

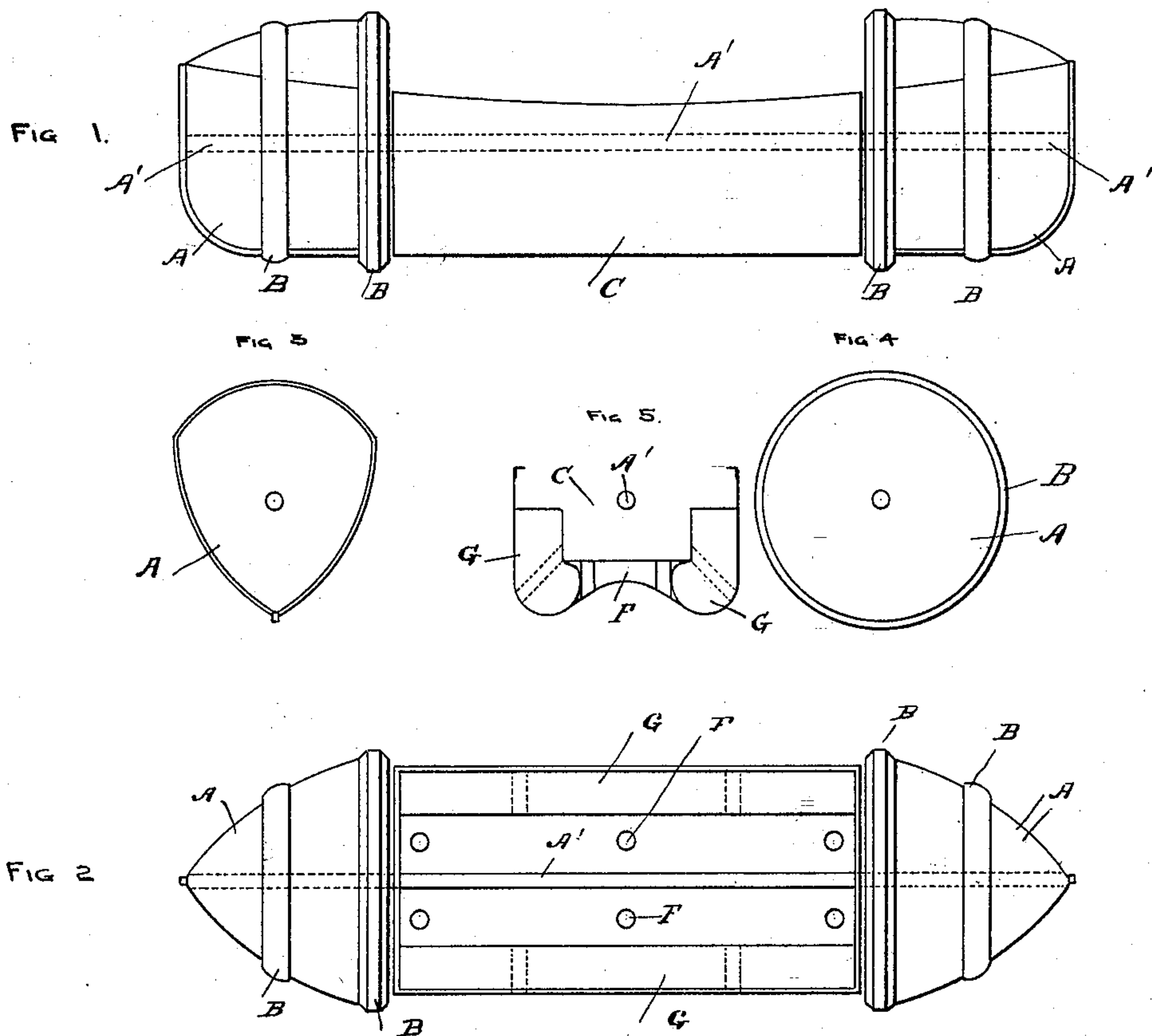
(No Model.)

4 Sheets—Sheet 1.

E. J. HOUGH.
LIFE BOAT.

No. 603,596.

Patented May 3, 1898.



WITNESSES
Baldwin Talb.
Norman M. Keller

INVENTOR
Edward J. Hough
BY
E. J. Mudock & Co.
ATTORNEYS

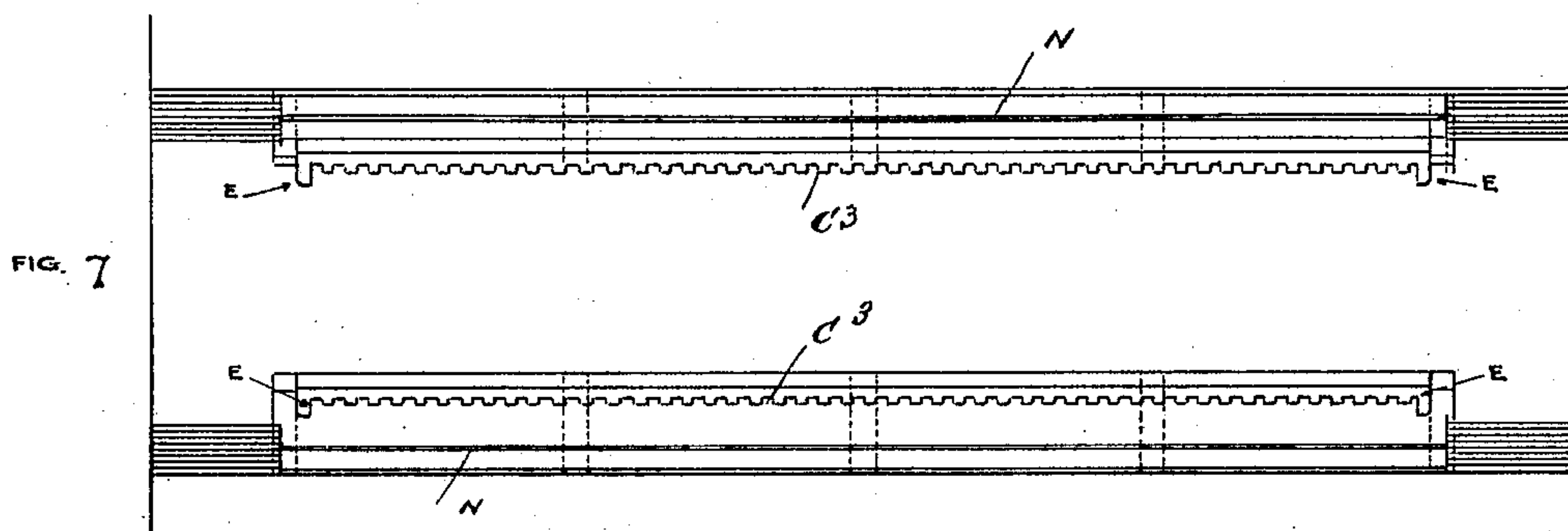
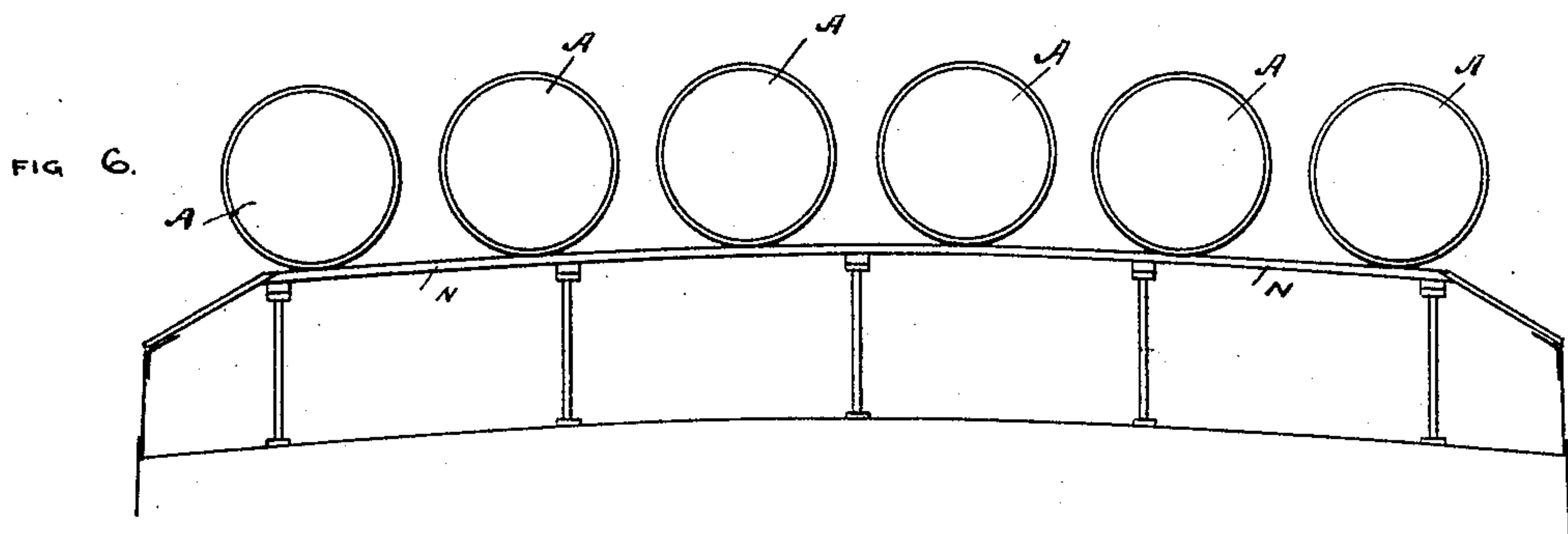
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Norman H. Keller

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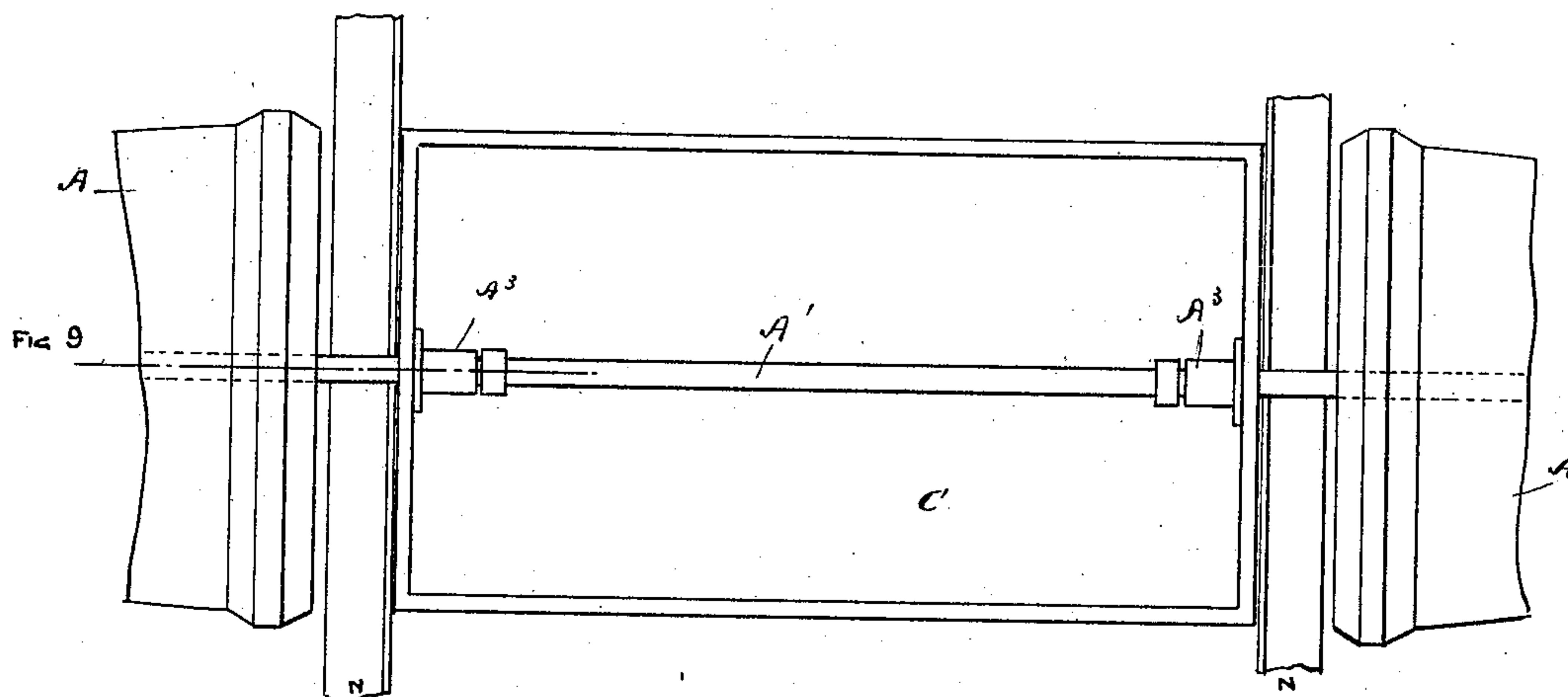
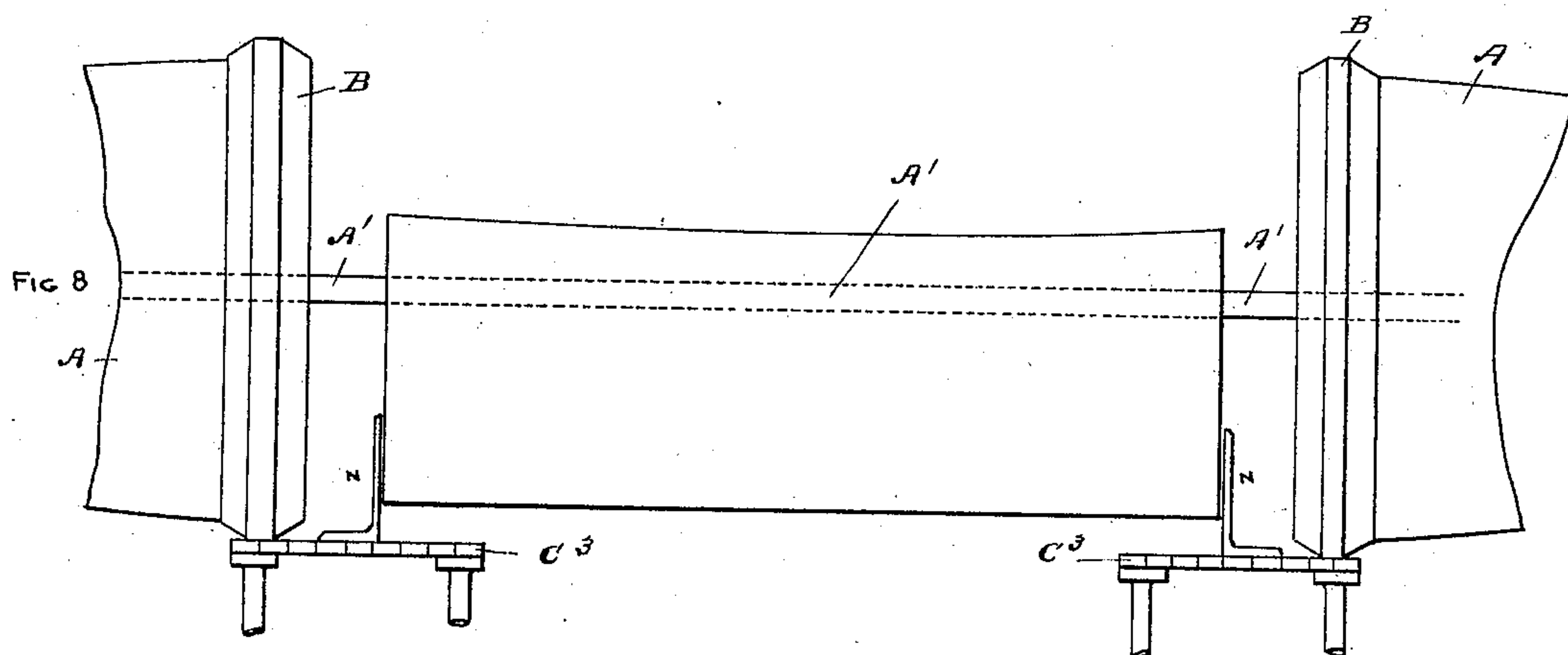
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Patented May 3, 1898.



WITNESSES

Baldwin Talcott
Howard Duggan

INVENTOR

Edward J. Hough

BY

E. J. Muddock & Co.

ATTORNEYS

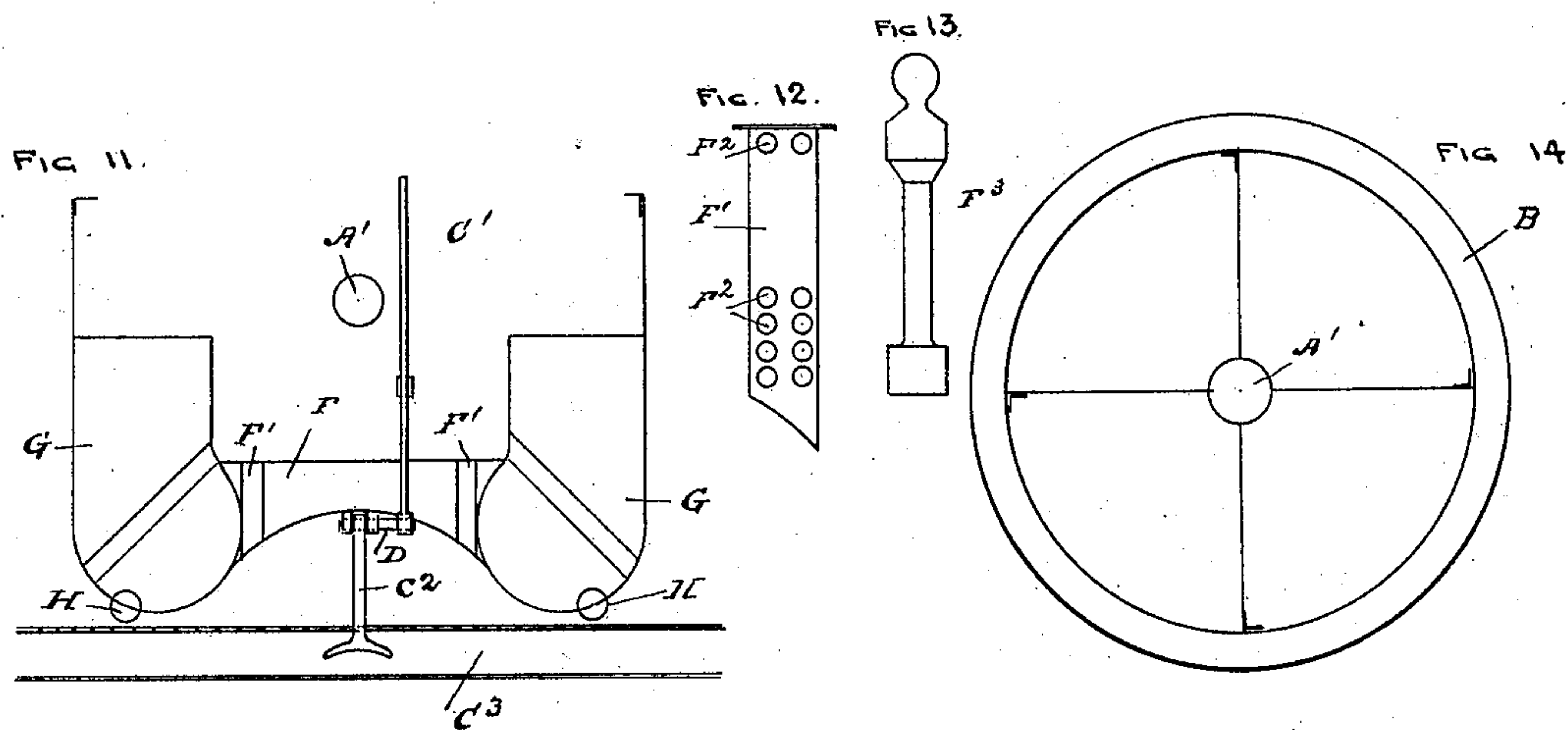
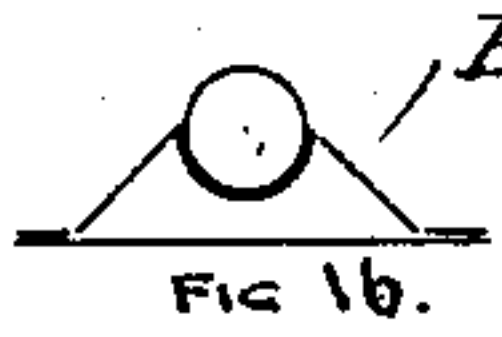
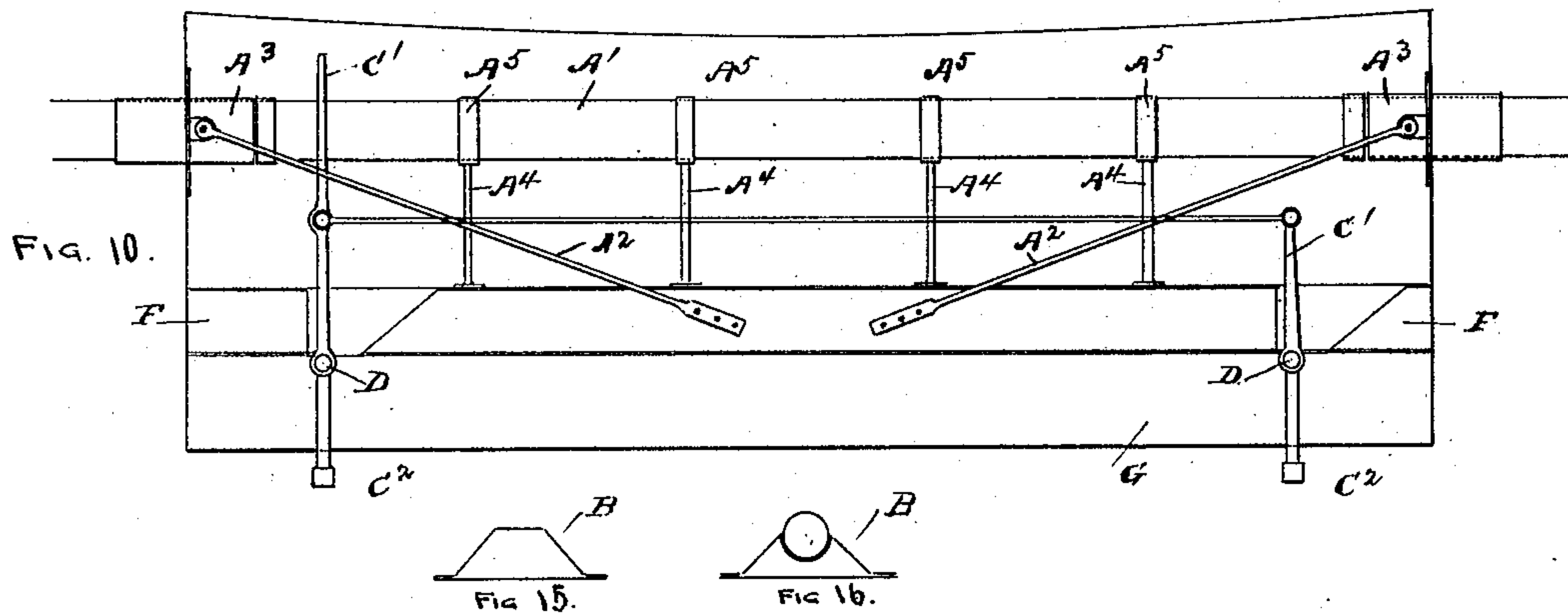
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WITNESSES:

Baldwin Talc
Norman M. Keller

INVENTOR

Edward J. Hough

BY

C. S. Muddock & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

EDWARD J. HOUGH, OF LONDON, ENGLAND.

LIFE-BOAT.

SPECIFICATION forming part of Letters Patent No. 603,596, dated May 3, 1898.

Application filed April 21, 1897. Serial No. 633,161. (No model.) Patented in England April 10, 1895, No. 7,360.

To all whom it may concern:

Be it known that I, EDWARD J. HOUGH, a subject of the Queen of Great Britain, residing at London, in the county of Middlesex, Kingdom of Great Britain, have invented certain new and useful Improvements in Life-Boats, (patented in Great Britain April 10, 1895, No. 7,360;) and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

This invention relates to improvements in life-boats, and more particularly to that class of life-boats which are carried on the decks of vessels while at sea.

The object of the present invention is to provide improved life-boats, the invention being specially applicable to the requirements of ships.

To this end the invention consists in various improved constructions and combinations of parts in the boats and appliances of revolving-ended or other boats, such appliances including the carriers, skids, or ways upon which such boats are stowed or carried, and are of such a nature as will enable one man to transport a boat so constructed and with such appliances from where it may be stowed to the ship's side ready for getting overboard in a short space of time, such transportation being effected by utilizing the motion of rolling or listing of the vessel.

The above-referred-to constructions and combinations also bring the movements of the life-boats under the control of a man within the boat, who operates it. They also have the effect of rendering the launching of such boats safe. Further, they enable the people to get into the boat while on board of the vessel without injury to the boat or danger to the people or materially interfering with the operation of getting such boat overboard, and in addition to the foregoing the self-righting powers of such boat are increased thereby.

For a full understanding of the invention a detailed description of the same will now be given, reference being had to the accompanying drawings, in which are shown a life-

boat and various parts of same, embodying the invention in its preferred form.

Figure 1 is a side elevation of the boat. Fig. 2 is a plan of the boat. Fig. 3 is a section of the end of the boat at the first fender-belts. Fig. 4 is a section of the end of the boat at the second fender-belt or wheel of the boat. Fig. 5 is a section of the body of the boat. Fig. 6 is an end view of a tier of boats stowed on the carriers, skids, or ways. Fig. 7 is a plan of such carriers, skids, or ways, showing a plan of the notched bars that are caught or engaged by the stoppers through the bottom of the boat and by which the boat is instantaneously secured or released, the said stoppers being shown in Figs. 10 and 11, also a plan of vertical guide-plates. Fig. 8 is a side elevation of the body and parts of the ends of a boat, showing positions of vertical guide-plates N N. Fig. 9 is a plan of the body and parts of ends, showing positions of vertical guide-plates which project upward between the body and ends of the boat to prevent it running at an angle, as shown in Fig. 8. Fig. 10 is a longitudinal section of the body of the boat, showing system for strengthening which by preference I use, also a side view of stoppers projecting through the boat's bottom to engage the notched bars shown in Fig. 7, one of the stoppers being extended above to form a lever. Both stoppers being connected together, one man in the boat can work both. Fig. 11 is a section of the body of the boat, showing floating-chambers at the sides, also the concave bottom for air-cushioning to relieve the fall of the boat and the double bottom for ballast and self-righting purposes and a cross view of a stopper engaging a notched bar. Fig. 12 is a tube for the admission and outlet of the water into and out of the double bottom. Fig. 13 is a plug for closing the tube. Fig. 14 is a section of one end of the boat, showing division-plates. Figs. 15 and 16 are sections of fender-belts.

Referring to said drawings, Fig. 1, A A are the two ends of the boat, fixed or running loose on an axle or shaft A', these ends being encircled by fender-belts B B B B, one of which on each end forms a wheel on which

the boat is transported to the ship's side ready for launching or lowering. The fender-belts are made to project sufficiently to protect the boat when in contact with the ship's side or
5 other object.

C is the body of the boat, through which the axle or shaft passes, fixed or otherwise, but so arranged that the body will not revolve with the ends.

10 It will be seen that when the boat's gripes or lashings are cut and the ship rolls or lists the boat, being supported on the wheels, will go with the movement of the ship.

To prevent the boat moving when the ship
15 rolls in the wrong direction, there is provided within the boat the stopper-lever C', which will cause the lower ends C² of the stoppers to catch or engage the notched bars on the ways C³ and release them again when the
20 ship moves in the desired direction. The stoppers being swung on fulcrums at D D, Figs. 10 and 11, will admit of fore-and-aft movement. At each end of the notched bars a tooth E projects sufficiently to prevent the
25 stopper passing it until the lever is put down into the bottom of the boat, thus preventing the boat leaving the ways by accident or oversight.

To prevent ends filling with water when
30 damaged, I may use division-plates. (See Fig. 14.)

To increase the self-righting powers of the boat, I employ a double bottom F, which rapidly fills itself with water when the boat is
35 afloat, this water tending to prevent the boat capsizing and acting as a weight to bring it around when capsized. (See Fig. 11.)

For the purpose of quickly filling and emptying the double bottom and retaining the
40 water when filled I use a number of pipes F', of suitable size, which pass through the water-space in the double bottom and are secured at the top and bottom ends to the floor and bottom of the boat. Round the sides at both
45 ends of the pipes (and within the water-space of double bottom) holes F² are made. The water passes through the lower holes and the air through the upper ones. (See Fig. 12.)

To retain the water in double bottom, I use
50 plugs F³, of wood or other suitable material, so shaped that when they are dropped into the tubes they will cover the holes in the sides of the tubes. (See Fig. 13.)

To give increased stability, I remove all
55 floating power from the central part of the body and confine it to the side boxes G. (See Fig. 11.)

To prevent injury to the boat or an extreme shock to the people in it when launched, I
60 provide air-cushioning to the bottom by making all parts of the bottom concave that cannot be sharp or circular. The air escaping

relatively slowly from such concave parts will give a cushioning. (See Fig. 11.)

To strengthen the boat sufficiently to admit
65 of the people getting into it without injury to the boat while on board the vessel and resting on its revolving ends, I convert the axle or shaft A' and bottom of the boat into a girder by means of a combination of light
70 diagonal stays A², with the thwart-stanchions to form the web of such girder. I effect this by attaching the upper ends of the diagonal stays to flanged collars A³ at each end of the
75 boat's body and the lower end to the boat's keelson. These collars are secured to the boat, and the axle or shaft passes through them. When the axle is made to revolve in
79 the body of the boat, the thrusts of these collars caused by the pull of the diagonal stays
80 are taken by a thrust-collar secured to the axle.

The thwart-stanchions A⁴ are tubes secured
8 to the boat's keelsons and have rings A⁵ or eyes at the top ends to connect them to the
85 axle, and these rings or eyes are made a slack fit to the axle when the axle is made to revolve in the body of the boat, and thus form
90 journals for the axle. (See Fig. 10.)

To prevent the boat canting on the ways
90 while the people are getting into it and causing the bilges to press on the ways and impede the movements of the boat, I use small rollers H in the bilges, which are so placed as not to take more weight of the boat than what
95 is due to canting. (See Fig. 11.)

To make the encircling belts as light as possible, I construct them of metal made hollow in such form that either the metal comes in
100 contact with the object struck or the blow is received by a soft protective substance.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—
105

In a life-boat, the combination with conical buoyant end sections provided with outwardly-extended flanges adapted to roll as wheels on the deck of the vessel; of a shaft rigidly mounted in said sections and extended
110 between the same; and a boat-body adapted to hold passengers and pivotally suspended from said shaft so as to be lifted above the bottom of the said end sections substantially as described, whereby the boat may be rolled
115 off the vessel as on wheels while containing passengers.

In testimony whereof I have hereunto set my hand this 26th day of March, 1897.

EDWARD J. HOUGH.

Witnesses:

WILLIAM ALLISON,
WILLIAM MUNDY.