(No Model.) 2 Sheets—Sheet 1.

T. J. RYAN.

RECEIVER AND STENCH TRAP.

No. 505,130. Patented Sept. 19, 1893.

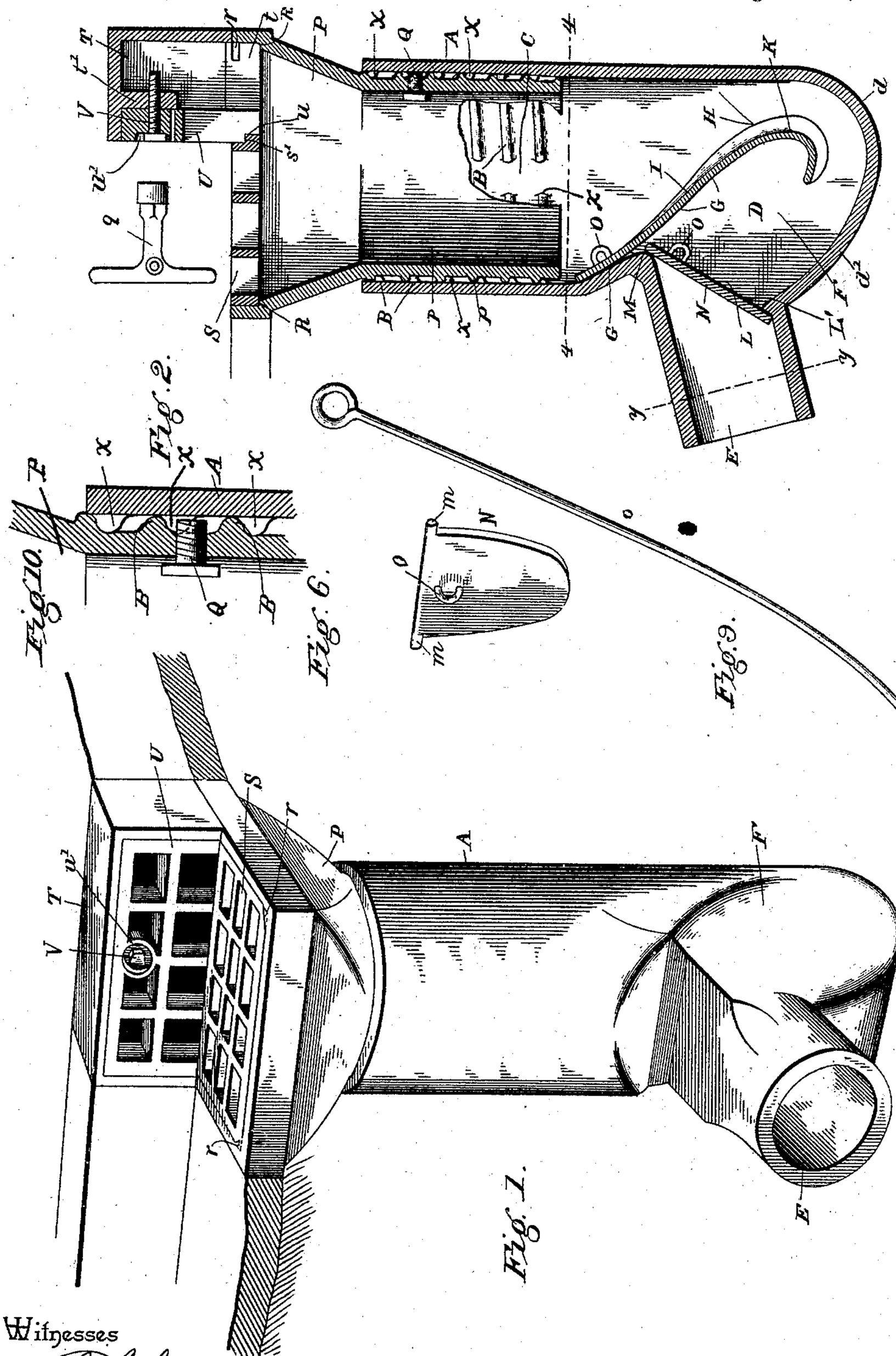

Fig. 1.

Fig. 2.

Fig. 6.

Fig. 10.

Fig. 9.

Witnesses

F. M. Johnson

D. C. Wolhaupter

Inventor

Thomas J. Ryan

By his Attorneys,

C. A. Snow & Co.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3

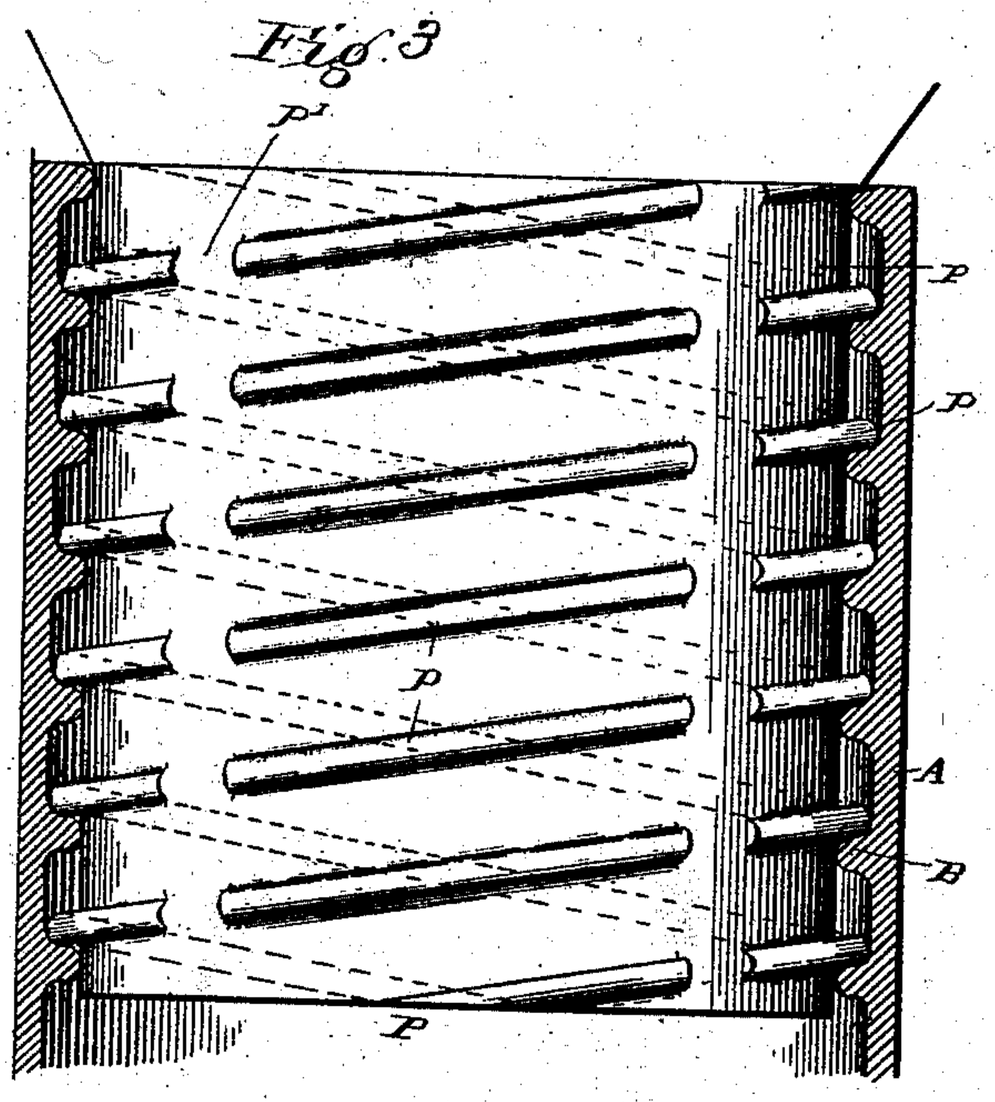


Fig. 4.

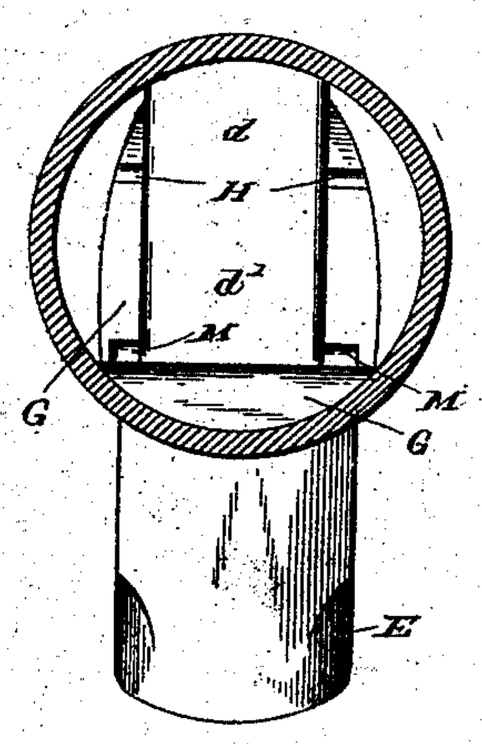


Fig. 5.

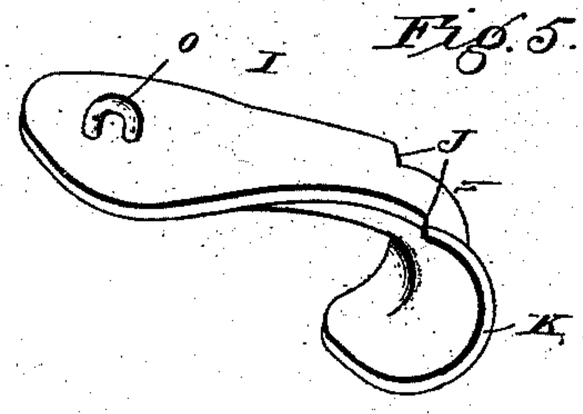


Fig. 7.

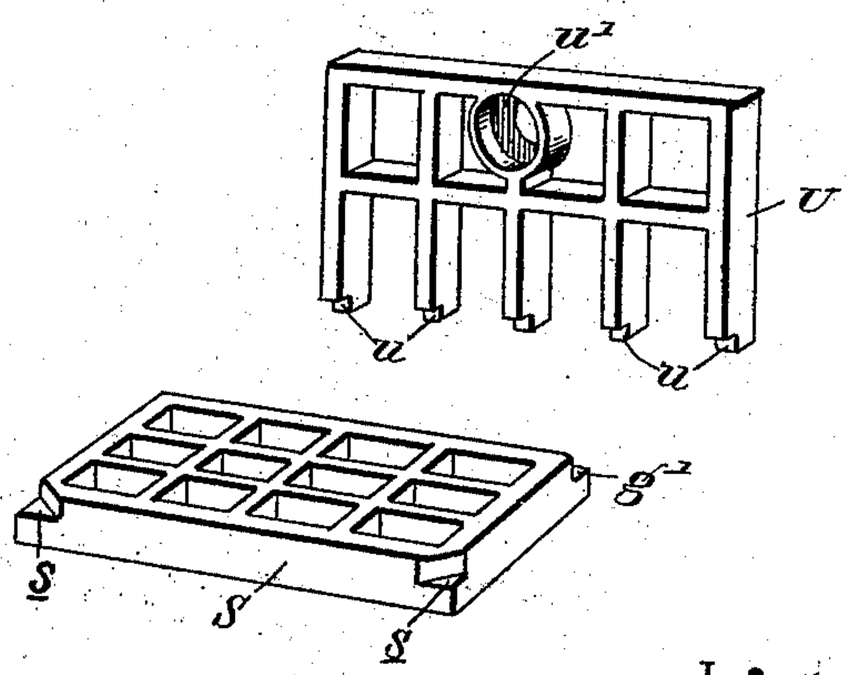
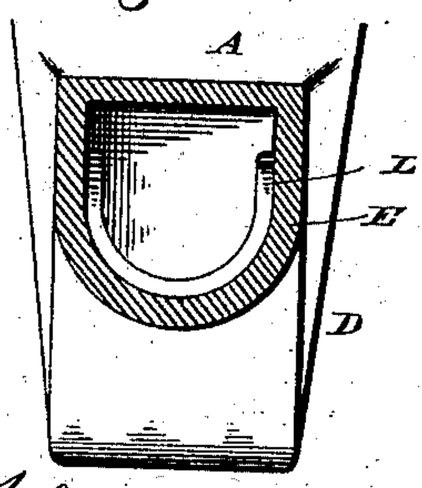


Fig. 8.



Witnesses

F. H. Johnson

S. P. Wolhaupter,

Inventor

Thomas J. Ryan

By his Attorneys,

Church & Co.

UNITED STATES PATENT OFFICE.

THOMAS JOSEPH RYAN, OF BUFFALO, NEW YORK.

RECEIVER AND STENCH-TRAP.

SPECIFICATION forming part of Letters Patent No. 505,130, dated September 19, 1893.

Application filed December 31, 1892. Serial No. 456,935. (No model.)

To all whom it may concern:

Be it known that I, THOMAS JOSEPH RYAN, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Receiver and Stench-Trap, of which the following is a specification.

This invention relates to street receivers and stench traps; and it has for its object to provide certain improvements in devices of this character, which are not only adapted for use in connection with drain receivers, but also in connection with manholes, sewer traps and the like, so as to provide means for avoiding the accumulation of sediment which clogs the drain, and also to provide for certain adjustments of the device in order to accommodate the same to the raising and lowering of grades without the entire removal.

To this end the invention primarily contemplates certain specific features of improvement in receivers and stench traps.

With these and other objects in view which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts, hereinafter more fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a perspective view of a combined receiver and stench trap constructed in accordance with this invention and arranged in position at the curb of a street. Fig. 2 is a central vertical sectional view thereof. Fig. 3 is an enlarged detail sectional view illustrating the expansion screw joint. Fig. 4 is a horizontal sectional view on the line 4—4 of Fig. 2, the gate I, removed. Fig. 5 is a detail in perspective of the removable valve cover and pressure gate. Fig. 6 is a similar view of the check valve; Fig. 7 of the two grate sections separated from each other. Fig. 8 is a detail sectional view on the line *y*—*y* of Fig. 2, the valve N, being removed. Fig. 9 is a detail in perspective of the hook rod. Fig. 10 is an enlarged detail sectional view of a portion of the connected pipe sections including the locking set screw.

Referring to the accompanying drawings, A represents a tubular or circular pipe receiver which is provided at its upper end with a double set of threads B, arranged at a suitable distance for the purposes herein described, and which are interrupted at regular intervals by the vertical cleaning grooves C, which provide passages for the fall of dirt or sand which may have accumulated between the threads, and which will be more particularly described, the sections of threads terminating in abrupt ends *x*, at the cleaning grooves, as clearly illustrated.

The pipe receiver A, is contracted at its lower end into a bowl trap D, which is formed by a sharp curve *d*, at the lower end of the back wall of the receiver, and which curve lessens into a broader or flat curve *d'*, which leads from the bottom point of the pipe at an angle upward to the lower bottom edge of the inclined drain or sewer pipe E, which forms an integral part of the receiver, and inclines downward therefrom at a slight angle above the plane of the bowl or trap D. The said bowl or trap D, has the opposite flattened side walls F, which serve to form the necessary contraction of the trap in order to provide for the complete flow of the water and sand through said trap and out of the drain pipe E.

Directly over the inner end of the sewer drain pipe E, is formed the inclined seat or shoulder G, which extends from the lower end of the threads B, at the same side from which the pipe E, projects, at a sharp angle of about thirty degrees to the beginning of the sharp curve *d*, of the trap, and is provided at its lower extremities with the opposite notches H.

Arranged to be removably seated on the inclined seat or shoulder G, is the approximately **S**-shaped valve cover and pressure gate I. The pressure gate I, has its opposite edges rest on the opposite portions of said inclined seat or shoulder, and is provided near its lower end with the opposite supporting shoulders J, which rest in the notches H, at the lower end of the seat or shoulder G.

As clearly shown in the drawings, the **S**-shaped gate I, does not form a complete **S**, but from the opposite supporting shoulders J, is provided with a sharply curved pressure tongue K, which is curved or bent on the same circle as the sharp curve *d*, at the bottom of the receiver, and curves in close proximity thereto around to a point at about the

center of the trap and in a line with the broader flat curve *d'*, it being seen that the said tongue together with the straight back wall of the receiver and the curves of the bottom thereof, forms a contracted fluid passage through which the water and other fluids must necessarily pass under a concentrated pressure. Another point to be noticed with respect to the pressure gate I, is that the same is not flat, but on the contrary is concaved, and deeply so in its tongue, so that the water has no sharp edges to contact, with but has a tubular and approximately circular passage through the contraction between the pressure gate and the receiver. From this construction it will be readily seen that owing to the point to which the lower end of the pressure gate extends, it is impossible for sand and other sediment to collect in the bottom of the trap but must necessarily be carried out through the pipe E, under the pressure of the water passing through the contracted trap passage, and that in said trap is always formed a water seal, which shuts off any open passage between the pipe E, and the body of the receiver above the pressure gate.

Within the pipe E, at an opposite angle to the inner seat or shoulder G, is formed an elongated oval shaped valve seat L, the upper end of which terminates on the seat or shoulder G, at which point, and in said seat is formed the bearing notches M, for the opposite pivot lugs *m*, at one end of the oval shaped pivoted check valve N, which is thus arranged to work over said inclined valve seat and outwardly from the receiver. The check valve N, allows a free passage of the water and sand through the pipe E, but on account of the inclination thereof will quickly close to check any back flow. Eyes O are formed at the upper ends of both the pressure gate I, and the check valve N, so that by means of a suitable hook rod, *o*, the said gate and valve can be readily lifted out of the receiver, in order to provide for the easy cleaning thereof. The outward inclination of the valve seat also allows sediment, &c., to easily slide off of the same without unseating the valve. The upper threaded end of the receiver A, receives the threaded neck of the squared catch basin P. The neck of the catch basin P, is provided with double exterior threads *p*, corresponding to the double interior threads of the receiver and are set at a suitable distance apart from each other so that there is a loose thread connection between the two parts, which provides an expansion joint, allowing a limited vertical play for expansions and contractions by frost, known as the "frost lift," as clearly illustrated in Fig. 3 of the drawings, and it will be noticed that each set of threads independently engages the corresponding set of threads of the other section to insure a strong thread connection not easily impaired. The exterior threads of the basin neck are also interrupted at intervals by the vertical cleaning grooves *p'*, which together with the grooves C, in the receiver, allow any dirt or sediment between the threads to fall out or drop into the receiver as the basin is adjusted in the receiver, so as to adjust the apparatus to changes in grades without digging up the entire plant.

At a point between two of the threads of the basin neck, and between two of the cleaning grooves thereof, is arranged a locking screw Q, having an inner squared head adapted to receive a five sided socketed key *q*, for adjusting the screw. It will be seen that when the neck has been adjusted to the proper height the screw can be turned to project from the neck so that it will extend between the abrupt terminal ends of the interior threads of the receiver at the grooves C, so that constant jarring over the basin will not disarrange the connection. When locked the cleaning grooves are out of alignment.

From the foregoing it will be clear that the screw Q, by being located in a position between two of the threads of the upper pipe section is necessarily so disposed as to take between the abrupt ends *x* of the threads of the receiver A at the cleaning grooves, such threads working in the space in which the locking screw is arranged. In locking the upper pipe section or catch basin in its adjusted position, such section is turned to a position so that one of the cleaning grooves will receive the outer end of the locking set screw when it is turned, but it will of course be understood that while the locking screw is projected sufficiently so as to strike the ends of the thread at both sides of the cleaning groove when the upper pipe section turns, still the said screw does not bind on the lower pipe section or receiver whereby the vertical play or frost lift of the trap would be interfered with.

The squared basin P, is provided with an interior shoulder R, at the corners of which are arranged the inwardly extending locking flanges *r*. A horizontal grate S, rests on a portion of the shoulder of the catch basin so as to inclose a portion thereof, and is provided with the outer notched corners *s*, adapted to take under two directly opposite flanges *r*, so as to lock the front end of the grate, which is further provided at its inner edge with a shoulder *s'*.

Arranged in rear of the inner shouldered edge of the horizontal grate is the removable curb box T. The curb box T, is arranged at the curb of the grade in the usual position, and is provided with the notched locking tongues *t*, projecting from opposite bottom edges thereof and adapted to engage the other locking flanges *r*, at the inner edge of the catch basin, and rests on the upper edges of such catch basin. The said curb box is also provided with the inwardly extending screw threaded lug *t'*, projecting downwardly from the top of the box and against which rests the removable locking grate U. The removable locking grate section U, snugly fits with-

in the open front of the curb box and is provided with the lower shouldered ends *u*, adapted to fit the inner shouldered edge of the horizontal grate, and is further provided with a counter-sunk perforation or opening *u'*. After the horizontal grate and the curb box have been placed in position as described, the shouldered ends of the locking grate section are inserted at an angle in the curb box so as to engage the shouldered edge of the horizontal grate. By now forcing the locking grate into the curb box, the horizontal grate and the said curb box are locked firmly in position. A headed locking screw V passes through the countersunk opening of the locking grate, and engages the threaded lug of the curb box to hold the grate sections and the curb box together, so that they cannot be removed by unauthorized persons, but can only be separated by authorized persons having the special five sided socketed key *q*. The five-sided socketed key *q*, is employed for removing the screw V, whose head is five sided and which after removal allows the removable locking grate section to be taken out first, and then the curb box and other grate section.

The combined receiver and stench trap is placed in position at the curb or edge of a grate as clearly illustrated in the drawing and as usual, and it may be here observed that after the removal of the pressure gate and check valve, the entire device can be cleaned in a moment by means of the suitable hook rod *o*, illustrated in Fig. 9 in the drawings. At this point it may be further observed that in order to insure a tight contact of the check valve N, with its seat, I may employ a leather or rubber packing washer L', arranged on the inclined seat L, as indicated by the heavy line in Fig. 2 of the drawings. It may be further noticed that the loose thread connection between the pipe sections is not only applicable to receivers and stench traps, but the same provides a construction which is equally as well adapted for stop cock boxes and other constructions in which a loose thread connection between the pipe sections is an advantage, and in this connection it will be of course understood that there are various kinds of traps, such as sink traps, cellar traps, &c., where it is necessary to use the check valve without the pressure gate, and in such cases by removing the pressure gate I, the device can be readily adapted for these various uses, the removability of the check valve specially adapting the trap for various uses.

Changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this construction.

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

1. The combination of a lower pipe receiver section having an interior double set of parallel threads in the upper open end thereof and interrupted at regular intervals by cleaning grooves, said threads of each set terminating at each cleaning groove in abrupt ends, an upper pipe section arranged for adjustment in the lower receiver section and having double exterior threads corresponding to the interior threads of the lower receiver section, and set a suitable distance apart from each other to leave a loose thread connection between the two sections, said exterior threads on the pipe section also being interrupted at regular intervals by cleaning grooves, and a locking set screw engaging an opening in the upper pipe section between two of the threads thereof, and adapted to be projected beyond said upper pipe section into one of the cleaning grooves of the lower pipe section so as to be disposed between the abrupt ends of the interior threads of the pipe receiver at such cleaning groove, substantially as set forth.

2. A pipe receiver having a contracted trap at its lower closed end, and a sewer or drain pipe projecting therefrom at an angle above the plane of the bottom of the trap, an outwardly opening check valve arranged within said drain pipe, a combined valve cover and pressure gate removably seated in the receiver at an angle and extending to a point in close proximity to the bottom of the trap, and a catch basin arranged at the upper end of the receiver, substantially as set forth.

3. In a receiver and stench trap, the pipe receiver contracted at its lower end into a stench trap having a sharply curved base or bottom an inclined drain pipe above the plane of said bottom, and an inclined seat or shoulder over the inner end of the drain pipe and an **S**-shaped pressure gate arranged at an angle and removably on said inclined seat or shoulder within the receiver and having a lower curved tongue disposed in close proximity to one side and the bottom of the receiver and following the curvature of said bottom to form a contracted passage, substantially as set forth.

4. In a receiver and stench trap, the combination of the pipe receiver having a contracted bowl at the bottom thereof and a drain pipe arranged at an angle at one side, and a removable pressure gate arranged at an angle within the receiver and having a curved concave tongue curving in close proximity to one side and the curved bottom of the bowl to form a contracted water passage, substantially as set forth.

5. In a receiver and stench trap, the pipe receiver contracted at its lower end into a bowl and having an inclined drain pipe arranged at one side above the bottom of the bowl, and an inclined seat or shoulder arranged within the pipe over the inner end of the drain pipe and extending to a point near the bottom of the bowl opposite the drain pipe, a removable approximately **S**-shaped pressure gate arranged on said seat and hav-

ing its curved tongue arranged in close proximity to one side and the bottom of the trap, said gate being concaved and deeply so in its tongue, and an outwardly swinging check valve arranged in said drain pipe, substantially as set forth.

6. The combination of a pipe receiver having a contracted trap at its lower end, a drain pipe extending therefrom at an angle above the plane of the bottom of the trap, a sharply inclined seat or shoulder arranged over the inner end of the drain pipe within the receiver and having near its lower ends opposite notches, and an elongated valve seat arranged within the drain pipe at an opposite angle to the inner receiver shoulder and terminating at its upper ends in bearing notches, a removable approximately S-shaped concaved pressure gate arranged on the inclined seat or shoulder in the receiver and having opposite supporting shoulders engaging the notches thereof and from which point the tongue of the gate follows the bottom of the trap in close proximity thereto, an outwardly swinging check valve arranged to work over the inclined valve seat and having opposite pivot lugs loosely engaging said bearing notches, eyes on the gate and valve, and a hooked cleaning rod, substantially as set forth.

7. The combination with a stench trap receiver; of a squared catch basin having a neck adjustably mounted within the receiver, an interior shoulder and a threaded lug, a horizontal grate section resting on said shoulder, a curb box removably resting on said shoulder, a locking grate section arranged to be fitted within the open front of said curb-box against the inner edge of the horizontal grate section, and having a perforation, and a locking screw adapted to pass through said perforation and engage the threaded lug of the curb box, substantially as set forth.

8. The combination with a stench trap receiver; of a squared catch basin removably mounted within said receiver and having an inner shoulder, and inwardly extending flanges above the corners of said shoulders, a horizontal grate section having outer notched corners adapted to engage beneath two of said flanges, and an inner shouldered edge a removable curb box resting on the basin and having notched locking tongues engaging the other locking flanges and an inwardly depending threaded lug, a removable locking grate section having lower shouldered ends adapted to engage the shouldered edge of the horizontal grate section, and a perforation or opening, and a locking screw adapted to pass through said perforation and engage the threaded lug of the curb box to lock the several parts together on the basin, substantially as set forth.

9. The combination of a pipe receiver having a contracted trap at its lower end, a drain pipe extending therefrom at an angle above the plane of its bottom, and an elongated valve seat arranged within the drain pipe and terminating at its upper ends in bearing notches, and an outwardly swinging check valve adapted to work over the inclined valve seat and having opposite pivot lugs loosely and removably engaging said bearing notches, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

THOMAS JOSEPH RYAN.

Witnesses:
NICHOLAS KELLY,
EMILY RYAN.