W. H. FULLER.

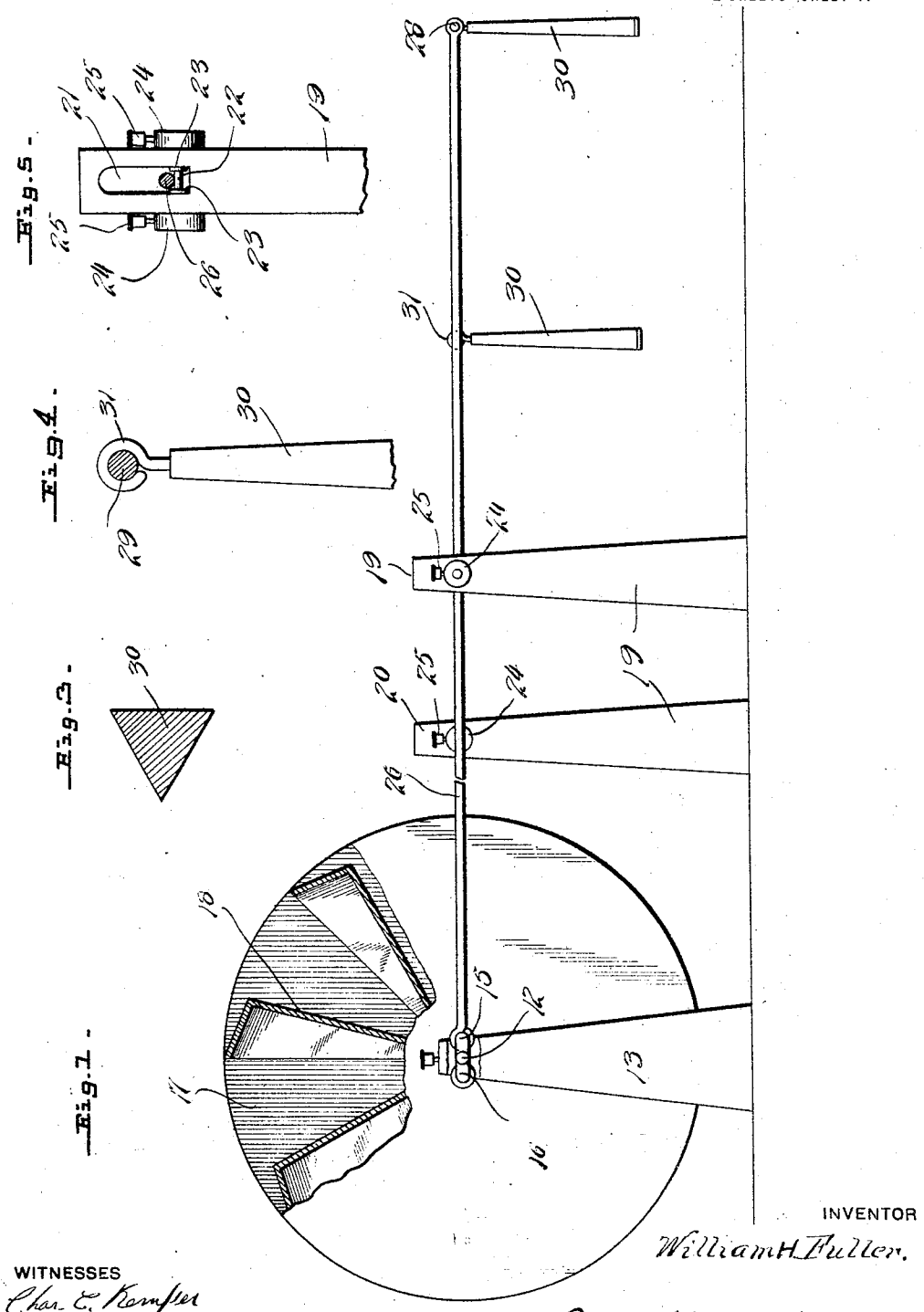
FISH GUARD.

APPLICATION FILED JAN. 18, 1916.

1,234,894.

Patented July 31, 1917.

2 SHEETS—SHEET 1.



INVENTOR

William H. Fuller.

WITNESSES

Chas. E. Kemper

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BY Richard Oliver.

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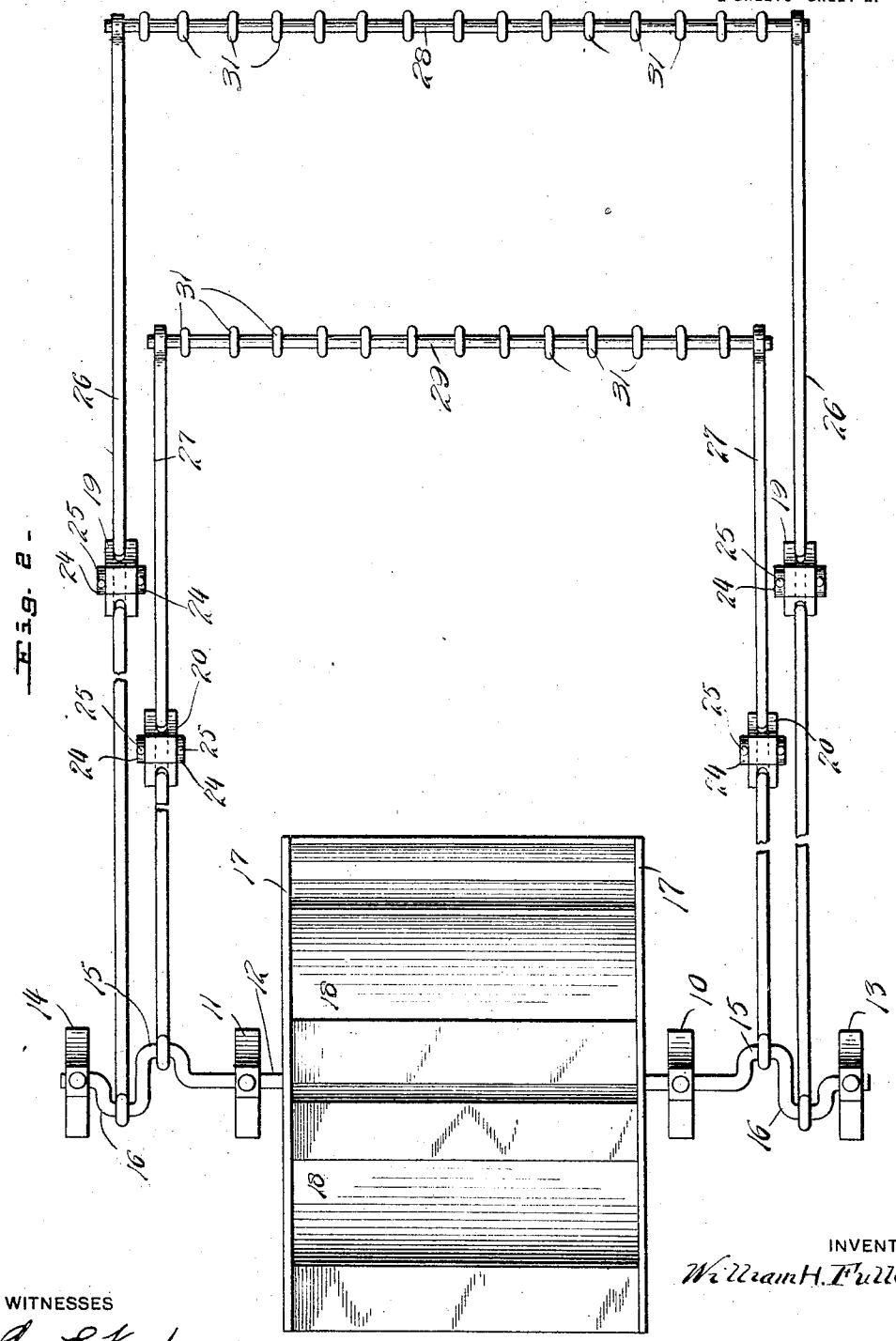


Fig. 2.

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FISH-GUARD.

1,234,894. Specification of Letters Patent. Patented July 31, 1917.

Application filed January 18, 1916. Serial No. 72,796.

To all whom it may concern:

Be it known that I, WILLIAM H. FULLER, a citizen of the United States, residing at Palmetto, in the county of Mantee and State of Florida, have invented certain new and useful Improvements in Fish-Guards, of which the following is a specification.

This invention has particular relation to improvements in fish guards of that type which are susceptible of use in connection with irrigating ditches and the like; and as its primary object it contemplates the provision of a novel device of this nature that may be easily and quickly arranged in position in the ditch or other desired location and one that is so constructed whereby it will not impede or retard the flow of water to any extent and which will permit the free passing of floating debris.

A further object of my invention is to provide a device of the type in question that is extremely simple in construction, strong and durable, and highly practical from both the standpoint of the manufacturer and the standpoint of the user; and which, it is believed, may be manufactured at a comparatively low cost.

Various other objects and advantages will become apparent during the continuance of the following description.

These objects are accomplished by such means as are shown in their preferred form in the accompanying drawings, described in the following specification and then more specifically pointed out in the appended claims.

In the accompanying drawings wherein like characters designate like parts throughout the several views:—

Figure 1 is a view in side elevation of my invention, illustrating a portion thereof broken away to show the construction more clearly.

Fig. 2 is a view in top plan.

Fig. 3 is a view in cross section of one of the agitator members.

Fig. 4 is a view in detail illustrating more clearly the method of mounting the agitator members on the respective spindles.

Fig. 5 is a view in detail of a novel form of bearing that is used and means to impart an oscillatory movement to the several agitating arms.

In reducing my invention to practice I first provide a suitable supporting structure for the operating mechanism, which, in the present embodiment may consist of spaced standards 10 and 11 that are designed to be positioned on the bed of the ditch or other water course in a suitable manner. A carrying shaft 12 is journaled through the respective supporting standards 10 and 11, such as shown in Fig. 2, and has its end portions journaled in members 13 and 14 respectively. Intermediate the supporting members 10 and 13 and 11 and 14, the shaft 12 is bent to form oppositely projecting crank portions 15 and 16 to which the agitator arms may be connected in the manner subsequently described while between the standards 10 and 11, the shaft carries a pair of spaced side disks 17. Although not limiting myself to any specific means for mounting the disks 17 on the shaft, it is pointed out that they are preferably fixed or rather keyed thereto in a desired manner whereby they will turn together with the shaft in the usual manner. Between the disks 17 are fixed a series of radial blades 18 that are formed in the usual manner and adapted to be engaged by the water and in turn impart the desired movement to the shaft 12. It is contemplated to fix the blades 18 to both the shaft 12 and the disks 17 whereby all danger of accidental displacement or dislodgment during the operation of the device is precluded.

In the use of my invention, the blades are to be arranged in the manner whereby they will project a sufficient depth into the water whereby the flow thereof will be sufficient to cause the actuation of the blades and consequently rotate the shaft 12 at the desired extent. The depth at which the blades project into the water may be conveniently regulated by lengthening or shortening the several supporting standards above referred to.

Adjacent the several supporting standards above referred to, I mount other standards 19 and 20, the particular construction of which is shown in Fig. 5. Each of these standards is provided adjacent its upper end, with a through slot 21 to receive the respective one of the agitator arms which will be presently described, and is further

provided with a revoluble bearing 22 to project laterally through the slot and support the adjacent arms.

Any suitable means may be employed for the purpose of positioning the roller bearings 22 in place, however, in the present embodiment I have shown the same as carried by spaced sleeves 23 that are journaled in the standards, as shown in Fig. 5, the latter carrying head portions 24 at the sides of the standards through which the bearings may be oiled by the cups 25. In this manner it will be noted that the several bearings may be kept in an adequately lubricated condition at all times; thus eliminating wear due to the friction generated between the bearings and adjacent sleeves.

Agitator arms 26 and 27 respectively are passed through the slots 21 of the several supporting standards 19 and 20, such as shown in Fig. 5 so as to rest on the adjacent bearings 22, the inner ends of the arms having connection with the cranks 15 and 16 respectively as shown in Fig. 2, the outer ends of the arms 26 being connected by a carrying spindle 28 while the outer ends of the arms 27, which terminate short of the outer ends of the other arms, may be connected by another spindle 29.

I further provide a series of agitator members 30, such as shown in Figs. 3 and 4 that may be constructed of a comparatively heavy material and provided with suitable eye bearings 31 by which they may be loosely engaged with the spindles 28 and 29. The members 30 may be of any desired form or configuration; however, in the present embodiment I have shown the same to be substantially wedge-shaped or triangular shaped when viewed in cross section, such as shown in Fig. 3, this being done to eliminate any retarding of the flow of the water. On the other hand the several agitator members are preferably painted in varying colors of a brilliant nature although this too is a mere arbitrary feature.

Upon reference to Fig. 1 it will be noted that when the outer ends of the arms 26 are in an elevated position, the outer ends of the other arms will be in their lowermost position and conversely when the members on the spindle 28 are submerged the members on the other spindle will be elevated a certain extent out of the water. Consequently it will be seen that during the operation of the device, the agitator members will be continually submerged and withdrawn from the water, one set thereof being always submerged while the other set is in a position slightly above the water.

The operation of my invention is substantially as follows:—

The device is preferably arranged in the manner above stated in the bed of a stream, irrigating ditch or the like, the agitator arms facing up stream while the radial blades 18 are arranged to project a desired distance into the water. The flowing of the water in the direction of the flowing of the stream will cause the rotation of the blades and the consequent actuation of the shaft 12. Upon rotation of the shaft 12, the cranks 15 and 16 thereof will cause the depression and the elevation of the inner ends of the agitator arms 26 and 27 and also a slight reciprocatory movement thereof. Therefore it will be seen that the agitator members 30 will be submerged and emerged from the water at certain intervals, thus not only tending to agitate the water at this point but presents a formidable defense which even small fish and minnows will not pass. The varying colors of the agitator members also serve to scare the fish and as a consequence, the latter do not venture past the device.

From the foregoing it will be noted that the device may be quickly and easily arranged in the desired position in the stream or irrigating ditch and kept in operation at all times. It will be noted that the bearings of the shaft 12 as well as the agitator arms are above the water at all times, thus precluding the liability of rusting, etc. It will also be noted that the arms 26 and 27 do not project into the water thereby permitting floating debris to pass freely down stream. In view of the fact that the advantages and novel features of my invention appear to be understood from the foregoing, it is believed that further detail description is deemed unnecessary.

In reducing my invention to practice I find that the form referred to herein as the most practical and preferred embodiment is the most efficient, but realizing that certain conditions will necessarily vary in concurrence with the adoption of my device, I desire to emphasize the fact that various minor changes in the details of construction and in the proportion of parts may be resorted to when required without sacrificing any of the advantages of my invention as defined in the appended claims.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a fish guard, a structure to be operated by the velocity of the flowing water, agitator arms associated with said structure, means to impart a combined rocking and reciprocatory movement to said arms, and agitator members to be associated with said arms, and submerged and emerged in and from the water, as and for the purpose specified.

2. In a fish guard, a structure to be operated by the flowing water, movable agitator arms associated with said structure, means to impart a rocking movement to said arms,

spindles connecting the free outer ends of said arms, and agitator members depending from said spindles to be submerged in the water at certain times, as and for the purpose specified.

3. In a fish guard, a structure to be operated by the flowing water, agitator arms to be associated with said structure, means to impart a combined rocking and reciprocatory movement to said arms, spindles connecting said arms, and depending agitator members carried by said spindles, the agitator members of one spindle being submerged independently of the agitator members of the other spindle, as and for the purpose specified.

4. In a fish guard, a structure to be operated by the flowing water, agitator arms associated with said structure, means supporting said agitator arms intermediate their ends, spindles connecting the other ends of certain of said agitator arms, and agitator members loosely connected with said spindles, as and for the purpose specified.

5. In a fish guard, a supporting structure, operating mechanism carried thereby, agitator arms connected at one end with said operating mechanism, means supporting said agitator arms intermediate their ends whereby they may be given a rocking movement by said operating mechanism, spindles connecting the outer ends of certain of said arms, and agitator members loosely connected with said spindles, as and for the purpose specified.

6. In a fish guard, operating mechanism, means to support said operating mechanism, agitator arms, means to support said agitator arms intermediate their ends, said agitator arms being connected with said operating mechanism at one end whereby they may be given a combined rocking and reciprocatory movement, spindles connecting the other ends of said agitator arms, and a series of depending agitator members loosely connected with said spindles, the agitator members of one of said spindles to be moved oppositely to the members of the other spindle, as and for the purpose specified.

7. In a fish guard, operating mechanism to be arranged in the path of the flowing water, agitating structures to be associated with said operating mechanism, means to support said agitating structures substantially intermediate their ends whereby a rocking movement may be imparted thereto to raise and lower the free ends thereof, and a series of agitator members loosely connected with said agitating structures, as and for the purpose specified.

8. A device of the character described comprising a rotatably mounted crank shaft, supporting arms, means to pivotally and slidably mount the supporting arms, cross bars connecting the free end portions of the supporting arms, the opposite end portions of the supporting arms being loosely mounted upon the crank extensions of the crank shaft, agitators loosely suspended from the cross bars, and means for rotating the crank shaft.

9. A device of the character described comprising slidably and pivotally mounted supporting arms, spindles connecting the end portions of the supporting arms, agitators loosely mounted upon the spindles and suspended beneath the spindles, and operating means for imparting longitudinal sliding movement and vertical swinging movement to the supporting arms.

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

WILLIAM H. FULLER.

Witnesses:
F. N. HIBBLE,
W. J. DAWSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."