereto, a removable section adapted to be engaged with the lower section to close the latter, said removable section having formed therein a series of transversely disposed corrugations adapted to form braces, and a series of longitudinally disposed brace rods, a series of bearing brackets secured to said upper section, fastening straps pivotally connected at their inner ends to said brackets, and having in their outer ends apertures, a series of bearing brackets arranged on the opposite sides of the lower section, clamping levers pivotally mounted in said brackets, eccentrically arranged clamping lugs on said levers adapted to be engaged with the apertures in the ends of said straps, and locking pins arranged in said brackets to hold said levers in an operative position.

4. A conduit of the character described, formed of a series of lengths, said lengths being smaller at one end than at the other and formed in upper and lower separable sections, means to hold said separable sections in operative engagement, a guard flange arranged in the larger end of each of said sections to engage and overlap the inserted end of the next adjacent length, bayonet slots formed in the larger end of each of said sections, and locking studs formed on the smaller end of the adjacent length and adapted to be engaged with the bayonet slots whereby the lengths are detachably secured together.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM M. CASWELL.

Witnesses:

JOHN E. WHEELER,  
THADDEUS P. REIZ.