

No. 668,686.

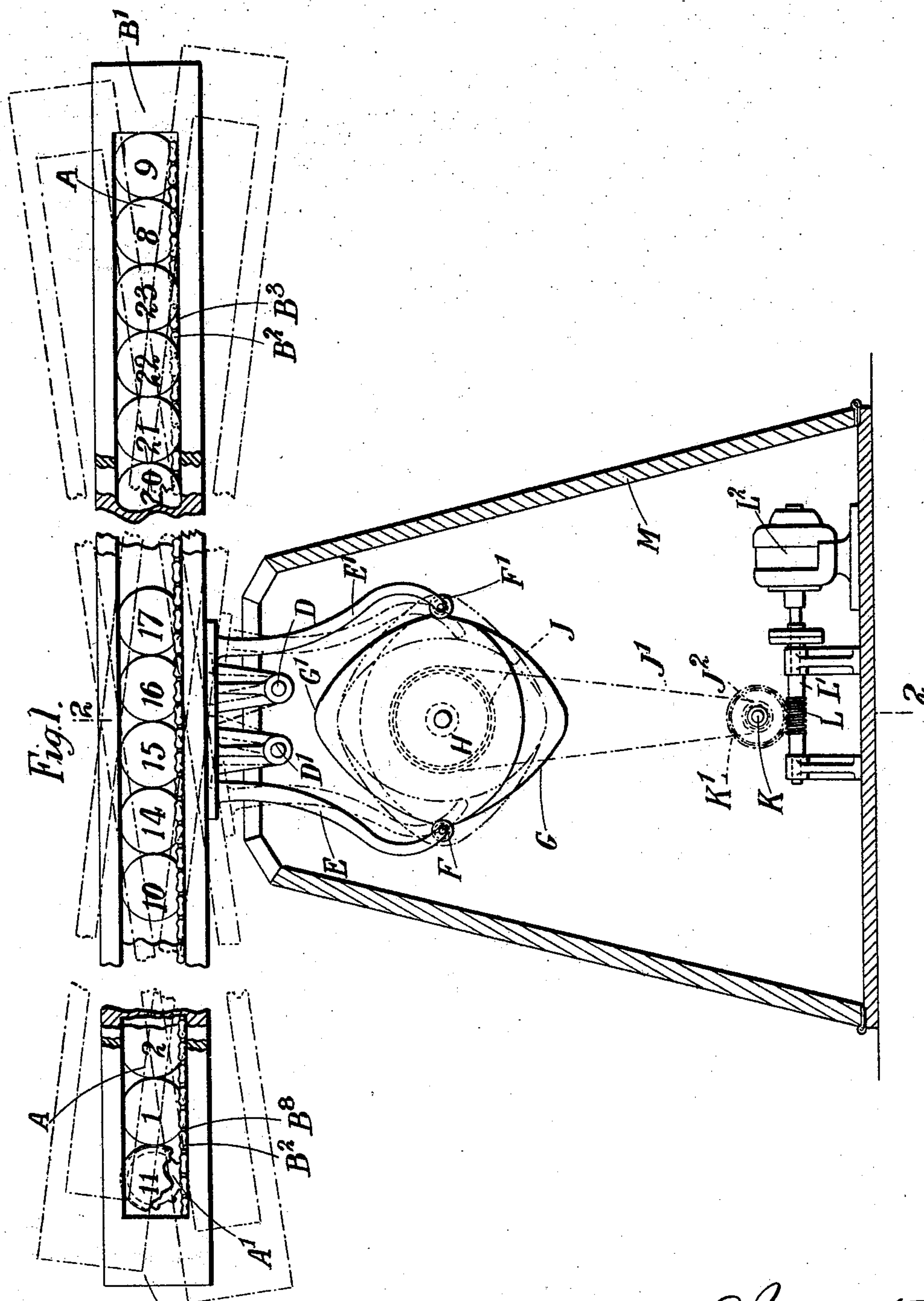
Patented Feb. 26, 1901.

J. F. MARSHALL.
ADVERTISING DEVICE.

(Application filed Oct. 26, 1900.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses ^{B¹}
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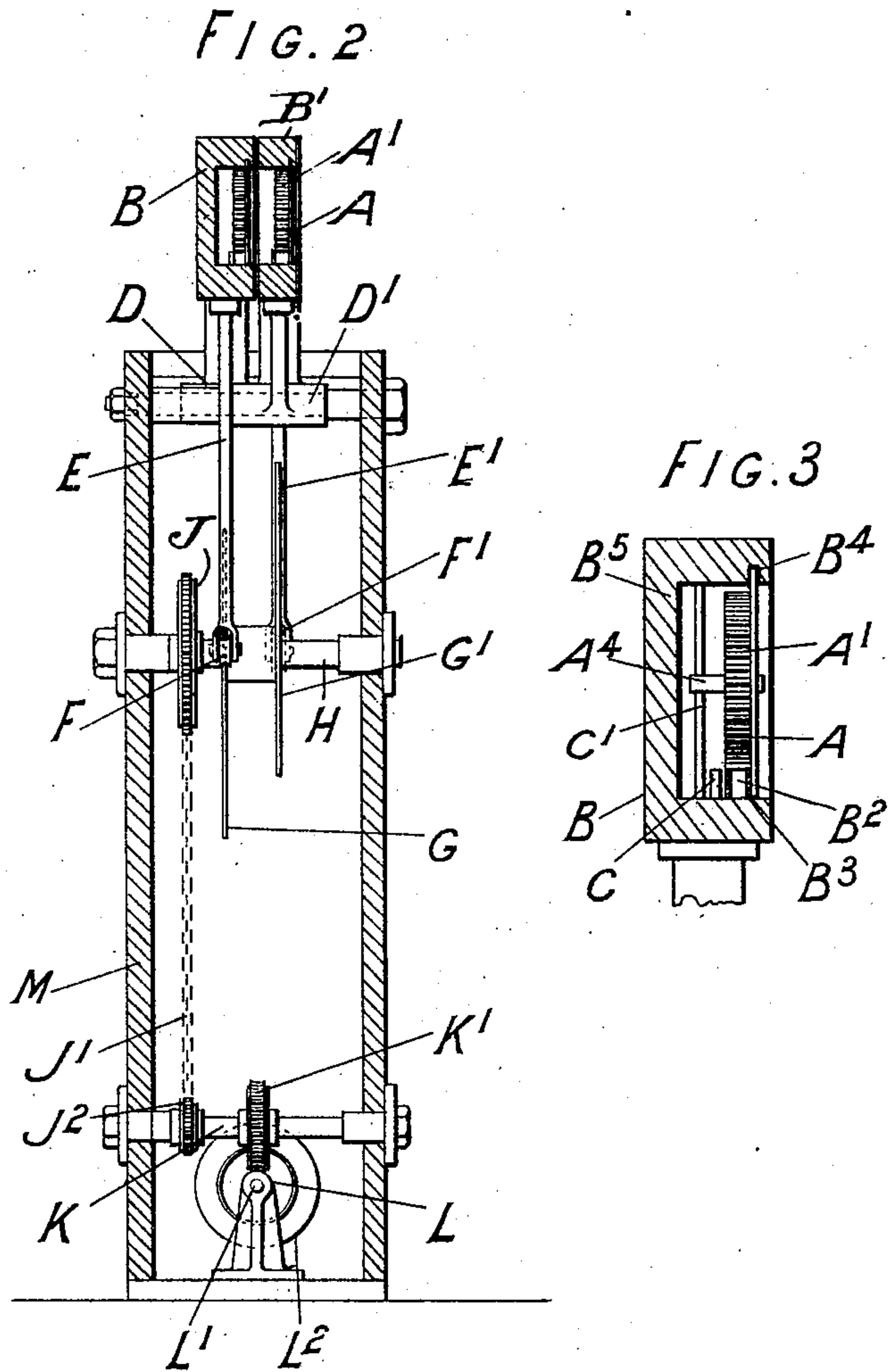
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4 Sheets—Sheet 2.



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(No Model.)

4 Sheets—Sheet 3

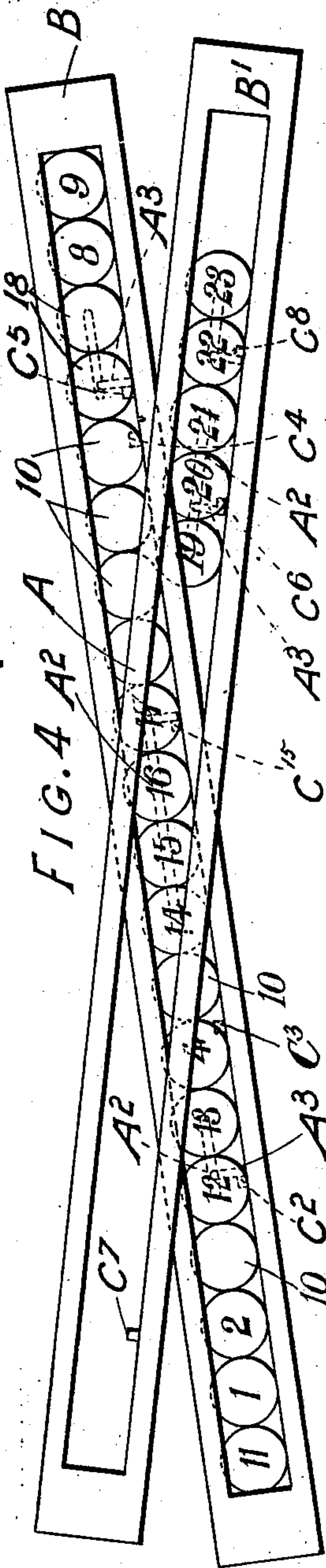


FIG. 5

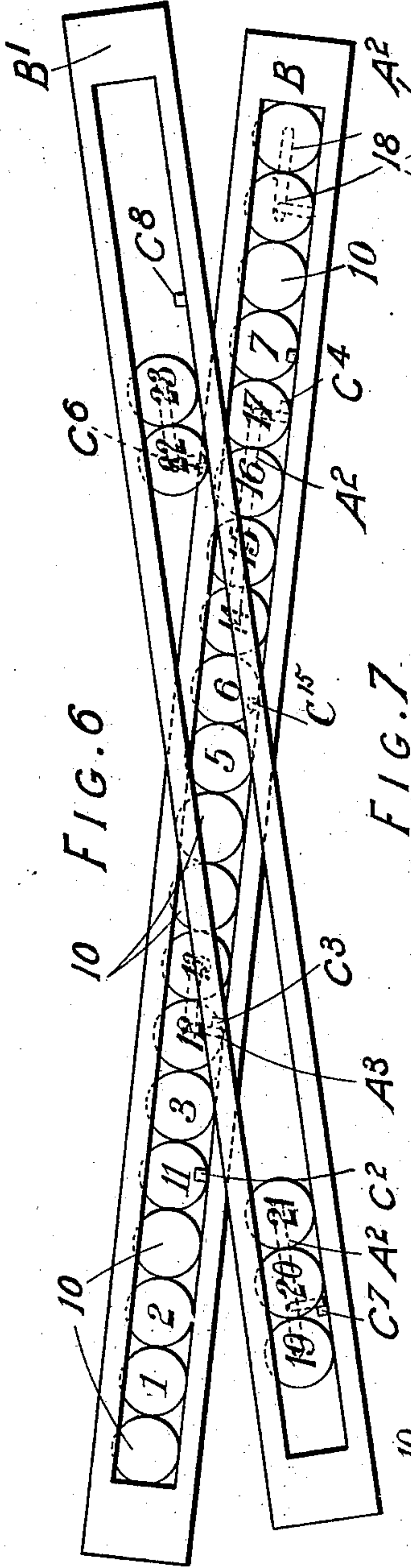
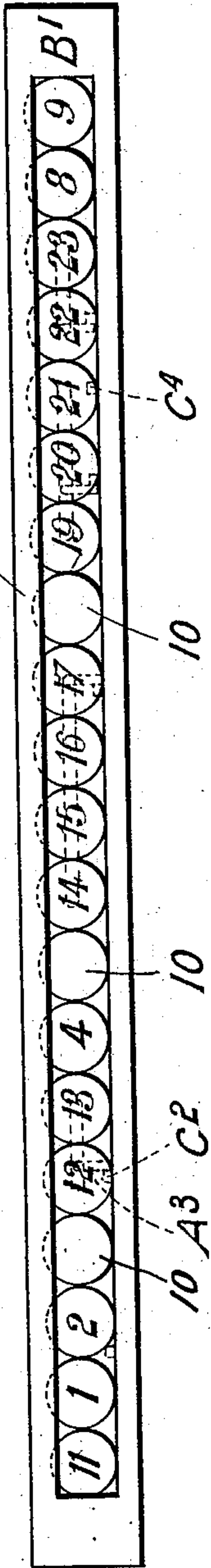


FIG. 7

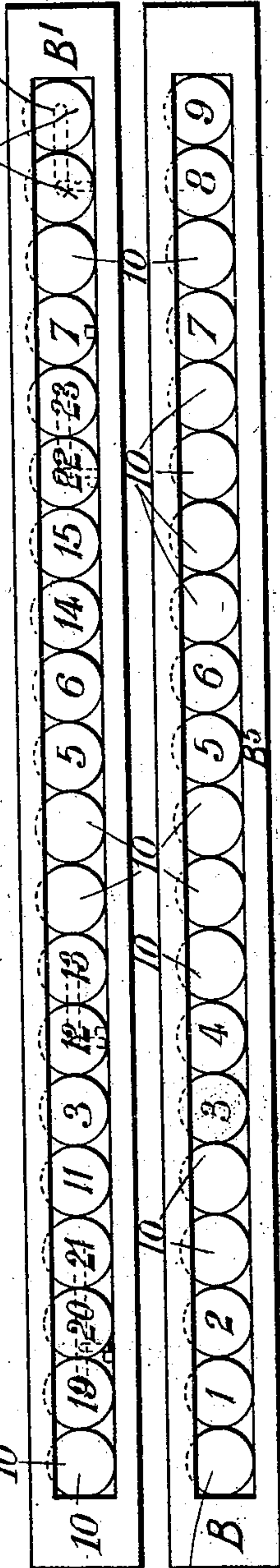


FIG. 8

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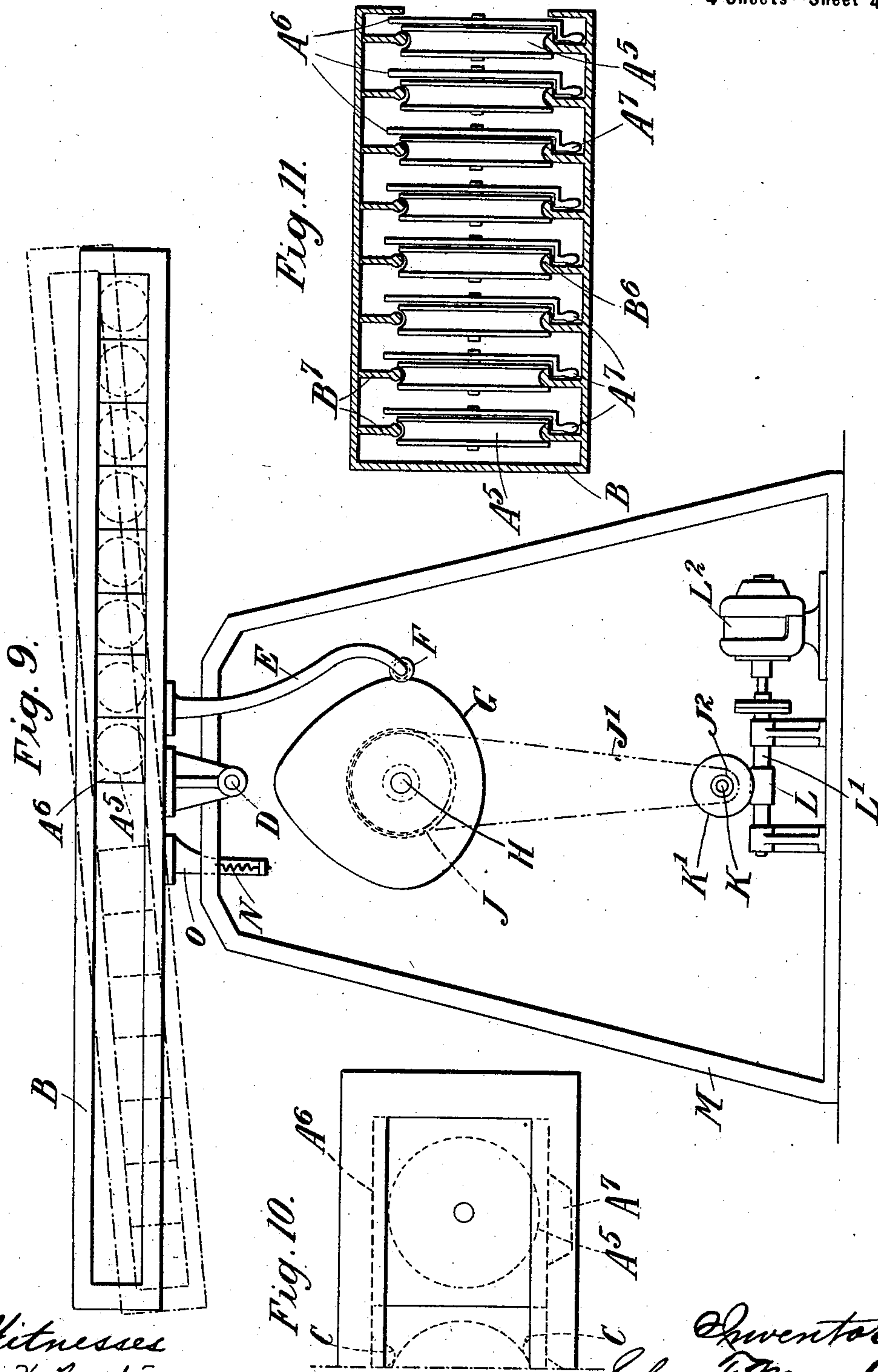
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(Application filed Oct. 26, 1900.)

(No Model.)

4 Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

JOHN FREDK. MARSHALL, OF WESTMINSTER, ENGLAND.

ADVERTISING DEVICE.

SPECIFICATION forming part of Letters Patent No. 668,686, dated February 26, 1901.

Application filed October 26, 1900. Serial No. 34,448. (No model.)

To all whom it may concern:

Be it known that I, JOHN FREDK. MARSHALL, a subject of the Queen of England, residing at Westminster, county of Middlesex, England, have invented certain new and useful Improvements in or Relating to Advertising Devices and the Like, (for which I have made application for Letters Patent in Great Britain under No. 1,208, dated January 19, 1900,) of which the following is a specification.

This invention relates to improvements in advertising devices and the like, and has for its object to so arrange a series of movable bodies carrying suitable symbols that the bodies may be intermittently moved so as to effect transposition of the symbols.

In the accompanying drawings, Figure 1 is an elevation of an advertising device constructed in accordance with this invention. Fig. 2 is a transverse section on the line 2 2 of Fig. 1. Fig. 3 is a vertical section, on an enlarged scale, through one of the oscillating frames. Figs. 4 to 8 are views illustrative of the transposition of the symbols when the frames are oscillated. Fig. 9 is an elevation of a modified form of the apparatus. Fig. 10 is an elevation of a part of the same on an enlarged scale; and Fig. 11 is a vertical section through the frame, also on an enlarged scale.

Like letters indicate like parts throughout the drawings.

The requisite symbols are attached to or painted upon disks A, each mounted upon the face of a toothed wheel A'. These disks are arranged in suitable numbers in oscillating frames B B'. Each disk may be separate, or several of them may be coupled together by a link A², the arrangement being such that when the frames are oscillated the disks will travel in the desired direction and assume such positions as will effect the necessary transposition of the symbols. In the construction shown in Figs. 1 to 8 two oscillating frames B B' are employed, arranged one behind the other, and the mechanism to be hereinafter described for effecting the oscillation of these frames is such that the frames will be tilted in opposite directions and then returned to a horizontal position one behind the other, so that the symbols carried by one

frame and those carried by the other will be read together. After the frames have remained in the horizontal position for a suitable period they are both tilted, as before, in directions opposite to each other, but contrary to the directions in which they were previously tilted, so that the bodies carrying the symbols will roll in the frames and assume fresh positions, such that when the frames are again brought one behind the other into the horizontal position the fresh arrangement of the symbols when the latter are all read together will make a new sentence, word, or phrase.

Each toothed wheel A', carrying a disk A, engages with a chain or rack B², arranged longitudinally in the frame B. The diameter of each disk A is such that it will rest upon and roll along a portion of the frame B, as at B³, or on a guide-rail beside the chain B². A groove B⁴ in the upper part of the frame B guides the upper edge of the disks A. It will thus be seen that the bodies are free to roll in one direction or another, according to the manner in which the frame is tilted, the racks regulating the movement and preventing slip, while the fact that the disks roll on their edges reduces friction in the racks and allows of an easy movement.

The distance that each disk travels when the frames are oscillated is limited by suitable stops. The nature of these stops varies in different circumstances. Thus in the case of groups of coupled disks each stop comprises a block C, situated in the path of a finger or arm A³, projecting downwardly from the link A². Where a disk is separate and moves alone, a vertical bar C', carried by the frame, is so arranged that at the desired point an axial projection A⁴, carried by the toothed wheel A', will come in contact with the bar C' and arrest the progress of the disk A. The arrangement of the symbols is preferably such that where a vertical bar C' has to be used as a stop this bar will not lie in front of any symbol which is intended to be visible.

In the construction shown a third row of symbols is provided, these being painted or mounted upon the back B⁵ of the hindermost frame. It will be noted that these symbols do not change their position, but are employed to simplify the movements of the other

symbols and facilitate the making up of the requisite words or phrases forming the particular advertisement.

It is obvious that the number and combination of the disks may vary considerably; but as an example of how the transposition may be effected the frames are shown in Figs. 4, 5, 6, and 7 in the different positions which they assume, numbers being used to represent the different symbols. In Fig. 4 the frames B B' are shown tilted. Fig. 5 illustrates the arrangement of the symbols when the frames have returned to the horizontal positions. In Fig. 6 the frames are shown tilted into positions contrary to those shown in Fig. 4, while Fig. 7 shows the arrangement of the symbols when the frames have returned to their horizontal positions after the second oscillation. Fig. 8 is an elevation of the back frame B with the movable bodies removed, so that the symbols fixed on the back of the frame may be clearly seen.

The fixed letters are indicated by the numbers "1" to "9," inclusive, and in the example shown are placed in the positions indicated in Fig. 8. Between these numbers are blank spaces 10, which are fixed similarly to the numbers. The frame B also carries movable symbols "11" to "17," inclusive. Of these "11" is mounted upon a separate body, which rolls up and down by itself when the frame B is oscillated. The disks carrying the numbers "12" and "13" are coupled together by a link A², and the disks with the numbers "14," "15," "16," and "17" are similarly coupled by a link. This frame also carries two blank disks 18, coupled together by a link. The movement of the group of numbers "12, 13" is limited in the one direction by a stop C², against which the finger A³ comes in contact. The movement of this group in the opposite direction is checked by the stop C³, against which the finger A³ is shown in contact in Fig. 6. The stop C¹⁵ serves to check the movement of the group of numbers "14," "15," "16," and "17" toward the center when the frame B is in the position shown in Fig. 4, the movement of this group in the opposite direction being limited by the stop C⁴. The stop C⁵ holds the coupled blanks 18 when the frame B is tilted into the position shown in Fig. 4, the movement of these blanks when the frame is tilted in the opposite direction being checked by the end of the frame. The single disk carrying the number "11" is checked when the frame B is in the position shown in Fig. 4 by the end of the frame. When the tilt is in the opposite direction, however, this disk moves into the position shown in Fig. 6, being there held either by an extension of the stop C or by a bar C', against which the axial projection A⁴ comes in contact in the manner shown in Fig. 3. It is to be noted that in the arrangement shown the bar C' is not visible from the front, as when the symbols assume the position shown in Fig. 4 the stop-bar C'

will be hidden by the disk carrying the number "12," while in the other position the disk carrying the number "11," which is held by this bar, itself conceals the stop.

In the front frame B' are two groups of disks, one a group of three carrying the numbers "19, 20, 21" all coupled together, the other a group of two carrying the numbers "22" and "23." The position of the group of numbers "19," "20," and "21" is checked in one direction by a stop C⁶ and in the other by a stop C⁷. The stop C⁶ also serves to check the movement of the group "22" and "23" in one direction, a stop C⁸ limiting its movement in the other direction.

If the views Figs. 4, 5, 6, and 7 be now considered, it will be seen that when the frames B B' are tilted into the positions shown in Fig. 4 the numbers assume the relative positions shown in Fig. 5, so that they read "11, 1, 2," followed by a blank space, then "12, 13, 4" and a blank space, then "14, 15, 16, 17" and a blank space, and, finally, "19," "20," "21," "22," "23," "8," and "9." In this position it will be noticed that the fixed numbers "3," "5," "6," and "7" are hidden, as also the movable blanks 18. When the frames are tilted into the positions shown in Fig. 6, the numbers are transposed, so that when the frame return to the horizontal position the numbers appear in the order shown in Fig. 7—namely, a blank space, and then "19, 20, 21, 11, 3, 12, 13," followed by two blank spaces, then "5, 6, 14, 15, 22, 23, 7," followed by three blank spaces, two of which are the movable ones 18. In this arrangement it will be seen that the fixed numbers "1," "2," "4," "8," and "9" are hidden. Of the movable disks those carrying the numbers "16" and "17" are hidden by the disk carrying the numbers "22" and "23," moving in the front frame B'.

To impart to the frames the necessary movements, each is mounted on a pivot and provided with an arm carrying a roller, which rests against the periphery of a rotating cam. The rear frame B is pivoted at D and has a downwardly-extending arm E, carrying a roller F, which bears against the periphery of a suitably-shaped cam G, mounted on the shaft H. The front frame B' is pivoted at D' and has an arm E', carrying a roller F', which bears against the periphery of the cam G', mounted on the shaft H. The latter carries a chain-wheel J, which is driven by a chain J' from a pinion J² on a counter-shaft K. The latter carries a worm-wheel K', which is driven by a worm L upon a shaft L', driven by an electric or other motor L². A casing M incloses the driving and oscillating mechanism.

In Fig. 1 the different extreme positions of the cams G G' and frames B B' are shown in dotted lines, the mid and horizontal positions of the frames being shown in full lines, as also are the corresponding positions of the cams G G'.

The chain B^2 in each frame with which the toothed wheels A' engage is clearly shown in Fig. 1, and the engagement of one of these toothed wheels is illustrated in the same figure, where part of the disk on the face of this wheel is broken away. It is obvious that this chain may be replaced by a rack of suitable type.

In the modified construction shown in Fig. 9 a single frame B carries a series of tracks B^6 , upon which roll the bodies A^5 . Each rotating body A^5 is guided above by a longitudinal rod B^7 . The disks or plates A^6 , which carry the symbols, do not rotate in this case; but each plate is pivotally mounted on the center of a wheel A^5 . Each plate is bent at its lower edge and weighted, as at A^7 , so as to always maintain it in a vertical position, the bending of the plate being such as to bring the center of gravity of each rolling body low down and as near as possible in the center line. In this arrangement the plates A^7 , carrying the symbols, may conveniently be square, so that when the symbols are arranged they will form to the eye when viewed in front a practically unbroken surface. In the arrangement shown each movable body is separate and when the frame is tilted assumes a new position on its own track quite independent of the other bodies on the other tracks. The movement of each body is limited by suitable stops C , which may be in the form of small pins or projections on the tracks B^6 and on the guide-rods B^7 . The projections must in each case be such as will not obstruct the view of any symbols which may be situated behind them when the bodies assume different positions. The mechanism for oscillating the frame B may be similar to that employed for moving the frame in the previous construction, the frame B being pivoted at D and provided with a downwardly-extending arm E , carrying a roller F , which bears against the periphery of the cam G , mounted on the shaft H . The latter has mounted upon it a toothed wheel J , connected by a chain J' to a pinion J^2 on a counter-shaft K , driven by a motor-operating worm-gear, as previously described.

In the construction illustrated in Fig. 1 it is to be noted that each frame is pivoted at a point somewhat to one side of its center, the downwardly-extending arm carrying the roller which bears against the face of the cam being situated on the other side of the center of the frame from the side on which is situated the pivot. With this arrangement one side of the frame is heavier than the other, and the roller is thus always maintained in contact with the periphery of the cam.

In the construction shown in Fig. 9 the frame B is pivoted about its center, the roller F on the arm E being maintained in contact with the periphery of the cam G by the tension of a spring N , which is attached to the framing M and to the lower end of a down-

wardly-extending arm O . It is obvious that in place of the spring weights may be used, or the frame in this case may be pivoted otherwise than about its center, as in the other construction. Another arrangement would be to provide the frame B with two arms, such as E , each carrying a roller F in contact with the periphery of the cam G , the movement being then a positive one in either direction.

In the construction shown in Fig. 9 it will be seen that the word or phrase formed by the arrangement of the symbols in one position or the other appears at one end or the other of the frame B , according to the direction in which the latter has been tilted. If the back of the frame has symbols painted on it, these symbols will appear or be obliterated, according to the position of the moving bodies, so that a word or phrase which will read right across the frame will always appear.

It will be seen that in the construction shown in Fig. 9 in place of each moving body being separate from the others the bodies, and consequently the symbols, may be coupled together, as in the construction shown in Fig. 1. By thus coupling the symbols two or more of the latter may be arranged on the same track, and consequently the number of tracks may be reduced.

I wish it to be understood that I do not wish to be limited to the exact manner of supporting the symbols from the movable bodies, such symbols being adapted to be supported directly by the movable bodies either by painting or otherwise attaching such symbols, as seen in and described with reference to Figs. 1 to 8, inclusive, or to be indirectly supported from the movable bodies by providing plates carried by the said bodies, which plates have the symbols painted or otherwise attached, as seen in and described with reference to Figs. 9, 10, and 11, and in the claims I have denoted the movable bodies as "carrying" the symbols, and therefore I intend such term to cover broadly either manner of supporting the symbols as just set forth hereinabove.

The advertising apparatus above described may be illuminated in various ways either by casting a light upon the face of the symbols or by illuminating each separate symbol from the back, the disks or plates which carry the symbols being made transparent.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an advertising apparatus the combination of a series of movable bodies carrying symbols, a series of fixed symbols, a support for the movable bodies and the fixed symbols, a second series of movable bodies carrying symbols, a support for this second series of movable bodies, mechanism for imparting movement to the supports and stops for limiting the movement of the bodies, substantially as set forth.

2. In an advertising apparatus the combination of a series of rolling bodies carrying symbols, a support for the rolling bodies, mechanism for imparting movement to the support and stops for limiting the movement of the bodies, substantially as set forth.

3. In an advertising apparatus the combination of a series of rolling bodies carrying symbols, a series of fixed symbols, a support for the rolling bodies and the fixed symbols, mechanism for imparting movement to the support and stops for limiting the movement of the bodies, substantially as set forth.

4. In an advertising apparatus the combination of a series of rolling bodies carrying symbols, an oscillating support for the rolling bodies, mechanism for intermittently oscillating the support and stops for limiting the movement of the bodies, substantially as set forth.

5. In an advertising apparatus the combination of a series of rolling bodies carrying symbols, an oscillating support for the bodies, mechanism for intermittently oscillating the support and stops for limiting the movement of the bodies on the support, substantially as set forth.

6. In an advertising apparatus the combination of a series of rolling bodies carrying symbols, an oscillating support for the bodies, gear connection between the bodies and the support, mechanism for intermittently oscillating the support and stops for limiting the

movement of the bodies on the support, substantially as set forth.

7. In an advertising apparatus the combination of a series of rolling bodies carrying symbols, a series of fixed symbols, a support for the rolling bodies and the fixed symbols, a second series of rolling bodies, a support for the second series of rolling bodies, gear connection between the bodies and their supports, mechanism for intermittently oscillating the supports and stops for limiting the movement of the bodies on their respective supports, substantially as set forth.

8. In an advertising apparatus the combination of a series of rolling bodies carrying symbols, a series of fixed symbols, an oscillating support for the rolling bodies and the fixed symbols, a second series of rolling bodies, an oscillating support for the second series of bodies, a cam for imparting oscillatory movement to each support, a shaft upon which these cams are mounted, mechanism for rotating this shaft and stops for limiting the movement of the bodies on their respective supports, substantially as set forth.

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

JOHN FREDK. MARSHALL.

Witnesses:

JOSEPH LAKE,
T. J. OSMAN.