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DISPLAY DEVICE

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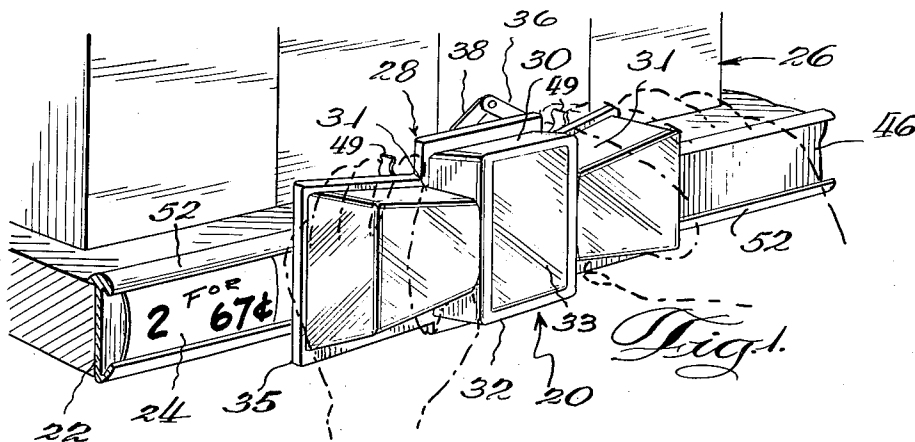
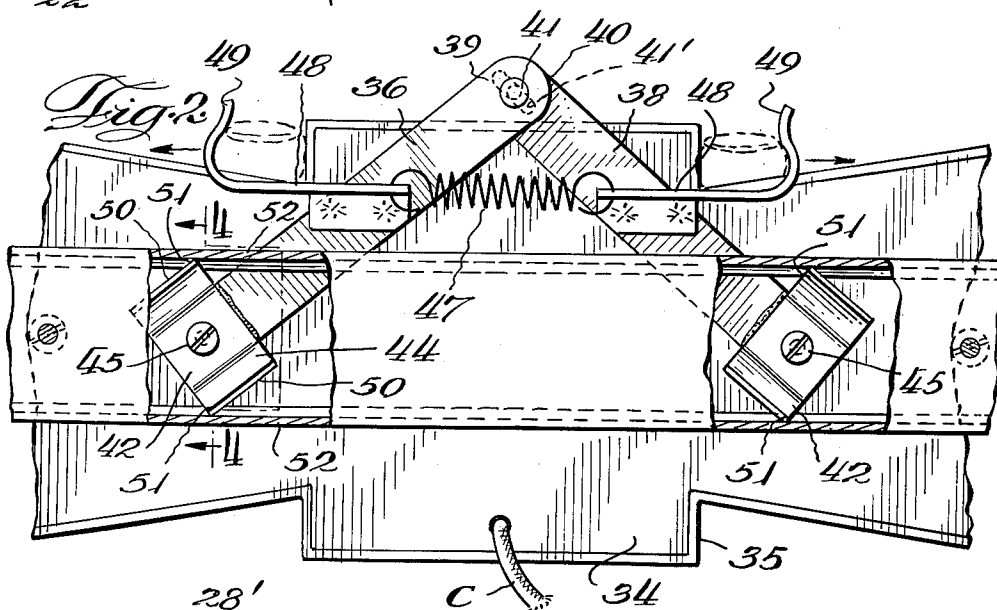
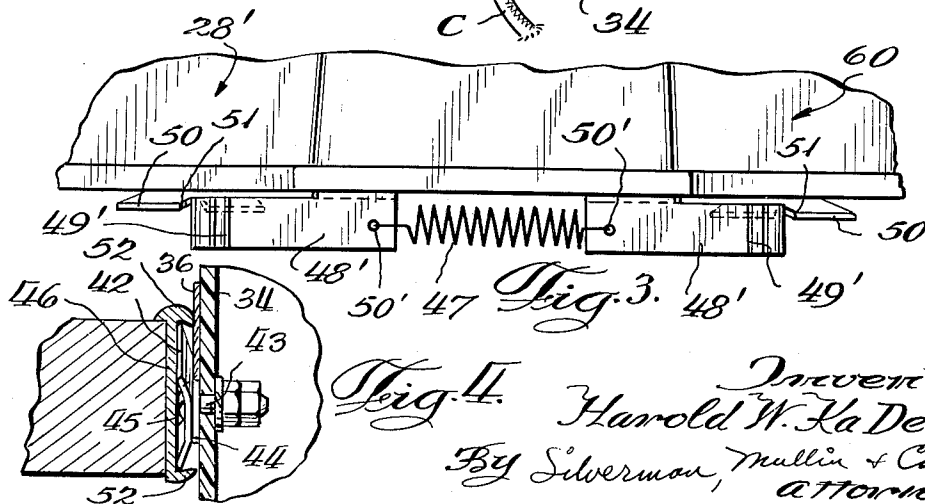


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DISPLAY DEVICE

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This invention relates generally to advertising display devices and more particularly, to a novel construction for such a display device which enables same to be readily installed and replaced as a unit without disturbing the operating components thereof.

Although not necessarily limited thereto, the invention is especially useful for installation or support of the operating components of a light flashing system intended for use in advertising products. Such a system is described and claimed in my co-pending application, Serial No. 833,015, filed August 11, 1959 for the invention entitled Light Flashing Device. The invention of said co-pending application contemplated a compact, economical electrical circuit for attracting the attention of a purchaser in a retail establishment to a product by means of flashing lights. Thus, the light flashing device of said application was especially effective for use in large stores, for instance, where there are a myriad of products on display and the competition between products for the attention of buyers is strong. In order to retain the effectiveness of such an advertising display device, it is desirable to frequently change the character of the stimulus to which the customers of the retail establishment are subjected by the device, such as the color or the size or configuration of the area illuminated by the flashing light. It is also desirable to enable such change or replacement of the device without disturbing the electrical components of the flashing system. Also, where repair of the device is required, it is desirable that the display device can be easily and rapidly removed from its installation and re-installed after repairs are completed.

Accordingly, it is a principal object of the invention to provide a display device of the character described which is characterized by a construction enabling the foregoing and other objects, as well, to be achieved.

In self-service retail establishments, such as so-called "super-markets," products are displayed in open racks or bins suitably arranged to permit customers to pass in front of the racks and examine the products. Ordinarily, such racks or bins carry price card rails in the form of channel members in which the price cards showing prices of the products are conveniently disposed. It is an important object of the invention to provide a display device of the character described having novel means for removably mounting the device to such channel members without using additional mechanical fasteners or any tools, said mounting means permitting installation and removal of the device as a unit rapidly and conveniently.

Another object of the invention is to provide a display device of the character described in which said mounting means comprises a toggle mechanism including channel engaging fingers adapted to frictionally engage against inner surfaces of a channel member to rigidly and tightly secure the display device in operative position.

Another object of the invention is to provide a display device as described in which said mounting means includes novel finger grip means for operating the toggle mechanism with a minimum of effort and skill.

Another object of the invention is to provide a display device of the character described having such novel mounting means therefor which are economical to manufacture and install on the device, which are simple and convenient to operate both for installing and removing

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the display device, and which are sturdy and provide for an efficient and stable mounting of the display device on such conventional channel members.

The foregoing and other objects of the invention will become apparent as the description thereof evolves, in connection with which a preferred embodiment has been described in detail and illustrated in the accompanying drawing. Minor variations in the size, arrangement, construction and proportions of the several parts thereof may occur to the skilled artisan without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:

FIG. 1 is a perspective view of the display device embodying the invention installed on a price rail in the form of a channel member such as commonly used in stores, the hands shown in phantom outline illustrating how the display device is conveniently handled both for installing and removing same without using any tools.

FIG. 2 is a fragmentary rear elevational view of the device installed, portions being sectioned to illustrate the mounting means engaged in the channel member.

FIG. 3 is a fragmentary top plan view of the device showing a modified form of the mounting means.

FIG. 4 is a fragmentary sectional view taken through said device along the line 4—4 of FIG. 2 and in the direction indicated generally.

Referring now to the drawing, the display device embodying the invention is designated generally by the reference character 20. As seen in FIG. 1, the device 20 has been installed in association with a channel member 22 such as is commonly used in "super-markets" or other self-service retail establishments for holding a price carrying card 24. Conventionally, the channel member 22 is formed of metal, such as aluminum, and is attached to a forwardly facing surface of a rack or bin designated generally 26 with the channel formation thereof opening outwardly. It is intended that the bin 26 and channel member 22 be considered conventional structure so that the precise construction therefor and the manner in which the channel member is mounted to the storage bin are immaterial to the invention.

The device 20 includes a housing or enclosure 28 the exact size and configuration of which may vary within wide limits. Said housing may be formed as an integral molded member of any one of a large number of suitable materials, such as synthetic resins, a lightweight metal, such as aluminum and the like. As illustrated, the housing comprises a hollow shell having a central portion 30 of substantially rectangular configuration and a pair of oppositely extending wing portions 31. The housing may be formed with its rear end open. The front face 32 of the central portion 30 may have a window 33 of translucent or transparent material. The operating components of the device 20 are contained in the interior of the housing, and in the case of a light flashing system, a suitable source of illumination would be provided in the body portion 30. As a light flashing device, the source of power may be provided by batteries retained in the housing or from a source of power exterior of the housing connected by electrical cord C to the device.

The rear of the housing is closed off by a suitably shaped closure plate 34 which also provides a support surface for the mounting means of the device. Said closure plate may be accommodated in suitable grooves provided in the flange 35 surrounding the open rear end of the housing or other suitable means for removably installing the closure plate may be employed. It is preferred that the plate 34 be removable to permit convenient access to the interior of the housing for servicing of the operating components of the device.

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The mounting means for the device 20 comprises a novel toggle arrangement which includes a pair of elongate arms or bars 36 and 38 preferably formed of thin gauge sheet metal. In the embodiment of FIG. 2, bars 36 and 38 are separably connected together at their ends 39 and 40 respectively by a locking screw 41 for locking the bars against pivotal movement. One of said ends may have a slot 41' arranged longitudinally to permit convenient adjustment in the locking screw 41 position for different widths of channel members 22. It is contemplated that a recessed head screw or some such similar screw be used to deter inadvertent removal of the device after it is installed. At their opposite ends, each arm has a cross-finger 42 of substantially rectangular configuration rigidly secured substantially perpendicular to the bar by welding, riveting or the like. The bar 36 (see FIG. 4) is pivotally attached to the closure plate by means of the short bolt 43 and suitable nut washer, as indicated. The bar 38 is likewise attached to the closure plate. Each finger 42 has a transverse medial bend 44 opening outwardly for countersinking of the head 45 of the bolt to permit the bolt head to clear the connecting web 46 of channel member 22 when the device is installed.

The arms or bars 36 and 38 are conjoined intermediate their ends by a coil spring 47. Each bar 36 and 38 has an extension 48 extending laterally outward in directions opposite one another, the extremity of the extension 48 being upwardly curved to provide a finger grip 49. The inner extremities of the extensions 48 may be provided with suitable openings 50' in which the ends of the coil spring 47 may be removably engaged.

The length of each finger 42 between opposite edges 50 thereof is less than the width of the channel in member 22, but the distance between opposite corners thereof is greater than the channel width. To install the device, the locking screw 41 is removed and the device is held by its wing portions 31 as shown in phantom outline in FIG. 1 and each finger grip 49 is engaged with a thumb of a hand. The finger grips 49 are then spread away from one another against the bias of spring 47 permitting the bars or arms 36 and 38 to pivot relative to the closure plate 34 and enable the cross-fingers 42 to be slid into the channel member 22. When the finger grips 49 are then released, the normal bias of spring 47 will draw the arms 36 and 38 toward one another. This action will cause the sharp corners 51 of the cross-fingers 42 to bite into the underside of the opposite flanges 52 of the channel 22 and wedgingly engage the device 20 in the channel. The normal bias of spring 47 will keep the fingers 42 thus engaged with flanges 52 and prevent the device from becoming dislodged therefrom. To deter tampering with the device, the screw 41 can be replaced and tightened so that the arms 36 and 38 cannot be pivoted one relative the other to disengage the cross-fingers 42 from channel 22.

To replace the device 20 as a unit is a very simple procedure since only the screw 41 need be loosened and the finger grips 49 spread apart to move the arms to permit the cross-fingers 42 to be withdrawn from the channel 22. This is possible because the fingers 42 each are moved in a direction withdrawing corners 51 from engagement with the channel flanges 52.

Referring to FIG. 3, the modified form of the device 60 illustrated contemplates a mounting means somewhat different from that shown in connection with the device 20. In all other respects, however, the devices 60 and 20 are substantially identical. The mounting means of the device 60 includes a pair of arms or bars which are foreshortened so that they have no pivotal connection at their ends such as illustrated for the device 20 in FIG. 2. The finger grips 49' on extension 48' are the same however. Thus the device 60 is operative in the same manner as device 20 with the exception of the locking means

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for the arms or bars represented by tightening screw 41 of device 20.

Although both of the devices 20 and 60 have been described as having the pivotal arm or bar arrangement for both members of the toggle mechanism, it may be understood that only one of the arms can be pivotally installed while the other is maintained immovable relative the closure plate 34. Thus, for installation in the channel member 22, the movable bar or arm can be manipulated to be inserted first in the channel and thereafter, the second bar can be inserted. The same will be possible when it is desired to remove the device. Also, the arms 36 and 38 may be formed as integral members stamped to shape to provide the finger formations 42.

An actual embodiment of the invention was found to be extremely sturdy and rigid in its installation notwithstanding that the toggle mechanism forming the mounting means of the device were made of relatively thin-gauge sheet metal. The sharp corners 51 of the cross-fingers bite into the metal of the channel member 22 and the tension member 47 connecting the arms of the toggle maintain the engagement of the cross-fingers 42 in the channel 22 rigid. The device is removable from the channel only after the arms or bars are spread apart by means of the finger grips 49 or 49' to change the spatial relationship between the cross-fingers and the channel to permit withdrawal of the former.

It is contemplated that minor variations in the construction may occur to the skilled artisan without departing from the invention. For instance, it may be possible to dispense with the extensions 48 and 48' providing the finger grips and merely connect the spring 47 to the arms or bars in suitable openings therein. To remove the device, the operator merely reaches behind the installed device and disengages one end of the spring from the hole in which engaged thereby freeing the arms or bars for pivotal movement one relative the other. Also, some other manner of finger grip means may be provided so long as it enables selective movement of the toggle arms as contemplated by the invention.

The invention has been defined in the claims in language intended to be broadly construed commensurate with the improvement in the arts and sciences contributed thereby.

What it is desired to secure by Letters Patent of the United States is:

1. In a display device of the character described adapted to be mounted in the groove of a channel member, including a display member, means for removably securing the device to said channel member comprising, a pair of arms secured to the rear of the display member, each arm having means adapted to be removably engaged in the groove of the channel member at spaced locations therealong, at least one of the arms being arranged for limited rotation relative to the display member to enable installation or removal thereof without dismantling of the device, both of said arms being biased to rotate in a direction locking said last mentioned means in said channel member.

2. A display device as described in claim 1 in which said arms have finger means for manually moving the same against the said bias for removing the device.

3. A display device as described in claim 1 in which said last mentioned means comprise enlarged formations at ends of said arms capable of frictionally engaging against interior surfaces of the channel member.

4. A display device as described in claim 1 in which said arms have means for releasably locking same together to prevent the movement of said arms.

5. In a display device of the character described adapted to be mounted in the groove of the channel member, including a display member, means for removably securing the device to said channel member comprising, a pair of arms secured to the rear of the display member, each arm having means adapted to be removably engaged in the groove of the channel member at spaced locations

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therealong, at least one of the arms being arranged for limited rotation relative to the display member to enable installation or removal thereof without dismantling of the device, and a tension member connecting said arms normally biasing said last mentioned means in a direction for locking same in place in said groove.

6. In a display device of the character described adapted to be mounted in the groove of a single channel member, a hollow enclosure having an open end, closure means releasably secured over said open end, and mounting means rigidly supported on said closure means for installing the device supported in said channel member, said means comprising a toggle device adapted to be removably engaged on the interior of the channel member for holding the device installed, said toggle device including, a pair of elongate members arranged substantially parallel with said closure means, said elongate members having cross members at ends thereof adapted to be frictionally engaged with interior surfaces of the channel member for holding the display device installed.

7. A display device as described in claim 6 in which said toggle device includes a pair of elongate members arranged substantially parallel with said closure means, said elongate members having cross-members at ends thereof adapted to be frictionally engaged with interior surfaces of the channel member for holding the device installed.

8. In a display device of the character described adapted to be mounted in the groove of a channel member, a hollow enclosure having an open end, closure means releasably secured over said open end, and mounting means supported on said closure means for installing the device supported in said channel member, said means comprising a toggle device adapted to be removably engaged on the interior of the channel member for holding the device installed, said toggle device including a pair of elongate members arranged substantially parallel with said closure means, said elongate members having cross-members at ends thereof adapted to be frictionally engaged with interior surfaces of the channel member for holding the device installed, said elongate members being conjoined intermediate respective ends thereof by a tension mem-

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ber normally retaining said cross members in said frictionally engaged position.

9. A display device as described in claim 8 in which said elongate members have manually operable means for withdrawing said cross-members from frictional engagement with the channel to permit removal of the device as a unit.

10. A display device as described in claim 8 in which said tension member is removably connected with said elongate members for permitting removal of the device from the channel member as a unit.

11. A display device adapted to be removably installed in the groove of a channel member comprising, a display member, means at the rear of the display member for installing the device comprising, a pair of rotatable arms respectively having means adapted to be removably engaged in the channel member, said arms being resiliently conjoined and having means for manually rotating same to permit said channel engaging means to be withdrawn from the channel.

12. In a display device of the character described adapted to be mounted in the groove of a single channel member, including a display member, means for removably securing the device to said channel member comprising, a pair of elongate arms fixedly secured to the rear of the display member, each arm having means adapted to be removably engaged in the groove of said single channel member at spaced locations therealong, at least one arm being mounted under tension to permit limited rotation thereof relative to the display member to enable installation or removal thereof without separating the arms from the display device, said one arm being normally biased by said tension to rotate in a direction locking same in said channel.

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