

(No Model.)

2 Sheets—Sheet 1.

G. BERGER.

BELL RINGING DEVICE FOR BUOYS AND BOATS.

No. 383,552.

Patented May 29, 1888.

fig:1.

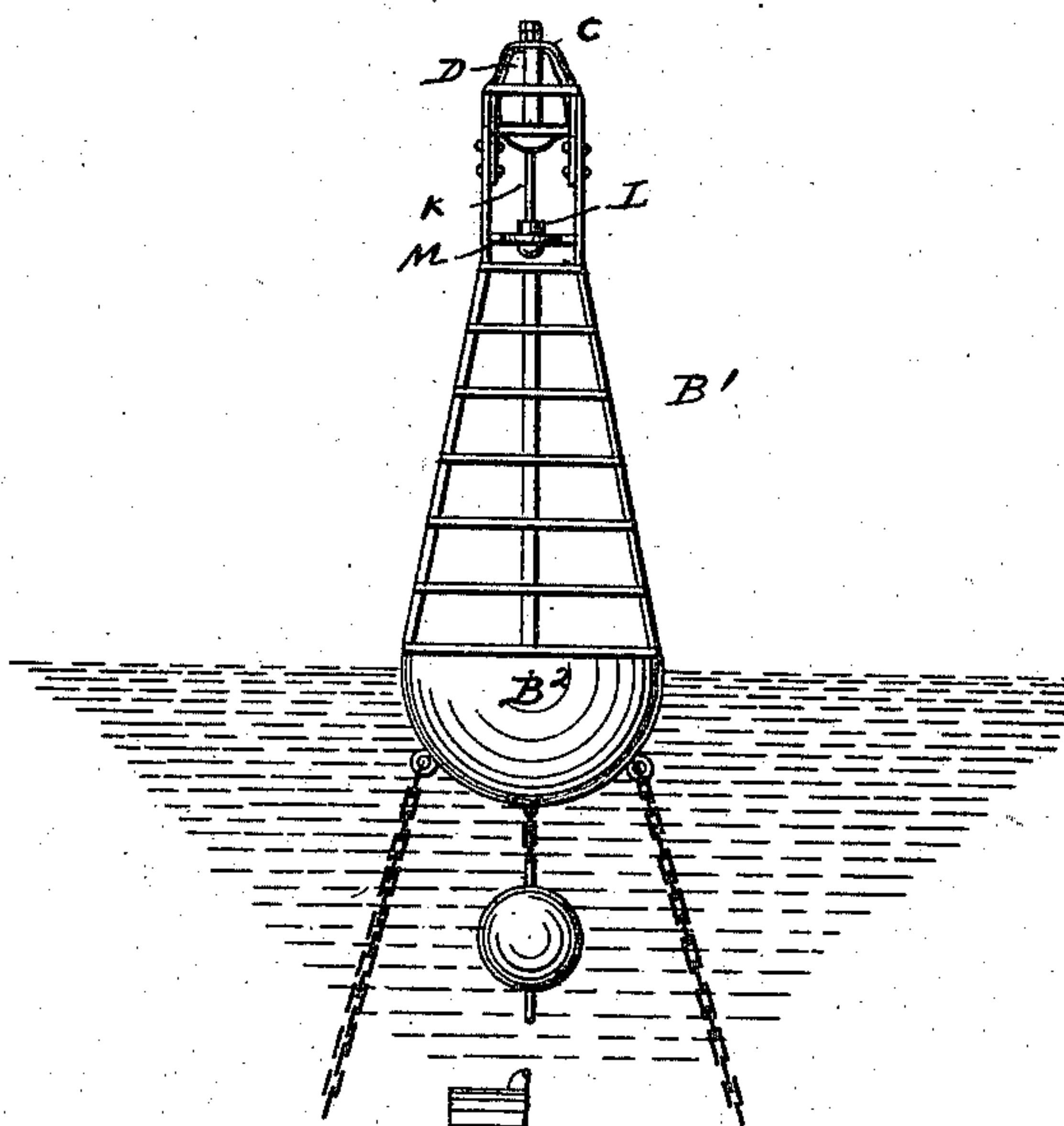
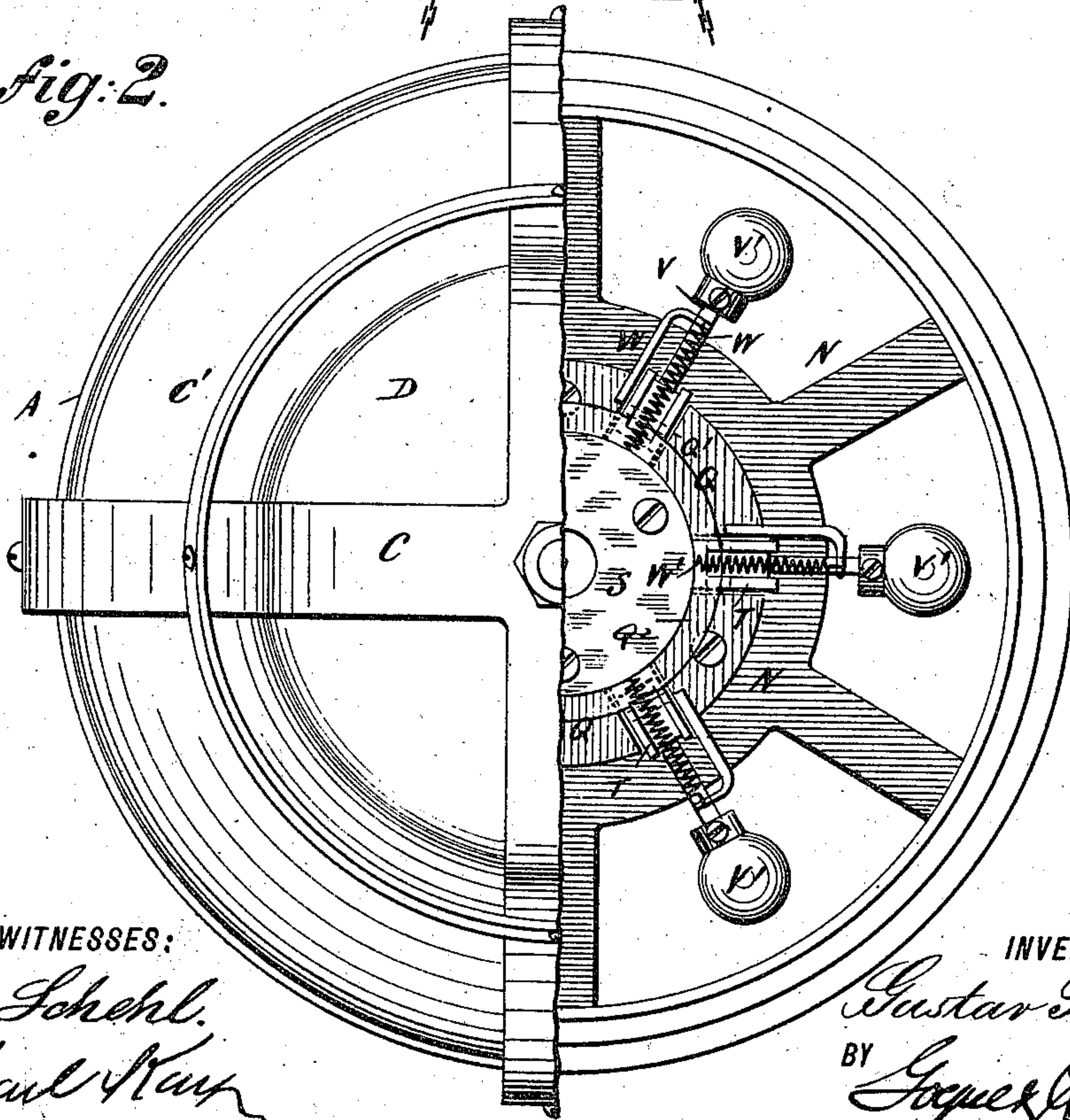


fig:2.



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(No Model.)

2 Sheets—Sheet 2.

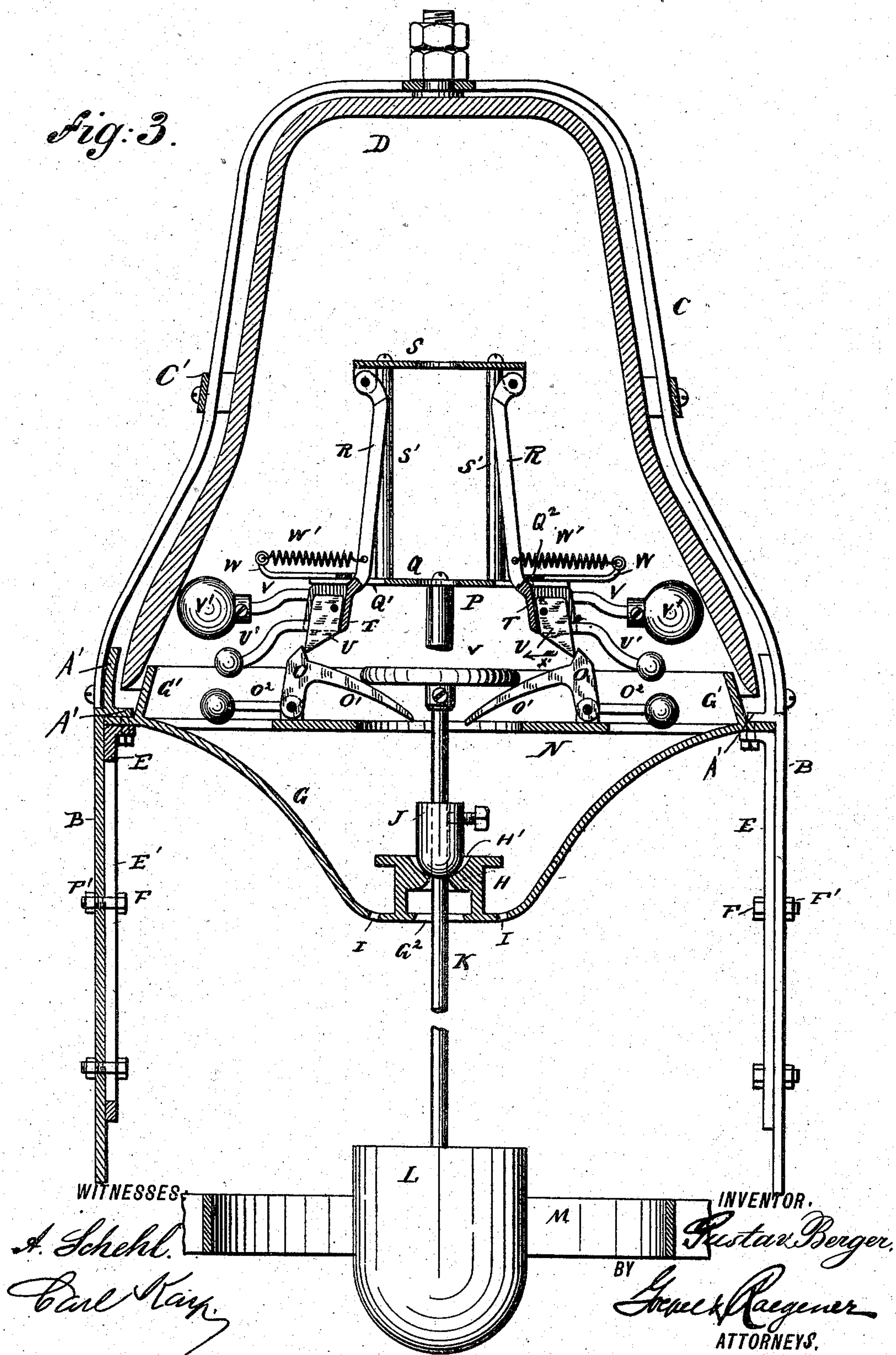
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Fig. 3.



UNITED STATES PATENT OFFICE.

GUSTAV BERGER, OF STAPLETON, NEW YORK.

BELL-RINGING DEVICE FOR BUOYS AND BOATS.

SPECIFICATION forming part of Letters Patent No. 383,552, dated May 29, 1888.

Application filed February 29, 1888. Serial No. 265,707. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV BERGER, of Stapleton, in the county of Richmond, State of New York, have invented certain new and useful Improvements in Bell-Ringing Devices for Buoys and Boats, of which the following is a specification.

This invention relates to improvements in devices for ringing or sounding the bells on buoys and boats anchored at shoals, wrecks, &c., to notify mariners of danger.

The object of my invention is to provide a new and improved mechanism for ringing or sounding the bells, which mechanism is of simple construction, does not injure the bell by unduly wearing out the inner surface of the same, and which mechanism can be removed from the bell for cleaning or repairing it without requiring the removal of the bell, which is usually connected with considerable difficulties.

The invention consists in the combination, with a bell, of series of separate hammers in the same and a separate actuating mechanism for each hammer.

The invention further consists in the combination, with said bell, hammers, and actuating mechanism, of a rocking weighted rod for operating the actuating mechanism.

The invention also consists in the construction and combination of parts and details, as will be fully described and set forth hereinafter, and then pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of an anchored buoy provided with my improved bell-ringing mechanism. Fig. 2 is a top view of the bell and ringing mechanism on a larger scale, parts being broken out. Fig. 3 is a vertical transverse sectional view of a bell and my improved bell-ringing mechanism.

Similar letters of reference indicate corresponding parts.

The ring A, provided with the internal flange, A', is secured to or made integral with the upper ends of a number of posts or standards, B, secured in some suitable manner on the top of the frame B' on the buoy B², which may be of any well-known construction. To the ring A the ends of the shanks of a bell-shaped skeleton frame, C, are secured, and

from the top of said frame the bell D is suspended rigidly, the bars of the frame being a short distance from the outer surface of the bell, as shown. The bars of the frame C are braced by one or more transverse rings, C'.

On the inner side of each standard or post B a flat bar, E, rests, which is provided with a longitudinal slot, E', and through each slot E' two or more screws, F, pass, which are also passed through holes in the standards or posts B, nuts F' being screwed on the outer ends of said bolts. When said nuts are loosened, the bars E can be moved up or down on the inner sides of the standards or posts B, and can be locked in the desired positions on said posts by drawing up or tightening the nuts F'.

An inverted bell-shaped or saucer-shaped plate, G, is secured to lugs on the upper ends of the sliding bars E, and is provided a short distance inward from its rim with the upwardly and inwardly inclined flange G', which, when said plate G is raised, passes into the mouth of the bell and is quite close to the inner surface of the bell.

The plate G is provided at its center with a centrally-apertured projection, H, on its inner side, this projection being provided in its top with a recess, H', forming a seating for the rounded lower end of a collar, J, held by a set-screw on a rod, K, passed through the central bottom aperture, G², of the plate G and through the central aperture of the projection H, said apertures being of sufficient size to permit the rod K to swing in different directions. The plate G is provided with apertures *i* at the sides of the projection H to permit the water that may accumulate on said plate G to flow off.

To the lower end of the rod K a weight, L, is secured, which can swing and turn within a ring, M, secured to the posts B some distance below the plate G, said ring serving to limit the movements of the weight and prevent it from swinging too far.

A spider-frame, N, is secured to or made integral with the plate G at the base of the flange G', and on the same six latches, O, are pivoted around the center in such a manner that their upper ends can swing. Each latch O is provided with a curved arm, O', projecting toward the center, and with a weighted arm, O², projecting in the opposite direction, the latter

serving to swing the latches into the upright position—that is, in the direction from the center toward the rim of the plate G. Said latches have their upper swinging ends beveled in opposite directions, as shown.

Standards P on the spider-frame N support a plate, Q, a short distance above the spider-frame, which plate has six pairs of radial guide-notches, Q', in which the lower ends of levers R can swing toward and from the center of the plate Q, the upper ends of said levers being pivoted to lugs or jaws on the under side of a plate, S, fastened on the upper ends of standards S' on the plate Q. A flat ring, Q'', on the plate Q extends across the notches Q'. On the lower end of each lever R a pocket, T, is formed, which is open at the top, front, and bottom and closed at the back, and in each pocket T a trigger, U, is pivoted eccentrically, each trigger being provided with a weighted arm, U', projecting from its front edge. From the lower end of each lever R an arm, V, projects toward the inner surface of the bell and carries a hammer-head, V', on its outer end. At the lower end of each lever R an arm, W, projects radially from the plate Q, and to the outer end of each arm W and the lower part of each corresponding lever R the opposite ends of a spiral or other spring, W', are secured, which springs serve to draw or throw the swinging ends of the levers R and the hammer V' toward the inner surface of the bell.

On the upper end of the rod K a disk, Y, is fastened, the rounded edges of which rest on the curved upper edges of the arms O' of the latches O.

The bell and its ringing mechanism can be applied on a boat or float as well as on a buoy.

Instead of six hammer-heads, V', and the corresponding operating devices for the same, a greater or less number of hammer-heads and operating devices for the same may be provided.

When it is desired to clean, inspect, or repair the hammers and their actuating mechanism, the plate G is lowered, so as to remove said hammers and mechanism from the bell.

The operation is as follows: As the buoy or boat carrying bell swings, pitches, and rocks, the rod K swings to and fro in various directions, the lower rounded end of the collar J forming the turning-point on the projection H. For example, when the weight L swings to the left, the upper end of the rod swings to the right, and the right-hand part of the rim of the disk Y is moved downward and presses on the top of the curved arm O' of a latch O at the right-hand side of the bell, and presses said arm downward. Thereby the upper end of the latch is moved in the direction of the arrow x' , Fig. 3, and, acting on the lower part of the front edge of the corresponding latch U, presses the same in the direction of the arrow x' . As the back of the trigger rests against the closed back of its pocket T, the lower end of the corresponding lever R is moved

in the direction of the arrow x' , whereby the spring W' is stretched and the hammer-head V' withdrawn from the inner surface of the bell. As the upper end of the latch O describes an arc in moving toward the central axis of the device, it also moves downward, and finally passes under the lower end of trigger U, which is thus released, as is also the lever R and spring W'. Said spring contracts and throws the lever R toward the inner surface of the bell. Just before the hammer head V' strikes the bell the arm R strikes the ring Q' and is arrested; but the hammer-head V' strikes the bell a sudden quick blow, the elasticity of the arm V' permitting this. When at rest, the hammer-heads are a minimum distance from the inner surface of the bell. When the weight L then swings in the right direction, the upper end of the rod K swings to the left, and the pressure is removed from the arm O' of the right-hand latch O, thus permitting the weighted arm O' to swing the upper end of said latch O in the inverse direction of the arrow x' . The outer bevel at the top of the latch, acting on the bevel of the corresponding trigger, raises the same, and the latch passes under the trigger and in front of the outer edge of the same. After the latch has passed in front of the outer edge of the trigger, the said trigger swings down under the action of its weighted arm V or under the action of its own weight. The weight of the hammer keeps the same a short distance from the inner surface of the bell when the same is in a state of rest, as shown in Fig. 1. In whatever direction the weight swings, the disk Y on the upper end of the rod K at all times acts on an arm O' and operates one of the hammer-heads. The flange G' on the plate G enters the mouth of the bell and prevents the water that is dashed against the bell from entering the mouth of the bell.

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

1. The combination, with a bell, of a series of hammers in the same, a weighted swinging rod extending downward from the bell, and intermediate actuating levers for operating the hammers from the upper end of said rod, substantially as herein shown and described.

2. The combination, with a bell, of a series of hammers in the same, a weighted swinging rod extending downward from the bell, a disk on the upper end of said rod, and intermediate levers for operating the hammers from said disk, substantially as herein shown and described.

3. The combination, with a bell, of a series of swinging levers in the same, pivoted latches for moving the hammers from the sides of the bell, a weighted swinging rod extending downward from the bell, a disk on the upper end of said rod, which disk depresses the ends of said latches, whereby the opposite ends of said latches move the levers from the inner side of the bell, substantially as herein shown and described.

4. The combination, with a bell, of a series of levers pivoted to the same, springs acting on the levers and moving them toward the inside of the bell, hammer-heads on the lower ends of said levers, triggers pivoted to said hammer-heads, and pivoted latches adjacent to said triggers and serving to move the said triggers and hammers from the inner surface of the bell, and a weighted swinging rod extending downward from the bell and provided on its upper end with a disk that can depress the inner ends of the latches, whereby the outer ends are moved from the inner surface of the bell, and thereby move the inner ends of the hammers in the same direction, substantially as herein shown and described.

5. The combination, with a bell, of a plate secured transversely in the mouth of the bell, a frame on said plate, hammer-levers pivoted to said frame, latches pivoted on the plate and serving to move the hammers from the inner surface of the bell, and a weighted rod extending downward from said plate, provided on its upper end with a disk that actuates the latches, substantially as shown and described.

6. The combination, with a bell, of a plate in the mouth of the same, a weighted swinging rod passed through an aperture in said plate, a collar on said rod, a seat for the collar being formed on the plate, swinging hammers on a frame supported on the plate within the bell,

and latches on the plate, which latches are operated from the swinging rod and serve to operate the hammers, substantially as herein shown and described.

7. The combination, with a bell, of standards supporting the same at its top, leaving the bell-mouth open, sliding bars on said standards, mounted to slide toward and from the mouth of the bell, a plate secured on said sliding bars and adapted to fit in the mouth of the bell, and bell-ringing hammers, and mechanism for actuating the same on the top of said plate, substantially as herein shown and described.

8. The combination, with the bell D, of the plate G, the spider-frame N, the latches O, pivoted on the frame N, the plate P, the plate S, the levers R, pivoted on the plate S, the hammer-heads V' on the levers R, the triggers U, pivoted to the levers R, the springs W', connected with the levers R, the weighted swinging rod K, and the disk Y on the upper end of the same, substantially as herein shown and described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

GUSTAV BERGER.

Witnesses:

OSCAR F. GUNZ,
JOHN A. STRALEY.