

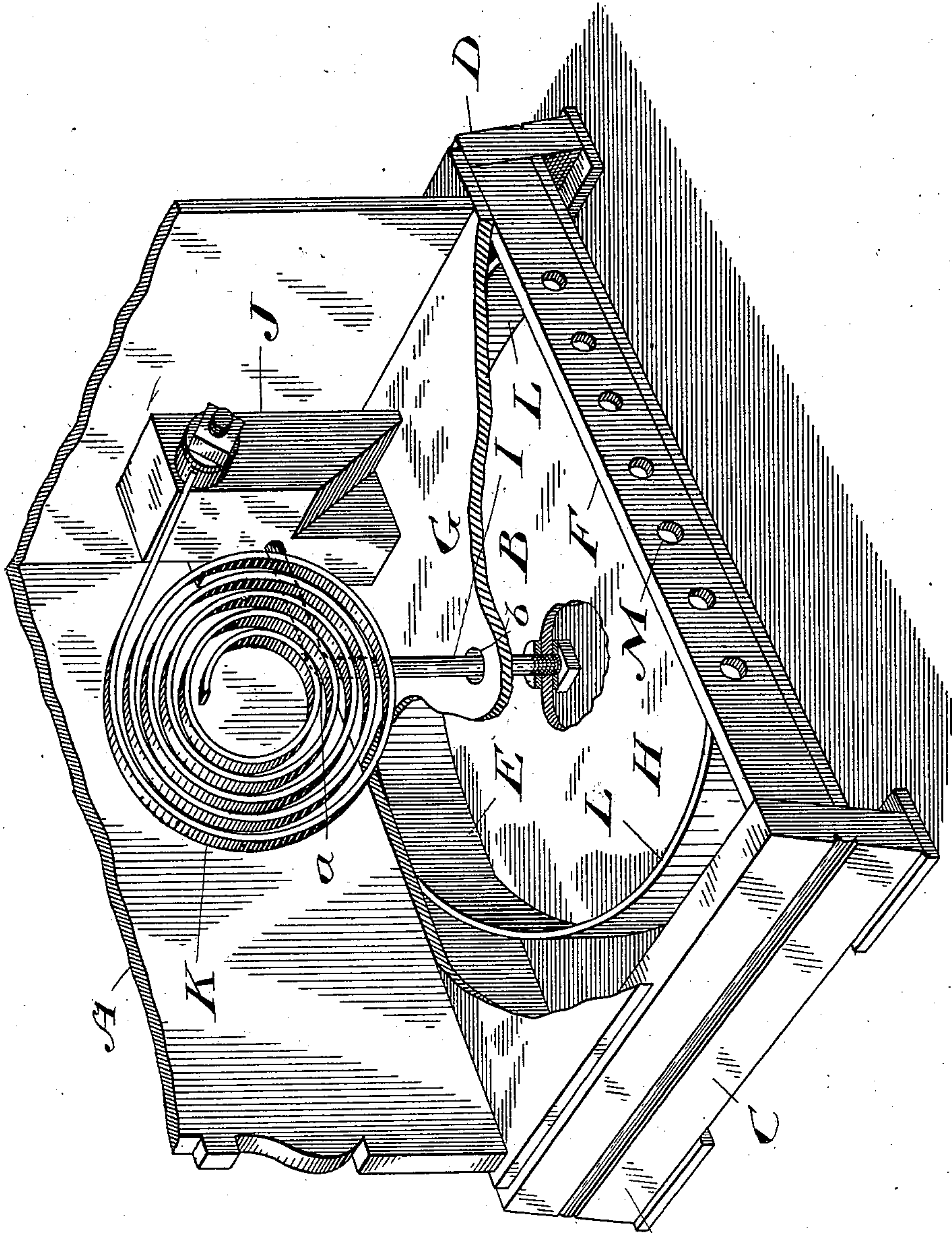
(No Model.)

S. WILLCOCK.

CLOCK RESONATOR.

No. 557,040.

Patented Mar. 24, 1896.



*Witnesses*

*Fred Clarke*  
*Attorney*

*Inventor*

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# UNITED STATES PATENT OFFICE.

STEPHEN WILLCOCK, OF TORONTO, CANADA, ASSIGNOR TO REINHOLD  
EGMUND GUNTHER, OF SAME PLACE.

## CLOCK-RESONATOR.

SPECIFICATION forming part of Letters Patent No. 557,040, dated March 24, 1896.

Application filed February 4, 1895. Serial No. 537,280. (No model.)

*To all whom it may concern:*

Be it known that I, STEPHEN WILLCOCK, of the city of Toronto, in the county of York and Province of Ontario, Canada, have invented a certain new and useful Resonator for Striking and Chime Clocks, of which the following is a specification.

The object of my invention is to devise means for increasing the volume and improving the quality of the sound from the gongs or bells of a striking or chime clock; and it consists, essentially, of a resonating-chamber, preferably located at the bottom of the clock-case and provided with curved deflectors to throw the sound out through a series of holes in one of the walls of the chamber, the standard carrying the gong or bell being rigidly connected to either the upper or lower sound-board of the said chamber, the whole being arranged in detail substantially as hereinafter more specifically described and then definitely claimed.

The drawing is a perspective view, partially broken away, showing my improvements applied to an ordinary striking clock.

A is a portion of the case of a clock.

B is a resonating-chamber, preferably located at the bottom of the clock-case. This chamber is formed by the side walls C D E F and the upper and lower vibratile walls or sound-boards G H, which are preferably made of spruce or other suitable resonant material.

I is a standard supporting the weight J, to which is connected the gong K. This standard is preferably bent, as shown at *a*, and after passing through the hole *b* in the upper sound-board G is rigidly bolted or otherwise secured to the lower sound-board H, as shown.

L are two curved deflectors, the ends of which are connected, respectively, to the walls E and F of the resonating-chamber. These deflectors being quite independent of the soundboards G and H do not in any wise affect their vibrations.

M are a series of holes formed in the wall F to permit of the escape of the sound from the interior of the resonating-chamber. From this construction it follows that the vibrations of the gong K are conveyed through the standard I to the soundboard H, throwing it into vibration, and with it the air contained in the

resonating-chamber B, and also vibrating the upper sound-board. The vibrations in the contained air are gathered by the curved deflectors L and directed outwardly through the holes M.

I find that by introducing the bend *a* into the standard I the resulting tone is much improved. This construction is also necessary in some clocks to adapt the position of the gong to the position of the striking-hammer. It is not essential that both the boards G and H should be of a vibratile or resonant material, as one will in many cases answer the purposes of my invention, nor is it essential when both the boards G and H are constructed of such material that the standard I should be connected to the lower, as substantially the same results will be obtained by securing it to the upper sound-board G. The resonant chamber might also be placed at the side of the clock-case, but I consider the position shown as preferable. When my resonator is used with a clock, the improvement in the quantity and quality of the tone of the gong over that produced by a gong carried in the usual way is very marked. This improvement is specially noticeable in chime-clocks, to which my resonator is consequently a valuable adjunct.

Of course other mechanism might be used to take the place of the gong or bell producing the vibrations to be amplified by the resonating-chamber.

What I claim as my invention is—

1. In a striking or chime clock, a resonating-chamber having a sound-outlet and a vibratile wall, a gong, a weight on which said gong is carried, and a standard carrying said weight and mounted on said vibratile wall and transmitting motion to it from the gong, substantially as described.

2. In a striking or chime clock, a resonating-chamber provided with a sound-outlet and having two vibratile walls or sounding-boards, in combination with a standard forming a support for a gong, said standard passing through one of said vibratile walls and connected to the other vibratile wall, substantially as described.

3. In a striking or chime clock, a resonating-chamber provided with a sound-outlet and



having a vibratile wall or sound-board, in combination with a bent standard rigidly connected to the center of the said vibratile wall, a weight carried by the said standard and a  
5 gong carried by the said weight, substantially as and for the purpose specified.

4. In a striking or chime clock, a resonating-chamber having a vibratile wall or sound-board, to which a gong or bell is connected,  
10 in combination with deflectors suitably held between the said vibratile wall and the wall opposite thereto, and a suitable outlet in one of the side walls of the chamber toward which the said deflectors direct the sound, substan-  
15 tially as and for the purpose specified.

5. In a striking or chime clock, a resonating-chamber comprising the side walls C, D, E, F, and the vibratile walls or sound-boards G, H, to one of which is rigidly connected the  
20 bell or gong K, in combination with the curved deflectors L, connected to the side walls E, F, one of which is provided with suitable sound-outlets, substantially as and for the purpose specified.

6. In a striking or chime clock, a resonat- 25  
ing-chamber comprising the side walls C, D, E, F, and the vibratile walls or sound-boards G, H, in combination with the standard I, the weight J, the gong K, and the curved deflec-  
30 tors L, connected to the side walls E, F, the wall F being provided with a series of holes M, substantially as and for the purpose specified.

7. In a striking or chime clock, the combination of the side walls C, D, E, F, the sound-  
35 board G, having a hole therein, the sound-board H, the bent standard I, passing through the hole b, and rigidly secured to the sound-board H, the weight J, the gong K, and the curved deflectors L, connected to the side  
40 walls E, F, the latter wall being provided with a series of holes M, substantially as and for the purpose specified.

Toronto, January 29, 1895.

STEPHEN WILLCOCK.

In presence of—

A. M. NEFF,

W. E. CLENDANIEL.