

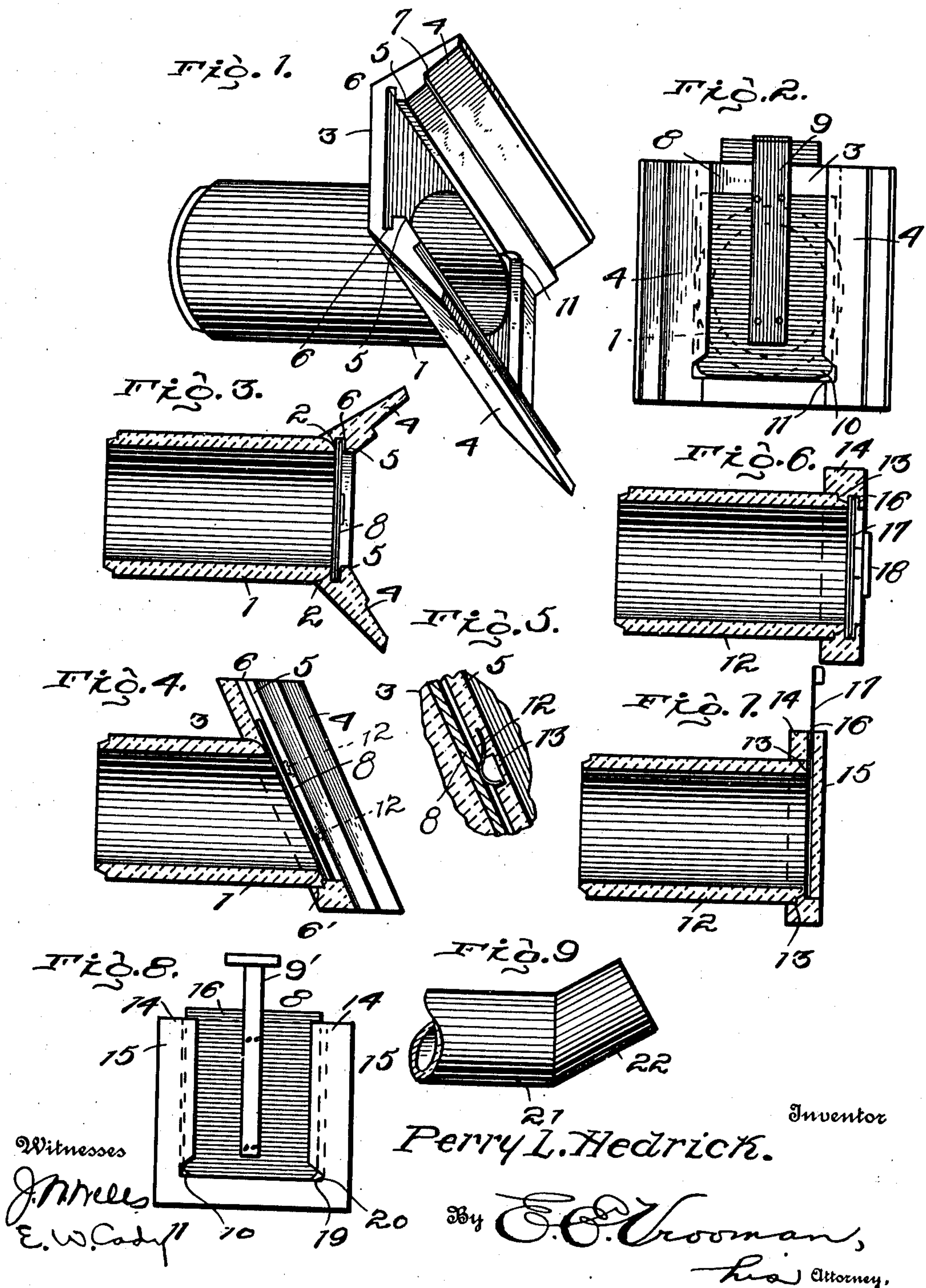
P. L. HEDRICK.

HEAD GATE.

APPLICATION FILED JULY 18, 1910.

988,777.

Patented Apr. 4, 1911.



UNITED STATES PATENT OFFICE.

PERRY L. HEDRICK, OF HOLTVILLE, CALIFORNIA.

HEAD-GATE.

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Specification of Letters Patent.

Patented Apr. 4, 1911.

Application filed July 18, 1910. Serial No. 572,623.

To all whom it may concern:

Be it known that I, PERRY L. HEDRICK, a citizen of the United States, residing at Holtville, in the county of Imperial and State of California, have invented certain new and useful Improvements in Head-Gates, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to head gates used in outlets from irrigating canals.

The invention has for its object to provide a head gate which will be strong, durable and almost water-tight.

The invention further has for its object to provide a head-gate for irrigating purposes which will be economical in construction and which will effectively withstand the pressure of water when the gate is closed.

The invention consists in a head-gate employed for irrigating purposes and in the method of constructing the same as hereinafter set forth and claimed.

Referring to the accompanying drawings:—Figure 1 is a view in perspective of the end of a water pipe and a head-gate constructed in accordance with this invention with the sliding gate removed. Fig. 2 is an end view of the device shown in Fig. 1 with the gate closed. Fig. 3 is a plan view in horizontal section. Fig. 4 is a side view in longitudinal section. Fig. 5 is an enlarged detail view of a portion of the gate. Figs. 6 and 7 are views in longitudinal section of a modified form of the gate. Fig. 8 is an end view thereof. Fig. 9 is a view in perspective of a portion of a pipe of a modified form, into which the water is conducted from one elevation to a lower elevation.

In the form of the device shown in Figs. 1 to 5 inclusive, the gate structure has a sloping front or face. In the device shown in Figs. 6 to 8 inclusive, the gate structure is vertical.

In carrying out the invention, a pipe 1 is provided which is formed with a beveled edge 2 at one end.

3 indicates a collar which is formed of concrete, cast of a slightly convex form toward the front, the collar 3 being formed with wings 4, which extend diagonally in a vertical direction and also diagonally in a lateral direction so as to conform to the bank of the canal or irrigating ditch. The collar 3 is formed with a groove curved in cross section, so as to fit against the beveled

edge of the pipe 1, thereby making a tight joint. The collar on its face is formed with flanges 5 and grooves 6 back of said flanges and with a sharp annular corner or shoulder 7, which serves to stay the power of the water when it is admitted through the gate under pressure. The sloping face and flaring wings of the gate fit the slope of the bank and guide and check the water and let it glide through and prevent the washing away of the bank behind the collar 3. The collar 3 is formed at the rear of its opening with an annular groove 6' which connects with the beveled end 2 of the pipe 1, permitting the soft concrete to flow in behind the door, which is located in the grooves 6 and thereby forms a tight joint with a smooth glass like surface on all sides.

In forming the gate structure, a sheet iron gate 8 is provided about which the concrete gate structure is molded. The gate 8 is preferably prepared before being placed in front of the pipe 1 with a coating of liquid, so that the concrete will not stick to the gate, as it is being molded about the same. As the concrete begins to stiffen up, due to the setting or crystallization of the cement, the gate 8 is worked up and down and sidewise to form the grooves 6. In some instances a smooth gate may be obtained without any preparation or coating, by simply working it up and down at the proper time and then pulling it out. This working of the gate has the effect of troweling the concrete behind the gate and brings the cement to the surface in contact with the gate and makes a smooth surface against which the gate is held by the water pressure on the front. Owing to the convex form of the collar 3 it will be brought downward against the gate and thereby held firmly against the collar at the top. In order to aid in holding the gate firmly in position in the grooves 6 the gate is operated by a suitable handle, as for example, the wooden handle 9 secured to the same. The lower corners of the gate are cut as at 10 and the lower ends of the flanges are cut as at 11. By means of this construction all foreign matter in the grooves is permitted to escape when the gate 8 is closed down. In order to assist in holding the gate 8 firmly in place suitable springs are provided preferably consisting of curved springs 12, having one end embedded in the flange 5 and the other curved end movable in a slot 13 in the flange 5. A number of

such springs are provided for each groove 6 and press against the gate 8. The gate 8 is such a close and perfect fit in the slot 6, that the pressure of the water holds the gate 5 firmly against the collar 3, making almost a water-tight joint. This joint is rendered tight within a short time by the deposit of silt of any silt ladened waters in the slots 6.

The construction shown in Figs. 6 to 8 inclusive, is similar to that shown in Figs. 1 to 5 inclusive except that the gate structure is vertical instead of inclined. The gate structure being cast in one piece with a collar 14, flanges 15, grooves 16, in which 15 is a gate 17, having a handle 18. The structure is formed similar to that described in Figs. 1 to 5 inclusive, the lower ends of the gate 16 being cut away as at 19 and the flanges 15 being cut away as at 20. In the 20 device shown in Fig. 9 a portion of the pipe 21 is shown having an inclined portion 22. This is for the purpose of utilizing the flow of water from a higher level to a lower one.

25 It will be seen that by means of this invention, a head gate is provided in which the gate structure is formed in one piece of concrete which is firmly united to the end of the pipe to form a water tight joint and 30 also serves to withstand the pressure of the water passing into the pipe. The gate structure, so constructed offers a water tight gate which may be easily operated and yet be held firmly in place.

35 Having described the invention, I claim:

1. In a structure of the character described, a pipe, a head gate structure formed with vertical grooves and lateral flanges, said structure being formed in one piece of concrete, and a movable gate slidable in said 40 grooves.

2. In a structure of the character described, a pipe having a beveled edge at one end, a head gate structure formed of concrete, a collar having a groove at its rear 45 portion surrounding said beveled end of said pipe, a filling of concrete in said groove, grooves in said collar, and a slidable metallic gate mounted in said grooves.

50 3. In a structure of the character described, a pipe, a head gate structure of concrete cemented to the end of said pipe and having grooves and lateral flanges, with an angular shoulder in each flange, and a metallic gate movable in said grooves to close 55 said pipe.

4. In a structure of the character described, a pipe, a head gate structure molded in concrete about the end of said pipe and secured to the same and formed with diagonal lateral flanges each having a groove 60 and an angular shoulder, and a metallic gate movable in said vertical grooves.

5. In a structure of the character described, a pipe, a head gate structure 65 formed of concrete in one piece, and having a collar secured to said pipe and lateral flanges and grooves, the lower ends of said grooves being cut away and a metallic gate movable in said grooves and having its 70 lower corners cut away.

6. In a structure of the character described, a pipe, a head gate structure in one piece of concrete with a collar secured to said pipe, springs mounted in the walls of 75 said head gate structure and a metallic gate slidable in said grooves and bearing against said springs.

7. In a structure of the character described, a gate structure formed of concrete 80 in one piece and having a collar with a rear annular groove, gate grooves, and flanges.

8. The method of forming a head gate structure for irrigating purposes which consists in securing to a pipe with a beveled 85 edge at one end, a collar of concrete molded in one piece about a metallic gate located in front of the end of said pipe, cementing said collar to said pipe, moving said gate up and down in said collar to form vertical 90 grooves and molding said gate structure to form annular shoulders, and lateral flanges.

9. The method of forming a head gate structure for irrigating purposes, consisting 95 in providing a pipe with a beveled edge at one end, placing a metallic sheet iron plate against the end of said pipe, molding about the end of said pipe and about said plate a gate structure in one piece of concrete and 100 formed with a collar having a rear shouldered groove filled with concrete between it and the end of the pipe and the plate, moving said plate up and down in said collar to form grooves and said collar being formed 105 with lateral flanges and annular shoulders.

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

PERRY L. HEDRICK.

Witnesses:

W. J. SEAT,
G. O. McLEOD.