

# UNITED STATES PATENT OFFICE.

THOMAS P. GREGER, OF PHILADELPHIA, PENNSYLVANIA.

## MANHOLE-COVER.

SPECIFICATION forming part of Letters Patent No. 536,621, dated April 2, 1895.

Application filed December 10, 1894. Serial No. 531,315. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS P. GREGER, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Manhole-Covers, of which the following is a specification.

My invention has relation to covers for manholes such as are provided in sewers, electric conduits, vaults and gas mains located in pavements or in streets or roadways; and it relates particularly to the construction and arrangement of covers for such purposes.

The principal objects of my invention are, first, to provide a noiseless ventilating cover for the manholes of sewers, conduits or other underground structures and with the provision of the same with simple and effective means whereby the cover may be quickly removed from its seat in the manhole of the structure; second, to a manhole cover having an asphalt or similar material filling body so applied as that the material affected by heat and cold is not displaced, but maintained in required position and condition and so as to provide a noiseless cover in the passage of a heavy body or vehicle over the same, and, third, to provide a manhole cover having ventilating apertures therein, and hand lifting devices either fixed or movably connected therewith and the body filled in with asphaltum or similar material caused to firmly cling to the flanged and ribbed projecting surfaces of the cover in such manner as that sagging is obviated and contraction and expansion due to atmospheric changes duly compensated for and accommodated, whereby a thoroughly reliable, noiseless and readily removable cover for manholes in general is insured.

My invention stated in general terms consists of a cover for a manhole constructed and arranged in substantially the manner herein-after described and claimed.

The nature and scope of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1, is a top or plan view of a manhole cover embodying features of my invention,

showing one form thereof. Fig. 2, is a vertical central section through a manhole with a cover having an asphaltum or similar material filled body, of my invention seated into the same, and also showing the ribbed top, outer rim, the movable hand lifting devices connected therewith and means therein for permitting thereby of the ventilation of the manhole. Fig. 3, is a cross-sectional view on the line  $x-x$ , of Fig. 1, showing the normal position of one of the hand lifting devices of the cover. Fig. 4, is a top or plan view, in broken section, of the outer edge or rim of the cover showing a modified form of lugs or projections cast therewith. Fig. 5, is a top or plan view of a modified form of the cover from that of Fig. 1, showing the filled in body of asphaltum or similar material, the ventilating openings extending therethrough, the roughened outer top rim and the fixed hand lifting devices thereof. Fig. 6, is a vertical central section through the manhole and cover, showing the detail construction and arrangement of the parts thereof, as illustrated in Fig. 5. Fig. 7, is a sectional view on the line  $y-y$ , of Fig. 5, of one of the stationary hand lifting devices of the cover; and Fig. 8, is a sectional view on the line  $z-z$ , of Fig. 5, of the stationary lifting device of the cover filled with asphaltum or other material and forming the body thereof.

Referring to the drawings, A, represents the manhole of an underground structure provided in the upper part with an internal projection  $a$ , having an outwardly inclined wall  $a'$ , and the two forming a seat  $A'$ , for the reception of the rim  $b^4$ , of the cover B, as clearly illustrated in Figs. 2 and 6. The rim  $b$ , of the cover is provided with an inclined peripheral edge snugly fitting the seat  $A'$ , of the manhole.

The cover B, is formed with an arched bottom  $b$ , having an integral spanning rib or ribs  $b'$ , as clearly shown in Figs. 2 and 6, for strengthening the bottom of the cover B, and projecting vertically from the upper surface of the bottom are concentric ribs or rings  $b^2$  and  $b^3$ , having the upper edges or portions thereof flaring outwardly or flanged, as clearly illustrated in Fig. 2, for a purpose to be presently fully explained.

On the outer peripheral rim  $b^4$ , of the cover,

as shown in Figs. 1 and 2, are staggered lugs or projections  $b^5$ , arranged at suitable distances apart around the surface of the same for producing a roughened surface about that portion of the cover.

On each side of the cover are provided dish-shaped recesses or receptacles  $b^6$  and  $b^7$ , and engaging therein are movable hand lifting rings or devices  $c$  and  $c'$ , encircling the outer flanged rim of the cover. These lifting devices are so arranged as that an implement may be inserted beneath the surface of the ring or device for engaging the same and so as to permit of the removal of the cover B, from its seat  $A'$ , in the manhole A.

$b^8$ , are a series of tapering openings extending through the cover B, at suitable distances apart, for permitting of the ventilation of the manhole, for example, in the manner illustrated in Figs. 1 and 2.

Between the circular projections of the cover and the outer flanged rim is inserted asphaltum or other similar material, which is pressed in and caused to solidly adhere to the cover to produce a noiseless one and which material is held to position against expansion and contraction, as well as sagging, by means of said ribs, projections or concentric rings and also from displacement by the niche or notch  $b^9$ , in the inner surface of the flanged rim of the cover B, as clearly illustrated in Fig. 2, and the ribs, projections or rings concentrically arranged as shown in Fig. 1, and formed integral with the cover, overlap onto or into the asphaltum or similar material C, thereby firmly holding the same to position against any downward or other pressure brought to bear upon the same, and this material constituting the filling body of the cover, produces a noiseless cover for the manhole and one in which its presence in the manhole A, is scarcely perceptible, because the same so fits the hole as that the top is brought flush with the surface of the roadway or pavement.

In Fig. 4, is shown a slightly modified form of lugs or projections to that shown in Fig. 1, around the peripheral rim of the cover B, in the top surface thereof, for producing a roughened surface about the same, in which may engage the hoofs of horses in crossing to prevent slipping; and moreover, to provide a purchase in instances, where such is requisite for manhole covers.

In Figs. 5 and 6, the construction of the manhole is substantially the same as hereinbefore described, the only difference being

in the construction of the cover, which in this instance is provided with a concentric flanged projection  $b^{10}$ , having a series of radiating arms  $b^{11}$ , therefrom connected with the peripheral rim  $b$ , and between which is filled in asphaltum or similar material C. The arms of the concentric projection forming the inner walls of the cover and bearings for the filling material C, are arranged so as to provide in conjunction with the inner surface of the flanged rim portion of the cover, the means to prevent displacement of said filling material, when it has become set in the body of the cover B, and affording the necessary means for guarding against and compensating for contraction and expansion of such material, due to atmospheric changes or conditions to which the same is subjected by reason of its exposure to the same. Instead of providing the cover in this instance with movable hand lifting devices  $c$  and  $c'$ , as in Figs. 1 and 2, the dish-shaped recesses  $b^6$  and  $b^7$ , formed on both sides of the cover B, in the flanged rim  $b$ , thereof are provided with stationary hand holes  $d$  and  $d'$ , for engaging hooks or other implements therewith, for permitting of the removal of the cover from its seat  $A'$ , in the manhole A.

The manner of applying and removing the manhole covers, will be readily understood from the drawings, without more detail description of the same.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination with a man-hole provided with a seat, of a cover filled with asphaltum or similar material having an arched bottom provided with suitable strengthening ribs on the under surface and with a rim and flanged ribs on the upper surface thereof, said rim being notched and provided with an inner retaining flange, said material being held in said cover by said flanged rim and ribs, ventilating openings extending through said rim, and hand lifting devices connected with said rim and in normal position located below the plane of the same, substantially as and for the purposes described.

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

THOMAS P. GREGER.

Witnesses:

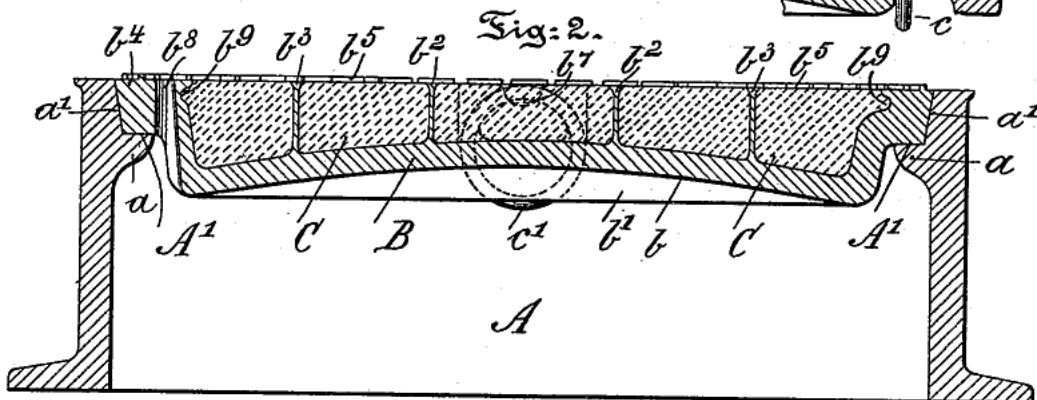
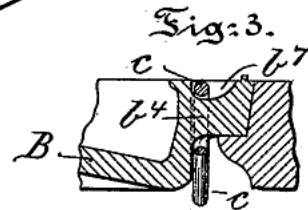
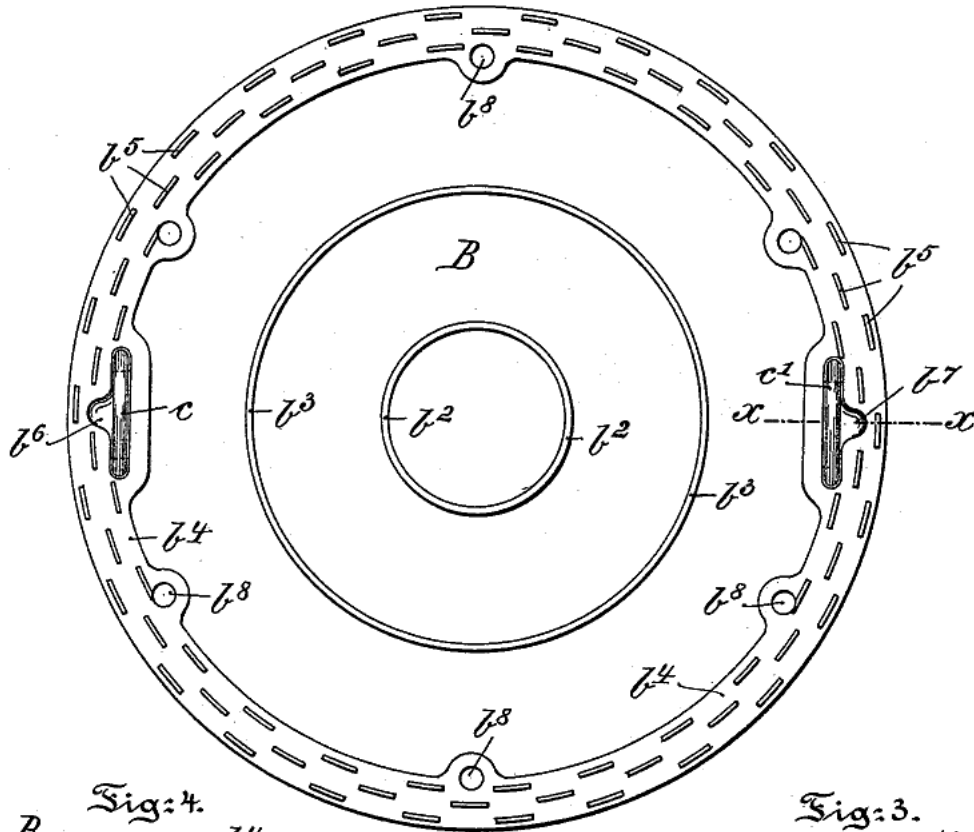
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Fig: 1.



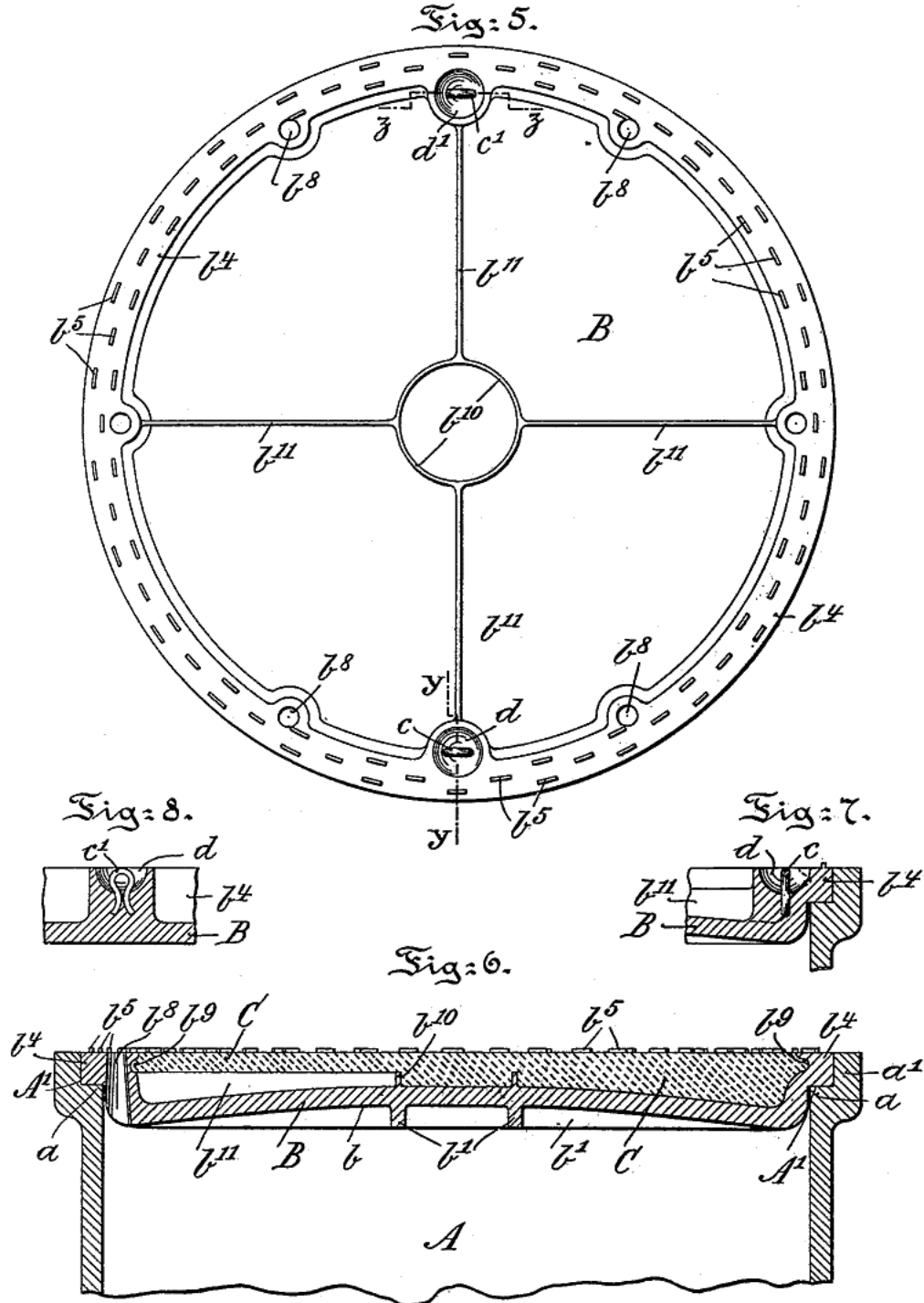
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