April 3, 1928. **1,664,853**

E. W. FIRTH

SEWER CATCH BASIN

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Fig. 1.

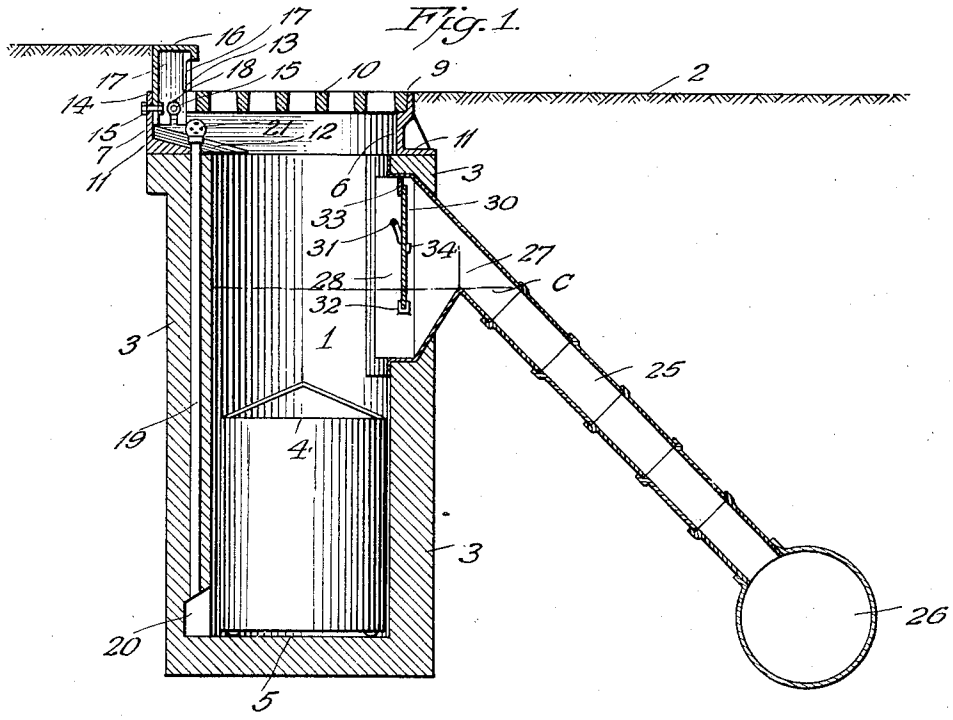
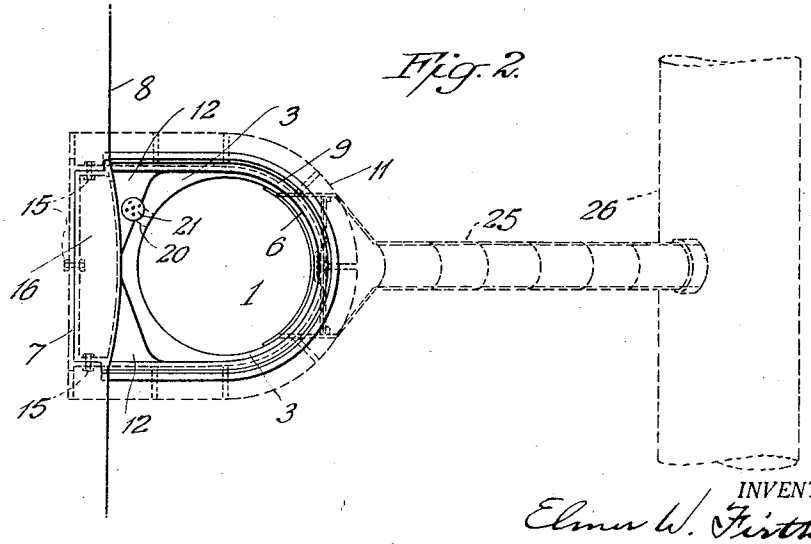



Fig. 2.




INVENTOR.
Elmer W. Firth
BY Willard Arnt.
His ATTORNEY.

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E. W. FIRTH

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Fig. 3.

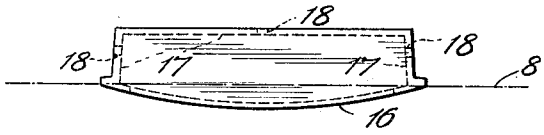



Fig. 4.

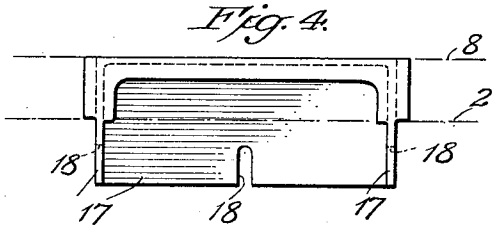



Fig. 5.

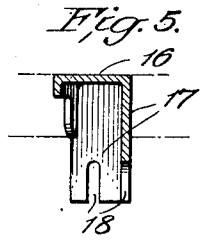



Fig. 7.

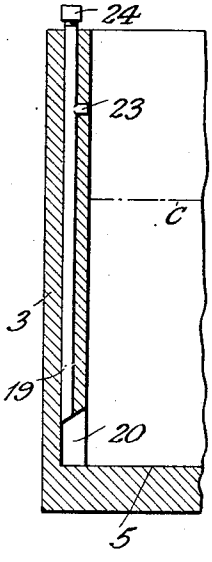



Fig. 6.

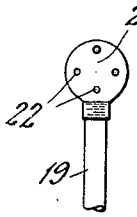



Fig. 8.

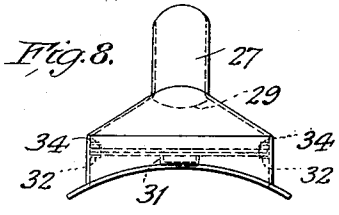



Fig. 9.

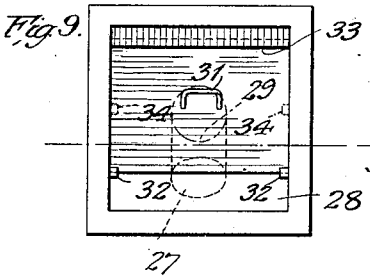
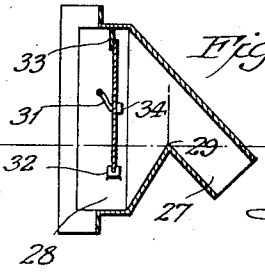



Fig. 10.




INVENTOR.
Elmer W. Firth
BY Gilland Rich
his ATTORNEY.

Patented Apr. 3, 1928. 1,664,853

# UNITED STATES PATENT OFFICE.

ELMER W. FIRTH, OF JAMAICA, NEW YORK, ASSIGNOR OF ONE-HALF TO HUGH GORDON MILLER, OF NEW YORK, N. Y.

## SEWER CATCH BASIN.

Application filed March 2, 1927. Serial No. 171,938.

My present invention relates to improvements in catch basins and it has for its object to provide a device of this character for use in conjunction with the street inlets of a municipal sewer system having its parts arranged to accommodate both the normal and occasional excess flow of surface water. A further object of the invention is the provision, in conjunction with a receptacle for catching and retaining the sediment and street litter which may be periodically removed, of means for relieving the suction created upon the removal of the receptacle, and a special form of outlet box or chamber which forms a water seal for the drain pipe at all times and is so arranged that its parts do not interfere with the removal of the receptacle and which also affords access to the drain pipe to permit the latter to be cleaned by the insertion of a rod or flushing nozzle either from within the basin or from the street level.

To these and other ends, my invention consists in further improvements all of which will be more fully described and the novel features particularly pointed out in the appended claims.

In the drawings:

Fig. 1 is a vertical sectional view of a sewer catch basin embodying my invention.

Fig. 2 is a top view of the basin shown in Fig. 1 with the cover and receptacle removed.

Figs. 3, 4 and 5 are plan, elevation and side views of the curb piece.

Figs. 6 and 7 are detail views showing various ways in which the pressure relief passage may be formed.

Figs. 8, 9, and 10, are detail views of an offset water trap and water trap chamber used in the catch basin.

Similar reference characters in the several figures indicate similar parts.

In carrying out my invention in its commercial form I build the catch basin 1 of tile, concrete or the like, below the street level 2 with a wall 3 which is preferably circular, and of an internal diameter and depth sufficient to accommodate a receptacle 4 of such a size as to permit its easy removal when filled. The basin is closed at the bottom 5 and its walls 3 terminate a short distance below the street level to accommodate a basin head 6. The latter I form of cast iron or the like in the shape of a semi-oval, with its curved portion surrounding the basin 1 and its straight side 7 lying substantially parallel to the curb line 8. The head 6 is constructed with a depression or seat 9 extending around its upper edge into which cover 10 fits, and with a base 11 supporting it on the basin wall. I also form the head 6 at its curb end so that sloping surfaces 12 are provided at the top of the wall 3 to lead water entering the basin from the street gutter 13 into the basin proper. The surfaces 12 extend downwardly at a slight angle to their point of meeting at the center to form an inwardly inclined trough which is sufficient to direct a small stream into the center of the basin. The end 7 of the basin head 6 is provided with a raised rim 14 which is provided with bolt holes and bolts 15 and is arranged to hold the removable curb piece 16 in place by means of said bolts 15 and nuts upon them. Curb piece 16, I find to be most conveniently made with a skirt 17 having in it slots 18 which slots engage bolts 15. I find this arrangement of a basin head and separate curb piece to be advantageous on two accounts; it facilitates replacement of the curb piece in the event of its becoming broken by obviating the necessity for reinstalling an entire basin head which process requires the expenditure of considerable labor by making it possible to replace only the broken curb piece, leaving the basin head undisturbed, and the arrangement permits adjustment of the curb piece relative to the head during construction, so that discrepancies in curb heights may readily be compensated for. The arrangement of the details of the curb piece 16 is clearly shown in Figs. 3, 4 and 5.

Removal of receptacle 4 from the catch basin is often rendered difficult due to a combination of factors, namely the comparatively close fitting of the receptacle 4 within the wall 3 combined with the viscosity of the fluid in the basin which results in a difference of fluid pressure between the top and bottom sides of the bottom of receptacle 4 when movement of receptacle 4 is attempted and one of the features of my invention is to provide a passage 19 for nullifying such a difference in pressures which hinders the removal of the receptacle and its insertion. 20 is an opening connecting passage 19 with the bottom 5 of the catch basin 1. At 21, I show a removable perforated cap on the

top of passage 19 which permits flow of air in the passage 19 when receptacle 4 is moved. The cap 21 is removable in order to provide for cleaning the passage 20 from above by flushing or by a rod or both. In my improved catch basin, passage 19 may consist of a pipe built into basin wall 3, or it may be arranged exterior to the wall 3. In Figs. 6 and 7, I have illustrated alternative arrangements of said passage 19. In Fig. 6, the cap 21 is shown as being perforated as at 22. In Fig. 7, 23 is the inlet to passage 19 (or outlet, depending on whether receptacle 4 is being removed or replaced) and cap 24 is removable but not perforated. In either arrangement where the cap is employed I extend the passage or vent pipe upwardly to a point where it is accessible upon removal of the cover plate 10.

A further feature of my invention comprises the outlet and watertrap arrangements interposed between the catch basin and the main sewer line, so that the connecting sewer lateral may be more readily cleaned, either by so called "rodding out," or by flushing from within the basin or from the street level. These parts are so arranged that they will not interfere with easy removal of receptacle 4. I arrange the outlet pipe or lateral 25 leading to the sewer line 26 so that it communicates with basin 1 by a nipple connection 27 formed on a basin outlet chamber 28. This chamber is shaped so as to have the nipple aperture therein centered above the lowest portion of the chamber so that when the basin 1 is filled to overflowing the lowest outlet point 29 through the nipple 27, the chamber 28 will be partly filled with water. The water trap is then formed by arranging a closely-fitting plate 30, having a handle 31, and removably supported in chamber 28 in such a way as to have its lower edge below the level of the water line C which is determined by the location of point of junction of nipple 27 and chamber 28. In my preferred arrangement, I provide U-shaped supports or notched lugs 32 on opposite sides of chamber 28 which hold the plate of plate 30. A lip 33 extends downwardly from and across the top of chamber 28, and is made with sufficient distance between its lower edge and top connection with chamber 28 to allow the plate to be moved up sufficiently so that the lower edge of the plate will clear its supports 32 when it is being removed. I take care also to make lip 33 of sufficient depth so that when plate 30 is fully seated in supports 32, the upper edge of plate 30 and the lower edge of lip 33 will form a reasonably close fit to make a gas tight joint. In order to provide for holding plate 30 firmly against lip 33 I also provide lugs or bosses 34 on the sides of chamber 28 against which plate 30 also bears in its seated position. As will be seen from the drawings, particularly in Fig. 1, my arrangement of water trap and outlet makes possible a freedom from bends or curves in the outlet system, thus greatly assisting the work of cleaning a catch basin outlet. In Figs. 8, 9 and 10, I show separate views of an outlet chamber embodying my improvements, from which it will be seen that in addition to providing a water trap and outlet system which facilitates cleaning operations, all of the parts are so placed that they are out of the path of movement of the receptacle 4 when it is being inserted or removed.

What I claim is:—

1. In a sewer catch basin arranged to receive a removable receptacle comprising a surrounding wall having an outlet located above the top of such receptacle, a pressure relief pipe having an air inlet located above the bottom of the outlet and an air outlet positioned to relieve the suction at the bottom of the basin created upon removal of said receptacle, and a removable cap on the upper end of said pipe.

2. In a sewer catch basin, the combination with a basin wall, having an aperture, of an outlet chamber cooperating with the aperture and having a pipe nipple the bottom edge of which extends above the lower edge of the chamber, and a removable cover plate within the chamber extending downwardly from the top of the chamber to a plane below said bottom of the nipple.

3. In a sewer catch basin arranged to receive a removable receptacle and having a surrounding wall provided with an outlet opening establishing a waterline, the combination with an outlet chamber extending above and below said water line having a depending lip at its upper edge, of supports in said chamber, and a plate removably held by said supports cooperating with said lip and arranged with its lower edge beneath the water level to form a water trap in said chamber.

ELMER W. FIRTH.