

E. C. ANGELL.

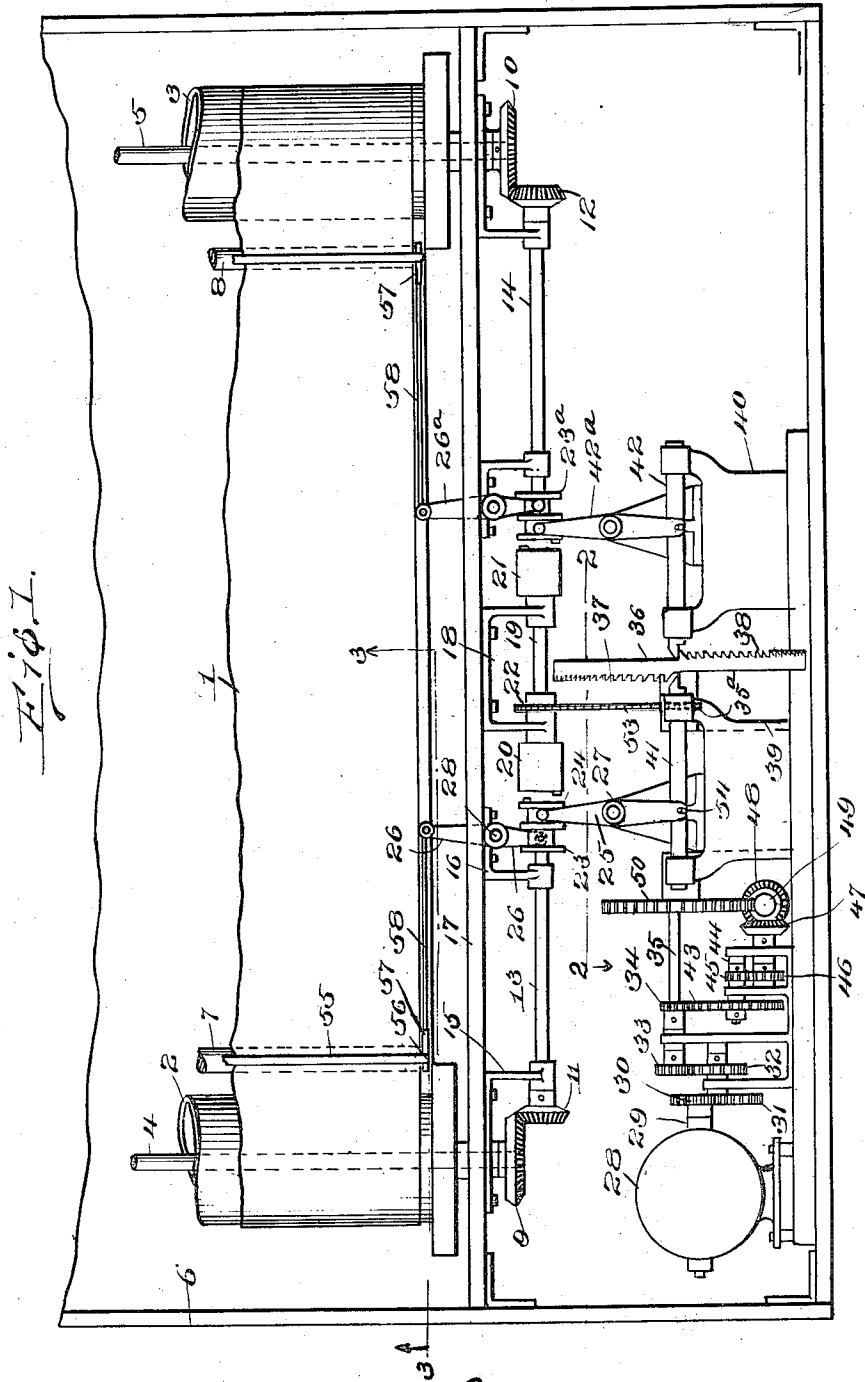
DEVICE FOR DISPLAYING ADVERTISEMENTS.

APPLICATION FILED JUNE 23, 1909. RENEWED OCT. 11, 1912.

1,052,995.

Patented Feb. 11, 1913.

2 SHEETS—SHEET 1.



Witnesses
J. M. Fowler Jr.
C. C. Johnson

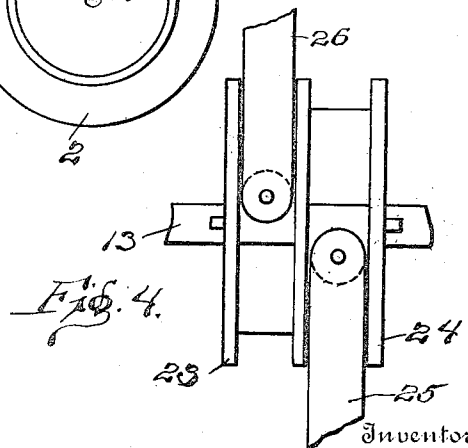
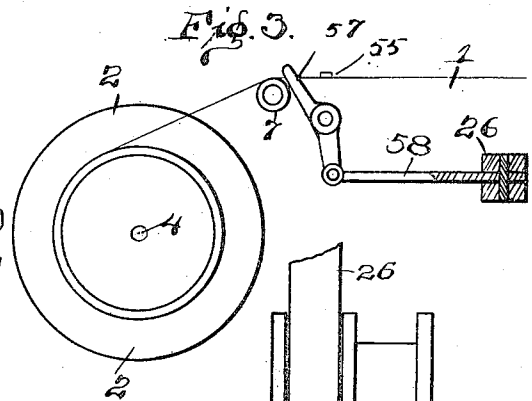
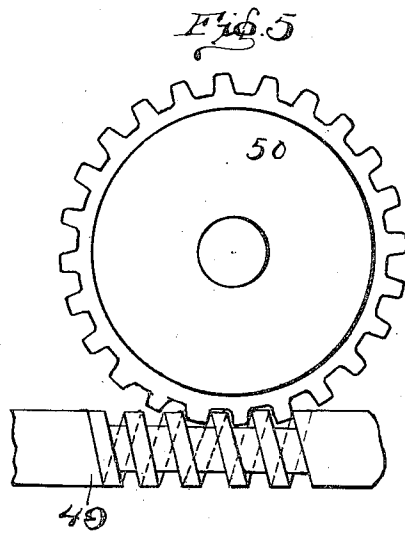
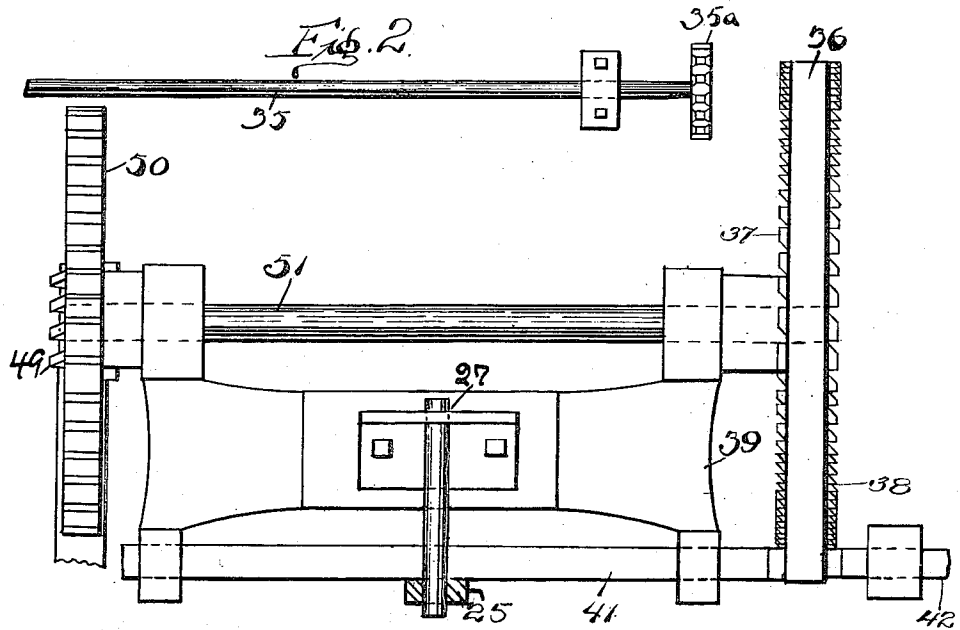
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Inventor

Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD C. ANGELL, OF NEW YORK, N. Y.

DEVICE FOR DISPLAYING ADVERTISEMENTS.

1,052,995.

Specification of Letters Patent.

Patented Feb. 11, 1913.

Application filed June 23, 1909, Serial No. 503,944. Renewed October 11, 1912. Serial No. 725,309.

To all whom it may concern:

Be it known that I, EDWARD C. ANGELL, citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Devices for Displaying Advertisements; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to devices for displaying advertisements, and it consists in the provision of novel means whereby a sheet or apron of flexible material on which advertisements may be printed or mounted is caused to travel in a given direction with an intermittent movement, and in the provision of a certain novel construction by means of which the direction of travel of the sheet is automatically reversed at the proper time.

In the accompanying drawings forming part of this application, Figure 1 is a plan view of the device: Fig. 2 is a view taken on line 2—2 of Fig. 1 looking in the direction of the arrow and showing certain of the shafts operated through the medium of the gear trains: Fig. 3 is a detail view showing the mechanism through the operation of which the clutches are thrown out of engagement, this view being taken on the line 3—3 of Fig. 1. Fig. 4 is a detail view of one of the clutches: Fig. 5 shows a worm wheel and worm shaft forming a part of the driving mechanism.

Referring to the drawings in detail, 1 indicates the sheet or apron on which the advertisements may be printed or on which advertising posters may be mounted. The apron is connected at one end to a roller 2 and at the opposite end to a roller 3, the former being mounted on an axle 4 and the latter on an axle 5 properly journaled in the cross-piece 17 in the casing 6. Suitable guide rollers 7 and 8 support the apron at points adjacent to the rollers 2 and 3. The axle 4 carries the gear wheel 9 and the corresponding axle a gear wheel 10, these gears meshing respectively with gears 11 and 12, the first of which is rigidly mounted on shaft 13 and the second on shaft 14. Shaft 13 is supported in bearings carried by brackets 15 and 16 secured to the cross piece 17, shaft 14 being mounted in a similar man-

ner. On the central portion of the cross piece 17 is mounted a U-shaped bracket 18 provided with bearings, in which a shaft 19 is mounted, this shaft carrying at its respective ends clutch members 20 and 21, and a sprocket wheel 22 by means of which such shaft is driven, as hereafter described. Shaft 13 carries a double collar 23, one face of which, 24, constitutes a clutch member designed to engage clutch member 20, and connected with this collar which is flanged, as shown in the drawing, are levers 25 and 26 mounted respectively at the points 27 and 28, such levers serving to control the movement of the apron.

The driving mechanism is shown in the lower part of Fig. 1, 28 indicating a motor from the shaft 29 of which a gear 30 is driven, this gear imparting motion to gear 31 through gears 32 and 33 to the gear 34 mounted on shaft 35. Gear 34 imparts motion to gear 43 on shaft 44 and through gear 45 to gear 46 and the bevel gears 47 and 48. Gear 48 drives a worm shaft 49 meshing with a worm wheel 50 carried by shaft 51, such shaft 51 driving crown wheel 36. Supporting brackets 39 and 40 carry sliding bars 41 and 42 having ratchet teeth on their adjacent ends for the purpose of engaging the teeth on the crown wheel 36, one side of which is provided with ratchet teeth 37, extending one-half of the distance around its circumference, and the other side with ratchet teeth 38 covering the remainder of the circumference of the wheel. Shaft 35 carries a sprocket wheel 35^a driving a chain 53, which in turn drives sprocket wheel 22 on shaft 19. It will thus be seen that the motor drives a chain of gears which communicate power directly to shaft 19 which is thereby continuously operated. The position of the clutch collars carried by shafts 13 and 14 control the direction of movement of the apron. The lower end of lever 25 is slotted and engages a projection 54 on bar 41 whereby the operation of bar 41 will throw lever 25 and the connecting clutch member 24. The corresponding bar 42 on the opposite side of the crown wheel performs a similar function with reference to connecting lever 42^a.

The apron 1 carries a series of cleats 55 which are spaced apart and provide a suitable advertising area between each pair. These cleats project slightly beyond the edge of the apron, as shown at 56, for the pur-

pose of engaging the ends of levers 57. Levers 26 and 26^a are connected with the levers 57 mounted at points near the respective winding rollers, one arm of such levers 57 being engaged by the projections 56 of cleats 55. It will be observed that when the apron 1 comes into a given position one of the cleats will strike one arm of lever 57, will throw connecting rod 58, operating lever 26 and the clutch member 23, disengaging such clutch member from clutch member 20 and stopping the revolution of shaft 13.

In throwing gears 9 and 11 into operation, clutch member 24 is brought into engagement with clutch member 20 through the operation of lever 25 and sliding bar 41, such bar 41 being moved by the operation of crown wheel 36, one tooth of which engages the tooth of bar 41, causing the apron to be driven through a sufficient distance to expose a given advertising space. The number of teeth on each side of wheel 36 corresponds with the number of advertising spaces. When the apron has been fully wound upon one of the rollers, all of the teeth 37 on one side of the crown wheel have performed their function, having thrown the clutch members into coöperation a given number of times and thereby displayed all of the advertisements on the apron. The teeth 38 on the opposite side of the crown wheel will then come into play and act in a similar manner on bar 42, lever 42^a, and clutch 23^a, thus reversing the direction of travel of the apron.

The crown wheel constitutes a controlling member, and this member coöperating with certain mechanism intermediate of said member and the traveling member or apron causes the intermittent movement of the latter, and the automatic reversal thereof. The intermediate mechanism referred to includes the levers 25 and 26, the clutch member connected therewith, the reciprocating bar connected with lever 25, and the devices carried by the traveling member or apron and operating lever 26 through the medium of members 57 and 58.

What I claim is:

1. In a display apparatus, a traveling member, a plurality of winding rollers therefor, a driving mechanism for said rollers, a controlling member, intermediate mechanism connecting the controlling member with the traveling member and having connection with the driving mechanism, and means carried by the controlling member and coöperating with said intermediate mechanism for causing the intermittent movement of the traveling member and the reversal of the direction of movement thereof.

2. In a display apparatus, a traveling member, a plurality of winding rollers there-

for, a driving mechanism, a crown wheel adjacent segments of which carry teeth on opposite sides, and means operated by the traveling member and the crown wheel for causing the driving mechanism to impart an intermittent motion to the rollers, said wheel operating to reverse the direction of movement of the traveling member.

3. In a display apparatus, a traveling member, a plurality of winding rollers therefor, a continuously operated shaft, shafts arranged to be driven thereby and to impart motion to the rollers, a rotating member, reciprocating members coöperating therewith, said rotating member being constructed and adapted to operate each of the reciprocating members independently of the other, for a specified period, and means operated by the reciprocating members causing the shafts imparting motion to the rollers to be brought alternately into coöperation with the shaft first mentioned.

4. In a display apparatus, a traveling member, a plurality of winding rollers therefor, a continuously operated shaft, shafts arranged to be driven thereby and to impart motion to the rollers, a toothed wheel, reciprocating members coöperating therewith, said wheel being constructed and adapted to operate each of the reciprocating members independently of the other for a specified period, and means operated by the reciprocating members causing the shafts imparting motion to the rollers to be brought alternately into coöperation with the shaft first mentioned.

5. In a display apparatus, a traveling member, a plurality of winding rollers therefor, a continuously operated shaft, shafts arranged to be driven thereby and to impart motion to the rollers, a crown wheel provided with two series of teeth, reciprocating members coöperating therewith, each operated by the crown wheel independently of the other for a specified period by the teeth of a given series, and means operated by the reciprocating members causing the shafts imparting motion to the rollers to be brought alternately into coöperation with the shaft first mentioned.

6. In a display apparatus, a traveling member, a plurality of winding rollers therefor, a continuously operated shaft, shafts arranged to be driven thereby and to impart motion to the rollers, a crown wheel having teeth on opposite sides thereof, reciprocating members coöperating therewith each adapted to be operated by the crown wheel independently of the other for a specified period, and means operated by the reciprocating members causing the shafts imparting motion to the rollers to be brought alternately into coöperation with the shaft first mentioned.

7. In a display apparatus, a traveling

member, a plurality of winding rollers therefor, a continuously operated shaft, shafts arranged to be driven thereby and to impart motion to the rollers, a rotating member provided with independent series of teeth reversely arranged, reciprocating bars cooperating therewith each operated by the rotatable member independently of the other for a specified period, and means operated by the reciprocating bars causing the shafts imparting motion to the rollers to be brought alternately into cooperation with the shaft first mentioned.

8. In a display apparatus, a traveling member, a plurality of winding rollers therefor, a continuously operated shaft, shafts arranged to be driven thereby and to impart motion to the rollers, a rotatable member comprising a crown wheel having teeth reversely arranged, reciprocating bars cooperating therewith each operated by the rotatable member independently of the other for a specified period, and mechanism including levers and clutches operated by the reciprocating members causing the shafts imparting motion to the rollers to be

brought alternately into cooperation with the shaft first mentioned.

9. In a display apparatus, a traveling member, a plurality of winding rollers therefor, a continuously operated shaft, shafts arranged to be driven thereby and to impart motion to the rollers, a crown wheel having teeth on opposite sides, reciprocating bars cooperating therewith, each operated by the crown wheel independently of the other for a specified period, and means operated by the reciprocating bars for causing the shafts imparting motion to the rollers to be brought alternately into cooperation with the shaft first mentioned, and means operated directly by the traveling member for causing the shafts driving the rollers to be disconnected at given periods from the shaft first mentioned.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD C. ANGELL.

Witnesses:

MARY PERRY,
HUGO MOCK.