Sept. 20, 1932. C. B. SHANLEY 1,877,996

MANHOLE COVER

Filed Aug. 29, 1930 2 Sheets-Sheet 1

Fig. 1.

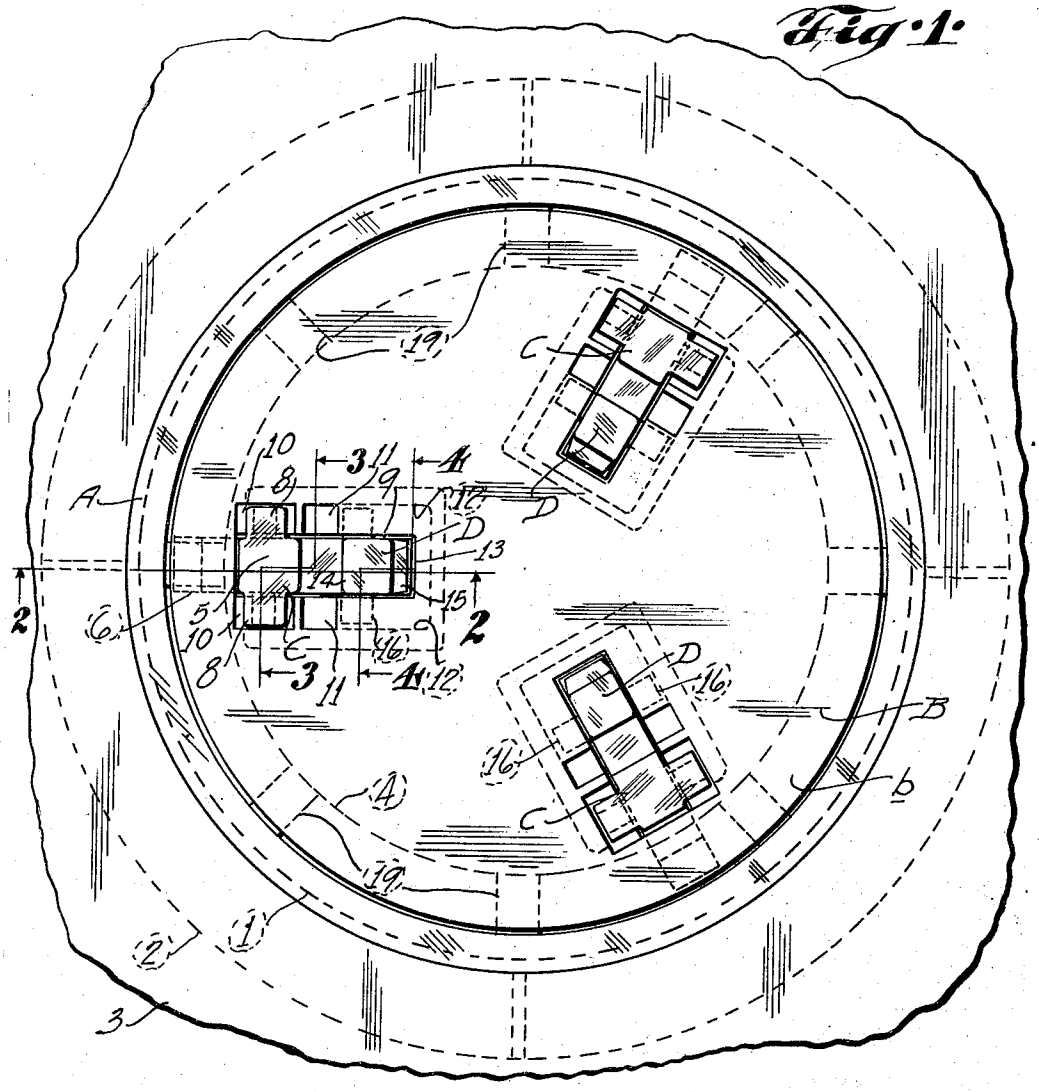
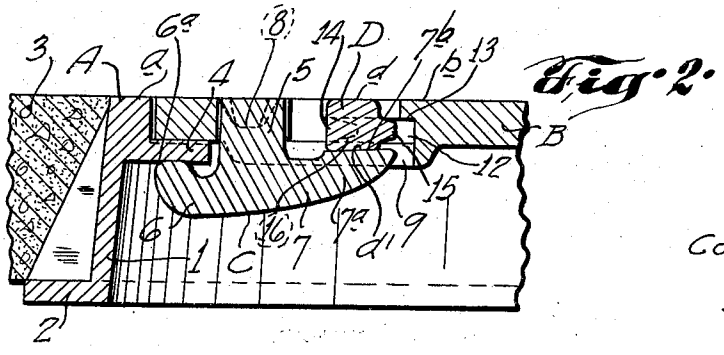


Fig. 2.



INVENTOR
Connor B. Shanley.
By Alexander Ramsey
ATTORNEY

Sept. 20, 1932. C. B. SHANLEY 1,877,996

MANHOLE COVER

Filed Aug. 29, 1930 2 Sheets-Sheet 2

Fig. 3.

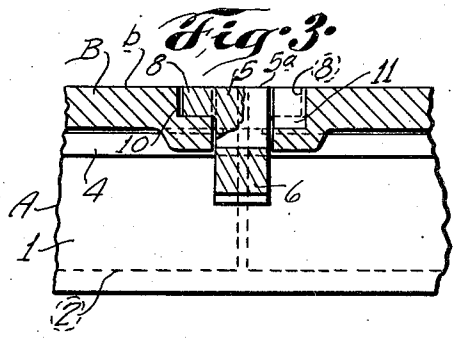
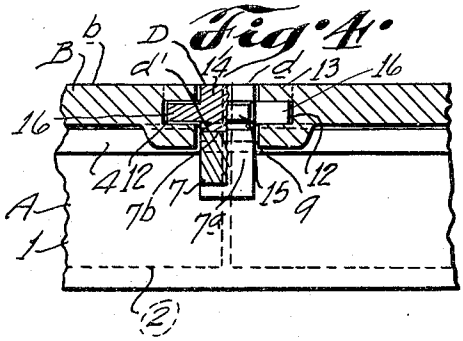


Fig. 4.



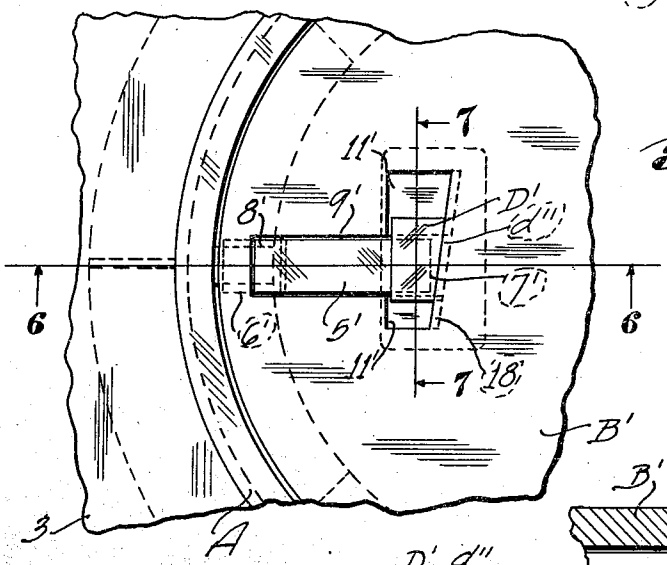


Fig. 5.

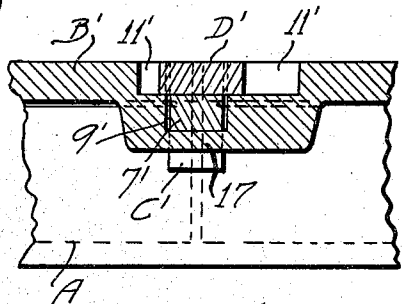


Fig. 7.

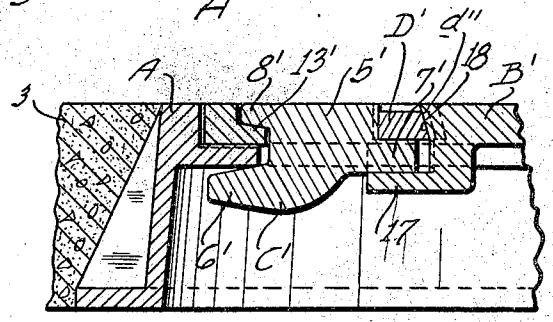


Fig. 6.

INVENTOR
Connor B. Shanley.
By Ralph Reina
ATTORNEY

Patented Sept. 20, 1932 1,877,996

UNITED STATES PATENT OFFICE

CONNOR B. SHANLEY, OF ST. LOUIS, MISSOURI

MANHOLE COVER

Application filed August 29, 1930. Serial No. 478,617.

This invention relates to certain new and useful improvements in man-hole covers and has for its object the provision of man-hole covers so constructed and equipped that they may with ease and facility be firmly, tightly, and securely anchored or engaged detachably or removably with man-hole frames of different and variant types.

And with the above and other objects in view, my invention resides in the novel features of form, construction, arrangement, and combination of parts hereinafter described and pointed out in the claims.

In the accompanying drawings,—

Figure 1 illustrates in plan a man-hole cover equipped with one species of securing or anchoring means of my invention;

Figures 2, 3, and 4 are detail sectional views of the cover taken, respectively, on the lines 2—2, 3—3, and 4—4, Figure 1;

Figure 5 is a fragmental plan view of a man-hole cover equipped with another or modified species of securing or anchoring means of my invention; and

Figures 6 and 7 are detail sectional views taken, respectively, along the lines 6—6 and 7—7, Figure 5.

Referring now more in detail and by reference characters to the drawings, which illustrate practical embodiments of my invention, A designates a man-hole frame of any standard construction, the same including, as is usual, an annular wall 1 provided therearound at its lower margin with an outwardly presented flange or extension 2 adapted to rest on the supporting masonry, not shown, and to receive thereabove the retaining or securing concrete or the like 3, substantially as shown. Adjacent its upper margin and upon its inner periphery, wall 1 is formed with an inwardly presented annular cover-supporting rib or flange 4, whose upper face is suitably disposed below the plane of the outer marginal face *a* of wall 1.

B designates the man-hole cover, which is of corresponding diametrical dimension and thickness to fit in closing position within the opening in frame A and upon the rib 4 with its upper face *b* approximately flush with the frame face *a*, as best seen in Figures 2, 3, and 4; and adapted for co-operation with the frame A and cover B in detachably securing the cover B in frame closing position, the cover B is equipped with a plurality of anchoring members C, preferably three in number, disposed annularly in spaced relation about the cover B, as best seen in Figure 1.

Having now reference first to Figures 1 to 4, both inclusive, in which C designates the respective anchoring members, the anchoring-members C are preferably individual castings and have preferably the form and contour shown, each member C including a shank 5, an arm 6 extending laterally from shank 5 and having a preferably rounded nose 6*a* adapted for engagement with frame A, a second arm 7 oppositely projecting laterally from shank A and having a somewhat elongated nose 7*a* having a flat upper face, as at 7*b*, adapted, as it may be described, for engagement with the cover B, and cover-engaging supporting arms or lugs 8 projecting laterally in opposed relation from the shank 5.

For accommodating and co-operation with each respective anchor C, the cover B is provided radially adjacent its margin with a slot 9, which opens to the opposite top and bottom faces of the cover, and formed in the upper face of the cover upon opposite sides of, and communicating at opposed ends with, slot 9, are aligning pockets or recesses 10.

For purposes presently appearing, it may be also now stated that the cover B upon its upper face and likewise upon opposite sides of the slot 9, is formed with a second set of aligning recesses 11, which similarly communicate at opposed ends with slot 9 and are located on cover B radially inwardly from the pockets or recesses 10, and communicating at an end with the recesses 11 and formed longitudinally in the opposite walls of slot 9 intermediate the top and bottom faces of the cover B, are ways 12. As best seen in Figure 2, the slot 9 and the ways 12 preferably register at their inner end on the under face of the cover B; on the outer or top face of cover B, however, the slot 9 is of somewhat reduced length, so as to provide a projecting

or overhanging cover-shoulder or portion 13.

D designates a wedge-member, which includes a main body portion 14 having preferably a flat upper face *d* for flush registration with the top face of cover B and an oblique or beveled under face *d'*, a nose 15 projecting from one end-face of body 14 for engaging co-operation with the cover-shoulder 13, and way-engaging arms or lugs 16 projecting laterally in opposed relation from the body 14.

Hence, in use and operation, the cover B being seated in the frame A, each respective anchor C is suitably disposed through its respective cover-slot 9 to engage its arm 6 under the frame-rib 4 and to seat its arms 8 in the opposed recesses 10. The parts are so relatively proportioned that, the anchor C being so engaged with the frame A, the upper face 5*a* of shank 5 is now approximately flush, as shown, with the cover-face *b*, and to tightly secure the anchor C in such frame-engagement, a wedge D is now inserted in slot 9 with its body 14 over the arm 7 and its arms 16 disposed in the recesses 11. The wedge D is then forcibly shifted radially inwardly relatively to the cover B, its arms 16 riding in and engaging the walls of the ways 12, and its under face *d'* engaging the arm 7 to thereby tightly secure the anchor C, and consequently also the cover B, detachably or removably in place.

Referring now to Figures 5 to 7, both inclusive, the cover-anchoring members designated C', are somewhat modified in structure from the anchoring-members C, each member C' including a shank 5', a first frame engaging arm 6', an opposed arm 7' approximately rectangular in section for so-called cover-engagement, and a third cover-engaging arm 8' projecting in suitably spaced relation over, and of reduced length relatively to, the arm 6' and forming with the arm 6', as it may be described, a fork for gripping the cover and frame, as best seen in Figure 6.

For accommodating and co-operation with the anchor C', the cover B' is similarly provided radially adjacent its margin with a slot 9', the cover B being provided at the outer end and within the confines of the slot with a radially inwardly projecting portion 13' and the cover B being also provided at the inner end and within the confines of slot 9' with a radially outwardly projecting portion 17. And also, for purposes presently appearing, the cover B' upon its upper face and upon opposite sides of and at the inner radial end of slot 9' is formed with a pair of aligning recesses 11', the inner end wall of slot 9' in registration with the inner end walls of the recess 11' being beveled or undercut, as at 18, and also obliquely disposed relatively to the axial center of cover B for co-operation with a wedge-block D' adapted for disposition within the recesses 11' crosswise over the arm 7' and having a beveled and oblique wall *d''* for wedge-wise co-operation with the wall 18, it being understood, of course, that the recesses 11' and the block D' are of such relative dimensions as to permit of wedge movement of the block D' chordwise of the cover B' from the larger toward the smaller recess 11', as best seen in Figure 5.

Hence, in use and operation, the cover B' being seated in frame A, each respective anchor C' is suitably disposed through its respective cover-slot 9' to engage its arms 6' and 8' with the cover portion 13' and the frame-rib 4, as best seen in Figure 6, its arm 7' then resting on the cover-portion 17. A wedge-block D' is now disposed in cover and frame anchoring relation with the walls of the recesses 11' and forcibly shifted chordwise of cover B' for wedgingly securing the anchor C', and consequently also the cover B', attachably or removably in place.

Thus, in the respective forms of my invention, the respective anchors C, C', are tightly held or wedged in place, and, in turn, tightly secure the respective covers B, B' to the frame A in frame-closing position, the covers as so held being efficiently secured against rattling and misplacement. It will, of course, be understood that, while not here shown, any unoccupied portion of the respective slots and recesses of the covers may be filled with asphalt or other suitable removable substance or material to prevent the entrance of water and other foreign matter into the manhole; and, as will be noted, the cover-flange or rib 4 is preferably provided in its upper face with annularly spaced lugs 19, which may be readily machined to provide an accurate flush fit for the cover.

My new man-hole covers and their anchoring means may be economically manufactured, are exceedingly efficient in the performance of their intended functions, and are readily adapted for replacement and for use with different types of man-holes, it being understood that the covers and their anchoring members may correspondingly be constructed in different dimensions to fit the requirements of any more or less standard frames, and that other changes and modifications in the form, construction, arrangement, and combination of the several parts may be made and substituted for those herein shown and described without departing from the nature and principle of my invention.

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

1. Means for anchoring a man-hole cover and the like including an anchor comprising a shank adapted for support upon the cover and opposed arms on the shank adapted respectively for engagement with the frame and cover, and a member for securing the anchor in cover and frame engagement.

2. Means for anchoring a man-hole cover

and the like including an anchor comprising a shank adapted for support upon the cover, a first arm projecting laterally from the shank for frame-engagement, and a second arm projecting laterally from the shank in opposed relation to the first arm for engagement with the cover, and a member for securing the anchor in cover and frame engagement.

3. Means for anchoring a man-hole cover and the like including an anchor comprising a shank adapted for support upon the cover, a first arm projecting laterally from the shank for engagement with the cover, and a pair of spaced second arms, projecting laterally from the shank in opposite relation to the first arm for co-operative engagement with the frame and cover, and a member for securing the anchor in cover and frame engagement.

4. In combination with a man-hole cover having a slot, of an anchor including a shank for disposition in said slot, arms on the shank adapted for engagement with the cover for supporting the shank in said slot, an arm on the shank adapted for engagement with the man-hole frame, and an opposed arm on the shank adapted for engagement with the cover, and a shiftable member for securing the anchor in cover and frame engagement.

5. In combination with a man-hole cover having a slot, of an anchor including a shank for disposition in said slot, arms on the shank adapted for engagement with the cover for supporting the shank in said slot, an arm on the shank adapted for engagement with a man-hole frame, and an opposed second arm on the shank adapted for engagement with the cover, and means adapted for engagement with the cover and with the second arm for removably securing the anchor to the cover.

6. In combination with a man-hole cover having a slot, of an anchor including a shank for disposition in said slot, arms on the shank adapted for engagement with the cover for supporting the shank in said slot, an arm on the shank adapted for engagement with a man-hole frame, and an opposed second arm on the shank adapted for engagement with the cover, and a member adapted for engagement with the cover and with the second arm for wedgewise removably securing the anchor to the cover.

7. In combination with a man-hole cover having a slot and arm-seating and engaging portions within the confines of the slot, of an anchor including a shank for disposition in said slot, a first arm on the shank adapted for engagement with said cover arm-seating portion for supporting the shank in said slot, a second arm on the shank adapted for engagement with said arm-engaging portion, and a third arm on the shank adapted for engagement with the man-hole frame, and a shiftable member for securing the anchor in cover and frame engagement.

8. In combination with a man-hole cover having a slot and arm-seating and engaging portions within the confines of the slot, of an anchor including a shank for disposition in said slot, a first arm on the shank adapted for engagement with said cover arm-seating portion for supporting the shank in said slot, a second arm on the shank adapted for engagement with said arm-engaging portion, and a third arm projecting from the shank in spaced relation to the second arm adapted for engagement with the man-hole frame in opposition to the cover-engagement of the second arm, and a shiftable member for securing the anchor in cover and frame engagement.

9. In combination with a man-hole cover having a slot and arm-seating and engaging portions within the confines of the slot, of an anchor including a shank for disposition in said slot, a first arm on the shank adapted for engagement with said cover arm-seating portion for supporting the shank in said slot, a second arm on the shank adapted for engagement with said arm-engaging portion, and a third arm projecting from the shank in spaced relation to the second arm adapted for engagement with the man-hole frame in opposition to the cover-engagement of the second arm, and means adapted for engagement with the first arm and with the cover for removably securing the anchor to the cover.

10. In combination with a man-hole cover having a slot and arm-seating and engaging portions within the confines of the slot, of an anchor including a shank for disposition in said slot, a first arm on the shank adapted for engagement with said cover arm-seating portion for supporting the shank in said slot, a second arm on the shank adapted for engagement with said arm-engaging portion, and a third arm projecting from the shank in spaced relation to the second arm adapted for engagement with the man-hole frame in opposition to the cover-engagement of the second arm, and a wedge-member adapted for engagement with the first arm and the cover for removably securing the anchor to the cover.

11. In combination with a man-hole frame, of a cover adapted to close the opening in the frame, and means for detachably securing the cover to the frame, said means including an anchor removably engageable with both the cover and the frame, and a member engageable with the cover and the anchor for removably securing the anchor in cover and frame engagement.

12. In combination with a man-hole frame, of a cover adapted to close the opening in the frame, the cover having a slot, and means for detachably securing the cover to the frame, said means including an anchor re-

movably fitting said slot and engageable with both the cover and the frame, and a member wedgewise engageable with the anchor and the cover for removably securing the anchor in cover and frame engagement.

13. In combination with a man-hole frame, of a cover adapted to close the opening in the frame, said cover having a radial slot, and means for detachably securing the cover to the frame, said means including an anchor comprising a shank adapted to fit in said slot, and opposed arms on said shank for engagement with the frame and cover, and a member adapted for wedgewise engagement with the cover and with one of the arms of the anchor.

14. In combination with a man-hole frame, of a cover adapted to close the opening in the frame, said cover having a radial slot and pairs of aligning recesses and longitudinal ways in the walls of the slot, and means for detachably securing the cover to the frame, said means including an anchor comprising a shank, lateral arms on the shank adapted to seat in a pair of said recesses for supporting the shank in said slot, a first arm on the shank adapted for engagement with the frame, and a second arm on the shank adapted to reside in said slot, and a member having arms adapted for disposition through said second pair of recesses for slidable engagement with the walls of said ways for wedgewise engaging the body of said member with the cover and with said second arm.

15. In combination with a man-hole frame, of a cover adapted to close the opening in the frame, said cover having a radial slot, and a pair of aligning wedge-recesses in the walls of and communicating with the slot and the cover also having arm-seating and engaging portions in the confines of the slot, and means for detachably securing the cover to the frame, said means including an anchor comprising a shank adapted to fit in said slot, a first arm on the shank adapted to seat on said arm-seating portion in said slot, a second arm on the shank adapted to fit over and engage with said arm-engaging portion in said slot, and a third arm on the shank adapted to project under and engage with the frame in opposition to the cover-engagement of the second arm, and a member adapted to shiftably reside in said recesses and over said first arm to wedgewise reside in said slot.

16. Means for anchoring a man-hole cover and the like, the same including an anchor for engaging the cover and its frame, and a member slidable on the anchor for wedgewise anchor-securing engagement with the cover.

17. Means for removably anchoring a man-hole cover and the like, the same including an anchor removably engageable with the cover and its frame, and a block slidable on and relatively to the anchor for wedgewise anchor securing engagement with the cover.

In testimony whereof, I have signed my name to this specification.

CONNOR B. SHANLEY.