T. IRVINE.

Sheer-Boom.

No. 159,328. Patented Feb. 2, 1875.

Fig. 1.

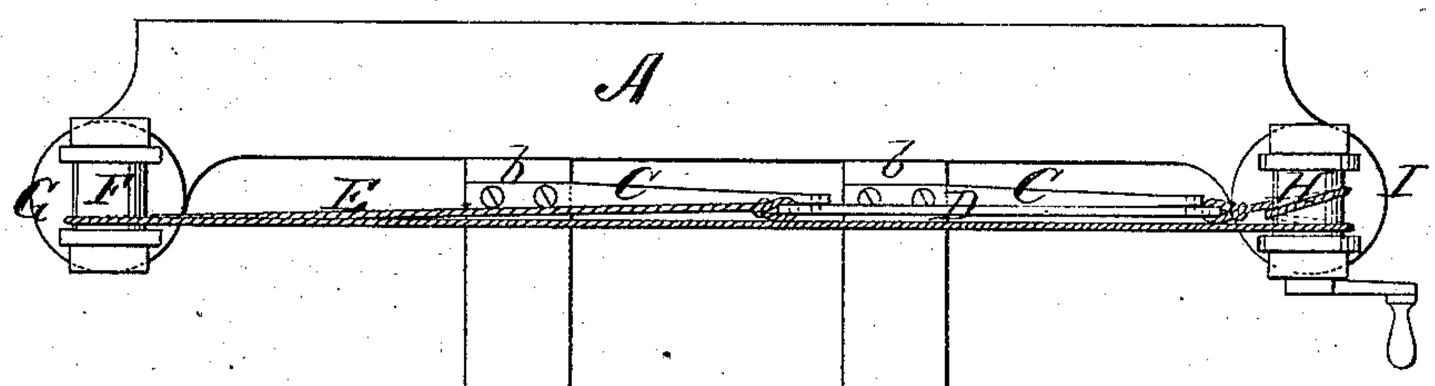


Fig. 2.

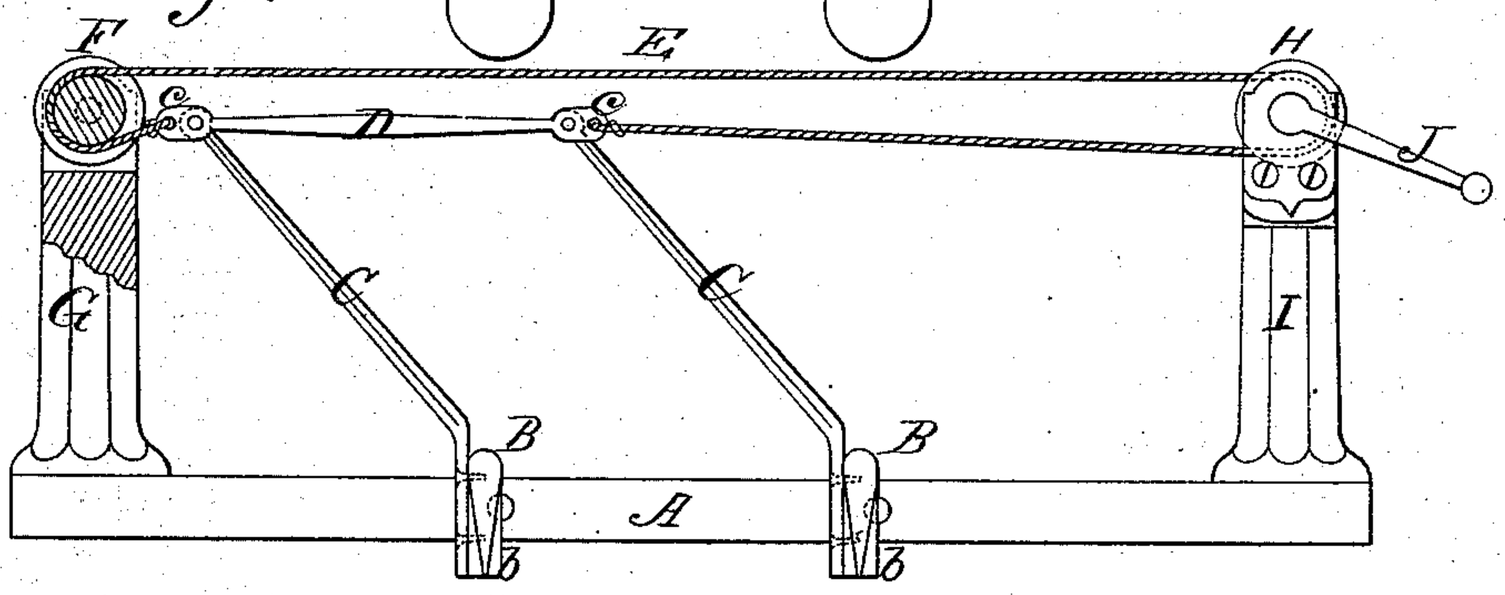
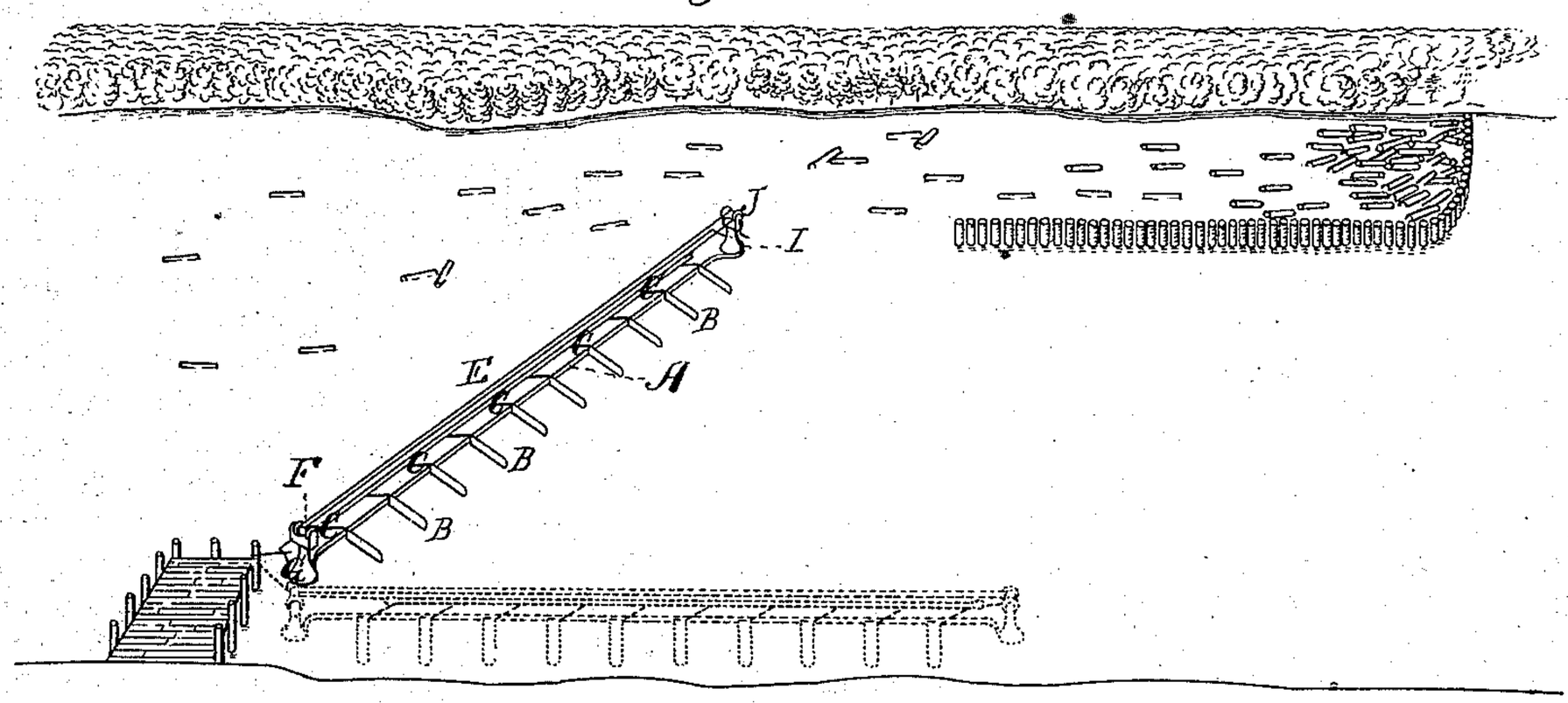


Fig. 3.



WITNESSES

Villette Anderson

F. J. Masi

INVENTOR,

Thomas Irvine,

Cushman Poseur & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

THOMAS IRVINE, OF MUSCATINE, IOWA.

IMPROVEMENT IN SHEER-BOOMS.

Specification forming part of Letters Patent No. **159,328**, dated February 2, 1875; application filed January 9, 1875.

To all whom it may concern:

Be it known that I, THOMAS IRVINE, of Muscatine, in the county of Muscatine and State of Iowa, have invented certain new and useful Improvements in Rudder-Booms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

This invention has relation to improvements in booms which are designed for arresting and storing at any desired point logs floating down stream.

The object of the invention is to render the booms usually applied to this purpose automatic in their action—that is to say, automatic in assuming a position across stream, thereby rendering them specially adaptable to navigable rivers. To this end the nature of the invention consists in combining with a reach-boom, adapted to be pivoted to a pier-head, a suitable number of revolving fins, applied to one of the edges of the said boom, which fins are adapted to be arranged with their broad surfaces exposed to the current, whereby I am enabled to utilize its force for the purpose of automatically placing the boom in position across stream, or, by bringing the said fins with their narrow edges to the current, allow it to swing down stream when not in use, or for the purpose of allowing a steamer to pass, as will be hereinafter more fully explained.

In the annexed drawings, A designates a sheer-boom of suitable dimensions, and preferably of wood, in connection with which I propose to show the construction and mode of operation of my improved rudder-fins. This boom is designed to be pivoted at one end to a pier-head or other suitable wharf projecting into the stream, and when in position will stretch obliquely out into the stream a sufficient distance to arrest the progress of logs floating down stream, and to direct them into a storage-yard formed of piles driven into the bottom of the river at its opposite side, and a suitable distance below the point at which the sheer-boom is pivoted. B designates a number of fins, pivoted in any suitable manner to the rear or down-stream edge of boom A. These fins are in cross-section, preferably wedge-shaped, and are arranged with reference to the boom in a position vertical in a horizontal plane to the rear edge of the same.

C designates levers, preferably of metal, which are rigidly secured in any suitable manner to the butts *b* of fins B, as shown in Figure 1. The upper free ends of these levers are pivotally connected by a metallic rod, D, having an eye, *c*, in each end, by means of which a rope or cable, E, is conveniently attached to it, for the purpose of simultaneously actuating the fins B, above described. This cable passes over a pulley-wheel, F, having its bearings in the upper end of a standard, G, at the shore-end of boom A, passing thence over a windlass or winding-drum, H, arranged in bearings upon the upper end of a second standard, I, at the other end of the said boom, each end of the said cable being rigidly secured to an eye, *e*, of connecting-rod D.

When the windlass H is actuated by a suitable crank-arm, J, in a given direction, the cable will be wound up on the drum, actuating levers C to rotate fin B simultaneously into position, with their flat surfaces exposed to the full force of the current. The sheer-boom being in position along shore, as shown in Fig. 3, the force of the current will, acting upon the flat surface of the blades, force its free end out into the stream until the power exerted by the current upon the front edge of the booms and the flat surface of the fins is equalized, when the boom will be held stationary by the counterbalancing forces. Should it be found, when thus anchored, that the position of the boom is too directly across the river, its obliquity thereto may be increased by feathering the fins, thereby decreasing the power exerted by the tide upon their surfaces, and allowing the boom to swing down stream until the counterbalancing effect of the current upon the boom and its fins is again produced, when the former will become stationary.

When the logs have all been gathered into the pens, or when, from any cause, it becomes necessary to clear the river of the booms, crank-arm J is reversed, thereby bringing the fins out of the current with their flat surfaces upward, when the current, acting upon the

sheer-boom relieved of the counterbalancing force of the current upon the fins, will cause it to swing down stream into the position shown in dotted lines, Fig. 3.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a device for arresting and storing floating logs, the combination, with the sheer-boom A, of the revolving rudder-fins B, substantially as specified.

2. The combination, with the levers C, actuating-fins B, of the connecting-rod D, substantially as and for the purpose specified.

3. The combination, with the vertically-vibrating levers C of fins B, of the cable E, pulley F, and winding-drum H, substantially as specified.

4. The fins B, adapted to revolve on their long axes, for the purpose of exposing their flat surfaces or their edges to the current, as and for the purpose specified.

In testimony that I claim the foregoing, I have hereunto set my hand this 30th day of November, 1874.

THOS. IRVINE.

Witnesses:

C. G. MAYBURY,

M. S. NORTON.