

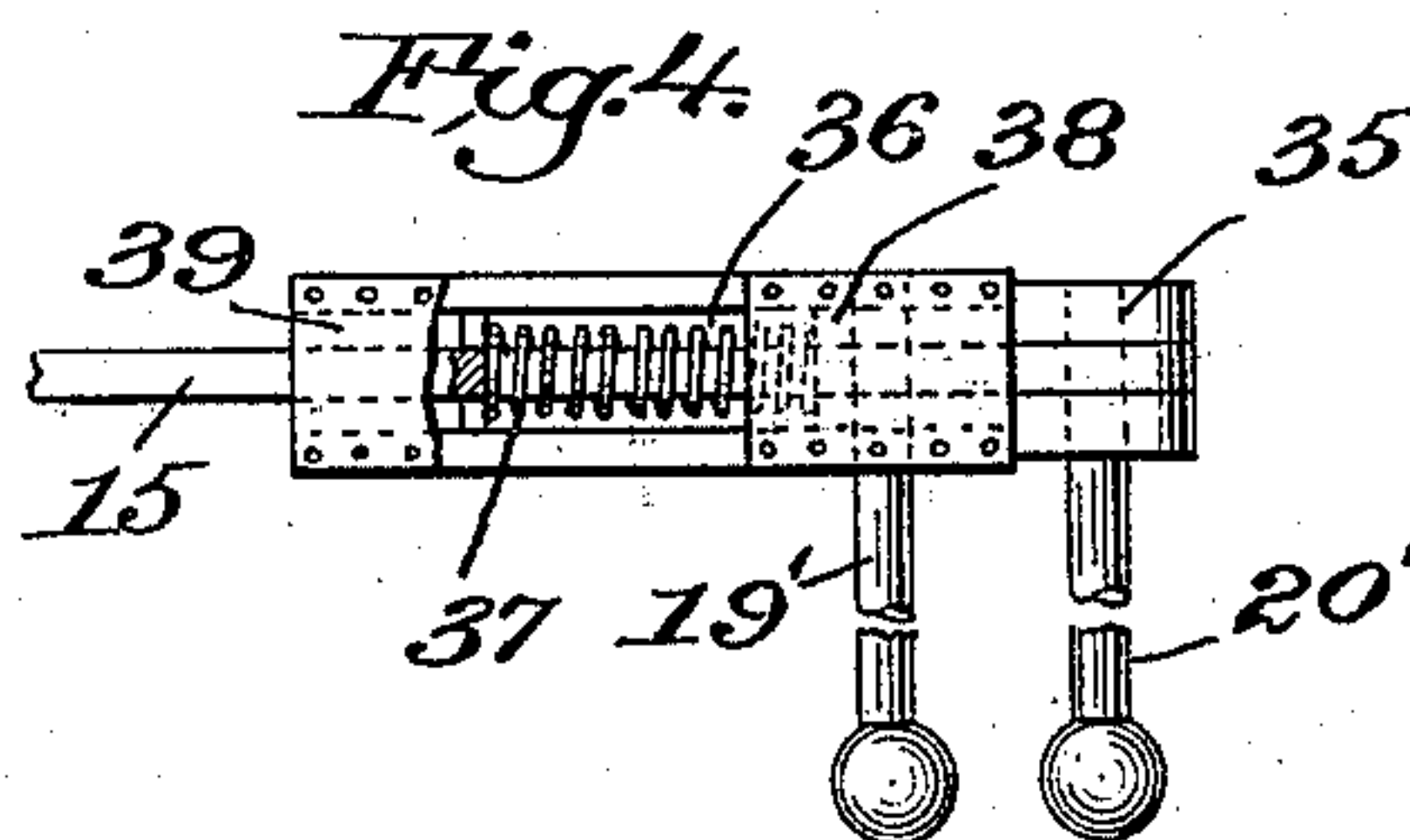
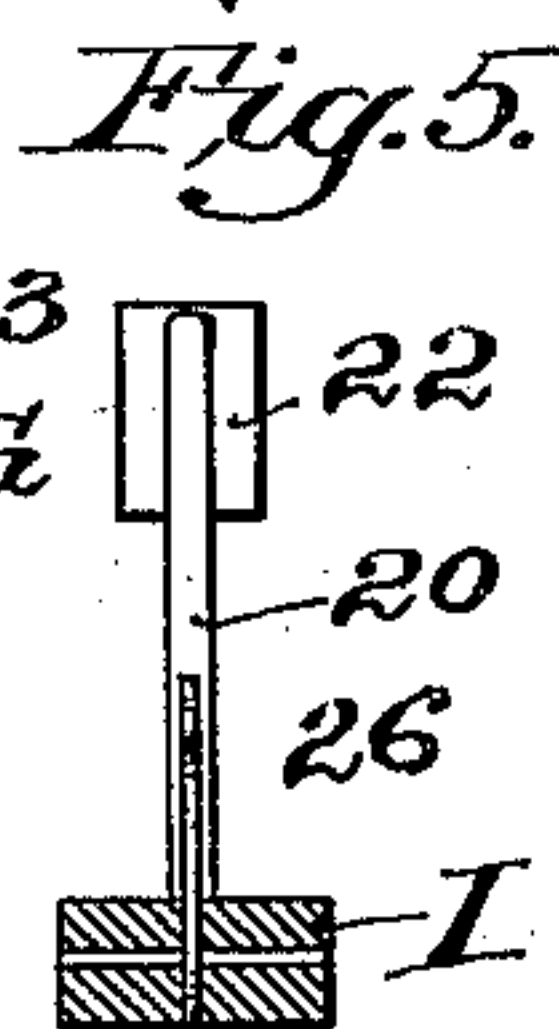
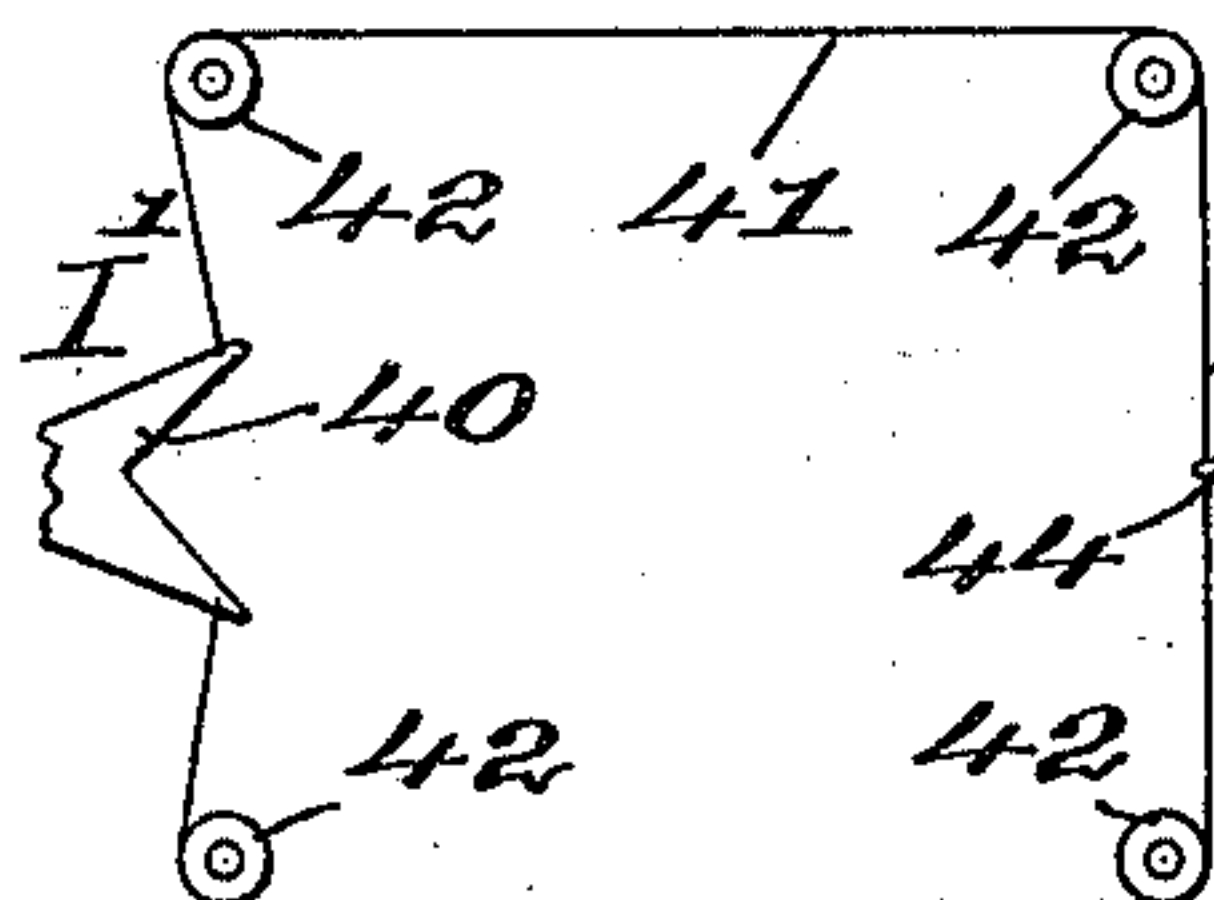
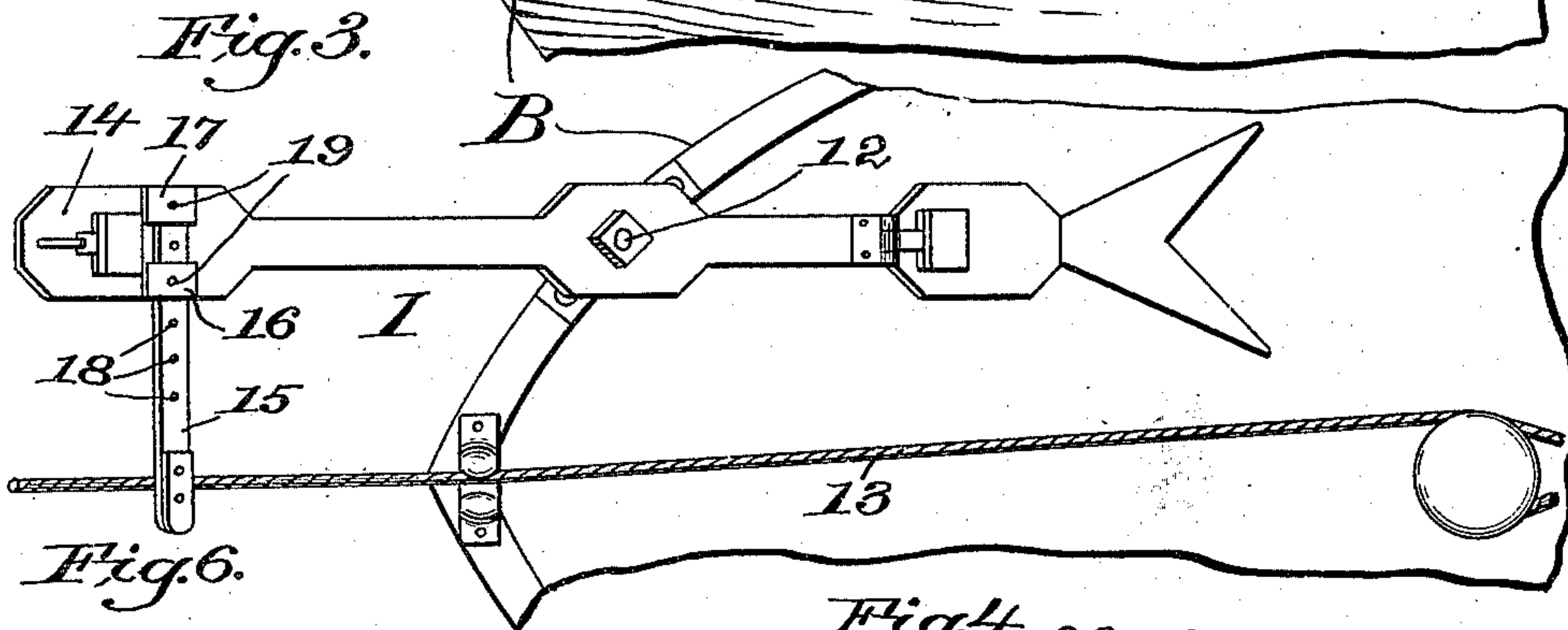
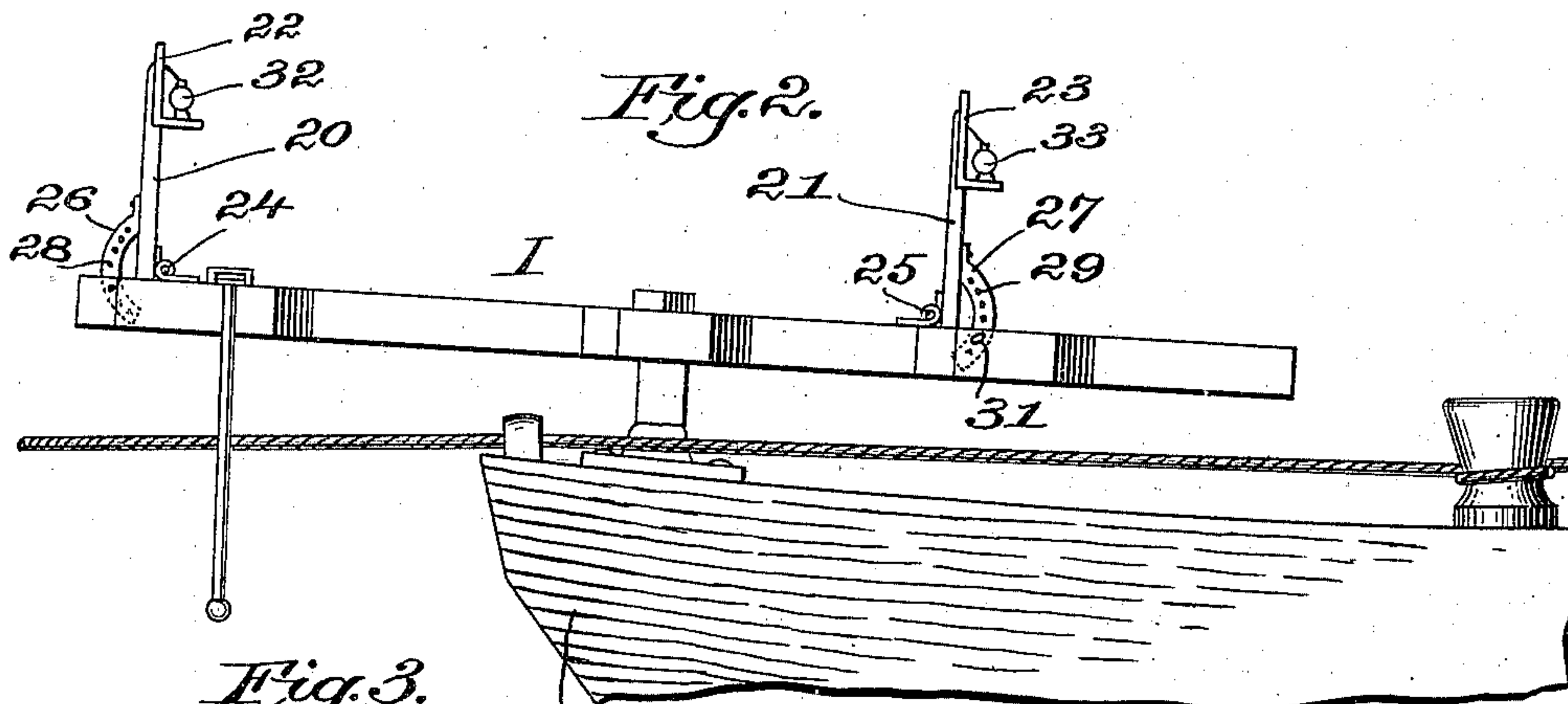
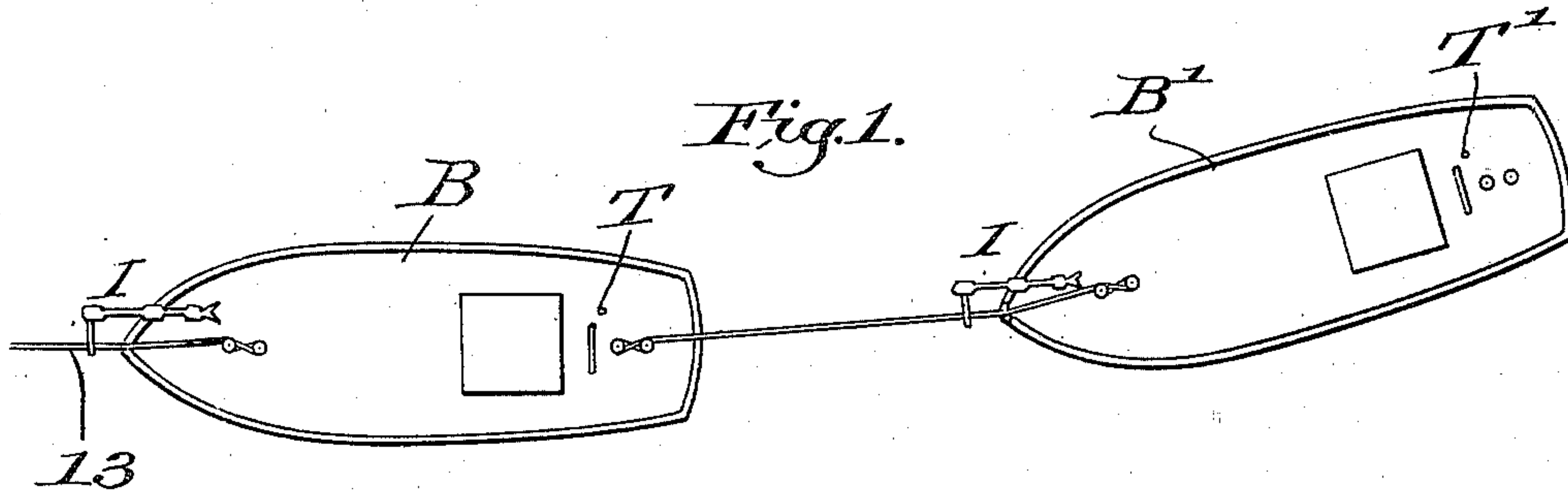
No. 635,085.

Patented Oct. 17, 1899.

J. A. VARNUM.  
HAWSER INDICATOR.

(Application filed July 21, 1899.)

(No Model.)



Witnesses.  
Thomas Drummond,  
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Inventor:  
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# UNITED STATES PATENT OFFICE.

JAMES A. VARNUM, OF BOSTON, MASSACHUSETTS.

## HAWSER-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 635,085, dated October 17, 1899.

Application filed July 21, 1899. Serial No. 724,599. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES A. VARNUM, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Hawser-Indicators, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention relates to a hawser-indicator; and its object is to indicate the location of a boat being towed relative to a tug or tow-boat which precedes it, and the organization of the parts is such that the towed boat can  
15 be kept directly in line with the one preceding it, so that it offers the least possible resistance in its passage through the water and also decreases the strain upon the hawser or tow-line, and the appliance is of peculiar im-  
20 portance in foggy or heavy weather, at which time the helmsman cannot see the boat in front of him.

In the drawings, Figure 1 is a diagrammatic plan view of a portion of a tow including two  
25 boats and showing them each equipped with an appliance constructed in accordance with my invention in the preferred embodiment thereof. Fig. 2 is an enlarged side elevation of the bow of one of the boats. Fig. 3 is a plan  
30 view of the same. Figs. 4 and 5 are details hereinafter more particularly described, and Fig. 6 is a modification showing a different kind of telltale.

In the drawings, Fig. 1, I have shown two  
35 boats, and they are denoted, respectively, by B and B', and in Figs. 2 and 3 I have represented, upon an enlarged scale, a portion of the bow of the boat B and will now proceed to describe in detail the embodiment repre-  
40 sented in said Figs. 2 and 3.

The appliance includes in its construction an indicator, as I, which is represented as a lever fulcrumed near its middle, as at 12, to the starboard side of the boat B in proximity  
45 to the tow-line 13 for movement about a vertical or substantially vertical axis, and it is connected to the tow-line 13 in such a manner as to be normally disposed in parallelism. The indicator is connected beyond the bow  
50 of the boat B with the tow-line 13, and for this purpose I have provided the indicator I with a widened head 14, to which an arm is adjust-

ably secured, said arm cooperating with the tow-line, so that when the position of the tow-line or hawser changes that of the indicator  
55 will be likewise shifted. A projection is shown at 15, and it in the present case constitutes a connection between the indicator and the tow-line, and one end of the same passes through the loops 16 and 17 upon the  
60 upper side of the head 14. The projection 15 is provided longitudinally thereof with a line of perforations, as 18, adapted to receive pins 19, which also pass through the loops 16 and 17, by reason of which the projection 15 can  
65 be adjusted transversely of the indicator I when occasion requires, and said projection has at its outer end the downwardly-disposed studs or pins 19' and 20' to receive between them the hawser or tow-line 13, and one of  
70 said pins, as will hereinafter appear, is yieldingly mounted, thereby to receive and firmly grip cables or ropes of different sizes between them.

The indicator is provided at opposite sides  
75 of its pivot with the normally-vertical arms 20 and 21, provided at their upper ends and inner sides with the substantially L-shaped visual sights 22 and 23, both being adjustable in the arc of a circle, so that they can be  
80 brought into the line of vision of the wheelman should he happen to be located either at some distance above or below the indicator. The arms 20 and 21 are hinged, as at 24 and 25, to the upper side of the indicator I, and  
85 each of them is provided with a sector denoted, respectively, by 26 and 27 and working through suitable slots in the indicator and having segmental series of holes 28 and 29, adapted to receive the pins 30 and 31, carried  
90 by the indicator and serving to maintain the arms in their adjusted positions.

T (see Fig. 1) indicates a telltale which is mounted in adjacency to the wheel-house, and when it is in line with the visual sights 22 and  
95 23 upon the indicator this will show that the boat being towed is directly in line with the one ahead of it. If such is not the case, the helmsman will turn the rudder in the proper direction to bring the three points into line. 100

In the boat B', I have used the same characters to denote corresponding parts as in the other, but with prime-marks, and referring to Fig. 1 it will be seen that the three points upon



the boat B' are out of line, while the corresponding three parts upon the boat B are in line.

At night I prefer to display upon the sights 22 and 23, and constituting, in effect, a part thereof, the lamps 32 and 33.

The arm 15 is provided at its outer end with the enlarged portion 35, to which the pin 20' is secured, and it also has the longitudinal slot 36, adapted to receive the coiled spring 37, which bears at one end against what is shown as the left wall of the longitudinal slot and at its other end against the sliding block 38, to which the pin 19' is secured, said block 15 being mounted for movement toward and from its companion within the housing 39, surrounding the arm 15 at its outer end and near the enlarged portion 35. From this it will be understood that the pin 19' is yieldingly mounted, so that cables or hawsers of different sizes can be received between the two pins and held with a pressure sufficient to effect the operation of the indicator I as the boat happens to swerve in its course.

In Fig. 1 the telltales T and T' represented consist of substantially vertical posts, the upper ends of which are alined horizontally, or approximately so, with the visual sights 22 and 23.

In Fig. 6 I have represented a modified form of the appliance wherein the indicator I' is the same as that shown in the other views, and to the branches of the bifurcated tail 40 of said indicator I secure the ends of a band 41, said band also passing around the rectangularly-disposed series of rollers or idlers 42, which may be suitably mounted upon the deck of the vessel.

What might be termed the "cross-run" or "transverse" portion 43 of the band is provided substantially midway between its ends with the pointer 44, coöperating with the gage G, and when the pointer is in line with the central one of the series of gage-bars this will show that the boat being towed is upon its right course; but if the contrary should be the case the wheelman can bring the pointer opposite the middle mark or notch, so as to bring his boat directly in line with the one preceding it.

Having fully described my invention, what I claim is—

1. The combination with a vessel and with a tow rope or line connected thereto and extending beyond the bow thereof, of an indicator pivoted to the vessel, and a device connected to the indicator forward of its pivot and also to the tow-line, at a point beyond the bow of the vessel.

2. The combination with a tow rope or line,

of an indicator located on the vessel and connected at its forward end with the tow-line in front of the bow of the vessel, said indicator having pivotally mounted upon it a plurality of visual sights, said sights being adjustable in the arc of a circle to adapt them to the vision of the wheelman, substantially as described.

3. The combination with a vessel and with a tow rope or line connected thereto and extending beyond the bow thereof, of an indicator pivoted to the vessel, a device connected to the indicator forward of its pivot and also to the tow-line at a point beyond the bow of the vessel, and a telltale at the wheel-house controlled by the position of the indicator to indicate to the wheelman variations in position of the tow with relation to the tug towing the same.

4. The combination with a vessel and with a tow rope or line connected thereto and extending beyond the bow thereof, of an indicator pivoted to the vessel, a device connected to the indicator forward of its pivot and provided at its free end with two projecting pins adapted to receive between them said tow rope or line and two arms secured to the indicator at opposite sides of its pivot.

5. A device of the class specified for attachment to a boat, comprising an indicator, a projection connected to the indicator and provided with two projecting pins adapted to receive between them a tow-line, one of said pins being spring-actuated.

6. A device of the class specified adapted for attachment to a boat, comprising an indicator having adjustable arms provided with sights, a projection extending transversely from the forward end of the indicator and furnished with two downwardly-extending pins adapted to receive between them a tow-line, one of said pins being yieldingly mounted.

7. A device of the class specified adapted for attachment to a boat, comprising an indicator provided with two arms each having a sight at its upper end and each having a sector, means for engaging the sectors to hold the arms in adjusted position, and a projection extending transversely of the forward end of the indicator and provided with downwardly-disposed pins adapted to receive between them a tow-line.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES A. VARNUM.

Witnesses:

GEO. W. GREGORY,  
HEATH SUTHERLAND.