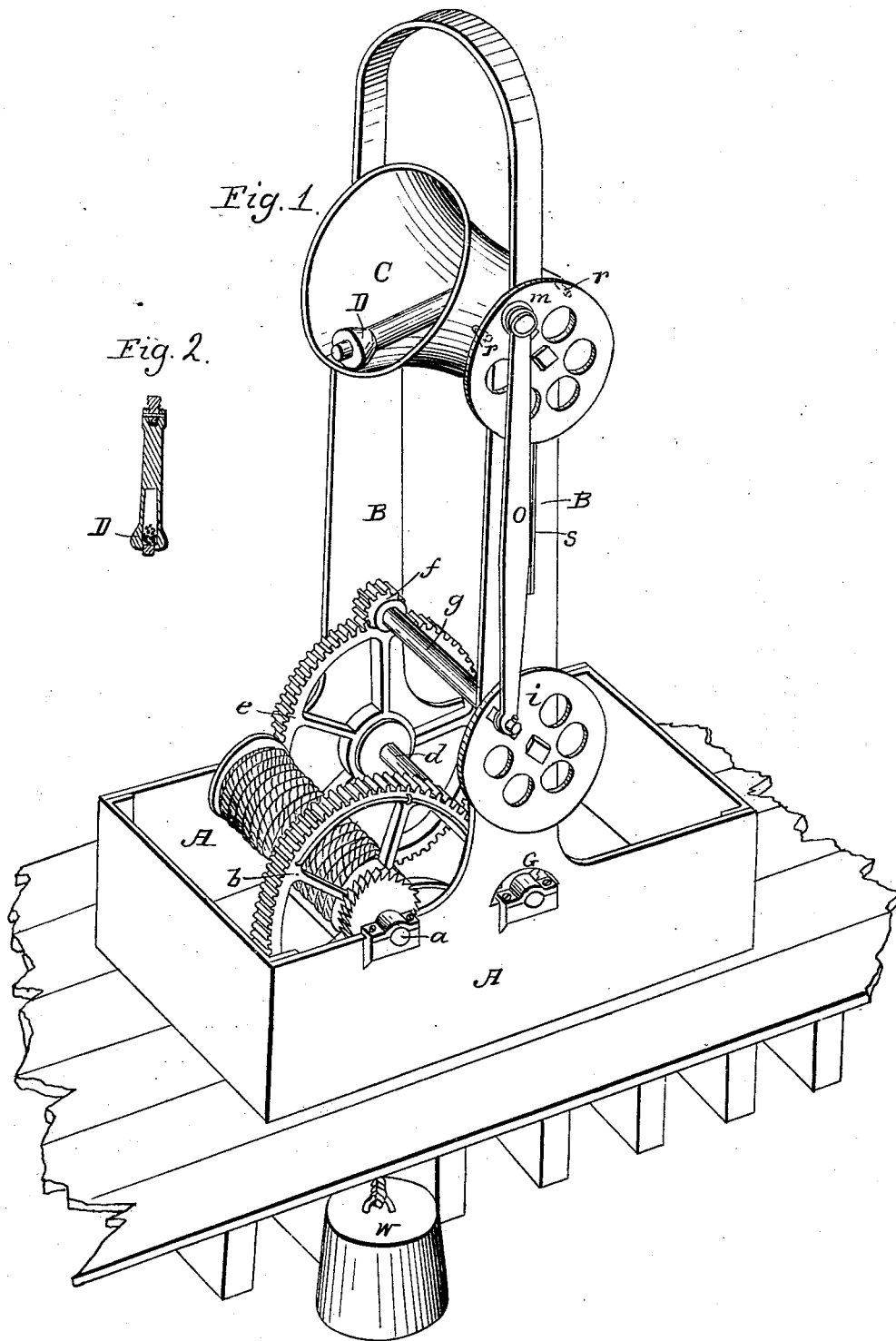


D. JONES.

Fog Bell.

No. 6.915.

Patented Nov. 22, 1849.



# UNITED STATES PATENT OFFICE.

DANIEL JONES, JR., OF ST. JOHNS, NEW BRUNSWICK, CANADA.

## METHOD OF RINGING FOG-BELLS AND AN ADJUSTABLE CLAPPER FOR THE SAME.

Specification of Letters Patent No. 6,915, dated November 27, 1849.

*To all whom it may concern:*

Be it known that I, DANIEL JONES, JR., of the city of St. John, in the Province of New Brunswick, Canada, blacksmith, a British  
5 subject, have invented a new and improved method of indicating to vessels the position of channels, shoals, or reefs at the entrance of harbors or elsewhere and for giving notice of the depth of water and of the times  
10 when channels can be passed with safety; and I do hereby declare that the following is a full, clear, and exact description of my invention, reference being had to the accompanying drawing in perspective of my machine and a section of the clapper which  
15 form part of this specification.

My invention consists in ringing a bell by machinery in such manner that the sound may be varied at will so as to make different  
20 signals to approaching vessels. I have likewise so constructed the clapper that the blows struck by it in different positions of the bell shall always be equal in intensity.

In the drawing A is the frame on which  
25 the several parts of the machine are mounted. Two pillars B are erected on the opposite sides of this frame to support the bell C which is hung in a yoke whose gudgeons turn in pillow blocks secured to the two  
30 pillars. The motive power for operating the bell is a descending weight W whose chain or cord is wound upon a barrel secured to the main shaft (a). A cog wheel (b) is mounted upon this shaft and connected with  
35 the barrel by a ratchet wheel and pawl in such manner that the descent of the weight will cause it to turn with the barrel, but that the latter may be turned in the opposite direction to wind up the bell without moving  
40 the cog wheel. The cog wheel b gears into a pinion c on the second shaft d which through a second wheel e and pinion f drives the third shaft g. The bell is put in motion from this last shaft by two cranks the one  
45 i secured to the shaft and the other (m) to one of the gudgeons of the bell yoke, the pins of the two cranks being connected by a rod o. If these crank pins were fixed immovably to their respective cranks the  
50 number of blows struck by the clapper D would be always the same and the bell would make but one signal. To vary the signals the crank pins are made adjustable by securing them by a nut or otherwise in  
55 radial slots, in which they can be set at a greater or less distance from the axes of

the cranks so as to vary their length of sweep. If the two are set at an equal distance from their centers, then the bell will make a complete revolution for each one of  
60 the shaft and will be struck three times by the clapper, if the length of the upper crank be made a little greater than that of the lower, the bell will describe nearly a half circle alternately in opposite directions, the  
65 clapper striking four distinct blows; but to facilitate the reversal of the motion of the bell when set to ring in this manner, two pins r r are projected from the inner face of the yoke crank m which strike alternately against a spring bar s secured to one  
70 of the pillars B, this spring yielding when struck by the pin lessens the jar and then reacting aids in turning the bell in the opposite direction. If the lower crank be now  
75 shortened the bell will be struck twice for each revolution of the shaft g and it may be made to toll by properly adjusting the two crank pins. As the blows struck by the clapper will vary considerably in intensity  
80 at different positions of the bell, I have made it hollow as seen in the sectional view and placed within it a shifting weight, which by falling toward the axis of the clapper, when the bell is inverted, will lessen  
85 the momentum of the last blow struck when the bell is ascending, and thus render all the tones equal in intensity.

The variations in the signals produced by this device are of the greatest importance  
90 in giving notice to vessels entering harbors of the state of the channel. Many harbors cannot be entered except at particular states of the tide, and no simple and efficient method has hitherto been devised for giving  
95 notice under all circumstances when the entrance can be safely effected. The bell operated as herein set forth is particularly applicable to such cases, as by varying the effective lengths of the cranks it may be  
100 either rung in any desired manner, or may be tolled. In foggy weather these signals are of especial advantage as lights cannot be seen under such circumstances at a sufficient distance to give warning to vessels of  
105 the danger they are approaching in time to enable them to avoid it. The particular state of facts which a given mode of ringing, or tolling, shall indicate at a given place, should of course be left to the direction of the superintendents of light houses  
110 and harbors, and by them be made known

to those who are concerned in the sailing of vessels in the vicinity of the place where such signal is used.

What I claim as my invention and desire  
5 to secure by Letters Patent, is—

1. Indicating to vessels the position of channels, shoals or reefs, the depth of water or state of the tide or currents, at the entrance of harbors or elsewhere, by the vary-  
10 ing ringing or tolling of a bell operated

by adjustable machinery substantially as 15 herein set forth.

2. I also claim the combination of a shifting weight with the clapper whereby its blows upon the bell in the several positions in which it strikes the same are equalized. 20

DANIEL JONES, Jr.

Witnesses:

S. WOODWARD,

C. W. WARDLAW.