April 30, 1935. O. L. HALL 1,999,453

DITCH CHECK

Filed Sept. 24, 1934

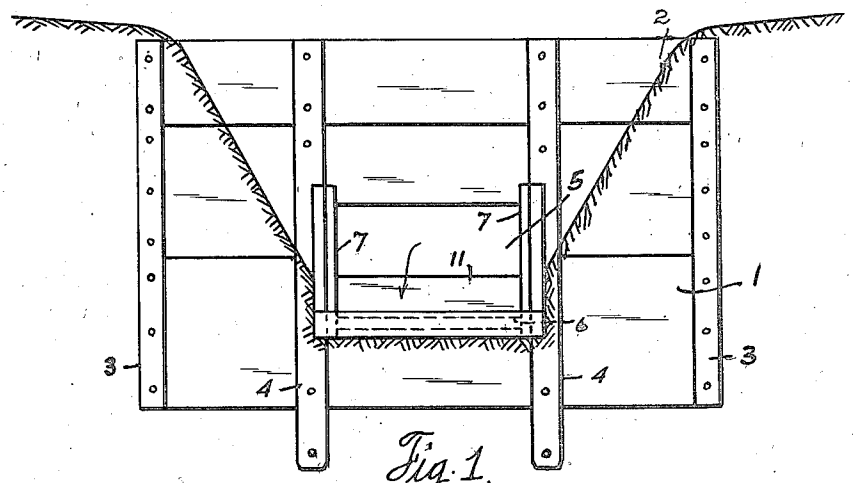


Fig. 1.

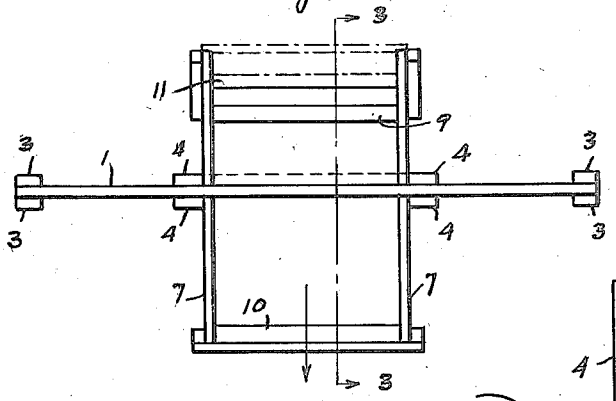


Fig. 2.

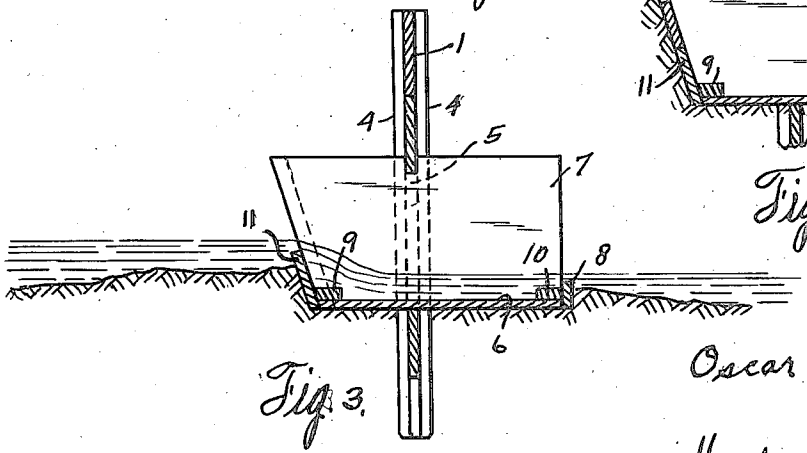


Fig. 3.

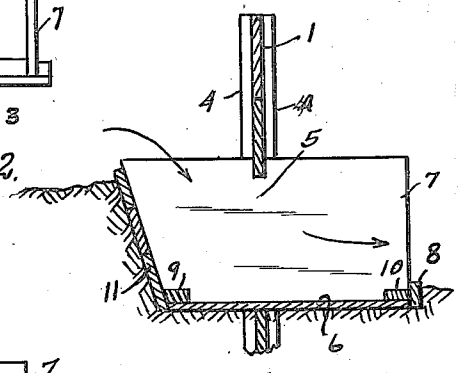


Fig. 4.

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DITCH CHECK

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6 Claims. (Cl. 61—28)

This invention relates to a ditch check.

An object of the invention is to provide a device of the character described designed to be installed at intervals across a ditch, such as a roadway ditch to check the flow so as to prevent the ditch from being washed out to too great a depth, to prevent the caving in of the adjacent walls of the ditch and to preserve the proper contour of the ditch.

Another object of the invention is to provide a ditch check of the character described arranged to catch and hold the earth that would otherwise be washed away, thus forming reinforcements above the checks along the ditch which will reinforce the side walls of the ditch.

A further object of the invention is to provide a ditch check of the character described which is of very simple construction, may be cheaply and easily installed and will be very efficient in use.

With the above and other objects in view, the invention has particular relation to certain novel features of construction, arrangement of parts and use, an example of which is given in this specification and illustrated in the accompanying drawing wherein:

Figure 1 shows an elevational view of the check as viewed from the downstream side.

Figure 2 shows a plan view.

Figure 3 shows a sectional view taken on the line 3—3 of Figure 2, and

Figure 4 shows a sectional view also taken on the line 3—3 of Figure 2 and showing the weir built up.

In the drawing the numeral 1 designates a transverse wall across the ditch 2. This wall is preferably arranged vertically and composed of boards. End cleats 3, 3 are secured to these boards on opposite sides and intermediate cleats 4, 4, are also secured to the wall on opposite sides, said intermediate cleats being extended beneath the wall down into the earth at the bottom of the ditch. The ends and bottom of the wall 1 are buried in the adjacent sides and bottom of the ditch so as to anchor the wall 1 firmly in place.

A section of the wall between the intermediate cleats 4 is cut away as at 5 and fitted through said cut away portion there is a trough having the bottom 6 flush with the bottom of the ditch and the side walls 7, 7 which are secured to the inner sides of the inner cleats 4. This trough extends beyond the wall 1 each way. At its down stream end the trough has a cross weir 8 at the bottom which extends slightly above the bottom 6 of the trough and within the trough, at the upstream and downstream ends, there are the cross cleats 9, 10 which are secured to the bottom 6.

As will be noted from an inspection of Figures 3 and 4 a portion of the wall 1 between the sides 7, 7 of the trough extends down a distance into said trough.

The upstream ends of the sides 7 of the trough diverge upwardly from the vertical and when the check is first installed a transverse sectional weir 11 is located against said upwardly diverging ends at the bottom of the trough. The water flowing down the ditch will dam up against and flow over this weir which will check the force of the current and the deposits carried down stream by the current will collect above said weir 11 and gradually build up and from time to time this weir may be heightened by the addition of other sections as shown in Figure 4. This accumulation of earth formation above the weir 11 will form additional check means so as to break the force of the current and to reinforce the side walls of the ditch. The water pouring over the weir 11 will fall on the bottom 6 so as not to erode a cavity in the ditch bottom below the weir and that portion of the wall 1 between the sides 7 of the trough may be extended downwardly into the trough the desired distance to give the desired capacity so that the volume of fluid flowing through the check may be regulated as desired.

The drawing and description disclose what is now considered to be a preferred form of the invention by way of illustration only, while the broad principle of the invention will be defined by the appended claims.

What I claim is:

1. A ditch check comprising a transverse wall adapted to span a ditch and having a restricted opening, a trough having a bottom and side walls fitted through said opening and extending upstream and downstream beyond the wall, the upstream ends of the side walls diverging, upstream, from the vertical, and a transverse weir at the upstream end of the trough adjacent the bottom of the trough and resting against said upstream ends.

2. A ditch check comprising a transverse wall adapted to span a ditch and having a restricted opening, a trough having a bottom and side walls fitted through said opening, a transverse bottom cleat across the downstream end of the trough and extending above said bottom and a transverse weir across the upstream end of the trough adjacent the bottom, said upstream weir diverging upwardly from the bottom.

3. A ditch check device comprising a wall adapted to span a ditch transversely with its ends and lower margin penetrated into the sides and bottom of the ditch, said wall having a restricted opening, a trough fitted through said opening having a bottom and side walls which extend upstream and downstream beyond the wall, a transverse weir across the downstream end of the trough at the bottom and whose upper margin is above said bottom, a transverse weir across the upstream end of the trough, the upper margins of the sides of the trough extending above the opening.

4. A ditch check comprising a transverse wall adapted to span a ditch, vertical end cleats secured to the ends of the wall and intermediate vertical cleats secured to the wall, said intermediate cleats being extended beneath the wall to penetrate the earth at the bottom of the ditch and form anchors, a section of the wall between the intermediate cleats being cut away to form a restricted opening, a trough having a bottom and side walls, said trough being fitted through said opening, and extending upstream and downstream from the wall, a cross weir at the bottom of the trough at its downstream end which extends slightly above the trough bottom, the upstream ends of the sides of the trough diverging upwardly from the vertical, a transverse sectional weir at the upstream end of the trough resting against said upstream ends, that portion of the wall between the sides of the trough extending downwardly into the trough.

5. A ditch check device comprising a wall adapted to span a ditch transversely, end cleats secured to opposite sides of the wall at its ends and intermediate cleats secured to opposite sides of the wall and whose lower ends are extended beneath the wall to form anchors, said wall having a restricted, approximately rectangular, opening between the intermediate cleats, a trough fitted through said opening and extending each way beyond the wall, said trough being composed of sides, secured to the intermediate cleats, and bottom, a transverse weir across the upstream end of the trough, said weir being formed of transverse sections whereby its height may be varied, a transverse weir across the downstream end of the trough at its bottom, said last-mentioned weir extending slightly above said bottom, the upper margin of said opening being located in a plane beneath the plane of the upper margins of the side walls of the trough.

6. A ditch check device comprising a wall adapted to span a ditch transversely, said wall having a restricted opening therethrough, a trough fitted through said opening and secured to and extending each way beyond the wall, said trough being composed of sides and a bottom, a transverse weir across the up-stream end of the trough, said weir being formed of transverse sections whereby its height may be varied, a transverse weir across the down-stream end of the trough at its bottom, said last-mentioned weir extending slightly above said bottom.

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