F. WEHINGER.

CHIME CLOCK.

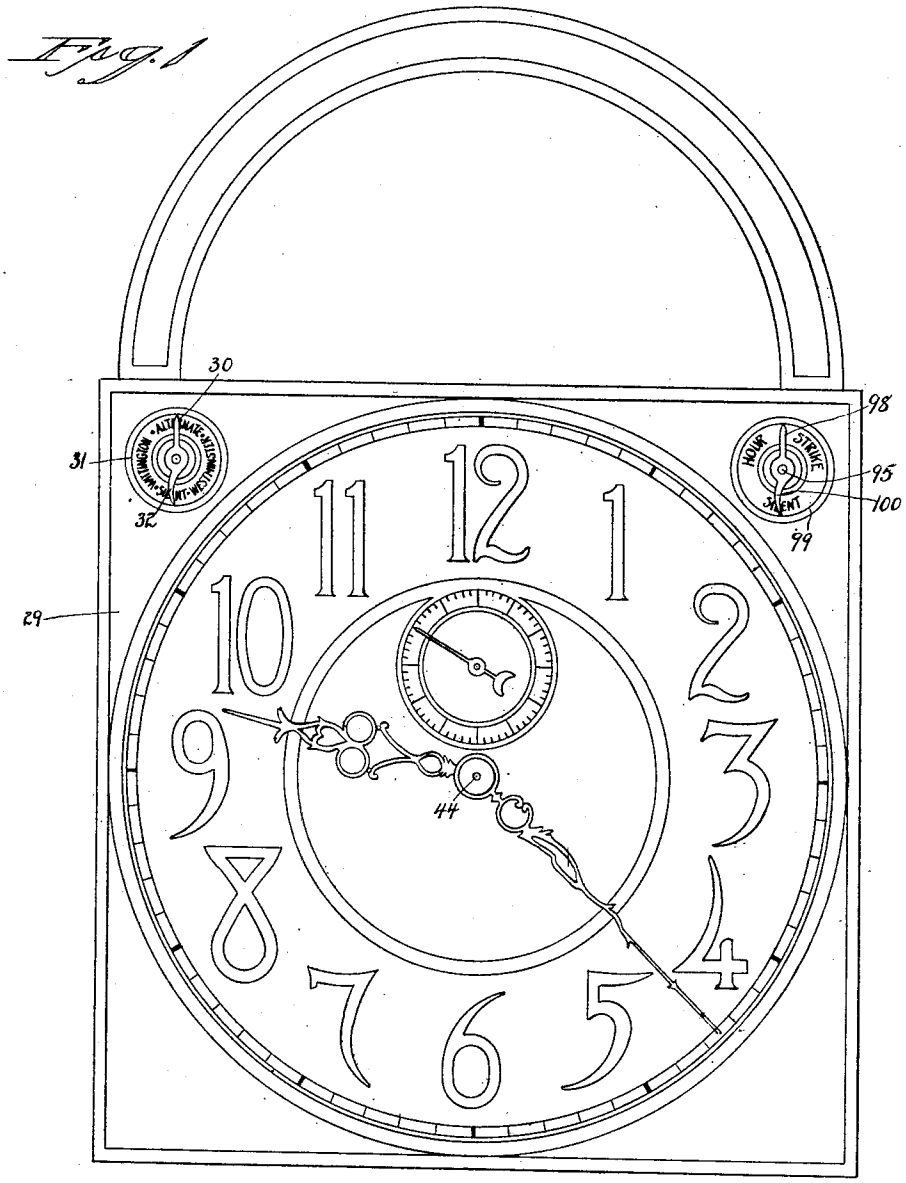
APPLICATION FILED JAN. 12, 1918.

1,300,309.

Patented Apr. 15, 1919.

4 SHEETS—SHEET 1.

Fig. 1



Inventor
Frederick Wehinger
by Seymour Earle
Atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

F. WEHINGER.

CHIME CLOCK.

APPLICATION FILED JAN. 12, 1918.

1,300,309.

Patented Apr. 15, 1919.

4 SHEETS—SHEET 2.

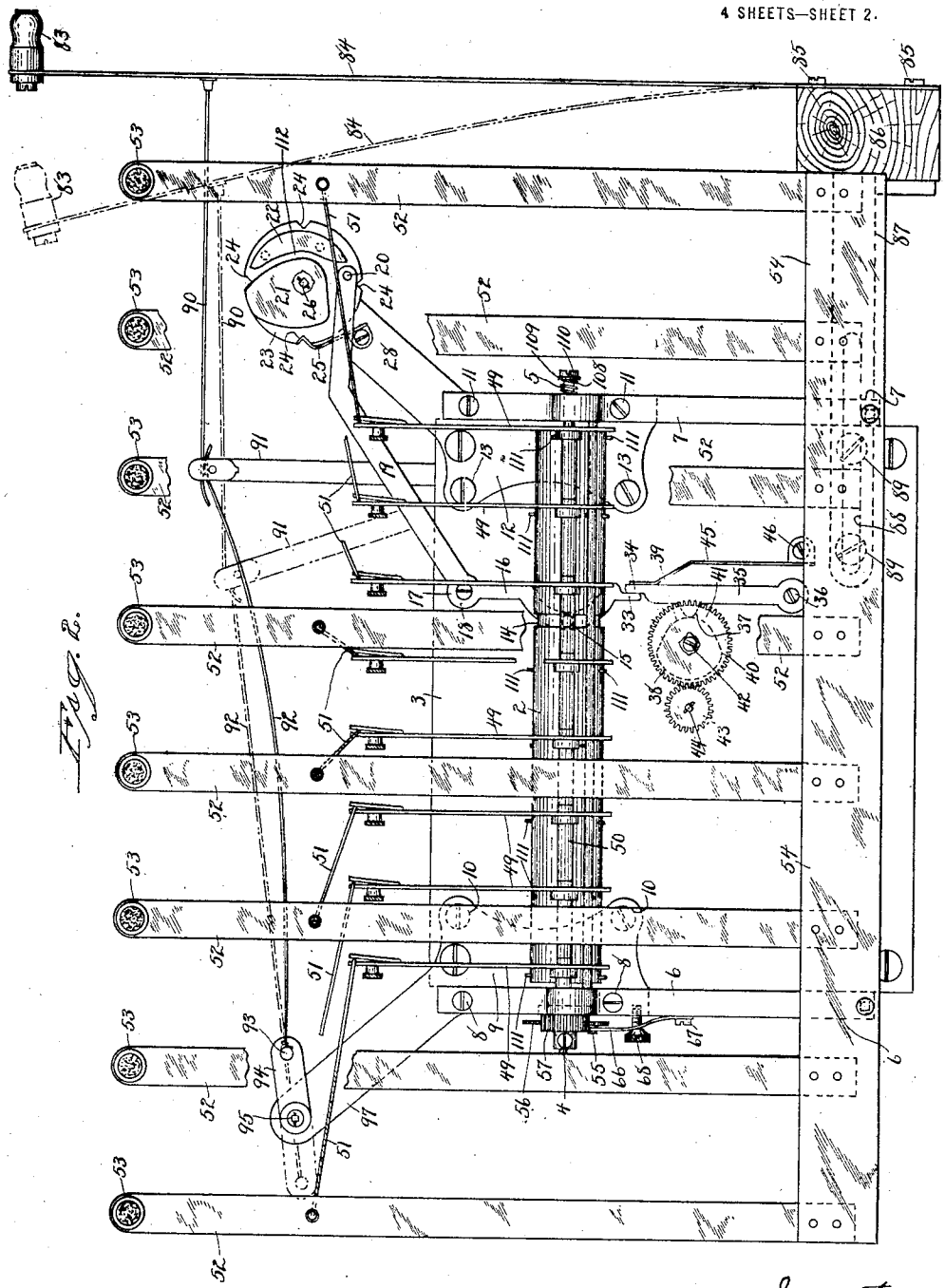


Fig. 2.

Inventor.
Frederick Wehinger
by Seymour & Earle
Atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

F. WEHINGER.

CHIME CLOCK.

APPLICATION FILED JAN. 12, 1918.

1,300,309.

Patented Apr. 15, 1919.

4 SHEETS—SHEET 3.

Fig. 4.

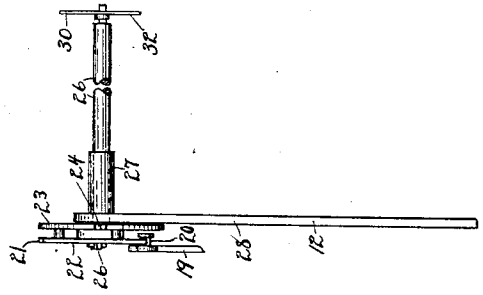
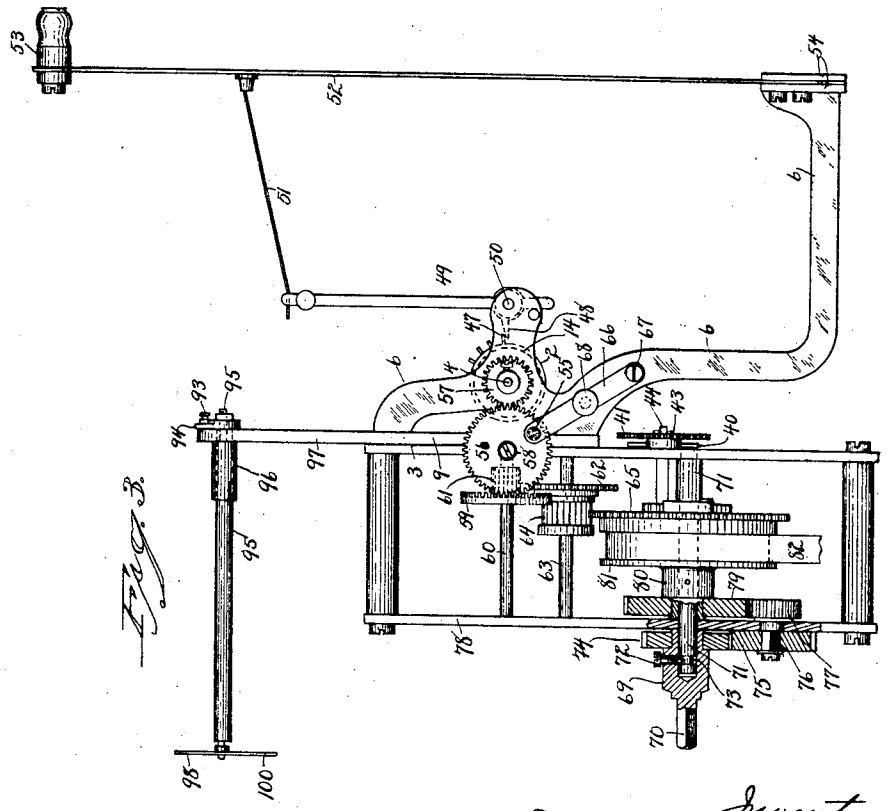


Fig. 3.



Inventor.
Frederick Wehinger
by Seymour & Earle
Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

F. WEHINGER.

CHIME CLOCK.

APPLICATION FILED JAN. 12, 1918.

1,300,309.

Patented Apr. 15, 1919.

4 SHEETS—SHEET 4.

Fig. 5

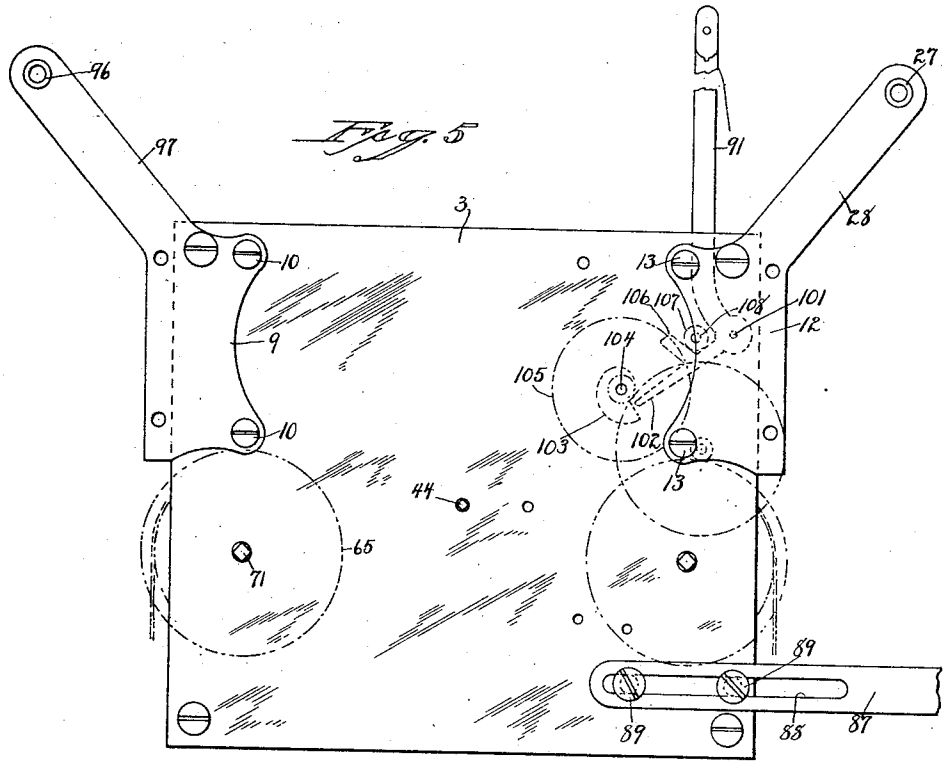


Fig. 6.

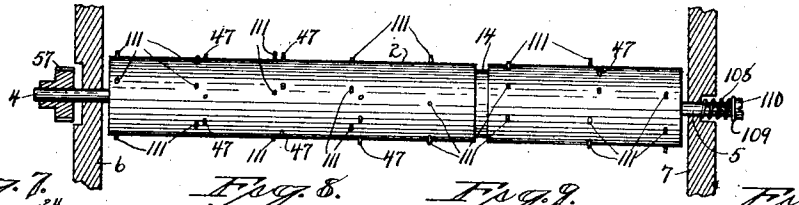


Fig. 7.

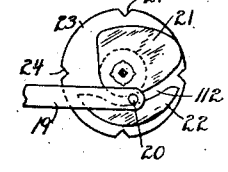


Fig. 8.

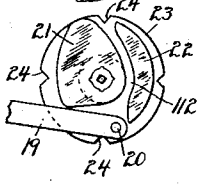


Fig. 9.

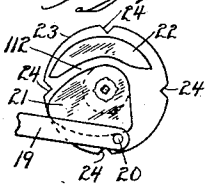
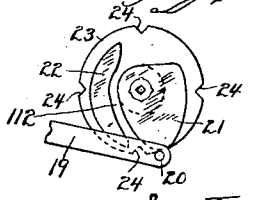


Fig. 10.



Inventor
Frederick Wehinger
by Seymour & Earle
Attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FREDERICK WEHINGER, OF WATERBURY, CONNECTICUT, ASSIGNOR TO WATERBURY CLOCK CO., OF WATERBURY, CONNECTICUT, A CORPORATION.

CHIME-CLOCK.

1,300,309. Specification of Letters Patent. Patented Apr. 15, 1919.

Application filed January 12, 1918. Serial No. 211,505.

To all whom it may concern:

Be it known that I, FREDERICK WEHINGER, a citizen of the United States, residing at Waterbury, in the county of New Haven, and State of Connecticut, have invented a new and useful Improvement in Chime-Clocks; and I do hereby declare the following, when taken in connection with the accompanying drawings and the characters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this application, and represent, in—

Figure 1 a view in front elevation of the dial of a chime-clock constructed in accordance with my invention, the said dial having chime and strike dials arranged at its upper corners.

Fig. 2 a detached view in rear elevation of my improved chime-clock movement.

Fig. 3 a view thereof in end elevation, the compound winding-mechanism being shown in vertical section.

Fig. 4 a detail view of my unitary manually operated chime-selecting mechanism.

Fig. 5 a detached view in rear elevation of my chime-clock movement with the chime-brackets, chime-barrel, chime-hammers, and associated parts removed to show the hour-strike mechanism.

Fig. 6 a view of the chime-barrel in elevation with the chime-brackets in section.

Fig. 7 a detail view in rear elevation, showing the chime-selecting disk as set for ringing the Whittington chime every quarter to the exclusion of the Westminster chime.

Fig. 8 a corresponding view showing the disk as set for ringing the Whittington and Westminster chimes on alternate hours.

Fig. 9 a corresponding view showing the disk as set for ringing the Westminster chime every quarter to the exclusion of the Whittington chime.

Fig. 10 a corresponding view showing the disk as set for suppressing both chimes and securing silence.

My invention relates to an improvement in that class of plural chime clocks which provide means for selecting for use either one of two chimes to the exclusion of the other, or for ringing the chimes on alternate hours, the main object of my present invention being to produce a self-contained chime-clock of the character described, in which the chime-mechanism is organized directly with the time mechanism instead of independently thereof, and in which a single, manually operated mechanism serves for determining how the chimes are to be rung, as well as for silencing them both. A further object of my invention is to simplify the clock and secure economy of space by longitudinally moving the chime-barrel from a point between its ends rather than from either end. A further object of my invention is to take up the back-lash of the chime-mechanism so as to secure a smooth and steady rotation of the chime-barrel.

With these ends in view, my invention consists in a chime-clock having certain details of construction and combinations of parts as will be hereinafter described and pointed out in the claims.

In carrying out my invention as herein shown, I employ a chime-barrel 2 located directly back of the rear movement-plate 3 of the clock-movement and having its trunnions 4 and 5 journaled in a pair of vertically arranged chime-brackets 6 and 7 of which the bracket 6 is fastened by screws 8 to a supplemental plate 9 secured by screws 10 to the said plate 3, while the bracket 7 is fastened to screws 11 to a supplemental plate 12 secured to the plate by screws 13. The said barrel 2 which is enough shorter than the distance between the brackets 6 and 7 to permit it to be longitudinally shifted in both directions, is formed at a point between its pins and relatively near its center, with a circumferential operating-groove 14 receiving an anti-friction roll 15 mounted upon the bowed depending barrel-shifting arm 16 of a bell-crank lever 17 hung upon a stud 18. The other arm 19 of the said bell-crank lever, is inclined upwardly and outwardly, and provided at its extreme outer end with a pin 20 coacting with a chime-cam 21 and a chime-shoe 22 fixed upon the back of a chime-selecting disk 23 formed in its periphery with four equi-distant disk-positioning notches 24 receiving a retaining spring or detent 25. The said arm 19 will hereafter be characterized as the chime-controlling arm, on account of its chime controlling function. The said disk is mounted upon the inner end of a horizontal shaft 26 journaled in a sleeve-like bearing 27 in the

upper end of an outwardly inclined arm 28 offsetting from the supplemental plate 12 aforesaid. At its forward end, the shaft 26 projects through the left hand corner of the clock-dial 29 (Fig. 1) and is furnished with a manually operated pointer 30 arranged to sweep over a small chime-dial 31 and formed with a curved finger-piece 32. The said dial 31 is encircled by a band of lettering, reading, "Whittington—Alternate—Westminster—Silent," for the guidance of the user of the clock in manually setting the chime-mechanisms in accordance with its selective principle of construction. The four positions of the disk 23, and hence of the cam 21 and shoe 22 with respect to the pin 20 in the chime-controlling arm 19, are illustrated in Figs. 7, 8, 9 and 10, respectively, and respond to the readings upon the chime-dial 31.

For driving the chime-barrel 2, I mount upon its trunnion 4, a pinion 57 meshing into a gear 56 mounted on a stud 58 and driven by a crown gear 59 on an arbor 60 carrying a pinion 61 meshing into a gear 62 on an arbor 63 carrying a lantern pinion 64 meshing into the main wheel 65 of the chime-train which may be of any approved construction and arrangement and which is released every quarter hour by the time-train in the usual manner of chime clocks. Inasmuch as the details of the chime-train form no part of my present invention, it is not illustrated and described except in so far as necessary for an understanding of my present invention. It will be understood that the pinion 57, gear 56, crown gear 59, arbor 60 and pinion 61, constitute an intermediate train, as it were, for driving the chime-barrel from the chime-train.

For the automatic shifting of the chime-barrel 2 by the time-train as required for ringing the Westminster and Whittington chimes on alternate hours, I employ a two-dwell cam 40 having a high dwell 38 and a low dwell 39, and located upon the back of a two-hour wheel 41 turned once in two hours on a stud 42 in the plate 3 by an hour pinion 43 mounted directly upon the projecting rear end of the center-arbor 44 of the time-train. Of the cam-dwells 38 and 39, the former functions for cutting in the Whittington chime, and the latter for cutting in the Westminster chime. Both of these cam-dwells co-act directly with a nose 37 upon a chime-lever 35 rocking upon a stud 36 passing through its lower end into the plate 3, as shown in Fig. 2. At its upper end the lever 35 is formed with an upstanding finger 34 co-acting with a depending finger 33 at the lower end of the barrel-shifting arm 16 of the bell-crank lever 17. A flat barrel-shifting spring 45 engaging with the outer edge of the lever 35, exerts a constant effort to hold the nose 37 of the said lever against one or the other of the two dwells 38 and 39 of the cam 40, the said spring having its lower end fastened to the plate 3 by a screw 46, and also tending to hold the fingers 34 in engagement with the finger 33. The said fingers, however, are freely separable and not always engaged. It will be understood that the two-dwell cam 40 above described, functions only when the chime-selecting mechanism is set for ringing the Westminster and Whittington chimes on alternate hours; at other times it acts idly.

When permitted to do so, the spring 45, acting through the lever 35 and the arm 16, moves the barrel from right to left, (as viewed in Fig. 2) for bringing the Westminster chime pins 47 (Fig. 6) into registration with the fingers 48 of the chime-ringing levers 49 which are mounted and spaced apart upon a rod 50 and respectively connected at their upper ends by cords 51 with the spring arms 52 of the chime-hammers 53. The lower ends of the said spring arms 52 are fixed between two long horizontal plates 54 carried by the rearwardly turned lower ends of the chime-brackets 6 and 7. The chime-barrel 2 is shifted in the opposite direction, *i. e.*, from right to left, by a coiled barrel-shifting spring 108 encircling the projecting outer end of the barrel-trunnion 5 and retained in place by a washer 109 and screw 110. This spring 108 is weaker than the barrel-shifting spring 45, and asserts itself only when the stronger spring 45 has virtually been cut out of play by the action, on the one hand, of the two-dwell cam 40, or, on the other hand, by the action of the chime-cam 21 and the chime-shoe 22, at which time it moves the barrel 2 from left to right (as viewed in Fig. 2) to register the Whittington chime pins 111 with the fingers 48 of the levers 49.

It is to be noted in this connection that the chime-barrel 2, the brackets 6 and 7, the hammer-arms 52, and the hammer-operating mechanism, are organized together as a unitary structure, and secured as such to the back of the clock movement by the screws 8 and 11. This feature of my improved chime-clock is one of particular advantage, inasmuch as it permits the major part of the chime-mechanism to be independently organized or assembled, and also adjusted before it is attached to the clock-movement. Moreover, the parts referred to, being organized together in a self-contained unitary structure, maintain their relative adjustment and give far less trouble than when, as heretofore, the chime-hammers are connected with a part of the clock-structure entirely independent of the clock-movement.

In order to steady the action of the chime-barrel 2 and prevent irregularities in its performance due to back-lash, I provide a drag in the form of a leather button 55 en-

gaging with the outer face of the gear 56 aforesaid, and mounted in the free upper end of a flat spring 66 the lower end of which is fastened by a screw 67 to the chime-bracket 6. For adjusting the spring in tension, and hence the drag of the button 55 on the wheel 56, I provide a thumb screw 68 mounted in the bracket 6 and passing through the spring 66 upon which it bears to vary its tension. The drag of the button 55 upon the wheel 56 so far takes up the back-lash between the gear 56 and the crown gear wheel 59, and between the pinion 61 and the gear wheel 62, as to insure a smooth performance of the chime-barrel, a jerky movement of which greatly impairs the beauty of the chimes. The drag described may also be used, within limits, to vary the speed of the chime-barrel, and hence the speed of the chime.

Inasmuch as the driving of the chime-train requires considerable power as compared with the driving of the time-train, it is necessary to employ a proportionately heavy weight, more difficult to raise in winding the chime-side of the clock than an ordinary weight. To provide for the relatively easy winding of this heavy weight, I employ a compound winding-mechanism comprising a winding-hub 69 having a square shank 70 and adapted to be rotatably mounted upon the projecting forward end of the main chime arbor 71 upon which the main wheel 65 of the chime-train is mounted, the hub 69 being furnished with a screw 72 entering a circumferential groove 73 in the projecting end of the said arbor. The said hub 69 is furnished at its inner end with a pinion 74 meshing into a gear 75 mounted on the square shank 76 of a pinion 77 journaled in the lower portion of the front movement-plate 78 and meshing into a gear wheel 79 staked onto the hub 80 of the drum 81 on which a flat steel weight-band 82 is coiled. The ratio of the gearing just described, is such that while it requires a greater number of turns of the key, the power required to lift the weight is accordingly less. It will be understood, of course, that the key is applied to the squared shank 70 for rotating the winding-hub 69, whereby the drum 81 is turned through the action of the gears 74 and 75, the pinion 77 and the gear 79 on the hub 80 of the drum.

For striking the hour, I employ a hammer 83 mounted upon the upper end of a flat spring hammer-arm 84 the lower end of which is fastened by screws 85 to a block 86 secured to the outer end of a horizontal arm 87 the inner end of which has an adjusting slot 88 receiving binding screws 89 passing through it into the rear movement-plate 3 as shown in Fig. 5. I thus provide for moving the hammer-arm 84 and hammer 83 inward or outward with respect to the clock-movement as may be required by the size of the clock-case. This feature permits the hour-strike hammer 83 to be organized directly with the clock-movement instead of being mounted upon a bracket within the case and apart from the movement.

For the operation of the hammer 83, its spring arm 84 is connected by a cord 90 with the upper end of a strike-hammer lever 91 the upper end of which is also connected by a cord 92 to a pin 93 in an arm 94 upon the inner end of a rock-shaft 95 journaled in a sleeve 96 projecting forward from the upper end of an arm 97 integral with the supplemental plate 9 and corresponding to the arm 28 of the supplemental plate 12. The forward end of the shaft 95 projects through the main dial 29 and carries a manually operable pointer 98 arranged to sweep over the small hour-strike dial 99 and furnished with a curved finger-piece 100. The small dial 99 bears the legend, "Hour Strike—Silent," by which the user of the clock is guided in setting the clock to strike the hour or not to strike the hour.

The strike-hammer lever 91 is mounted on a rock-shaft 101 also carrying an operating finger 102 co-acting with a snail 103 upon the arbor 104 of the third wheel of the time-train. The finger 102 is formed with a buffer finger 106 which engages with a leather buffer 107 on a stud 108 in the rear movement-plate and restrains the rocking movement of the lever 91. By drawing the hammer 83 back against the tension of its spring-arm 84, by means of the snail-shaped cam 103, it is done with the minimum expenditure of power due to the fact that the power is expended over a period corresponding approximately to the period required for one complete revolution of the cam.

As shown in Figs. 1, 2, 6 and 8 of the drawings, the manually operated chime-selecting mechanism is set for ringing the Westminster and Whittington chimes during alternate hours. At this time the disk 23 occupies the position shown in Figs. 2 and 8, the chime-cam 21 and the chime-shoe 22 clearing the pin 20 in the chime-controlling arm 19 of the bell-crank lever 17, whereby the same is left free to oscillate on the stud 18 under the control of the two-hour two-dwell cam 40. The disk 23 remains in this position as long as the clock is set for ringing the Westminster and Whittington chimes alternately.

As shown in Figs. 2 and 6, the chime-barrel 2 is in its intermediate position, which is the position it takes for ringing the Westminster chime every hour to the exclusion of the Whittington chime. When the barrel is in this position, the low or Westminster dwell 39 of the two-dwell cam 40 coacts with the nose 37 of the chime-lever 35. Now when the time-train effects the re-

lease of the chime-train in the usual manner for such clocks, the barrel 2 will be rotated by the chime-train and the Westminster chimes rung at quarter hour intervals for one hour during which the cam 40 will slowly turn through a half revolution, its low or Westminster dwell 39 being succeeded by its high or Whittington dwell 38 during the last quarter of the hour. As soon as the high cam-dwell 38 of the cam 40 engages with the nose 37 of the lever 35, the same is swung from left to right, as shown in Fig. 2 of the drawings, against the tension of the spring 45, thus permitting the weaker spring 108 to act in moving the barrel from left to right from its intermediate position into its extreme right hand position which is the position it occupies for the ringing of the Whittington chimes. When the barrel is in its intermediate position, the Westminster chime pins 47 are registered with the fingers 48 of the chime-ringing levers 49, but when the barrel is shifted to its extreme right hand position, as just described, the Whittington chime pins 111 are brought into registration with the fingers 48 aforesaid. During the hour now succeeeding the Whittington chimes will be rung at quarter hour intervals to the exclusion of the Westminster chimes. During this hour, the cam 40 will be turned through a half revolution and sometime in the last quarter of the hour, the high cam-dwell 38 will be succeeded by the low cam-dwell 39. At the time this transition from one dwell to the other takes place, the chime lever 35 will be swung from right to left under the influence of the spring 45 and the chime-barrel 2 shifted from right to left back into its intermediate position against the tension of the spring 108, whereby the Westminster chime pins 47 will be again brought into registration with the fingers 48. This sequence of operations will be continued from hour to hour as long as the clock runs, and the chime-selecting mechanism remains set as shown in Figs. 1, 2, and 8.

To ring the Westminster chimes on every quarter hour to the exclusion of the Whittington chimes, the indicator 30 is manually turned to bring its pointer over the word "Westminster" on the chime-dial 31, whereby the disk 23, cam 21 and shoe 22 will be turned into the positions shown in Fig. 9. As the disk 23 is so turned, the cam 21 engaging with the pin 20 forces the same downward, causing the bell-crank lever 17 to be swung on its stud 18 and the lever 16 to be swung from right to left, whereby the barrel 2 is positively shifted from right to left into its intermediate position, against the resistance of the spring 108. The barrel 2 will be positively held in this position by the bell-crank lever as long as the disk 23 is allowed to remain set in the position in which it is shown by Fig. 9. Inasmuch as the Westminster chime-pins 47 are registered with the fingers 48 in the intermediate position of the barrel, the Westminster chime will now be rung on the quarter hours for every successive hour. During this time the two-dwell cam 40 will be continuously driven from the center arbor 43 of the time-train with no other effect than to cause the idle rocking of the chime-lever 35 without affecting the position of the barrel, the finger 34 of the lever 35 being merely moved toward and away from the finger 33 of the lever 16 which remains stationary.

To ring the Whittington chimes on the quarter hours to the exclusion of the Westminster chimes, the indicator 30 is manually turned to bring its pointer over the word "Whittington" on the small chime-dial 31, whereby the disk 23, cam 21, and shoe 22, will be turned into the positions shown in Fig. 7. During this movement of the disk 23, the pin will be entered into the passage 112 formed between the cam 21 and the shoe 22, whereby the arm 19 of the bell-crank lever 17 will be positively lifted and the said lever turned on its stud 18 with the effect of swinging the arm 16 of the lever from left to right, and so shifting the barrel 2 from its intermediate position to its extreme right hand position in which it will be positively held by the bell-crank lever 17 and the cam 21 and shoe 22. As the arm 16 is positively swung from left to right, as above described, it acts through its finger 33 to swing the chime-lever 36 from left to right against the tension of the spring 45, whereby the nose 37 of the lever 35 is held away from the cam 40 which, however, continues to revolve once in two hours but idly. The positively shifting of the barrel 2 from its intermediate to its extreme right hand position, brings its pins 111 into registration with the fingers 48 and therefore into position for ringing the Whittington chimes which are now rung on the quarters as long as the disk 23 remains set in the position in which it is shown in Fig. 7.

If it is desired to silence both chimes, the indicator 30 is manually turned to bring its pointer over the word "Silent" on the chime-dial 31, whereby the disk 23 is turned into the position shown in Fig. 10. As the disk is turned into this position, the cam 21 acting through the pin 20, positively depresses the arm 19 and so swings the bell-crank lever 17 on its stud 18 and moves the arm 16 from right to left, and the barrel 2 to the limit of its left-hand position against the tension of the spring 108, the finger 33 of the arm 16 being carried away from the finger 34 of the lever 35, which is now idly oscillated by

the cam 40 on the one hand, and the spring 45 on the other. By moving the barrel 2 to the limit of its left hand position, both the chime pins 47 and 111 are cleared from the fingers 48 of the chime-ringing levers 49. The chime-mechanism of the clock is still released on the quarter hours as before, and the chime-barrel rotated, but without ringing either of the chimes, all of the chime pins being, as stated, out of registration with the chime-ringing levers.

Similarly by the manual operation of the indicator 98, the strike-hammer 83 is cut into and out of operation. Thus when the indicator 98 is turned into the position in which it is shown in Fig. 1, the snail 103 operates every hour on the operating-finger 102 to effect the striking of the hour. When, however, the indicator 98 is manually turned to bring its pointer over the word "Silent" on the strike-dial 99, the arm 94 is swung into the position shown by dotted lines in Fig. 2, whereby the cord 92 draws the strike-hammer lever 91 into the position also shown by broken lines in Fig. 2. As the lever 91 swings into such position, the cord 90 pulls the hammer-arm 84 into the position in which it is shown by broken lines in the said figure. In these positions of the parts, the finger 102 is constantly held in a retired position in which it clears the snail 103 which, although revolved every hour, fails to operate the lever 91 and hence to strike the hour.

I claim:—

1. In a chime clock, the combination with the time-train thereof, of a chime-barrel having two sets of chime-pins, chime-hammers, and barrel-shifting means connecting the said time-train with the said barrel at a point between the pins thereof for shifting the barrel to cause one or the other set of chime-pins to operate the said chime-hammers.

2. In a chime clock, the combination with a movement having front and back movement-plates and a time-train, of a chime-barrel located back of and connected with the said back movement-plate and having two sets of chime-pins, chime-hammers, and barrel-shifting means extending through the said back movement-plate and connecting the time-train with the said barrel at a point between the pins thereof for shifting the barrel to cause one or the other set of chime-pins to operate the said chime-hammers.

3. In a chime clock, the combination with a movement having front and back movement-plates and a time-train, of a chime-barrel having two sets of chime-pins located directly in the rear of and connected with the said back movement-plate, chime-hammers, and barrel-shifting means connecting the rear end of the rearwardly projecting center-arbor of the time-train with the said chime-barrel at a point between the pins thereof for shifting the barrel to cause one or the other set of chime-pins to operate the said chime-hammers.

4. In a chime clock, the combination with a movement having front and back movement-plates and a time-train, of a chime-barrel having two sets of chime-pins, located directly in the rear of and connected with the back movement-plate, chime-hammers, and barrel-shifting means connecting the said time-train with the barrel at a point between the pins thereof for shifting the barrel to cause one or the other set of chime-pins to operate the said chime-hammers, the said barrel-shifting means including a two-dwell cam for automatically shifting the barrel to ring the two sets of chimes on alternate hours, or either chime every hour.

5. A chime clock having a chime-mechanism constructed and arranged to automatically ring two chimes on alternate hours or either chime every hour, and a single manually-operated chime-selecting mechanism adapted to be operated at any time for setting the clock to automatically ring the two chimes on alternate hours, or either chime every hour, or to silence both chimes altogether.

6. A chime clock having a chime-mechanism constructed and arranged to automatically ring two sets of chimes on alternate hours or either chime every hour, and a single manually-operated chime-selecting mechanism adapted to be operated at any time, the said mechanism including an indicator located in front of the dial of the clock, whereby by manually setting the said indicator, the clock may be set to automatically ring the two chimes on alternate hours or either chime every hour.

7. In a chime clock, the combination with the movement thereof, of a self-contained or unitary chime-mechanism adapted to be independently organized and removably secured to and removed from the back plate of the said movement as a unit and including a chime-barrel, barrel-shifting means connected with the barrel, and means controlled by the time-train for automatically shifting the barrel endwise at stated intervals from a point between the chime-pins thereof.

8. In a chime clock, the combination with the time-movement thereof, of a self-contained chime-mechanism adapted to be removably applied as a unitary structure to the said time-movement and comprising two brackets, a chime-barrel interposed between and journaled in the said brackets, chime-ringing levers mounted on a shaft extending

between the said brackets in position to be operated by pins in the chime-barrel, a series of chime-hammers carried by the said brackets and connected with the respective chime-ringing levers, and barrel-shifting means connected with the barrel at a point between the chime-pins thereof, and operated under the control of the time-movement for automatically shifting the barrel endwise at hourly intervals.

9. In a chime clock, the combination with the time-movement thereof, of a two-dwell cam revolved once in two hours thereby, a chime-lever co-acting with the said cam, a spring for the said lever, a bell-crank lever, one arm of which is connected with the barrel for the endwise movement thereof and which co-acts with the said chime-lever, a single manually operated chime-selecting mechanism co-acting with the other arm of the said bell-crank lever and adapted to be operated at any time for setting the clock to automatically ring the two chimes on alternate hours or either chime every hour, and a spring for moving the chime-barrel endwise in the opposite direction from the movement thereof by the spring aforesaid.

10. In a chime clock, the combination with the time-movement thereof, of a two-dwell cam driven thereby, a chime-lever co-acting with the said cam, a chime-lever spring, a longitudinally movable chime-barrel, a bell-crank lever one arm of which is connected with the said barrel for moving the same longitudinally and which co-acts with the said chime-lever which is movable independently of the said arm, a single manually operable chime-selecting mechanism co-acting with the other arm of the bell-crank lever and adapted to be operated at any time for setting the clock to automatically ring the two chimes on alternate hours or either chime every hour, and a spring of less power than the chime-lever spring for moving the barrel in the opposite direction from the direction in which it is moved by the said chime-lever spring, the said selecting mechanism being adapted to operate through the said two-armed lever to move the said barrel and hold it in a predetermined position irrespective of the action of the two-dwell cam upon the chime-lever.

11. In a chime clock, the combination with the time movement thereof, of a plural chime-mechanism, a two-dwell cam rotated once in two hours by the time-movement, a chime-lever co-acting with the said cam, a chime-lever spring, a longitudinally movable chime-barrel, and a barrel-shifting arm arranged to co-act with the said chime-lever and connected with the chime-barrel between the pins thereof for the endwise movement thereof once an hour under the control of the said cam.

12. In a chime clock, the combination with the time-movement thereof, of a chime-barrel mounted thereupon, means for automatically shifting the said barrel in position every hour, and a single manually operated chime-selecting mechanism connected with the said barrel for the movement thereof, and comprising a disk carrying a cam and a shoe, and adapted to be operated at any time for setting the clock to automatically ring the two chimes on alternate hours or either chime every hour.

13. In a chime clock, the combination with the time-movement thereof, of a plural chime-mechanism, a chime-barrel mounted upon the said movement, a two-dwell cam rotated once in two hours by the time-train of the said movement, a chime-lever co-acting with the said cam, a chime-lever spring, a bell-crank lever one arm of which co-acts with the said chime-lever and which is connected with the chime-barrel for moving the same every hour, a single manually operated chime-selecting mechanism including a cam and a shoe which co-act with the other arm of the said bell-crank lever for positioning the same and hence the arm of the said lever connected with the said barrel, and a spring of less power than the chime-lever spring for moving the barrel in a direction opposite to which it is moved by the chime-lever spring, whereby the said chime-barrel may be shifted automatically every hour or manually at any time.

14. In a chime clock, the combination with the time movement thereof, of a plural chime-mechanism, a two-dwell cam rotated once in two hours by the time-movement, a chime-lever co-acting with the said cam, a chime-lever spring, a longitudinally movable chime-barrel, and a barrel-shifting arm arranged to co-act with the said chime-lever and connected with the chime-barrel for the endwise movement thereof once an hour under the control of the said cam.

15. In a chime clock, the combination with the time-movement thereof, of a chime-barrel mounted thereupon, means for automatically shifting the said barrel in position every hour, and a single manually operated chime-selecting mechanism connected with the said barrel for the movement thereof, and comprising a disk carrying a cam and a shoe and adapted to be operated at any time.

16. In a chime clock, the combination with the time-movement thereof, of a plural chime-mechanism, a chime-barrel mounted upon the said movement, a two-dwell cam rotated once in two hours by the time-train of the said movement, a chime-lever co-acting with the said cam, a chime-lever spring, a bell-crank lever one arm of which co-acts with the said chime-lever and is connected with

the chime-barrel for moving the same endwise every hour, a single manually operated chime-selecting mechanism including a cam and a shoe which co-act with the other arm of the said bell-crank lever for positioning the same and hence the arm of the said lever connected with the said barrel, and a spring of less power than the chime-lever spring for moving the barrel in a direction opposite to which it is moved by the chime-lever spring, whereby the said chime-barrel may be shifted automatically every hour or manually at any time.

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

FREDERICK WEHINGER.

Witnesses:
C. J. CLEVELAND,
J. R. PUTNAM.

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