

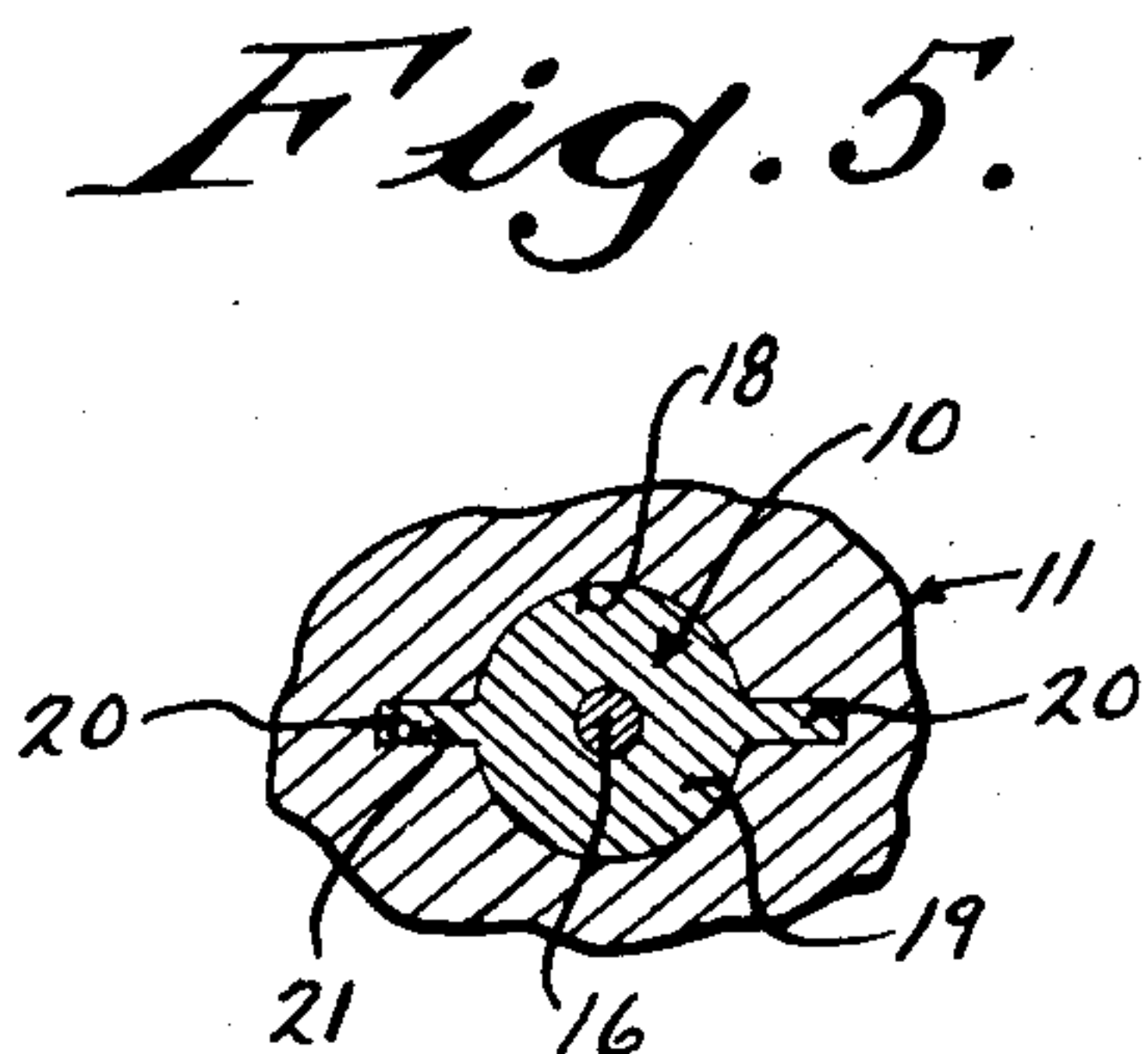
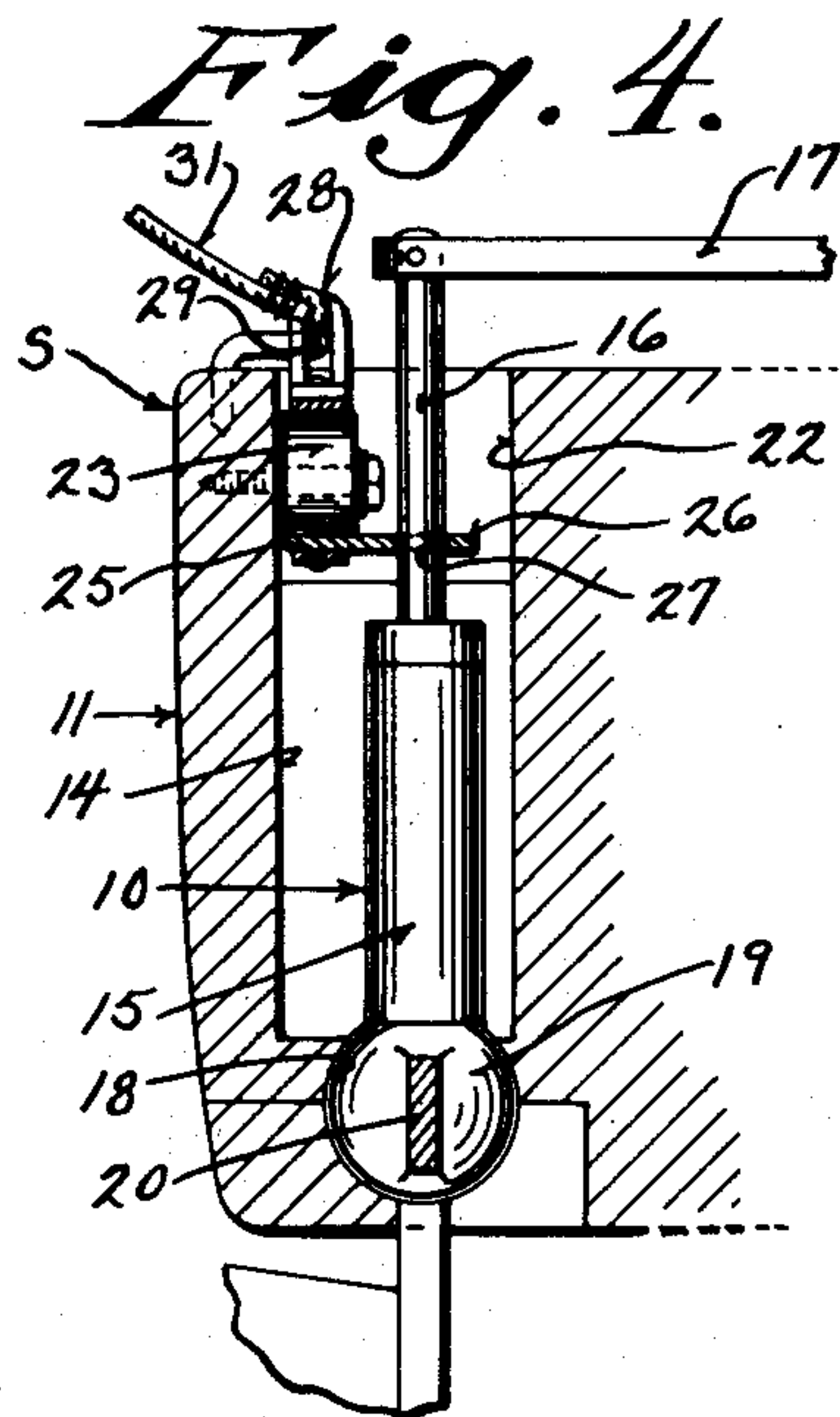
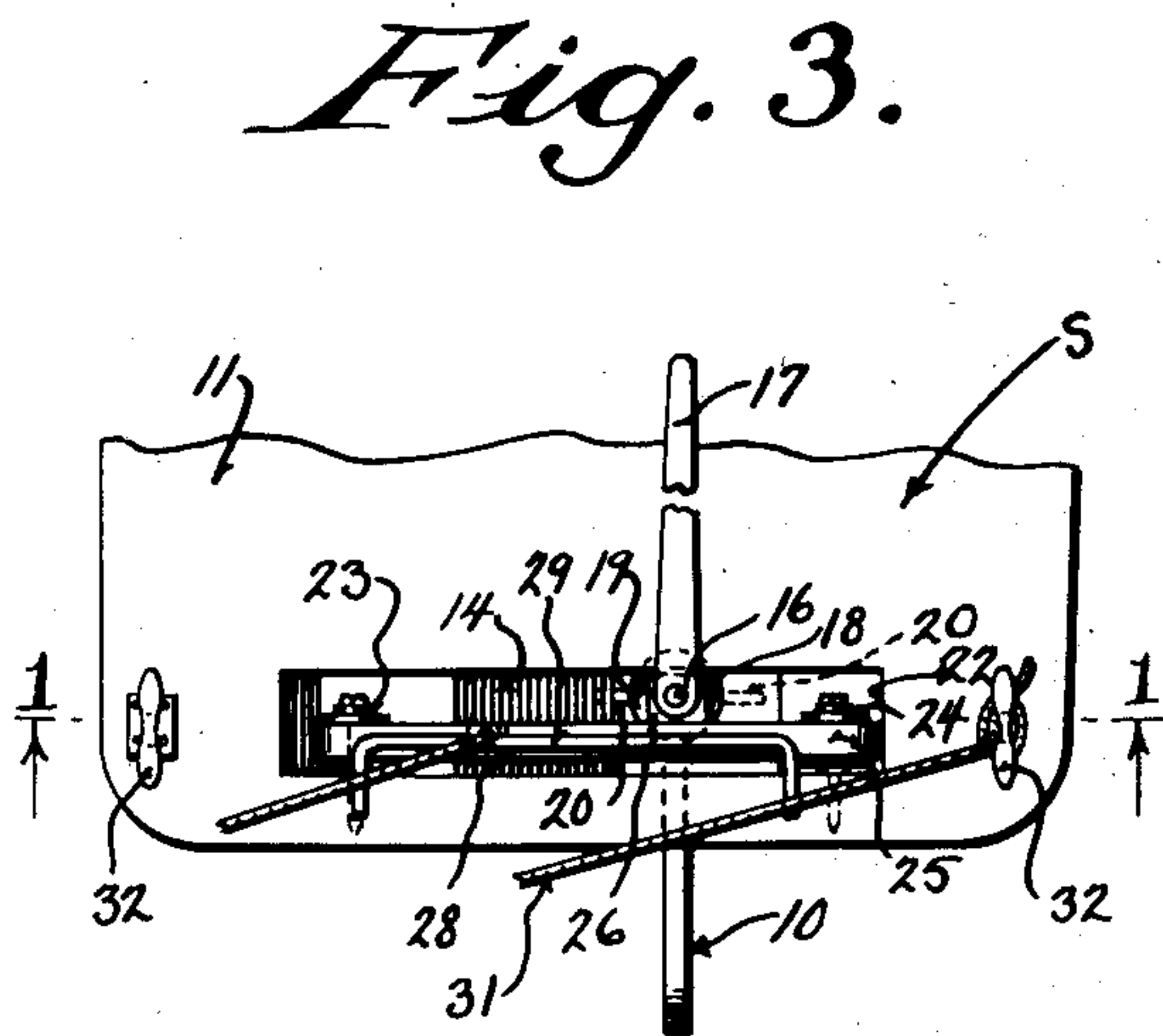
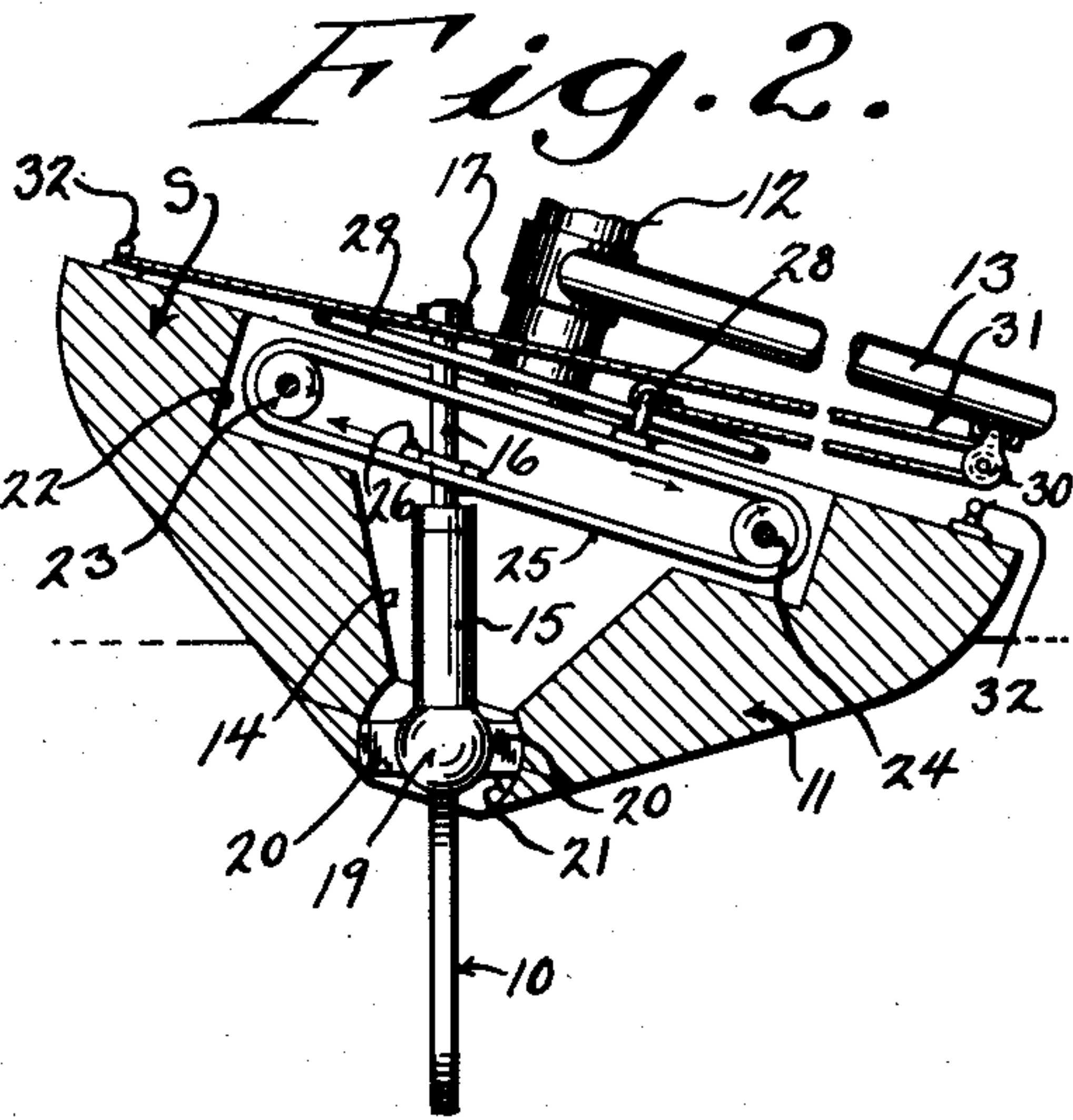
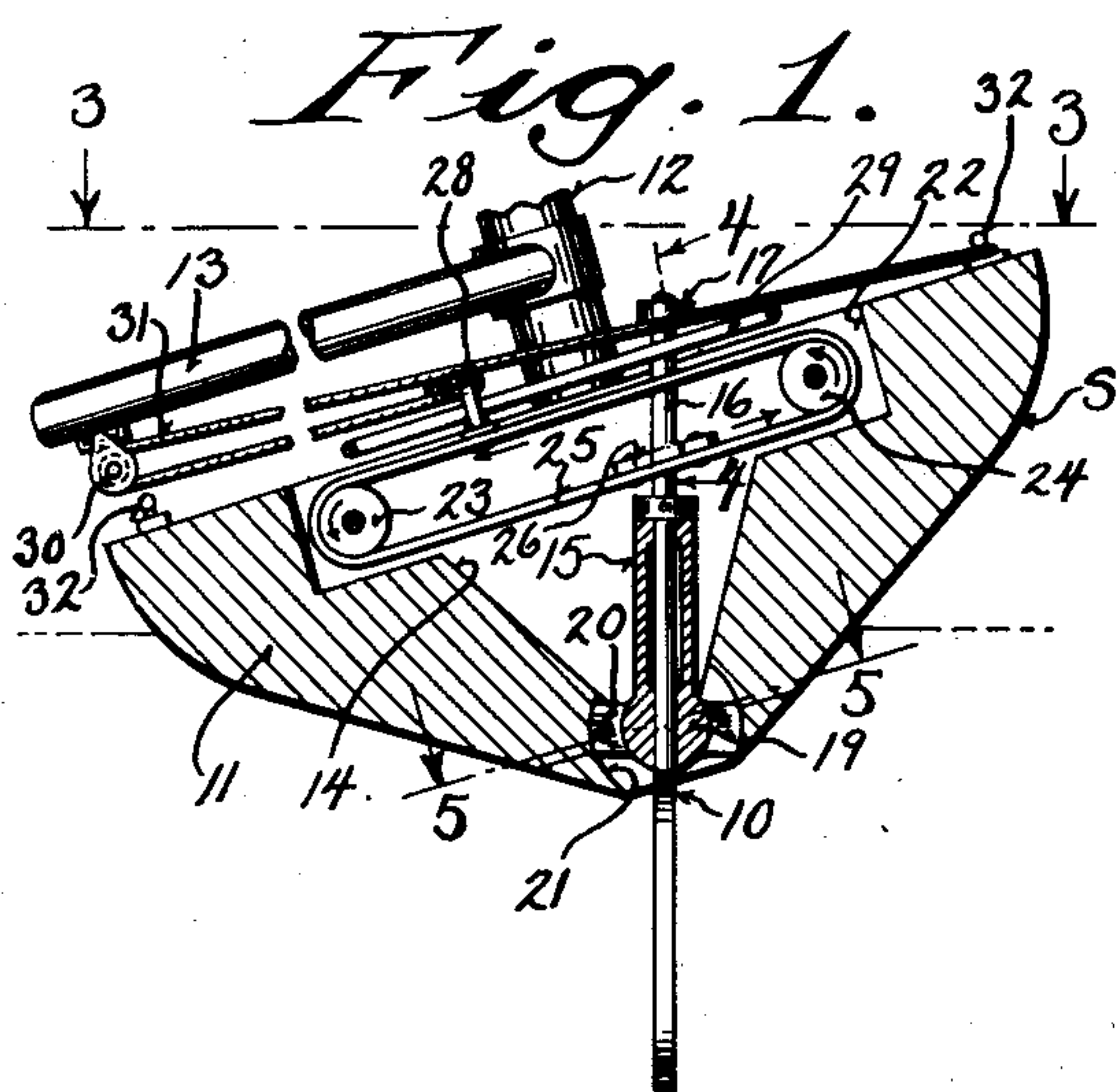
Sept. 29, 1953

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2,653,563

BOOM AND RUDDER ASSEMBLY

Filed Dec. 5, 1951



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## UNITED STATES PATENT OFFICE

2,653,563

## BOOM AND RUDDER ASSEMBLY

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Application December 5, 1951, Serial No. 259,928

3 Claims. (Cl. 114—39)

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This invention appertains to sail boats, and more particularly to a novel rudder construction therefor.

One of the primary objects of my invention is to provide means for automatically swinging the rudder post of a boat with respect to the longitudinal center line plane of the boat as the boom and mainsail swings from one side of the boat to the other, so that the rudder will be positioned at an angle to the center line of the boat and in a substantially vertical position, whereby the rudder will not act as a drag on the boat, and whereby the boat can be efficiently steered.

Another salient object of my invention is to provide a flexible endless belt or the like extending transversely of the stern of a boat, with the boom connected by a line to one run of the belt and the rudder connected to the other run of the belt, so that upon the swinging of the boom from one side of the boat to the other, incident to coming about, the belt will be moved to cause an automatic moving of the rudder post.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be more specifically described and claimed and illustrated in the accompanying drawing, in which drawing,

Figure 1 is a transverse sectional view through the stern of a boat equipped with my novel rudder construction, the section being taken substantially on the line 1—1 of Figure 3, looking in the direction of the arrows.

Figure 2 is a view similar to Figure 1, but showing the boom on the other side of the boat from Figure 1.

Figure 3 is a fragmentary top plan view showing the stern of a boat equipped with the novel rudder construction.

Figure 4 is an enlarged fragmentary vertical sectional view through the stern of a boat taken substantially on the line 4—4 of Figure 1, looking in the direction of the arrows.

Figure 5 is a fragmentary detail sectional view taken on the line 5—5 of Figure 1, looking in the direction of the arrows, illustrating the novel mounting of the sleeve for the rudder post on the boat.

Referring to the drawing in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter S generally indicates a sail boat equipped with my novel rudder 10.

In general, the sail boat S can be of a con-

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struction now commonly found and hence will not be described in detail. However, the sail boat S includes a hull 11, a mast 12 and a boom 13 for carrying a mainsail (not shown). The stern of the hull 11 is modified to receive my novel rudder construction 10 and hence the stern is provided with a V-shaped well 14. Mounted in the well for swinging movement is a guide sleeve 15, which rotatably supports the post 16 for the rudder. The post is turned for steering in any desired manner and as shown, the upper end of the post is provided with a tiller 17. The hull at the bottom of the well 14 is provided with a ball socket 18, in which is mounted for turning movement a spherical head or ball 19 formed on the lower end of the guide sleeve 15. The guide sleeve 15 is mounted so that the same can swing relative to the longitudinal center line plane of the boat and in order to prevent other movement of the sleeve, the opposite sides of the head 19 are provided with outwardly extending fins 20 which are slidably received in arcuate slots 21 communicating with the opposite sides of the socket 18.

From the construction so far, it can be seen that the rudder post 16 can be turned in the sleeve 15 for steering the boat and that the sleeve 15 and consequently the post can swing from one side to the other with respect to the longitudinal center line plane of the boat.

The upper end of the well 14 is enlarged to provide a chamber 22 which extends transversely of the stern of the boat and this chamber has rotatably mounted therein adjacent to its opposite ends idle pulleys 23 and 24. Trained about the idle pulleys is an endless belt 25, or the like. The lower run of the belt has rigidly fastened thereto a guide plate 26 having an opening 27 through which loosely extends the rudder post 16. Rigidly fastened to the upper run of the belt 25 is a guide eye 28. The guide eye is also preferably slidably mounted on a rigid guide rod 29, which also extends transversely of the boat.

The boom 13 is provided with the usual block or guide pulley 30, around which is trained a line or sheet 31 for trimming the sail supported by the boom and mast. One end of the line is firmly fastened to the guide eye 28 and the opposite end of the line is detachably and adjustably fastened to either one of a pair of cleats 32 mounted on the hull 11 on opposite sides thereof. As the boat comes about, the line is changed from one cleat to the other, as is well known in sailing.

In use of my improved rudder, and considering



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that the boat is leaning to the left of the vertical (see Figure 1) with the boom on the left hand side of the boat, the line is exerting a pull on the upper run of the belt 25 at the left and consequently this run of the belt is pulled to the left with a corresponding movement to the right of the lower run of the belt. As the belt moves to the right, the same carries the rudder post therewith and the guide sleeve and the rudder post will be moved to a substantially vertical position.

As the boat comes about (see Figure 2), and the boom swings to the other side of the boat the pull of the line 31 will move the upper run of the belt 25 to the right and the lower run of the belt to the left and the rudder post and its guide sleeve will be moved by this run of the belt to the opposite side of the longitudinal center line of the boat. Hence, the rudder post and its guide sleeve will be automatically swung from one side of the boat to the other as the boat leans from one side to the other.

Where the rudder post is held at all times at the center line of the boat during the leaning of the boat, it has been found that during steering the rudder acts as a drag on the boat and efficient steering and maneuvering of the boat is difficult. With my invention, the rudder post automatically tends to assume an approximate vertical position, but obviously, it is to be understood that upon the reaching of a certain angle or lean to the vertical with a further leaning of the boat the rudder post will be carried therewith and out of a true vertical position.

Changes in details may be made without departing from the spirit or the scope of this invention but what I claim as new is:

1. In a sail boat including a hull, a mast and a boom mounted for swinging movement on the mast; a guide sleeve, means rockably mounting the sleeve on the stern of the hull for swinging movement on the hull from one side of the longitudinal center line plane of the hull to the other, a rudder post rotatably mounted in the sleeve for swinging movement with the sleeve, an endless belt mounted transversely of the hull having an upper movable run and a lower movable run, a line carried by the outer end of the boom, means securing one end of the line to one

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run of the belt and means operatively connecting the other run of the belt to the post.

2. In a sail boat including a hull, a mast and a boom mounted on the mast for swinging movement; a rudder construction for the hull including a guide sleeve, means mounting the sleeve on the hull for swinging movement from one side of the longitudinal center line plane of the hull to the other, a rudder post rotatably mounted in the sleeve, an endless belt disposed transversely of the hull including an upper run and a lower run, means on the hull including spaced idle pulleys supporting the belt for free traveling movement, a pulley on the boom, a line trained over the pulley, means securing one end of the line to one run of the belt, means detachably securing the other end of the line to the hull on one side or the other thereof, and means operatively connecting the post to the other run of the belt for movement therewith.

3. In a boat including a hull, a mast and a boom mounted on the mast for swinging movement; a rudder structure comprising a guide sleeve, means rockably mounting the sleeve on the stern of the hull for swinging movement from one side of its longitudinal center line to the other, a rudder post rotatably mounted in the sleeve, an endless belt disposed transversely of the hull having an upper and a lower run, means on the hull including spaced idle pulleys supporting the belt for free traveling movement, a pulley on the boom, a line trained about the pulley, a guide eye secured to the upper run of the belt for movement therewith, a guide arm on the lower run of the belt receiving the rudder post, a stationary guide secured transversely of the hull and receiving the guide eye, means securing one end of the line to the guide eye, and means detachably and adjustably securing the other end of the line to the hull on one side of the longitudinal center of the hull.

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