F. H. KANE.

BELL STRIKING DEVICE.

APPLICATION FILED JUNE 13, 1912.

1,102,340.

Patented July 7, 1914.

2 SHEETS—SHEET 2.

Fig. 3.

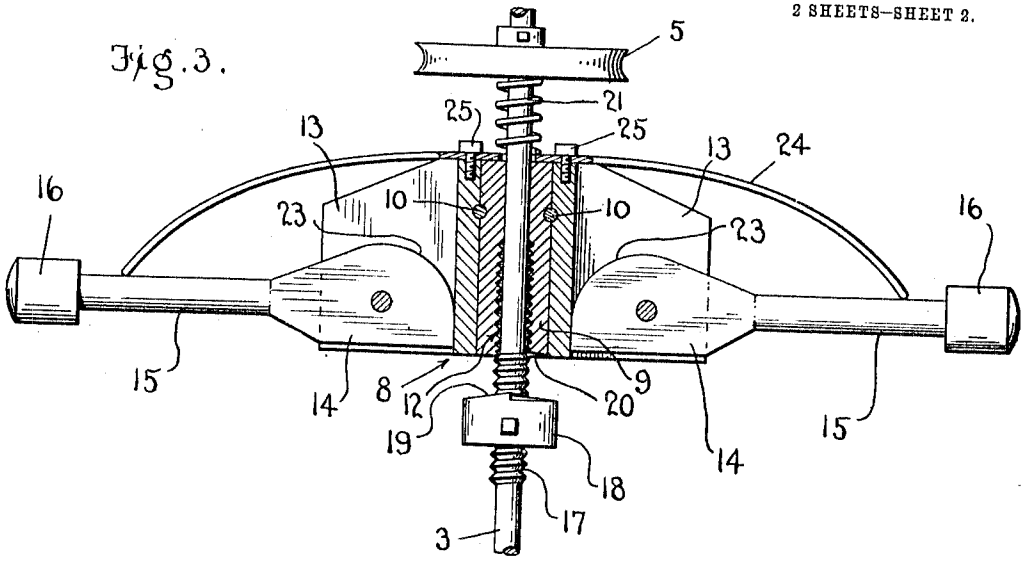


Fig. 4.

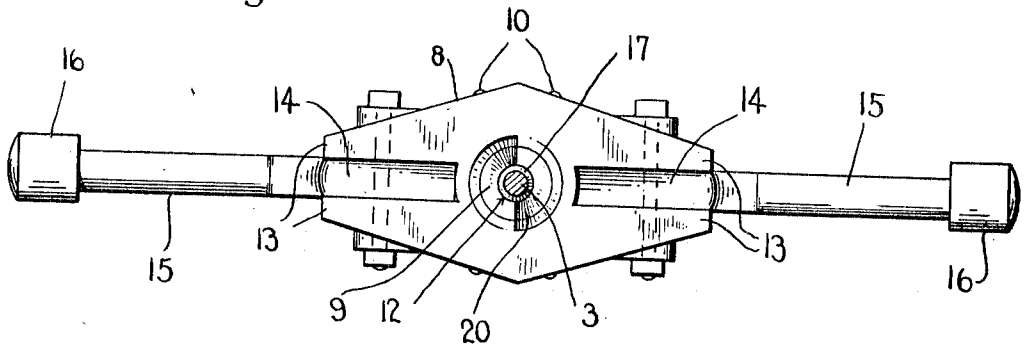
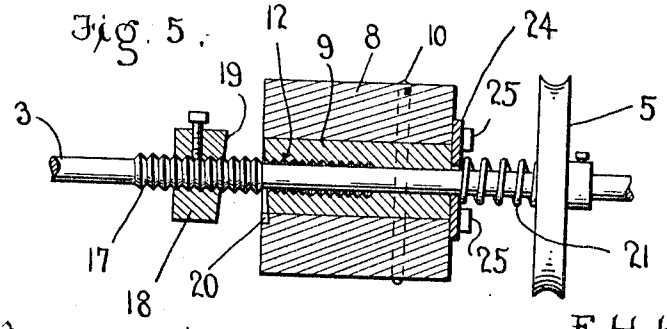


Fig. 5.



Witnesses

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THE NORRIS PETERS CO. PHOTO-LITHO.

UNITED STATES PATENT OFFICE.

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BELL-STRIKING DEVICE.

1,102,340. Specification of Letters Patent. Patented July 7, 1914.

Application filed June 13, 1912. Serial No. 703,483.

To all whom it may concern:

Be it known that I, FORREST H. KANE, a citizen of the United States, residing at Charlevoix, in the county of Charlevoix and State of Michigan, have invented certain new and useful Improvements in Bell-Striking Devices; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in bell striking devices.

One object of the invention is to provide a bell striking device by means of which a series of successive strokes may be applied to the bell at regular intervals and whereby the strokes may be applied intermittently at regular or irregular intervals or periods.

Another object is to provide a device of this character which will be simple, strong, durable and inexpensive in construction, efficient and reliable in operation and which may be driven by any kind of power.

With these and other objects in view, the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings: Figure 1 is a side view of my improved striking device; Fig. 2 is a top plan view thereof; Fig. 3 is a horizontal sectional view of the clapper supporting and operating mechanism; Fig. 4 is a vertical longitudinal sectional view thereof taken on the line 4—4 of Fig. 2; Fig. 5 is a cross sectional view thereof taken on the line 5—5 of Fig. 2.

In the embodiment of the invention, I provide a suitably arranged bell 1, the same being shown in the present instance as supported on a standard 2 adjacent to the striking mechanism. The striking mechanism comprises a supporting and operating shaft 3 which is revolubly mounted in suitable bearing standards 4. The shaft 3 may be revolved by hand or by the application of any suitable power and in the present instance the shaft is shown as having fixedly mounted thereon near one end a driving pulley 5 which is connected by a belt 6 to an electric motor 7 whereby said shaft may be driven continuously in one direction or first in one direction then the other by reversing the motor.

Loosely mounted on the shaft is a clapper supporting hub 8 in which is arranged a bearing sleeve 9, said sleeve being preferably secured in the hub by dowel pins 10. The inner end of the bore of the sleeve for a portion of its length is enlarged and threaded as at 12 for a purpose hereinafter described. On the opposite sides of the hub are pairs of apertured ears or lugs 13 between which are pivotally mounted the inner ends 14 of clapper arms 15 which project radially from the hub in opposite directions as shown. On the outer ends of the clapper arms are clapper heads 16 which, when the hub 8 and the clapper arms are revolved are adapted to be brought into successive engagement with the edge of the bell thereby striking or sounding the latter.

The shaft 3 for a portion of its length adjacent to the inner side of the hub 8 is enlarged and threaded as at 17 and on said threaded portion of the shaft is adjustably secured a collar 18 on the inner side of which are clutch teeth 19 which form one member of a clutch connection for the hub 8, the other member of said clutch connection comprising oppositely disposed teeth 20 formed on the adjacent end of the hub as shown. The collar 18 is secured in its adjusted positions on the shaft 3 by a set screw or other form of fastening device.

The hub 8 is forced inwardly and is yieldingly held in engagement with the threaded enlargement 17 of the shaft 3 by a coiled spring 21 whereby when the shaft is turned in one direction the threaded portion thereof will screw into the threaded portion 12 of the bearing sleeve 9 thereby drawing the hub up into operative engagement with the clutch teeth on the collar 18, thus positively locking the hub to the shaft whereupon the hub and the clappers carried thereby will be revolved with the shaft to bring the clappers into successive engagement with the bell at each revolution of the shaft. In order to cause the clappers to strike the bell at irregular periods or intervals or to provide a greater or less interval between the strokes of the bell it is simply necessary to reverse the direction of the revolution of the shaft 3 which is accomplished by reversing the motor or power by which the shaft is operated. In thus reversing the direction of the shaft the hub 8 will be revolved in an opposite direction thereby unscrewing the threaded end of the sleeve 9 from the threaded portion of the shaft, which action shifts

the hub back out of engagement with the clutch collar 18 whereupon the hub will be disconnected from the shaft and the latter permitted to revolve in a reverse direction without turning the hub and clappers. As soon as it is desired to again produce a stroke of the bell, the reversing mechanism of the shaft is again actuated to turn the shaft in a forward direction, at which time the threaded portion of the shaft will immediately engage the threaded end of the sleeve 9 and thus instantly draw the hub up into engagement with the clutch collar thereby locking the hub to the shaft and causing the hub and clappers to revolve. The shifting movement of the hub when drawn back and forth on the shaft by the engagement of the threads thereon with the threads in the sleeve of the hub, brings the clappers into and out of position for engagement with the edge of the bell as will be readily understood.

It will be noted that the inner ends 14 of the clapper arms are in the form of flat plates the inner ends and side edges of which are flat and disposed at right angles, while the outer edges and corners of the plates are rounded off as shown at 23. In thus forming the inner ends of the plates 14 the flat or square inner ends thereof will be brought into engagement with the flat inner walls of the hub, thereby limiting the inward movement of the clapper arms and holding the same at approximately right angles to the shaft and in position to engage the edges of the bell when the hub is brought to an operative position. The arms of the clappers are held in operative position in the hub and at right angles to the shaft by a flat spring 24 which is secured to the outer end of the hub by screws 25 and has its ends engaging the clapper arms as shown. By thus fastening and yieldingly holding the clapper arms in position the clappers will be permitted to give back or yield when brought into engagement with the edge of the bell, thus permitting the clappers to readily pass the bell when the clappers are revolved in the manner described.

From the foregoing description and construction of the device it therefore follows that when the machine is used as a fire alarm it is necessary that after the general alarm has been sounded that the number of the ward be struck or made known quickly and distinctly, and in order to accomplish this the motor is reversed in which operation the bell striking mechanism moves from the bell by the construction of the device as previously described and therefore no alarm is sounded. By again reversing the motor however, the bell striking mechanism is moved toward the bell and very rapid successions of blows are struck against the same producing only one distinct sound, and on reversing the motor the alarm is instantly silenced which operation or reversing of the motor is commonly used to sound the proper alarm.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as claimed.

Having thus described my invention, what I claim is;

In a bell ringing device, a bell adapted to be suitably mounted, a revolubly mounted supporting and operating shaft located adjacent said bell, means whereby said shaft is adapted to be driven in either direction, a clutch one member of which is adjustably carried by and adapted to be fixed to said shaft, a clapper carrying hub forming the other member of the clutch and mounted on the shaft, means carried by said shaft and hub whereby the latter may be moved longitudinally on the former and brought into and out of engagement with said fixed clutch member on the rotating of said shaft in different directions, said hub being provided with means for engaging the fixed clutch member, clapper arms pivotally secured to said hub and projecting radially and yieldingly therefrom, and a coiled spring encircling the shaft and disposed between the hub and the means for driving the shaft, whereby said hub is automatically brought into engagement with the fixed clutch member on the shaft.

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

FORREST H. KANE.

Witnesses:
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MILDRED E. JOHNSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."