

May 19, 1931.

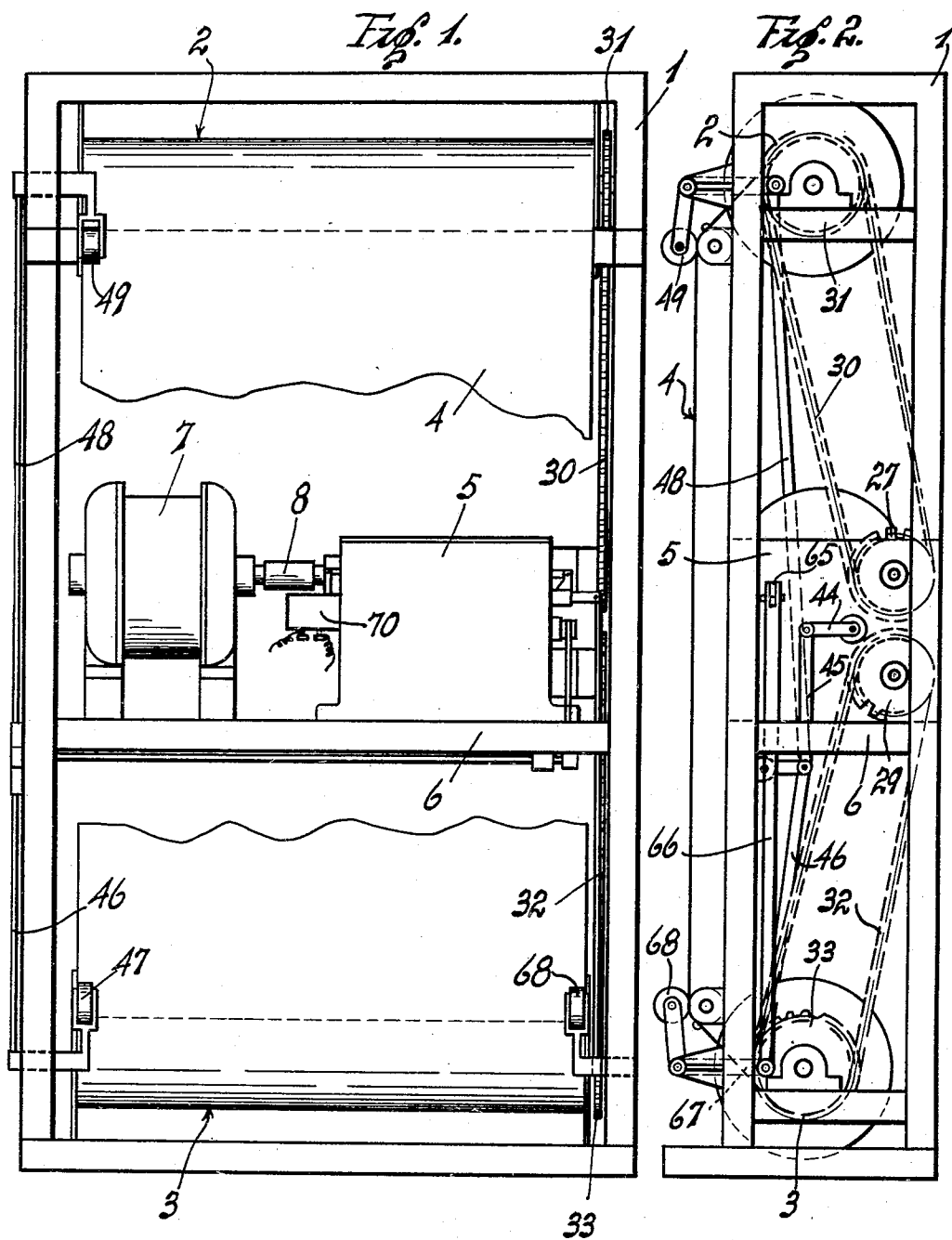
T. C. GRAHAM

1,806,160

ADVERTISING MACHINE

Filed Aug. 9, 1929

5 Sheets-Sheet 1



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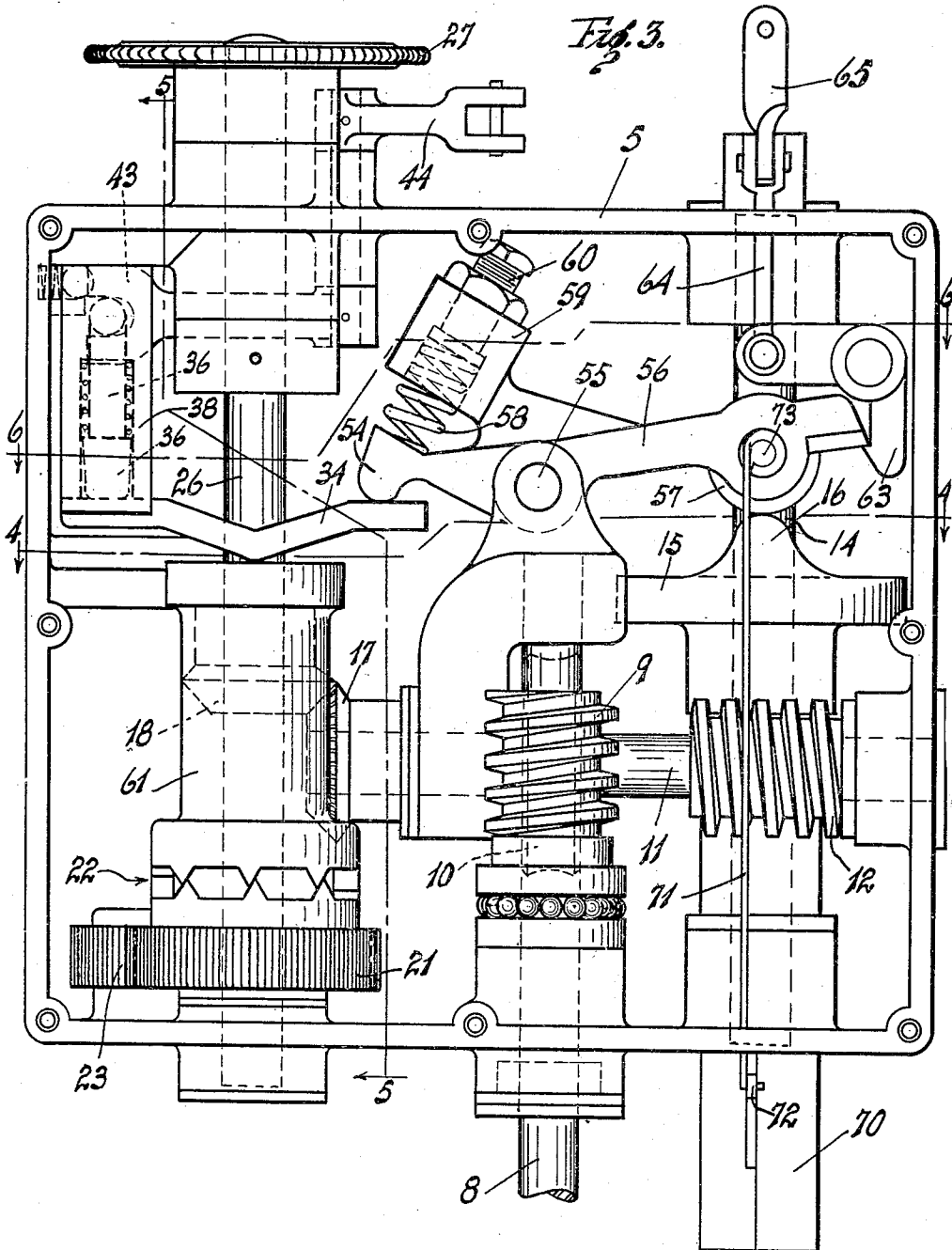
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5 Sheets-Sheet 2



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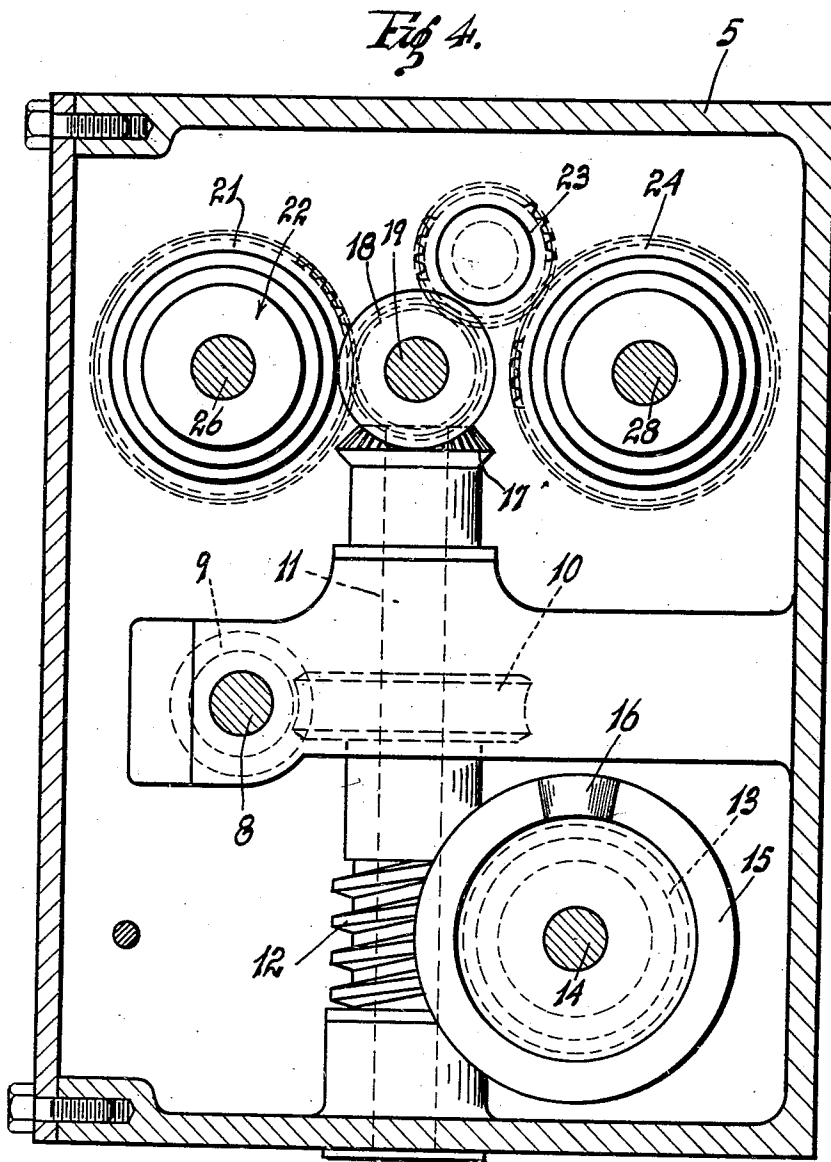
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T. C. GRAHAM
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5 Sheets-Sheet 3



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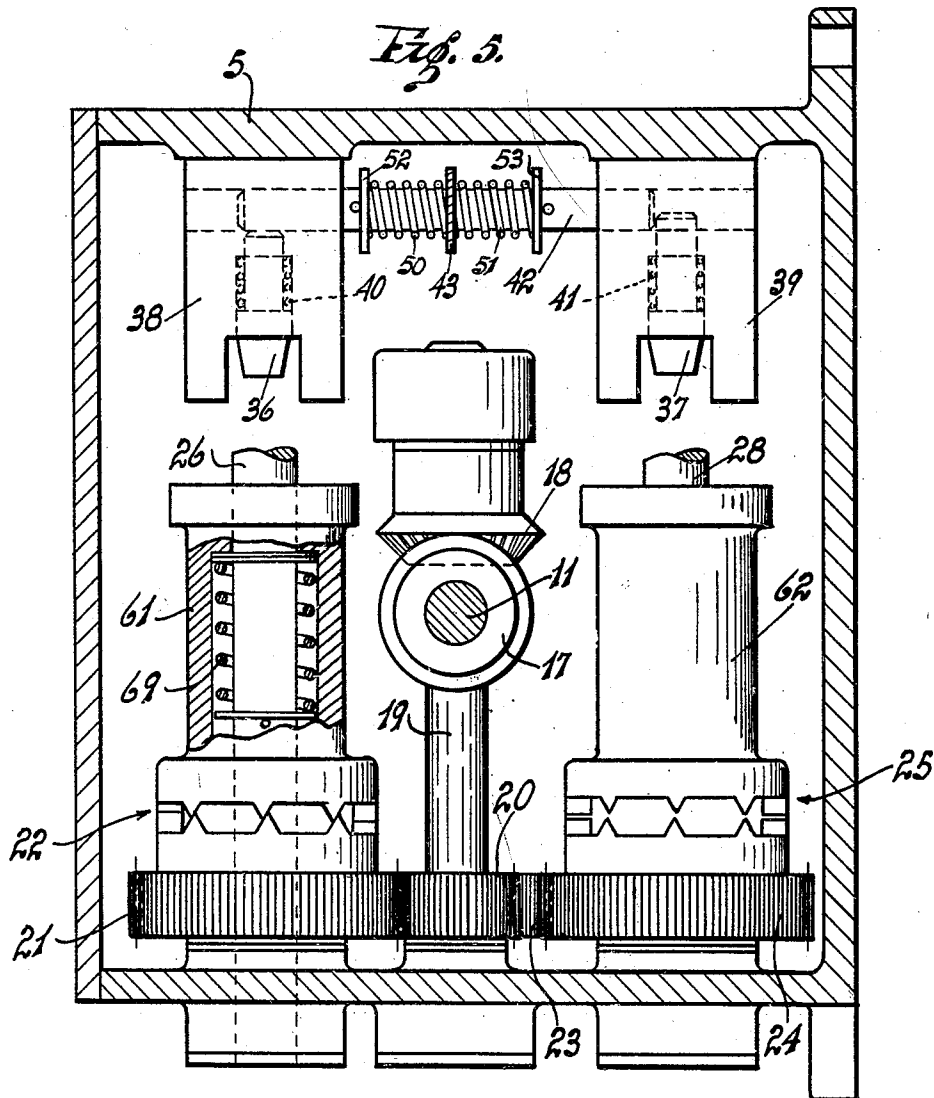
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ADVERTISING MACHINE

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5 Sheets-Sheet 4



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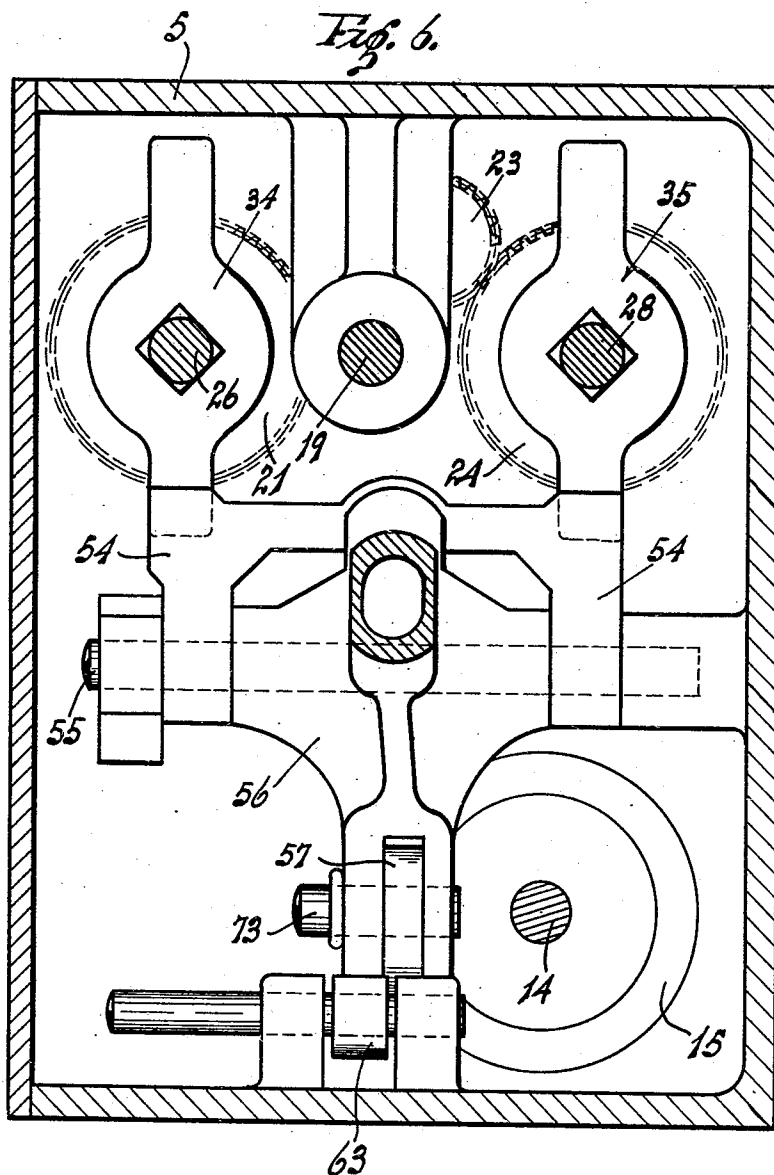
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5 Sheets-Sheet 5



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UNITED STATES PATENT OFFICE

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ADVERTISING MACHINE

Application filed August 9, 1929. Serial No. 384,740.

This invention relates to an advertising machine wherein a plurality of advertisements are intermittently displayed by means of a power driven mechanism.

5 An object of my invention is to provide a novel advertising machine in which a curtain is used upon which the various advertisements are placed and this curtain is intermittently stopped and moved through a novel gearing arrangement.

10 Another object is to provide a novel means of controlling the gear box through rollers bearing against the curtain, said rollers being actuated by projections on the curtain.

15 Other objects, advantages and features of invention may appear from the accompanying drawings, the subjoined detailed description and the appended claims.

20 In the drawings:

Figure 1 is a front elevation of my machine with the curtain broken away to show the driving arrangement.

Figure 2 is an end view of my machine.

25 Figure 3 is a plan view of the gear box with the cover removed therefrom.

Figure 4 is a sectional view taken on line 4—4 of Figure 3.

30 Figure 5 is a sectional view taken on line 5—5 of Figure 3.

Figure 6 is a sectional view taken on line 6—6 of Figure 3.

Referring more particularly to the drawings, the numeral 1 indicates the frame of my machine, and in this frame I journal an upper roller 2 and a lower roller 3. A curtain 4 is rolled upon the rollers 2—3 and is intermittently moved so as to display the various advertisements by a means to be subsequently described. A gear box 5 is mounted upon a platform 6 in the frame 1. The gear box is actuated through an electric motor 7 which motor includes the armature shaft 8, which shaft extends into the gear box 5. Within the gear box a worm

gear 9 is secured to the shaft 8, and the gear meshes with a worm wheel 10 upon a transverse shaft 11. A worm gear 12 on the shaft 11 meshes with a worm gear 13 on the cam shaft 14. The shaft 14 is constantly rotated as well as the cam plate 15 thereon.

A single cam 16 is provided on the plate 15 and the purpose of this cam will be further described. On the end of the shaft 11, opposite to the worm 12, I provide a bevelled gear 17 which meshes with a gear 18 on a shaft 19. The shaft 19 rotates constantly and a spur gear 20 is secured to the shaft, and this spur gear meshes directly with a gear 21 on the clutch 22. An idler gear 23 meshes with the gear 20 and with a second clutch gear 24 on the second clutch 25. A shaft 26 extends from the clutch 22 out of the gear box 5 and a sprocket 27 is secured to the outer end thereof. A second clutch shaft 28 extends from the clutch 25 out of the gear box and a sprocket 29 is secured to the outer end thereof.

A chain 30 encircles the sprocket 27 and a sprocket 31 on the roller 2, and a second chain 32 encircles the sprocket 29 and a sprocket 33 on the roller 3. The shafts 26—28 are alternately driven by the motor 7 by a means to be subsequently described. Also the shafts 26—28 are not constantly driven, but are stopped at intervals and this arrangement will also be more fully described. The clutches 22 or 25 are actuated in the following manner. Yokes 34—35 slip over the shafts 26—28 respectively and one end of these yokes rests against a pin 36 or 37. The pins 36—37 are set in blocks 38—39 respectively, which extend from the wall of the gear box 5. The pins are urged outwardly by coil springs 40—41 respectively and one or the other of these pins is held against inward movement by a sliding bar 42. This bar extends into the blocks 38—39 and is adapted to be slid over the inner ends of either of the pins 36—37 as shown

in Figure 5. When this bar is moved over the inner ends of the pin 36 or 37, this pin cannot retract and consequently any force supplied to the outer end of the yoke 34—35 will press the clutch 24—25 into engagement. All of which will be subsequently described in detail.

The bar 42 slides back and forth over the edge of a finger 43, which finger is actuated from an arm 44 on the outside of the gear box 5. This arrangement is shown in Figure 3 of the drawings. The arm 44 is swung upwardly or downwardly through the medium of links 45—46 which extend downwardly to a roller 47, bearing against the outside of the curtain 4 or through a link 48 which extends upwardly to a roller 49 bearing against the curtain 4 at the top thereof. The rollers 47—49 are tipped by means of a block on the curtain which passes over the roller to raise the same, and thus actuate the link 46 or 48, which in turn raises or lowers the arm 44 and thus it will the finger 43 to left or right to actuate one of the clutches 22 or 25. We will assume that the roller 49 is raised to push down on the link 48 and swings the arm 44 downwardly. These movements will push the finger 43 to the left as shown in Figure 5 and will thus move the bar 42 to the left.

Coil springs 50—51 hold the bar 42 on either side of the finger 43 and stationary collars 52—53 are provided on the bar 42 so that said bar is yieldably moved to either side, that is if there is any obstruction for the bar 42 the finger 43 would not be bent or otherwise injured since the springs 50—51 would compress until the obstruction was removed so that the bar could travel into the position required. We have now moved the bar 42 to the left as shown in Figure 5, and we find that the pin 36 can not be pushed inwardly. As previously stated, one end of the yoke 34—35 rests upon the pins 36—37 respectively. The other ends of these yokes are pressed upon by a finger 54 which finger is journaled upon a pin 55 in the gear box 5. A plate 56 is also pivotally mounted upon the pin 55 and this plate projects outwardly from the pin to adjacent the cam plate 15. A roller 57 is journaled in the plate 56 and runs upon the plate 15. The fingers 54 are urged against the yokes 34—35 through a spring 58 which spring is set in a cup 59 on the plate 56. A bolt 60 extends into the cup 59 against the spring 58 for the purpose of adjusting the tension thereof. As the cam 16 comes around against the roller 57 it will raise the same, and in turn raise the outer end of the plate 56, thus tilting the inner end of the plate which includes the cup 59 downwardly, which compresses the spring 58 and will force the finger 54 against the yokes 34—35. This action

will cause the yokes to press against the clutch members 61 or 62 to engage the clutch 22 or 25, that is the yoke 34 in this instance is held at one end against the pin 36, consequently when pressure is applied to the other end thereof by the finger 54, it will push the clutch member 61 inwardly, thus engaging the clutch 22 which will drive the shaft 26 and the sprocket 27 to rotate the upper roller 2. The other yoke is not operative to actuate the clutch 25 because the pin 37 can move inwardly when pressure is applied thereto. The yoke 35 will tip upon the end of the clutch 25 and thus depress the pin 37 and allow the clutch to remain stationary.

The plate 56 is held in this previously stated raised position by means of a latch 63. The latch 63 is in the form of a bell crank out of the gear box 5, and a rod 64 extends from the non-engaging side of the bell crank out of the gear box 5. With the latch 63 engaged, the clutch 22 (or 25) will continue to be driven. The movement of the above named sprocket is stopped by the following arrangement. A bell crank lever 65 is pivotally mounted on the outside of the box 5 and one end thereof is secured to the rod 64. A link 66 extends downwardly to an arm 67 on the roller 68. The roller 68 is tripped by means of a raised strip on the curtain 4 and when this strip passes under the roller 68, it will be pushed outwardly, which action will move the arm 66 upwardly to swing the bell crank 65 and release the latch 63.

The plate 56 will now be tilted opposite to the position shown in Figure 3, that is the right-hand portion thereof will tilt downwardly against the surface of the plate 15. This action relieves the pressure on the yoke 34 and the clutch 22 will be disengaged. When the clutch disengages, the shaft 26 and the sprocket 27 will necessarily stop. The clutch members 61—62 are moved into disengaged position by a coil spring 69—69 which surrounds the shaft 26 or 28. Obviously, when the finger 43 is moved in the opposite direction from that previously described so that the bar 42 is moved to the right, then the pin 37 will be held against retraction and the clutch 25 will be engaged while the clutch 22 stands idle. A light switch 70 is secured to the outside of the gear box 5 and a strip 71 is secured to the operating lever 72 of the switch. The strip is secured to a pin 73, which last named pin mounts the roller 57. When the roller 57 rides upwardly on the cam 16, the arm 72 is pulled inwardly, which operates the switch 70 and when the latch 63 is released, the roller 57 drops down upon the plate 15 and the switch 70 is closed.

The operation of my invention is as follows: The motor 7 is started, which rotates the shaft 8 and through the gear 9—10 the

shaft 11 is constantly rotated, and this last named shaft then through the gears 17—18 constantly rotates the shaft 19 and the gear train 21—23—24. This means that the one portion of both clutches 22—25 are constantly rotated. The other portion of these clutches is held out of engagement, and is actuated by means to be further described. The cam wheel 15 also rotates constantly through the shaft 11, and since the bar 42 must be moved to one side or the other, we will assume that it is in the position shown in Figure 5. In this position the pin 36 is held against retraction and when the cam wheel 15 rotates, the plate 56 is raised, the finger 54 is displaced and the yoke 34 will push the clutch 22 into engagement. This clutch then rotates the sprocket 27 and the upper roller 2 is actuated through the chain 30. The curtain 4 then moves upwardly upon the roller 2 until a raised portion on the curtain comes under the roller 68 when the latch 63 is released and the plate 56 will drop down upon the flat portion of the cam wheel 15. The clutch 22 is thus instantly released and the curtain remains stationary so that the advertisement thereon can be read.

As the cam 16 again comes around the plate 56 is raised and the same operation previously described is repeated. This continues until a raised portion on the curtain 4 comes under the roller 47, this roller is raised and actuates the arm 44 which swings the finger 43 and the bar 42 is then moved towards the right, as shown in Figure 5. The pin 37 is now held against retraction and the clutch 25 is engaged in the same manner as the clutch 22 but the lower sprocket 29 is now rotated which drives the lower roller 3 and the curtain 4 rolls downwardly upon the lower roller.

Having described my invention, I claim:

1. An advertising machine comprising a frame, upper and lower rollers journaled in the frame, a curtain positioned on the rollers, a gear box, a power shaft extending into the gear box, means to rotate said power shaft, a pair of sprocket shafts extending from the gear box, sprockets on each of the last named shafts, one of said sprockets being adapted to rotate the upper roller and the other sprocket being adapted to rotate the lower roller, clutch means on each of said last named shafts, gear means between said power shaft and both of said clutches, timing means in the gear box, gear means adapted to rotate said timing means from the power shaft, clutch actuating means in the gear box, said clutch actuating means being operable from the timing means, clutch selector means in the gear box, means operable by the curtain to actuate said clutch selector means whereby one or the other of said clutches is actuated to drive a roller, means holding either of said clutches in en-

gagement, and a second means operable by the curtain whereby said means holding the clutches is released.

2. An advertising machine comprising a frame, upper and lower rollers journaled in the frame, a curtain positioned on the rollers, a gear box, a power shaft extending into the gear box, means to rotate said power shaft, a pair of sprocket shafts extending from the gear box, sprockets on each of the last named shafts, one of said sprockets being adapted to rotate the upper roller and the other sprocket being adapted to rotate the lower roller, clutch means on each of said last named shafts, gear means between said power shaft and both of said clutches, a cam plate journaled in the gear box, gear means connecting said cam plate and the power shaft whereby the cam plate is constantly rotated, a cam on the cam plate, a clutch actuating plate pivotally mounted in the gear box adjacent the cam plate, said clutch actuating plate being adapted to be raised by the cam and means engageable by said clutch actuating plate whereby one of said clutches is engaged at a time, means holding either of said clutches in engagement, and means operable by the curtain whereby said means holding the clutches is released.

3. An advertising machine comprising a frame, upper and lower rollers journaled in the frame, a curtain positioned on the rollers, a gear box, a power shaft extending into the gear box, means to rotate said power shaft, a pair of sprocket shafts extending from the gear box, sprockets on each of the last named shafts, one of said sprockets being adapted to rotate the upper roller and the other sprocket being adapted to rotate the lower roller, clutch means on each of said last named shafts, gear means between said power shaft and both of said clutches, a cam plate journaled in the gear box, gear means connecting said cam plate and the power shaft whereby the cam plate is constantly rotated, a cam on the cam plate, a clutch actuating plate pivotally mounted in the gear box adjacent the cam plate, said clutch actuating plate being adapted to be raised by the cam, a yoke engaging each of said clutches, said plate bearing against one end of each of the yokes, and means in the gear box engaging each of said yokes whereby one of the yokes is pressed against a clutch to engage the same while the other yoke yields to the pressure of the plate, means holding either of said clutches in engagement, and means operable by the curtain whereby said means holding the clutches is released.

4. An advertising machine comprising a frame, upper and lower rollers journaled in the frame, a curtain positioned on the rollers, a gear box, a power shaft extending into

- the gear box, means to rotate said power shaft, a pair of sprocket shafts extending from the gear box, sprockets on each of the last named shafts, one of said sprockets
 5 being adapted to rotate the upper roller and the other sprocket being adapted to rotate the lower roller, clutch means on each of said last named shafts, gear means between said power shaft and both of said clutches,
 10 a cam plate journaled in the gear box, gear means connecting said cam plate and the power shaft whereby the cam plate is constantly rotated, a cam on the cam plate, a clutch actuating plate pivotally mounted in
 15 the gear box adjacent the cam plate, said clutch actuating plate being adapted to be raised by the cam, a yoke engaging each of said clutches, said plate bearing against one end of each of the yokes, a pair of yieldably
 20 mounted pins in the gear box, one of said pins engaging one end of each of the yokes, a bar slidably mounted in the box, said bar extending over one of the pins to hold the same against retraction, means operable
 25 from the curtain whereby the bar is moved against the pins, the non-retractable pin holding the yoke so that the corresponding clutch is engaged when the plate is raised, means holding either of said clutches in en-
 30 gagement, and means operable by the curtain whereby said means holding the clutches is released.
5. An advertising machine comprising a frame, upper and lower rollers journaled in
 35 the frame, a curtain positioned on the rollers, a gear box, a power shaft extending into the gear box, means to rotate said power shaft, a pair of sprocket shafts extending from the gear box, sprockets on each of the
 40 last named shafts, one of said sprockets being adapted to rotate the upper roller and the other sprocket being adapted to rotate the lower roller, a clutch on each of the last named shafts, gear means between said
 45 power shaft and both of said clutches, a cam plate journaled in the gear box, gear means connecting said cam plate and the power shaft whereby the cam plate is rotated, a clutch actuating plate pivotally mounted in
 50 the gear box adjacent the cam plate, said clutch actuating plate being adapted to be raised by said cam plate, a yoke engaging each of said clutches, said clutch actuating plate bearing against one end of each of the
 55 yokes, a pair of yieldably mounted pins in the gear box, one of said pins engaging one end of each of the yokes, a bar slidably mounted in the box, said bar being adapted to extend over one end of a pin to hold the same against retraction, a finger engaging
 60 said bar, an arm operatively connected to said finger, a pair of rollers engaging the curtain, means connecting each of the last named rollers to said last named arm, said
 65 curtain being provided with strips thereon
- whereby the last named rollers are raised to actuate the last named arm and the finger whereby the bar is moved from side to side and slides over the pin to hold the pin against retraction, means holding either of
 70 said clutches in engagement, and means operable by the curtain whereby said means holding the clutches is released.
- In testimony whereof, I affix my signature.
 THOMAS C. GRAHAM. 75
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