

W. C. MORGAN.  
GONG FOR CLOCKS.  
APPLICATION FILED JULY 29, 1908.

922,021.

Patented May 18, 1909.

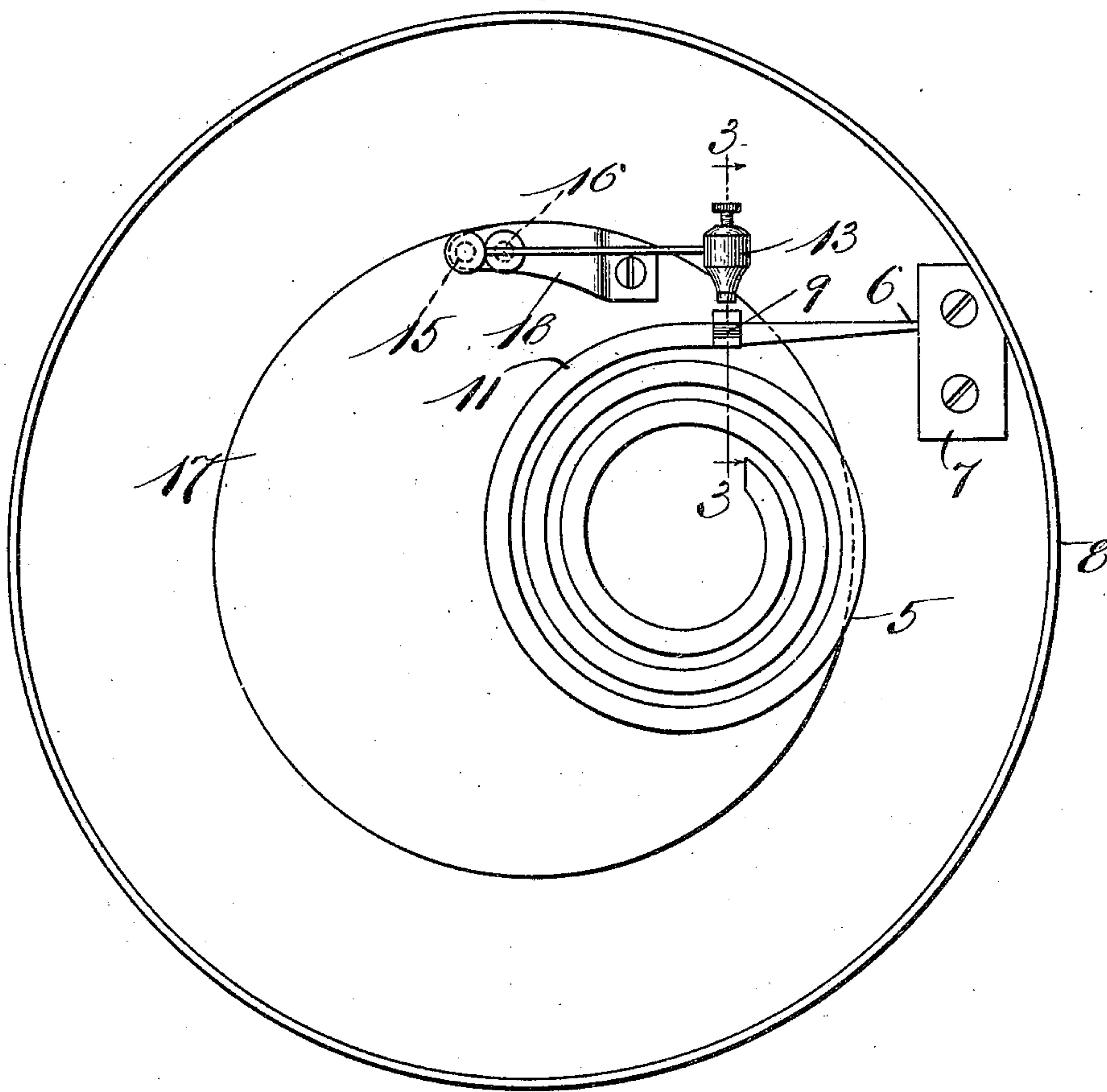
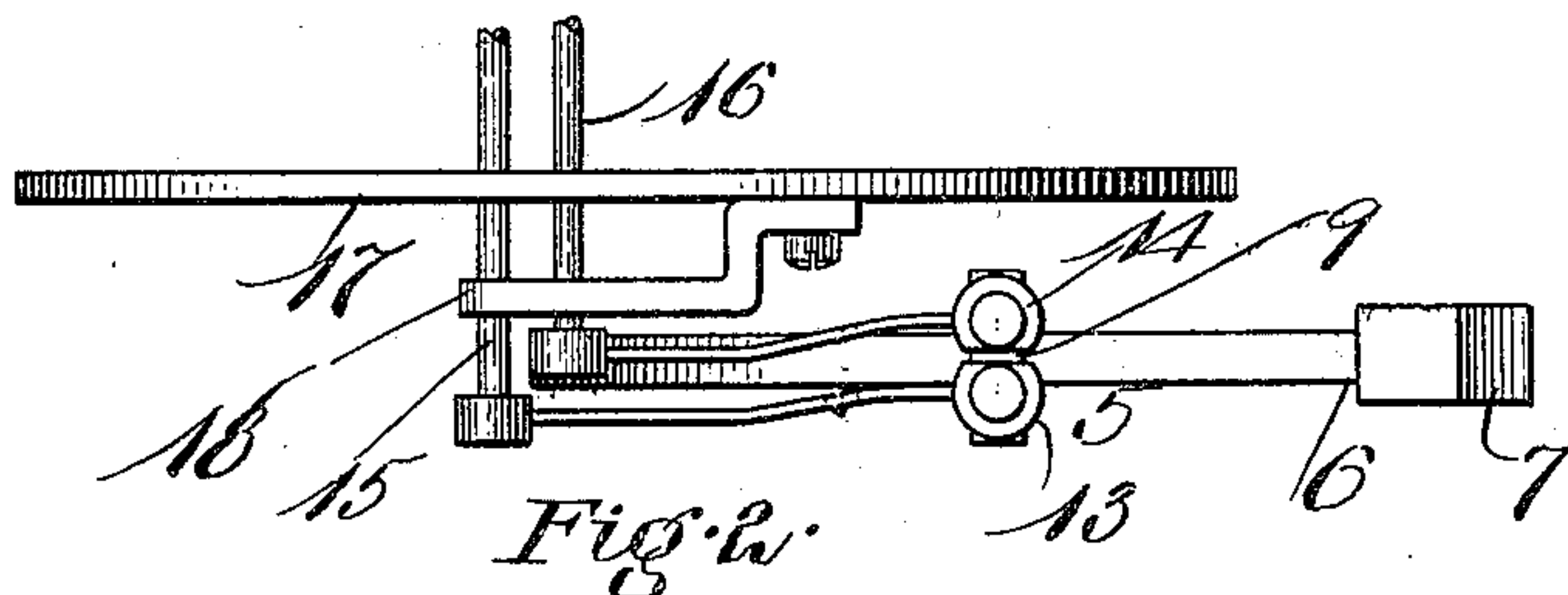
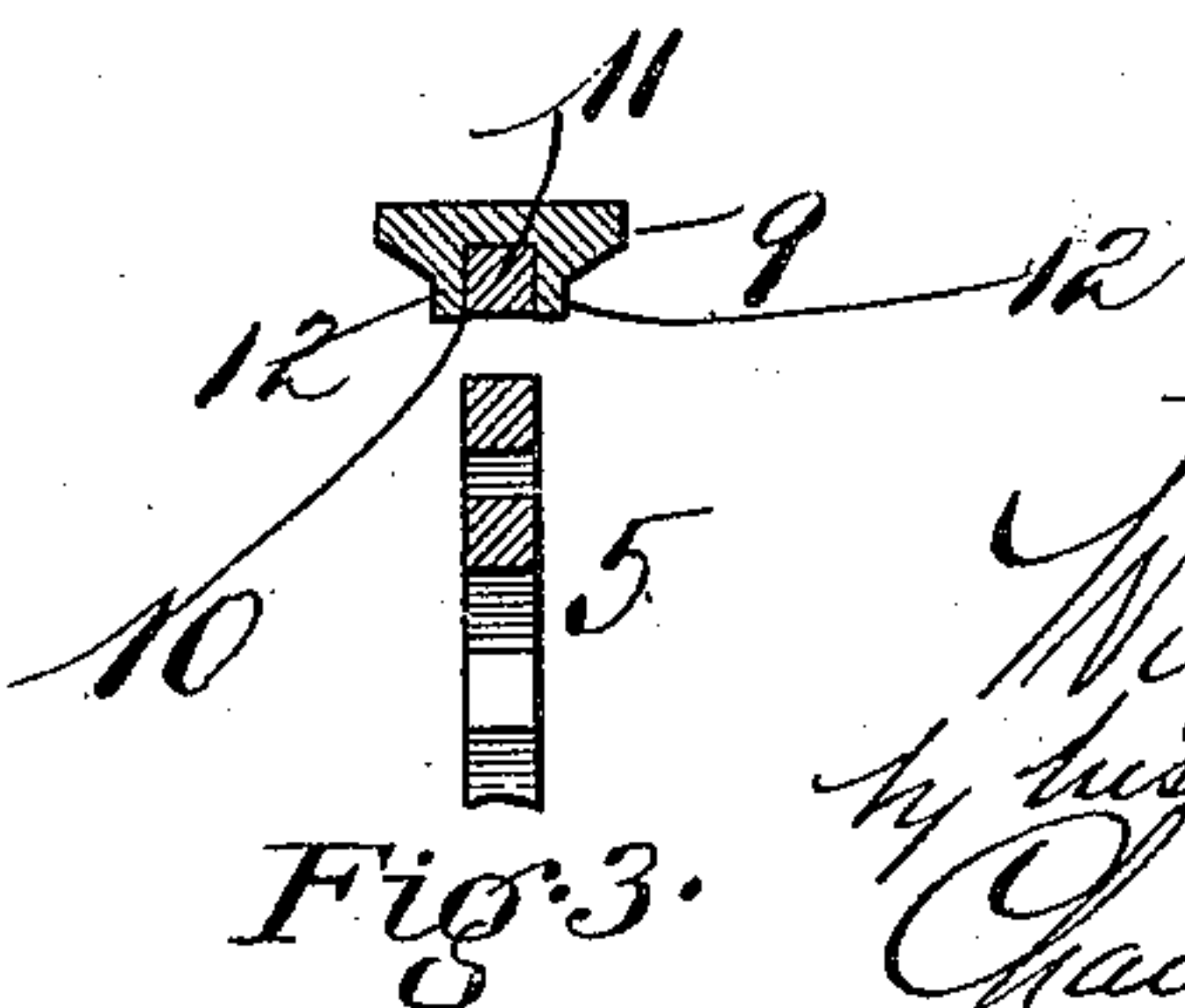


Fig. 1.



Witnesses:

William C. Glass  
Ernest A. Telfer

Inventor:

William C. Morgan,  
by his attorney,  
Charles J. Gooding.



# UNITED STATES PATENT OFFICE.

WILLIAM C. MORGAN, OF ROXBURY, MASSACHUSETTS, ASSIGNOR TO BIGELOW, KENNARD & CO., A COPARTNERSHIP.

## GONG FOR CLOCKS.

No. 922,021.

Specification of Letters Patent.

Patented May 18, 1909.

Application filed July 29, 1908. Serial No. 445,968.

*To all whom it may concern:*

Be it known that I, WILLIAM C. MORGAN, a citizen of the United States, residing at Roxbury, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Gongs for Clocks, of which the following is a specification.

This invention relates to an improvement in gongs for clocks, the same being particularly adapted for gongs which are used in what is known as "ships' bell clocks." In this class of clocks the hours are indicated by a double stroke upon the gong or by a plurality of double strokes, while the half hours are indicated by a single stroke or by a single stroke following a double stroke or a plurality of double strokes. This will be made plain by the following table:

12.30—Ding
1.00—Ding, Ding
1.30—Ding, Ding—Ding
2.00—Ding, Ding—Ding, Ding
2.30—Ding, Ding—Ding, Ding—Ding
3.00—Ding, Ding—Ding, Ding—Ding, Ding
3.30—Ding, Ding—Ding, Ding—Ding—Ding
4.00—Ding, Ding—Ding, Ding—Ding—Ding, Ding

in which the strokes upon the gong in the ship's bell clock are indicated from 12.30 to 4 o'clock, inclusive. These strokes upon the gong are then repeated for each four hours following, that is, from 4.30 to 8 o'clock, inclusive and 8.30 to 12 o'clock, inclusive, whereupon the strokes indicated in the above table are repeated during the next twelve hours, as in the twelve hours preceding.

To secure the result hereinbefore set forth of the double strokes or plurality of double strokes and the single stroke or the plurality of double strokes followed by a single stroke necessarily involves, where a single hammer is used in the clock, a very complicated and expensive mechanism for actuating said single hammer, *i. e.*, a very expensive striking train which leads to complications and also to great liability of the movement getting out of order. To overcome this difficulty in ships' bell clocks it has been the custom to use two hammers and a striking train well known to those skilled in this art. This reduces the complication of the striking train, but leads to the following difficulties. If two separate gongs are employed, one gong for each of the two hammers, then a difference in the sound will be produced, as it is almost impossible to get two gongs of exactly the same sound. If two hammers are employed, one striking in advance of the

other on a single gong, then a difference in the resultant tone will be obtained and this is undesirable. In the ship's clock the tone of the different strokes must always be the same. To overcome these difficulties and use a striking train for operating the two hammers which shall be comparatively simple and in accordance with the striking trains well known to those skilled in this art, is the object of this invention.

To these ends, therefore: the invention consists in a gong with a bridge fast thereto, the bridge extending across the gong and of sufficient width to be struck by the two hammers, the resultant tone being the same as if the gong had been struck by one hammer. In addition to the advantage described, the "loading" of the gong by means of the bridge deepens and improves the tone and vibrations of the gong when the bridge is struck by the hammers. Moreover, the tone may be varied to suit the user by adjusting the bridge longitudinally of the outer convolution of the gong until the desired pitch is obtained, whereupon the bridge is securely fastened to the gong at this point, all as hereinafter fully and specifically described.

The invention further consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings: Figure 1 is a rear elevation of a ship's clock movement with a portion of the casing having my improved gong illustrated in connection therewith. Fig. 2 is a plan view of a portion of the clock movement illustrating the two hammers and the gong detached from the casing. Fig. 3 is a section taken on line 3—3 of Fig. 1.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 5 is a spiral gong, the outer end of which, 6, is rigidly fastened to a plate or bracket 7 which, in turn, is fastened to a stationary portion of the clock, such as the casing 8. The gong has a bridge 9 fast thereto which is preferably formed of metal and has a slot 10 in the under side thereof which receives the outer convolution of the spiral gong 5. This bridge 9 may be adjusted toward the outer end 6 of the gong or away therefrom until the desired pitch or tone has been secured, whereupon the same



is securely fastened against movement longitudinally of the convolution 11 by forcing the ears 12, 12 toward each other and thus gripping the bridge to the outer convolution 5 of the gong. The hammers 13, 14 are fast to the rear ends of the arbors 15 and 16, respectively, these arbors being journaled to rock in the back-plate 17 of the movement and in the bracket 18 fast to said back-plate. 10 A rocking movement is given to the rods or arbors 15 and 16 by a suitable striking train, well known to those skilled in this art. The hammers 13 and 14 are arranged side by side and above the bridge 9, so that when the 15 same are operated they will strike said bridge.

The general operation of the device is as follows: At the proper time the striking train will operate one of the hammers, say 20 13, to strike the bridge once, if the hour is 12.30. At one o'clock the hammer 13 will be operated to strike the bridge once and will be immediately followed by the hammer 14 which will also strike the bridge once. At 25 1.30 the hammer 13 will be operated to strike the bridge once and immediately following the hammer 14 will be operated to strike the bridge once and after a short interval the hammer 13 will again strike the bridge once. 30 At two o'clock the hammer 13 will be operated to strike the bridge once, the hammer 14 immediately following striking the bridge once. Then after an interval of time the hammers 13 and 14 will repeat the double 35 stroke, as before described. At 2.30 the double strokes will be struck upon the gong by operating the hammers 13 and 14 as in striking two o'clock and after an interval the hammer 13 will then strike the single stroke 40 for the half hour, making 2.30. In this way the different double strokes and the single stroke following will be obtained up to four o'clock, when the striking operation hereinbefore described is repeated during the next 45 four hours and so on for each four hours succeeding. It will thus be seen that by simply attaching to the gong 5 the bridge 9 two hammers may be used, thus securing simplicity in the striking movement and uniformity of tone in the stroke of both hammers, and by adjustment of the bridge upon 50 the gong the desired tone may be secured.

While I have illustrated the bridge 9 as being fastened to the outermost convolution 55 of the gong, it is evident that without departing from the spirit of my invention, said bridge may be fastened to any portion of the gong other than the outermost convolution.

Having thus described my invention, what 60 I claim and desire by Letters Patent to secure is:

1. A gong and a bridge fast thereto and extending laterally therebeyond, whereby two hammers may be utilized to strike said 65 bridge.

2. A spiral gong and a bridge fast thereto and extending laterally therebeyond, whereby two hammers may be utilized to strike said bridge side by side. 70

3. A spiral gong and a bridge fast thereto and extending laterally therebeyond, whereby two hammers may be utilized to strike said bridge side by side, said bridge adjustably fastened to said gong for the 75 purpose specified.

4. A spiral gong having a plurality of convolutions, a stationary support to which the outer end of the outermost convolution is fastened, and a bridge fast to said outermost convolution adjacent to said support 80 and extending laterally beyond said convolution, whereby two hammers may be utilized to strike said bridge.

5. A spiral gong and a bridge consisting 85 of a piece of metal extending transversely of said gong and having a slot therein into which one of the convolutions of said gong extends, whereby said bridge is fastened to said gong. 90

6. A clock having, in combination, a gong, a bridge fast to said gong, and two hammers adapted to strike said bridge.

7. A clock having, in combination, a spiral gong, a bridge fast to said gong and 95 two hammers adapted to strike said bridge.

8. A clock having, in combination a spiral gong, the outer end of said gong being fastened to a stationary support and a bridge fast to said gong, between said stationary support and the inner end of said 100 gong, and two hammers adapted to strike said bridge.

9. A clock having, in combination a spiral gong and a bridge consisting of a 105 piece of metal extending transversely of said gong and having a slot therein into which one of the convolutions of said gong extends, whereby said bridge is fastened to said gong, and two hammers adapted to strike said bridge.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM C. MORGAN.

Witnesses:

CHARLES S. GOODING,  
LOUIS A. JONES.