Apr. 10, 1923. 1,451,056

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IRRIGATION SIGNAL

Filed June 1, 1921

Fig. 1.

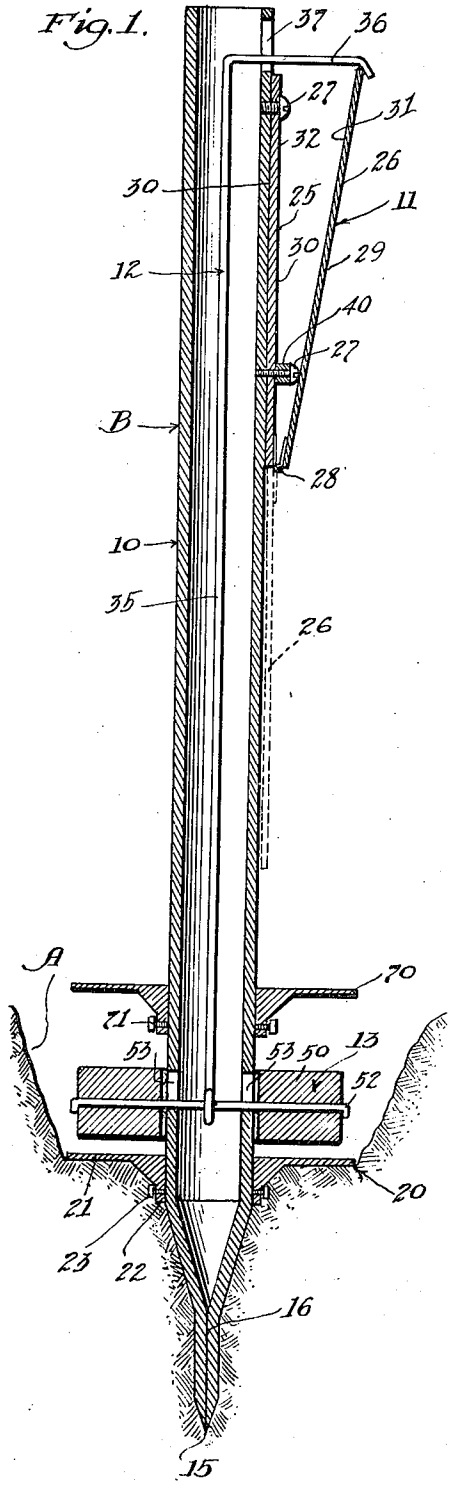
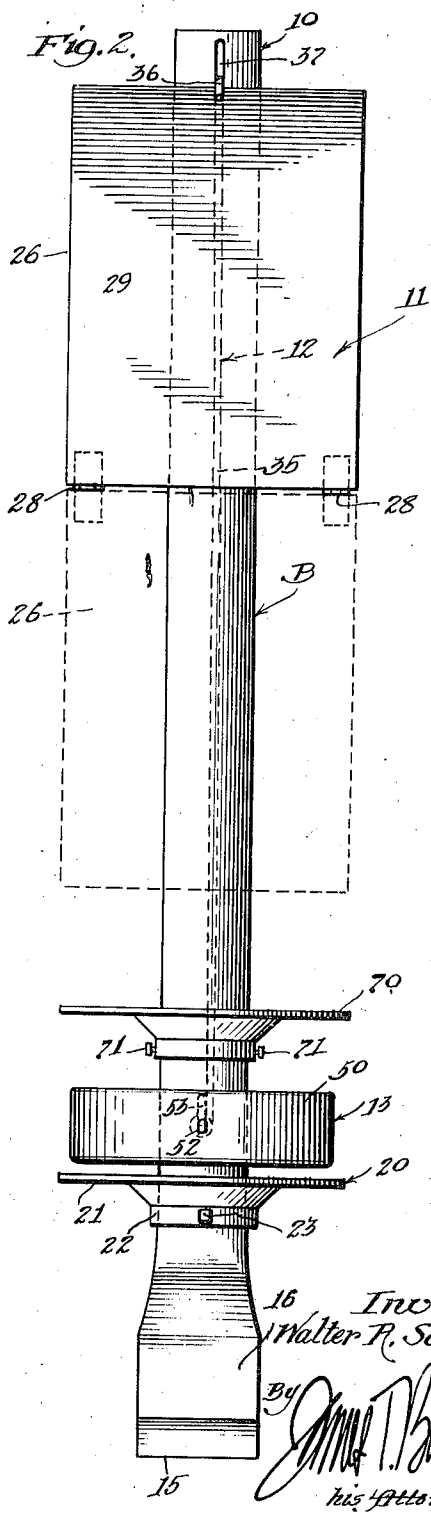


Fig. 2.



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By
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UNITED STATES PATENT OFFICE.

WALTER R. SCHINDLER, OF LOS ANGELES, CALIFORNIA.

IRRIGATION SIGNAL.

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To all whom it may concern:

Be it known that I, WALTER R. SCHINDLER, a citizen of the United States, residing in Los Angeles, in the county of Los Angeles, State of California, have invented new and useful Improvements in Irrigation Signal, of which the following is a specification.

This invention provides a signal device, particularly, although not specifically, adapted for use in an irrigation ditch or the like, to indicate whether or not there is water in the ditch, and it is an object of the invention to provide a simple, effective, reliable device of this character.

On ranches, in orchards, etc., where it is necessary to irrigate, numerous conducts, usually in the form of trenches or ditches, are employed to carry the irrigating water. These conducts are adapted to receive water at one or at only a few points from which they distribute it over a large area. It is necessary for an attendant to be in constant attention to be sure that the water properly flows to all of the conducts and to more or less regulate the flow to the different conducts. With the methods now employed one attendant can properly take care of only a small area, as it is necessary for him to travel over the entire area in order to properly watch the flow of water in the various conducts.

It is an object of the present invention to provide a device which will indicate the presence of water in a conduct and which may be used in connection with irrigation conducts to minimize the labor connected with irrigating and to thereby enable an attendant to properly take care of an area much larger than is possible by the present methods. Devices provided by the present invention can be arranged at various parts of the several conducts, so that the attendant can, by remaining at one point or by very little movement, observe when the water reaches the various parts of the conducts. The devices of the present invention, therefore, make it necessary for the attendant to actually inspect or visit the various conducts only when the water is not properly flowing in or to them.

A noteworthy feature of the device provided by the present invention is its extreme simplicity both of construction and operation. The device is formed of inexpensive easily obtained materials and is extremely simple and compact in construction. The device is particularly simple to install or arrange in position for operation and embodies only a very few simple reliable operating parts.

The various objects and features of the invention will be best and more fully understood from the following detailed description of a typical embodiment of the invention, throughout which reference is had to the accompanying drawings in which—

Fig. 1 is a transverse detailed sectional view of a device embodying the present invention showing it in operating position in a typical irrigation ditch and showing it set so that it will actuate when the water reaches the desired level in the ditch; and Fig. 2 is a face view, or front elevation, of the device shown in Fig. 1.

In the drawings the letter A designates a typical irrigation ditch, and the letter B designates a signal device embodying the present invention and adapted to be arranged in an irrigation ditch of the character indicated by the letter A in the manner shown in Fig. 1. The conducts used in irrigation systems, and the like, vary considerable in character, shape and proportion, but are usually open topped ditches similar, generally, to the ditch A, shown in Fig. 1 of the drawings for the purpose of typifying an irrigation conduct. In view of the wide variation in irrigation conducts, it is obvious that the present invention must be embodied in various forms in order to properly operate in various conducts. In the present disclosure I have set forth a typical irrigation conduct and a typical form of the present invention adapted to operate in said typical conduct. It is to be understood, therefore, that the invention in its broader aspects is not limited to the specific form of construction hereinafter set forth, but that it is capable of embodiment in various forms to operate in various forms of irrigation conducts.

The device shown in the drawings as a typical embodiment of the present invention, comprises, generally, a frame part or standard 10, a signal 11, control means 12 for the signal 11, and actuating means 13 for the control means 12. The standard 10 is preferably although not necessarily, a straight hollow member having a sharp

lower end 15 adapted to be driven into the bottom of the ditch A. In practice I prefer to form the standard 10 of a piece of straight pipe and to flatten its lower end portions 16 to form the sharp end 15 and in order that it may be easily driven into the ground. Flattening of the pipe in one direction spreads or broadens it in the other direction and therefore causes the extreme end portion to effectively anchor the standard in the ground.

In the preferred form of the invention a supporting plate or depth gauge 20 is arranged near the lower end of the standard 10 to regulate the amount that the standard can be driven into the ground and to brace the standard in a vertical position, when in the ground. The gauge 20 may, in practice, be in the form of a flat annular or ring-shaped plate 21 arranged around the standard 10 at the desired height. The plate 21 may be secured in place on the standard 10 in any suitable manner, for instance, it may be formed with a boss or collar 22, which slidably receives the standard 10 and which may be set at the desired position on the standard by suitable set screws 23. This particular manner of mounting the plate 21 on the standard permits of it being conveniently adjusted to the desired height. With the gauge 20 arranged on the standard 10, it will be obvious how the lower end of the standard can only be driven a certain pre-determined distance into the ground and how the standard is effectively braced in a vertical position when the lower end of the standard is driven the predetermined distance into the ground. The plate 21 of the gauge engages the bottom of the ditch A, and thereby positively limits the distance that the standard can be conveniently driven, or otherwise suitably forced, into the ground. The plate 12 being flat and of considerable area, in engaging the bottom of the ditch A effectively supports the standard in a vertical position and in practice permits of the lower or ground engaging end of the standard to be considerably shorter than would be otherwise necessary. The exact shape of the gauge 20 will, of course, depend upon the size and shape of the conduct in which the signal is to be arranged. Although the device of the present invention may be successfully operated without a gauge 20, it is preferred that it be so equipped so that it can be conveniently arranged at a predetermined height and will be properly maintained in a vertical position.

In accordance with the invention a suitable foot piece 70 is adjustably arranged on the standard 10 near its lower end, or at a point where it can be conveniently engaged by the foot to press the standard into the ground. The foot piece may be set at the desired height on the standard by a set screw 71. The foot piece may, in practice be of the same form and construction as the gauge 20, as shown in the drawings. The signal 11 comprises two parts 25 and 26, one of which is stationary while the other is movable to a position where it is opposite the stationary part, and to a position where it is not opposite the stationary part but extends from the stationary part in substantially the same plane as the stationary part. In the particular device illustrated in the drawings the part 25 is the stationary part and is detachably secured to the upper portion of the standard 10 by suitable screws 27. The part 26 is the movable part and is pivotally connected, or hinged, to the part 25 by suitable hinges 28 so that it can be swung to a position where it is substantially opposite and substantially coincides with the part 25, or to a position where it extends from the part 24 in the plane of the part 25. The hinges 28 connect the part 26 with the lower edge of the part 25 so that the part 26 is opposite, or is at, the part 25 when in an up position, as shown in full lines in Figs. 1 and 2, and extends from the lower edge of part 25 in the same plane as the part 25 when in a down position such as is indicated in dotted lines in Fig. 1. When the part 26 is up, or is opposite the part 25, as shown in full lines in Figs. 1 and 2, a person viewing the device sees only the surface 29 of the part 26, or the surface 30 of the part 25. That is, when the part 26 is at the part 25, or is up, the device presents a signalling area equal only to the area of one of the signal parts. When the part 26 is down or extends from the lower edge 25, a person viewing the signal will see either the surfaces 29 and 30 of the parts 26 and 25, respectively, or the surfaces 31 and 32 of the parts 26 and 25, respectively. In other words, when the part 26 is down, or extends from the part 25, the device presents a signalling area equal to the combined areas of the two parts of the signal. In practice, of course, the signal parts 25 and 26 are made of such material, or the surfaces of the signal parts 25 and 26 are coated, so that they are particularly attractive and easily distinguished at a distance. So far as the present invention is concerned, the surfaces of the parts 25 may be all the same, or they may be variously colored or marked to form different signals as well as being of different areas when in the two different positions. I prefer to removably mount the signal means 11, on the standard 10, say, for instance, by screws, as herein set forth, so that signal devices of various shapes, sizes and colors may be conveniently arranged on the standard to meet various conditions under which the device may be operated. It is sometimes necessary that the signal 11 be particularly large and con-

spicuous, while at other times it need only be comparatively small. Likewise, it is sometimes desirable that the signal 11 be of a certain color or of a certain combination of colors, in order to be visible against a certain background, while in other cases it is desirable that it be of another color or of another combination of colors. As far as the broader aspects of the present invention are concerned, it is immaterial how the signal is colored, how it is proportioned, or what size it is made. In fact, the signal may be of any suitable form or construction. In some cases it may be found convenient to make the surface 32 of the part 25 a signalling surface and to use the part 26 only as a cover for the part 25 to hide it from view when the device is set or shown in the drawings and to uncover it and thus make it visible when the device is actuated.

The control means for the signal 11 comprises in its simplest form a single member having a rod part 35 arranged longitudinally of the standard 10, preferably within the standard 10, and a hook part 36 at the upper end of the body 35. The hook part 36 extends through a suitable guide slot 37, in the standard 10 immediately above the signal 11, and is shaped so that it will engage and hold the part 26 of the signal 11 in its up position as clearly shown in Figs. 1 and 2 of the drawings. The rod part 35 and hook part 36 are preferably formed of a single piece of material sufficiently heavy only to have the necessary rigidity. When the rod 35 and hook 36 are in the down positions, as shown in Figs. 1 and 2, the hook 36 is in position to engage the outer edge of the signal part 26 to hold it in the up position. A predetermined amount of upward movement of the rod 35 and hook 36 from the down position when it is holding the signal part 26, will cause the hook part 36 to release the signal part 26, allowing it to fall by gravity to its down position as indicated in dotted lines in Fig. 2. It is preferred that a suitable washer or spacer 40 be provided under one of the screws 27 so that the signal part 26 cannot be swung upwardly to a truly vertical position, to a position where it is close against the signal part 25. The spacer 40 is preferably sufficiently large to hold the signal part 26 out so that it will unfailingly fall by gravity when released.

The actuating means provided for actuating the rod and hook to release the signal part 26 comprises a float positioned to be in the ditch A when the device is in operating position and connected with the rod 35 so that the rod will be lifted or moved upwardly when the water in the ditch A reaches a predetermined level. In the preferred form of the invention, the float 50, is an annular, or ring-shaped member freely carried on or around the standard 10 immediately above the gauge 20. It will be understood, of course, that the float 50, may be of any suitable buoyant material, say for instance of wood or of cork, and that it may be of any desired shape, proportions, or configuration. When the float 50 is in the form of a ring arranged around the standard 10, it may be conveniently connected with the rod 35 by a bar 52 arranged diametrically through it and the standard 10. The bar 52 passes through suitable guide slots 53 at opposite sides of the standard 10 in the manner clearly shown in Fig. 1. The connection between the rod 35 and the bar 52 may be effected by wrapping the lower end of the rod 35 around the bar 52 in the manner shown in the drawings. It will be obvious how water in the ditch A will lift the float 50 upwardly, which in turn will lift the rod 35 and hook 36 upwardly, and how the hook 36 will release the signal part 26 when the parts just mentioned have been lifted a predetermined amount upwardly or when the water in the ditch reaches a predetermined level.

In accordance with the invention the foot pieces and plate 21 of the gauge 20 are shaped and proportioned to extend beyond or outwardly of the float 50 in order to protect it during handling of the device and also during placement of the device in operative position.

From the foregoing description it will be obvious how devices embodying the present invention may be very easily and conveniently arranged at suitable parts of irrigation conducts, how the signals 11 may be very easily set by swinging the parts 26 upwardly and arranging the hooks 36 in engagement with them and how the devices will automatically operate when there is a predetermined amount of water in the ditches at them, and thereby signal the attendant. It will be readily understood how the devices, properly arranged, will enable an attendant to properly irrigate a much greater area at one time than could possibly be done by ordinary methods. Further, from the foregoing description, it will be obvious that the device of the present invention is extremely simple, both in construction and operation, and how it can be very easily and inexpensively constructed.

Having described only a typical embodiment of my invention, I do not wish to restrict myself to details such as those herein set forth, but wish to reserve to myself any changes or modifications that may appear to those skilled in the art and which may fall within the scope of the following claims.

Having described a preferred form of my invention, I claim:

1. In a device of the character described, a standard adapted to be arranged in a fluid conduct, a visual signal carried by the stand-

ard, a releasable hook for holding the signal in an unactuated condition, and a float adapted to be actuated by fluid in the conduct to release the hook.

2. In a device of the character described, a standard adapted to be arranged at a fluid conduct, a gravity actuated visual signal carried by the standard, releasable means for holding the signal in an unactuated condition, and float means for releasing said first mentioned means.

3. In a device of the character described, a standard adapted to be arranged in a fluid conduct, a depth gauge on the standard, a signal carried by the standard, and means carried by the standard, to actuate the signal upon the fluid in the conduct reaching a predetermined level.

4. In a device of the character described, a standard adapted to be arranged at a fluid conduct, a visual signal carried by the standard, and means to actuate the signal only upon the fluid in the conduct reaching a predetermined level, said means embodying a float slidably carried on the standard in the conduct.

5. In a device of the character described, a standard adapted to be arranged in a fluid conduct, an adjustable gauge on the standard, a signal carried by the standard, and means carried by the standard, to actuate the signal upon the fluid in the conduct reaching a predetermined level.

6. In a device of the character described, a standard adapted to be arranged at a fluid conduct, a member mounted on the standard to engage the bottom of the conduct to brace the standard, a signal carried by the standard, and means to actuate the signal upon the fluid in the conduct reaching a predetermined level.

7. In a device of the character described, a standard adapted to be arranged at a fluid conduct, a foot piece mounted on the standard, a signal carried by the standard, and float means to actuate the signal.

8. In a device of the character described, a standard adapted to be arranged in a fluid conduct, a signal carried by the standard, means to actuate the signal, said means comprising a float carried by the standard in the conduct, and a gauge member mounted on the standard forming a protection for the float.

9. In a device of the character described, a standard adapted to be arranged in a fluid conduct, a signal carried by the standard, means to actuate the signal comprising a float carried by the standard in the conduct, a foot piece mounted on the standard above the float, and a gauge member mounted on the standard and below the float, the foot piece and the gauge extending beyond the float to protect it.

10. In a device of the character described, a standard adapted to be arranged at a fluid conduct, a signal carried by the standard, the signal embodying a stationary part and a movable part adapted to be actuated to form an extension of the stationary part, and means to actuate the movable part of the signal.

11. In a device of the character described, a standard adapted to be arranged at a fluid conduct, a signal carried by the standard, the signal embodying a stationary part and a movable part pivotally connected to the stationary part and adapted to be set in a position where it is at the stationary part and to be actuated to a position where it extends from the stationary part, and float means to actuate the movable part of the signal.

12. In a device of the character described, a standard adapted to be arranged at a fluid conduct, a signal carried by the standard, the signal embodying a stationary part and a movable part pivotally connected to the stationary part and adapted to be set in a position where it is at the stationary part and to be actuated by gravity to a position where it extends from the stationary part, and float control means for the movable part of the signal.

13. In a device of the character described, a standard adapted to be arranged at a fluid conduct, a signal carried by the standard, the signal comprising a stationary part carried in a vertical position by the standard, a movable part pivotally connected to the lower edge of the stationary part adapted to be set in a substantially vertical position at the stationary part and to be actuated by gravity to a vertical position extending from the lower edge of the stationary part, and means to positively prevent the movable part being moved to a truly vertical position at the stationary part, and float means for releasing the movable part of the signal from its set position.

14. In a device of the character described, a hollow standard adapted to have its lower end arranged in a fluid conduct, a signal mounted on the upper portion of the standard, the signal embodying a part adapted to be set in a position where it extends upwardly substantially vertically and to be actuated therefrom by gravity to a position where it extends downwardly vertically, means to positively prevent the signal part being set in a truly vertical up position, a member extending through the standard, a hook on said member adapted to hold the signal part in the up position, a float arranged around the standard in the conduct and connected with said member to actuate said member so that the hook releases the signal member when the fluid in the conduct reaches a predetermined level, a gauge member mounted on the standard

below the float, and a foot piece mounted on the standard above the float.

15. In a device of the character described, a standard adapted to be arranged in a fluid conduct, a depth gauge on the standard, a signal carried by the standard, and a float for actuating the signal.

In witness that I claim the foregoing I have hereunto subscribed my name this 19th day of May, 1921.

WALTER R. SCHINDLER.

Witness:
VIRGINIA BERINGER.