

J. LUCKENBACH.
 APPARATUS FOR DISCHARGING LIQUID.
 APPLICATION FILED DEC. 6, 1920.

1,384,965.

Patented July 19, 1921.

2 SHEETS—SHEET 2.

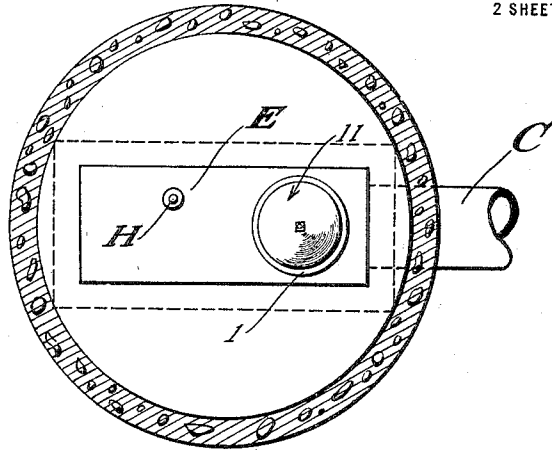


FIG. 2.

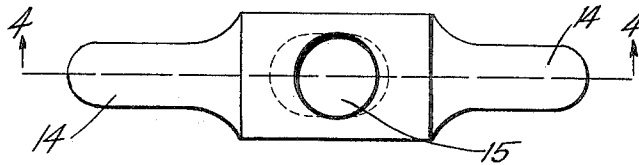


FIG. 3.

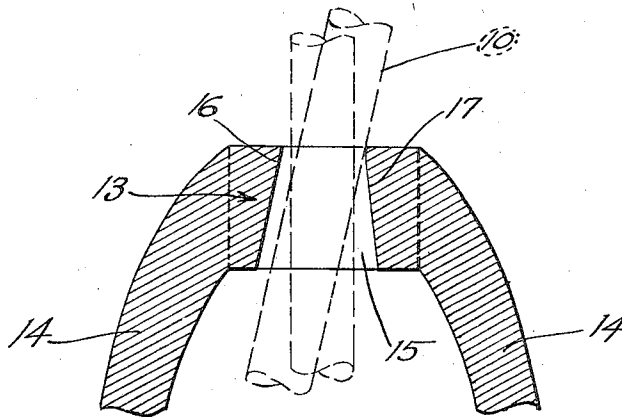


FIG. 4.

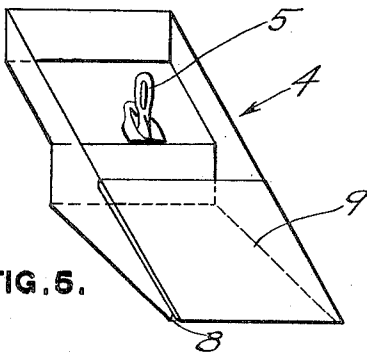


FIG. 5.

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APPARATUS FOR DISCHARGING LIQUID.

1,384,965.

Specification of Letters Patent. Patented July 19, 1921.

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To all whom it may concern:

Be it known that I, JOHN LUCKENBACH, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles, and State of California, have invented new and useful Improvements in Apparatus for Discharging Liquid, of which the following is a specification.

My invention relates to apparatus for discharging or releasing volumes of liquid, and has for its object to provide an automatically operated apparatus adapted to discharge or release volumes of liquid at periodic intervals.

Another object of my invention is to provide an apparatus of the character described which will be positive and durable in operation and simple and economical in construction.

Another object of my invention is to provide an apparatus more compact and convenient than are the devices heretofore utilized in the art to effect a similar result.

The invention will be readily understood from the following description of the accompanying drawings, in which I have illustrated my invention as embodied in a sewer flusher.

Figure 1 is a vertical section illustrating the apparatus as positioned within the well of a sewer system.

Fig. 2 is a top plan view of the same with the cover for the well removed.

Fig. 3 is a top plan view of the guide bearing preferably utilized with the apparatus illustrated in Figs. 1 and 2.

Fig. 4 is a vertical section of the guide bearing taken on the line 4-4 of Fig. 3.

Fig. 5 is a perspective view of the actuating bucket utilized with the apparatus illustrated in Figs. 1 and 2.

Referring to the drawings A illustrates a well of any particular design communicating at its bottom with a pit B. The pit B communicates with a sewer conduit C. The well A is provided with a manhole cover D.

A partition E is mounted within the well A and separates the well A and the pit B. The partition E is formed with a port F provided with valve seat 1.

A hanger 2 depends from and is supported by the under side of the partition E. The hanger 2 provides a fulcrum for a lever arm 3 pivotally supported intermediate its ends by the hanger 2. The arm 3 is con-

nected at one end to an actuating bucket 4 through a link 5.

The bucket 4 is pivotally supported at its upper end by a bracket 6 depending from the partition E. The bottom 7 of the bucket 4 is inclined to provide a contracted port 8. A cover 9 extends over the lower end of the bucket 4.

A rod 10 is hingedly supported at the upper end of the arm 3 and extends through the port F to a distance within the well A. The rod 10 is screw threaded at its upper end to receive and support a bell-shaped weighted valve 11. The valve 11 is provided with a beveled ring 12 at its lower end to seat on the valve seat 1.

The rod 10 is slidably confined within an antifriction guide 13 mounted within the valve 11 by means of a plurality of legs 14 supported by the partition E. The aperture 15 through the guide 13 as illustrated in Fig. 4 is provided with a downwardly and outwardly slanting wall 16 to insure against the guide 13 "biting" or gripping the rod 10. The opposite wall 17 of the guide 11 is also slanted downwardly and outwardly to reduce the frictional contact along the rod 10. There is thus provided a "one point" anti-friction guide for the rod 10. The aperture 15 between the walls 16 and 17 has a greater diameter than the rod 10 to allow a "play" for the latter.

The guide 13 will insure that in operation the valve 11 properly "find" the valve seat 1.

In operation water is introduced to the well A through a pipe 6 at any pre-determined rate. When the water level reaches the top of a stand pipe H the water will flow down the pipe H and pass into the actuating bucket 4. The hanger 2, arm 3, bucket 4, link 5, and bracket 6 provide a compound lever for raising the valve 11 and releasing the water in the well A.

So long as the relative force derived from the weight of the valve 11 is greater than the relative force derived from the weight of the water within the bucket 4, the valve 11 will remain seated. When a sufficient amount of water has passed through the pipe H into the bucket 4 to over-balance the weight of the valve 11 the bucket 4 will tend to drop downwardly, thereby raising the valve 11 off its seat 1 and "cracking" the valve. Upon the lowering of the bucket 4 the volume of water confined at the upper

and deeper portion thereof will pass toward the port 18. This will increase the effective lifting force of the weight of the water within the bucket as it will increase the length of the effective distance between the fulcrum of the bucket and the water. Thereby any tendency of the valve 11 to remain balanced at the "cracking" point will be overcome and the valve 11 will be hoisted a sufficient distance off its seat 1 to permit the water within the well A to pass downward in quantity, thus effectively flushing the sewer C. The cover 9 and relatively narrow port 8 necessitate that the water within the bucket 4 drain out slowly, thus maintaining the valve 11 open until the well A has been thoroughly drained.

A decided advantage of the above construction is that except for the valve 11 the actuating parts are all below the partition E. In prior devices of this character it has been necessary to provide walking beams or the like above the partition E. This has rendered it inconvenient for a man to enter the well A and has resulted in frequent derangement of the apparatus by one entering the well. The compound lever arrangement utilized in my construction renders it possible to position the apparatus below the partition E. Further the use of the compound lever greatly simplifies the apparatus rendering it more economical and compact.

My invention is not limited in application to a sewer flusher, but has been illustrated above as applied to such purpose for the purpose of example only. My invention is not confined to the precise proportion or arrangement of parts above set forth and contemplates such deviations therefrom as are within the scope of the following claims.

I claim:

1. A liquid discharge apparatus comprising a liquid receptacle having a discharge port, a valve for said port, a compound lever entirely positioned below the discharge port including an actuating bucket adapted to open said valve when the relative weight of water within said bucket overbalances the relative weight of said valve.

2. A liquid discharge apparatus compris-

ing a liquid receptacle, formed with a discharge port, a lever fulcrumed intermediate its ends below the port, means operatively connecting one end of the lever with the valve, a pivoted actuating bucket, and means operatively connecting the bucket with the opposite end of the lever.

3. A liquid discharge apparatus comprising a liquid receptacle, a bottom for said receptacle having a discharge port, a valve for said port, a hanger depending from the bottom of the receptacle, an arm pivoted intermediate its ends to said hanger, a rod operatively connecting one end of the arm with the valve, a pivoted actuating bucket and a link operatively connecting the bucket with the opposite end of the arm.

4. A liquid discharge apparatus comprising a liquid receptacle, a bottom for said receptacle having a discharge port, a lever fulcrumed intermediate its ends below the port, a bell valve for said port, means projecting through said port and into said valve operatively connecting one end of said lever with said valve, a pivoted actuating bucket, and means operatively connecting the bucket with the opposite end of the arm.

5. A liquid discharge apparatus comprising a liquid receptacle, a bottom for said receptacle having a discharge port, a lever fulcrumed intermediate its ends below the port, a bell valve for said port, a rod projecting through said port end into said valve operatively connecting one end of said lever with said valve, a guide for said rod mounted within said valve, a pivoted actuating bucket, and a link operatively connecting the bucket with the opposite end of the arm.

6. In apparatus of the character described having a discharge port and a valve for the port with an actuating member for said valve projecting through said port, a guide for the actuating member mounted within the valve, said guide having a downwardly and outwardly inclined wall and said guide functioning to insure the valve finding its valve seat.

In testimony whereof I have signed my name to this specification.

JOHN LUCKENBACH.