

May 28, 1968

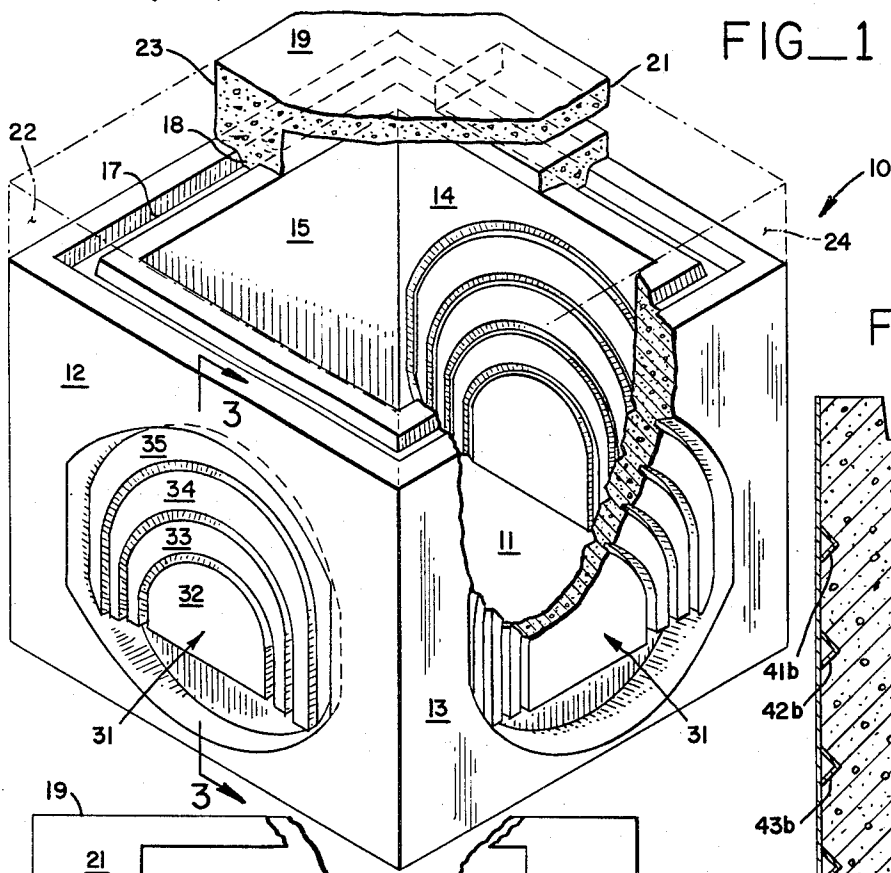
H. A. LOVEGREEN

3,385,012

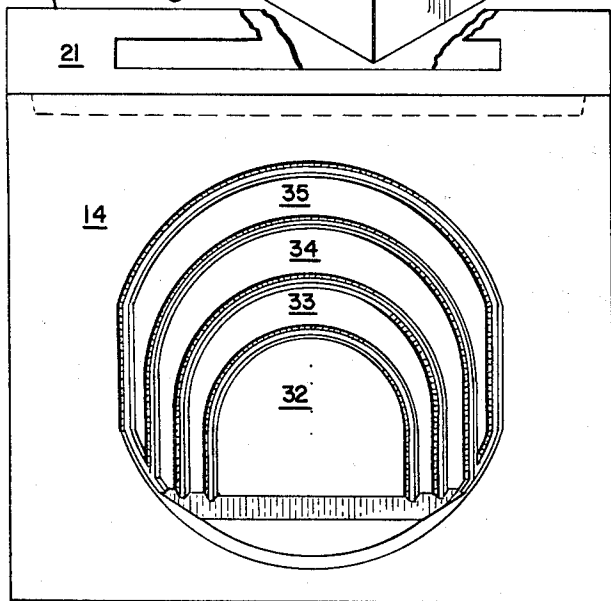
FRANGIBLE CONCRETE RECEPTACLE

Filed Sept. 8, 1965

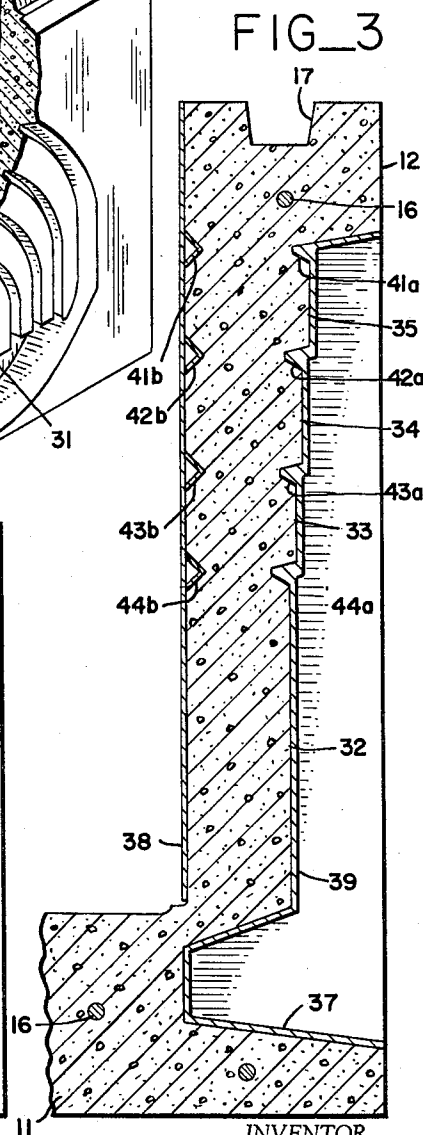
2 Sheets-Sheet 1



FIG\_1



FIG\_2



FIG\_3

INVENTOR.  
HAROLD A. LOVEGREEN

BY

*Hebr and Swain*

ATTORNEYS

May 28, 1968

H. A. LOVEGREEN

3,385,012

FRANGIBLE CONCRETE RECEPTACLE

Filed Sept. 2, 1965

2 Sheets-Sheet 2

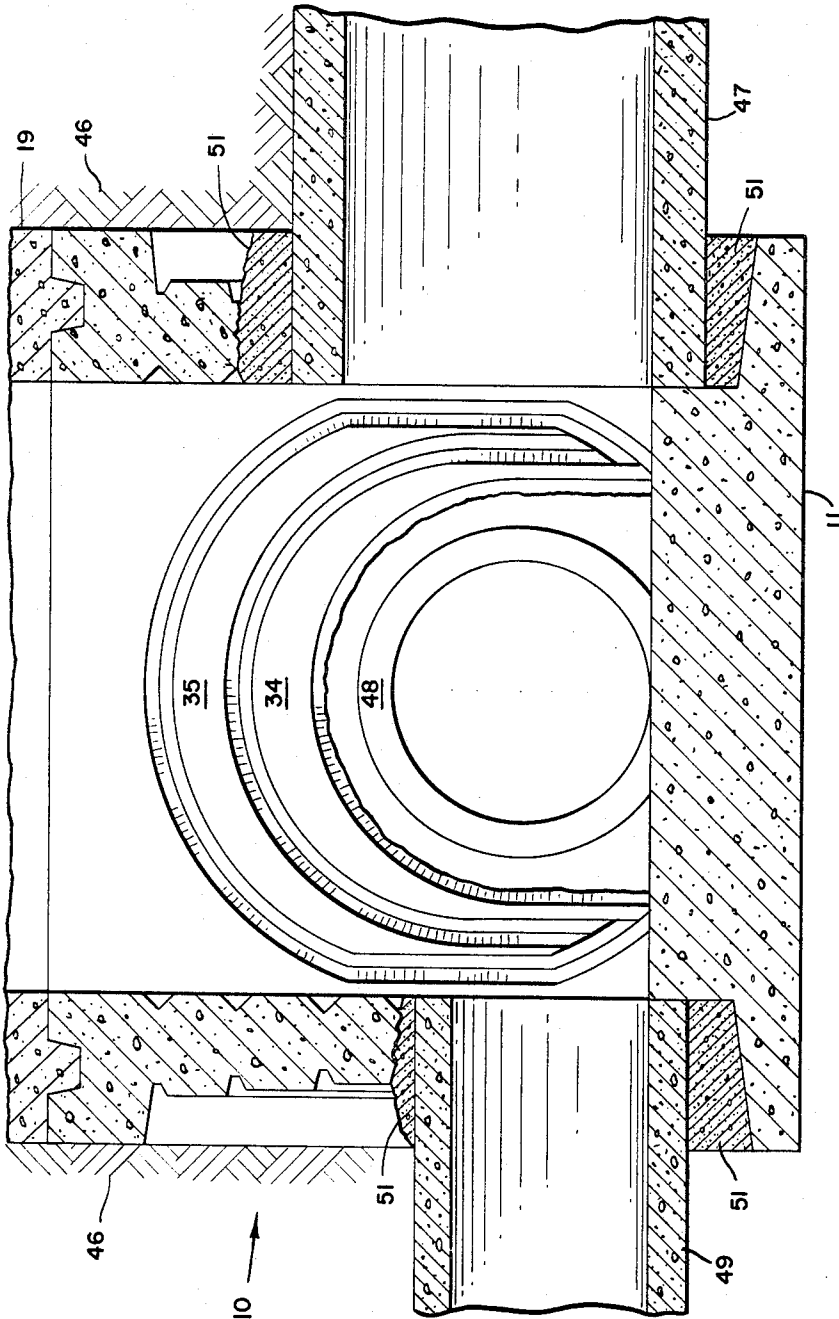


FIG. 4

INVENTOR

HAROLD A. LOVEGREEN

BY

*Felker & Swain*

ATTORNEYS

1

3,385,012

## FRANGIBLE CONCRETE RECEPTACLE

Harold A. Lovegreen, Walnut Creek, Calif., assignor to Christy Concrete Products Incorporated, Emeryville, Calif., a corporation of California

Filed Sept. 8, 1965, Ser. No. 485,713

3 Claims. (Cl. 52-21)

### ABSTRACT OF THE DISCLOSURE

A concrete receptacle or catch basin having sidewalls and a bottom wall, the sidewall including a multiple knockout consisting of a plurality of progressively smaller, coplanar knockouts which are progressively thinner as they decrease in size and having opposed recesses about each knockout on the inner and outer walls to define breaklines. The lower end of the sidewall below the knockouts is recessed to form a relieved area for receiving the end of a pipe and for permitting it to be abutted so that the inner wall of the pipe is substantially continuous with the inner wall of the bottom of the receptacle or catch basin.

This invention relates to concrete receptacles and more particularly to such receptacles adapted for use in the ground as drainage catch basins and the like, and to an improved knockout for the same.

Such catch basins have heretofore been provided with a knockout in its sidewall. The knockout is a hole which does not quite penetrate the side and which is completed by knocking out the closing material with a sledge hammer or other tool. The resultant hole is then fitted with a pipe for transporting drainage to and from the catch basin. Heretofore, a large number of different sizes of ring molds were required in the manufacture of such catch basins, one for each size knockout required. In the manufacturing process, it was possible to manufacture in advance only a very few standard catch basins with knockouts due to the different size and location requirements of the purchasers. There is, therefore, a need for a new and improved catch basin and knockout.

A general object of the invention is to provide an improved catch basin with a knockout therein which overcomes the above named disadvantages.

Another object of the invention is to provide a catch basin of the above character which has a knockout therein which is capable of being removed in steps to provide an adjustable hole in the catch basin wall.

Another object of the invention is to provide a catch basin of the above character which is adapted to accommodate a number of pipe sizes in the basin so that a mass production basin capable of meeting job specifications on a plurality of different jobs can be produced.

Another object of the invention is to provide a catch basin of the above character in which the portions of the knockout that remain after the desired portions are removed are strong and capable of acting as structural material together with the associated wall in which the knockout is formed.

Another object of the invention is to provide a catch basin of the above character which can be produced by a single setting of the mold and which does not require skilled labor capable of reading blueprints.

These and other objects of the invention will be apparent from the following description when taken in conjunction with the accompanying drawings, of which:

FIGURE 1 is an isometric view, partly broken away, of a catch basin constructed according to the present invention.

FIGURE 2 is an end view of one wall of the catch basin

2

of FIGURE 1, and showing particularly the multiple knockout formed in the outer side of a wall thereof.

FIGURE 3 is a cross-section view through a multiple knockout taken along the lines 3-3 of FIGURE 1, and in addition, shows molds used to form the multiple knockout in the catch basin.

FIGURE 4 is a cross-sectional view of a catch basin incorporating the present invention and showing the same in a typical installation connected to drainage piping.

In general, the catch basin of the invention is provided with a wall having a multiple knockout including a plurality of progressively smaller knockouts. The knockouts are stepped so that they are progressively thinner. The knockouts are formed integral with the catch basin and are disposed within each other so that they can be broken out progressively from the thinnest to the thickest to thereby provide a hole in the catch basin of the desired size. The junctions between the knockouts are relieved from each side of the wall by V-shaped recesses between the knockouts to provide breaklines for the knockouts.

Referring specifically to FIGURES 1-3, there is shown a reinforced concrete catch basin 10 constructed according to the invention. The catch basin is provided with a bottom wall 11 and sidewalls 12, 13, 14 and 15 integrally formed together to form a box-like structure. Reinforcing 16 is provided in the walls 11-15 in appropriate places.

The sidewalls are provided with a recess 17 in their top surface for receiving a tongue 18 of a lid member 19 to hold the lid member against lateral movement. The lid member 19 comprises a top and downwardly depending sidewalls 21-24 sized to fit in alignment with the sidewalls 12-15. One of the walls 21 is provided with a longitudinal slot at one side thereof adapted to lie at the street level and to permit the passage of drainage into the catch basin 10.

A multiple knockout 31 is formed in at least one wall of the catch basin 10 and comprises a plurality of successively smaller contiguous knockouts adapted to be step-wise removed to thereby make an opening or hole in the wall for receiving a pipe. The multiple knockout 31 is divided into a generally semicircular central knockout 32 surrounded by a series of generally semiannular knockouts 33, 34, 35 of larger and larger outside diameter. In other words, the multiple knockout includes a plurality of successively smaller knockouts, each of which is thinner than the next larger knockout.

The multiple knockout and wall are formed together as a one-piece casting of concrete, the outer mold 38 and inner mold 39 being shown in place as they appear just prior to being parted from the casting (FIGURE 3). The thickness of each of the knockouts is reduced step-wise such that the largest, outermost knockout 35 is the thickest, and the innermost, smaller knockout 32 is the thinnest.

The knockouts terminate at their lower regions slightly below the upper surface of floor 11, there being provided a semicircular recess 37 below the knockout and formed in the general plane of the sidewall and facing outwardly. The recess 37 has a height below the upper surface of the floor having a vertical dimension greater than the maximum wall thickness of any pipe to be installed in the wall. As shown, the recess 37 is provided with a depth approximately equal to the thickness of the sidewall in which it is formed so that when knockout 32 is removed, a generally vertical plane of fracture will form between the upper surface of the floor inside the basin and the upper inward corner of the recess. It is then possible to mount a pipe so that the inside surface of the pipe wall is aligned with the upper surface of the floor 11 to thereby prevent accumulation of drainage, etc., at the junction of the pipe and the basin.

The cross-section thickness about perimeters of the individual knockouts 31-35 (as at the junctions between them) is further relieved or reduced by the provision of

generally semicircular V-shaped recesses 41a and b, 42a and b, 43a and b, 44a and b, formed in both the inside and outside of the wall, and opposed to each other to thereby define the breaklines about the perimeters of the knockouts. The cross-section thickness of the wall immediately between the bottom of the recesses is made step-wise less and less, the innermost distance 44a-44b being the smallest. Thus, it is possible to selectively break out as many of the knockouts 32-35 as desired, beginning with the innermost semicircular knockout 32 and working outwardly one knockout at a time.

The required thickness of the knockouts and the stepped reduction of thickness caused by the recesses between them varies with the size and strength requirements of the basin. By way of example, it has been found that cross-section reduction in quarter-inch increments between successive knockouts 32-35, and reduction in quarter-inch increments between successive knockouts 32-35, and reduction in quarter-inch increments between successive breaklines 41-44 is sufficient to obtain selective removal of the knockout for a multiple knockout of approximately 3-4 inch thickness. The above mentioned reductions are found to provide a clean break and yet have sufficient strength so that a rigidly supported wall is provided if the knockouts are left intact.

Referring now to FIGURE 4, there is shown a typical gutter installation of a catch basin constructed according to the invention. The catch basin 10 has been buried in the ground 46 and has one portion (not shown) adapted to permit drainage to flow into the basin. Drainage pipes 47, 48 and 49 are mounted into openings formed in the multiple knockouts of the basin. The pipe 47 is a large outflow pipe. Knockouts 32-34 of the multiple knockout in wall 12 are removed and a large outflow pipe is positioned in the opening and sealed in place with grout 51. The smaller pipes 48 and 49 require the removal of fewer of the individual knockouts. Thus, several sizes of pipe may be accommodated by selective removal of segments of the knockout. If desired, it is possible to mount a pipe so that its lowermost inner surface is higher than the upper surface of the floor, it only being necessary to remove more of the knockouts and use a larger amount of grout as fill in and support under the pipe.

I claim:

1. In a concrete receptacle including a plurality of sidewalls and a bottom wall, at least one multiple knockout formed in one of said sidewalls and adapted to be broken out so that a pipe can be installed into the wall, said multiple knockout comprising a plurality of progressively smaller, generally coplanar knockout portions, each successively smaller knockout portion being progressively thinner than the next larger knockout, said multiple knockout portions being separated by a substantially continuous opposed set of recesses formed between each knockout portion on both the inside and the outside surface thereof, the wall thickness between sets of recesses separating suc-

sively smaller knockout portions being progressively thinner to define breaklines for the knockout portions permitting the smaller knockout portions to be selectively removed, said multiple knockout portions having a common lower edge located approximately at the upper surface of the bottom wall of said receptacle, the wall structure below said common lower edge being formed with a generally semicircular recess, said recess facing outwardly and having a depth approximately equal to the wall thickness and having a dimension below said common lower edge which is greater than the maximum wall thickness of any pipe to be inserted in the knockout whereby such pipe can be installed into the knockout with its inner lower surface substantially flush with the upper surface of the bottom wall of said receptacle.

2. In a concrete receptacle, a unitary box-like structure formed of concrete and having a bottom wall and a plurality of sidewalls, at least one of said sidewalls having a multiple knockout construction formed therein, said multiple knockout construction being formed of a plurality of generally coplanar knockout portions, said multiple knockout construction having inner and outer surfaces having a plurality of spaced, generally arcuate, elongate grooves formed one inside the other and opening through said inner and outer surfaces with their ends terminating in a spaced apart relationship adjacent the bottom wall, said grooves being arranged in opposing sets and defining breaklines for said knockout portions, said multiple knockout construction being graduated in thickness in at least one direction from the outermost groove to the innermost groove and said sidewall and said bottom wall being formed to provide a common breakline along said bottom wall for said multiple knockouts whereby the knockout portions can be selectively removed to provide an opening of the desired size in said sidewall.

3. A receptacle as in claim 2 wherein said box-like structure is formed with the top opening together with a lid closing said opening, said lid and said box-like structure being provided with cooperative means preventing lateral movement of the lid on the box-like structure.

#### References Cited

##### UNITED STATES PATENTS

|           |        |           |         |
|-----------|--------|-----------|---------|
| 1,087,366 | 2/1914 | Haase     | 52-100  |
| 1,107,812 | 8/1914 | MacDonald | 94-31.3 |
| 1,905,856 | 4/1933 | Haase     | 52-100  |
| 2,900,814 | 8/1959 | Carson    | 52-100  |
| 3,263,378 | 8/1966 | Dorris    | 52-100  |
| 1,391,336 | 9/1921 | Meiners   | 52-20   |

HENRY C. SUTHERLAND, *Primary Examiner*.

FRANK L. ABBOTT, JOHN E. MURTAGH,

*Examiners.*

R. A. STENZEL, *Assistant Examiner*.