

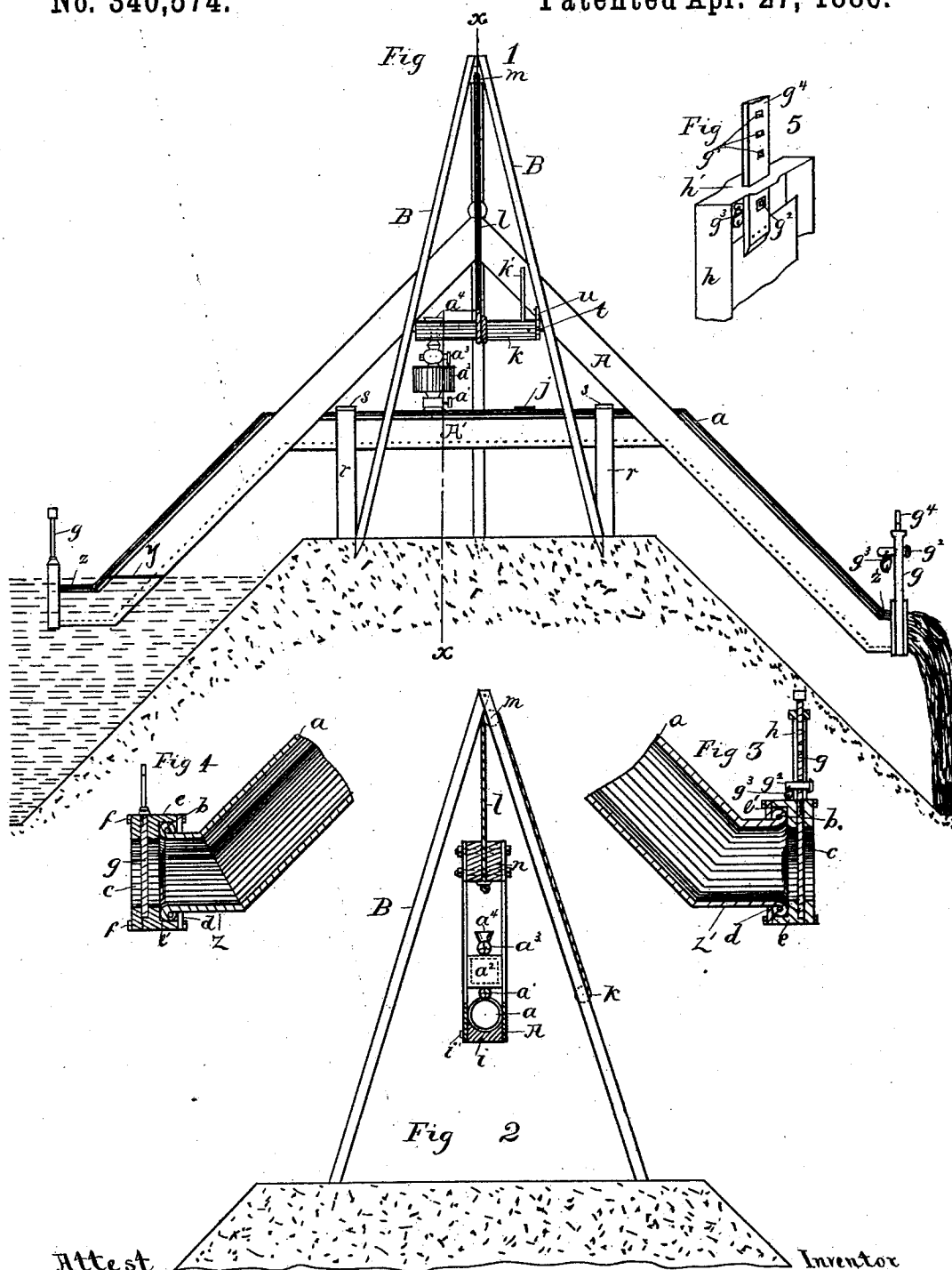
(No Model.)

H. P. HANDY.

DEVICE FOR CONDUCTING WATER.

No. 340,574.

Patented Apr. 27, 1886.



Attest 
~~Wm~~ McDermott
 J Satterthwaite

Inventor
Henry P. Hawley
by O'Brien & Co
his Attorneys

UNITED STATES PATENT OFFICE.

HENRY P. HANDY, OF FORT COLLINS, COLORADO, ASSIGNOR TO APPLETON
T. GILKISON AND LIZZIE C. HANDY, BOTH OF SAME PLACE.

DEVICE FOR CONDUCTING WATER.

SPECIFICATION forming part of Letters Patent No. 340,574, dated April 27, 1886.

Application filed July 16, 1885. Serial No. 171,808. (No model.)

To all whom it may concern:

Be it known that I, HENRY P. HANDY, a citizen of the United States, residing at Fort Collins, in the county of Larimer and State of Colorado, have invented a new and useful Device for Conducting Water from an Irrigating-Canal and Accurately Measuring the Same, of which the following is a specification, reference being had to therein to the accompanying drawings, in which similar letters refer to corresponding parts.

My invention relates to improvements in device for conducting water from an irrigating-canal and accurately measuring the same; and the object of my improvements is to provide a device by means of which the water flowing from the main irrigating ditch or canal to the farm lateral may be regulated and accurately measured in cubic feet per second. This I accomplish by the use of a siphon-pipe of any desired diameter or angles, and of any desired material, receiving water at one extremity from the canal or ditch, conducting it over the bank and discharging it from the other extremity by atmospheric pressure, as hereinafter fully described and set forth.

In the drawings, Figure 1 is a side elevation of my improved device with supporting apparatus attached. Fig. 2 is a vertical section of the device cut through the line *x x*, Fig. 1. Fig. 3 is a sectional side view of the discharge-gate and the adjoining extremity of the siphon-pipe, cut vertically through the center of the same. Fig. 4 is a sectional side view of the supply-gate and attachment, cut vertically through the center. Fig. 5 is a perspective view of the upper portion of the discharge-gate, showing the means of adjusting the same.

In the drawings, *a* is a siphon-pipe extending over the bank of the canal or ditch. The extremity *Z* of said pipe, being the supply extremity, and distinctly shown in Fig. 4, is placed at any desired depth beneath the surface of the water in the canal, according to the pressure necessary to produce the required discharge. *Z'* is the discharge extremity of said siphon-pipe, being somewhat lower than the supply-extremity, in order to facilitate the flow.

Around each extremity of the pipe *a* is

placed a wire ring, over which ring the material composing said pipe is turned or bent so as to form a kind of rim, *b*, around the extremities of the siphon. To each extremity of the siphon is attached a board, *e*, of suitable thickness. A hole about five and seven-eighths inches in diameter (supposing the diameter of the pipe to be six inches) is first made in said board *e*, after which a shoulder, *e'*, is formed in said board *e* around said hole, the shoulder *e'* being of sufficient size to receive the rim *b*. An iron collar, *d*, encircling the extremity of the pipe, is placed over the rim *b*, and fastened to board *e* by means of screws, as shown. A board, *c*, containing a hole of the same size as the opening in board *e*, is also used, being placed on the outside. Said boards *c* and *e* are fastened together by bolts *f*. Between said boards is placed the gate *g*, constructed of thin plate-iron, the edges of which gate are covered with a rubber packing, so that by tightening the nuts on bolts *f* boards *c* and *e* are pressed tightly against gate *g*, rendering the same water-tight, or so nearly water-tight as to answer all practical purposes.

The mechanism at the two extremities of the siphon is exactly alike, except that the handle *g'* of gate *g* at the discharge extremity *Z'* is provided with holes *g'* for the reception of a pin, *g''*, secured by a lock, *g'''*, there being a thin iron frame or guide, *h*, fastened to the edges of the board *e* by screws passing through the perpendicular arms of said frame, the handle *g'*, by means of which the gate *g* is raised and lowered, passing through the horizontal portion *h'* of frame *h*, which is sufficiently elevated to allow the gate to be raised to any height desired, the object of the frame *h* being to prevent the raising of the gate beyond the pin *g''* without removing the lock *g'''* and taking out said pin.

Siphon-pipe *a* is supported by a frame, *A*, said frame being shaped like the letter by which it is designated. This frame is constructed of boards, one of which is placed on each side of the siphon, which rests upon blocks *i*, placed at intervals between said boards composing said frame *A*, and near the lower edges being secured by bolts *i'*, as shown in Fig. 2. The boards composing frame *A*

meet in a point at the top, as shown in Fig. 1, where they are fastened together by bolts, as shown in Fig. 2, a block, *n*, Fig. 2, being placed between them to assist in fastening, the bolts passing through said block. The top or upper portion of siphon *a* is supported by the cross-portion A' of frame A, as shown in the drawings. In the top or horizontal portion of siphon *a* is an opening, in which is placed the stop-cock *a'*, to the top of which is attached the air-chamber *a''*, in the top of which air-chamber is a stop-cock, *a'''*, containing a funnel, *a''''*, as shown. Attached to the top of siphon *a* is a small lever, *j*.

The frame A, with the siphon *a*, is supported and held in position by the tripod B, erected above the same and standing upon the bank of the canal or ditch. To two legs of the tripod B, at any convenient distance above the bank, is attached an ordinary windlass, *k*, with the lever *k'*. To one end of the windlass K is attached a ratchet, *t*, in which works a pawl, *u*, attached to the adjacent leg of the tripod. To the top of the tripod B is attached a pulley, *m*, over which passes the rope *l*, said rope being attached to windlass *k* at one extremity and to the top of frame A at the other extremity, as shown in Fig. 2. By this means the siphon *a* is raised and lowered to suit the purpose, the necessary elevation depending upon the depth to which the supply end of the siphon must be immersed to give pressure for a flow of one hundred cubic feet per minute, with discharge end of siphon open.

The discharge-gate is then gaged to ten spaces that will each pass ten cubic feet per minute, such gage and divisions being distinctly marked and numbered on the back of the discharge-gate. The line of immersion, as above described on the supply end of pipe, is also distinctly marked by a paint line, *y*, around the pipe and frame, and the supply end of the siphon is always kept to this line by means of pulley *m*, Fig. 1.

In the use of my improved irrigating head-gate, siphon *a*, with attachments, including supporting-frame A, is placed across or over the bank of the canal or ditch, and the tripod B, with the windlass *k*, placed in position above the same, as shown in Fig. 1. By the use of the windlass the siphon is raised to the desired height, as indicated by mark *y*, ascertained by actual experiment to be the depth beneath the surface of the water to which the supply extremity of the siphon must be sunk in order to discharge one hundred cubic feet of water per minute. To the lifting-handle of the discharge-gate is attached an index or gage marking ten cubic feet per minute or any other unit desired. This index or gage is also prepared by actual experiment with the supply-gate, the adjacent extremity of the siphon being placed at the depth beneath the surface of the water indicated by the mark *y*, above described. The holes *g'* in the handle *g''* are made with reference to the index or gage just described, and the pin *g'''* is placed in

the hole which allows the gate to be raised sufficiently to give the consumer the full number of cubic feet per minute to which he is entitled, as indicated by the gage, but no farther, the superintendent of the ditch holding the key to the lock *g'''*, without which it is impossible to remove the pin *g'''* or raise the gate higher than said pin. By the use of the nuts upon the bolts *f* at the supply end of the siphon the friction between the gate *g* and the boards *c* and *e* is made sufficient to sustain the gate in position, but allowing it to be easily placed by the consumer in any position allowed by the pin *g'''*, the use of which has been already explained. The gate *g* at the supply end of the siphon is entirely under the control of the consumer, and may be taken entirely out, if desired, the pin *g'''* and the windlass *k* being exclusively under the control of the superintendent of ditch for obvious reasons.

My improved device having been placed in position and elevated to the desired height by the use of the lever *k'*, the top portion of the siphon is adjusted to a position exactly horizontal, and held in this position by the use of four stakes, *r*, driven into the bank, two being placed on each side of the frame and one of each pair being on each side of the siphon, and projecting above the same sufficiently to allow cross-pieces *s* to be attached, extending over the siphon, as shown in Fig. 1. By this means the device is held in any desired position.

Preparatory to the use of my improved device the gates *g* are both closed, the stop-cocks *a'* and *a'''* are both opened, and water is poured into the funnel *a''''*, air escaping through a vent until the siphon *a* and the air-chamber *a''* are filled. The stop-cock *a'''* is then closed, the stop-cock *a'* left open, the supply-gate *g* opened, and the discharge-gate opened and adjusted, which puts my improved device in operation.

The use of the air-chamber *a''* is to receive any air which may enter the siphon with the water and which would retard the flow and render the same inconstant were there no means of escape for said air. Said chamber *a''* is a sufficient reservoir to hold the air which may enter the siphon with the water during a number of days. By closing the stop-cock *a'* at any time and opening the stop-cock *a'''* the air in said chamber is allowed to escape, the chamber *a''*, Fig. 1, is refilled, stop-cock *a'''* closed, and stop-cock *a'* reopened.

The advantages of my improved irrigating head-gate are many and obvious, some of the more important being as follows: First, accurate automatic measurement in cubic feet or fractions of a cubic foot per second, the pressure being constant; second, absolute control of the discharge by the superintendent of the canal or ditch; third, it obviates the necessity of cutting the banks for the head-gates; fourth, it is changeable in position at will, and adapted to any canal-bank, thus

making one gate sufficient for any farm, as it may be used at any point on supply-ditch; fifth, its cost and care are much less than ordinary gates.

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

A device for conducting water from an irrigating-canal and accurately measuring the same, said device consisting of a siphon extending from the water in the canal over the

bank to the farm lateral, said siphon having a gate at each extremity, in combination with a supporting apparatus consisting of frame A, tripod B, windlass *k*, rope *l*, and pulley *m*, substantially as described, and for the purpose set forth. 15

HENRY P. HANDY.

In presence of—

E. LOVE,

T. M. ROBINSON.