

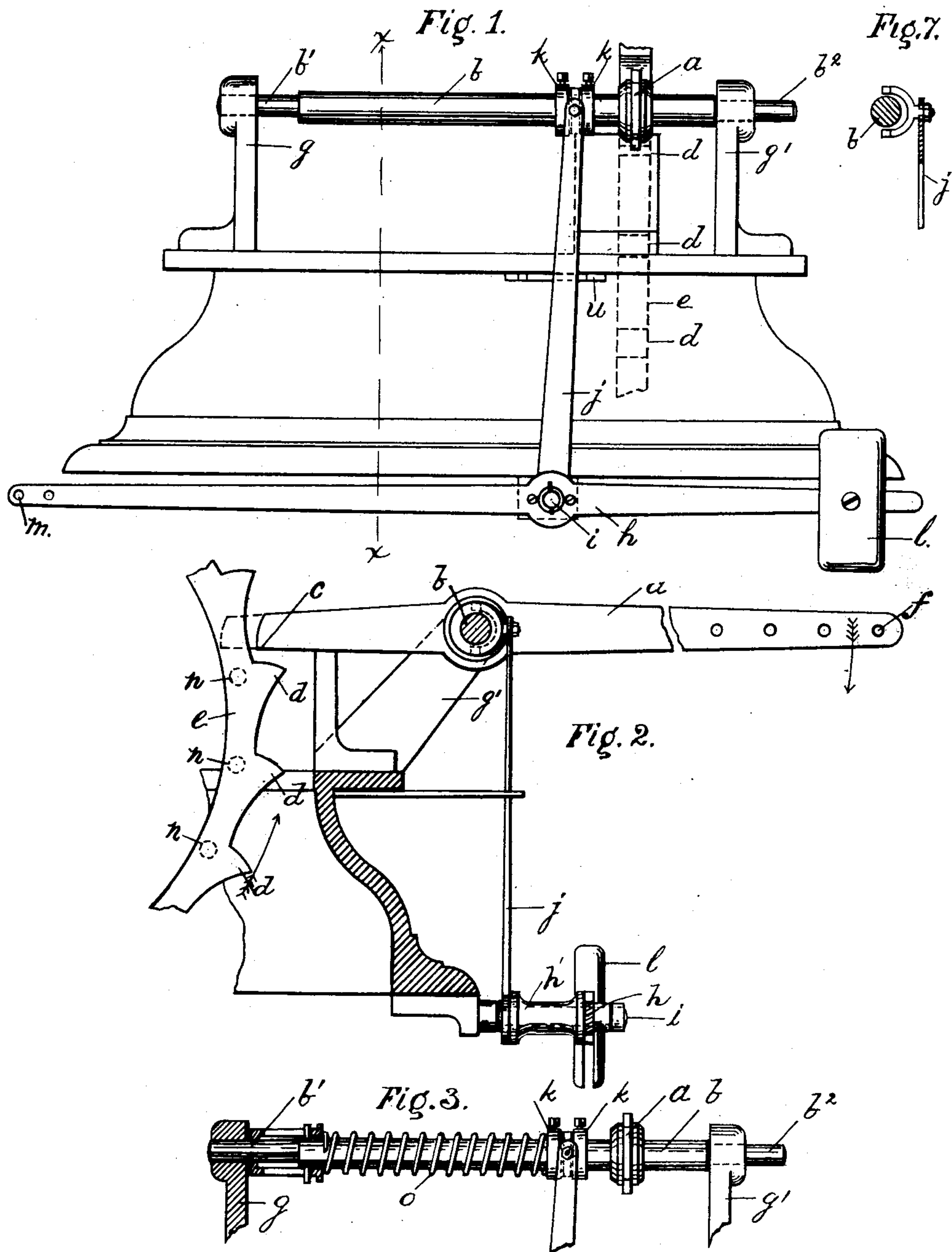
(No Model.)

2 Sheets—Sheet 1.

R. B. CARR.  
CLOCK STRIKING MECHANISM.

No. 424,267.

Patented Mar. 25, 1890.



WITNESSES.

A. D. Hanson  
H. C. Brown

INVENTOR.

R. B. Carr  
By Wright Brown Crowley  
Atty.

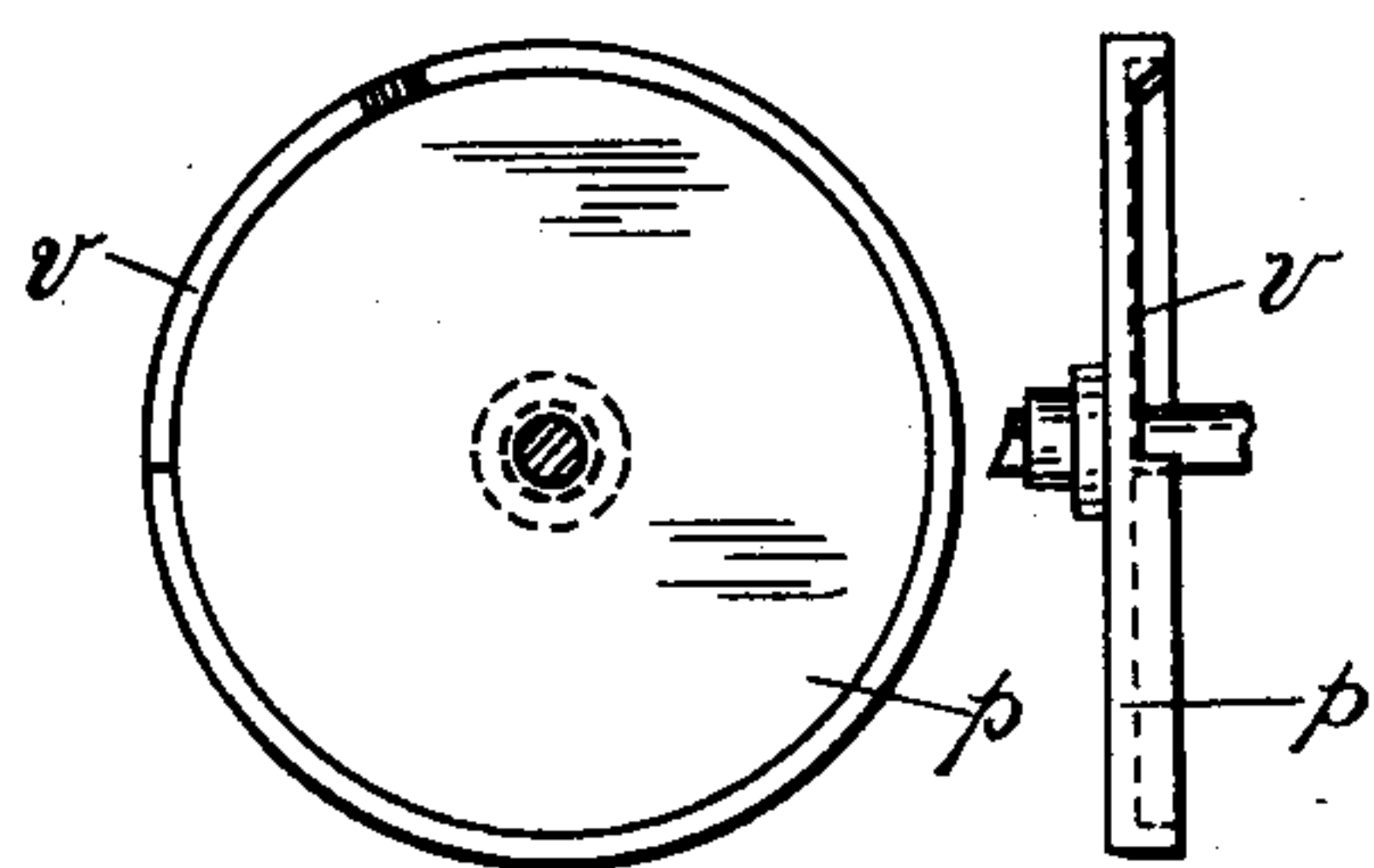
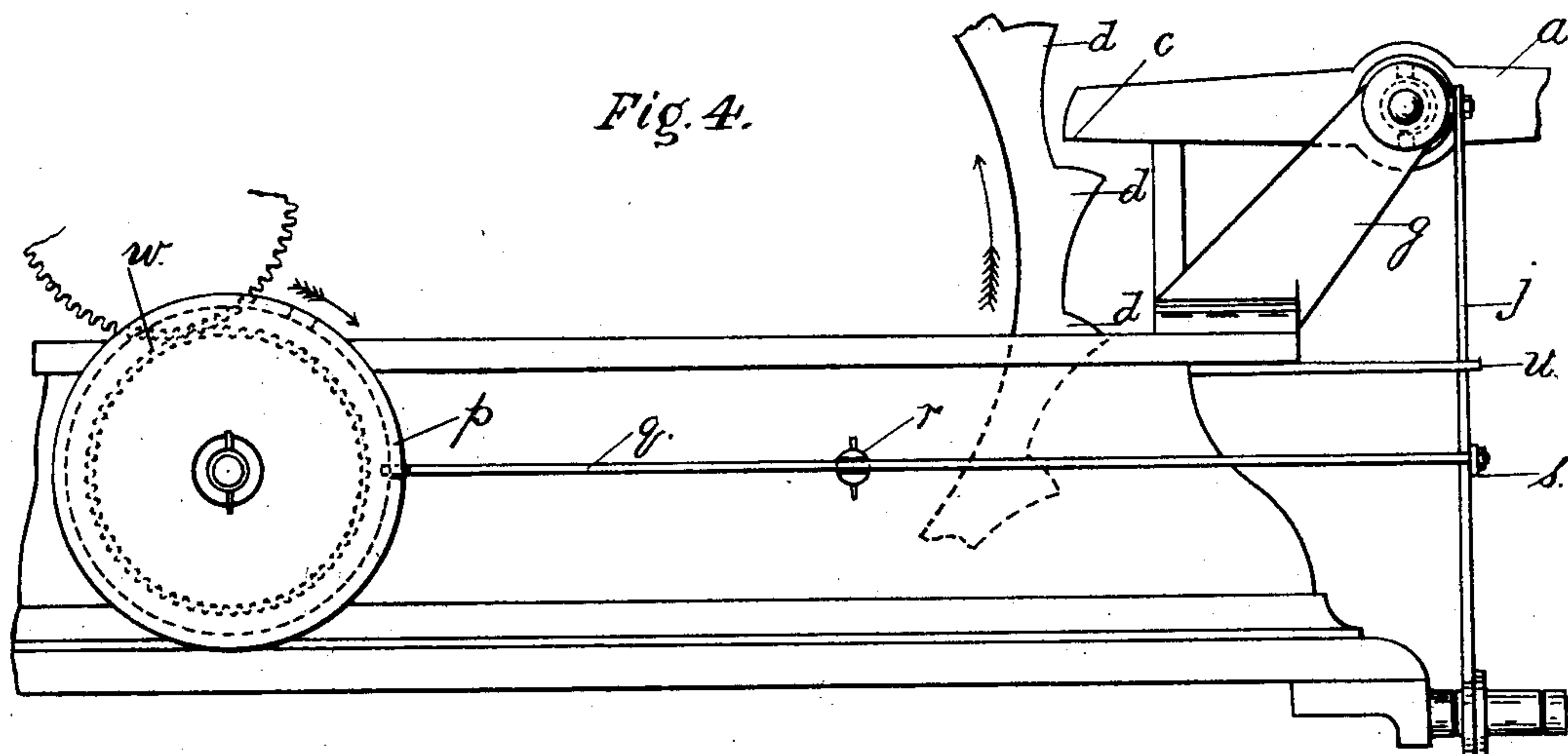
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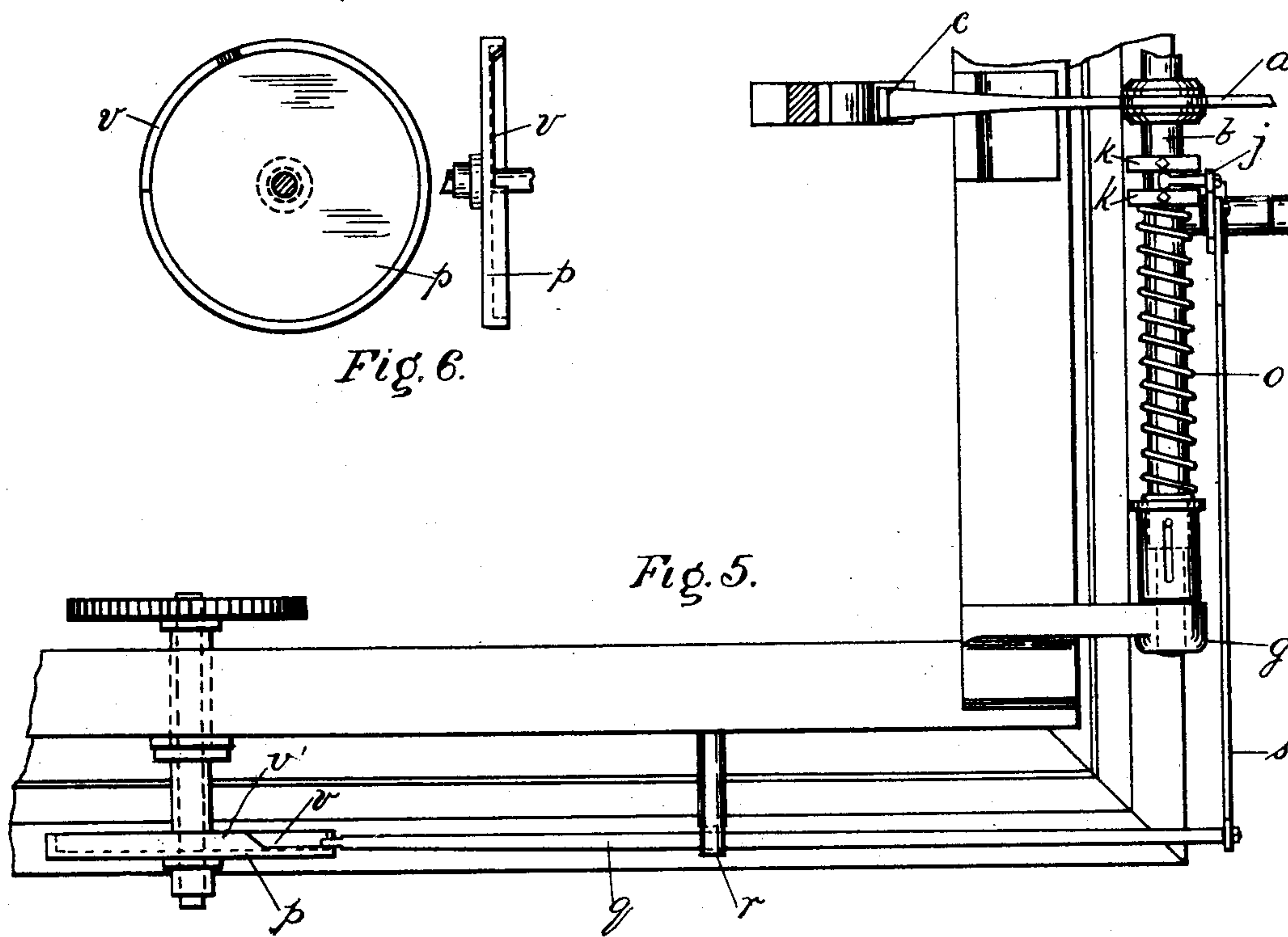
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*Fig. 6.*



WITNESSES.

*A. D. Higgins*  
*H. C. Brown*

INVENTOR.

*R. B. Carr*  
*by Wright & Son, Attys.*



# UNITED STATES PATENT OFFICE.

RUFUS B. CARR, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO  
ALBERT HOWARD, OF SAME PLACE.

## CLOCK STRIKING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 424,267, dated March 25, 1890.

Application filed June 1, 1889, Serial No. 312,849. (No model.)

*To all whom it may concern:*

Be it known that I, RUFUS B. CARR, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and  
5 useful Improvements in Striking Movements for Clocks, of which the following is a specification.

My invention has for its object to provide  
10 a device to operate in connection with the striking movements of clocks to make the striking part inoperative at any of the usual times of striking at the will of the party  
15 having the same in charge, or at any predetermined time, automatically, so that in case it is desired that the clock shall not strike during the night, for example, the striking  
20 mechanism may be made inoperative automatically during said period by the application of my invention; or if it be desired that the striking of a certain hour or hours be  
25 omitted on a special day, this result can be accomplished at the will of the person having the clock in charge by the simple pulling and fastening in place of a cord or by the moving of a lever.

The invention consists in the provision of means, substantially as described and claimed,  
30 for moving the striking-lever, which is lifted by means of pins or cams on a wheel driven by the striking-train out of the path of said pins or cams, the striking-hammer or device  
35 which is operated by said lever being thereby made inoperative or silent.

The invention also consists in certain incidental improvements, all of which I will now  
40 proceed to describe and claim.

In the accompanying drawings, forming a part of this specification, Figure 1 represents  
45 a side view of a portion of a tower-clock provided with my improvements. Fig. 2 represents a section on line  $x x$ , Fig. 1, looking toward the right. Fig. 3 represents a side view of a part of the construction shown in Fig. 1,  
50 showing a spring as the means for normally holding the striking-lever in its cam-engaging or operative position. Fig. 4 represents an elevation of a part of a tower-clock, showing automatic means for moving the striking-lever to its inoperative position. Fig. 5 represents a top view of the construction shown

in Fig. 4. Fig. 6 represents a side and an edge view of the cam shown in Figs. 4 and 5.

The same letters of reference indicate the same parts in all the figures.

I have shown the invention applied to a  
55 tower or turret clock; but it will be understood that the invention may be applied to other kinds of striking-clocks.

In the drawings,  $a$  represents the striking-lever, mounted on the pivoted arbor  $b$ .  
60

$c$  represents the end of lever  $a$ , on which the lifting-cams  $d d d$  operate in passing by in the direction of the arrow in Fig. 2, said  
65 cams being formed on the cam-wheel  $e$ , which is driven in the usual manner by the striking-movement train.

$f$  represents the end of lever  $a$ , to which is attached the chain, which is connected to the hammer at the bell in such a manner that  
70 when the end of lever  $a$  is moved in the direction shown by the arrow the hammer is lifted from the bell, and when the lever  $a$  is released by the cam  $d$ , that is in contact with it, said lever returns to its original position,  
75 which allows the hammer at the bell to fall back against it, and hence a blow or stroke of the bell.  $b'$  and  $b''$  are the pivots of arbor  $b$ .

It will be understood that the rotation of the cam-wheel  $e$  by the striking-train, the operation of the train-driven cam-wheel  $e$  on  
80 the lever  $a$ , and the operation of the bell-hammer through said lever and the connecting-chain are the same as in tower-clocks in common use; hence I do not deem it necessary to show said train nor the bell-hammer, nor  
85 the connection between said hammer and the lever  $a$ .

In carrying out my invention I make the lever  $a$  laterally movable, so that it can be moved out of the path of the cams or projections of the wheel  $e$ . To this end the arbor  
90  $b$  is made movable endwise in its bearings  $g g'$ , and devices are provided for moving said arbor to give the lever sufficient lateral movements to carry it into and out of the path of the cams  $d d$ , said devices being  
95 next described.

$h$  represents a lever mounted to turn loosely on stud  $i$ . To said lever is attached a sleeve  
100  $h'$ , also mounted on stud  $i$ , and having an arm



*j* attached to one of its ends, said arm being therefore rigidly connected with and a part of the lever *h*. The arm *j* has a fork (shown in Fig. 7) at its upper end engaging the arbor *b* and playing freely between collars *k k*, which are fastened rigidly to arbor *b*. *l* is a counterpoise-weight fastened to one arm of the lever *h*, as represented. At *m* is a hole through that arm of lever *h* to which it is intended a cord shall be attached and extended to a convenient place for the operator.

The manner in which this device operates is as follows: At any time it may be desired to prevent the striking of the clock at its next regular time for striking, the cord attached at *m* on lever *h* is pulled and gives that end of the lever a downward motion, at the same time giving the arm *j* a motion to the left and the arbor *b* a lateral motion toward the bearing *g*, taking with it the striking-lever *a* and moving it out of the path of the striking-cams *d d d*. After the time for striking has passed, and it may be desired that at the next time for striking the clock shall strike, the cord can be released and the counterpoise *l* will move the arbor *b* and lever *a* back to their original position. The striking-lever *a* may be operated by pins on the side of the wheel or ring *e*, as represented by the dotted lines at *n n n*, Fig. 2, the lever *a* being extended, as represented by the dotted lines at *c*, the conditions of operation remaining the same as described in reference to the cams *d d d*.

When more desirable, a spiral spring, as shown at *o*, (Fig. 3,) can be used, instead of the counterpoise-weight *l*, (shown in Fig. 1,) to return arbor *b* and lever *a* to the original or operative position of the latter after the releasing of the cord attached at the point *m* of lever *h*.

When the time for preventing the striking of the clock is predetermined and the operation is performed automatically, the devices shown in Figs. 4 and 5 are employed.

Referring to Figs. 4 and 5, *p* is a face-cam against which one end of a lever *q* bears, said lever being pivoted on a stud at *r*. The other end of lever *q* is attached by a loose joint to pitman *s*. The other end of pitman *s* is attached by a movable joint to the lever *j*, the upper end of which engages the arbor *b*, as shown in Figs. 1, 2, and 7. The shoulder of pivot *b*<sup>2</sup>, Fig. 1, is kept in its position near its bearing *g'* by means of the counterpoise *l*, Fig. 1, or by means of the spiral spring, as shown at *o*, Fig. 3, it being prevented from bearing sufficiently hard against the bearing *g'* to create excessive friction by the lever *j* resting upon a fixed stop *u*, Fig. 1.

On the face of face-cam *p*, Fig. 6, is a depression *v*, which is located to represent the time at which the hammer is to be made operative, the cam being revolved once in a period of twelve or any other desired number of hours by means of a train of wheels *w*, (shown in part in Fig. 4,) said wheels connect-

ing with the time-train of the clock. The face-cam *p* is divided into as many imaginary sections as there are times of striking of the clock while it (the cam) makes one revolution. On the section representing the time or times at which the striking is to be performed is made a depression *v*. The cam is adjusted so that each section corresponding with the times of striking passes under the lever *q* simultaneously with the arriving of the time of striking. The hammer is made inoperative by contact of the face *v'* of the cam with lever *q*.

The operation of the device is as follows: When the depression *v* passes under the end of the lever *q*, the end of said lever drops into the said depression and the latter permits the spring *o* or weight *l* to move the lever *a* to its operative position through the intermediate parts, the arbor *b* moving laterally in the direction of bearing *g'*, and when the face *v'* of said cam comes in contact with lever *q* the latter is moved and communicates sufficient motion to arbor *b* to take lever *a* out of the path of the cams *d d d*. When the portion *v* passes by the end of lever *q*, the counterpoise *l*, Fig. 1, or spring *o*, Fig. 5, (which ever may be used) returns the lever *a* to its original position, the end of lever *q* dropping at the same time into depression *v*.

I claim—

1. In a clock striking mechanism, the combination of a pivoted arbor movable endwise in its bearings, a lever pivotally mounted on said arbor, a cam-wheel, as *e*, adapted to contact with one end of said lever, the other end thereof being connected with the hammer of the bell, collars rigidly secured on said arbor, the pivoted lever *h*, having a sleeve *h'* with the arm *j*, the latter having a forked end embracing the said arbor between said collars *k*, said parts being combined substantially as described.

2. The combination of the driven cam-wheel *e*, the lever *a*, the longitudinally-movable arbor *b*, supporting said lever, the lever *j*, engaged with said arbor, a spring or its equivalent, whereby the arbor and its lever *a* are normally held with yielding pressure in the cam-engaging position of said lever *a*, and a stop to limit the yielding movement of the said arbor and lever, as set forth.

3. The combination of the driven cam-wheel *e*, the lever *a*, the longitudinally-movable arbor *b*, supporting said lever, the lever *j*, engaged with said arbor, the spring *o* or its equivalent, whereby the arbor *b* and lever *a* are yieldingly held in the cam-engaging position of said lever, the cam *v*, driven by the time-train, and connections between said cam and the lever *j*, whereby the lever *j* is moved by the cam to throw the lever *a* out of the path of the cams or projections of the cam-wheel at a predetermined time or times, as set forth.

4. In a clock striking mechanism, the combination of a pivoted arbor movable endwise



in its bearings, a lever mounted therein and  
connected at one end with a hammer, and  
having its other end adapted to contact with  
a cam-wheel, a rotary face-cam with the de-  
5 pression *v* therein, the pivoted lever *q*, with  
one end riding on said face-cam, the pitman  
*s*, connected by a loose joint to said lever *q*,  
and the lever *j*, connected by a movable joint  
to said pitman, and having its upper end  
10 bearing between collars secured to said ar-

bor, said parts being combined substantially  
as and for the purpose set forth.

In testimony whereof I have signed my  
name to this specification, in the presence of  
two subscribing witnesses, this 31st day of 15  
May, A. D. 1889.

RUFUS B. CARR.

Witnesses:

C. F. BROWN,

A. D. HARRISON.