(No Model.)

A. C. WILLIS.

FLOOD GATE.

No. 552,080. Patented Dec. 24, 1895.

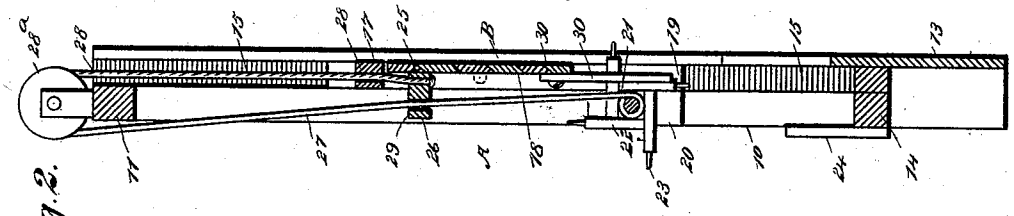

Fig. 2.

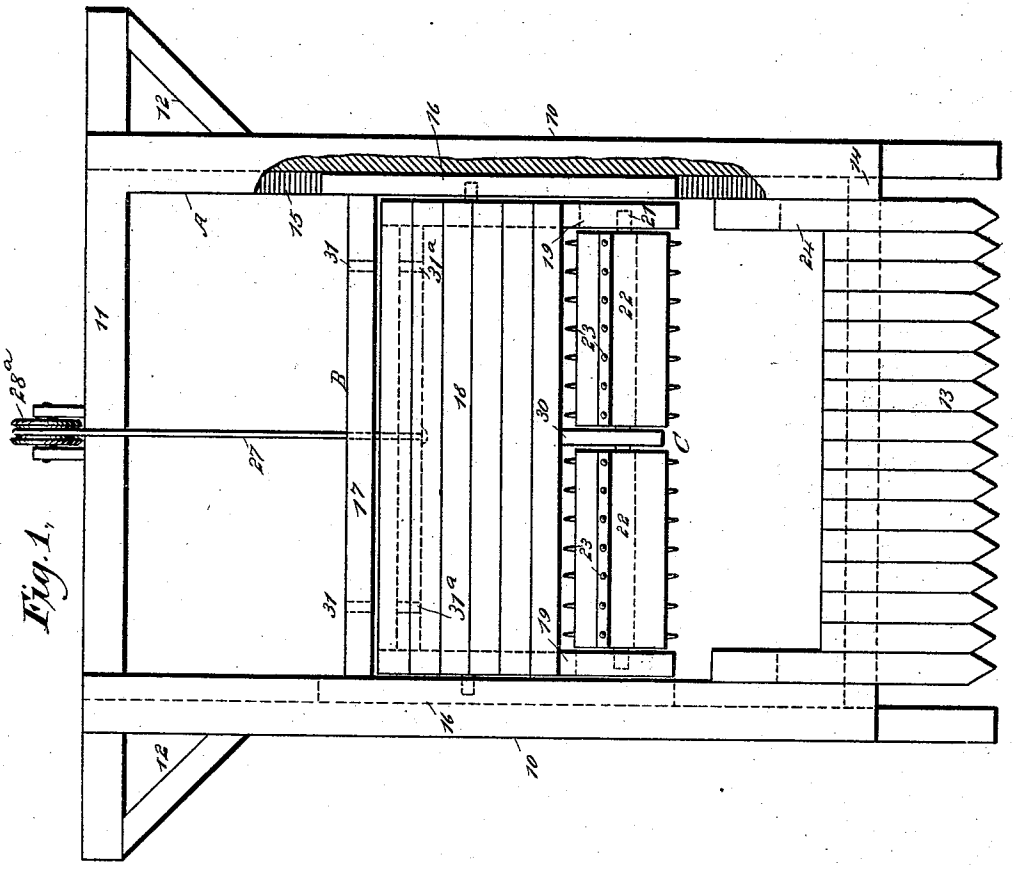

Fig. 1.

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AUGUSTUS C. WILLIS, OF HERALD, ILLINOIS.

FLOOD-GATE.

SPECIFICATION forming part of Letters Patent No. 552,080, dated December 24, 1895.

Application filed May 21, 1895. Serial No. 550,081. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS C. WILLIS, of Herald, in the county of White and State of Illinois, have invented a new and useful Improvement in Flood-Gates, of which the following is a full, clear, and exact description.

My invention relates to an improvement in flood-gates, and it has for its object to provide a gate which will automatically regulate itself to the rise and fall of the water, swing outwardly with the current and not bind at its sides; also to provide means for holding the gate closed against the passage of stock at low water, and finally to provide the gate with current-wheels having spiked paddles to assist logs and drift material to pass.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the figures.

Figure 1 is a front elevation of the improved gate, and Fig. 2 is a vertical longitudinal section taken near the center thereof.

In carrying out the invention a supporting-frame A is provided for the gate B, and said supporting-frame comprises two uprights 10, connected at the top by a cross-bar 11, the cross-bar extending beyond the uprights and being supported at its extremities by diagonal braces 12. In this manner the supporting-frame may be strengthened without interfering with the action of the gate. At the bottom of the supporting-frame a number of slats or pickets 13 are secured to the bottom cross-bar or mud-sill 14, the pickets and the lower extremities of the uprights of the supporting-frame being adapted to be driven into the bed of the stream, thus holding the supporting-frame firmly in the position in which it may be placed. In the inner face of each upright of the supporting-frame a slideway 15 is made, which extends from the mud-sill through the top portion of the uprights. These slideways are adapted to receive bars 16, which are connected at the top by a third bar 17, horizontally located, and these three bars constitute a frame for the gate proper, the latter being designated in the drawings by the reference-numeral 18.

The gate comprises a body, which is preferably constructed of plank, feather-edged on opposite sides and lapped so as to prevent catching of drift-wood, the planking being attached to side bars 19, the latter extending below the body proper a predetermined distance. At the lower extremity of the rear portion of each gate side bar 19 a block 20 is firmly secured, and the said blocks constitute journals for a double paddle-wheel C, which comprises two wheels mounted securely upon a common axle and spaced apart. These wheels are of peculiar construction, and are built directly on the axle, the axle 21, as shown in Fig. 2, being rectangular or polygonal in cross-section except at its center. Upon the four sides of this axle planks 22 are secured parallel with the mud-sill and bottom of the body of the gate, the planks projecting a predetermined distance beyond the axle and beyond each other. In this manner the paddle-wheels may be expeditiously and conveniently as well as economically constructed. Preferably all the paddles are provided with spikes 23 in their outer edges, the said spikes being adapted to take hold of drift-wood, or other floating material, and assist the passage of such material beneath the gate.

The gate is pivoted in the frame comprising the bars 16 and 17 in such manner that its bottom portion may be forced outwardly in the direction of the current; and in order that the gate may not be pushed open by stock when the water is very low plates 24 are secured to the mud-sill and to the uprights 10, forming barriers to the outward movement of the gate when resting on the sill, or practically so. The end pickets 13 of the supporting-frame are carried upward so as to form guides for the lower ends of the gate proper.

At the back of the gate a cross-bar 25 is attached, and a batten 26 is preferably secured to the central portion of this bar. One end of a cord or cable 27 is secured in the central portion of the gate cross-bar 25, being carried upward through an opening 28 made in the central portion of the top bar of the gate-frame, and the said cord or cable is then car-

ried over a pulley 28ª at the top of the supporting-frame and down through an opening 29 in the said batten 26 to an attachment to that portion of the axle 21 of the paddle-wheels which is between the wheels, this portion being rounded or cylindrical. Therefore it is evident that as the water rises and revolves the paddle-wheels the cord or cable will be wound upon the axle, and the gate will be automatically raised to the required extent, and as the water becomes low the gate will automatically lower itself. A fender 30 is attached to the central portion of the gate proper, being made to extend downward in front of the cable or cord attached to the axle to protect the same.

Registering openings 31 and 31ª are made respectively in the upper portion of the gate-frame and in the gate proper to receive pins, so as to prevent the gate from moving outward when desired, making it rigid to its frame. By hanging the gate at its center the greatest possible amount of friction is removed from the sides of the sliding gate-frame.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A flood gate the paddles of which are provided with a series of sharpened projections adapted for engagement with drift wood and to assist the same in passing the gate, as and for the purpose specified.

2. In a flood gate, a supporting frame, a gate having sliding movement therein and capable of a pivotal movement also, and paddle wheels carried by the said gate and adapted to be acted upon by the current, as and for the purpose set forth.

3. A flood gate, the same comprising a supporting frame, a gate frame having sliding movement in the supporting frame, a gate pivoted to the said frame, a shaft journaled below the gate and in bearings attached thereto, paddle wheels secured to the said shaft, and a cable attached to the shaft, the said cable being carried upward through a guide located upon the central portion of the gate cross bar and over a pulley at the top of the supporting frame, thence downward through an opening in the cross bar of the gate frame, being attached to the gate cross bar, whereby the cable is located entirely at the central portion of the gate and the gate is raised and lowered automatically by the rise and fall of the water and the action of the current, and whereby also the sliding frame of the gate is relieved from tension to a maximum extent, as and for the purpose set forth.

4. In a flood gate, the combination, with a supporting frame provided with a series of pickets attached to the mud sill thereof, the uprights of the frame being provided with slideways and with plates extending over and beyond the mud sill at its ends, of a frame held to slide in the ways of the supporting frame, a gate pivoted in the said sliding frame, the side bars of the gate extending below the body thereof, and provided with bearings at their lower ends, a shaft journaled in said bearings, paddle wheels secured on the said shaft and provided with spikes at their outer edges, a pulley located on the top of the supporting frame, a cable attached to the central portion of the shaft, passed upward through guides and over the said pulley, the said cable being likewise carried downward to an attachment to the gate, as and for the purpose specified.

5. In a flood gate, the combination, with the gate and bearings located thereon, of a shaft squared for the greater portion of its length and mounted to turn in said bearings, and paddle wheels located on the said shaft, the same consisting of plates or planks secured to the straight sides of the shaft and extending beyond each other, as and for the purpose specified.

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