

H. C. HEATH.
 AUTOMATIC IRRIGATOR.
 APPLICATION FILED DEC. 11, 1912.

1,085,609.

Patented Feb. 3, 1914.

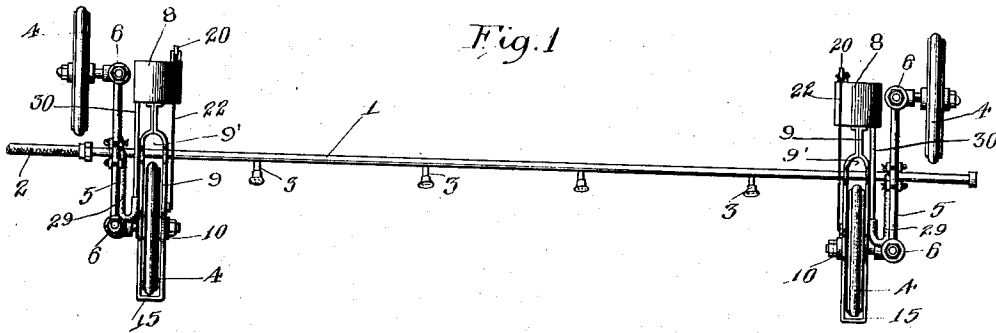


Fig. 1

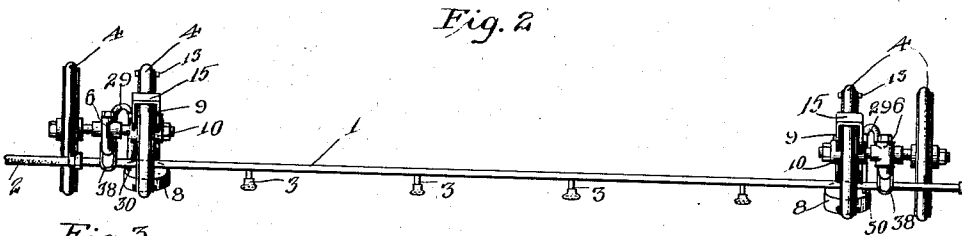


Fig. 2

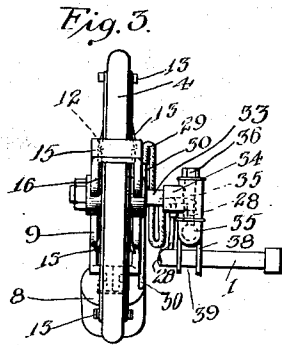


Fig. 3

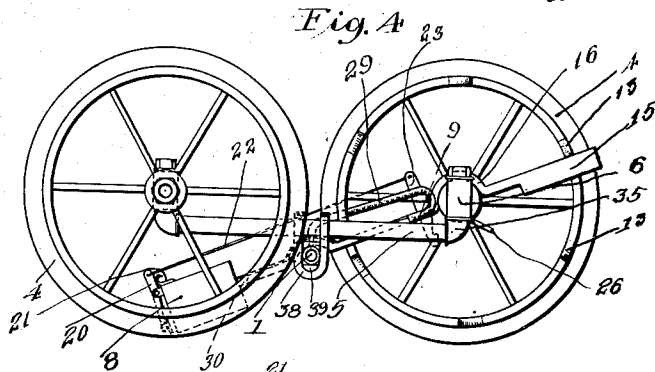


Fig. 4

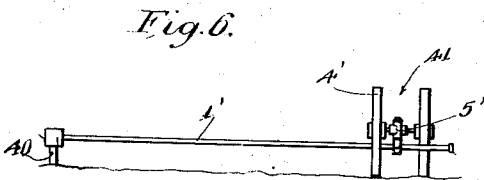


Fig. 6

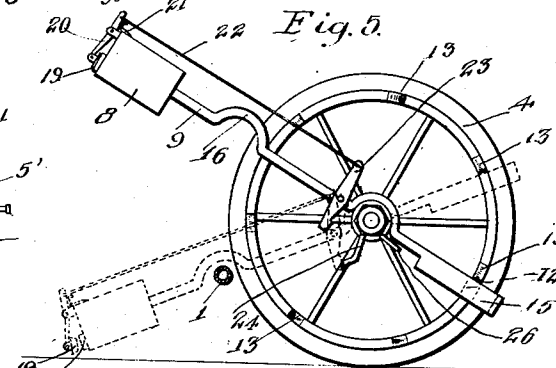


Fig. 5



Fig. 7

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UNITED STATES PATENT OFFICE.

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AUTOMATIC IRRIGATOR.

1,085,609.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HARRY CLARK HEATH, a citizen of the United States, residing at Cajon, in the county of San Bernardino and State of California, have invented a new and useful Automatic Irrigator, of which the following is a specification.

This invention relates to automatic irrigators of the class wherein a water distributing pipe is propelled over the field to be irrigated by hydraulic motive means, and the main object of the present invention is to provide an automatic irrigator with hydraulic motive means of improved construction, so as to increase the effectiveness of the water supplied to the motor in driving the distributor.

Another object of the invention is to provide motive means whereby the direction of movement of the distributor may be readily changed either in forward, reverse or transverse directions.

Other objects of the invention will appear hereinafter.

The accompanying drawings illustrate embodiments of the invention, and referring thereto:

Figure 1 is a plan view of the automatic irrigator. Fig. 2 is a rear elevation thereof. Fig. 3 is a partial rear elevation of one of the supporting and driving wheels and its adjacent parts. Fig. 4 is an end elevation of the irrigator. Fig. 5 is a vertical section of the irrigator taken directly alongside the supporting wheel. Fig. 6 is a rear elevation of a modified form of the invention. Fig. 7 is a perspective view of the flexible connections from the supply pipe to the irrigating means.

The invention comprises a water distributor pipe 1 connected to suitable water supply means, such as a flexible hose 2 at one end thereof, and provided with suitable distributing means such as nozzles 3 for distributing water at various points along the line of the pipe 1, and motive means for supporting and propelling this distributing pipe. One of such motive means may be provided at each end of the pipe or at any other desired position thereon, and a description of one of such motive devices will suffice for all.

Each motive device comprises a pair of wheels 4 adapted to run on the ground, a frame 5 connected to the pipe 1, bearings

6 for said wheels adjustably mounted on said frame, and hydraulic means operating on one or more of said wheels 4 to turn the same. Said hydraulic means comprises a tank 8 carried by a lever 9 pivotally mounted on the hub 10 of said wheel 4, said lever 9 being provided with shoulders 12 engaging with spring pawls 13 on the wheel 4, so that in the downward movement of the tank 8, the said lever will rotate the wheel forward and in the upward movement of the tank, the shoulders 12 will slip over said pawls. Such upward movement of the lever 9 is effected by a weighted portion 15 of said lever. The lever 9 is preferably formed with an open frame portion 9' so as to embrace the wheel 4 and such frame portion is provided with an upward bend or saddle portion 16 adapted to rest on the hub of the wheel 4. The tank 8 is provided with a valve opening 18 in its outer end, normally closed by a valve plug 19 on a lever 20, said lever being pressed by a spring 21 to normally hold said valve plug closed. A rod or wire 22 leads from said lever to a lever 23 pivotally mounted on the lever 9 adjacent to the bearing for wheel 4, and a fixed projection 24 on said bearing is adapted to engage said lever 23 to cause the valve 19 to be opened when the tank moves to lowermost position. Said projection 24 also serves to limit the angular movement of the lever 9 in this direction and another projection 26 on the bearing 6 serves to limit the angular movement of the lever 9 in the reverse direction. A pipe 28 communicating with the supply pipe 1 extends adjacent to the bearing for wheel 4 and is connected by a flexible pipe or hose 29 to a pipe 30 on the lever 9, communicating at its outer end with the tank 8 so as to supply water to said tank.

Bearings 6 for wheels 4 are rotatably mounted on the frame 5, for example, by knuckles or pivotal connections, see Fig. 3, the axle 33 for the wheel being connected to a sleeve 34 which is rotatably mounted on an upright 35 on frame 5 and clamped in any desired position by a nut 36.

The distributor or irrigating pipe 1 is preferably adjustable on the frame 5, for example, by means of saddles 38 hung on said frame 5 and carrying the pipe 1, removable plugs 39 being provided which may be inserted below or above the pipe 1 so as

to adjust the height thereof as required. Moreover, in case the machine is to be run over a crop standing at unusual height, the frame 5 with its attached wheels may be
 5 inverted so as to bring the pipe 1 above instead of below the center of the wheels 4, the operating lever 9 being removed from the wheels and replaced on the same after inversion thereof.

10 The operation of this form of the invention is as follows: The irrigator having been brought to proper position in the field and being connected to the water supply hose 2, the bearings 6 for wheels 4 are adjusted to
 15 proper position to set the wheels 4 in the proper direction to cause the distributor pipe 1 to move in a direction transverse to its own length when the wheels are turned. The water being turned on through the hose
 20 2 passes through the pipe 1, a portion of this water passing through the pipes 28, 29 and 30 to the respective tank 8 and filling said tank, and the weight of the water in the tank causing lever 9 to turn on its pivotal
 25 support and by engagement of the shoulders 12 with the pawls 13 to turn the wheel 4, so as to propel the distributor pipe forwardly. When the tank 8 reaches its lowermost position shown in full lines in Fig. 4, the lever
 30 23 will engage projection 24 to cause valve 19 to be opened and allow the water to escape from the tank 8, whereupon the lever 9 is raised to its uppermost position, shown in full lines in Fig. 5, by the weight 15, the
 35 lever 9 thus oscillating up and down and imparting a rotative movement to the wheel 4 by a step-by-step or ratchet movement. By making the lever 9 of the required length, any desired amount of leverage may be given
 40 to the weight of the water in tank 8, so that the effectiveness of the water in operating the wheel is correspondingly increased and sufficient power may be thus obtained to drive the distributor or irrigator even over
 45 rough ground. While the irrigator is being propelled in this manner over the field, the rest of the water delivered to the pipe 1 passes out through the nozzles 3 and serves to irrigate the field. When the machine has
 50 traversed the field in this manner, bearings 6 for wheels 4 may be turned so as to set the wheels parallel with the pipe 1, and on then turning on the water, the operation of the motive devices will cause the machine to be
 55 propelled lengthwise of the pipe 1 or trans-

versely of the field into the position for running across another portion of the field.

The invention is not limited to the construction above described in which both ends of the distributing pipe travel over the field, but may be applied in connection with a form such as shown in Fig. 6, wherein one end of the distributing pipe is rotatably mounted on a stand pipe 40, the other end of the distributing pipe 1' being provided
 65 with the motive devices 41 similar to that above described, except that in this case the bearings for the wheels 4' may be fixed on the frame 5' which supports the pipe 1'.

What I claim is:

1. An automatic irrigator comprising a water distributing pipe, frames supporting said pipe, wheels for supporting said frames, a lever mounted to swing in a vertical plane, said wheel and lever being provided with
 75 means for turning the wheel in the movement of the lever in one direction only, a tank carried by said lever, a supply connection from said water distributing pipe to said tank, a valve controlling outflow of
 80 water from said tank, means controlled by the movement of said lever to open said valve when the tank is in lowermost position, and means for raising said lever when said tank is empty.

2. In an automatic irrigator, a water distributing pipe, frames connected to and supporting said pipe, bearings pivotally mounted on each of said frames to swing on vertical axes, wheels respectively journaled on
 90 said bearings for supporting said frames, a vertically movable tank mounted on each of said frames connected to receive water from said water distributing pipe, whereby to impart vertical movement to said tank, and
 95 having operative connection with one of the wheels of the respective frame, whereby to operate said wheel by said vertical movement, and valve means controlled by the vertical movement of the respective tank to
 100 permit discharge of water from the tank when in lowered position.

In testimony whereof, I have hereunto set my hand at Los Angeles, California this 4th day of December, 1912.

HARRY CLARK HEATH.

In presence of—

MARTHA M. LANGE,
 M. E. BLASDEL.