No. 840,973. PATENTED JAN. 8, 1907.

W S G. TODD.

SCREEN.

APPLICATION FILED MAY 29, 1906.

Fig. 1.

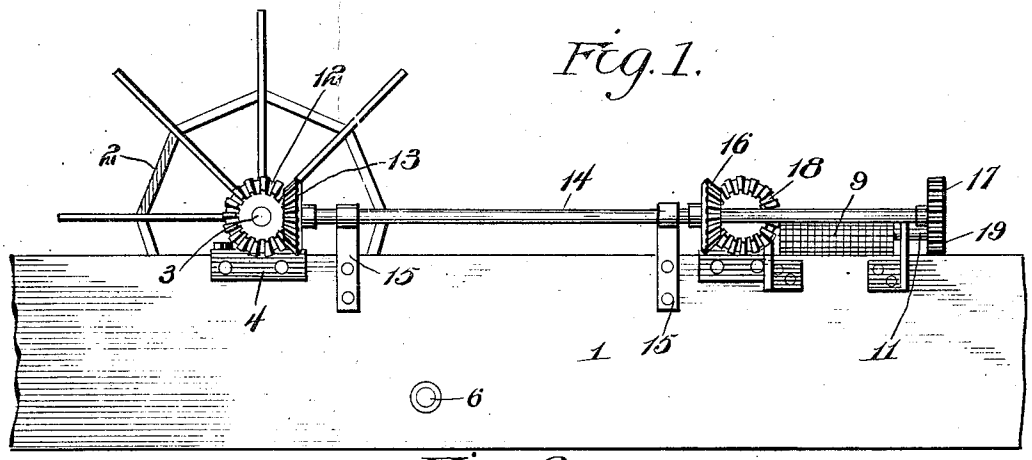



Fig. 2.

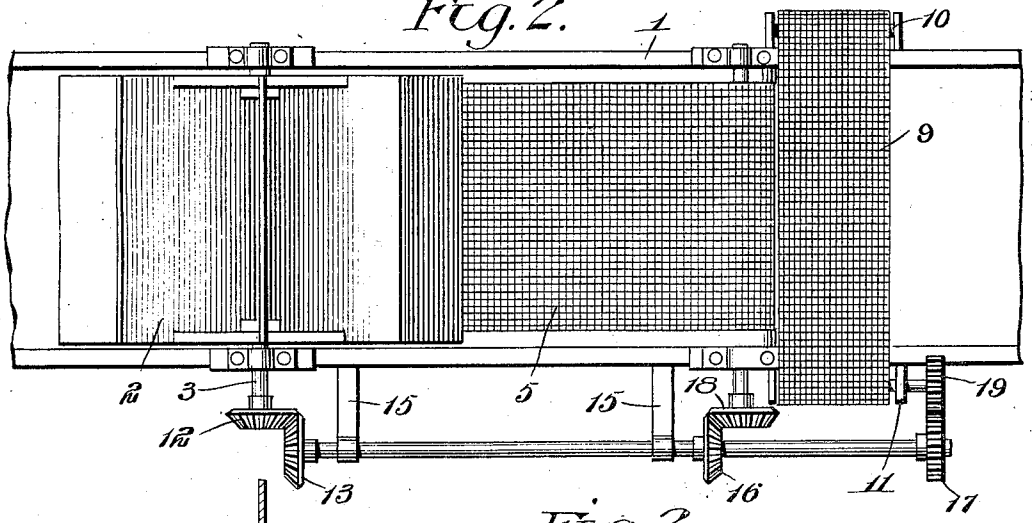
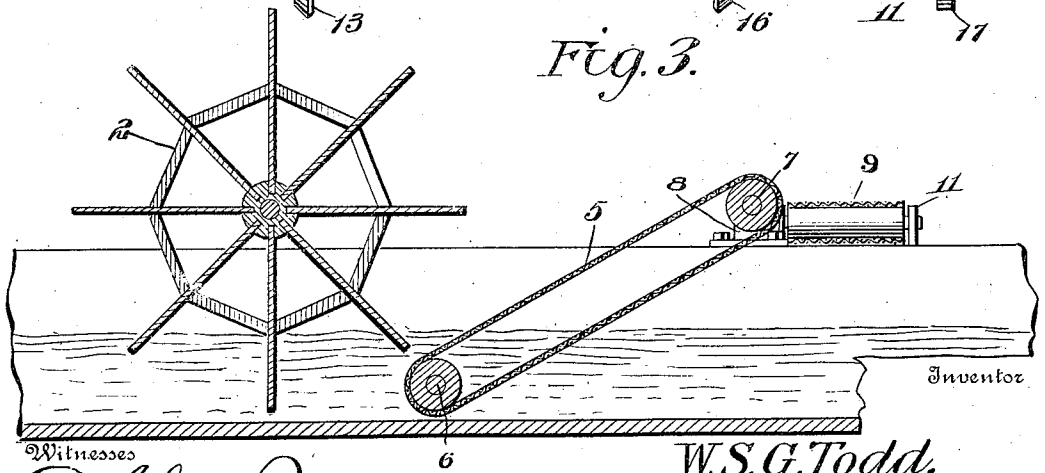



Fig. 3.




Witnesses

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# UNITED STATES PATENT OFFICE.

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## SCREEN.

No. 840,973. Specification of Letters Patent. Patented Jan. 8, 1907.

Application filed May 29, 1906. Serial No. 319,383.

*To all whom it may concern:*

Be it known that I, W. S. GEORGE TODD, a citizen of the United States of America, residing at Boulder Creek, in the county of Santa Cruz and State of California, have invented new and useful Improvements in Screens, of which the following is a specification.

This invention relates to a screen for use in flumes, ditches, and other watercourses leading to mills or other water-driven power-plants for the purpose of preventing fish from passing to the power-wheel and being injured or destroyed and for intercepting and discharging from the flume or watercourse all driftwood and other debris; the object of the invention being to provide a simple construction of apparatus which will operate effectually for these purposes.

In the accompanying drawings, Figure 1 is a side elevation of a flume embodying my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a longitudinal section through the flume and screen mechanism.

Referring to the drawings, the numeral 1 designates a flume or other watercourse within which is arranged an undershot water-wheel 2, the shaft 3 of which is journaled in suitable bearings 4 upon the side walls of the flume.

Arranged in advance of said water-wheel in the course of flow of the water is an endless belt 5, composed of wire mesh or any other suitable screen material. This belt corresponds substantially in width with the width of the flume and is arranged at an upward and forward incline and passes around pulleys on transverse shafts 6 and 7. The shaft 6 is disposed near the bottom of the flume just in advance of the water-wheel and is journaled in the side walls of the flume, while the shaft 7 is arranged a suitable distance in advance of the wheel and is journaled in bearings 8, secured to the upper edges of the side walls of the flume. The function of this screen 5 is to form a barrier to prevent fish and drift matter from passing to the power-wheel of the mill and to elevate the drift matter to the top of the flume.

A transverse discharge-screen 9 is arranged at the top of the flume adjacent the upper end of the screen 5 and consists of an endless wire or reticulated belt passing around pulleys on shafts 10 and 11, journaled in bearings on the opposite side walls of the flume. The drift matter arrested in its passage through the flume by the screen-belt 5 is designed to be elevated by said belt and deposited upon the belt 9 and to be conveyed by the latter to one side of the flume and discharged. If desired, the drift matter discharged by the belt 9 may pass into a suitable receptacle or to an auxiliary canal leading back to the creek or source of water-supply for the flume. In practice the belts are not designed to elevate and convey from the flume any fish that may come in contact with the screen 5; but if small fish should be caught and elevated by said belt the provision of the auxiliary canal referred to, into which they will be discharged, will enable them to pass back to the creek or source of supply without injury. The apparatus will thus meet all the requirements of the law of those States having laws pertaining to fish protection or preservation, under which the operators of mills of this character are compelled to use screens of some type to prevent fish from passing through the flume to the power-wheel.

The shaft of the water-wheel carries a beveled gear 12, meshing with a corresponding gear 13 on a longitudinal shaft 14, journaled in bearings 15 on one side of the flume, which shaft 14 carries a second beveled gear 16 and a spur-gear 17, meshing, respectively, with corresponding gears 18 and 19 on the upper shaft 7 of the screen 5 and the adjacent shaft 11 of the screen 9. It will thus be seen that in operation the wheel 2 will be turned by the flowing current of water and will transfer motion to the screens 5 and 9 to discharge the driftwood or other material coming in contact with said screen 5.

Having thus described the invention, what is claimed as new is—

1. In a device of the character described, the combination of a flume, a water-wheel arranged therein, a barrier-screen disposed in the flume and leading upward therefrom, a discharge-screen extending across the flume adjacent the delivery end of said barrier-screen, and means for operating said screens from the water-wheel.

2. In a device of the character described, the combination of a flume, a water-wheel arranged therein, a screen-belt leading on an upward inclination from the water-wheel to the top of the flume, a transversely-extending discharge-screen arranged adjacent the

upper end of the barrier-screen, and gearing driven by the water-wheel for imparting motion to said screens.

3. In a device of the character described, the combination of a flume, a water-wheel arranged therein, a discharge-screen extending transversely across the top of the flume, an inclined barrier-screen extending upwardly from the bottom of the flume to the discharge-screen and between said screen and the water-wheel, shafts supporting said wheel and screens, and gearing connecting said shafts, whereby the action of the water-wheel will drive said screens.

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

W. S. GEORGE TODD.

Witnesses:
T. S. CLELAND,
W. H. DOOL.