(No Model.) 2 Sheets—Sheet 1.

H. W. SANBORN.

MANHOLE FRAME.

No. 599,457. Patented Feb. 22, 1898.

FIG. 1.

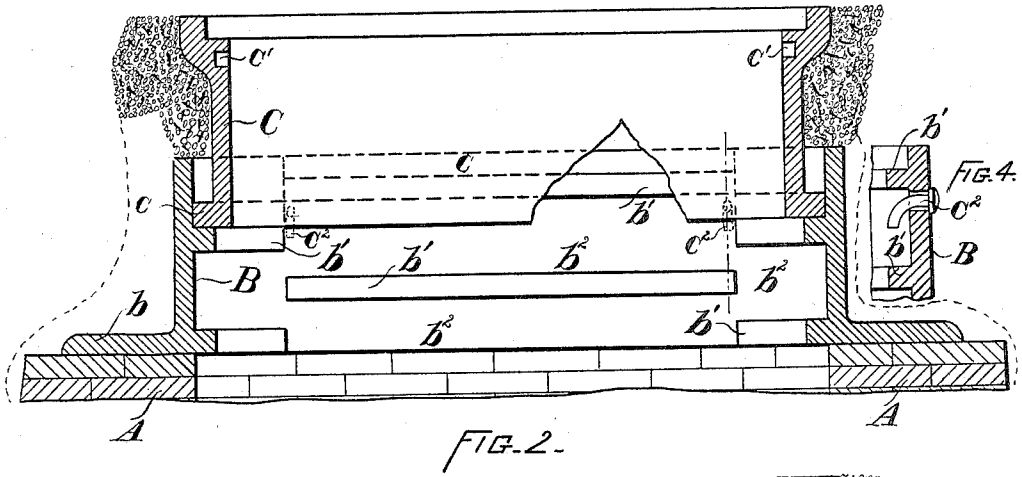


FIG. 2.

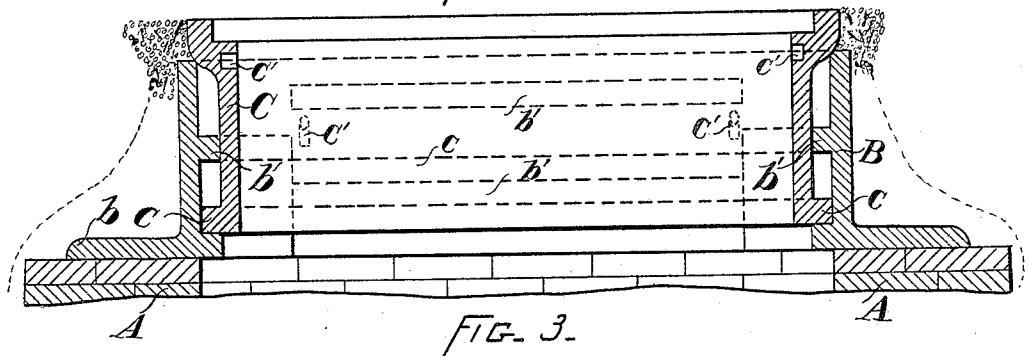
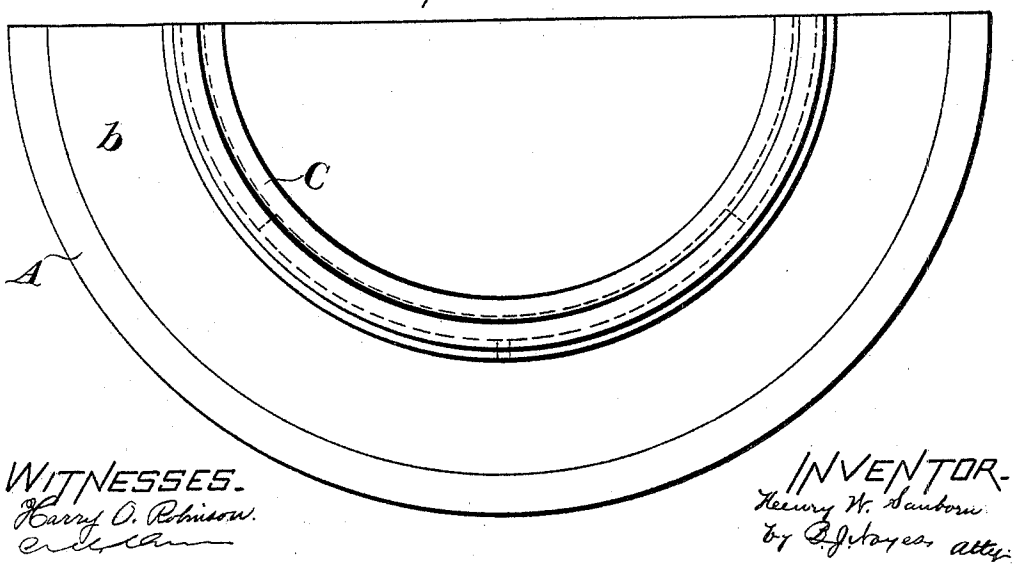


FIG. 3.



WITNESSES.
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by P. J. Hayes, atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

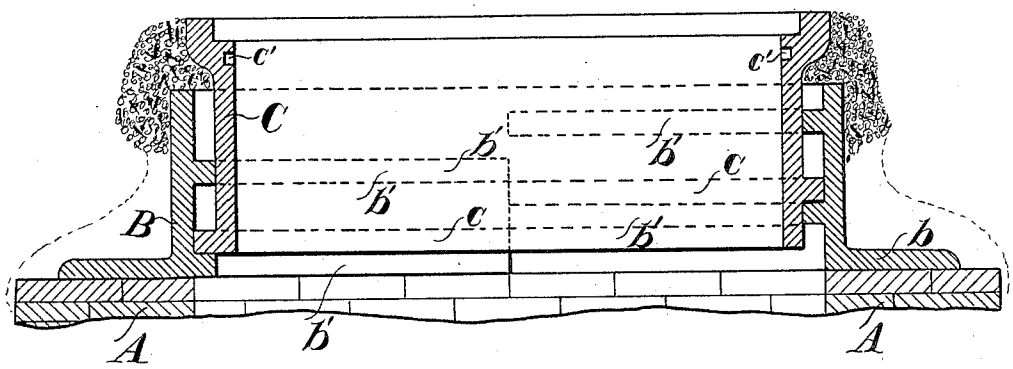
(No Model.) 2 Sheets—Sheet 2.

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FIG. 5.



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UNITED STATES PATENT OFFICE.

HENRY W. SANBORN, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO EDGAR S. DORR, OF SAME PLACE.

MANHOLE-FRAME.

SPECIFICATION forming part of Letters Patent No. 599,457, dated February 22, 1898.

Application filed June 16, 1896. Serial No. 595,812. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. SANBORN, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Manhole-Frames, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

It is customary in building sewers, laying water-pipes, gas-pipes, &c., and in building conduits for electric wires and other purposes to construct at desired intervals manholes which project up to the street-level. The manholes are usually built of concrete or brick masonry and made large enough to allow a man to enter and are provided at the top with an iron frame which is adapted to rest upon and be supported by said concrete or brick masonry, the top of said frame lying substantially flush with the surface of the street, where it is capped with an iron cover. In localities where heavy teaming is carried on it is with great difficulty that the streets are kept up to the required grade, as they are continually wearing away, leaving the manhole-frames projecting above the street-level, and in some cases the grade of the street has not been accurately determined when the manholes are built and in other cases the street is not built to grade when the manholes are built, and as a consequence they are left projecting above the street-level under the supposition that the street will be immediately graded, while instead the work will oftentimes be delayed for a long time. In all such cases where manhole-frames project above the street-level dangerous obstructions are presented to travel. The height of manholes thus constructed may be varied by bodily lifting the manhole-frame from its foundation and removing a portion of the masonry to lower the frame or adding a portion thereto to raise it.

The object of this invention is to provide an adjustable manhole-frame which may be easily and quickly operated to compensate for the varying elevations of the grade of the street without necessitating the trouble and expense of lifting said frame bodily from its foundation and altering the masonry, as above stated.

In carrying out this invention I construct a manhole-frame of two ring-like parts or sections, arranged one within the other and adapted to be moved one with relation to the other to vary the height, one part or section having seats and the other part having supports which rest upon said seats, and there may be several seats in different elevations or several supports in different elevations to provide for adjustment, or both the seats and supports may be arranged in different elevations. The seats may be formed upon either side of the lower part or section—as, for instance, if the upper part is adapted to work within said lower part then said seats will be formed on the inside of said lower part. So, also, the supports on the upper part, which are adapted to rest upon said seats and thereby support the upper part in different elevations, may be formed upon either side thereof—as, for instance, when the upper part works within said lower part said supports will be formed on the outside of said upper part. The seats may project laterally toward the section bearing the supports, or the supports may project laterally toward the seat-bearing section, or both seats and supports may project laterally toward each other. The seats are or may be made as transverse ribs formed upon and projecting laterally from the lower part on that side thereof adjacent the other part, and said transverse ribs will extend partially around said part, and will be located in different planes short distances apart and staggered, so that a rib in each plane lies opposite a space in the adjoining plane. There may be one or more transverse ribs in each plane, if desired; but if there should be more than one rib in each plane they will be arranged with spaces between them.

The supports or rests on the upper part or section of the manhole-frame are or may be likewise made as transverse ribs projecting laterally toward the seat-bearing section and extending partially around said part and staggered, and said ribs are of a length and width to pass freely through the spaces in the dif-

ferent planes with the ribs on the lower part and when so passed through to be freely moved along between said ribs and rest upon any of them that may be desired. There may be ribs in different planes on said upper part, which form the supports or rests, and, if desired, there may be more than one rib in each plane arranged with spaces between them, the ribs in the different planes being staggered.

Figure 1 shows in vertical section my adjustable manhole-frame, the parts or sections composing it being extended the full capacity. Fig. 2 shows a similar vertical section of my adjustable manhole-frame, the parts or sections thereof being closed together. Fig. 3 is a plan view of the adjustable manhole-frame. Fig. 4 shows a detail of one of the stops to be referred to, and Fig. 5 is a vertical section of a modified form of adjustable manhole-frame embodying my invention.

A denotes the top of the masonry of a manhole; B, the lower part or section of an adjustable manhole-frame forming the subject-matter of this invention, it being flanged at b to present a good and efficient bearing, which rests upon and is supported by the top of the masonry A, and C the upper part or section of said adjustable manhole-frame, it being arranged within said part B, although, obviously, it might be arranged outside of said part B. Upon the inner surface of the side wall of said lower part B are formed a number of seats b', they being located in four different planes, yet there may be more or less, as desired. These seats are herein shown as transverse ribs or projections extending partially around said part B and located in different planes short distances apart and staggered. In Figs. 1 to 3 there are two such transverse ribs in each plane arranged with spaces between them, and the ribs in each plane lie opposite the spaces in the adjoining plane, and in Fig. 5 there is but a single rib in each plane, but the ribs in said figure are staggered, as in Figs. 1 to 3. Therefore I desire it to be understood that I may employ as many ribs in each plane as seems desirable.

The upper part or section C is herein shown as smaller than the section B and arranged within it, and said section C has formed upon its outer side or surface transverse ribs c, which are adapted to rest upon the seats b', formed upon the inner side wall of the part or section B, thereby supporting said part or section C in elevated position. These transverse ribs c, which form the supports or rests for said part or section C of the manhole-frame, are or may be made like unto the seats b'—that is, they may extend partially around said part C—and there may be two or more, as desired, and made of a length corresponding to the spaces b^2 in the different planes, with the ribs b' on the part B, and of a width to pass freely between the ribs in the different planes.

In Figs. 1 to 3 ribs c are shown in two different planes located a short distance apart, and there are two ribs in each plane arranged with spaces between them, and said spaces are sufficient to enable the ribs b' to pass freely through them, and said ribs c are staggered like unto the ribs b'—that is to say, the ribs in each plane lie opposite the spaces in the adjoining plane. In Fig. 5 but a single rib c is shown in each plane. By providing each part with transverse ribs, as shown, it will be seen that the part C may be placed within the part B, with its ribs c resting upon the ribs b' on said part B, and when it is desired to lower said part C it may be turned to bring its ribs c opposite the spaces in the planes with the ribs b', when they are free to pass through and strike upon the ribs b' in the next lower plane, and to raise said part C such operation is reversed. The manner of adjustment of said part C is therefore easy and obvious. It will also be seen that by providing seats and supports made as transverse ribs, as herein shown, a bearing will be provided for said part C all around, even in its different elevations. Two sockets c' are herein formed in the upper part or section C diametrically opposite each other; but any other number may be formed and otherwise disposed. These sockets are provided to afford means for engagement with a suitable tool for lifting or turning said section C axially. In lieu of sockets c' it is obvious that lugs may be provided as the tool-engaging devices.

To prevent the part or section C from turning axially when once set at a desired grade or height, I have provided crooked bolts c^2, adapted to pass through holes formed in the lower part or section B, which serve as stops to prevent the section C from being turned axially, and whenever it is desired to raise or lower the part or section C the bolts c^2 will be withdrawn. A cover is adapted to fit into the top of the part or section C, as usual.

To raise or lower a manhole-frame of common construction, it is necessary, as has been stated herein, to excavate until the masonry upon which said frame rests is exposed and to then cut away some of the courses of brick or concrete or add extra courses of brick or concrete to bring the top of said frame to the required grade. This work requires the services of a skilled mechanic and laborer and must be repeated at a heavy expense every time the grade of the street changes, while by the use of my improved adjustable manhole-frame the services of a skilled mechanic are dispensed with, as the foundation of the manhole need not be disturbed, and the excavating necessary as well as the labor of turning the part C may be performed by unskilled labor.

I have herein shown the part or section C as inclosed by and adapted to work within the part or section B; but it is obvious that said section C could be made larger in diame-

ter to embrace the part or section B without departing from the spirit and scope of this invention, and in such case the seats *b'* would be formed upon the outside of the part B, and the supports *c* would be formed upon the inside of the part C.

I claim—

1. An adjustable manhole-frame, comprising two parts arranged one within the other, one of said parts having formed upon its side adjacent the other part several transverse ribs, extending partially around it, located in different planes short distances apart, and staggered, and the other part having projections adapted to engage with said ribs, substantially as described.

2. An adjustable manhole-frame, comprising two parts arranged one within the other, having formed upon their adjacent sides transverse ribs extending partially around them, located in different planes short distances apart, and staggered, the ribs upon one part serving as seats for the ribs upon the other part, substantially as described.

3. An adjustable manhole-frame, comprising an upper and a lower part, arranged one within the other, having formed upon their adjacent sides transverse ribs extending partially around them, the ribs on each part being located a short distance apart and staggered, substantially as described.

4. An adjustable manhole-frame, comprising an upper and a lower part arranged one within the other, and having formed upon their adjacent sides transverse ribs extending partially around them, the ribs on the lower part being located a short distance apart and staggered to provide spaces corresponding to the length and width of the ribs of the upper part, and the ribs on the upper part being likewise disposed, substantially as described.

5. An adjustable manhole-frame, comprising two parts arranged one within the other, one of said parts having formed upon its side adjacent the other part several transverse ribs extending partially around it in different planes, there being two or more ribs in each plane arranged with spaces between them, and the ribs in each plane being arranged opposite the spaces between the ribs in the adjoining plane, and the other part having thereon projections adapted to engage with said ribs, substantially as described.

6. An adjustable manhole-frame, comprising an upper and a lower part arranged one within the other, having formed upon their adjacent sides transverse ribs extending partially around them in different planes, there being two or more ribs in each plane arranged with spaces between them, and the ribs in each plane being arranged opposite the spaces between the ribs in the adjoining plane, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY W. SANBORN.

Witnesses:
B. J. NOYES,
F. H. DAVIS.