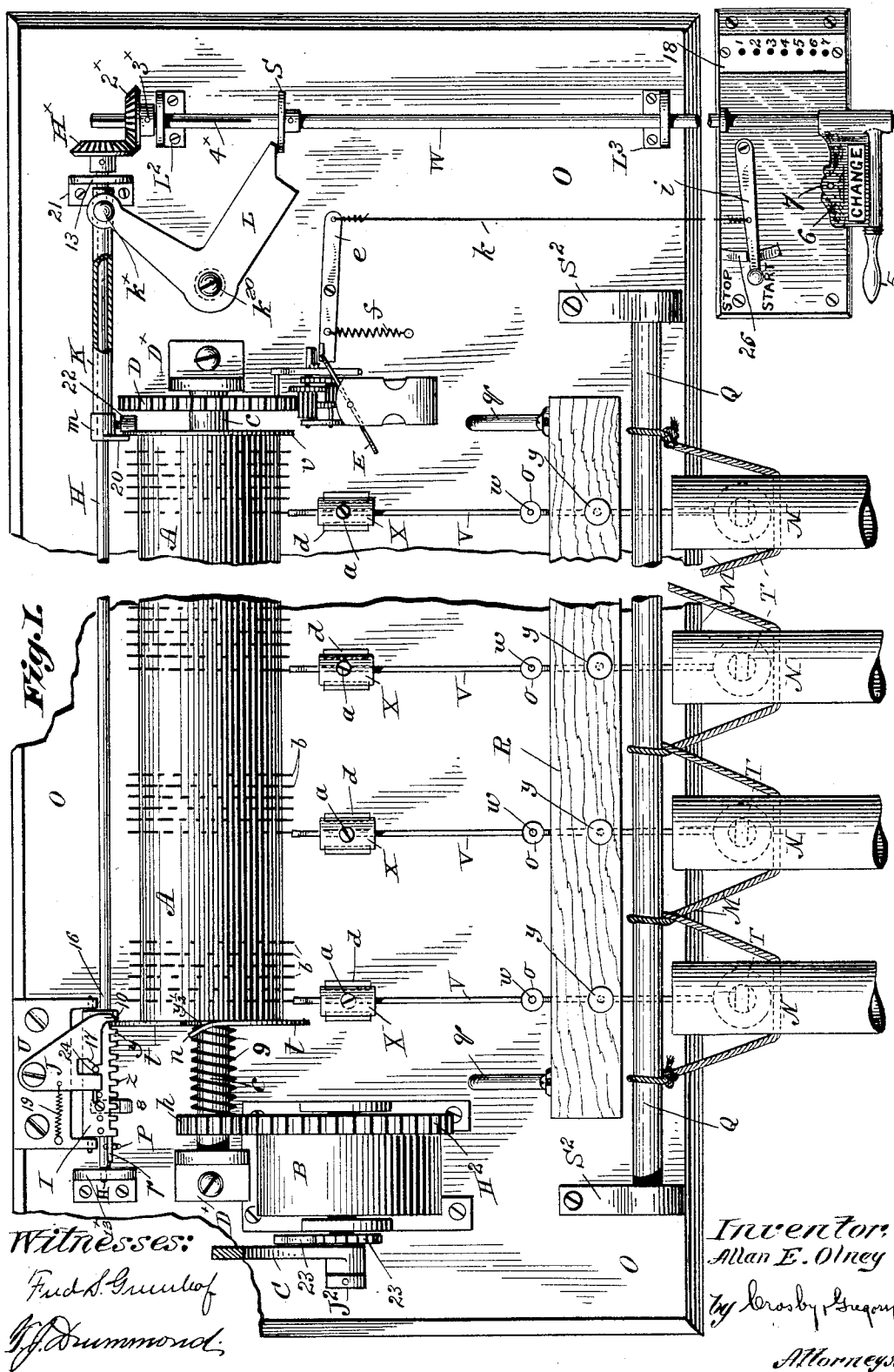


A. E. OLNEY.
CHIMING MECHANISM.

No. 571,075.

Patented Nov. 10, 1896.



A. E. OLNEY.
CHIMING MECHANISM.

No. 571,075.

Patented Nov. 10, 1896.

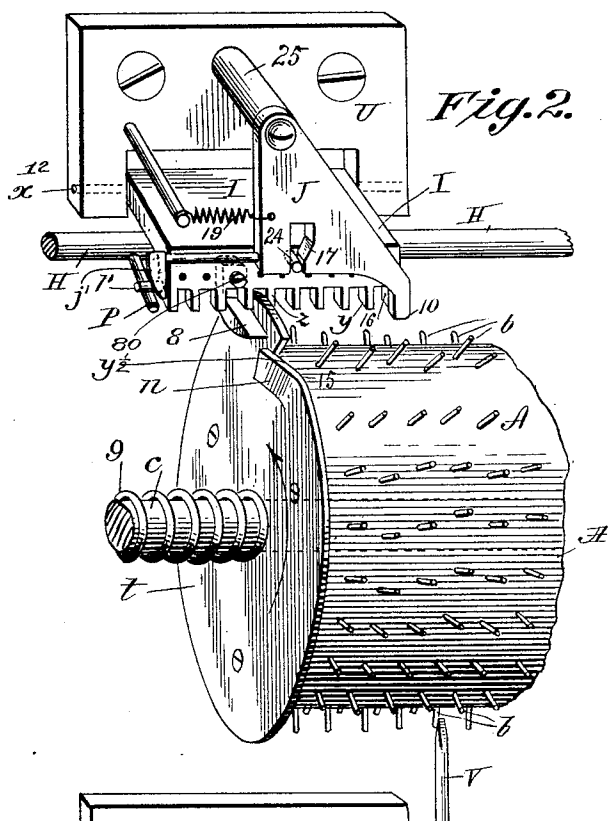


Fig. 2.

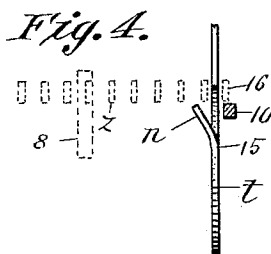


Fig. 5.

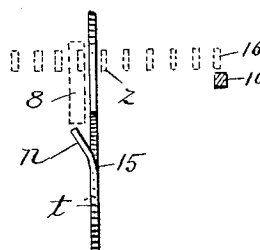


Fig. 6.

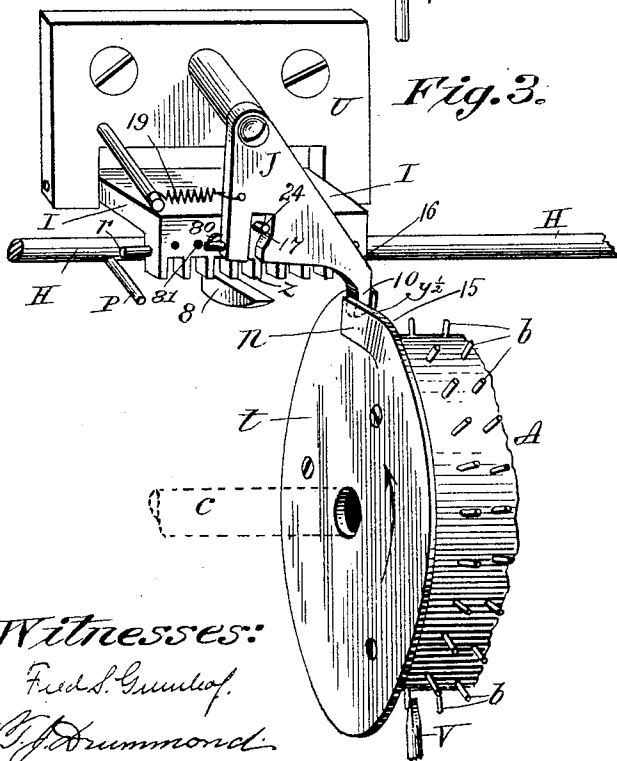
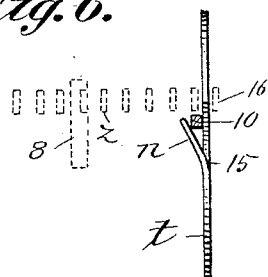


Fig. 3.

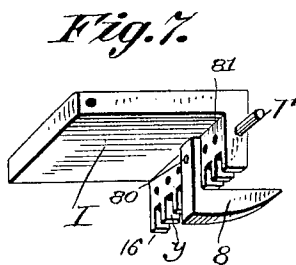


Fig. 7.

Witnesses:

Fred. S. Gunkel.
J. Drummond.

Inventor:
Allan E. Olney.
by Lewis S. Gregory,
Attorneys.

(No Model.)

3 Sheets—Sheet 3.

A. E. OLNEY.
CHIMING MECHANISM.

Patented Nov. 10, 1896.

No. 571,075.

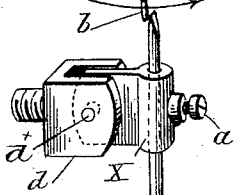


Fig. 8.

Fig. 9.

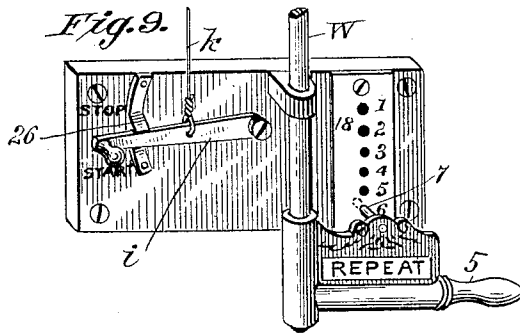
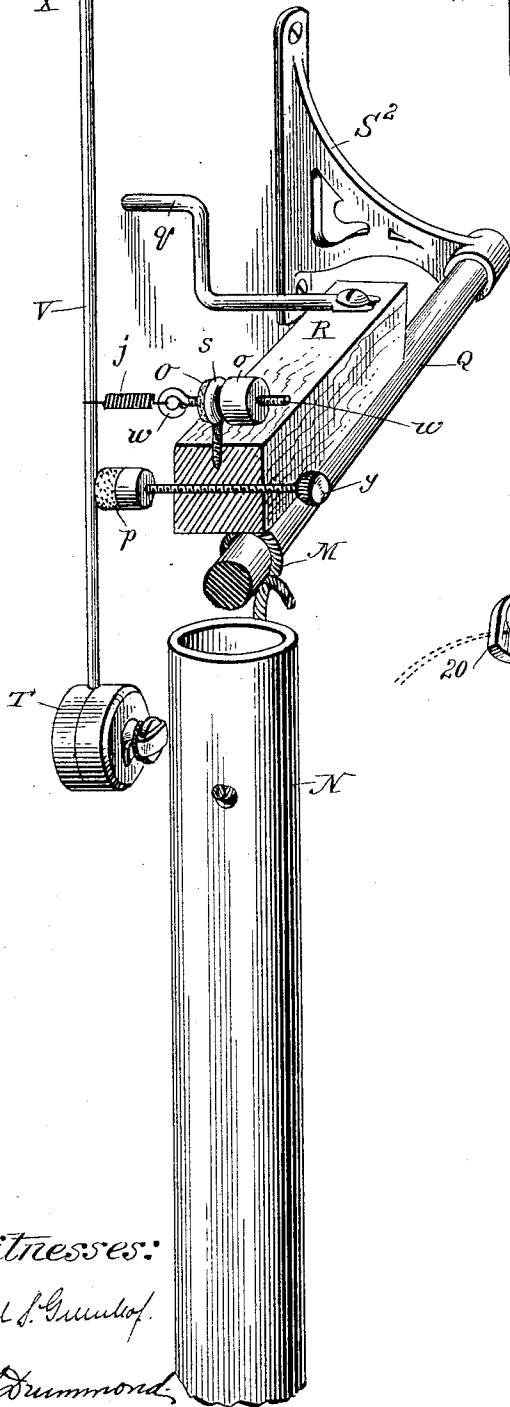
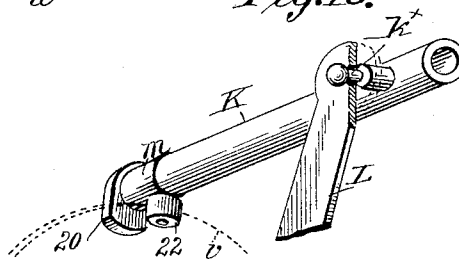


Fig. 10.



Witnesses:

Fred S. Grunlof.

J. Drummond.

Inventor
Allan E. Olney.
by Crosby Gregory.
Attorneys

UNITED STATES PATENT OFFICE.

ALLAN E. OLNEY, OF HOLYOKE, MASSACHUSETTS, ASSIGNOR TO THOMAS J. FLANAGAN, OF SAME PLACE.

CHIMING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 571,075, dated November 10, 1896.

Application filed February 27, 1896. Serial No. 581,029. (No model.)

To all whom it may concern:

Be it known that I, ALLAN E. OLNEY, of Holyoke, county of Hampden, and State of Massachusetts, have invented an Improvement in Chiming Mechanism, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of novel mechanism for chiming bells, more especially bells of the tubular class for use in churches and other places; but the invention is not limited to the particular class of bell.

In my invention a rotatable chime-barrel having a plurality of groups of hammer-operating pins has cooperating with it devices for moving it automatically, and also for moving it by hand, so that by sliding the barrel upon its operating-shaft any of the group of pins may be put in operative position with relation to the hammers, according to the tune to be played, and the entire series of tunes may be repeated or any one tune of the series be repeated any number of times at the pleasure of the operator.

Figure 1 of the drawings shows in front elevation a chiming mechanism embodying my improvements in one form, the bells, only partially represented, being shown as of the tubular class, the heel *j*, to be described, being omitted, said heel being fully shown only in Fig. 2. Fig. 2 is a perspective view of one end of the chime-barrel, and barrel-controller for effecting automatically changes in the position of the barrel with relation to the hammers. Fig. 3 is a view similar to Fig. 2, but illustrating the parts in different positions. Figs. 4 to 6 are illustrative details to be hereinafter described. Fig. 7 is a detail showing the controlling device detached. Fig. 8 is a detail showing the hammer, damper, and other parts on an enlarged scale. Fig. 9 is an enlarged detail of the lower end of the shaft *W*, and Fig. 10 is an enlarged detail of the sleeve and its parts for engaging the head of the barrel.

In the drawings, *O* indicates a back or frame of suitable shape to support the actuating parts to be described; but, if desired,

the said parts may be secured upon the wall or suitable timbers of a building.

The chime-barrel *A*, provided with a plurality of groups *b b* of hammer-operating pins, is splined upon a shaft *c*, having its journals supported in suitable bearings *D*^x, attached to the back *O*, the said shaft being rotated by a suitable clock-spring (not shown) connected at one end to a shaft *J*², provided with a ratchet *23*, which is engaged by a pawl *23*^x, the opposite end of the spring being attached to a drum *B*, having a connected gear *H*² loose on the shaft *J*², the said gear engaging a pinion *h*, fast on the shaft *c*.

The spring may be wound by turning the crank *C* on the shaft *J*².

The shaft *c* at its opposite end is provided with a gear *D*, which is engaged by a fan-regulator mechanism composed of gearing, and a fan *E*, the said regulator mechanism controlling the speed of rotation of the drum *A*, and also being so controlled that the rotation of the drum may be stopped or started by holding or releasing the fan. For this purpose I have provided a lever *e*, (shown in Fig. 1 as engaging the fan,) said lever being connected by a suitable cord or device *k* with a switch *i*, adapted to be moved between suitable stops on a rack *26*, and between them may be the words "start" and "stop."

By moving the switch *i* downwardly, in Fig. 1, the lever *e* will release the fan *E* and let the drum start. A spring *f*, connected to the lever *e*, normally depresses its acting end to engage the fan *E*.

Surrounding the shaft *c* and between the plate *t*, secured to one end of the barrel *A* and the pinion *h*, is a spring *9*, which normally acts to move the barrel *A* to the right. The head *v* of the barrel *A* is embraced between a lip *20* of a collar *m* and a roller *22*, also mounted on a pin of the said collar, the collar being carried by a sleeve *K*, which is adapted to slide on a shaft *H*, to be described. The sleeve *K* has a pin *k*^x, to which is connected one end of a lever *L*, pivoted at *k*²⁰, the opposite end of the said lever being adapted to be acted upon by a disk *S*, secured to a rod *W*, having a handle *5*, the said rod, when lifted, acting upon the lever *L* to slide the sleeve, and with it the barrel *A*, on the ro-

tating shaft *c* against the pressure of the spring 9, the roller 22 constituting an anti-friction or rolling abutment for the head *v*. The handle 5 has connected with it a plate 6, provided with a pin 7, the plate at one side exhibiting the word "Change" (see Fig. 1) and at the other side the word "Repeat." (See Fig. 9.)

The handle occupies the position Fig. 1 when the barrel is being slid automatically on its shaft intermittingly, the tunes following one after the other in succession, but when the pin 7 enters one of the holes 1 to 7 in the plate 18 and the controlling mechanism I, to be described, is lifted the barrel in its rotation will continue to play and repeat any one of the tunes indicated by the hole, there being a hole in the plate 18 for each row of pins used.

The upper end of the rod *W* is splined at 4^x to receive a pin 3^x of a bevel-gear 2^x, the gear being supported upon one of the bearings L² of the rod *W*. The gear 2^x engages a gear II^x on a shaft II, parallel to the barrel, the shaft having at its opposite end a bearing 13^x and being provided with a pin *P*, which engages a pin *r*, projected from the barrel-controller I, pivoted at *x*¹².

When the rod *W* is rotated by the handle 5 from the position Figs. 1 to 9, the gear 2^x of the rod rotates the shaft II and causes the pin *P* to lift the controller and put it out of operative position, and the rod may be slid in the gear 2^x to cause the plate *S*, acting on the lever *L*, to push the barrel to the left in Fig. 1 and place any one of its row of pins opposite the hammer-shank *V*.

The hammer-shanks *V*, beveled at their upper ends, as best shown in Fig. 8, and provided at their lower ends with suitable hammers *T*, are made adjustable in hammer-holders *X* by means of screws *a*, the said hammer-holders being pivoted at *d*^x between ears of a clip *d*, shown as provided with a screw to be inserted into the frame *O*.

The hammer-shanks *V* have connected with them suitable springs *j*, which are attached to an adjusting mechanism herein shown as an eyebolt *W*, extended through an eyebolt *s*, secured to a beam *R*, supported in suitable manner, as by a bracket *q*, attached to the frame *O*, the threaded shank of the eyebolt *w* having upon it two threaded washers *o o*, by the adjustment of which the tension upon the spring *j* may be increased or diminished at will, the spring returning the hammers after their shanks have been moved by the pins *b* and causing the hammers to strike the tubular bells *N*, which may be of any usual or suitable construction, said bells being supported in usual manner by flexible cords or connections *M*, suspended about a rod *Q*, sustained in brackets *S*², attached to the said back.

The bar *R* supports a series of dampers *p*, composed of pieces of felt or other similar material carried by a disk mounted upon a screw

y, inserted through the bar, the adjustment of the dampers tempering the blows of the hammers upon the bells.

The barrel *A* has connected to one end of it a plate *t* and a lip *n*, extended in the manner of an inclined tooth.

The barrel-controlling device for automatically moving the barrel in order that one or more tunes may be played in succession consists, as stated, of a plate *I*, having a series of teeth, the plate being provided with a cam-finger 8, connected thereto by a suitable screw 80 in any one of a series of holes 81, so that the position of the said cam-finger may be changed, more or less, with relation to the first tooth 16 of the controller *I*.

The controller *I* has a pin 24, and the stand *U*, upon which the controller is pivoted, has a stud 25, upon which is pivoted a latch *J*, having an *Γ*-shaped slot provided with a notch or shoulder 17 and a finger 10, the pin 24 of the controller entering the *Γ*-shaped slot, a spring 19, connected to the latch, turning the latter, so as to cause the shoulder 17 to come under the pin 24 of the controller when the latter is lifted, as it may be by the rod *II* described, or automatically by the action of the lip *n* against the cam-finger 8, the cam-finger 10 depending below the first finger 16 when the controller is lifted, and the pin 24 is on the notch 17, as in Fig. 3.

Fig. 1 shows the mechanism in position with the first row of pins to the left of the several groups of pins acting upon the hammer-shanks *V*, the controller *I* being then down in its operative position and the handle 5 in the position of "change." As the chime-barrel *A* is rotated the lip *n* enters one after another the spaces between the teeth of the controller *I*, thus moving the barrel *A* laterally one step at a time, to thus actuate the hammers in the proper time and order, to play the different tunes represented by the pins in their peculiar positions upon the barrel, and as soon as the lip *n* strikes the cam-finger 8 it acts to lift the controller, removing its teeth from the flange of the plate *t* and letting the spring 9 quickly move the chime-barrel *A* to the right, the sleeve *k* being also moved on the rod *II* until its end meets the bearing 13, and just as the chime-barrel arrives in its farthest position to the right the flange of the plate *t* meets the finger 10 and turns the latch *J*, removing the shoulder 17 from the pin 24, letting the controller again fall, the tooth *y* (see Fig. 2) falling on the lip *n* at about the point *y*¹/₂, said tooth riding on the top of the lip *n* as the barrel moves until the point 15 of the lip comes to the rear or right-hand side of the tooth *y*, at which time the controller will fall into its lowest position with the plate *t* between the teeth 15 and 16, and thereafter in its further rotation the chime-barrel will be moved to repeat its tunes.

If the cam-finger 8 should be moved to the right in the drawings, Fig. 1, less than the whole series of tunes will be played and re-

peated, that depending upon the position occupied by the cam-finger.

The detail Fig. 4 represents by dotted lines the teeth of the controller and the cam-finger and by section-lines the finger 10, and the plate *t*, with its lip *n*, is shown in the position it occupies in Fig. 1, while Fig. 5 shows the parts in the position they will occupy just about as the lip *n* is about to strike the cam-finger 8.

The detail Fig. 6 is explanatory of Fig. 3, and it is supposed that the barrel is being returned to the right by the action of the spring 9 and the lip *n* has just arrived at the finger 10 and is about to move it to release the then lifted controller I.

When the controller I is lifted, the rod *W* may be raised and, through the action of the elbow-lever *L*, push the chime-barrel into position to enable its plate *t* to engage with any one of the teeth or spaces, and then the controller may drop and the barrel be started, and in this way any desired rows of pins of each group on the barrel may be made to actuate the hammers, and, the tune designated by said pins having been played, the barrel will be moved automatically and play one or more tunes until the lip *n* on the plate *t* meets the cam-finger 8, and in this way any desired number of the whole number of tunes may be played and repeated.

The controller, which acts to move the barrel automatically, has a series of teeth or spaces in which the plate *t* works, while the sleeve *k*, and its lug and roll or equivalents, presents but one notch to embrace the head *v*.

I have shown the device having the lip and roll to embrace the head *v* as a sleeve or tube guided by the shaft II; but it is obvious that the lip 20 and roll 22 might be carried by any suitable bar or device having a movement parallel to the shaft *c*, and hence I shall in some of the claims designate the device, of whatever form used, to grasp the edge of the head *v* and move the barrel as the "barrel-sliding" device.

The pin 7, connected with the handle 5, and the plate 18, having the series of holes to receive the pins, constitute what I shall denominate as a "locking device" for the rod *W*.

Prior to my invention I am not aware that the edge of a plate connected with a chime-barrel has ever been engaged by a controller to enable the barrel to be moved automatically longitudinally on its operating-shaft, nor am I aware that the head of a barrel has ever been embraced by its edges with a barrel-sliding device which might be moved by hand when desired.

This invention is not limited to the exact mechanical parts shown, as it is obvious that the parts may be variously modified yet continue to possess the same principle of operation, all such changes being merely the skill of the mechanic and not requiring invention.

This invention is not limited to the use of the mechanism in churches, &c., for playing

what is called "chimes," as it may be applied to music-boxes, organs, and other musical apparatus wherein it is desired to play a series of tunes, repeating all or part of them at pleasure, and the term "chiming mechanism" is herein used as synonymous with tune-playing.

The latch *J* may have a heel *j'* at its left-hand end in line with the path of movement of the pin *p*, so that the rod *II* may be used to turn the said latch and release the controller after the barrel *A* shall have been moved by spring 9 on the shaft *c* for a distance less than the whole movement, as, for instance, when the plate *S* is in position to check the movements of the barrel before the lip *n* meets the toe 10.

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

1. A chiming mechanism containing the following instrumentalities, viz: a rotatable actuating-shaft, a chime-barrel thereon, provided with a plurality of groups of hammer-operating pins and having a plate and lip; a plurality of hammers, a movable controlling device having rack-teeth and cooperating with said plate and lip, to effect the sliding of the barrel on its shaft intermittingly, and a spring to return the said barrel into its operative position, to operate, as set forth.

2. A chiming mechanism containing the following instrumentalities, viz: a rotatable actuating-shaft, a chime-barrel thereon, provided with a plurality of groups of hammer-operating pins and having a plate and lip, a plurality of hammers, a movable controlling device cooperating with said plate and lip, to effect the sliding of the barrel on its shaft intermittingly, to operate, as set forth.

3. A chiming mechanism containing the following instrumentalities, viz: a rotatable actuating-shaft, a chime-barrel mounted thereon, and provided with a plurality of hammer-operating pins, and having a head, a plurality of hammers, and a barrel-sliding device to engage the edge of said head to slide the barrel on its shaft, substantially as described.

4. A chiming mechanism containing the following instrumentalities, viz: a rotatable actuating-shaft, a chime-barrel mounted thereon, and provided with a plurality of hammer-operating pins, and having a head, a plurality of hammers, a barrel-sliding device to engage the edge of said head to slide the barrel on its shaft, and a spring to move the said barrel in the opposite direction, substantially as described.

5. A chiming mechanism containing the following instrumentalities, viz: a rotatable actuating-shaft, a chiming-barrel thereon provided with a plurality of hammer-operating pins, and having at one end a plate, a plurality of hammers, and a pivoted controlling device cooperating with said plate to slide the chime-barrel intermittingly on its actuating-shaft, and a spring to return said barrel, substantially as described.

6. A chiming mechanism including the following instrumentalities, viz: a rotatable actuating-shaft, a chime-barrel thereon provided with a plurality of hammer-operating pins, and having at one end a plate provided with a lip, a plurality of hammers, a movably-mounted controlling device having a cam-finger and cooperating with said plate and lip to slide the chime-barrel, the said lip by its contact with the said finger elevating the said controller, substantially as described.

7. A chiming mechanism including the following instrumentalities, viz: a rotatable actuating-shaft, a chime-barrel thereon provided with a plurality of hammer-operating pins, and having at one end a plate provided with a lip, a plurality of hammers, a movably-mounted controlling device having a cam-finger and cooperating with said plate and lip to slide the chime-barrel, the said lip by its contact with the said finger elevating the said controller, and a spring to move the barrel in the opposite direction, substantially as described.

8. In a chiming mechanism, a chime-barrel, having at one end a plate, a controlling device having teeth and spaces to be engaged by said plate, and a pin; combined with a latch having a finger and a shouldered slot cooperating with said pin, to operate, substantially as described.

9. A chime-barrel having a plurality of groups of hammer-operating pins and provided at one end with a plate having its edge extended radially, a shaft on which said chime-barrel is mounted to slide, a movably-mounted controlling device having teeth and spaces to cooperate with said plate, combined with a shaft, means to rock it, and devices between said shaft and controlling device to move the latter and release the controlling device from the said plate, substantially as described.

10. In chiming mechanism, the following instrumentalities, viz: a pivoted barrel-controlling device having a series of teeth thereon, a chime-barrel having one or more groups of hammer-operating pins thereon and having a plate fixed thereto and engaging by its periphery with the teeth of said controlling device, and means for rotating said barrel, and for swinging said controlling device toward and from the periphery of said plate, combined and operating substantially as set forth.

11. In chiming mechanism, the following instrumentalities, viz: a chime-barrel having one or more groups of hammer-operating pins thereon, and having a plate whose periphery projects beyond the plane of the surface of the barrel and has a laterally-extending cam-lip, a pivoted barrel-controlling device having a series of teeth thereon for engagement with the periphery of said plate, a cam-finger adjustably secured on said rack for engagement with said cam-lip, and means for rotating said barrel, and for swinging said

controller toward and from said barrel, to operate, substantially as set forth.

12. In chiming mechanism, the following instrumentalities, viz: a pivoted barrel-controller having teeth and provided with a pin; a pivoted latch cooperating therewith and having a lip 10 and a shouldered slot in which said pin is made movable, and a spring to move said latch and cause the said shoulder to engage said pin, combined with the chime-barrel having a plate whose periphery engages said teeth periodically, and also said lip 10, substantially as set forth.

13. In a chiming mechanism, a pivoted barrel-controller having teeth and a pin, a pivoted latch having a lip, and a slot having a shoulder, a spring to move said latch to enable the shoulder to engage said pin, combined with a chime-barrel having a plate whose periphery engages said teeth and periodically said lip, a shaft, and devices between it and the said controller to lift the latter, whereby at desired times the controller may be lifted and cause the pin thereon to engage the shoulder of the latch and hold the controller in its inoperative position, substantially as set forth.

14. The barrel-controller, the shaft having an arm thereon to engage said controller, and means for rocking said shaft whereby said controller may be lifted when desired, combined and operating substantially as described.

15. The barrel-controller, a shaft having an arm thereon to engage said controller, a vertical rod, gearing between said rod and shaft, and an operating-handle for said rod whereby the latter may be rotated, substantially as set forth.

16. In chiming apparatus, a chime-barrel having one or more groups of hammer-operating pins thereon, and a plate whose periphery projects beyond the plane of the surface thereof, and a head, a shaft for said barrel on which the same has a longitudinal movement, a spring for sliding said barrel in one direction, a pivoted barrel-controller having a series of teeth thereon for engagement with the periphery of said plate, and a pin 24, a pivoted latch cooperating with said controller, said latch having a lip thereon for engagement with the side of said plate, and a spring for swinging said latch, combined with means for rotating said barrel, and for lifting said rack and latch, and for engaging said head to slide said barrel on said shaft against the action of said spring, whereby the periphery of said plate is brought to different positions under the tooth-bearing border of said rack member, substantially as set forth.

17. In a chiming mechanism, the following instrumentalities, viz: a chime-barrel, provided with pins and having a plate and a head, a barrel-controller engaged by said plate, a rock-shaft cooperating with said controller to move the latter, a sleeve sliding on said rock-shaft and engaging the head of said

barrel, a rocking and endwise-moving rod having a pinion engaging a pinion on said shaft, an elbow-lever L, engaging said sleeve, and a handle for operating said rod, substantially as described.

18. The rocking and sliding rod W, a handle fixed to said rod, and a locking device to hold said handle, a flange, a rock-shaft, bevel-gears between said shaft and rod, a sleeve on said shaft, combined with an elbow-lever L, engaging by one arm said sleeve, and by its other arm said flange, substantially as set forth.

19. In a chiming mechanism, the following instrumentalities, viz: a rotatable chime-barrel having a plurality of groups of hammer-operating pins, a barrel-controller adapted to be engaged by a plate connected with said barrel to move the latter longitudinally in one direction, a plurality of bells, a plurality of hammers operated by said pins, means to effect the automatic disengagement of said controller from the plate of said barrel, and a spring to return the barrel to its starting-point, substantially as set forth.

20. In a chiming mechanism, a hammer, and shank to carry the hammer, a clip and a holder pivoted thereon and in which the hammer-shank is adjustably secured, substantially as described.

21. In a chiming mechanism, a hammer, a hammer-shank, a hammer-holder in which the said shank is adjustably mounted, a clip on which the hammer-holder is pivoted, a bell, and a spring connected at one end to said hammer-shank, and adjusting devices connected to the opposite end of said spring to regulate the blow of the hammer, substantially as described.

22. In a chiming mechanism, a hammer, a hammer-shank, a hammer-holder in which the said shank is adjustably mounted, a clip on which the hammer-holder is pivoted, a bell, and a spring connected at one end to said hammer-shank, adjusting devices connected to the opposite end of said spring to regulate the

blow of the hammer, and an adjustable damper against which the hammer-shank swings, substantially as described.

23. A chiming mechanism containing the following instrumentalities, viz: a rotating shaft, a chime-barrel splined thereon having a plate and lip, devices controlled by the hand of the operator to slide the barrel on the said shaft in one direction, and a barrel-controller having teeth and coöperating with the said plate and lip to automatically slide the barrel intermittingly on the said shaft, substantially as described.

24. A chiming mechanism containing the following instrumentalities, viz: a rotating shaft, a chime-barrel splined thereon, a device to engage a head of the barrel, a lever connected therewith, and a slide-rod having a flange, combined with a locking device to retain the said rod in any one of several positions in which it may be placed to thereby insure the repetition of any tune during the rotation of the barrel, substantially as described.

25. A chiming mechanism containing the following instrumentalities, viz: a chime-barrel, a barrel-controller to automatically slide the barrel intermittingly on its operating-shaft, means to lift said controller, a spring to move the barrel in a direction opposite that in which it is moved by the controller, a device connected with and moved by the head of the barrel, a flange or plate changeable in its positions to arrest the said device connected with the head of the barrel in one or another position according to the number of tunes which it is desired to repeat from the whole number of tunes represented by the barrel, substantially as described.

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

ALLAN E. OLNEY.

Witnesses:

LUKE A. GRIFFIN,
WARD A. ALLYN.