

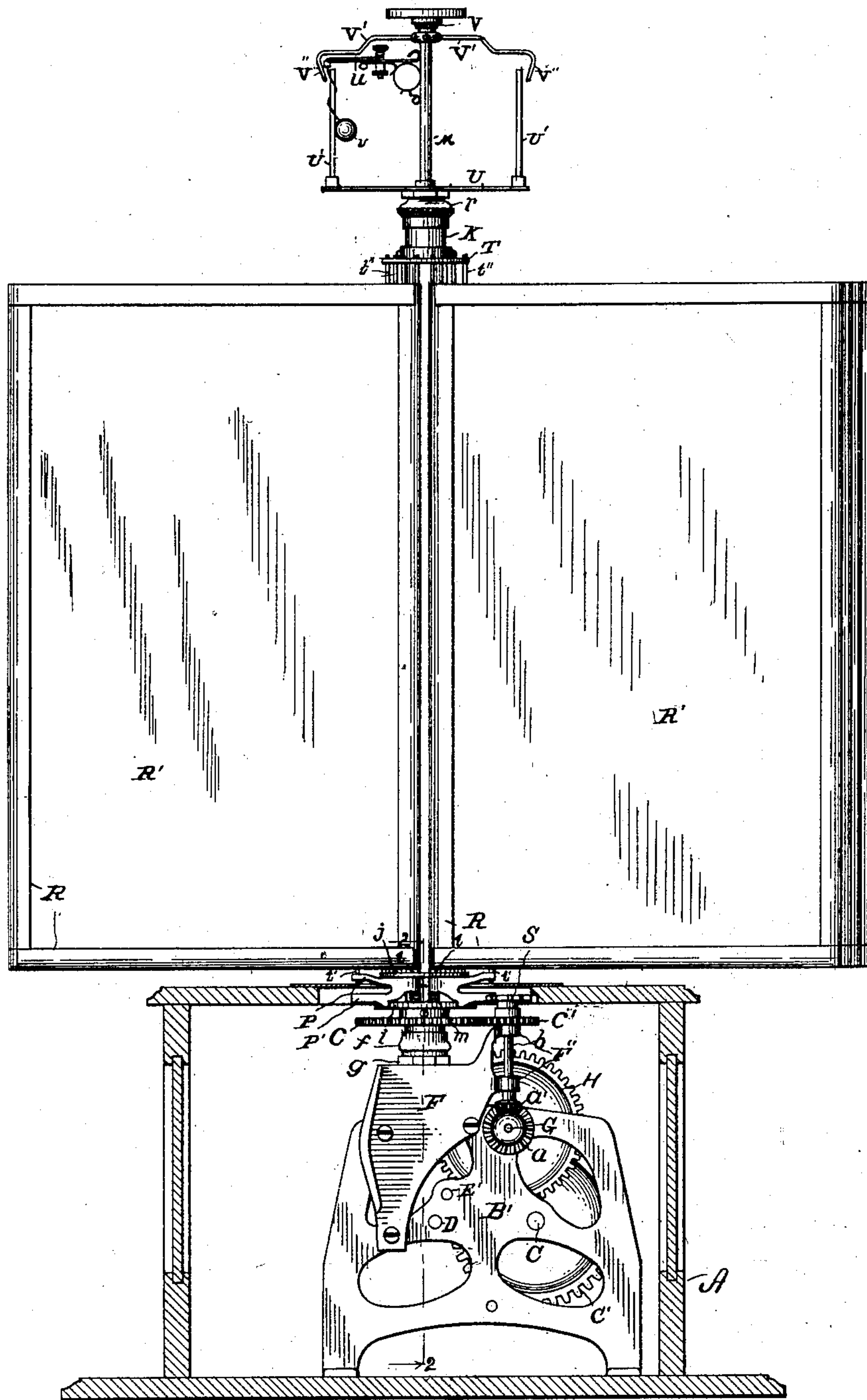
No. 721,788.

PATENTED MAR. 3, 1903.

F. C. DORMENT.  
ADVERTISING DEVICE.  
APPLICATION FILED OCT. 16, 1901.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses:

*D. C. Wood*  
*Oliver A. Earl*

Fig. 1

Inventor,

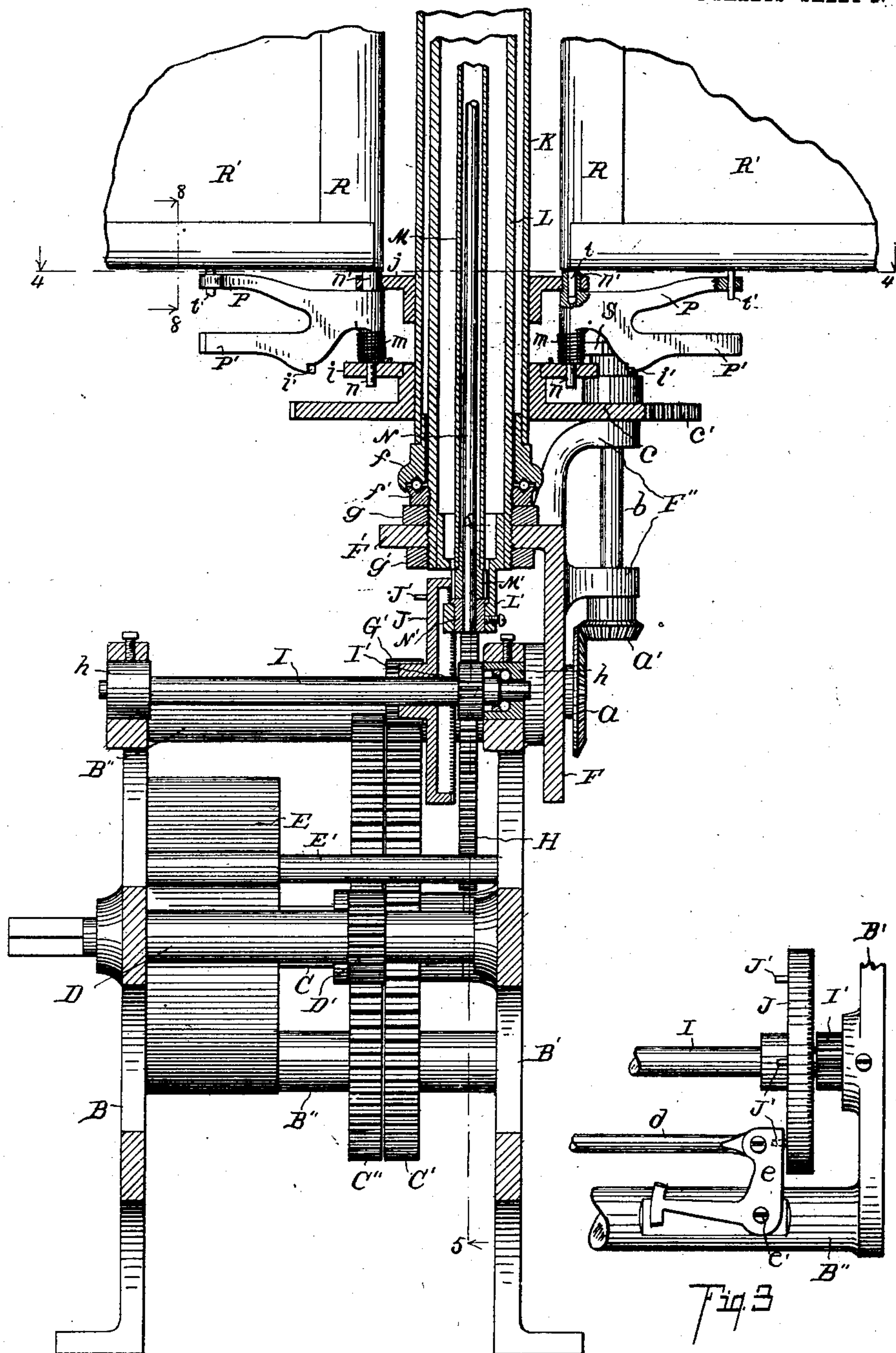
*Frank C. Dorment*  
By *Fred L. Chappell*  
Att'y.

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NO MODEL.

4 SHEETS—SHEET 2.



Witnesses:

*Deerwood*

*Otto A. Earl*

*Fig. 2*

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F. C. DORMENT.  
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4 SHEETS—SHEET 3.

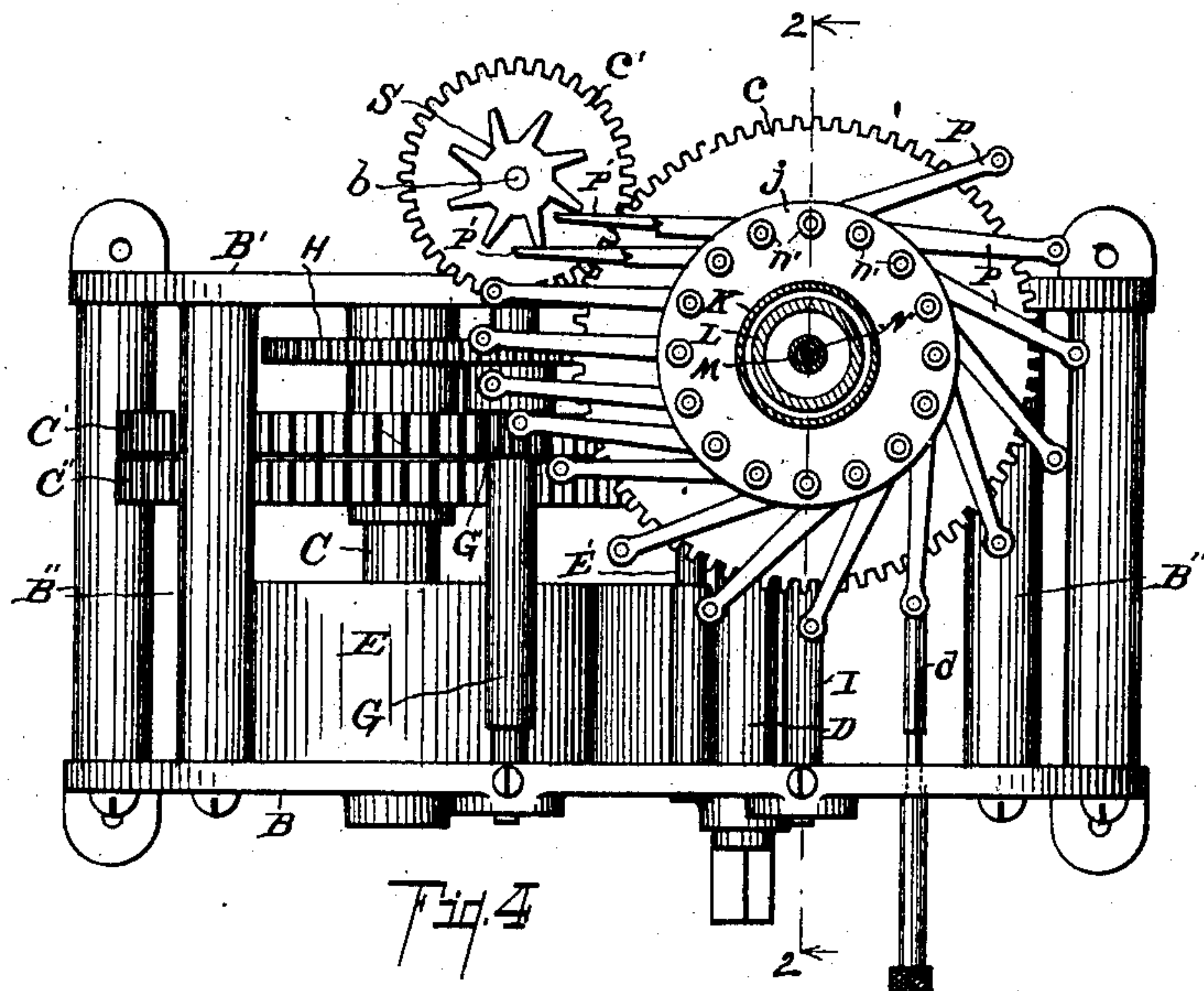


Fig. 4

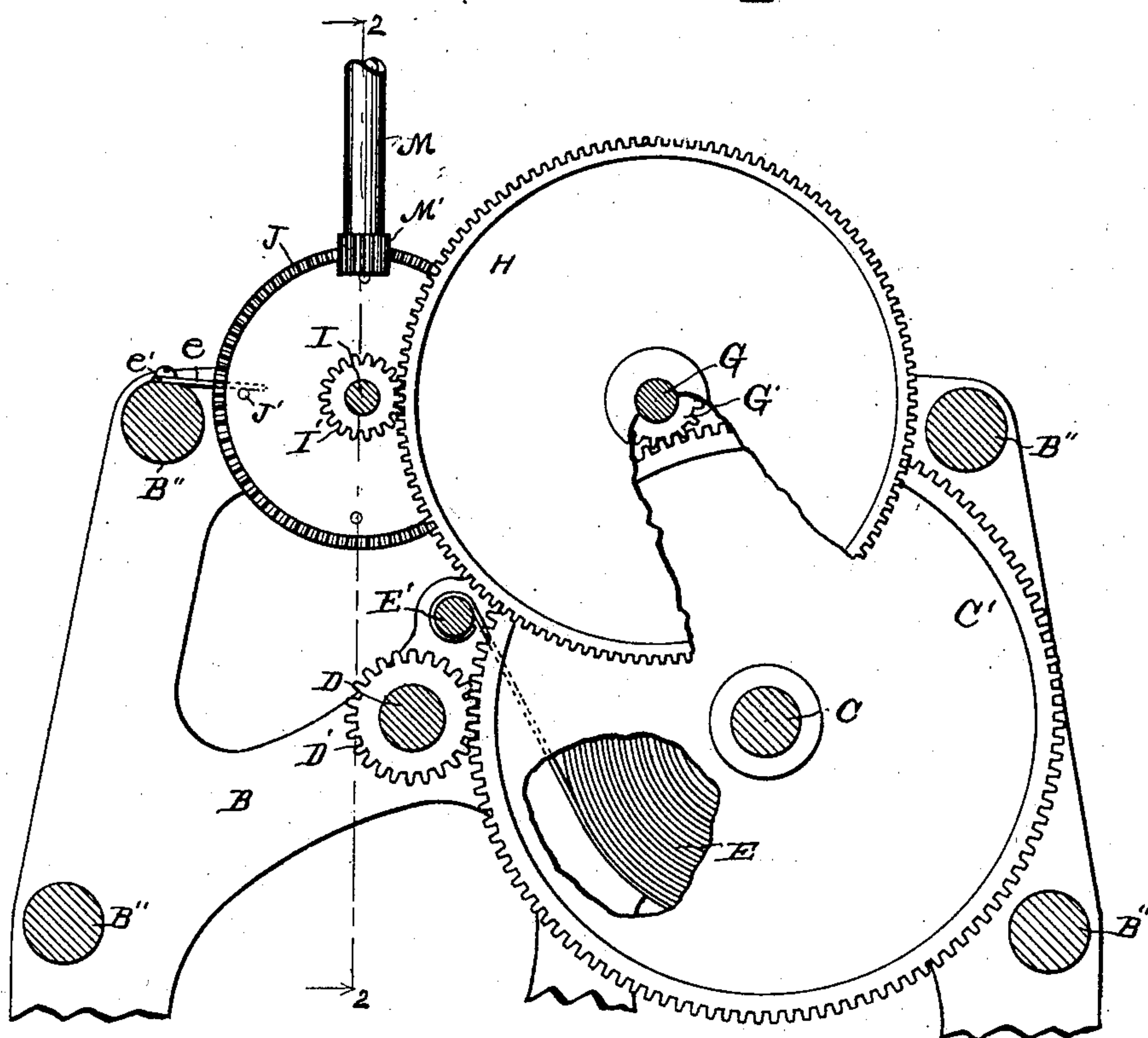


Fig. 5

Witnesses:

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*Frank C. Dorment*  
By *Fred L. Chappell*  
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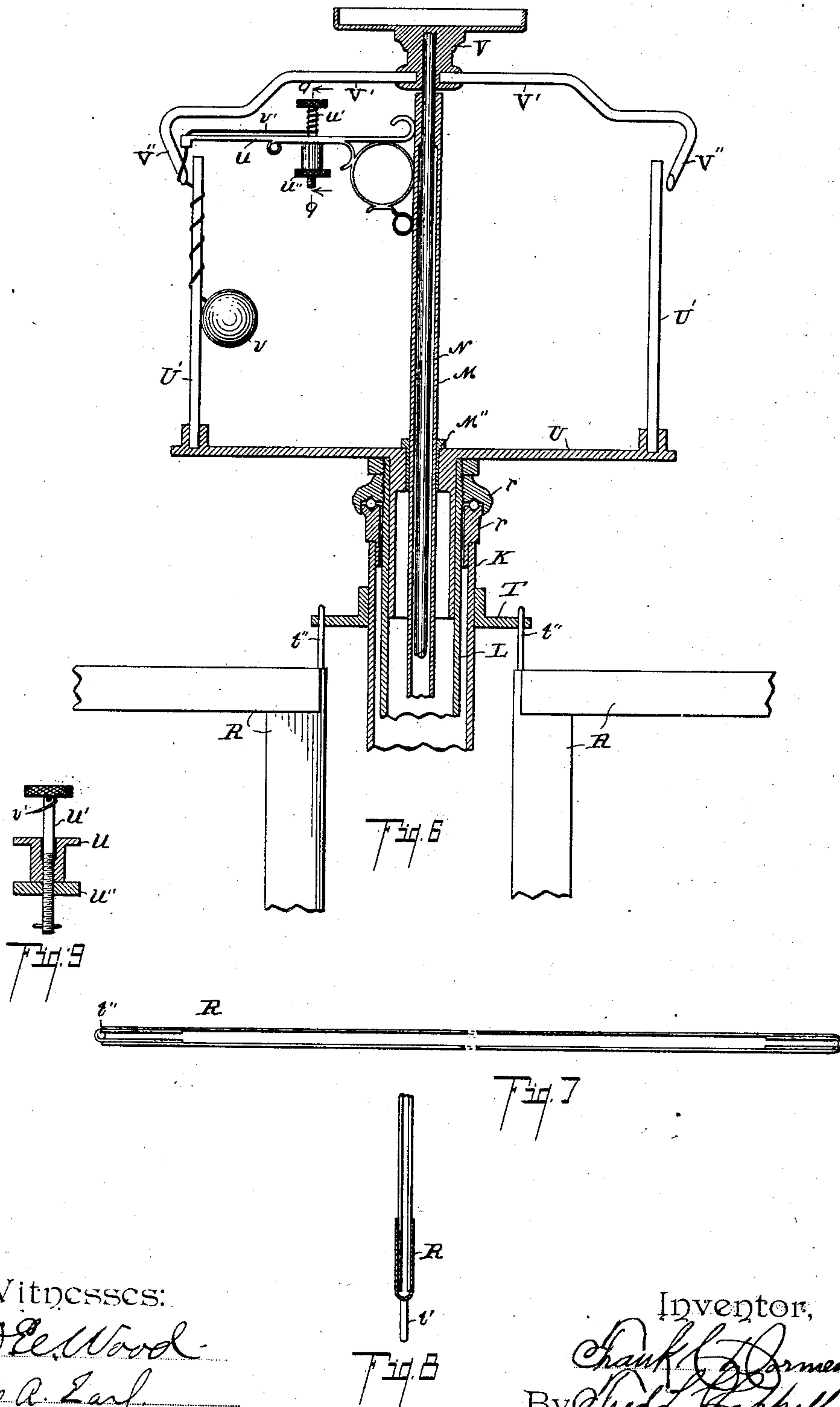
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ADVERTISING DEVICE.  
APPLICATION FILED OCT. 16, 1901.

NO MODEL.

4 SHEETS—SHEET 4.



Witnesses:

*D. E. Wood*  
*Chas. A. Zarf*

Inventor,

*Frank C. Dorment*  
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# UNITED STATES PATENT OFFICE.

FRANK C. DORMENT, OF KALAMAZOO, MICHIGAN, ASSIGNOR TO NATIONAL VAPORIZER COMPANY, OF KALAMAZOO, MICHIGAN.

## ADVERTISING DEVICE.

SPECIFICATION forming part of Letters Patent No. 721,788, dated March 3, 1903.

Application filed October 16, 1901. Serial No. 78,804. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK C. DORMENT, a citizen of the United States, residing at the city of Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented certain new and useful Improvements in Advertising Devices, of which the following is a specification.

This invention relates to improvements in advertising devices, more particularly to that class of advertising devices in which a series of signs or leaves are displayed successively.

The objects of this invention are, first, to provide a simple, effective, and satisfactory advertising device in which pages or leaves similar to those of a book are turned over at regular intervals, displaying each of the signs of the series a considerable period and displaying them one after another successively; second, to provide an improved governing device in connection with an automatic leaf-turning device; third, to provide an improved escapement means for use in connection with such a device; fourth, to provide an improved clockwork mechanism for the purpose; fifth, to provide an improved structure in which the leaves are readily detachable and in which new pages can be substituted at the pleasure of the user.

Further objects will definitely appear in the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a front view of the device, the casing being shown in section and the mechanism appearing in full lines. Fig. 2 is an enlarged detail sectional view of the clockwork driving mechanism and leaf-supports, taken on a line corresponding to line 2 2 of Figs. 1, 4, and 5. Fig. 3 is an enlarged detail view of the stop mechanism for stopping the movement of the apparatus. Fig. 4 is a detail sectional plan view taken on line 4 4 of Fig. 2, showing the leaf-carrying arms, the

star-wheel, and adjacent parts. Fig. 5 is an enlarged detail sectional view of the clockwork mechanism, taken on a line corresponding to line 5 5 of Fig. 2. Fig. 6 is an enlarged detail central sectional view of the governor mechanism on a plane parallel with the front of the device. Fig. 7 is a detail plan view of one of the frames R, showing it open at the top to receive the advertising cards or pages R', pivot *l'* appearing at one end. Fig. 8 is a detail sectional view of the bottom portion of the frame R, taken on line 8 8 of Fig. 2. Fig. 9 is an enlarged detail sectional view through the governor-adjusting means, taken on line 9 9 of Fig. 6.

In the drawings all of the sectional views are taken looking in the direction of the little arrows at the ends of the section-lines, and similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawings, A is the casing for the driving mechanism, which also forms a suitable base for supporting the remaining parts. Within the casing is a framework made up of side pieces B B', which are connected together by suitable bars B'' B'' B'' B'' or otherwise, as may be desired. On the driving-shaft C is a driving-spring E, like a clock-spring, one end being secured to the shaft and the other end to a cross-bar E' on the frame. On this shaft is also supported a driving-wheel C' and a winding-wheel C''. A pinion D' meshes with wheel C'' and is on the shaft D, the end of which is squared to receive a key or crank for the purpose of winding the spring. Any usual or convenient ratchet is provided.

The driving-wheel C' meshes with a pinion G' on the shaft G, this pinion being secured to the same hub as the gear-wheel H. The gear-wheel H meshes with the pinion I' on the shaft I, which is secured to the same hub as the gear-wheel J, which has teeth on one side of its periphery. The shaft I is carried in suitable ball-bearings at *h h* at each end.

A bracket F, with horizontal plate F', is secured to the frame B and has lateral extensions F'', which support a vertical shaft *b*. To the plate F' is secured a vertical tubular column L by suitable lock-nuts *g g'*, one above and one below the same. Outside of this col-



umn L is a revoluble sleeve or tube K, which is provided with ball-bearings running in suitable ball-races  $f f'$  below and  $r r$  above. On this tube K is a gear  $c$  at its lower end and also a plate  $i$ , secured thereto, containing perforations, and a plate  $j$  is secured a short distance above, the same having perforations directly above those in the plate  $i$ . Swinging arms or fingers  $P P'$  are pivoted by the bearings  $n n'$  in the perforations in the plates  $i j$ , and a coiled spring  $m$  around the hub of these arms serves to put constant tension upon the same and swing them in the same direction, there being as many of these arms as there are leaves to the device. At the top of the revoluble tube or sleeve K is a plate T, corresponding to the plate  $j$  at the bottom, which contains perforations to receive the pins  $t'$  at the top of the frames R, which are made of suitable length, and the plate T is considerably above the top of the frames R. Small pins  $t$  are at the lower inner corners of the frames R and fit into sockets in the tops of the bearings  $n'$ , and other pins  $t'$  are a considerable distance from the edge and fit into holes in the upper edge of the arm P, whereby the plates will be swung when the arms  $P P'$  are swung by the springs  $m$  when the same are released. The vertical shaft  $b$  extends up through the bracket-arms  $F''$  and has a gear  $c'$  toward the top, which meshes with the gear  $c$ . The beveled gear  $a'$  is actuated from the gear  $a$ , which is on the end of the shaft G. (See Fig. 1.)

On the upper end of the shaft  $b$  is a star-wheel S, which is also actuated by the shaft, and the fingers  $P'$ , before referred to, strike against the points of this star-wheel and are released as this star-wheel rotates, so that the spring  $m$ , which is put under tension by the revolution of the sleeve K, swings the leaves or frames R, with their contained signs, quickly to one side, so that the device opens and the leaves swing like the leaves of a large book, the position being indicated by the plan view in Fig. 4. It is obvious that unless some governor be provided this action will be very rapid. A governor, however, is provided. This consists of the revoluble tube M, which is within the hollow standard L. This is supported on the rod N by a collar  $N'$ , which is supported by a bracket  $L'$ , extending downwardly from within the hollow column L. A gear  $M'$  is on the lower end of the revoluble sleeve M and meshes with and is actuated by the gear-teeth on the side of the wheel J. Pins  $J'$  project from the side of the wheel J and are engaged by a suitable stop  $e$ , pivoted at  $e'$  and actuated by a rod  $d$ , projecting through the case, as clearly appears in Figs. 3, 4, and 5. On the top of the column L is supported a cross-arm U, having upwardly-extending standards or rods  $U' U'$  at each end. The rod N extends out at the top and supports a suitable head V at its upper end. Arms  $V' V'$  extend from this head V laterally outward and then downward and

inwardly at  $V''$ . An arm  $u$  is secured, preferably by a suitable ornamental bracket, to the upper end of the revoluble tube M. A cord  $v'$  is on a suitable adjustable spindle  $u'$  and extends out and down through a suitable perforation in the end of the arm  $u$  and is provided with a heavy ball  $v$  at its outer end. The cord  $v'$  is adjustable by being wound on the adjusting-spindle  $u'$ , which is located in position on the arm  $u$  by a lock-nut  $u''$ . It will be seen that the gear  $M'$  on the lower end of the hollow shaft M engages and controls the movements of the gear J, and consequently the movements of the entire clockwork mechanism, and is actuated thereby and would swing the arm  $u$  very rapidly if there was no obstruction; but the ball  $v$ , owing to the centrifugal force, is carried outward on the cord  $v'$ . The ball, owing to its momentum, swings around and winds the cord  $v'$  around the post or rod  $U'$  beneath. As soon as it is wound up it begins to unwind, and as soon as it is completely unwound the arm  $u$  swings half-way around to an exactly similar device on the opposite side, where this movement is repeated. The winding and unwinding of the ball takes considerable time, and as the same is so highly geared to the wheel J the clockwork mechanism runs down very slowly, and the leaves are released gradually and are turned one by one at intervals of one, two, three, or more minutes, depending on the regulation of this governor. The regulation of the governor is accomplished, obviously, by lengthening or shortening the cord  $v'$ . This device exposes both sides of the leaves as they turn and is a very effective advertising medium. A portion of the mechanism which is ingenious in its operation is exposed to view, which adds to the attraction.

I have shown my improved advertising device in the form which is preferred by me; but I desire to remark that other clockwork mechanism might be made use of in connection with the particular governing device for this purpose, and I desire to remark that the spring-controlled arms for throwing the leaves might be made use of in connection with other actuating devices and governors and serve the purpose very well. The star-wheel is the best means for releasing the same; but I believe that those experienced in the art will readily devise other releases for them that could be utilized with the governor. I desire to claim these structures specifically as well as broadly.

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

1. In an advertising device, the combination of the base A; clockwork therein consisting of the frame B, B; driving-spring E with suitable gears  $D', C''$  for winding the same; the driving-gear  $C'$ ; a pinion  $G'$  engaged thereby carrying the gear H; a pinion  $I'$  on the shaft I meshing with the gear H; a gear J connected to the pinion  $I'$ ; a bracket F with transverse plate  $F'$  and lateral projecting ears  $F''$



carried by the main frame; a vertical hollow column L secured to the horizontal plate F'; a revoluble sleeve K journaled to revolve around the column L, having ball-bearings at its top and bottom; a gear-wheel *c* secured to the bottom of said revoluble sleeve K; a vertical shaft *b* with gear *c'* meshing with the gears *c*; beveled gears *a*, *a'* connecting the shaft *b* to the shaft G, whereby a revolving movement is imparted to the vertical sleeve K; projecting arms P, P' pivoted at *n*, *n'*, to circular plates secured to the bottom of said revoluble sleeve K; a star-wheel S on the upper end of the shaft *b* to engage the projecting fingers P' of the said arms; springs *m* for throwing the said arms in one direction; leaves or sign-frames having pins *t*, *t'* at the bottom to fit into the bearings of the said arms P and having elongated pins *t''* at their upper ends fitting into perforations in a plate T at the upper end of the sleeve K, whereby, when the shaft K is revolved, the leaves will be retained in a fixed position by the star-wheel for a considerable time, and will then be released, and the springs will then turn the leaves over like the leaves of a book; a vertical central rod supported by a bracket L' in the bottom of the column L extending upwardly and supporting a head V at the top; a revoluble sleeve M surrounding the rod N and extending up out of the top; a frame U rigidly secured to the upper end of the hollow column L and having upwardly-extending posts or rods U' at the outer ends thereof; arms V', V', with downwardly-bent portions V'' in proximity to the posts or rods U', U'; an arm *u* secured to the upper end of the tube M and revoluble therewith; a ball *v* supported on a cord *v'* adjustable by the thumb-screw *u'* extending out of the end of the arm *u*; gear connections at the lower end of the tube M to the gear J whereby the movements of the clock mechanism are governed; a suitable stop *d* for engaging the pins J' on the gear-wheel J when it is desired to stop the mechanism, *a*; coacting substantially as described for the purpose specified.

2. In an advertising device, the combination of the base A; clockwork therein consisting of the frame B, B; driving-spring E with suitable gears D', C'' for winding the same; the driving-gear C'; a pinion G' engaged thereby carrying the gear H; a pinion I' on the shaft I meshing with the gear H; a gear J connected to the pinion I'; a bracket F with transverse plate F' and lateral projecting ears F'' carried by the main frame; a vertical hollow column L secured to the horizontal plate F'; a revoluble sleeve K journaled to revolve around the column; a gear-wheel *c* secured to the bottom of said revoluble sleeve K; a vertical shaft *b* with gears *c'* meshing with the gears *c*; beveled gears *a*, *a'* connecting the shaft *b* to the shaft G whereby a revolving movement is imparted to the vertical sleeve K; projecting arms P, P' pivoted at *n*, *n'* to circular plates secured to the bottom

of said revolving sleeve K; a star-wheel S on the upper end of the shaft *b* to engage the projecting fingers P' of said arms; springs *m* for throwing the said arms in one direction; leaves or sign-frames having pins *t*, *t'* at the bottom to fit into the bearings of the said arms P and having elongated pins *t''* at their upper ends fitting into perforations in a plate T at the upper end of the sleeve K, whereby, when the shaft K is revolved, the leaves will be retained in a fixed position by the star-wheel for a considerable time, and will then be released, and the springs will then turn the leaves over like the leaves of a book; a vertical central rod supported by a bracket L' in the bottom of the column L extending upwardly and supporting a head V at the top; a revoluble sleeve M surrounding the rod N and extending up out of the top; a frame U rigidly secured to the upper end of the hollow column L and having upwardly-extending posts or rods U' at the outer ends thereof; arms V', V', with downwardly-bent portions V'' in proximity to the posts or rods U', U'; an arm *u* secured to the upper end of the tube M and revoluble therewith; a ball *v* supported on a cord *v'* adjustable by the thumb-screw *u'* extending out of the end of the arm *u*; gear connections at the lower end of the tube M to the gear J whereby the movements of the clock mechanism are governed; all coacting substantially as described for the purpose specified.

3. In an advertising device, the combination of the base A; clockwork therein consisting of the frame B, B; driving-spring E with suitable gears D', C'' for winding the same; the driving-gear C'; a pinion G' engaged thereby carrying the gear H; a pinion I' on the shaft I meshing with the gear H; a gear J connected to the pinion I'; a bracket F with transverse plate F' and lateral projecting ears F'' carried by the main frame; a vertical hollow column L secured to the horizontal plate F'; a revoluble sleeve K journaled to revolve around the column; a gear-wheel *c* secured to the bottom of the said revoluble sleeve K; a vertical shaft *b* with gears *c'* meshing with the gears *c*; beveled gears *a*, *a'* connecting the shaft *b* to the shaft G whereby a revolving movement is imparted to the vertical sleeve K; projecting arms P, P' pivoted at *n*, *n'* to circular plates secured to the bottom of said revoluble sleeve K; a star-wheel S on the upper end of the shaft *b* to engage the projecting fingers P' of the said arms; springs *m* for throwing the said arms in one direction; leaves or sign-frames having pins *t*, *t'* at the bottom to fit into the bearings of the said arms P and having elongated pins *t''* at their upper ends fitting into perforations in a plate T at the upper end of the sleeve K whereby, when the shaft K is revolved, the leaves will be retained in a fixed position by the star-wheel for a considerable time, and will then be released, and the springs will then turn the



leaves over like the leaves of a book; a vertical central rod supported by a bracket L' in the bottom of the column L extending upwardly and supporting a head V at the top; 5 a revoluble sleeve M surrounding the rod N and extending up out of the top; a frame U rigidly secured to the upper end of the hollow column L and having upwardly-extending posts or rods U' at the outer ends thereof; 10 arms V', V', with downwardly-bent portions V'' in proximity to the posts or rods U', U'; an arm *u* secured to the upper end of the tube M and revoluble therewith; a ball *v* supported on a cord *v'*; gear connections at the 15 lower end of the tube M to the gear J whereby the movements of the clock mechanism are governed, all coacting substantially as described for the purpose specified.

4. In an advertising device, the combination of the base A; clockwork therein consisting of the frame B, B; driving-spring E with suitable gears D', C'' for winding the same; the driving-gear C'; a pinion G' engaged thereby carrying the gear H; a pinion I' 25 on the shaft I meshing with the gear H; a gear J connected to the pinion I'; a bracket F with transverse plate F' and lateral projecting ears F'' carried by the main frame; a vertical hollow column L secured to the horizontal plate F'; a revoluble sleeve K journaled to revolve around the column; a gear-wheel *c* secured to the bottom of said revoluble sleeve K; a vertical shaft *b* with gears *c'* meshing with the gears *c*; beveled gears *a*, *a'* 30 connecting the shaft *b* to the shaft G whereby a revolving movement is imparted to the vertical sleeve K; projecting arms P, P' pivoted at *n*, *n'* to circular plates secured to the bottom of said revolving sleeve K; a star-wheel S on the upper end of the shaft *b* to engage the projecting fingers P' of the said arms; springs *m* for throwing the said arms in one direction; leaves or sign-frames having pins *t*, *t'* at the bottom to fit into the bearings 45 of the said arms P and having elongated pins *t''* at their upper ends fitting into perforations in a plate T at the upper end of the sleeve K whereby, when the shaft K is revolved, the

leaves will be retained in a fixed position by the star-wheel for a considerable time, and 50 will then be released, and the springs will then turn the leaves over like the leaves of a book; a suitable governor for controlling the movements of said clockwork; as described.

5. In an advertising device, the combination of the clockwork mechanism supported on a suitable base; a vertical hollow standard supported on the said base with a revoluble sleeve around the same; suitable flanges on said sleeve with perforations to receive pins; 60 a frame for supporting advertisements and provided with pins to fit within the perforations in said flanges; spring-arms pivoted to flange *i'* on the said vertical sleeve with springs for swinging them normally in one direction; 65 a star-wheel detaining device to hold the arms against the action of the springs while the vertical sleeve is rotating and to release the same to allow the springs to swing the leaves quickly and in succession, whereby advertisements on the frames or leaves will be displayed in a fixed position, successively, for the purpose specified. 70

6. In a sign-displaying device, the combination of the base A, containing suitable 75 clockwork mechanism; a hollow vertical shaft adapted to be rotated by said mechanism; arms pivoted at the lower part of said shaft having projecting fingers P' and springs around the hub thereof to throw the same 80 normally in one direction; a star-wheel engaging the arms so that as the column is rotated, the arms will act against the springs until they are released by the star-wheel when the spring will turn the leaf; a governor 85 mechanism for the clockwork to control its movement whereby the different signs will each be displayed for a considerable period of time, successively.

In witness whereof I have hereunto set my 90 hand and seal in the presence of two witnesses.

FRANK C. DORMENT. [L. S.]

Witnesses:

ALICE E. HOUGHTON,  
S. ALICE EARL.