April 8, 1930. B. HOETGER 1,753,203

ADVERTISING DEVICE

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Fig. 1.

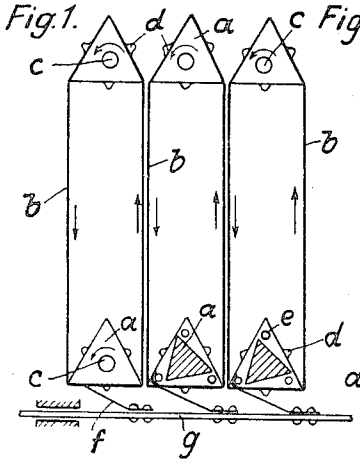


Fig. 2.

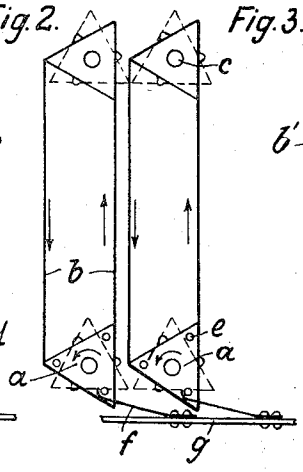


Fig. 3.

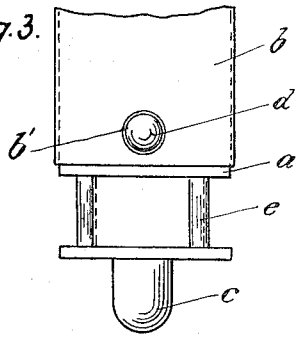


Fig. 4.

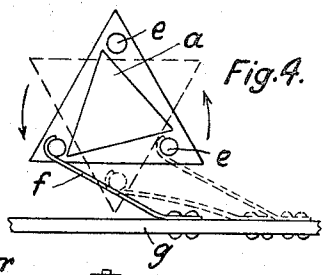


Fig. 5.

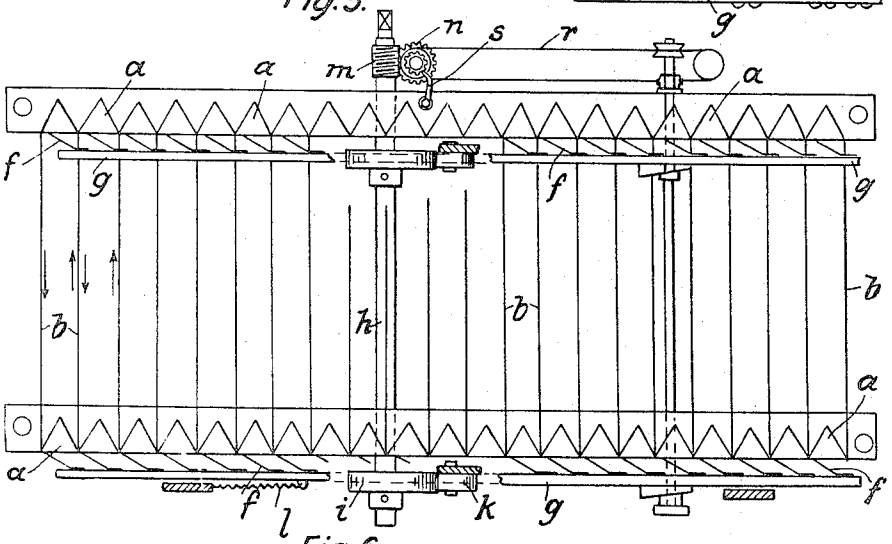
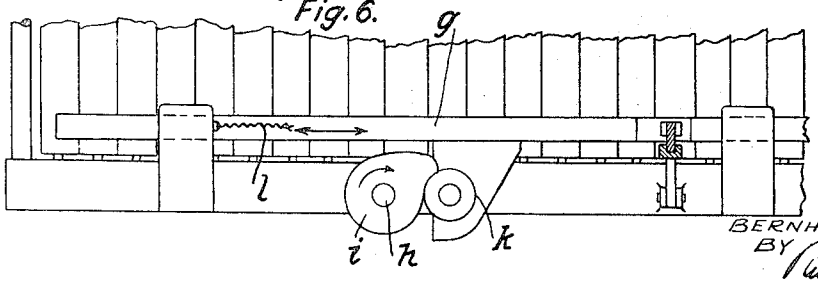


Fig. 6.



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Fig. 7.

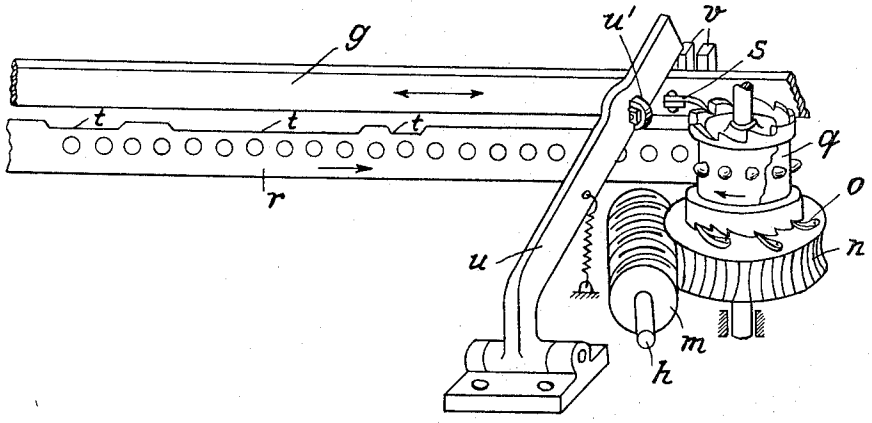
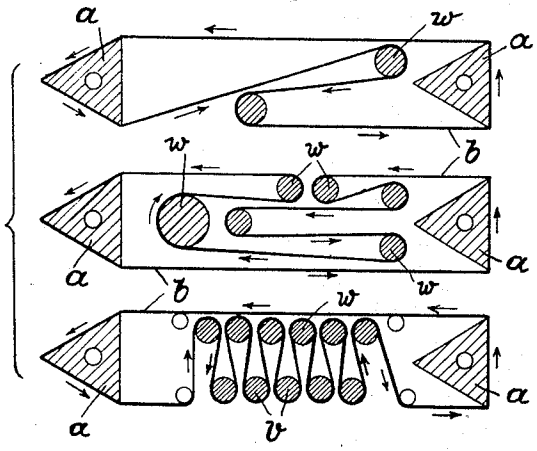


Fig. 8.



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Patented Apr. 8, 1930 1,753,203

UNITED STATES PATENT OFFICE

BERNHARD HOETGER, OF WORPSWEDE, NEAR BREMEN, GERMANY

ADVERTISING DEVICE

Application filed March 15, 1929, Serial No. 347,250, and in Germany January 23, 1929.

This invention relates to advertising devices consisting of a number of cooperative units and of the kind in which endless bands or belts carrying suitable advertising or other display matter are moved over turnable slats, bars or the like. One object of the invention is the provision of devices of the said kind which will enable the employment of display bands with plastic designs and their undisturbed passage between the slats when changing from one display to the next, and to yet present a continuously even advertising surface. With the hitherto known arrangements of the slats this was not possible, because they had to be so wide apart from each other as to leave sufficient space for the plastic material on the bands to pass between them.

The invention removes these and other drawbacks by designing the said slats, bars or other turning members so that, during their turning movement, they recede from each other and thus provide ample space for the display bands to pass. To achieve this purpose, the said slats, bars or the like are made of preferable equilateral triangular cross section; their sides, when in the display position, present an unbroken even surface, while the corners recede when being turned.

Further objects of the invention are the provision of special driving means for voluntarily displaying some advertisements for a longer or shorter period than others, and of suitable means for keeping the length of the apparatus short in comparison with the length of the display bands which, hereafter, will be referred to as aprons.

The invention will best be understood by reference to the accompanying drawings, which illustrate the improved advertising device by way of example in a somewhat diagrammatic manner.

Fig. 1 shows several units of the apparatus in cross section and in position of display.

Fig. 2 are two units in an intermediate position during their turning movement.

Fig. 3 illustrates a plan view of the end of one of the slats.

Fig. 4 is an end view of one of the slats showing the shifting means.

Fig. 5 represents a plan view of the whole apparatus.

Fig. 6 is a front elevation of Fig. 5 partly broken away.

Fig. 7 shows in perspective view the means for intermittently driving the device.

Fig. 8 illustrates several ways of guiding the aprons.

In these drawings *a* are the slats over which the aprons *b* bearing the advertising or other display matter are guided. As will be seen, they are constituted by strips of equilateral triangular cross section and are adapted to turn all in the same sense of rotation about their axes *c*. The corners of the triangles, i. e. the edges of the slats are preferably rounded, and at their sides the said triangular slats are provided with pins *d* adapted to register with corresponding eyes *b'* in the aprons *b* and to thus ensure a regular displacement of the aprons during the turning movement of the slats. Fig. 2 shows that during this turning movement comparatively broad interspaces are formed between each two adjacent slats, in which the aprons can undisturbedly pass each other even if provided with applications of plastic material. In their displaying position the said slats form a practically unbroken surface and the displayed advertisements, or other scriptive or design matter appears as if formed of one continuous sheet. However, if preferred the arrangement, of course, may be such that the slats are positioned at an angle to each other.

Changing the displayed matter is effected by turning the slats *a* through 120° on their pivots *c*, and the representation on the aprons must consequently comply with the amount of movement. The change is carried out in the following manner: The slats *a*, or separate turning pieces which may be arranged in connection therewith, are provided with catch pins *e* at the points of their triangles which catch pins are adapted to engage with the hooked ends of springs *f*. With their other ends these springs are fastened to bars *g* which by means of suitable driving mechanisms are reciprocated in a lengthwise direction and thereby cause the said springs to turn the slats by their hooked ends catching

under the pins *a* and exerting a pulling force upon same. During the first part of this movement the springs are placed under tension by being pressed against the bars *g* as shown by the broken lines in Fig. 4. When the slats have been rotated to such an extent that the engaged pins pass their dead center positions, which are approximately their lowermost positions, the springs *f* spring back to their initial positions and, in so doing, push the pins before them, so that the slats are quickly rotated to their end position in which the partial rotation of 120° is completed.

The arrangement for driving the shift bar *g* may be gathered from Figs. 5 and 6 according to which figures *h* is the driving shaft to which continuous rotation is imparted by any known or convenient means. Upon this shaft *h* is arranged a cam *i* which, during each rotation, strikes against an abutment arm and roller *k* of the shift bar *g*, thereby moving the same to the right in Fig. 6. After the cam has passed the roller the bar is returned by the tension spring *l*. Obviously the speed of the reciprocal movement of the bar *g* may be regulated as for example from the main driving shaft, or by suitably designing the cam *i* which, preferably, is arranged so as to permit of its easy exchange, in which way the periods of alternation in the display may be changed without the necessity of altering the driving speed of the apparatus. The drive of the apron rollers may be effected by means of any known or convenient arrangements such as chains or steel bands for example. By the suitable arrangement of screens, encasings or the like care may be taken that the appearance of the effective advertising surface of the apparatus will not be disturbed by the driving mechanism.

In order to effect interruptions of any desired length in the alternating changes of display, the following arrangement is provided: A worm *m* is keyed to the driving shaft *h* and is adapted to cooperate with a worm wheel *n* (Figs. 5 and 7). This worm wheel *n* turns a peg wheel *q* by means of interposed pawls *o* which wheel *q*, therefore, is able to move in one direction only. A steel band, serving as a timing band, *r*, with equally disposed perforations is adapted to move over the said peg wheel *q* which, by means of a pawl *s*, is advanced independently of the worm wheel *q* and relatively thereto whenever a change in the display is to take place and thereby causes a more rapid displacement of the timing band *r*. The said pawl *s* may be in working connection with any desired part of the driving means; in the arrangement shown it is moved by the shift bar *g*. The steel or timing band *r* is provided at one of its edges with recesses *t* of various lengths according to the period each display is desired to be maintained in visible position on the slats. There is further provided a spring-controlled lever *u* which, by means of an anti-friction roller *u'* bears upon the upper edge of the timing band *r*. If now one of the recesses moves underneath the lever *u* or its roller *u'*, the said lever falls under the action of its spring and, at the same time, engages with the catch *v* fixed to the casing or other stationary part, thus preventing the bar *g* from continuing its movement, and also preventing the pawl *s* from exerting its driving influence upon the wheel *q*. In consequence, the rotation of the wheel *q* and the advance of the timing band *r* can now continue only at the rate determined by the rotating worm gear until, at the end of the respective recess, the lever *u* is lifted again by travelling up the incline. Hereby the shift bar *g* becomes unlocked and a change in the display is able to take place by the leaf springs *f* now turning the slats in the manner already described.

Fig. 8 illustrates some examples showing how the aprons may be guided within the units to reduce the length of the apparatus in spite of the comparatively great length of the aprons contained therein. That is to say, the distance between the two slats in every unit will be short and yet long display bands or aprons may be used. This is made possible by provision of the intermediate guide rollers *w* over which the aprons are lead in any desired manner or arrangement.

Obviously the subject matter of the invention may be varied in many ways without thereby departing from the spirit of the invention.

What I claim is:—

1. In an advertising device consisting of a number of cooperative units, each unit comprising a turnable slat of triangular cross section at each of its ends, turning pivots for the said slats, an apron carrying advertising matter passing over said slats, catch pins carried at the ends of the slats near the points of the triangular cross section, a resilient member having a hooked end to grip and move said catch pins, and means to move said resilient member so as to turn said slats and thereby advance the apron upon the slats by another step.

2. In an advertising device consisting of a number of cocperating units, each unit comprising a turnable slat of equilateral triangular cross section at each of its ends, turning pivots for the said slats, an apron bearing advertising matter passing over said slats, catch pins at the ends of said slats near the points of the triangular cross section, a leaf spring having a hooked end to grip and move said catch pins, a bar upon which the springs of all the units are mounted, and means to reciprocate said bar so that during the first part of the movement the springs are depressed while, during the second part,

the accumulated force in the springs will fling the slats and therewith the aprons into the next advertising position.

3. An advertising device comprising a number of cooperative aprons bearing advertising matter, turnable slats of equilateral triangular cross section over which said aprons are adapted to move, means to turn said slats comprising catch pins on the slats and hooked leaf springs to engage the catch pins, a bar upon which the springs are mounted, an arm protruding from said bar and a spring tending to keep the bar in one position, a driving shaft, and a cam on said driving shaft for engagement with said arm of the spring supporting bar.

4. An advertising device comprising a number of cooperative aprons bearing advertising matter, turnable slats of equilateral triangular cross section arranged in pairs and over which said aprons are adapted to move, means to turn said slats comprising catch pins at the end of the slats and hooked leaf springs to engage with and move said catch pins, a bar on which the springs are mounted, an arm carrying a roller protruding from said bar, and an exchangeable cam on a driving shaft adapted to engage with the arm of the spring supporting bar thereby reciprocating same so as to cause the hooked leaf springs intermittently to turn the said slats.

5. In an advertising device, a number of advertising units each comprising two turnable slats spaced apart and of triangular cross section, an apron bearing advertising matter adapted to move over said slats when same are being turned, reciprocating means intermittently to turn said slats, and means to vary the length of the periods during which the apparatus is in display position.

6. In an advertising device, a number of advertising units, two turnable slats spaced apart and an apron bearing advertising matter in each unit, resilient means to turn the said slats so as to move the apron, said means including a reciprocating push bar, a timing band, perforations in said timing band, a peg wheel to engage the perforations and move said timing band, recesses along one of the edges of the timing band, and a locking lever adapted to engage said recesses and thereby to temporarily stop the shifting mechanism of the push bar, and a continuously rotating member to continue the rotation of the peg wheel and the movement of the timing band.

7. In an advertising device, a number of advertising units, two turnable slats spaced apart and an apron bearing advertising matter in each unit, resilient means to turn the said slats so as to move the apron, said means including a reciprocating push bar, a timing band, perforations in said timing band, a peg wheel to engage the perforations and move said timing band, recesses along one of the edges of the timing band, a locking lever adapted to engage the recesses and thereby temporarily stop the shifting mechanism of the push bar, a worm and worm wheel arrangement adapted to turn the peg wheel also during the periods of rest of the said shifting mechanism.

8. In an advertising device a number of advertising units each comprising two turnable slats spaced apart and of triangular cross section, an apron bearing advertising matter and a number of guide rolls between the two slats, said apron adapted to move over said slats and to be guided loop-fashion over said guide rolls, reciprocating means to intermittently turn said slats, and continuously moving means to vary the length of the periods during which the aprons are in their position of display.

In testimony whereof I affix my signature.

BERNHARD HOETGER.