June 16, 1931 J. C. HOUCK 1,810,606

ADVERTISING DEVICE

Filed Feb. 28, 1930 2 Sheets-Sheet 1

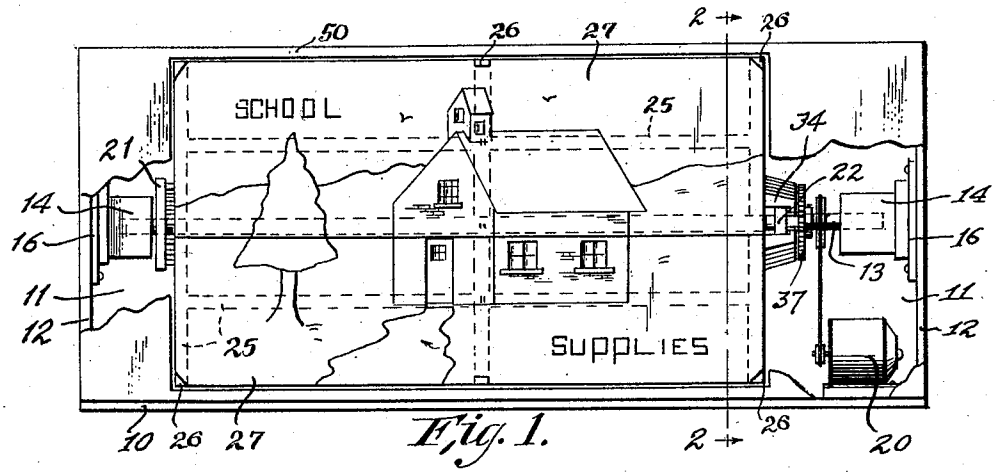


Fig. 1.

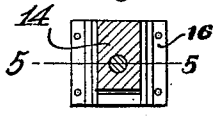


Fig. 4.



Fig. 5.

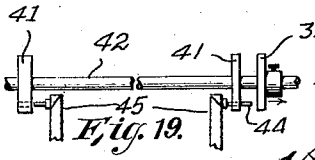


Fig. 19.

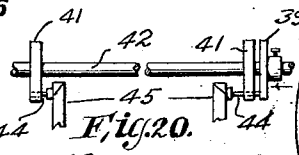


Fig. 20.

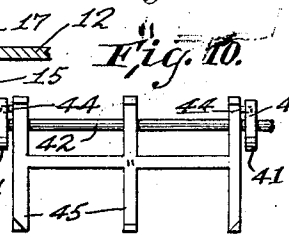


Fig. 10.

Fig. 2.

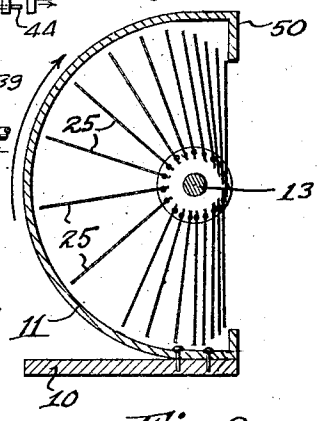


Fig. 9.

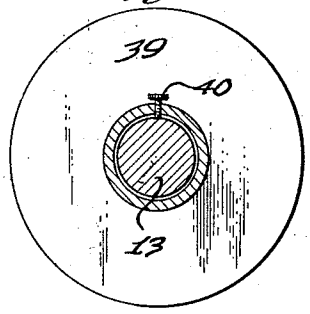


Fig. 3.

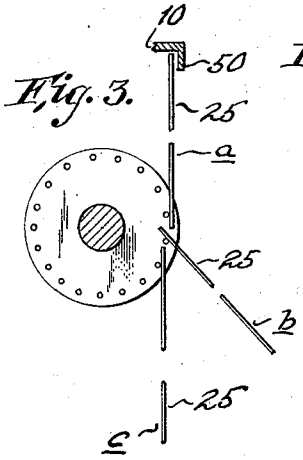
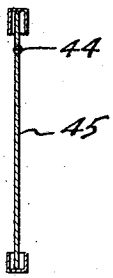


Fig. 11.



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June 16, 1931. J. C. HOUCK 1,810,606

ADVERTISING DEVICE

Filed Feb. 28, 1930 2 Sheets-Sheet 2

Fig. 6.

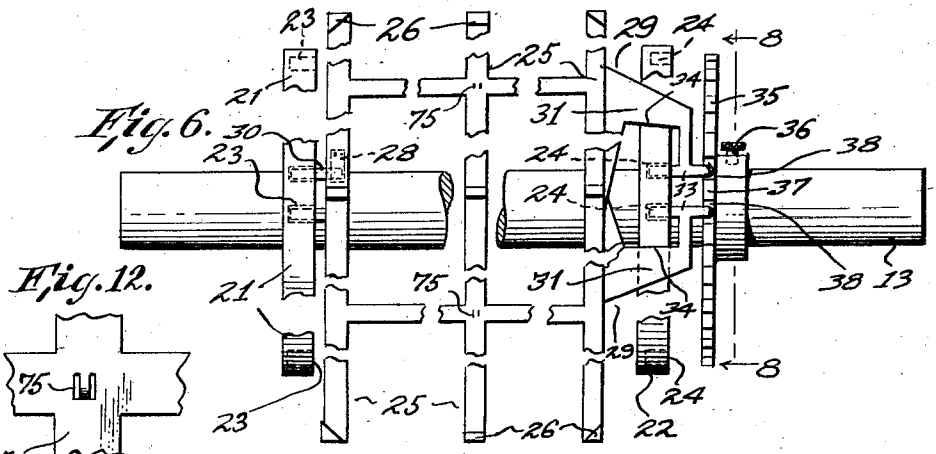


Fig. 12.

Fig. 7.

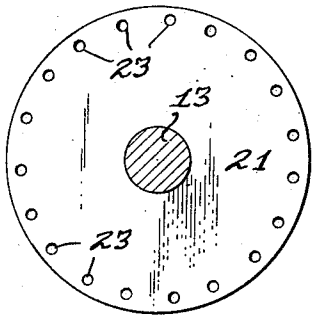


Fig. 17.

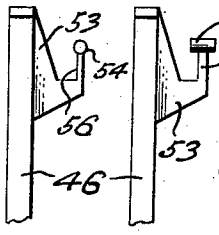


Fig. 18.

Fig. 8.

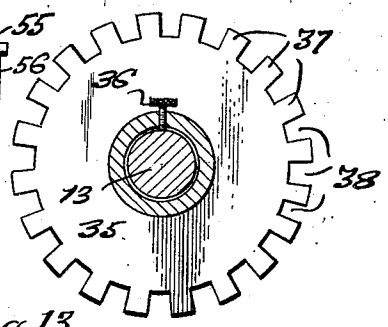


Fig. 14.

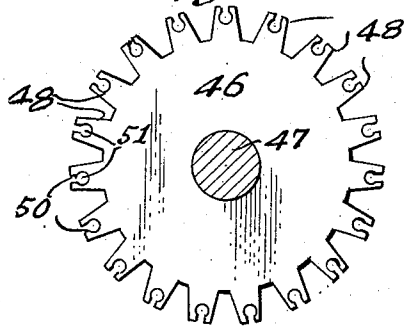


Fig. 13.

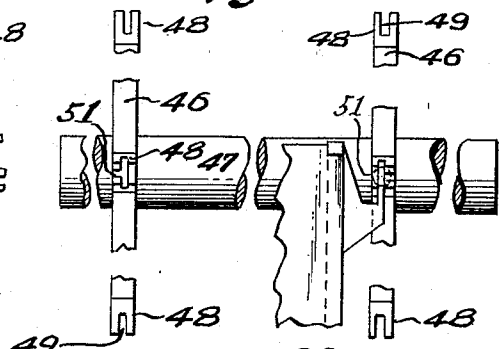


Fig. 15.

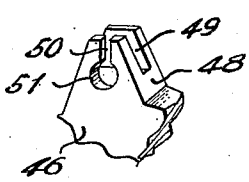
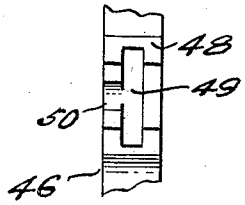


Fig. 16.



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Patented June 16, 1931 1,810,606

UNITED STATES PATENT OFFICE

JOSEPH C. HOUCK, OF LOS ANGELES, CALIFORNIA

ADVERTISING DEVICE

Application filed February 28, 1930. Serial No. 432,208.

This invention relates to improvements in an advertising device of that type in which a series of display cards are hinged at an edge to a carrier rotatably mounted in a casing provided with a display opening, a motor being provided for rotating the carrier so that the cards are successively displayed through the opening in the casing. Such devices are being used in passenger vehicles, particularly motor busses. When employed in motor busses, economy of space in the installation and operation of the device is a main requirement. To meet this requirement, the size of the equipment is curtailed to such an extent that the simultaneous display of two cards is necessary to provide sufficient space for the advertising matter. In many of the devices used for the purpose, when the two cards are displaced, there is an open space between the contiguous edges of the two cards. This break in the display surface mars the continuity of the display matter; particularly so, when the matter comprises a single picture or sign that extends over both cards.

One of the objects of this invention is to provide means for mounting the cards on the rotatable carrier so that a preceding card and a succeeding card are simultaneously presented in the same plane in the display opening of the casing with the inner edges of the two cards in overlapping relation. This overlap relation of the two cards, in appearance, provides an unbroken surface on which advertising matter can be displayed without showing a division of the same at the adjacent edges of the cards. By this arrangement a single picture, sign or label can be displayed on the two cards and have an unbroken appearance.

The invention also has for its object the provision of a frame in which cards can be readily mounted and replaced; and as another object, the provision of means whereby the card frames can be readily attached to and detached from the rotatable carrier. The foregoing and other objects are accomplished by the mechanism described in detail hereinafter and illustrated by the accompanying drawings.

In the accompanying drawings, in which similar reference characters designate corresponding parts,

Figure 1 is a front elevation, somewhat diagrammatic and partly broken away, of an advertising device embodying the invention.

Figure 2 is a cross-section, on the line 2—2 of Fig. 1.

Figure 3 is a diagrammatic view, showing one of the discs and several of the card frames hinged to the disc.

Figures 4 and 5 are detail sectional views of the bearing block for an end of the shaft and the mounting for the block, Fig. 5 being a section on 5—5 of Fig. 4.

Figure 6 is an enlarged detail view, broken away in part, of the supporting shaft and disc with two of the card frames hinged to the discs.

Figure 7 is a detail view, showing one of the supporting discs mounted on the shaft.

Figure 8 is a sectional view on the line 8—8 of Fig. 6, showing the plate for holding the card frames in engagement with the supporting discs.

Figure 9 is a similar view, showing a modified form of the holding plate.

Figure 10 is a detail view, showing one of the card frames having pintles engaging sockets in the inner opposite faces of the supporting discs.

Figure 11 is a cross-sectional view of the card frame shown in Fig. 10.

Figure 12 is an enlarged detail view, showing the central part of a card frame.

Figure 13 is a view similar to that shown in Fig. 6, showing a modification of the means for hinging a card frame to the supporting discs.

Figure 14 is a detail view of one of the discs shown in Fig. 13.

Figure 15 is a detail perspective view, showing one of the lugs of the disc shown in Fig. 13.

Figure 16 is a plan view of the lug shown in Fig. 15.

Figures 17 and 18 are detail views, showing pintles adapted to engage the sockets shown in Figs. 13–16.

Figures 19 and 20 are detail views showing

the modified form of holding plate of Figure 9 in two positions of adjustment.

Referring to the drawings in detail more particularly to Figs. 1–8, 10 designates the base-board for supporting the device, which can be secured by any suitable means to the frame of a vehicle in which the device is to be mounted. Secured on the base-board is the semi-cylindrical casing 11 with its ends closed by the sides 12; the open front of the casing provides the display opening to exhibit the advertising cards mounted therein. Mounted in the axial center of the casing is the horizontal shaft 13 with its ends journaled in the opposite bearing blocks 14 carried by the sides 12 of the casing. Each of the bearing blocks has opposite flanges 15 to fit a vertical guide-way 16 closed at its lower end and attached to the inner face of the plate 17 detachably secured on the inner face of the adjacent side 12 of the casing. The bearing blocks 14 are seated by gravity in their respective guide-ways 16 and by raising the blocks from their guide-ways the shaft 13 can be dismounted from the casing. On one end of the shaft 13 is the pulley 18 engaged by the belt 19 driven by the small electric motor 20, of well known type, mounted in an end of the casing 11 on the base thereof. The motor may have connection with the output circuit of the generator of the motor vehicle or with a suitable battery, neither of these connections is shown as they are of common practice. By means of the motor the shaft can be slowly rotated in a clockwise direction, as shown in Fig. 2.

Fixed on the ends of the shaft 13 are the opposite discs 21 and 22, respectively. In the inner face of the disc 21 is a circular series of horizontal sockets 23, extending part way through the disc adjacent to the periphery thereof and spaced at regular intervals apart. In the outer face of the disc 22 is a series of sockets 24 corresponding to the series in disc 21. The two discs are so fixed on the shaft that the sockets of one disc are horizontally alined with the sockets of the other disc. Each pair of alined sockets provide opposite bearings in which is pivoted a card-carrying frame 25.

Each card-carrying frame 25 is of a skeleton formation, generally rectangular in shape. On opposite faces of the frame are the clips 26 to engage the corners and edges of the display cards 27 placed on the opposite faces of the frame. In the central part of the frame are slots 75, (Fig. 12) through which a fastener is inserted and through the cards to hold the latter tightly to the frame at their central parts to prevent bulging of the same. At the corners of one of the longitudinal edge parts of the frame are the opposite brackets 28 and 29, respectively, riveted to the frame. The bracket 28 carries a horizontal pintle 30 journaled in one of the horizontal sockets or bearings 23 in the inner face of the disc 21. The bracket 29 includes an arm 31 that extends over the disc 22 and carries at its extremity a horizontal pintle 33 that is journaled in one of the horizontal sockets or bearings 24 in the outer face of the disc 22. The bracket 29 and the arm 31 are cut away, as at 34, to provide clearance for the disc 22 when the frame is turned on the pintles 30 and 33. The axial alinement of these pintles and their bearings is parallel with the axis of the shaft 13 and with the adjacent edge of the frame 25. The axial line of the pintles is a short distance inside of the adjacent edge of the frame and there is sufficient space between this axial line and the periphery of the shaft 13 to permit the turning movement of the inner part of the frame. The turning movement of the frame on its pintles is limited by the contact of the bracket arm 31 with the adjacent disc 22. The extension of the inner edge part of the frame, inside of the axial line of the pintles 30 and 33, provides for an overlap of cards carried by preceding and succeeding frames during their turning movement, as will be explained further on.

The discs 21 and 22, as shown in the drawings, have twenty pairs of alined sockets 23 and 24, and in each pair of sockets are journaled the pintles 30 and 33 of a card-carrying frame 25, so there are twenty of these frames mounted between these discs. The number of the frames can be varied to meet different requirements. By positioning the pintles to project in the same direction and forming the sockets in corresponding faces of the discs—the sockets 23 are in the inner face of the disc 21 and the sockets 24 are in the outer face of the disc 22—the frames can be readily mounted in place. The frames are held against accidental displacement from the discs 21 and 22 by the circular holding plate 35 mounted on the shaft 13 adjacent to the outer face of the disc 22. By means of the set-screw 36 passing through the hub of the holding plate to impinge on the shaft 13, the plate can be adjusted on the shaft. The diameter of the circular holding plate 35 is such that the plate projects over the outer ends of the pintles 33. In the periphery of the holding plate are the interspaced lugs 37 and notches 38, with a lug and notch for each of the pintles 33. With the several frames 25 hinged between the discs 21 and 22, by manipulating the set-screw 36 the holding plate 35 can be adjusted on the shaft 13 to position the lugs 37 opposite and in close proximity to the outer ends of the pintles 33. This position of the holding plate and its lugs prevents endwise movement of the frames to displace the pintles from their sockets. When it is desired to dismount the frames, the holding plate 35 is adjusted on the axle away

from the pintles 33, thereby permitting endwise movement of the frames to displace the pintles from their sockets to free the frames. Also, the holding plate 35 can be rotatably adjusted on the shaft so that the notches 38 register with the outer ends of the pintles 33. When the holding plate is so adjusted, if a frame is turned to a radial position with relation to the shaft 13, it can be moved endwise to displace its pintles from their sockets, the outer end of the pintle 33 entering the opposite notch 38 in the holding plate permits this movement of the frame.

While the holding plate 35 with the inter-spaced lugs and notches on its periphery is the preferred construction of this member, yet for ordinary purposes a plain circular plate 39 may be employed, as shown in Fig. 9. This plate 39 is without lugs or notches in its periphery. By means of the set-screw 40 this plate can be adjusted on the shaft 13 to abut the outer ends of the pintles 33 to hold the latter against displacement from their sockets, or the plate can be adjusted on the shaft away from the pintles to free the frames. When the plate is adjusted away from the pintles, all of the frames are released and on the removal of a particular frame, some of the others may be accidentally displaced. With the lug and notch construction, with the holding plate rotatably adjusted on the shaft with the notches registering with the pintles 33, a particular frame cannot be displaced until it is turned to a radial position; the other frames, not being in radial positions, could not be accidentally displaced.

Other means may be employed for hinging the card frames to the supporting discs. Referring to Figs. 10 and 11, the supporting discs 41 are fixed on the main shaft 42, similar to the previously described shaft 13. In the inner face of each disc 41 is a series of sockets 43, similar to the sockets in the previously described disc 21, as shown in Fig. 7. The opposite sockets of the two discs form alined bearings for the pintles 44 of a series of card frames 45, only one of which is shown. The pintles project from opposite corners of the frame and their axis is parallel to the adjacent edge of frame, but somewhat inside of the same. This arrangement of the pintle axis provides for the overlap of preceding and succeeding cards when they are vertically positioned before the display opening in the casing. In this instance the card frame 45 is formed of resilient metal so that it can be buckled to spring the pintles into their respective bearings in the opposite discs. The card frame may be formed of stiff material and to permit the mounting of the same between the supporting discs 41, one of the latter may be provided with a hub and set-screw, the same as the holding plates shown in Figs. 8 and 9. By adjusting a disc so provided on the shaft 42, a frame of stiff material, with the pintles positioned as shown in Fig. 10, can be readily mounted between the discs.

In Figs. 13–18, other means are illustrated for mounting the card frames on the supporting discs. In this instance the discs 46 are fixed on the shaft 47, as in the first instance. Projecting from the periphery of each of the discs 46 is a series of radial lugs 48 evenly spaced apart. In the outer part of each lug is the longitudinal slot 49 intercepted by the transverse slot 50, the inner part of the latter being enlarged to form a rounded socket 51 extending into the lug past the longitudinal slot 49. Secured to opposite corners of the card frame 52 are the brackets 53 (only one is shown) carrying at their extremities balls 54, as shown in Fig. 17, or cylinders 55, as shown in Fig. 18. These bearing members, 54 or 55, are adapted to enter the sockets 51 of the lugs 48 of the discs 46. It is to be observed that these sockets open on the same side of the discs, the inner side of one and the outer side of the other. In mounting the card frame 52 on the discs 46, the former is positioned so that the bearing members, 54 or 55, partly enter the sockets 51 in opposite lugs 48 of the discs. The frame is then turned to a radial position with relation to the discs so that the shanks 56, connecting the bearing members with the brackets 53, register with the contracted outer parts of the transverse slots 50. With the shanks in this position, the bearing members can be moved into their respective sockets. So positioned, the shanks 56 register with the longitudinal slots 49 and the frame can be oscillated. This oscillatory movement of the frame is limited by the brackets 53 striking the lugs on the peripheries of the discs as the frame is swung back and forth. In this instance, the inner part of the card frame projects somewhat inside of the axial line of the bearing members, 54 or 55, and this provides for the overlap of preceding and succeeding cards as the shaft 47 is rotated, the same as in the previous instances.

In the operation of the display device, the cards having the advertising matter are mounted in the frame 25, which has been detached from the machine. In each frame are mounted two cards back to back. Each card having shown a part of the display matter, the cards being arranged so that when a pendant card and the preceding upright card are presented in overlapping relation in front of the casing opening the display matter on the exposed face of one card will complement the display matter on the exposed face of the other card. As the exposed card faces overlap, the matter can be displayed on an apparently unbroken surface. The shaft 13 is slowly rotated in the direction of the arrow shown on Fig. 2, to

sweep across the detent 50 at the upper part of the casing 11. Owing to the engagement of the brackets 29 with the periphery of the disc 22, the card frames 25 are maintained somewhat loosely in a radial position with relation to the shaft 13. As the card frames revolve around the axis of the shaft, their outer edge parts are engaged by the detent 50 and the foremost upright card is temporarily held in this position, as shown at *a* in Fig. 3. While the foremost upright card frame is so held, the preceding frame, having passed the detent, falls to the position *b*. As the shaft continues to rotate the displaced frame is turned to a pendent position, closely approaching the position *c*. With the upright and pendent frames in the positions thus indicated, they will overlap at their inner edges as shown in Figs. 1 and 2 and with the display matter of the two exposed cards registering in complementary relation. As the shaft continues to turn the succeeding cards will be likewise displayed.

What I claim is:

1. In an advertising device, the combination of a casing provided with a display opening, with a horizontal shaft journaled in the casing, opposite discs fixed on the shaft, a plurality of frames pivotally mounted between the discs with each frame carrying display cards on its opposite faces, means for rotating the shaft to turn the frames to register the cards successively with the display opening in the casing, a detent positioned in the upper part of the casing to engage the free ends of the frames turned to upright position to maintain temporarily the foremost upright frame in approximately the same plane as the preceding pendent frame before the casing opening, the pivotal mounting of the two frames on the discs providing an overlap of the inner edges of the frames so that the two cards presented by said frames complement each other to form an unbroken surface before the casing opening.

2. In an advertising device, the combination of a shaft with opposite discs fixed on the shaft having axially alined sockets parallel to and spaced from the shaft and with the sockets opening on the same side of both discs, a card frame positioned between the discs with an inner edge parallel to the shaft, and pintles mounted on opposite ends of the card frame to project in the same direction and journaled in the disc sockets, the pintles being alined inside of the inner edge of the card frame to provide an inward projection of the frame inside of the axial alinement of the pintles.

3. In an advertising device, the combination of a shaft with opposite discs fixed on the shaft having axially alined sockets parallel to and spaced from the shaft and with the sockets opening on the same side of both discs, a card frame positioned between the discs with an inner edge parallel to the shaft, pintles mounted on opposite ends of the card frame to project in the same direction and journaled in the disc sockets, the pintles being alined inside of the inner edge of the card frame to provide an inward projection of the frame inside of the axial alinement of the pintles, and means for maintaining the pintles in engagement with the sockets during the rotation of the shaft and the turning of the card frame.

4. In an advertising device, the combination of a shaft with opposite discs fixed on the shaft having axially alined sockets parallel to and spaced from the shaft and with the sockets opening on the same side of both discs, a card frame positioned between the discs with an inner edge parallel to the shaft, pintles mounted on opposite ends of the card frame to project in the same direction and journaled in the disc sockets, the pintles being alined inside of the inner edge of the card frame to provide an inward projection of the frame inside of the axial alinement of the pintles, and means adjustable on the shaft for engaging the pintle at one end of the frame to prevent endwise movement of the frame to displace the pintles from the disc sockets.

5. In an advertising device, the combination of a shaft with opposite discs fixed on the shaft having axially alined sockets parallel to and spaced from the shaft and with the sockets opening on the same side of both discs, a card frame positioned between the discs with an inner edge parallel to the shaft, pintles mounted on opposite ends of the card frame to project in the same direction and journaled in the disc sockets, the pintles being alined inside of the inner edge of the card frame to provide an inward projection of the frame inside of the axial alinement of the pintles, a circular plate having a hub slidable on the shaft, and a set-screw extending through the hub to impinge on the shaft, said plate being adjustable on the shaft to engage one of the pintles to hold the frame against endwise movement to displace the pintles from the sockets.

6. In an advertising device, the combination of a shaft, opposite discs fixed on the shaft having axially alined sockets parallel and spaced from the shaft and with the sockets opening on the same side of both discs, a card frame positioned between the discs with an inner edge parallel to the shaft, pintles mounted on opposite ends of the card frame to project in the same direction and journaled in the disc sockets with one of the pintles having an extension, a circular plate adjustably mounted on the shaft having at its periphery a recess and a radial lug to register with the pintle extension when the plate is turned for the purpose, said plate being adjustable on the shaft to position the

radial lug opposite to the pintle extension to prevent withdrawal of the pintles from their sockets and said plate being also adjustable on the shaft to position the peripheral recess opposite to the pintle extension to permit the withdrawal of the pintles from their sockets to dismount the frame from the discs.

7. In an advertising device, the combination of a shaft, with opposite discs fixed on the shaft having axially alined sockets parallel to and spaced from the shaft and with the sockets opening on the same side of both discs, a card frame positioned between the discs with an inner edge parallel to the shaft, a pintle on one end of the frame and journaled in the socket of the adjacent disc, a bracket fixed on the other end of the frame and extending over the adjacent disc, a second pintle on the bracket and journaled in the socket of the adjacent disc, said bracket being radially spaced from the periphery of the adjacent disc to permit a limited swinging movement of the frame on its pintles as the shaft is rotated.

In testimony whereof I affix my signature.

JOSEPH C. HOUCK.