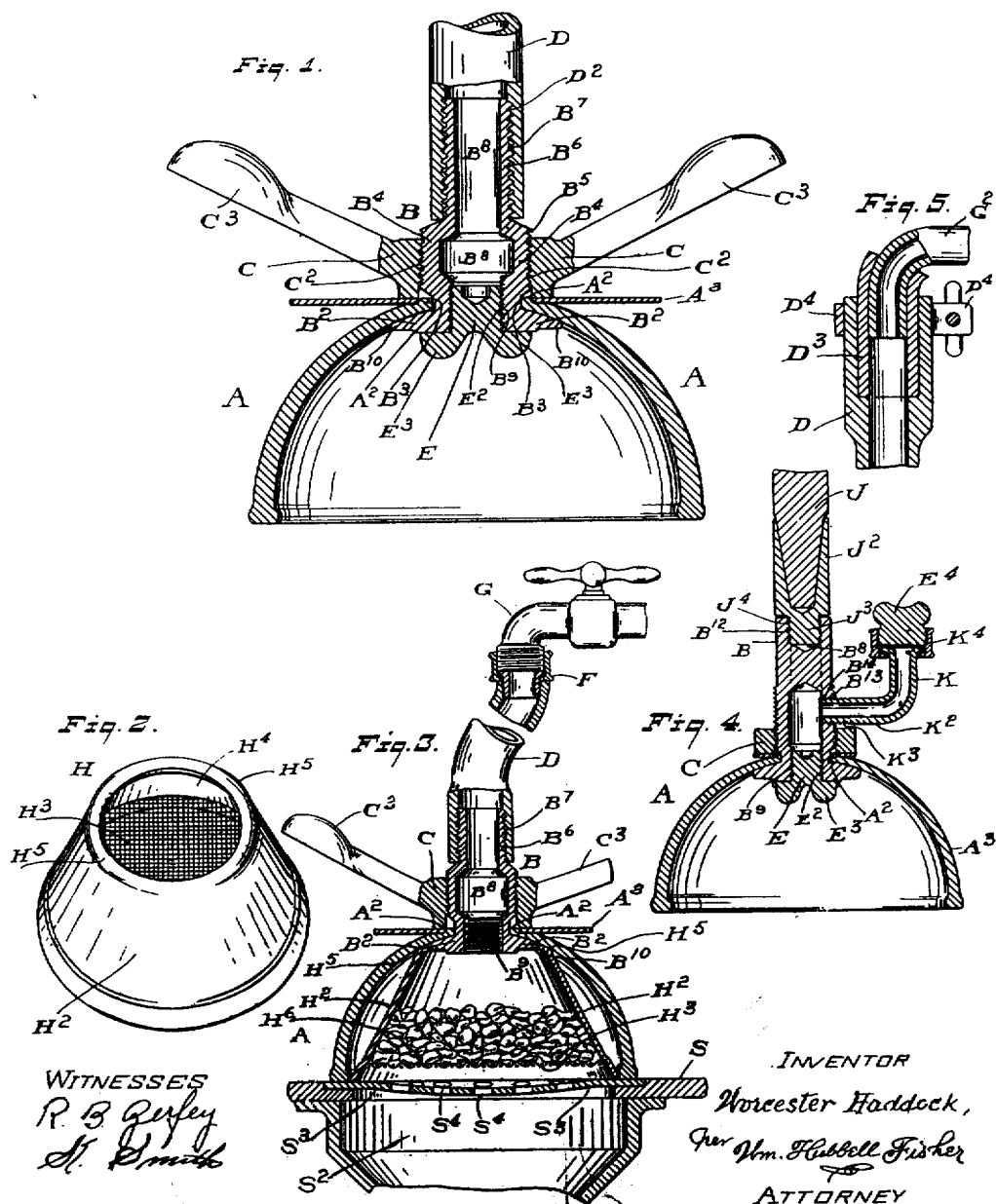


977,005.

Patented Nov. 29, 1910.



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WORCESTER HADDOCK, OF CINCINNATI, OHIO, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF ONE-FOURTH TO R. JOHN BERNE AND ONE-HALF TO HENRY VOLZ, BOTH OF CINCINNATI, OHIO.

APPARATUS FOR CLEARING OBSTRUCTIONS FROM DRAIN AND OTHER PIPES.

977,005.

Specification of Letters Patent.

Patented Nov. 29, 1910.

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To all whom it may concern:

Be it known that I, WORCESTER HADDOCK, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Apparatus for Clearing Obstructions from Drain and other Pipes, of which the following is a specification.

The several features of my invention and the various advantages resulting from their use conjointly or otherwise will be apparent from the following description and claims.

In the accompanying drawing making a part of this specification, and in which similar characters of reference indicate corresponding parts,—Figure 1 represents a view partly in elevation and partly in section of a mechanism embodying my invention. In this view the section is a vertical central one. Fig. 2 is a view in perspective of a receptacle for various substances, which may be employed in connection with the cleansing of said sink and other drain pipes. Fig. 3 is a view partly in elevation and partly in section of my improved device when combined with my improved receptacle shown in Fig. 2, the whole applied to the exit hole of a basin or sink. The section is a central vertical one. Fig. 4 is a vertical central section of a construction containing certain features of my invention, one of which is somewhat modified for use, in connection with a different kind of handle. Fig. 5 is a vertical central section of a device illustrating the preferred means for adapting one size of conduit used with my invention to other sizes of conduits.

I will now proceed to describe my invention in detail.

A indicates a hemispherical cup of elastic material, and therefore preferably made of rubber. In the central part of the upper end of this cup A I form a hole A². I provide a central shank B constructed as follows: This shank has an annular flange B², preferably quite broad, as shown, and extending in a radial direction from the axis of the shank. Above this flange B² is a neck B³ of much shorter diameter. Above this neck B³ the shank is enlarged, its diameter being longer than that of the neck B³.

The diameter of the hole A² is much less than that of the neck B³. Consequently when the shank B is inserted through this hole A² in the cup, as will be the case, in manufacture, the edge of the hole A² of the rubber cup A will fold or lie up against the neck B³, and fill this space around the neck B³. The enlargement B⁴ of the shank has a peripheral screw thread B⁵. On this enlargement is screwed a sleeve C provided interiorly with a screw thread C², the latter engaging the screw thread B⁵ of the said enlargement B⁴. This sleeve is provided with outwardly extending arms or handles C³, preferably two in number, substantially as shown in Fig. 1. Above the enlargement B⁴, the shank B is again diminished in size and this diminished portion B⁶ is provided with an exterior screw thread B⁷. This portion B⁶ of said shank B receives the lower end of a hose or other pipe D, which will usually be flexible. This lower end of pipe D is screwed by its screw thread D² onto the shank portion B⁶. Where the pipe D is of rubber, the screw thread B⁷ will operate to enter the rubber of the pipe D and no interior screw thread on the pipe D will be necessary. The passageway B⁸ extends through the shank B for the whole length of it. The lower portion of this passageway B⁸ has a screw thread B⁹.

I provide a stopple E, exteriorly screw threaded at E², which stopple can be screwed into the screw threaded aperture B⁹, of passageway B⁸. When thus applied, this stopple E will entirely close the passageway B⁸. The stopple E is provided with means for enabling it to be rotated for screwing the stopple into the shank B or unscrewing it therefrom. Preferred means for this purpose are the thumb pieces E³, E³, respectively located at opposite sides of the stopple E. The mode in which this feature of my invention operates is as follows: The cup A is located over the exit hole of the sink or basin, and which hole is in connection with the drain pipe, and the edge of this cup is on the floor of the basin or sink, and outside of the said hole. In Fig. 3, the bottom S of a sink or basin is shown. The mouth of the exit pipe or passage S² is usually covered by a perforated floor S³ whose perforations S⁴

are too small to allow large things to enter the hole S². After the cup A has been thus properly located, a forcible downward pressure is applied to the handles C³, C³, and the cup A is quite a little flattened, and some of the air within it is expelled. This pressure on the handles C³, C³, is now released. Thereupon the cup will expand and suck the contents of the drain pipe upward, and loosen them where jammed together. This action of the cup A by alternately pressing it down by the said handles and then allowing it to rise, is continued until the contents of the drain pipe have been loosened. The action essentially consists in forcing said contents of the drain pipe down and out of the said pipe by means of the air compressed when the cup is pressed downward, this compressed air pressing in turn upon the contents of the drain pipe. The cup takes more or less fresh air under its edge as pressure upon it is removed from the handles, and this additional air is again forced downward into the drain pipe when the air is again compressed. If water is standing in the sink or bowl to a moderate depth when the air is compressed, the air will be forced out of the cup and out and down into the drain pipe and against the contents of said pipe, and in this way will assist in forcing out the contents of the drain pipe. In order to prevent the cup A from merely being depressed at the middle portion, I provide a flat disk A³. This disk has a central aperture of the diameter of the opening in the sleeve C, and the disk is fitted to place resting on the upper surface of the cup and then the sleeve C is screwed down. When the handles C³ are depressed, the disk is brought to bear on the top surface of the cup, and a much more effective action of the cup is attained. To carry off those contents of the drain pipe which clog it, I then remove the stopple E, again place the cup over the exit hole S². I connect the upper end of the pipe D, namely: the part F which is a coupling, with a faucet G. Opening the faucet G, I cause the water to flow rapidly through the pipe D, and its shank B into the cup A and thence through the hole S², thus carrying off the debris and foreign substances that have clogged the said exit pipe.

It frequently happens that it often becomes desirable to remove from the drain pipe, grease or fats, and the like that have lodged therein, and again it becomes desirable to disinfect the drain pipe and its contents. One feature of my invention provides for effecting such results. This feature is as follows: I provide a cup or cage H, preferably in the form of a truncated cone. The side H² of this cage is preferably imperforate. The bottom H³ of this cage is perforate and is preferably a wire screen cloth. The top of this cage is provided

with a central opening H⁴, in alinement with the passageway B⁸. The edge portion H⁵ of this opening H⁴ is not sharp, but round, so as not to cut the rubber of the cup.

In application, the substance that is to be applied to accomplish the removing of the grease, fat, etc., or to disinfect the exit pipe, is placed in the cage H, through the opening H⁴. The cage H is then located over the exit drain hole. The cup A is located as shown in Fig. 3 over the cage and held down thereupon, and upon the bottom S of the sink or basin. The edge H⁵ of the opening H⁴ abuts against the rubber of the cup beyond the rim B². The upper end of the pipe D is connected to a faucet as hereinbefore mentioned, and water from the faucet is caused to flow down through the shank B and into the cage. Here it dissolves the article therein and carries it down into the drain pipe, where it performs the desired function. For example, lye in a granulated shape H⁶, so that it cannot pass through the cage while in a solid state, is put in the cage H. The water flowing down through the cup and the cage dissolves the lye and carries it directly down to the grease or fat in the drain pipe. There the grease or fat is cut or dissolved by the lye, and consequently disappears.

In case a disinfectant, as sulfate of iron, or chlorid of lime, etc., is located in the cage, the water flowing down through the shank and the cup and the cage dissolves it and carries it into the pipe and distributes the disinfectant upon and along the surface of the exit pipe.

In Fig. 4 there is illustrated a modified form of one of the features of my device. In this Fig. 4, the construction of the cup and of the shank and of the stopple are substantially the same as in Figs. 1 and 3 already described, with the exception that there is no passageway directly through the shank, and a handle J is secured to the shank in a socket provided for that purpose. The lower end portion of this handle is preferably provided with a ferrule J², and the preferred means of uniting the handle to the shank B is by forming the lower end of the ferrule with a diminished extension or end J³, and on the periphery of this extension J³ I form a screw thread J⁴. Upon the socket of the shank, I form a screw thread B¹². The extension J³ is screwed into this screw threaded end portion B¹² of the shank and is thereby held firmly in position. This handle is obviously usable in various ways, among which it may be mentioned that it can be used to compress the cup A in the manner already described.

In connection with the device as thus far described, I employ a water inlet passageway connected to the passageway B⁸ of the shank, preferably substantially as follows:

A curved pipe K, having a straight end K², is provided with a peripheral screw thread K³. An opening B¹³ in the side of the shank B is provided with a screw thread B¹⁴, and the straight portion K² of the pipe K is screwed therein substantially as shown in Fig. 4. The other end of this pipe K is provided with a coupling piece K⁴ of the usual form, and this is duly connected with a flexible or other pipe, which latter is in turn adapted to be connected to the faucet, hydrant or other water supply, and thereby receive water directly therefrom, which water flows through the pipe K and thence through the shank and flushes out the sink hole and drain pipe. It can also be used to carry the lye or disinfectant and the like located in the cage H through the sink hole into the drain pipe, substantially as hereinbefore described. The passage K can be closed by a suitable stopple E¹, one form of which is shown in Fig. 4. Of course, as is well understood in the art of plumbing, the coupling F may, without change, be adapted to the ends of variously sized faucets by means of a proper sized reducer, one size of which is shown and indicated by the character D³. This reducer is usually formed of rubber pipe. In Fig. 5, the adjacent end G² of a faucet is shown, inserted into the reducer D³. The rubber pipe D, reducer D³ and faucet G² are all held and clamped tightly together by means of a clamp D⁴, of well known construction.

The construction shown in Fig. 4 is of primary advantage and utility in the opening up of the conduits connected to the bowls of water closets. The rubber cup whose lower portion A² is formed so as to contact with the exit orifice of the bowl, is passed down into the same, and the handle J moved up and down vertically, thereby reciprocating the cup and causing it to alternately force air forward and down through the exit conduit, and then as the cup rises, suck on the said conduit. These movements of the air against and through the contents of the said exit conduit operate to loosen the contents lodged in the said conduit.

Wherever the word sink is used in the claims, it is to be understood as including other drain pipes of analogous location.

What I claim as new, and of my invention and desire to secure by Letters Patent, is:—

1. In a device for cleansing sink pipes, an elastic cup, a shank having a passageway through it, this shank being extended through the top portion of the cup, a stopple adapted to close that end of the passageway within the cup, an annular flange of the shank below the adjacent top portion of the cup, a disk on the shank next above the cup, an enlarged portion of the shank above this loose disk, and provided with a peripheral screw thread, a sleeve screwed upon this en-

larged portion and adapted to compress the rubber cup between the disk and the annular flange, arms extended from the sleeve, an upper end portion of the shank provided with a screw thread and a flexible pipe or hose connected thereto and adapted to be connected to a faucet, substantially as and for the purposes specified.

2. In a device for cleansing sink holes, the combination of a shank, a handle connected thereto, a cup connected to the shank, the shank provided with a passageway and a pipe, in connection with the shank, adapted to be connected to the faucet, and a stopple adapted to be connected to the shank and to close the passageway thereof, substantially as and for the purposes specified.

3. In a device for cleansing sink or drain pipes, a rubber cup, a shank onto which the said cup is fitted, an annular flange on the shank below the cup, a device for compressing the cup against the flange, a handle for depressing the cup, and a cage, adapted to be within the cup, and having a perforated bottom and an open top, the opening in the top of the cage adapted to receive within it the said annular flange and permit the cup itself to impinge against the edge of this top opening of the cage and to make a tight joint therewith, the shank having an inlet conduit opening into the top opening of the cage, and adapted to make connection with a pipe for supplying water to the shank, substantially as and for the purposes specified.

4. In a device for cleansing sink pipes, an elastic cup, a shank having a passageway through it, the shank being extended through the top portion of the cup, an annular flange integral with the shank and located below the adjacent top portion of the cup, a disk on the shank next above the cup, an enlarged portion on the shank above the disk provided with a peripheral screw thread, thus leaving a diminished portion or neck between the annular flange below and the enlarged screw threaded portion above, the edge of the cup being received into the recess thus formed, a sleeve screwed upon the enlarged portion of the shank, arms on the shank, the shank adapted when screwed down to compress the adjacent portion of the rubber cup between the disk and the annular flange, and means for enabling the shank to connect with a pipe for introducing water into the cup, substantially as and for the purposes specified.

5. In a device for cleansing sink holes, a rubber cup, a shank upon which the cup is mounted, radial arms for operating the device secured to the shank, a conduit in the shank and a flexible connection therefor to supply water to the inside of the cup, and a stopple for closing the conduit as desired.

6. In a device for cleansing sink holes, a rubber cup, means for compressing the cup

against the support it is rested upon, a cage provided with a perforated bottom and an open top, the cage adapted to be within the cup and having an upper edge in the vicinity of the top opening of it, adapted to make close contact with the interior surface of the cup, a conduit extended through the cup for admitting water thereto, and means for closing said conduit, substantially as and for the purposes specified.

WORCESTER HADDOCK.

Attest:

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