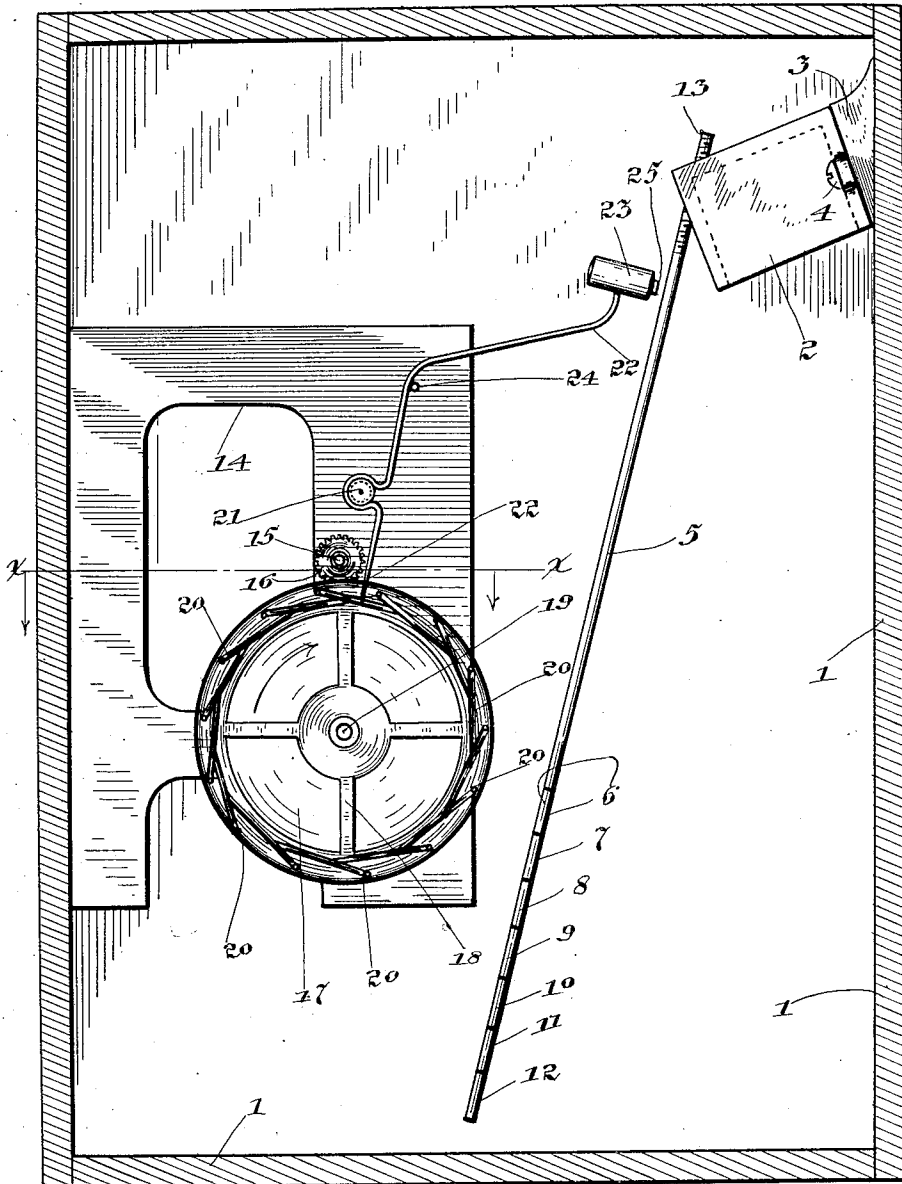


H. F. SCHAEFER.
CLOCK CHIMES.
APPLICATION FILED MAY 24, 1911.

1,057,461.

Patented Apr. 1, 1913.

2 SHEETS-SHEET 1.



Witnesses

Fig. 1.

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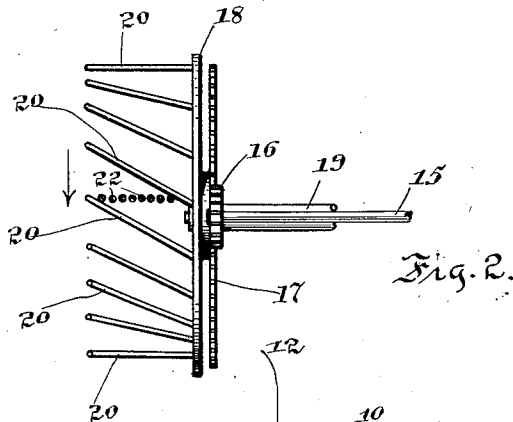


Fig. 2.

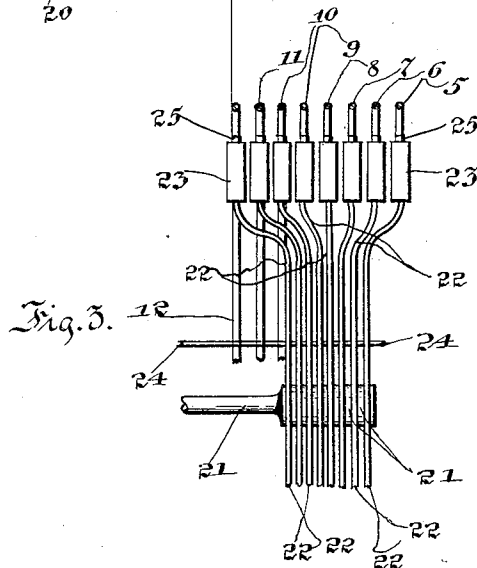


Fig. 3.

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UNITED STATES PATENT OFFICE.

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CLOCK-CHIMES.

1,057,461.

Specification of Letters Patent.

Patented Apr. 1, 1913.

Application filed May 24, 1911. Serial No. 629,139.

To all whom it may concern:

Be it known that I, HENRY F. SCHAEFER, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Clock-Chimes, of which the following is a specification.

My invention relates to improvements in clocks which chime instead of striking the hour.

The object of my invention is to provide a clock chime which shall have a minimum number of operative parts and be simple of construction and efficient in operation.

A further object of my invention is to provide a clock chime to be operated hourly the tones of which shall be harmonious and musical regardless of the number thereof.

Other objects will appear hereinafter.

With these objects in view my invention consists in a clock chime characterized as above mentioned and in certain details of construction and arrangements of parts all as will be hereinafter more fully described and particularly pointed out in the appended claim.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a vertical section of a clock case showing my improved chime mounted therein, Fig. 2 is a horizontal section taken on line $x-x$ of Fig. 1, and Fig. 3 is a detail top plan view showing hammers and sounding rods employed in the chime mechanism.

The preferred form of construction of my invention as illustrated in the accompanying drawings comprises a clock case 1, to one of the interior walls thereof is secured a sounding box 2 by means of an inclined block 3 and screw 4. This box is preferably of bell-metal or other suitable resonating material. To one corner of the box 2 a series of sounding rods 5, 6, 7, 8, 9, 10, 11 and 12 are secured, said rods being threaded as at 13 and screwed into said box. These rods are of varying lengths as shown and are so tuned as to produce an octave. The rods are preferably inclined as shown in Fig. 1 and equally spaced apart as illustrated in Fig. 3.

An ordinary clock frame 4 carrying a clock mechanism, not shown, is secured in the case 1 in any suitable manner, it being

understood that the said clock mechanism is provided with the usual striking apparatus.

The present invention consists in utilizing the intermittently movable arbor which usually actuates the ordinary striking mechanism and connecting the same so as to operate the present chime, it being understood that the striking mechanism is removed from the clock. Said arbor 15 projects laterally from the frame 14 and terminates in a spur pinion 16 as illustrated in Figs. 1 and 2. Meshing with this pinion and driven thereby is a spur gear 17 which is formed integral with a disk 18 of approximately the same size as said gear. The gear 17 and disk 18 being combined as shown in Fig. 2 are rotatably mounted upon a stationary stud 19 which projects laterally from the clock frame 14. From this construction it is apparent that when the arbor 15 is rotated that the disk 18 will rotate also but at a slower speed. Projecting laterally from the face of the disk 18 adjacent the periphery thereof is a plurality of equally spaced inclined arms 20, these arms being preferably formed of metallic wires as shown. The disk 18 revolves as indicated by arrows in Figs. 1 and 2, the extent or time of revolution being controlled by the intermittent arbor 15. Mounted above the inclined arms 20 on a stationary stud 21 projecting laterally from the frame 14 is a plurality of oscillatory bent hammer levers 22 said stud forming a fulcrum on which said levers oscillate. The lower ends of the levers 22 project slightly into the circular path of the inclined arms 20 as illustrated in Fig. 1, thus when the disk 18 rotates said levers are moved in one direction by contact of said arms. In order to return the levers 22 to their normal position heavy hammers 23 are provided at the upper ends thereof, the weight of said hammers being sufficient to perform this function. A stop rod 24 to limit the fall or downward movement of the levers 22 is provided as shown in Fig. 1. The hammers 23 are provided with yieldable tips or contact pieces 25 which register with and are adapted to contact with the sounding rods as will be clear by reference to Fig. 3. The position of the hammer 23 as shown in Fig. 1 is out of contact with its corresponding sounding rod 5, but the resiliency of the lever 22 is such as to per-

mit of a contact after said lever has been stopped in its downward movement by the rod 24.

The operation of the chime is as follows:
5 Supposing that it is eight o'clock and that the arbor 15 is set in motion by the clock mechanism. This arbor moves in such a direction as to cause the disk 18 to move in the direction as indicated by arrows as aforesaid, consequently at the beginning of movement the innermost oscillatory lever 22 will be moved slightly as will be clear by reference to Fig. 2. After a limited amount of movement of this lever, the lower end of the same will ride over the arm 20 with which it is in contact whereupon the hammer 23 will fall and contact with its respective sounding rod causing a single tone. Further revolution of the disk 18 will cause the second lever 22 to be oscillated similarly which will cause the next sounding rod to be struck and vibrated producing a second tone. In this manner the levers will be operated successively, the number of levers being actuated depending upon the time of rotation of the arbor 15. Supposing that said arbor has rotated a distance sufficient for a single operating arm to come in contact with all of the levers 22 then the clock will chime eight which will be the correct number of times assuming that the hour is eight as aforesaid. Supposing that the hour is twelve, then disk 18 is arranged to rotate through a greater angle so that a single arm 20 will operate all of the levers 22 whereupon the next succeeding arm will operate four of said levers, the arrangement of said arms being such that when one thereof ceases to actuate the levers

that the next begins to operate thereon. The number of actuations of the arbor 15 is preferably such that the clock will chime on the hour, but it is understood that there may be twice the number of actuations which will obviously cause the clock to chime every half hour.

A clock chime of the construction set forth is extremely simple of construction, efficient in operation, and harmonious in action.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I therefore do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claim.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

In a clock chime, a rotatable member; a plurality of cylindrically arranged arms projecting from the face of said member at an acute angle thereto; and a series of sounding rods having their ends terminating in a line at an angle to and in the path of said arms, substantially as described.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY F. SCHAEFER.

Witnesses:

HELEN F. LILLIS,
JOSHUA R. H. POTTS.