

(No Model.)

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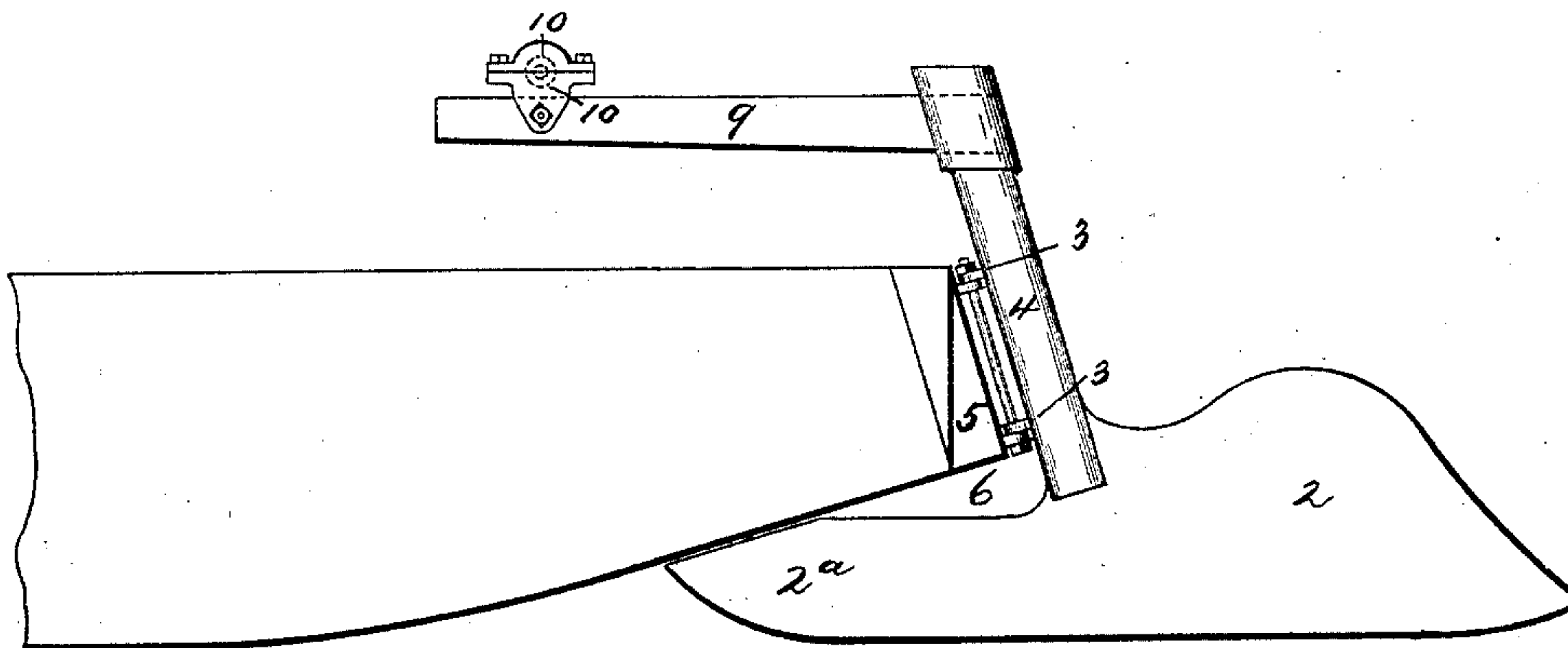
J. M. SWEENEY.

RUDDER FOR BOATS.

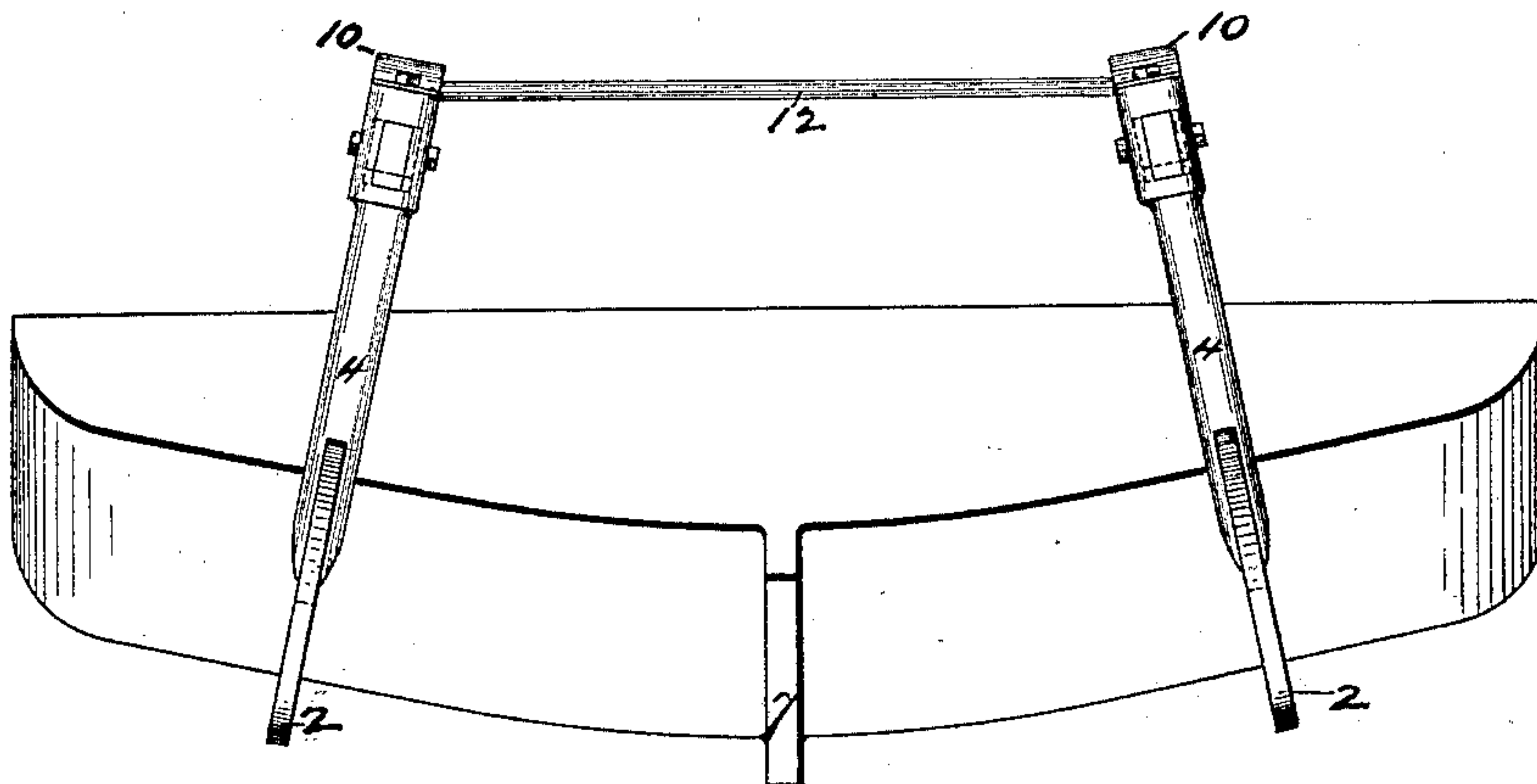
No. 360,488.

Patented Apr. 5, 1887.

*Fig. 1.*



*Fig. 2.*



*Witnesses.*

*W. A. Corwin*  
*H. L. Gill*

*Inventor.*

*John M. Sweeney*  
*by Baxwell & Ken*  
*his Attorneys*

(No Model.)

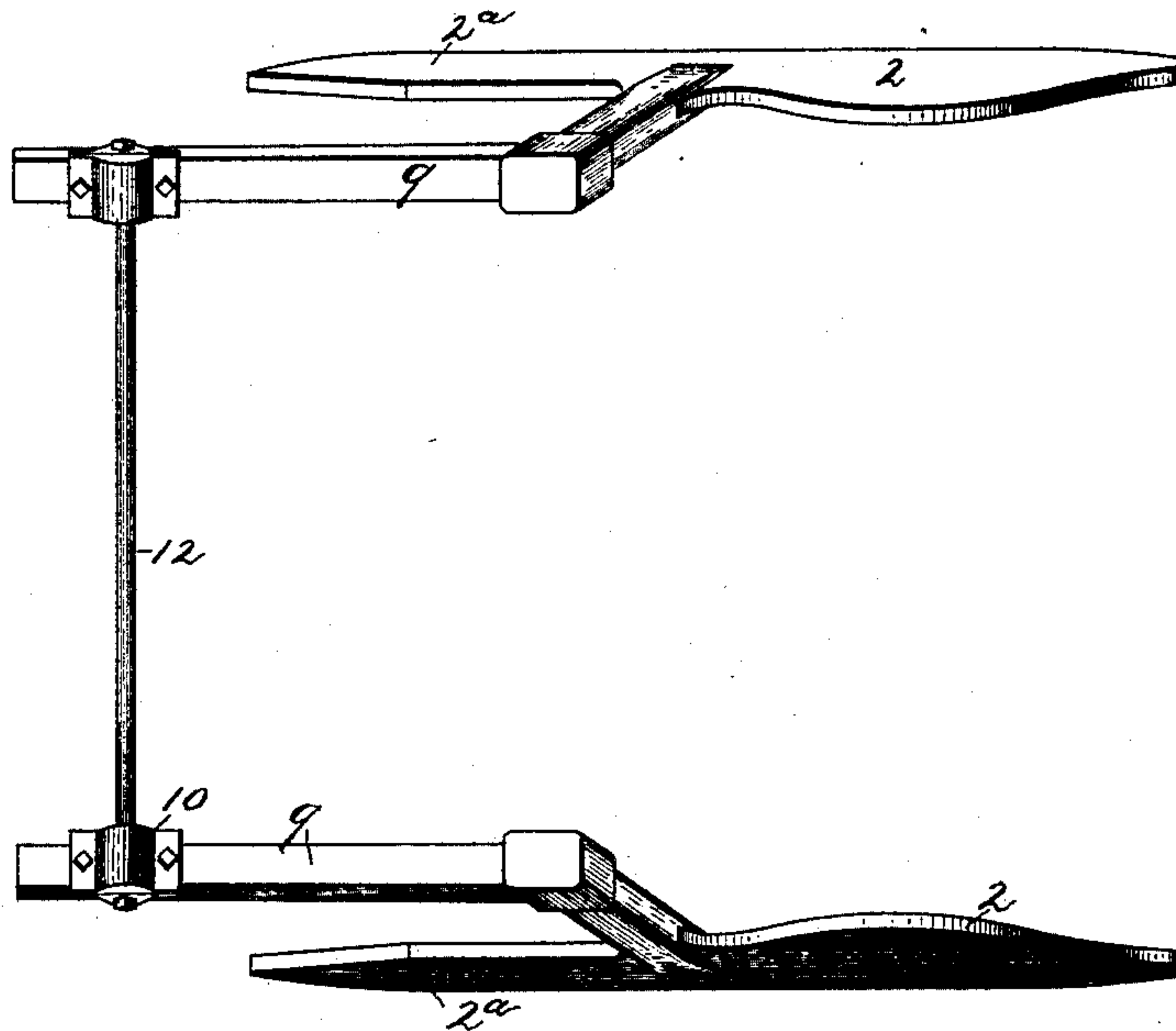
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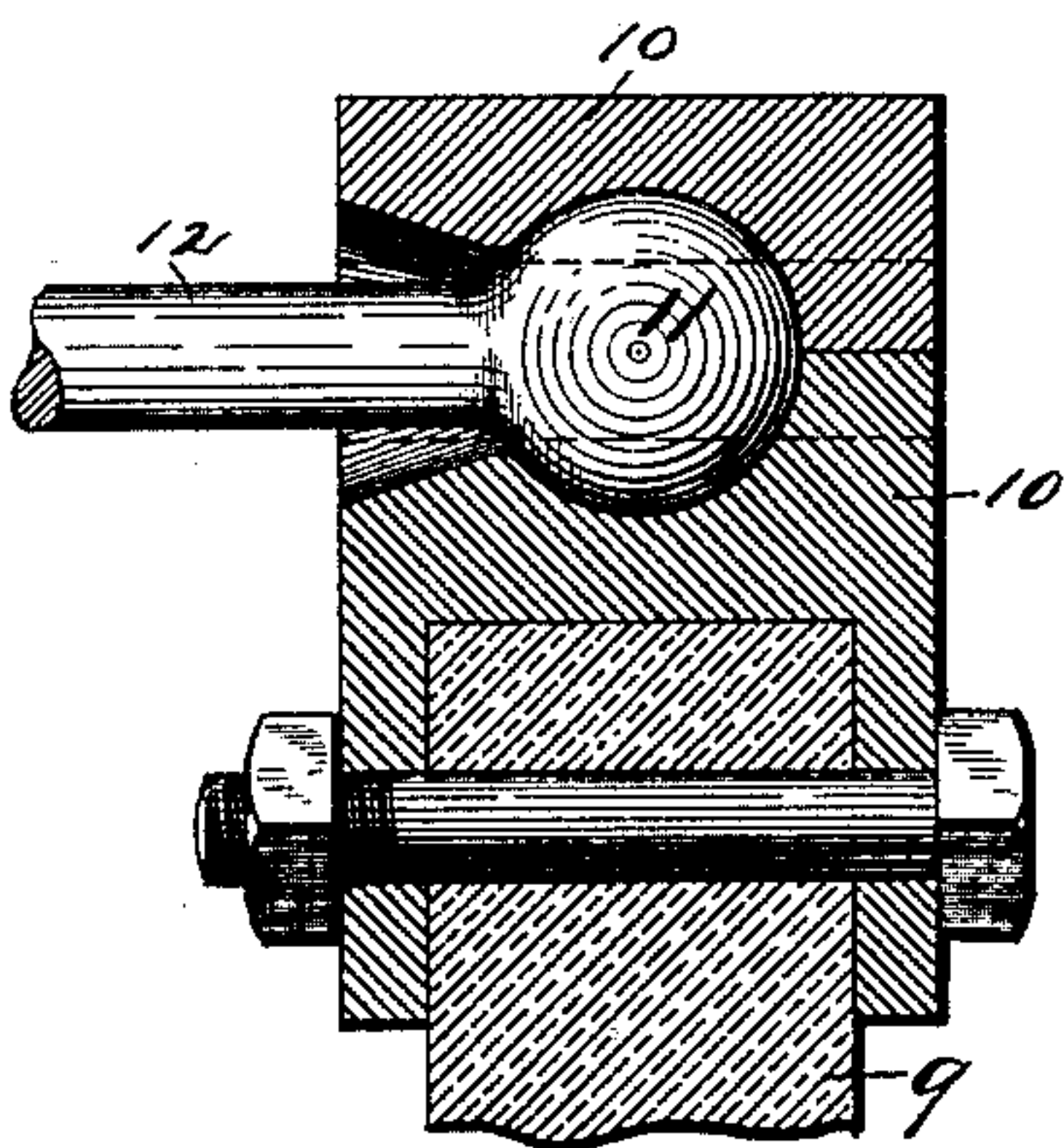
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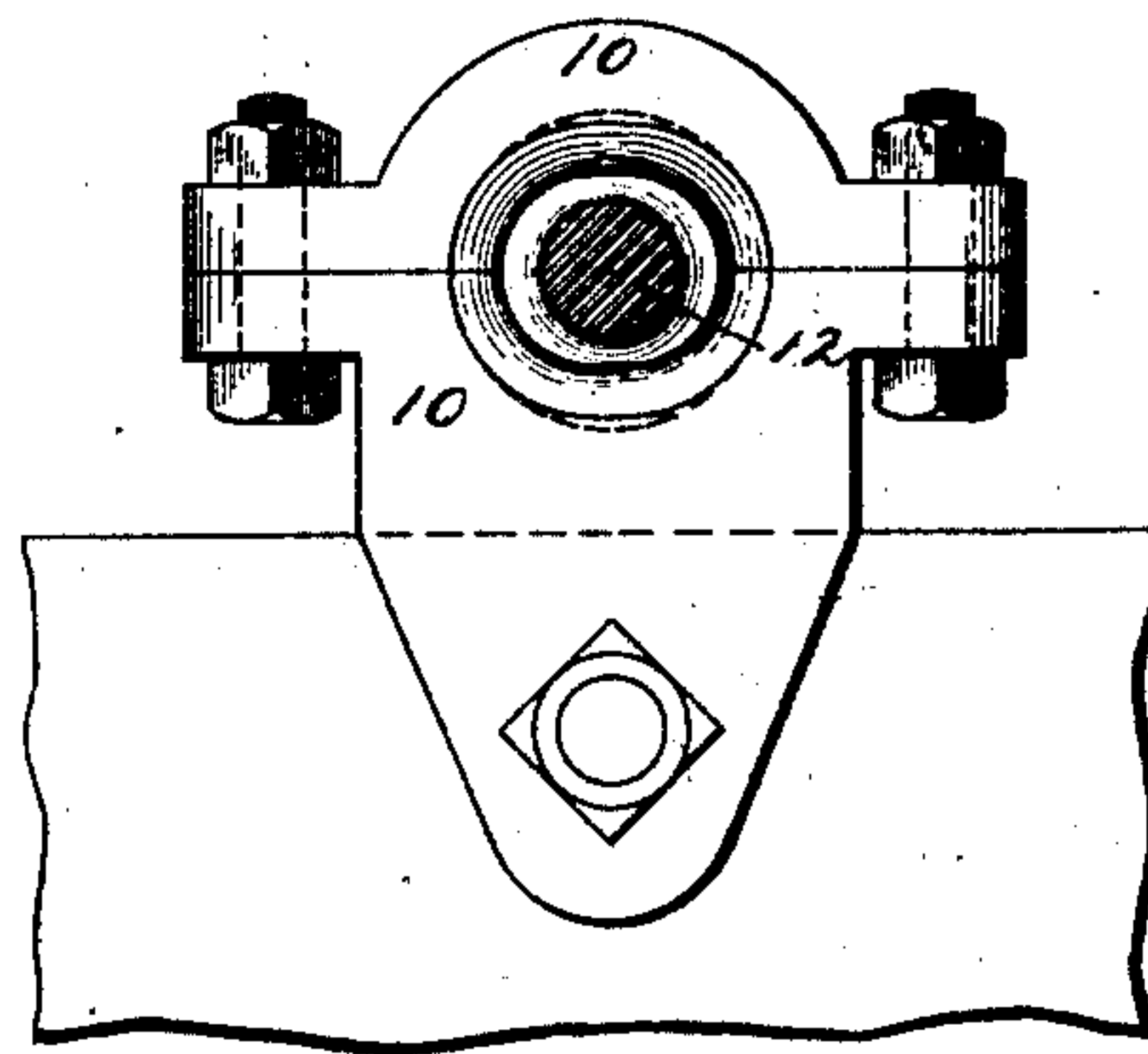
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



*Witnesses.*

*W. B. Conner*  
*A. L. Gill*

*Inventor.*

*John M. Sweeney*  
*by Randall & Kern*  
*his Attorneys*



# UNITED STATES PATENT OFFICE.

JOHN M. SWEENEY, OF WHEELING, WEST VIRGINIA.

## RUDDER FOR BOATS.

SPECIFICATION forming part of Letters Patent No. 360,488, dated April 5, 1887.

Application filed July 10, 1886. Serial No. 207,643. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN M. SWEENEY, of Wheeling, in the county of Ohio and State of West Virginia, have invented a new and useful Improvement in Rudders for Boats; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—  
10 Figure 1 is a side view of my improved rudder, shown attached to the boat. Fig. 2 is a rear view of the boat, illustrating the use of two rudders. Fig. 3 is a top plan view of the rudders and tillers detached. Fig. 4 is an enlarged sectional detail view. Fig. 5 is a vertical cross-section on the line *xx* of Fig. 4.

Like figures of reference indicate like parts in each.

In the drawings, 2 represents the rudder-blades, which are attached to the rudder-posts 5 of the boat by means of pintles 3, arranged on the rudder-stock 4. As shown in the drawings, there are rudders arranged at the stern of the boat on each side of the keelson. This is the usual arrangement on river-steamers, and for the present I will describe but a single rudder and its attachments, and will indicate the corresponding parts of each rudder by the same reference-figures. The rudder 2 is of the kind known as a "balanced rudder," in which the rudder-stock is affixed to the blade near the middle, part of the latter extending forward under the boat and part projecting backward.

Heretofore it has been usual to make the upper edge of the forward part of the rudder-blade to conform to the shape of the bottom of the boat. With this arrangement there is a small space between them, in which drift often becomes entangled, and as it is carried aft by the motion of the boat becomes wedged and seriously interferes with the working of the rudder and of the boat itself. It has been suggested to avoid this evil by an arrangement of the rudder with a curved stock, so that in turning on its pintles the rudder-blade may be kept close to the bottom of the boat, and no space left for catching the drift. Such a device is shown in Letters Patent No. 231,623, granted to Uriah B. Scott.

The object of my invention is, likewise, to prevent the accumulation of drift-wood in the

rudder by a new and improved arrangement of the latter, which I will now more particularly describe.

The after part of the bottom of ordinary steam-boats is usually inclined in two directions—one upward toward the stern, fore and aft, and the other from the keelson toward the gunwale on each side. The former is the "stern-rake" and the latter the "dead-rise." In order to keep the rudder-blade in contact with the bottom of the boat at all points of its revolution, it is necessary to hang the rudder properly with relation to both these angles. I do this, as shown in the drawings, by arranging the rudder-post in a line at right angles with the dead-rise of the stern, and also at right angles with the stern-rake, the stock of the rudder being substantially straight and in the same plane with that of the rudder-blade. Each point of the rudder-blade turning on the axis of the pintles will describe a circle in a plane at right angles to the axis, and it is evident that if the dead-rise and stern-rake be substantially straight inclinations the upper edge of the blade will move in a plane parallel with their compound plane, and that if that edge be arranged to be in contact with the boat-bottom at any point it will remain in contact at all points of its rotation. The contiguity of the rudder-blade with the boat is of material advantage in preventing the entangling of drift. I prefer, however, not to have the whole blade in contact with the boat, but only its foremost part. (Designated 2<sup>a</sup> in the drawings.) Aft of this the upper edge of the blade is cut away to the stock, so as to leave a space, 6, between the blade and hull, which flares or widens gradually from the point of contact 2<sup>a</sup> to the stock. The consequence is that if any drift be caught between the blade and the stern the motion of the boat will carry it back into the widening space 6, where it will be disentangled and released.

As before stated, steamboats, especially stern-wheel steamboats, usually have rudders on each side of the keelson 7, and when hung as I have described the rudder-stocks will be inclined toward each other, as shown in Figs. 2 and 3. This being so, it is impracticable to connect the tillers 9 of the rudders by a shank or connecting-rod and the ordinary pin-coupling joining the shank to the tillers, because



the latter necessarily rotate in different planes. I have therefore invented a novel mode of coupling the tillers, which is represented in Figs. 3, 4, and 5. Each of the tillers is provided with a ball, 11, of wrought-iron or other suitable material, which is clamped loosely between superposed cups 10, and the balls are connected by a rigid coupling-shank, 12, thereby forming on each tiller a universal ball-and-socket joint, which permits corresponding and simultaneous motion of the tillers in the different planes without jamming or disconnecting the coupling-shank. The inner sides of the cups 10 are cut away, to permit free passage and operation of the connecting-shank, as usual with a ball-and-socket joint.

Constructed as above described, my improved rudder has many advantages. It is simple and easy in operation, practically free from danger of becoming fouled by drift, and is very strong.

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

25 1. The combination of a balanced rudder and a stock, the latter being hung to the stern of a boat in a line at right angles with the plane of rise thereof and arranged in the same

plane with the rudder-blade, substantially as and for the purposes described. 30

2. The combination of a balanced rudder and a stock, the latter being hung to the stern of a boat in a line at right angles with the plane of dead-rise and at right angles with the plane of the stern-rake thereof, and arranged in the same plane with the rudder-blade, substantially as and for the purposes described. 35

3. The combination of rudders having their stocks inclined to each other and a shank or connecting-rod joining these rudders, and connected therewith by ball-and-socket joints, substantially as and for the purposes described. 40

4. The combination, with the hull of a boat, of a balanced rudder, the forward part of the blade of which is contiguous or nearly contiguous with the hull and arranged to afford a widening space from the contact-point to the rudder-stock, substantially as and for the purposes described. 45

In testimony whereof I have hereunto set my hand this 15th day of June, A. D. 1886. 50

JNO. M. SWEENEY.

Witnesses:

W. J. W. COWDEN,  
P. B. DOBBINS.