Nov. 2, 1926. 1,605,833

G. GEE

ADVERTISING DEVICE

Filed Jan. 15. 1924 2 Sheets-Sheet 1

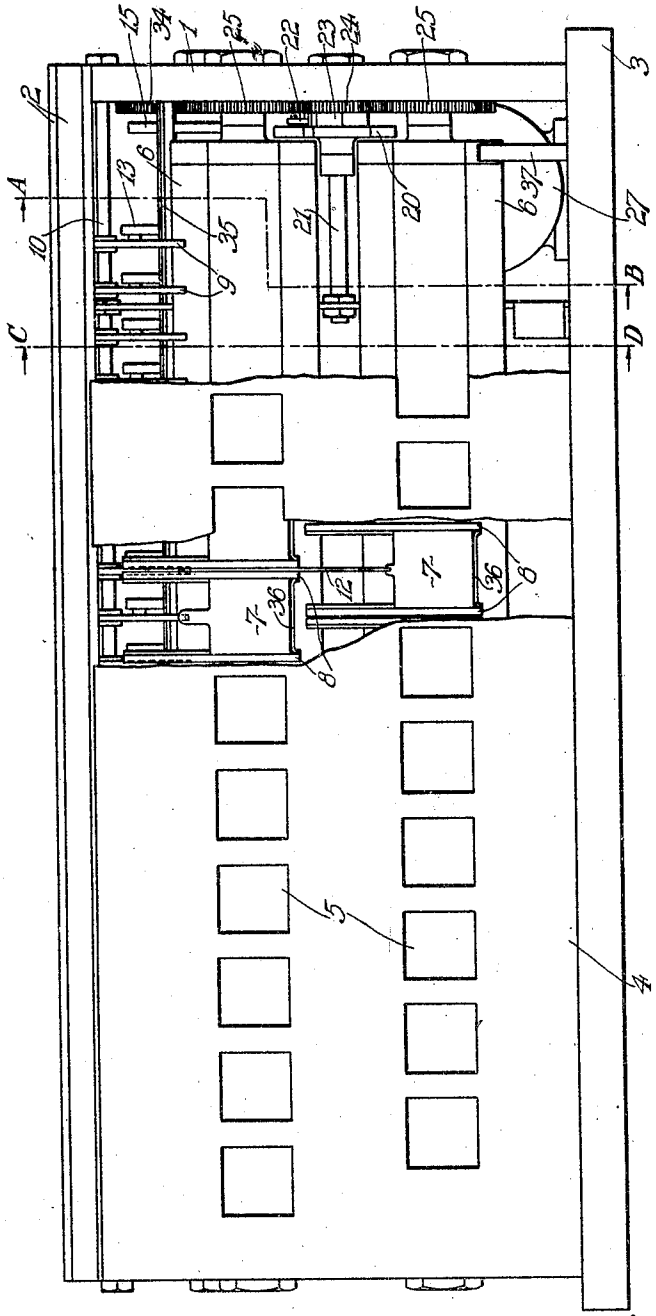

Fig. 1

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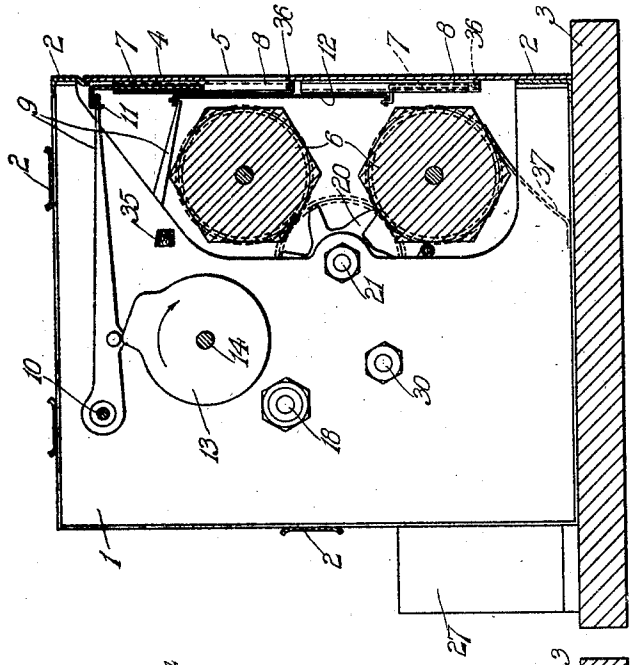

Fig. 3.

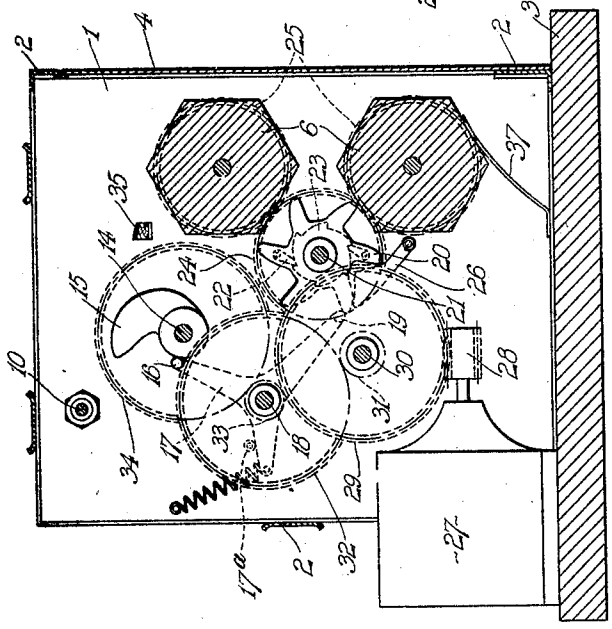

Fig. 2.

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Patented Nov. 2, 1926. 1,605,833

UNITED STATES PATENT OFFICE.

GOVAN GEE, OF LONDON, ENGLAND.

ADVERTISING DEVICE.

Application filed January 15, 1924, Serial No. 686,387, and in Great Britain January 20, 1923.

This invention relates to advertising devices of the kind in which wording or a device forming an advertisement for display in shops or upon buildings and the like is revealed gradually to the observer by a step-by-step movement, and has particular although not exclusive reference to those in which advertisements consisting of wording are spelled out letter by letter.

The object of the present invention is to provide an advertising device of the above kind which is visible in the day time and which can also, if desired, be used for night displays. In devices of the above kind ordinarily employed the lettering or device to be displayed is formed by electric lamps and can only be used conveniently at night. The present invention, however, possesses the advantage that it is easily visible at day time.

According to the invention an advertising device is provided wherein a word, group of words, or series of devices are revealed in successive sections by step-by-step movements of a screening element or elements. Preferably, the advertisement when completely revealed by step-by-step movements, is completely screened in one movement and a series of advertisements may be employed, successive members of which are brought into position for display during the intervals of complete screening after each cycle of step-by-step revealments.

According to the preferred form of the invention a number of successively operated shutters reveal the advertisement in stages and also operate simultaneously to obscure the advertisement when completely revealed, such shutters being operated by cam-actuated levers.

A preferred form of the invention will now be particularly described with reference to the accompanying drawings in which:—

Figure 1 is a front elevation of the device with the face plate partly broken away and with some of the shutters removed,

Figure 2 is a section on the line A—B of Figure 1, and

Figure 3 is a section on the line C—D of Figure 1.

The apparatus comprises suitable sheet metal or other frames 1 connected together by longitudinal strips 2 and mounted upon a base 3 adapted also to support a suitable enclosing casing (not shown).

A sheet metal or other suitable face-plate 4 secured to the frames 1 is formed with windows or apertures 5 adapted to expose letters disposed on the sides of hexagonal rollers 6. These apertures are normally obscured by shutters 7 mounted in vertical guides 8 on the inside of the face-plate 4 and adapted to be lifted clear of the apertures 5 by means of levers 9 mounted on a common longitudinal fixed shaft 10 supported by the frames 1. As shown in the drawings the apertures 5 are disposed in two rows and the shutters 7 of the upper row are formed with lugs 11 having apertures in which the tips of the levers 9 engage (Figure 3) whilst the shutters 7 of the lower row are connected to the corresponding levers 9 by means of pivotal connections 12.

The levers are actuated by cam discs 13 fast on a common shaft 14 mounted in bearings in the frames 1. These cam discs are so formed that, upon continuous rotation of the cam shaft 14, the shutters 7 are lifted one by one until all the words on the faces for the time being in use of the rollers 6 have been spelled out, and are then closed simultaneously.

The cam shaft 14 also carries a cam 15 engaging a pin 16 on one end of a spring-loaded bell crank lever 17 mounted to rock on a rotatable shaft 18. The other end of the bell crank lever 17 has a pin 19 adapted to engage the teeth of a star wheel 20 mounted to rotate upon a fixed shaft 21.

The star wheel 20 has six teeth and carries a pair of pawls 22 engaging a ratchet wheel 23 formed on or secured to the boss of a spur wheel 24 also mounted to rotate on the shaft 21 and meshing with spur wheels 25 fast on the shafts of the rollers 6.

The star wheel 20 is yieldably held in any one of six defined positions by means of a spring-urged pawl 26 mounted on a stub shaft on the end frame 1 and shaped as shown so that it will allow the star wheel to rotate in either direction but will tend to rotate it into a position in which the pawl 26 is most deeply engaged between a pair of teeth of the star wheel. The spur wheels 24 and 25 are set in such relative positions that when the star wheel 23 is in one of the positions into which it is urged by the pawl 26, and the pawls 22 are in engagement with the radial sides of the teeth of the ratchet wheel 23, the rollers 6 are both in such a position that one of their six sides is parallel to the face-plate 4.

The cam shaft 14 is adapted to be con-

tinuously rotated in the direction of the arrow (Figure 3) by an electric motor 27 mounted on the base 3. A worm 28 on the armature shaft of the motor 27 engages a worm wheel 29 mounted on a fixed shaft 30 and integral with or secured to a pinion 31 meshing with a spur wheel 32 fast on the shaft 18. The shaft 18 carries a fast pinion 33 meshing with a spur wheel 34 fast on the cam shaft 14.

In order to render the apparatus silent in action, I prefer to provide a cushioning stop bar 35 for the levers 9. This bar, which may be of wood, has a piece of felt upon its upper surface to receive the levers 9. Bow-shaped spring wire buffers 36 are also preferably provided for cushioning the fall of the shutters 7. A suitable cushioning stop 17^a may also be provided for the lever 17.

The operation of the apparatus is as follows:—

The motor 27 through the gearing 28, 29, 31, 32, 33, 34, drives the cam shaft 14 continuously in the direction of the arrow (Figure 3.) As the cam discs 13 rotate, the levers 9 are lifted one by one so that the shutters 7 are consecutively lifted and the wording on those faces of the rollers 6 for the time being in use is spelled out one letter at a time.

During this operation the cam 15 also rotates, and rocks the lever 17 against the action of its spring. Towards the end of this movement, the pin 19 of the lever 17 engages one of the teeth of the star wheel and rotates it momentarily in a clockwise direction (Figure 2) against the action of the spring pawl 26. When the pin 19 has passed the tooth, the star wheel is returned to its original position by the pawl 26 and is then ready to be engaged by the pin 19 upon the return movement of the lever 17. After all the shutters 7 have been lifted the levers 9 and 17 are simultaneously allowed to resume their original positions, the levers 9 moving under the action of gravity whilst the lever 17 is moved by its spring. The shutters 7 are therefore closed simultaneously, and at the same time the star wheel 20 is rotated by the lever 17 through the space of one tooth. This rotates the rollers 6 through the pawls 22, ratchet wheel 23 and spur wheels 24 and 25 so that fresh sides of the rollers 6 bearing a fresh group of words are brought into position behind the apertures 5. The continued rotation of the shaft 14 causes the shutters to be again lifted one by one, so that the fresh wording is spelled out as before, the cycle of operations being repeated automatically so that the six separate sets of wording on the six sides of the rollers 6 continue to be successively spelled out as long as the apparatus is in operation.

In order to counteract any tendency of the rollers 6 to rotate beyond their proper positions when actuated by the star wheel 20, I prefer to provide braking devices in the form of blade springs 37 engaging one of the rollers 6 at each end.

It will be understood that various modifications could be made in the construction above described without departing from the spirit of the invention.

I claim:—

1. In apparatus of the class described a displaying roller mounted for rotation, a shaft geared to said roller, a star wheel mounted on said shaft for step by step rotation in one direction, a spring urged pawl engaged with the star wheel and arranged to prevent casual rotation of the said star wheel, shaft and roller and hold the latter with a localized portion of its surface displayed, a movable shutter, a lever connected to said shutter, a shaft having a cam to raise and drop said lever, a lever to impart step by step motion to said star wheel, and a cam on said cam shaft to actuate said lever.

2. In apparatus of the class described, a plurality of display rollers, a shaft geared to said rollers, a star wheel mounted on said shaft for step by step rotation in one direction, a plurality of movable shutters, a plurality of levers, each connected to one of said shutters, a shaft having a plurality of cams to raise and drop said levers, said cams being arranged to cause the levers to successively open the shutters and then simultaneously close the shutters, a lever to impart step by step motion to said star wheel, and a cam on said cam shaft to actuate said lever.

In witness whereof I affix my signature.

GOVAN GEE.