April 23, 1935. F. J. MILLER 1,998,514

DRAINAGE DEVICE

Filed Aug. 3, 1932 2 Sheets-Sheet 1

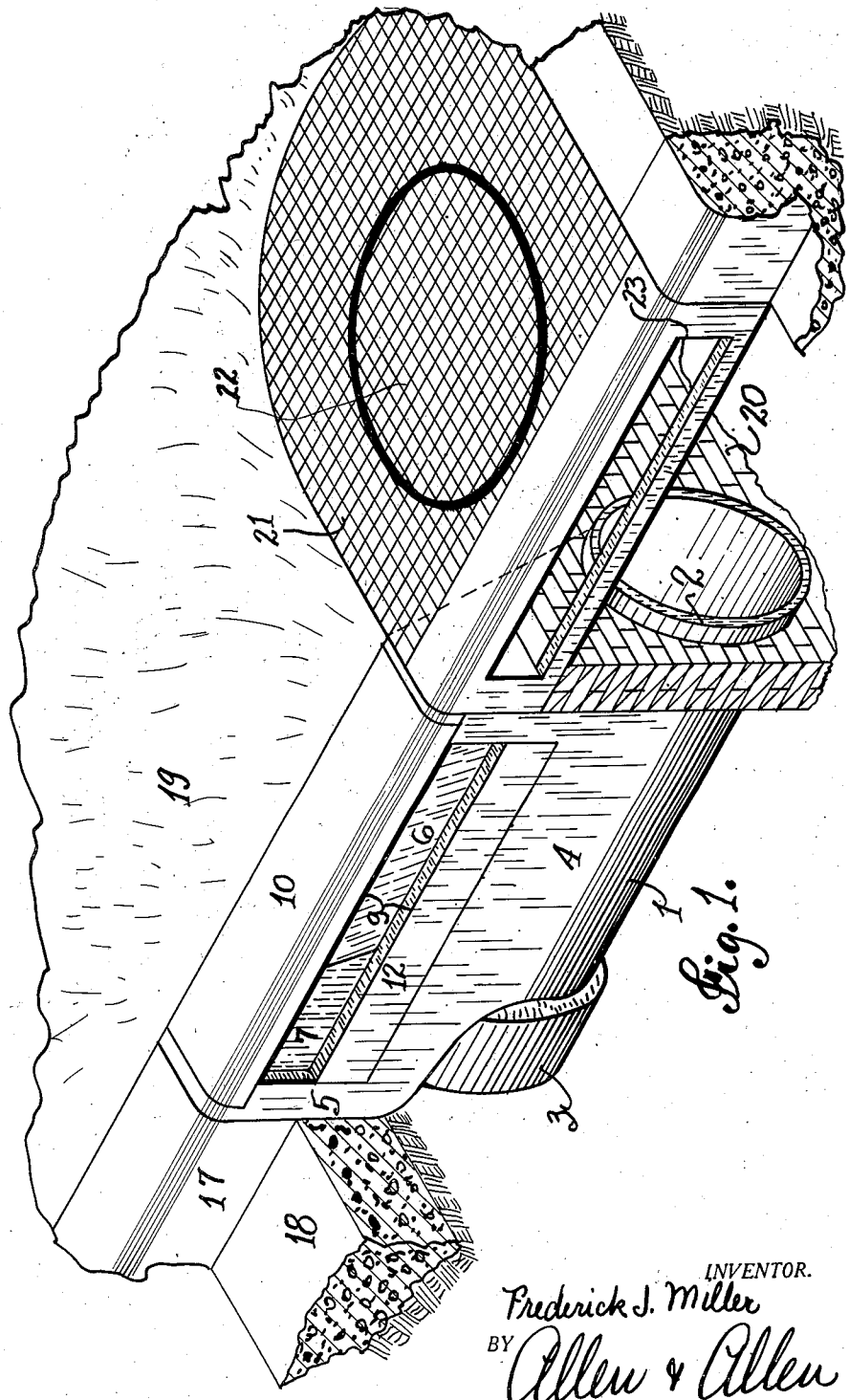


Fig. 1.

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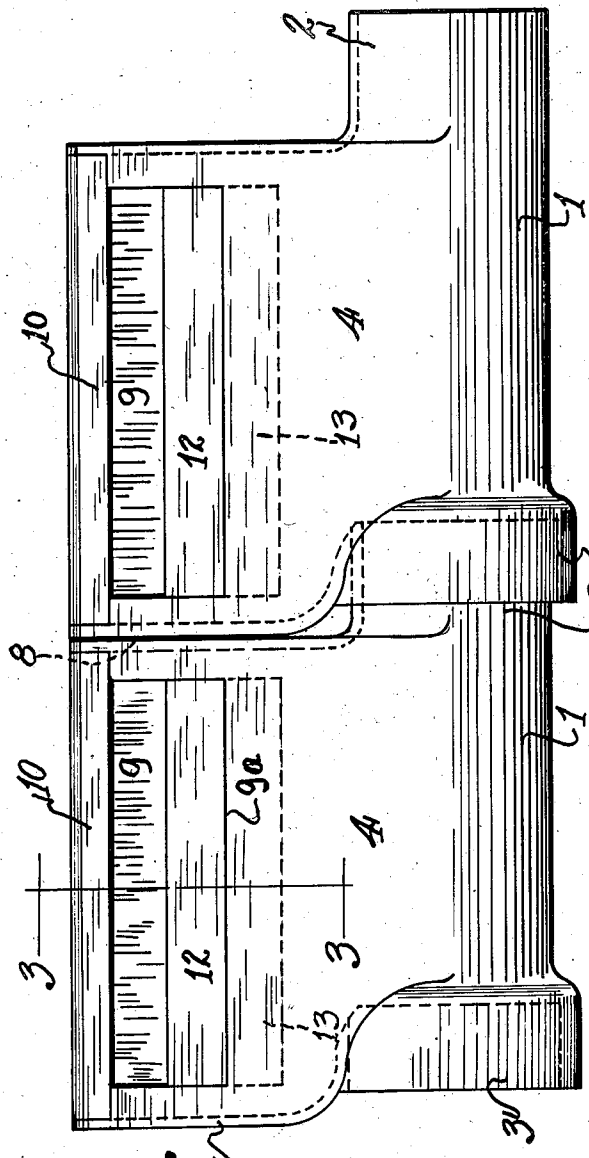


Fig. 2.

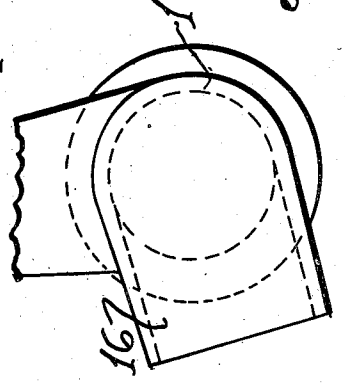


Fig. 4.

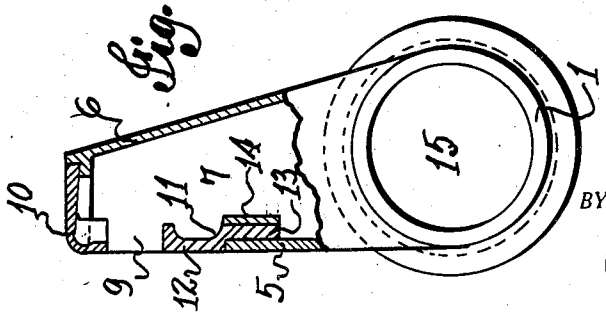


Fig. 3.

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UNITED STATES PATENT OFFICE

1,998,514

DRAINAGE DEVICE

Frederick J. Miller, Covington, Ky.

Application August 3, 1932, Serial No. 627,324

10 Claims. (Cl. 182—6)

My invention relates to devices of the general nature of catch basins to receive and conduct away surface water drainage and the like. While its utility is by no means confined thereto, it is of particular importance in the receiving of drainage from city streets. Heretofore the practice has been to build a large brick catch basin, usually adjacent or at a street corner, but frequently located intermediate street corners where there is a tendency for drainage water to collect. These brick catch basins have, of course, a connection to a sewer for disposing of the drainage, and they are likewise covered by a large metal plate having a manhole through which access may be had to the interior of the catch basin. The building of these catch basins is a matter of considerable inconvenience and expense, and the large metal covers take up a considerabl portion of sidewalk room; but one of their chief disadvantages is that in spite of the relatively large internal capacity of these catch basins, they are not always able adequately to receive and conduct away the drainage water. The drainage opening into the catch basin is ordinarily located along the curbing, where a grate may be provided, if desired. But due to the vertical disposition of this opening, and the fact that it is located not transverse to, but substantially parallel with the direction of flow of the water, it is a distinct problem frequently to cause any very large quantity of drainage water to enter the opening. Obviously the opening must be restricted lengthwise. Attempts have been made to compensate for the velocity of the water by forming a depression in the street in front of the catch basin entrance; but this, while effective in some instances, is disadvantageous from the standpoint of traffic, and in some instances is likely to be dangerous.

It is an object of my invention to provide a catch basin construction which is preformed and can be installed as such. It is another object of my invention to provide a catch basin or drainage device which is exceedingly inexpensive, while being as effective, area for area of opening, as the ordinary catch basin. It is still another object of my invention to provide means whereby the area of intake of a catch basin or catch basin system may be increased longitudinally, whereby adequate provision may be made to take care of drainage, while making it unnecessary to provide depressions, dams, or the like in the gutter. It is my object to provide a drainage device which will function well irrespective of the grade of the street. Hence it is my object to provide a drainage device which may be installed in a plurality of sections as required by the drainage needs of any particular point.

My objects also include the provision of a device which gives a maximum fall to a sewer or grit chamber; and a device requiring very little sidewalk space. In its aspect of complete unitary structure, the device of my invention fulfills my object to eliminate framework, concrete bottoms and separate covers, and represents a minimum of material and labor for installation, lowering the cost of the present type of catch basins.

Still further objects of my invention comprise the provision of a drainage device which may be added to present drainage systems such as the catch basins hereinabove described to enlarge the capacity thereof. It is also my object to provide a drainage structure having means affording a variation of the height of the intake opening so as to conform to any height of curb. It is my object to produce a series of units having means whereby they may be interconnected to take care of any amount of drainage within the full capacity of the conduit portions of the several sections.

These and other objects of my invention which will be set forth hereinafter or will be apparent to one skilled in the art upon reading these specifications, I accomplish by that certain construction and arrangement of parts of which I shall now describe a preferred embodiment, reference being had to the drawings, wherein Fig. 1 is a perspective view of the manner in which one or more sections of the device of my invention may be employed to increase the capacity of present drainage systems.

Fig. 2 is an illustration of two of my units joined in series, the units being shown in elevation.

Fig. 3 is an end elevation with parts in section (along the lines **3, 3** of Fig. 2, of one of my units.

Fig. 4 illustrates a portion of a unit showing a structure in which provision is made for connection with a conduit at an angle to the main body of the section.

Briefly, in thep ractice of my invention, I provide a drainage device in unit sections, each of which comprises a body having respectively at either end a bell and a spigot, whereby conduits may be joined to the section, or the section joined to other sections. The lower portion of the body may be substantially in the form of a conduit from which rises a body extension having within its upper end a drainage opening. The extension will likewise be provided with a cover where desired, and the upper part of the body is so proportioned with respect to the lower part and the

location of the bell and spigot, that sections may be joined together with the upper portions of their body in alignment so as to provide a substantially continuous drainage opening.

Referring now to Figs. 2 and 3, it will be seen that the exemplary embodiment of my invention contemplates a completely formed, unitary device which may be used alone, or in series. Each section in the form illustrated comprises a lower body portion 1 of substantially cylindrical formation beneath. This section terminates in a cylindrical spigot, 2 upon one end, and a bell 3 upon the other. A body portion indicated generally at 4 comprises a front wall 5 so disposed that it may be positioned vertically when the device is installed, and a back wall 6, which may slant from the lower body portion 1 toward the front wall 5. End walls 7 and 8 are also provided, making of the top body portion a chamber which is closed, excepting for an opening indicated generally at 9 in the front wall 5. In practice, I prefer to provide this chamber with a removable top or cover device 10, the purpose of which is to give access to the interior of the section for cleaning purposes. The exact form of this cover is not a limitation upon my invention. Ordinarily it will rest upon ledges located upon the rear wall 6 and side walls 7 and 8, and other constructions may likewise be employed, including, but without limitation, a hinged construction, or a removable cover may be omitted entirely.

My device will frequently be used along the curb of a sidewalk, and the front wall 5 will lie in the plane of the outer side of the curbing. Since the height of the curbing varies, I have provided means whereby the effective height of the opening 9 in the front wall may be varied. The opening in its largest form will preferably be designed to take care of the greatest curbing height normally to be expected. Thus, as seen in Fig. 2, I usually so form the opening that its lower edge indicated at 9a will be ten inches below the top of the cover member 10. I then provide a removable device for closing off a part of the opening as may be desired. This device is shown in section in Fig. 3 at 11, where an upper portion 12 is adapted to form a removable closure for a part of the opening 9, and a lower flange portion 13 is adapted to be inserted between the front wall 5 and a strap or socket forming member 14, which is interspaced from said front wall sufficiently to receive said flange 13. The height of the portion 12 may, of course, be varied as desired, and closure members having different effective heights may be provided to suit different needs.

It will be noticed in Fig. 3 that the lower portion of my device, indicated generally at 15, is of conduit shape. As shown in Fig. 2, two or more of these sections may be joined together to produce a series structure. In order that the several openings 9 may form as continuous a drainage opening as possible, the upper body members 4 are shown as extending beyond the bell joint members 3 upon the one side, and are offset from the ends of the spigot joint members 2 upon the other side. This construction, of course, may be varied; but it is advantageous so to construct the upper body portions of my sections, that sections may be joined in such a way that the upper body portions come together. It will also be understood that my invention is not restricted to the employment of bell and spigot type joint forming members. I have illustrated these as being convenient and as conforming to ordinary practices in joining conduits for drainage purposes; but any type of joint between sections may be employed which lends itself to convenient use. The general shape and size of my devices may be varied. They may, for example, be made curved to conform to a curved curbing.

While the material of which my devices are made is not a limitation upon my invention, yet I prefer for considerations of economy and utility, to make the body sections complete of one casting of cast iron, the closure member 11 and the top member 10 being separate castings. Other materials and other methods of making my sections are, however, comprised within the scope of my invention, and include, but without limitation, welded, riveted, or otherwise joined portions of sheet or plate metal, or other casting substance such as concrete, or the like.

It will also be seen in Fig. 3 that the conduit portion 15 is preferably large enough in capacity with respect to the inlet opening 9 as to permit the joining of two or more sections where desired. A connection may be made direct from one or more of my sections to a sewer or carrier for drainage water. It will be usual to place a plug in the bell joint member of a single section so used, or in the bell joint member of the last of a plurality of sections so used. The spigot joint member is then connected into the bell joint member of a conduit leading to a sewer, or the like. Special sections of my device may, of course, be produced, such as the one illustrated in Fig. 4, where to a body section 1 there may be connected either a bell or spigot joint member 16 at any desired angle, providing a side delivery for my device and permitting its connection directly to a conduit approaching it at an angle to the main axis of my device.

In Fig. 1 I have shown one of my devices installed for street drainage. Similar numerals in this figure indicate the several parts of my device. The front wall 5 is shown as located in the plane of a curbing 17, joined by a street paving 18. The opening 9 in my device is so proportioned as to lie above the top of the paving 18. The sidewalk paving is illustrated at 19. In the particular installation shown, the bell joint member 3 may be thought of as containing a plug. Obviously the installation shown may be increased as to capacity by the joining of a number of my sections together in the manner shown in Fig. 2. I have illustrated in Fig. 1., however, the way in which my device may be employed to enlarge the capacity of an ordinary catch basin. This catch basin comprises a brick chamber having walls 20, and the usual cover plate 21, with the manhole opening and cover 22. The spigot end of my device 2 may be caused to project through the wall 20 so as to deliver additional amounts of drainage water to the catch basin, the internal capacity of which is, of course, out of all proportion to the capacity of its drainage opening 23.

Various modifications may be made in my invention without departing from the spirit thereof.

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

1. In a catch basin device, a body of substantially conduit shape having means for connection to a conduit at each end, said body having an extension adapted to rise to curb height when said device is installed, said extension having an intake orifice for drainage water.

2. A catch basin device comprising a body of

substantially conduit shape having means for connection to a conduit at each end, said body having an extension adapted to rise to curb height when said device is installed, said extension having an intake orifice for drainage water, and independent interchangeable means whereby said orifice may be made appropriate for different heights of curb.

3. In a catch basin, a body and an extension, said extension having means for the intake of drainage water, said body having connecting means whereby it may be adjusted to a conduit or to another similar body, said body and connections having a capacity more than sufficient to take care of the influx of drainage water through said opening.

4. In a catch basin device, a body of substantial conduit shape having means for connection to a conduit at each end, said body having an extension in which is an intake orifice for drainage water, said extension at one end of said body being positioned so as to overlap, in part, said connecting means whereby a plurality of said bodies may be joined in series with their extensions in alignment and in substantial contact.

5. In a catch basin device, a body of substantial conduit shape and substantially horizontally disposed, an extension rising from said body and having an elongated intake orifice for drainage water, multiple means for connection located on said body, said extension overlapping one of said means, whereby the device may be joined to another similar device with said extensions in alignment and in substantial contact, whereby said intake orifices may be made substantially continuous.

6. A catch basin comprising a body and an extension, said extension being elongated in the direction of said body, an intake orifice of elongated form in said extension, and a bell joint member and a spigot joint member on said body, said extension being so proportioned that a plurality of said bodies may be joined to provide a conduit for drainage water, with said extensions in alignment and in substantial contact.

7. A catch basin comprising a body and an extension, said extension being elongated in the direction of said body, an intake orifice of elongated form in said extension, a bell joint member and a spigot joint member on said body, said extension being so proportioned that a plurality of said bodies may be joined to provide a conduit for drainage water, with said extensions in alignment and in substantial contact, and means for varying the size of said orifice comprising independent interchangeable members having a portion to cover said orifice in part, and means on said extension for holding said members in position.

8. In a drainage system, a plurality of individual units joined together to provide a continuous conduit, said units having upward extensions with orifices therein to receive drainage water.

9. In a drainage system, a series of individual units joined to provide a continuous conduit adapted to lie essentially below street level, said units having extensions rising above street level to curb height, said extensions having longitudinal openings therein along an outwardly disposed face to receive drainage water.

10. A catch basin device comprising an integral unit of cast metal, said unit comprising a body having a lower portion provided with connections whereby it may be attached to a conduit or to another such device, said body having an upward extension adapted to lie alongside a pavement and provided with a drainage opening to receive surface water from said pavement.

FREDERICK J. MILLER.