(No Model.) 2 Sheets—Sheet 1.

J. C. RUMMEL.

WATER GAGE.

No. 517,483. Patented Apr. 3, 1894.

FIG. 1.

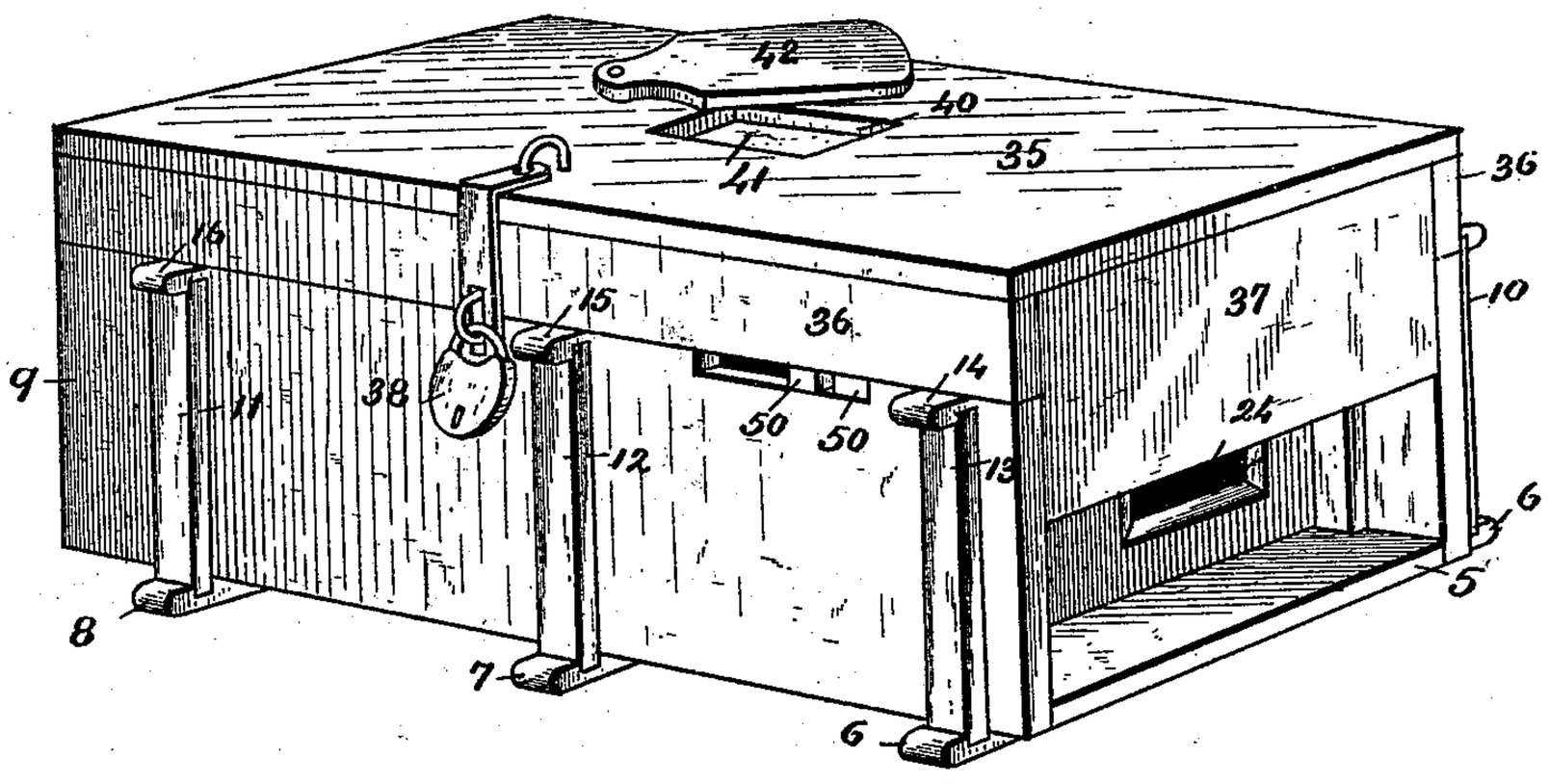


FIG. 2.

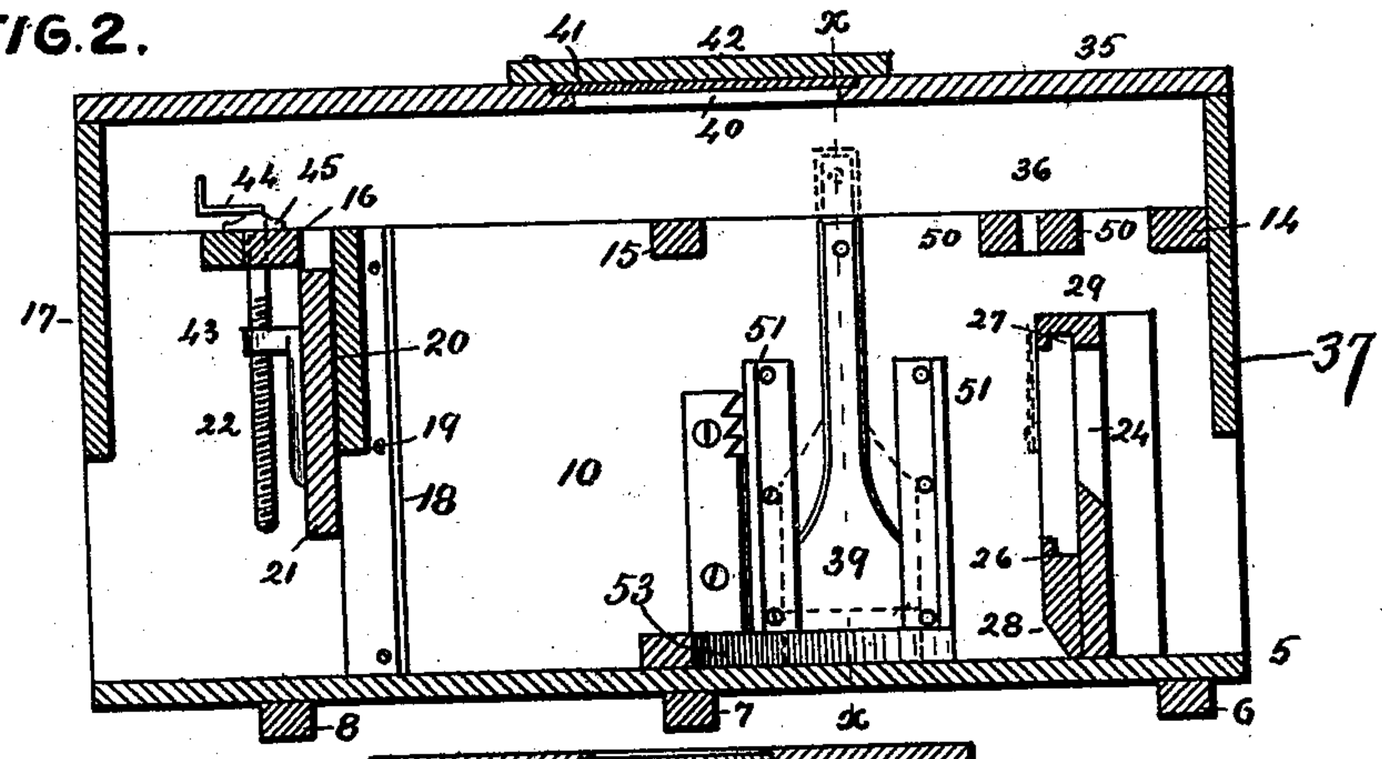
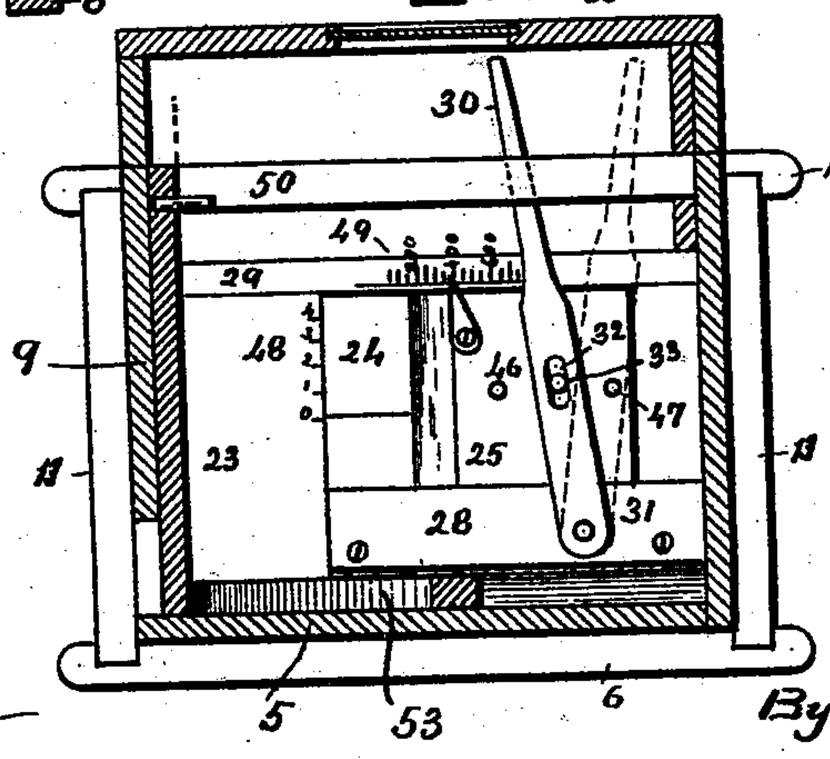


FIG. 3.



ATTEST.
J. Henry Kaiser.
Benj. Munroe.

INVENTOR.
John C. Rummel.
By F. W. Dale
Attorney.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

J. C. RUMMEL.

WATER GAGE.

No. 517,483. Patented Apr. 3, 1894.

FIG. 4.

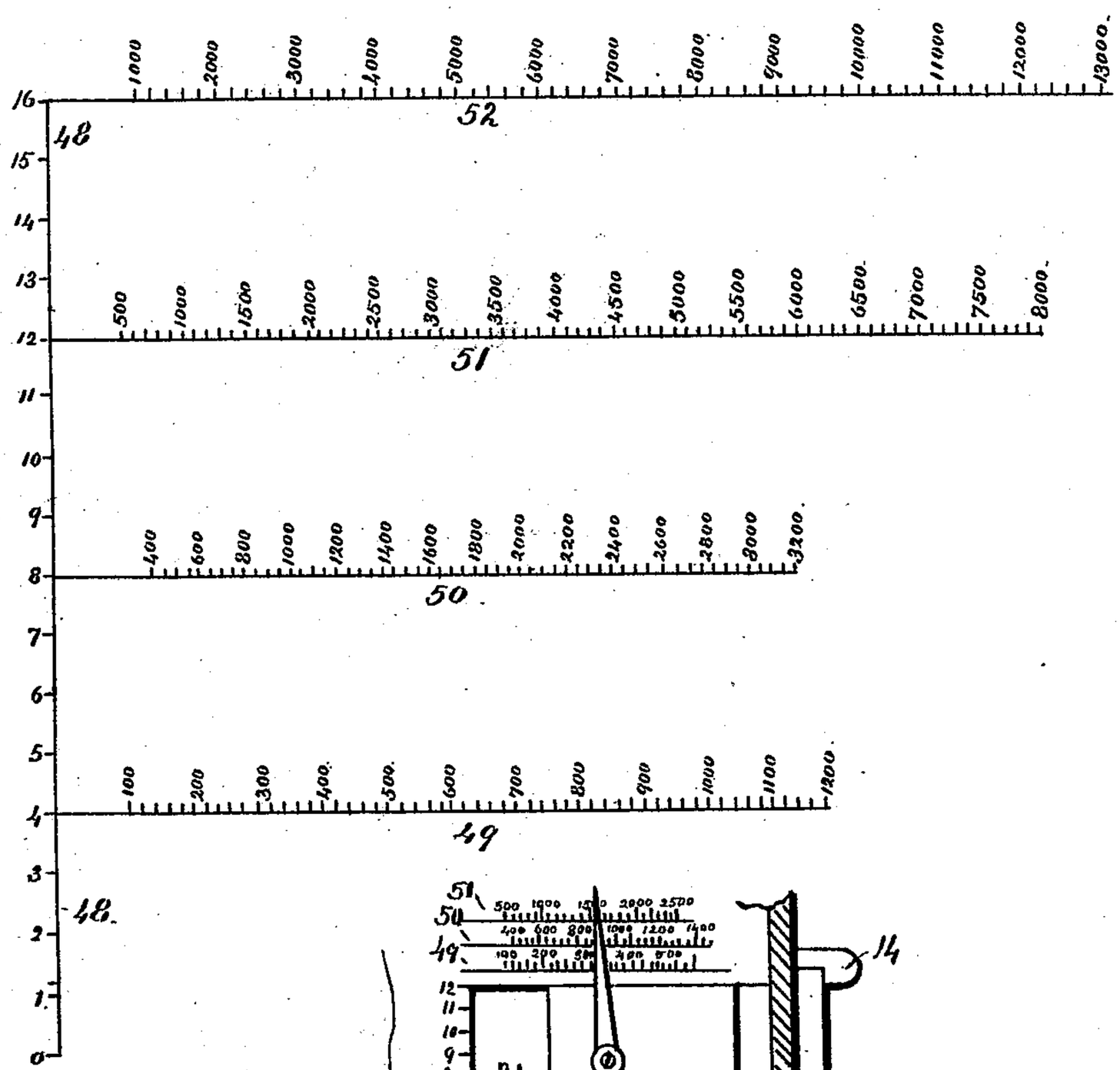
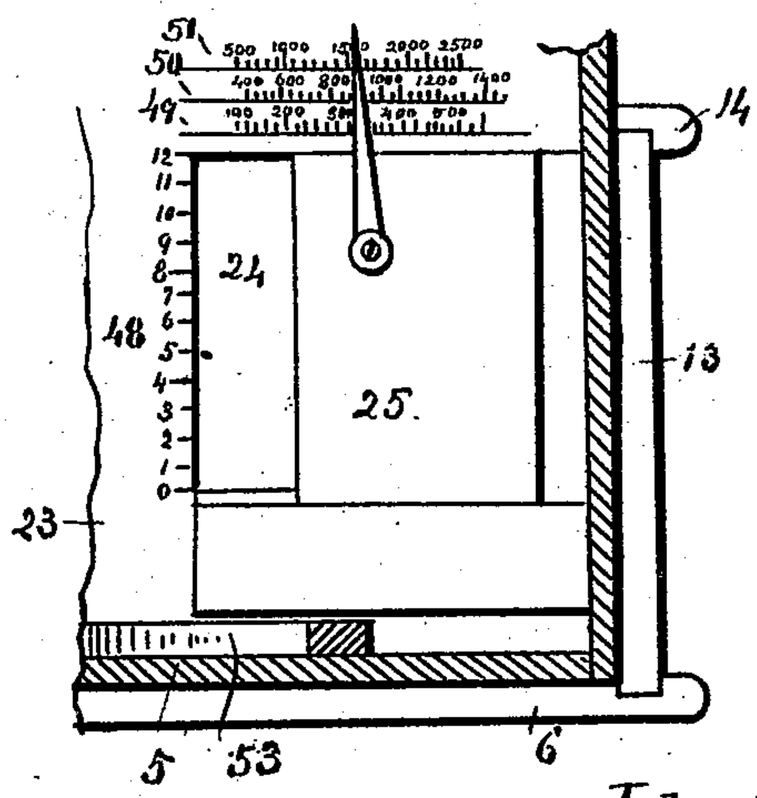


FIG. 5.



ATTEST.

J. Henry Kaiser.

Benj. Munroe

INVENTOR.

John C. Rummel.

By "J.W.Wale

Attorney

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN C. RUMMEL, OF SHERIDAN, WYOMING.

WATER-GAGE.

SPECIFICATION forming part of Letters Patent No. 517,483, dated April 3, 1894.

Application filed June 25, 1890. Renewed January 22, 1894. Serial No. 497,717. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. RUMMEL, a citizen of the United States of America, residing at Sheridan, in the county of Sheridan and State of Wyoming, have invented certain new and useful Improvements in Water-Gages, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of my invention is the regulation and approximate ascertainment of the amount of continuous flow of water into an irrigating ditch, and the construction of a gage for that purpose so that the amount of constant flow indicated may be inspected at any time by interested persons but no interference with gates or valves can be had by unauthorized parties. I attain these objects by the mechanism and in the manner described in the accompanying drawings, in which—

Figure 1 is a perspective view of my gage. Fig. 2 is a longitudinal section. Fig. 3 is a section through the line *x*—*x* of Fig. 2, and Fig. 4 is my scale reduced to one third its actual working dimensions; Fig. 5 an enlarged view, partly broken away, of the weir with scales attached.

The frame of my gage is constructed in the form of a rectangular box having the bottom 5 resting on sleepers 6 7 and 8, the sides 9 and 10, side braces 11 12 and 13 rigidly attached to sleepers 6 7 and 8 and top cross braces 14 15 and 16 the braces 15 and 16 being let into the sides 9 and 10 by mortises; the brace 14 resting in shoulders let into ends of pieces 9 and 10; the top braces 14 15 and 16 rigidly attached to side braces 11 12 and 13 respectively. The end piece 17 is attached to the ends of sides 9 and 10 and the end piece 37 is let in between ends of sides 9 and 10 where it is attached; these end pieces do not extend to the bottom of the gage but do extend above the sides 9 and 10 for the reception between them of the top side pieces 36 36 extending above the actuating mechanism of the gates and sluice valve to form a support for the lid 35 and completely inclose the actuating mechanism for regulating the water supply. The lid 35 is hinged to the rear top side piece 36 at a point not shown in the drawings. It is secured by the hasp and lock 38.

For the purpose of inspection I supply the orifice 40 in lid 35 having glass 41 which is protected by slide-cover 42.

Attached to the side 10 is the upright 18 the top thereof being adjacent to top brace 16, leaving only sufficient room for play of in-flow gate 21 between them, (Fig. 2) having shoulder 19; on the opposite side of gage attached to side piece 9 is a similar upright in relatively the same location; resting on the shoulders prepared for its reception in uprights 18 and extending across the upper end of the gage, or that toward the water head, is the stop water 20 having an opening beneath conforming in height to the opening beneath end piece 17, for the in-flow of water. This opening may be closed either wholly or in part by gate 21 which is actuated vertically by the external screw 22 adapted to a corresponding threaded nut 43 rigidly attached to the gate, the screw in its turn being operated by means of the crank 44 attached to screw head 45; screw 22 passes through an orifice prepared to receive it in top cross brace 16 upon which screw-head 45 rests. Cross-brace 16 may be made heavier than corresponding cross-braces to support the weight and strain of this mechanism. But one actuating and supporting screw is shown in the drawings. I employ two however in practical use, locating one on each side of the gage.

About one fifth of the length of the gage from the lower end thereof, or end of outflow, I rigidly place the weir 23 (Fig. 3) having in it the rectangular opening 24 which may be closed either wholly or partially at will by the sliding sluice valve 25 adjustable laterally in horizontal ways 26 (Fig. 2) and 27 formed by grooves for its reception in the sliding valve supports 28 and 29; the sluice valve is actuated by means of the lever 30 moving between guides 50 50 shown in Fig. 2 and is fulcrumed at 31 upon sliding valve support 28 being loosely attached to the sliding sluice valve at 32 by means of the pin 33. For the purpose of adjustment of this lever so as to better control the sliding sluice valve I provide pins 46 and 47 in addition to pin 33; by attaching lever at pin 46 the greatest backward throw of the valve is attainable and by attaching it at pin 47 the greatest forward throw. In practical operation the attachment

at intermediate pin 33 controls the opening so as to nearly close and fully open it, but the several pins are placed on the valve to suit the range within which the same may be required to play to regulate the flow of water and to enable its free play within such required limit.

For the purpose of flushing the interior of the gage I provide a waste opening in the side piece 10 to the interior of which is fitted flushing gate of any approved pattern, that shown consisting of a vertical sliding gate 39 operating in ways 51 51. The discharge through this opening is into the supply stream below the inflow gate 21. With a view to catching foreign substances which sink to the bottom such as stones entering the inflow gate I supply a ledge, 53 Figs. 2 and 3, running diagonally across the bottom of the gage from the inflow gate at side 9 and terminating at side 10 below and contiguous to the lower side of the waste opening.

To approximately determine the rate of continuous flow of water through rectangular opening 24 in weir 23 I supply the graduated scale shown in Fig. 4. The graduations upon the vertical scale 48 indicate inches, and their object is to show depth of water in inches flowing through the rectangular opening; the graduations upon the horizontal scales 49 50 51 and 52 indicate with close approximation the number of cubic inches of water that will flow in one second of time through a rectangular opening having a given depth indicated in the vertical scale and width to any point on such horizontal graduated scales as shown in drawings. In the horizontal scales the graduations between the figures marked thereon indicate fifths of the terms of increase in the arithmetical progression marked on each of said scales. For the purpose of use and by way of illustration, if the depth of water flowing through rectangular opening 24 were 4 inches and the lateral opening be to the graduated mark 200, scale 49 then two hundred cubic inches of water per second of time would approximately flow through such opening; so if the lateral opening were extended to the graduated mark 300 on said scale then three hundred cubic inches of water would flow per second of time and so on; on the same scale if the lateral opening were to the first graduation to the right of the figures 200 then two hundred and twenty cubic inches would flow per second. It is plain that other horizontal scales may be constructed with reference to depths of water other than here shown, but for practical purposes the horizontal scales constructed for the depths indicated in inches at the points of intersection of the lines on which the graduations are marked are deemed sufficient; I do not however confine myself to the capacity of the scale here shown; it may be extended indefinitely. In use in connection with my gage the vertical scale 48 is affixed to the left of the rectangular opening 24 and one or more of the horizontal scales 49 50 51 or 52, according to the size of the opening or amount of flow of water desired, is placed over said rectangular opening to mark the point to which the sliding sluice valve 25 shall be opened to secure any desired rate of flow. The gage being placed nearly level and the water permitted to flow in through or under gate 21 with very little current and pass out through rectangular opening 24 at a depth say of four inches in said opening and laterally to graduated mark 200, then there will be an approximate continuous flow of two hundred cubic inches of water per second of time through said opening, and so on according to the scale herein shown.

The continuous flow indicated by the scale may be inspected by interested persons through the glass covered opening 40 in lid 35, but, the gage being secured under lock no unauthorized person can change or tamper with the flow, but whether or not the proper amount of water is flowing through the opening will at all times be subject to inspection.

I do not measure the continuous flow of water by the device herein shown and described with absolute accuracy, but the measurement closely approximates accuracy under the conditions specified and constitutes a standard for practical use in irrigating districts.

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

1. The herein described means of graduating the passage of water through a water gate for the purpose of determining the quantity of water passing in a given time consisting of a horizontal and a vertical scale attached to the outflow weir approximately indicating in figures and marks of sub-division the continuous flow of water in cubic inches per second of time through a rectangular opening having dimensions indicated upon the scale, in combination with the herein described sliding valve located in the out-flow weir for the purpose of regulating the dimensions of the opening in the weir, substantially as described.

2. The herein described means of graduating the passage of water through a water-gate for the purpose of determining the quantity of water passing in a given time consisting of a horizontal and a vertical scale attached to the outflow weir approximately indicating in marks of sub-division the flow of water through an opening having dimensions indicated upon the scale, in combination with the herein described sliding valve located in the out-flow weir for the purpose of regulating the dimensions of the opening in the weir, substantially as described.

3. In an inclosed box for irrigating flumes the combination of the vertically movable inflow gate operated by screws 22 substantially as described, the flushing gate, the longitudinally sliding valve 25 and a scale to indicate

the capacity of the opening 24 as it is varied by the valve 25, substantially as set forth.

4. In an inclosed box for irrigating flumes the combination of the vertically movable inflow gate operated by screws 22 substantially as set forth, the flushing gate, the longitudinally sliding valve 25, the sight hole 40 and a scale to indicate the capacity of the opening 24 as it is varied by the valve 25, substantially as described.

5. In an inclosed box for irrigating flumes the combination of the vertically movable inflow gate operated by screws 22 substantially as described, the flushing gate, the longitudinal sliding valve 25, the lever and adjusting pins and a scale to indicate the capacity of the opening 24 as it is varied by the gate 25, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN C. RUMMEL.

Witnesses:

J. WALTER WILSON,

H. N. ROBINSON, Jr.