H. R. KIESSIG.

ADVERTISING DEVICE.

APPLICATION FILED FEB. 16, 1910.

1,003,272.

Patented Sept. 12, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

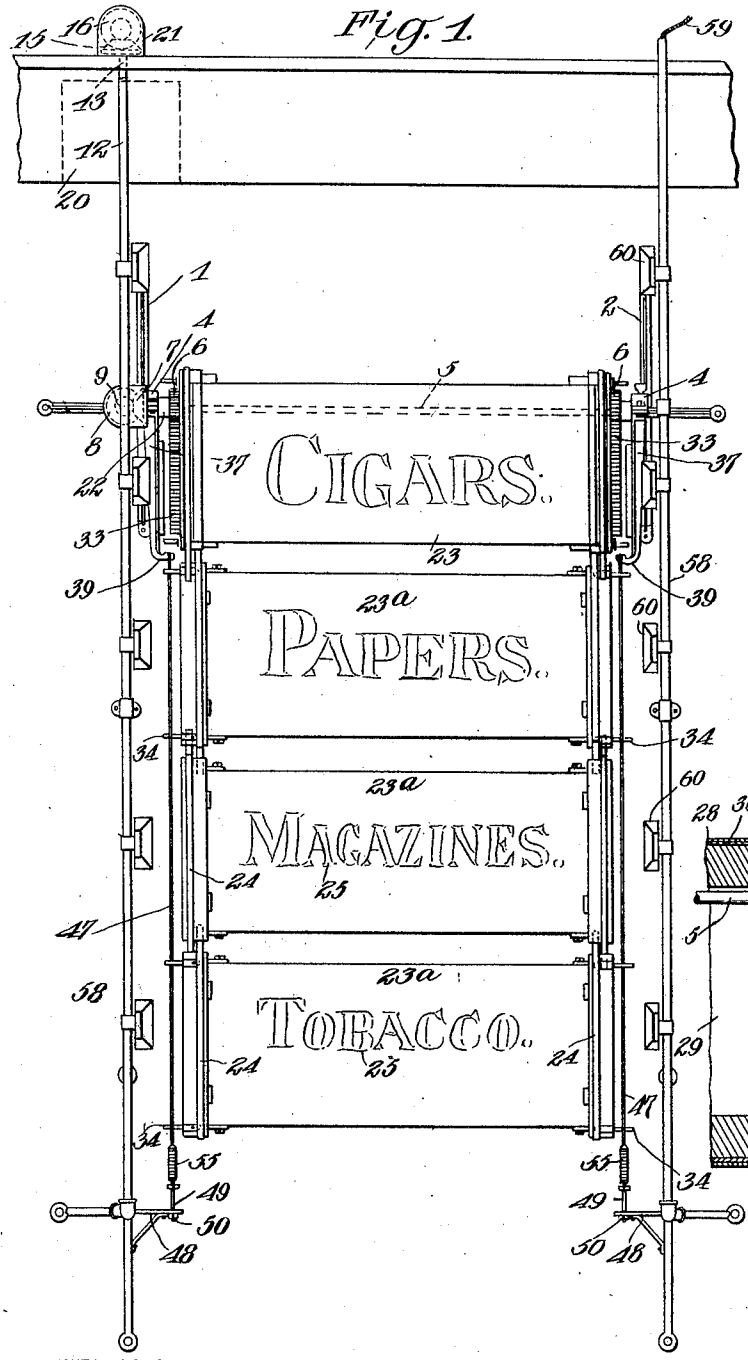


Fig. 7.

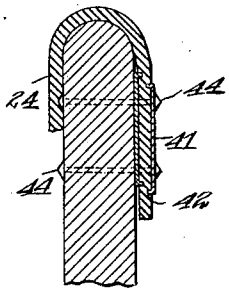


Fig. 8.

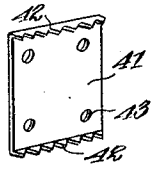
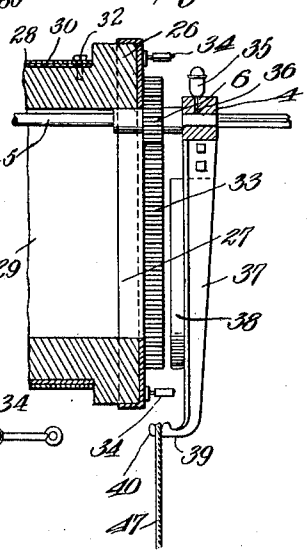


Fig. 9.



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2 SHEETS—SHEET 2.

Fig. 2.

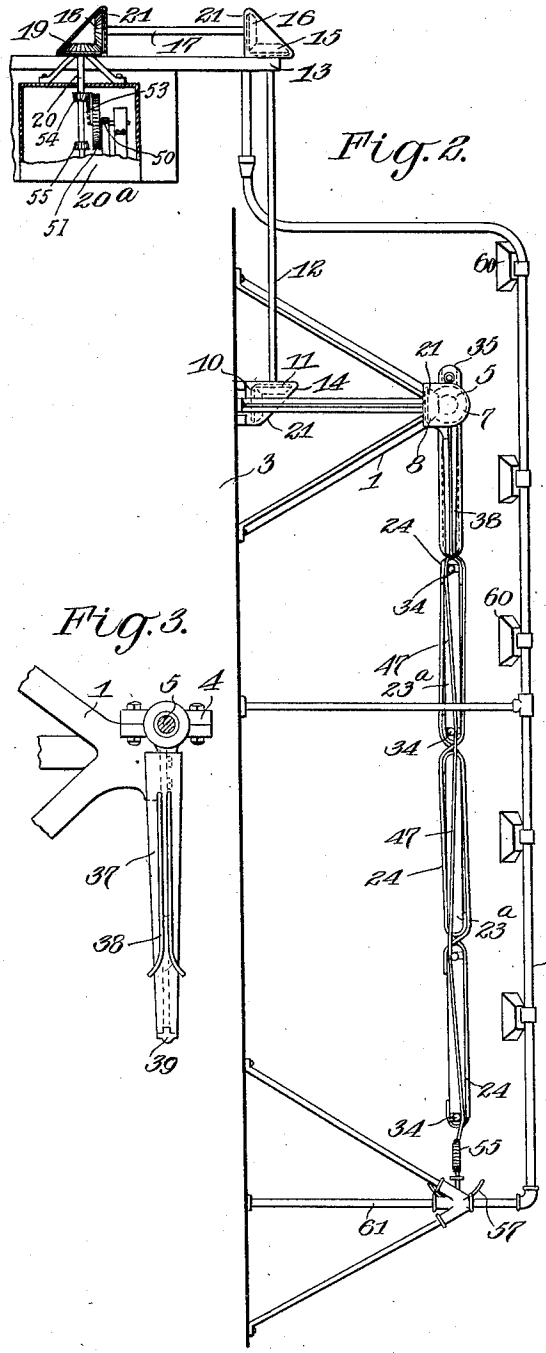


Fig. 3.

Fig. 4.

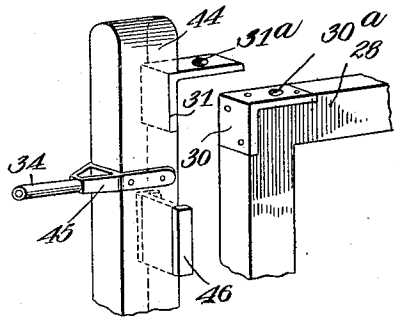


Fig. 5.

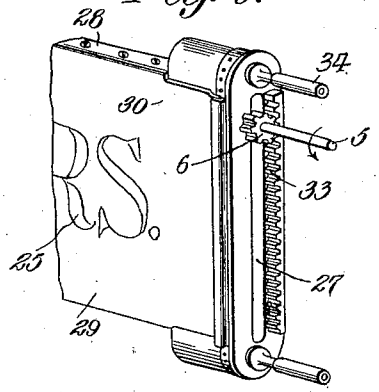
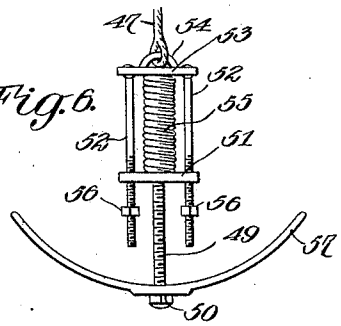


Fig. 6.



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UNITED STATES PATENT OFFICE.

HARRY RICHARD KIESSIG, OF SACRAMENTO, CALIFORNIA.

ADVERTISING DEVICE.

1,003,272. Specification of Letters Patent. **Patented Sept. 12, 1911.**

Application filed February 16, 1910. Serial No. 544,172.

To all whom it may concern:

Be it known that I, HARRY R. KIESSIG, a citizen of the United States, and a resident of Sacramento, in the county of Sacramento and State of California, have made certain new and useful Improvements in Advertising Devices, of which the following is a specification.

My invention is an improvement in advertising devices, and consists in certain novel constructions, and combinations of parts, hereinafter described and claimed.

The object of the invention is to provide a device for continuously operating that class of advertising devices known as "Chinese puzzles," or "Jacob's ladders," and consisting of a plurality of plates or panels, so connected, that when the topmost panel is reversed, the other panels will be reversed in succession from above downward.

Referring to the drawings forming a part hereof, Figure 1 is a front view of the improvement, Fig. 2 is a side view, Fig. 3 is a side view of the guideway for the upper panel, Fig. 4 is a detail perspective view showing the manner of connecting the panel frames with the end pieces, Fig. 5 is a similar view of one end of the upper panel, Fig. 6 is a side view of the lower end of the guide cable and the guard, Fig. 7 is a vertical section of a portion of a panel showing the strap connection, Fig. 8 is a perspective view of one of the connection plates, and Fig. 9 is a vertical section through one end of the upper panel and its connections.

The embodiment of the invention shown in the drawings, consists of a pair of spaced brackets 1 and 2, which may be secured to the front of a building 3, and at its free end each bracket is provided with a bearing 4. A shaft 5 is journaled in the bearings, transversely of the building, and near each end inside of the bearings, the shaft is provided with a pinion 6. At one end outside of the adjacent bearing the shaft is provided with a bevel gear wheel 7, which meshes with a bevel gear wheel 8, on a transverse shaft 9, journaled on the bracket. The shaft 9 is provided at its opposite end with a bevel gear wheel 10, which meshes with a bevel gear wheel 11 on a vertical shaft 12, journaled in bearings 13 and 14 on the building and bracket respectively. The vertical shaft is also provided at its upper end with a bevel gear wheel 15, which meshes with another bevel gear wheel 16 on a horizontal shaft 17 on the building. The shaft 17 is provided at its opposite end with a bevel gear wheel 18, which meshes with a bevel gear wheel 19 on a shaft 20, of a suitable motor 20^a, supported in the building.

Each of the pairs of intermeshing gear wheels is inclosed by a gear case 21, which may if desired be filled with oil, so that the gears run in a lubricant.

The advertising device proper, consists of a plurality of panels 23 and 23^a, and the panels 23^a depend below the panels 23. The panels are connected with each other by straps 24, in a well known manner, such that when the panel 23 is reversed, the other panels are also reversed in succession. Each panel is provided on its faces with a word, sign or symbol 25, the symbols differing on the different panels, and also on the opposite sides. The panel 23 is composed of a frame 26, provided in each end with a vertical slot 27, in which moves the shaft 5, and each face of the frame is covered with a sheet 29 of suitable material for receiving the sign or symbol. Each of the frames 26 is provided on the outer face of each end adjacent to the slot 27, with a rack 33, which is engaged by the pinion 6 before mentioned, and each end is also provided with a plurality of laterally projecting rollers 34, one near the top and one near the bottom.

The bearing 4 of each of the brackets 1 and 2, is provided with an oil cup 35, which connects by a passage 36 with the bearing, thus supplying continuously a lubricant to the bearing. An arm 37 depends from each of the brackets 1 and 2, below the bearing 4, and the said arm is provided on its inner face with a guideway 38 for engagement by the rollers 34 before mentioned, and the lower end of the arm is bent inwardly as at 39, and provided with a transverse groove 40.

It will be evident from the description,

that when the shaft 5 is rotated by the motor 20, through the shafts 9, 12 and 17 and the bevel gearing, the panel 23 will be lifted vertically, until the shaft has traversed the full length of the slot, when the shaft will be reversed, and the panel will again be elevated by the engagement of the rack and pinion, the operation being continuous as long as the motor is running.

It will be observed from an inspection of Fig. 1, that the straps 24 which connect the panel 23 with the lower panels are attached to opposite edges thereof, the strap in front being attached to the bottom edge while the strap behind is attached to the upper edge. This manner of attachment is the usual manner in the construction of such devices.

The method of attaching the straps to the panels is shown particularly in Figs. 7 and 8. A plate 41 is provided, having at opposite sides angular serrated edges 42, and intermediate its edges openings 43. The plates are arranged in pairs one on each side of the strap and with the serrations engaging the strap as shown in Fig. 7, and are secured to the panel supports by rivets 44, which pass through the openings 43.

The panels 23^a are similar in construction, each consisting of a frame 28, having at each corner an angle plate 30, each frame being covered with sheets 29 of suitable material for receiving the sign or symbol. Each frame is supported by end pieces 44, by means of angle plates 31. One side of each angle plate 31 is secured to an end piece, and the other side extends laterally therefrom, and the frames 28 are received between the said sides, it being understood that each end piece has an angle plate near each end. The free side of each angle plate 31 is provided with an opening 31^a and each angle plate 30 with a similar opening 30^a adapted to register therewith when the frames are in place, and a set screw 32 passes through the registering openings to hold the frame in place. The end pieces 44 are also provided with the rollers 34 before mentioned, and all of the rollers are mounted on brackets 45 secured to the respective end pieces of the lower panels and to the frame of the upper panel. Each of the end pieces 44 is also provided with a plurality of channel plates 46, secured thereto and engaging the frame to assist the angle plates in retaining the frame in position.

A cable or wire 47 depends from each of arms 37, resting in the groove 40, in the inturned end 39, and the lower end of the wire or cable is connected with a bracket 48 extending laterally from a hollow conduit to be presently described in detail, by means of a rod 49, extending through an opening in the bracket, and engaged below the bracket by a nut 50. The rod 49 is connected at its upper end with the center of a cross head 51, whose ends are perforated to receive bolts 52 connected with the ends of another cross head 53, having an eye 54, to which the cable or wire is connected. A spring 55 is arranged between the cross heads, and nuts 56 engage the bolts 52 below the cross head 51. A guard 57 (Fig. 6) is arranged on the lower end of the bolt 49 and extends transversely of the panels. The rollers 34 on the panel 23^a, are engaged with the cable, the rollers at each end of each panel being upon opposite sides of the cable, as indicated in Fig. 2. The object of the cables is to prevent injury to the panels from wind causing them to swing laterally. The interposition of the spring in the cable permits some swinging, and the tension of the cables may be adjusted by the bolts and cross heads.

The hollow conduit 58 before mentioned is arranged one on each side of and in front of the panels and their supports, and is designed to receive and carry the feed wires 59 of a lighting current, which supplies the lamps 60 supported on the conduits. The lamps are intended to illuminate the panels at night. The conduits curve inwardly at their upper ends to a connection with the building 3, and at their lower ends they are connected with the bracket 61 with which the arm 48 is connected.

In operation, the motor being started, the shaft 5 is rotated, and the pinions 6 by meshing with the racks 33 lift the upper panel. As soon as the lower rollers 34 on the panel are free from the guides 38, the other panels are then reversed in succession. It will be evident that so long as the motor runs the operation will continue. When it is designed to change the reading of the panels, they may be removed from the end pieces and new ones inserted. The cables or wires 47 act as guides for the lower panels, and also prevent them whipping to any considerable extent in the wind.

The guards 57 at the lower ends of the cables prevent dropping of the panels should they become detached. Should a panel for any reason become detached, the rollers 34 would engage the guards, and the descent of the panels would be checked.

It will be understood that the operating mechanism shown diagrammatically and designated by the reference numeral 20^a, and which forms no part of the present invention is provided with means for reversing the movement of the shaft 5.

The sheets 29 of the panels are detachable, in order that the figures may be changed, and when in place they complete the panel, forming covers for the sides thereof.

The operating mechanism 20^a consists of

a shaft 62, provided with a disk 63 having on one face thereof an annular marginal bevel surface 64, provided with gear teeth forming a bevel gear 65. The shaft 20 provided at its upper end with the bevel gear wheel 19 on the bevel gear 18 on the shaft 17 is provided with two bevel gear pinions 66 and 67, which engage the mutilated gear at diametrically opposite points. The shaft 62 may be connected with a motor in any suitable manner and it will be evident that when the bevel pinion 66 is in engagement with the gear teeth, the shaft 20 will be rotated in one direction while when the pinion 67 is in engagement with the teeth, the shaft will be rotated in the opposite direction. The series of gear teeth are so arranged and of such extent, that the shaft 5 will be rotated in one direction over a space of time sufficient to leave the upper panel after which the pinion will pass out of engagement with the gear teeth and both pinions will be free from the gear teeth long enough to permit the panels to reverse. As soon as the reversing is complete the other pinion will come into engagement with the gear teeth. It will be observed that the teeth are somewhat less than a semi-circle.

I claim:

1. In a device of the character specified, an upper panel comprising a frame, having in each end a vertical slot, a shaft extending through the slots, a pinion on each end of the shaft, bearings outside of the pinions for supporting the shaft, a rack on each end of the frame, with which the adjacent pinion meshes, means for alternately rotating the shaft in opposite directions, a vertical guideway depending from each of the bearings, and a roller spaced apart from each end of the end pieces and engaging the adjacent guideway for the purpose specified.

2. In a device of the character specified, an upper panel comprising a frame, having in each end a vertical slot, a shaft extending through the slots, a pinion on each end of the shaft, bearings outside of the pinions for supporting the shaft, a rack on each end of the frame, with which the adjacent pinion meshes, means for alternately rotating the shaft in opposite directions, and means for guiding the panel.

3. In a device of the character specified, an upper panel comprising a frame, having in each end a vertical slot, a shaft extending through the slots, a pinion on each end of the shaft, bearings outside of the pinions for supporting the shaft, a rack on each end of the frame with which the adjacent pinion meshes, and means for alternately rotating the shaft in opposite directions.

4. In a device of the character specified, an upper panel, said panel having its ends slotted longitudinally, a shaft extending through the slots, a pinion near each end of the shaft outside of the panel, a bearing for each end of the shaft, a rack on each end of the panel and engaged by the adjacent pinion, means for alternately rotating the shaft in opposite directions, a guideway depending from each bearing and a roller on the end of the panel engaging the guideway.

5. In a device of the character specified, an upper panel, said panel having its ends slotted longitudinally, a shaft extending through the slots, a pinion near each end of the shaft outside of the panel, a bearing for each end of the shaft, a rack on each end of the panel and engaged by the adjacent pinion, and means for alternately rotating the shaft in opposite directions.

6. In a device of the character specified, a plurality of connected panels, each comprising a frame, and end pieces, and means for detachably connecting the panels with the end pieces, said means comprising angle plates fitting the corners of the frame, angle plates having one side secured to the end pieces, the other side engaging the adjacent angle plate of the frame, a set screw extending through both angle plates, and channel plates secured to the frames and engaging the end pieces.

7. In a device of the character specified, a plurality of connected panels, each comprising a frame, and end pieces, and means for detachably connecting the panels with the end pieces, said means comprising, angle plates fitting the corners of the frame, angle plates having one side secured to the end pieces, the other side engaging the adjacent angle plate of the frame, and a set screw extending through both angle plates.

8. In a device of the character specified, a plurality of connected panels, means for reversing the upper panel at regular intervals for the purpose specified, rollers extending from the ends of the lower panels, a cable supported adjacent to the ends of the panels and with which the adjacent rollers engage, a spring interposed in each cable, and means for adjusting the tension of the spring.

9. In a device of the character specified, a plurality of connected panels, means for reversing the upper panel at regular intervals for the purpose specified, rollers extending from the ends of the lower panels, a cable supported adjacent to the ends of the panels and with which the adjacent rollers engage, and a spring interposed in each cable.

10. In a device of the character specified, a plurality of connected panels, means for reversing the upper panel at regular intervals for the purpose specified, rollers extending from the ends of the lower panels, and

a cable supported adjacent to the ends of the panels and with which the adjacent rollers engage.

11. In a device of the character specified, a plurality of connected panels, means for reversing the upper panel at regular intervals for the purpose specified, guides at the ends of the panels, and means on the panels for slidably engaging the guides.

HARRY RICHARD KIESSIG.

Witnesses:
A. E. GRADY,
WM. E. KLEINSORGE.