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PATENTED SEPT. 3, 1907.

J. C. DEAGAN.
MUSICAL BELL.

APPLICATION FILED DEC. 26, 1906.

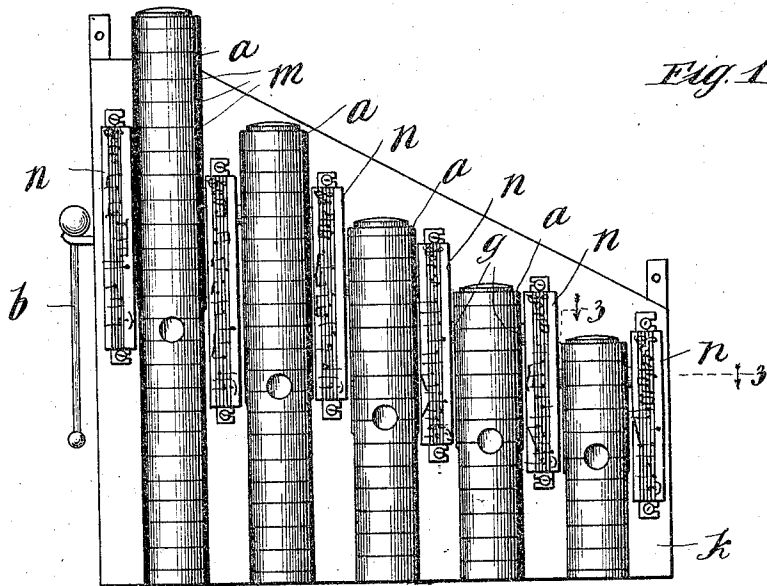


Fig. 1

Fig. 3.

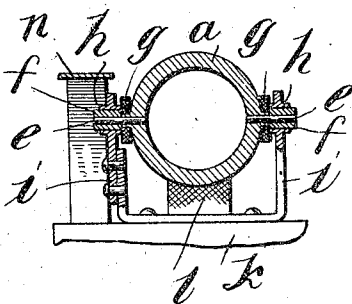


Fig. 2.

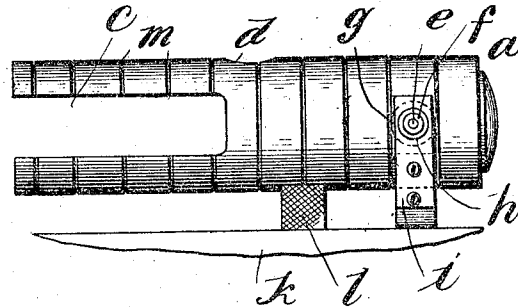
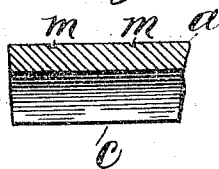


Fig. 4.



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UNITED STATES PATENT OFFICE.

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MUSICAL BELL.

No. 864,771.

Specification of Letters Patent.

Patented Sept. 3, 1907.

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To all whom it may concern:

Be it known that I, JOHN C. DEAGAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Musical Bells, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to musical bells, and particularly to that class of bells having tubular construction.

The invention has for one of its objects the provision of novel means for eliminating over-tones in the bell.

The invention has for another object the provision of an improved mounting for tubular bells whereby they are insulated acoustically at their supports.

The invention will be fully pointed out in connection with the accompanying drawing and set forth in the appended claims.

In the drawing—Figure 1 shows an elevation of a musical instrument including a number of musical bells constructed and mounted in accordance with my invention. Fig. 2 is a view in elevation of one of the bells, also illustrating its support. Fig. 3 is a sectional view on line 3-3 of Fig. 1. Fig. 4 is a longitudinal sectional view of a part of one of the bells illustrating a feature of my construction.

Like parts are indicated by similar characters of reference throughout the different figures.

In the instrument shown in Fig. 1, a suitable collection of bells is indicated, there being five bells, *a, a*, there shown. The bells are of different lengths, with changes corresponding to the different lengths, whereby tones which the instrument is to produce, are secured when the bells are caused to vibrate, as, for example, when they are struck by a suitable hammer or mallet *b*.

While I have indicated one particular type of instrument to which the bells of my invention are adapted, I do not wish to be limited to the uses to which my invention is to be put.

The different bells possess certain common characteristics of construction, which are indicated in Figs. 2, 3 and 4, and I will, therefore, further describe my invention more particularly by reference to these latter figures.

The bell of my invention is of tubular construction, the upper portion of each bell being circumferentially continuous, while the lower portion is slotted at *c* to produce a sort of tuning fork construction, an opening *d* being provided in a plane transverse to the plane of slotting to permit the issuance of sound therethrough.

The bell is provided with two trunnion projections *e, e*, which support the bell whether the bell is horizontal or vertical. These trunnion projections are desirably threaded into diametrically opposite portions of the bell at a nodal point thereof, and the projecting portions of the trunnions are desirably also threaded or

otherwise spurred longitudinally, so as to receive the rubber stockinets *f*, the spurred portions of the trunnions having such inter-connection with the rubber stockinets as to prevent the same from creeping off the trunnions. Washers *g*, of some suitable material that will insulate the bell acoustically, are interposed between the stockinets *f* and the bell, the trunnions *e* projecting through the bores of the washers. In order to reduce the wear upon the stockinets of rubber, they are caused to pass through tubes or sieves *h* of metal, which said tubes are provided upon the standard *i* for supporting the trunnion bearings *h*. The standards *i* form part of the U-shaped trunnion bearing support, the left-hand standard *i*, as seen in Fig. 3, forming a separable part of the trunnion bearing bracket of U-shape, for ease in assembly and disassembly.

As shown particularly in Fig. 1, the bell is provided with a beard *k*, upon which is provided a sound insulating support *l* composed preferably of felt. This felt support serves to maintain the bell in a horizontal position when said bell is laid upon a horizontal support and when the bell is disposed vertically, the element *l* steadies the bell.

In order to eliminate over-tones in the tubular bell, I provide grooves *m*, disposed circumferentially of the bell and desirably placed upon the exterior thereof for convenience of construction. These grooves break the tubular bell up into sections, musically speaking, so as to sufficiently break the vibration to eliminate over-tones. I have shown narrow grooves, as these have proved effective in tubular bells of certain construction, but I do not wish to be limited to the size of the grooves employed. The grooves *m* desirably extend completely around the tubular bell where said bell is unslotted and desirably extend throughout the portions of the bell remaining, where slotted. The grooves are desirably curved as they appear in the cross-section shown in Fig. 4, but I do not wish to be limited to the shape of the grooves as they appear in the cross-section of the bell. Wherever the grooves are located, the thickness of the metal of the bell is reduced, so that there is truly a musical subdivision of the bell to eliminate over-tones.

While the grooves that are circumferentially disposed are desirably located in planes perpendicular to the axis of the bell, I do not wish to be limited to this disposition of the grooves, nor do I wish to be limited in all embodiments of my invention to the disposition of the grooves circumferentially of the bell.

While the bell of my invention is usually sounded by being struck, I do not wish to be limited to this operation of the bell.

When the bells of my invention are assembled into the type of instrument indicated in Fig. 1, I preferably mount plates of metal *n* upon the board *k*, which plates bear musical notations.

While I have herein shown and particularly described the preferred embodiment of my invention, I do not wish to be limited to the precise construction shown, but,

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

1. A tubular bell provided with circumferentially disposed grooves, which reduce the thickness of the metal where located.
2. A tubular bell provided with circumferentially disposed grooves extending completely around the bell, which grooves reduce the thickness of the metal where located.
3. A musical bell of tubular formation having a circumferentially continuous wall portion, the said bell being slotted below the complete tubular wall portion and being circumferentially grooved, the thickness of the metal being reduced where grooved.
4. A musical bell of tubular formation having a circumferentially continuous wall portion, the said bell being slotted below the complete tubular wall portion and being circumferentially grooved at the circumferentially continuous tubular wall portion, the thickness of the metal being reduced where grooved.
5. A musical bell of tubular formation having a circumferentially continuous wall portion, the said bell being slotted below the complete tubular wall portion and being circumferentially grooved where the bell is slotted, the thickness of the metal being reduced where grooved.
6. A musical bell of tubular formation having a circumferentially continuous wall portion, the said bell being slotted below the complete tubular wall portion and being circumferentially grooved where the bell is continuous and where it is slotted, the thickness of the metal being reduced where grooved.
7. A tubular bell provided with circumferentially disposed grooves, said grooves being disposed in planes substantially perpendicular to the axis of the bell, which grooves reduce the thickness of the metal where located.
8. A tubular bell provided with circumferentially disposed grooves extending completely around the bell, said grooves being disposed in planes substantially perpendicular to the axis of the bell, which grooves reduce the thickness of the metal where located.
9. A musical bell of tubular formation having a circumferentially continuous wall portion, the said bell being slotted below the complete tubular wall portion and being circumferentially grooved, said grooves being disposed in planes substantially perpendicular to the axis of the bell, which grooves reduce the thickness of the metal where located.
10. A musical bell of tubular formation having a circumferentially continuous wall portion, the said bell being slotted below the complete tubular wall portion and being circumferentially grooved at the circumferentially continuous tubular wall portion, the thickness of the metal being reduced where grooved.
11. A musical bell of tubular formation having a circumferentially continuous wall portion, the said bell being slotted below the complete tubular wall portion and being circumferentially grooved where the bell is slotted, said grooves being disposed in planes substantially perpendicular to the axis of the bell, which grooves reduce the thickness of the metal where located.
12. A musical bell of tubular formation having a circumferentially continuous wall portion, the said bell being slotted below the complete tubular wall portion and being circumferentially grooved where the bell is continuous and where it is slotted, said grooves being disposed in planes substantially perpendicular to the axis of the bell, which grooves reduce the thickness of the metal where located.
13. A tubular bell provided with grooves, which reduce the thickness of the metal where located.
14. A tubular bell provided with grooves extending completely around the bell, which grooves reduce the thickness of the metal where located.
15. A musical bell of tubular formation having a circumferentially continuous wall portion, the said bell being slotted below the complete tubular wall portion and being grooved, the thickness of the metal being reduced where grooved.
16. A musical bell of tubular formation having a circumferentially continuous wall portion, the said bell being slotted below the complete tubular wall portion and being grooved at the circumferentially continuous tubular wall portion, the thickness of the metal being reduced where grooved.
17. A musical bell of tubular formation having a circumferentially continuous wall portion, the said bell being slotted below the complete tubular wall portion and being grooved where the bell is slotted, the thickness of the metal being reduced where grooved.
18. A musical bell of tubular formation having a circumferentially continuous wall portion, the said bell being slotted below the complete tubular wall portion and being grooved where the bell is continuous and where it is slotted, the thickness of the metal being reduced where grooved.

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