(No Model.)

J. GIBSON.

BELL BUOY.

No. 455,746. Patented July 14, 1891.

Fig. 1.

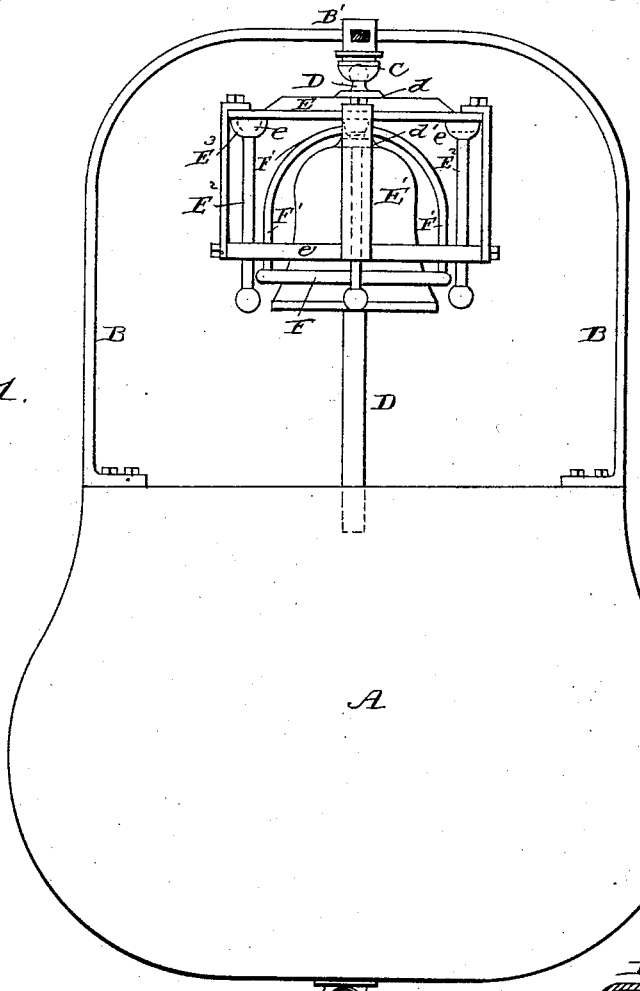


Fig. 3.

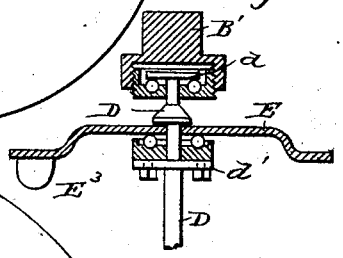
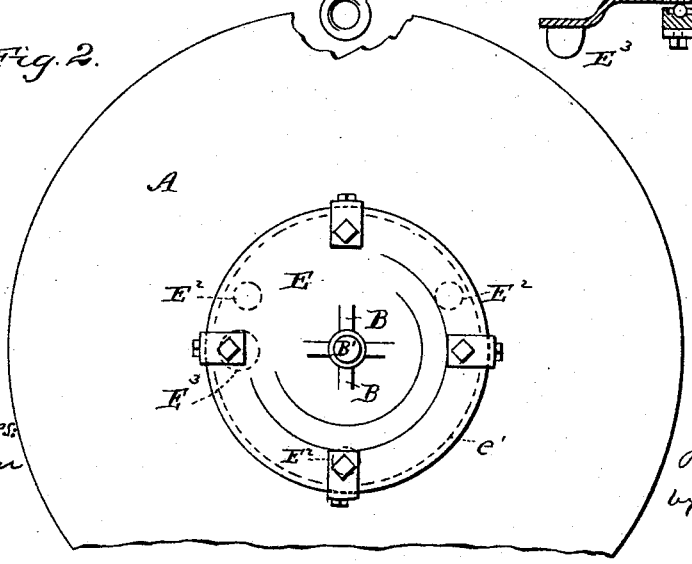


Fig. 2.



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UNITED STATES PATENT OFFICE.

JASPER GIBSON, OF LONDON, ENGLAND.

BELL-BUOY.

SPECIFICATION forming part of Letters Patent No. 455,746, dated July 14, 1891.

Application filed July 23, 1890. Serial No. 359,711. (No model.) Patented in England January 16, 1889, No. 820; in Germany November 22, 1889, No. 52,125; in France November 25, 1889, No. 202,175, and in Italy December 24, 1889, No. 26,845/177.

To all whom it may concern:

Be it known that I, JASPER GIBSON, solicitor, of 51 Lincoln's Inn Fields, London, in the county of Middlesex, England, have invented certain new and useful Improvements in Bell-Buoys, (for which I have received Letters Patent in Great Britain January 16, 1889, No. 820; in Germany November 22, 1889, No. 52,125; in France November 25, 1889, No. 202,175, and in Italy December 24, 1889, No. 26,845/177,) of which the following is a full, clear, and exact description.

This invention relates to improvements in bell-buoys, and has for its object to remedy the inefficiency of bell-buoys as at present constructed.

By my invention I secure practically a continuous ringing of the bell during rough weather, when one or the other of the clappers of the four-clapper bell-buoy hitherto used is or are liable to hang against the bell and so prejudice its tone, while the remainder hang away inactive.

In order that my invention may be more fully understood, I have hereto annexed drawings illustrative of the manner in which it may be carried into effect.

Figure 1 represents an elevation of a buoy provided with my improved apparatus for sounding the bell, and Fig. 2 is a plan of the same. Fig. 3 is a detail view of a portion of Fig. 1.

The same letters refer to the same parts in each figure.

A is the floating body of the buoy, to the sides or deck of which are bolted or otherwise secured bars B, which extend upward in a converging manner and finally meet in a central hub B′. To the lower portion of this hub is screwed a socket C, which, in conjunction with the ball *c*, forms a ball-and-socket joint. To the ball *c* is fixed a rod D between collars *d*, on which is loosely supported a disk or wheel E, while lower down between collars *d*′ is similarly supported a bell E′. Around the rim of the disk E are hung a series of clappers (three) or strikers E^2, supported preferably by ball-and-socket joints *e*, such strikers being so arranged as to hang some distance from the periphery of the bell when the buoy is floating vertically, as shown in the drawings, but being free to impinge upon the same when the buoy oscillates. The disk E is weighted near its outer edge by means of a weight E^3, fixed thereto, such weight causing the disk to revolve when the buoy is subjected to violent oscillations, whereby the possibility of any one of the three clappers resting against the bell and thereby checking the vibrations thereof is obviated.

In fixing or fitting the above-mentioned rod D to the top frame-work of the buoy I sometimes find it desirable to suspend the same in ball-bearings or similar anti-friction gear, upon which the disk can revolve more freely than when supported by the ball-and-socket joint. The same arrangement applies equally to the suspension of the rod D and to the bearings *d*′ for supporting the disk E, as shown in detail in Fig. 3. It is also advisable that the freedom of motion allowed to the clappers in the direction of swinging away from the bell should be limited, and for this purpose I employ a ring *e*′, fixed either to the disk E, as shown, or to the iron-work B, forming the upper portion or dome of the buoy. The ring by thus limiting the oscillations of the clappers will cause the same to strike more frequently against the bell. To prevent the clappers hanging to the bell, a ring F is supported by arms F′ from a collar F^2 on the rod D at such a distance from the bell as will cause it to act as a spring and permit the clapper to strike the bell, but compel it to rebound therefrom.

The object of employing ball-bearings both for the suspension of the rod D and the disk or ring E is to make doubly sure of the disk revolving with every oscillation of the buoy.

The following is what I claim as new and desire to secure by Letters Patent, namely:

1. In a bell-buoy, the combination, with the buoy, of a frame having a bearing, the rod D, hung in said bearing, the bell supported on said rod, a revolving disk mounted on the rod and eccentrically weighted, and clappers hung from the disk and adapted to strike the bell, substantially as described.

2. In a bell-buoy, the combination, with the buoy, of a frame having a bearing, the rod D,

hung in said bearing, the bell supported on said rod, a revolving disk mounted on the rod, clappers hung from the disk and adapted to strike the bell, and the limiting-ring *e'* between the bell and clappers and supported by the disk, substantially as described.

3. In a bell-buoy, the combination, with the buoy, of a frame, a rod supported thereby, a bell supported by the rod, a revolving disk mounted on the rod above the bell, and clappers carried by the disk and adapted to strike the bell, substantially as described.

4. In a bell-buoy, the combination, with the main frame, hub B', and the rod D, suspended in ball-bearings from the same, of the bell E', weighted revolving disk E, mounted on said rod D and provided with clappers, and ring F, supported on rod D, whereby the clappers are prevented from clinging to the surface of the bell, substantially as set forth.

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