M. H. TUCKER.

WEIR FOR IRRIGATION DITCHES FOR MEASURING WATER.

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1,352,929.

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Fig. 1.

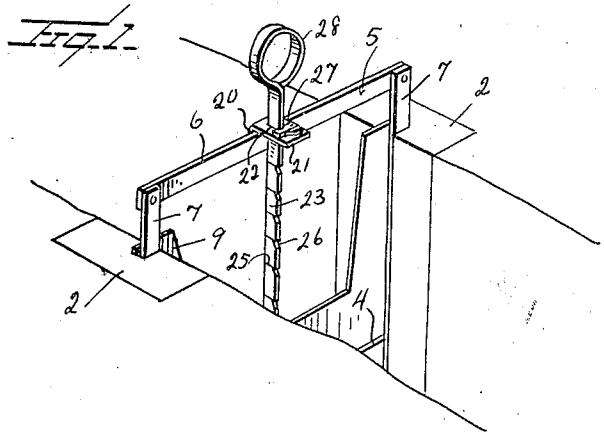
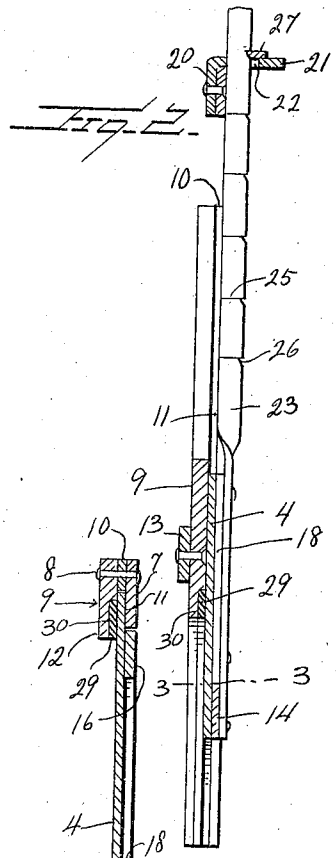


Fig. 2.



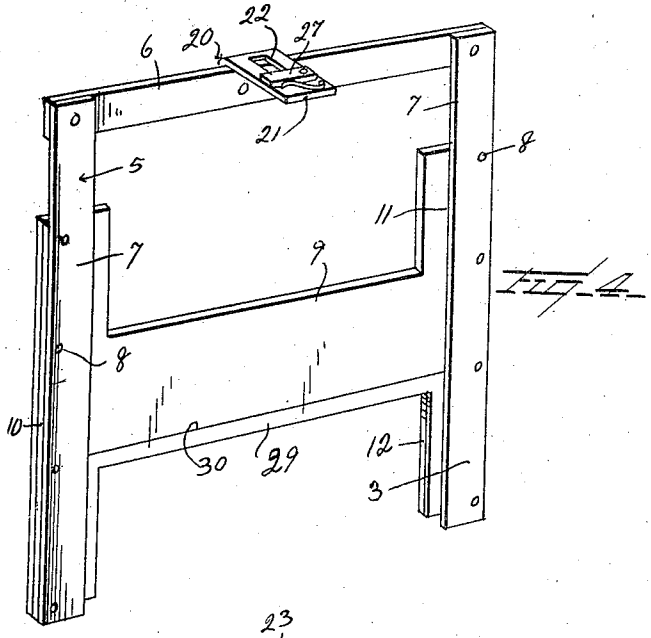
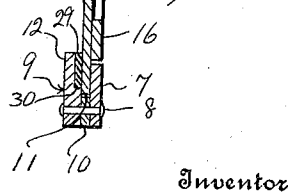


Fig. 4.

Fig. 3.



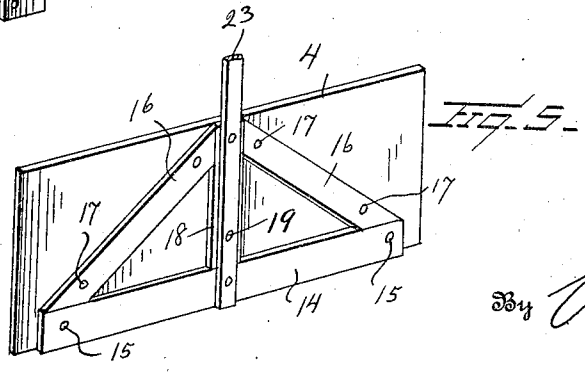


Fig. 5.

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WEIR FOR IRRIGATION-DITCHES FOR MEASURING WATER.

1,352,929. Specification of Letters Patent. Patented Sept. 14, 1920.

Application filed January 7, 1920. Serial No. 349,843.

To all whom it may concern:

Be it known that I, MONTRAVEL H. TUCKER, a citizen of the United States, residing at Blanca, in the county of Costilla and State of Colorado, have invented certain new and useful Improvements in Weirs for Irrigation-Ditches for Measuring Water, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improved weir, particularly adapted for use in irrigation ditches, for measuring the water when irrigating the surrounding land.

In many places the old style weirs cannot be used owing to the collection of sand above the weir crest, therefore, an object of the present invention is to provide an improved weir including a sand gate adapted to be so manipulated as to permit the sand to be carried away, in fact washed along with the flow of the water through the irrigating ditch.

Another object of the invention is to provide an improved weir, which may be manufactured for a relatively low cost, sold and installed in the irrigation ditches at a reasonable profit.

A further object of the invention is to provide a weir including a sand gate having an upwardly extending arm or member graduated from the lower end upwardly for indicating the height at which the gate is disposed, for measuring the amount of water which is released.

A further object of the invention is to provide a weir which may be constructed of any suitable metal, preferably galvanized iron or the like, though not necessarily, and also including a frame, which may also be constructed of any suitable metal and having guides for the sand gate, the foregoing elements being suitably reinforced, thereby rendering the structure durable.

A still further object of the invention is to provide a device of this kind including packing means between the said gate and the weir, to render the adjacent parts water tight, to withstand the pressure of the water and to prevent leakage, particularly when the sand gate is down and water measurements are being taken.

In some localities, when irrigating land properties, there is so much sand and silt, that the old style weirs will fill up over night, therefore preventing a correct measurement of the water. It has been found that to attain a correct measurement of the water, there must be dead water above the weir, and this dead water may be carried off for irrigation purposes in measured quantities by lowering the sand gate, until the desired amount of water has been released and measured, after which the gate may be raised, permitting the water to flow under the gate. It is an easy matter for a ditch rider, just before passing over the ditch to adjust the sand gate, and attain a correct measurement of the water, and then lower the gate to its proper position.

Furthermore, the weir may be constructed in any suitable proportion according to the requirements, or according to the various widths and depths of irrigating ditches.

While the design and construction at present illustrated and set forth is deemed preferable, it is obvious that as a result of a reduction of the invention to a more practical form for commercial purposes, the invention may be susceptible to changes, and the right to these changes is claimed, provided they are comprehended within the scope of what is claimed.

The invention comprises further features and combination of parts, as will be hereinafter set forth, shown in the drawings and claimed.

In the drawings:—

Figure 1 is a perspective view of a portion of an irrigating ditch, showing the weir including the sand gate guided vertically with relation to the weir which is mounted in guides of the opposite sides of the ditch.

Fig. 2 is a longitudinal sectional view through a portion of the ditch and vertically through the weir and the sand gate, thereby showing the detail construction.

Fig. 3 is a horizontal sectional view on line 3—3 of Fig. 2.

Fig. 4 is an enlarged detail view of the weir showing the sand gate removed.

Fig. 5 is a detail view of the sand gate.

Referring more especially to the drawings, 1 designates an irrigating ditch, the sides of which are provided with oppositely arranged guides 2. These guides may be constructed of wood or the like, or may be constructed preferably of concrete, though not necessarily, and mounted in the guides 2 is the weir 3 including the sand gate 4. The weir comprises a rectangular frame 5,

which consists of the top transverse piece 6 and vertical side piece 7. Riveted or bolted to the side piece as at 8, preferably riveted, though not necessarily, is the weir plate 9. Interposed between the side portions of the weir plate and the side strips of the frame are spacing bars 10, also secured by the fastening means of the weir plate and the side pieces 7. By means of these spacing bars, the weir plate is spaced from the side pieces 7 thereby forming guides 11 for the sand gate. The lower side portions of the weir plate are provided with depending parts 12, which coöperate with the lower portions of the side pieces 7 to provide guides (which are continuations of the former guides) particularly to receive the sand gate when lowered. The weir plate may be of any suitable shape, and its opening at the top may be either rectangular, as shown in the modified construction of the weir, or may have upwardly and outwardly inclined edges. The sand gate, when raised is designed to close this opening, when it is desired to allow the water to pass under the weir plate.

Secured to one face of the weir plate between the adjacent edges of the upper and lower openings of the plate, either by bolts or rivets, preferably the latter, though not necessarily, is a bracing strip 13 adapted for reinforcing the weir when in use, and enabling it to withstand the pressure of the water. The lower portion of one face of the sand gate has a transversely disposed metallic strip 14 secured thereto in any suitable manner as at 15. Also the gate is provided with downwardly and laterally diverging brace strips 16, preferably riveted to the gate as at 17. A vertical strip 18 is also riveted as at 19 to the gate. These bracing strips act to reinforce the gate, whereby it may withstand the pressure of water in the irrigating ditch.

Secured to the upper piece of the frame of the weir is an angular plate 20, the horizontally disposed portion 21 of which has a guide slot 22. An upstanding arm or bar 23 is riveted to the vertical and transverse bracing strips of the gate and passes through the guide slot 22. This arm or bar 23 is provided with graduations 25 in inches so that the gate may be set at different heights, the graduations being used to indicate the height at which the sand gate is disposed. The arm or bar 23 is provided with notches 26 to be engaged by a spring detent 27 to hold the gate in adjusted position. The upper end of the bar or arm terminates in a hand hold 28, whereby the sand gate may be adjusted by the ditch rider. One face of the weir plate, adjacent and conforming to the upper edge and the inner edges of the depending parts of the weir plate, is a packing 29 of rubber, though not necessarily, for it is obvious that any other suitable packing may be employed. This packing may be secured in any suitable manner to the face of the weir plate, either by dovetailing it in connection therewith as indicates at 30, or secured thereto by any suitable adhesive material, preferably cement or the like, and is designed to be engaged by the sand gate, to prevent leakage, and also to withstand the pressure of water in the ditch.

The invention having been set forth, what is claimed as new and useful is:—

1. In a weir, the combination with an irrigating ditch having opposite guides in its walls, of a weir frame including a weir plate and guides engaging the guides of the ditch, said weir having upper and lower openings, and a sand gate mounted in the guides of the weir for closing either of said openings.

2. In a weir, the combination with an irrigating ditch having opposite guides in its walls, of a weir frame including a weir plate and guides engaging the guides of the ditch, said weir having upper and lower openings, a sand gate mounted in the guides of the weir for closing either of said openings, and means for holding the sand gate in different adjusted position.

3. In a weir, the combination with an irrigating ditch having opposite guides in its walls, of a weir frame including a weir plate and guides engaging the guides of the ditch, said weir having upper and lower openings, and a sand gate mounted in the guides of the weir for closing either of said openings, the upper portion of the weir frame having a lateral projection provided with a guide opening, an upwardly extending arm or bar secured to the gate and provided with graduations reading from the lower portion of the bar or arm upwardly, said bar or arm passing the guide slot or opening and means coöperating with the bar or arm for holding the gate in different adjusted positions for closing either of the openings of the weir.

4. The combination with an irrigating ditch having opposite vertical guides in its walls, of a weir mounted in the guides and provided with upper and lower openings, a sand gate having operative sliding connections with one face of the weir for closing either one of the openings, for measuring the water and also permitting of the release of the sand collection.

5. The combination with an irrigating ditch having opposite vertical guides in its walls, of a weir mounted in the guides and provided with upper and lower openings, a sand gate having operative sliding connections with one face of the weir for closing either one of the openings, for measuring the water and also permitting of the release of the sand collection, and a packing inter-

posed between the adjacent faces of the weir and the gate.

6. The combination with an irrigating ditch having opposite vertical guides in its walls, of a weir mounted in the guides and provided with upper and lower openings, a sand gate having operative sliding connections with one face of the weir for closing either one of the openings, for measuring the water and also permitting of the release of the sand collection, and a packing interposed between the adjacent faces of the weir and the gate, and means for holding the gate in different adjusted positions, said holding means including an arm secured to the gate and provided with graduations for indicating the height of the gate.

In testimony whereof I hereunto affix my signature.

MONTRAVEL H. TUCKER.