

June 5, 1945.

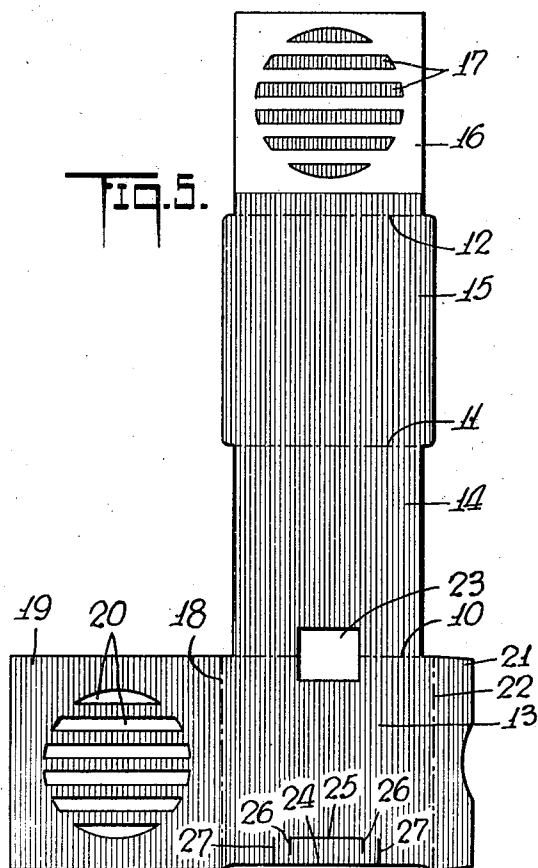
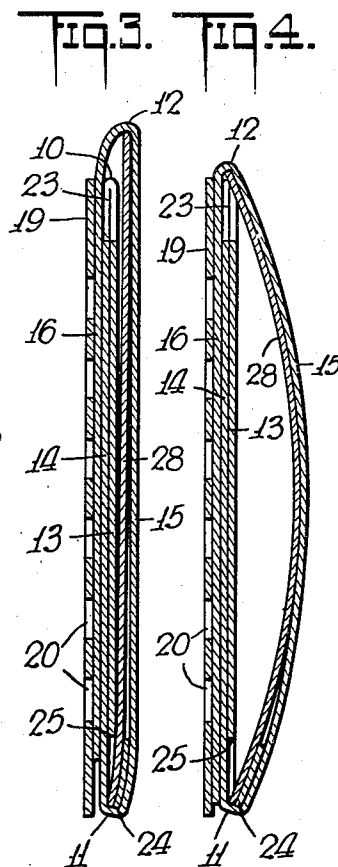
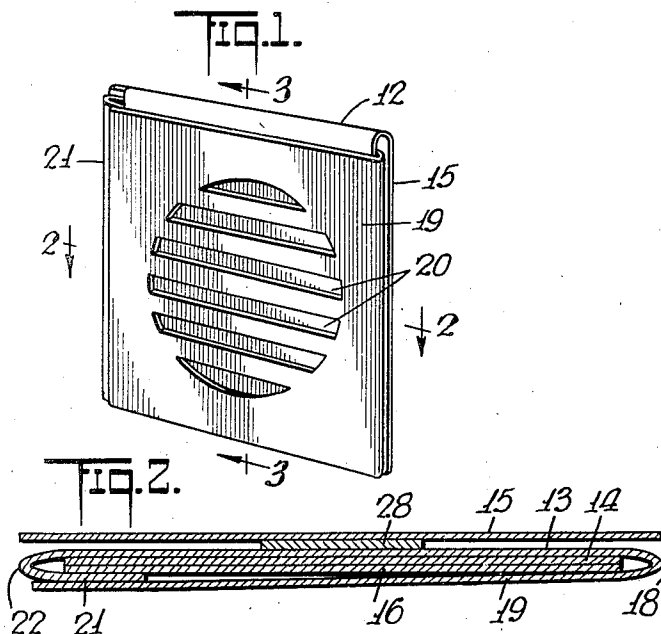
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2,377,346

BLINKER SIGNALING DEVICE

Filed Sept. 16, 1943

2 Sheets-Sheet 1



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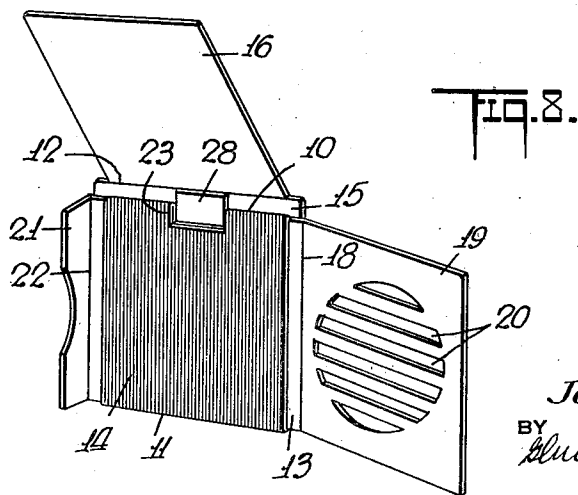
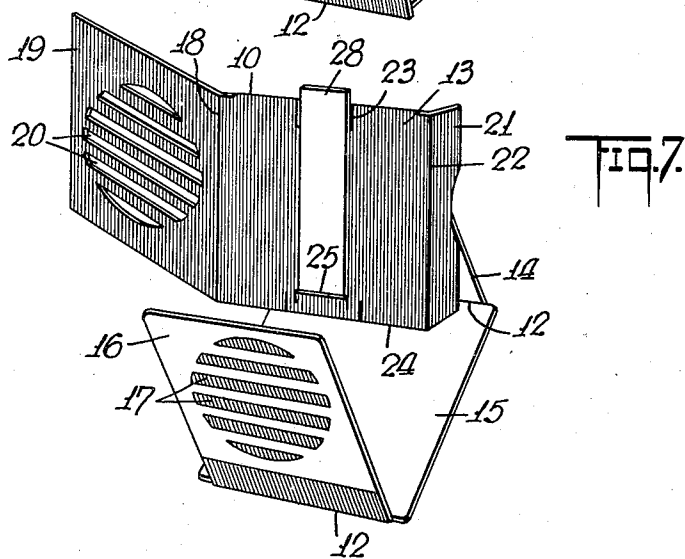
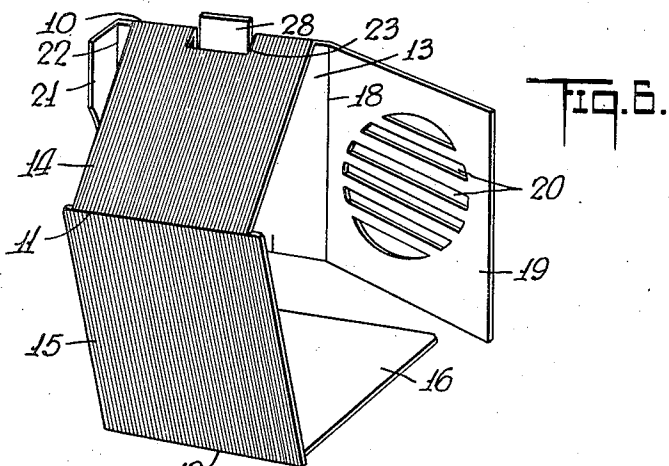
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BLINKER SIGNALING DEVICE

Filed Sept. 16, 1943

2 Sheets-Sheet 2



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2,377,346

BLINKER SIGNALING DEVICE

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Application September 16, 1943, Serial No. 502,618

7 Claims. (Cl. 35—14)

My present invention relates generally to signaling devices, and has particular reference to a device of the "blinker" type.

A general object of my invention is to provide certain improvements in a signaling device of the character set forth in my co-pending patent application, Serial No. 500,155.

The device in question is of simplified structure intended to be manufactured almost entirely of simple inexpensive sheet material such as cardboard or the like. The device is of such a character that it may assume an unusually small and compact form adapted to be held in and operated by one hand of a user.

The type of device to which my invention relates has been designed primarily for instructional purposes, it being intended that large quantities of the device may be manufactured speedily and at low cost, for distribution to trainees in the armed forces, and others, to enhance the teaching of signaling generally and the art of "blinker" signaling in particular. Because of its small and inexpensive nature, the device may also find utility as an educational toy. Nevertheless, since it is a complete signaling device by means of which messages and signals may be transmitted from one person to another, and since certain features of the invention are not necessarily restricted to a device of reduced size, it will be understood that certain phases of the invention may be considered to relate to signaling devices generally.

The structure consists essentially of a pair of superposed front and rear signaling members, the front member having a series of adjacent spaced apertures therein and the rear member presenting light and dark areas for alternate registry with said apertures during relative sliding movements of said members. The apertures preferably assume the form of parallel slits arranged in a group which defines a sort of circular "spot," and the markings on the rear member are correspondingly shaped and arranged. Thus, if the outer surface of the front member is of dark character, the contemplated relative movements of the members will result in making this "spot" alternately dark and light, whereby code messages may be transmitted to an observer at a distance in much the same manner as such messages are transmitted by large-size blinker signaling devices. However, where as the conventional large-size blinker devices usually employ a light from an artificial source, the require pivoted movements of louvers or the like and all the mechanisms and accessories which such an action calls for, the present device is essentially composed of only the two front and back members referred to.

The relatively slidable front and back members of the present device are associated with a

means of resilient yieldable character for urging the members into one condition of registry, whereby signaling may be effected by intermittently forcing or pressing the members into the other condition of registry against the action of the resilient means.

A more particular object of the present improvement lies in the provision of a device in which all of the parts may be formed of integral portions of a single blank of sheet material such as cardboard or the like, in which the contemplated resilient effect may be achieved either without the employment of any extraneous elements or material whatsoever, or merely by means of a simple spring reinforcement of unusually simple and non-critical material, and in which the basic blank material is so formed that a printing operation on only one surface thereof will be sufficient to provide all the markings and colorations which the resultant structure requires. A further object of the present improvement is to provide a design which requires only a single glueing operation to transform the original blank into the finished product.

I achieve the foregoing objects and advantages, and such other objects and advantages as may hereinafter appear or be pointed out, in the manner illustratively exemplified in the accompanying drawings, in which:

Figure 1 is a perspective view of a signal device constructed in accordance with the present invention;

Figure 2 is an enlarged cross-sectional view taken substantially along the line 2—2 of Figure 1;

Figure 3 is an enlarged cross-sectional view taken substantially along the line 3—3 of Figure 1;

Figure 4 is a view similar to Figure 3 showing the relationship of the parts when pressure is exerted upon the device during the signaling operation;

Figure 5 is a plan view of the single blank of which the present device may be composed;

Figure 6 is a perspective view of the first step in assembling the device;

Figure 7 is a perspective rear view of the parts in the relationship shown in Figure 6; and

Figure 8 is a view similar to Figure 6 showing a subsequent step of the process of manufacture.

Referring first to Figure 5, it will be observed that the device may be composed in its entirety of a single blank of sheet material which is of elongated substantially rectangular configuration. This blank is divided by the transverse parallel hinged lines 10, 11 and 12 into the successive sections or elements 13, 14, 15 and 16. Each of these sections is substantially rectangular, and ultimately forms one of a series of superposed flat

elements which cooperatively define the blinker device shown in Figure 1.

The section 13 ultimately defines the inner or nether one of two bracing panels, while the section 14 defines the outer or upper bracing panel. The section 15 defines a springy panel which ultimately affords the requisite resilient means for permitting the device to operate in the contemplated manner. The section 16 defines the rear one of two signaling members, and is provided on its front surface with spaced light and dark areas 17.

Hinged to the section 13 along an edge 18 adjacent to the hinge line 10 is a lateral section 19 which ultimately defines the front signaling member. This member is provided with a series of spaced adjacent apertures 20 which I have illustratively shown in the form of parallel slits conjoining defining a sort of circular "spot". The member 19 is preferably substantially square, and in order that the general nature and capabilities of my invention may be more fully appreciated, it may be mentioned that a satisfactory and highly efficient device may be constructed with this square no more than about two inches long.

Where the apertures 20 assume the form of slits, as shown, the markings 17 on the rear signaling member 16 are of corresponding striped configuration, and they are so arranged that reciprocating endwise movements of one of the signaling members relative to the other will alternately bring either the light areas or the dark areas 17 into matching registry with the apertures or slits 14.

Before describing the manner of assembling the device, it should be pointed out that an attachment flap 21 of relatively narrow width is hinged to the section 13 along the edge 22 opposite the edge 18. A recess 23 initially cut into the blank across the hinge line 10 provides the ultimate two-ply bracing panel with a cut-out along one edge for a purpose presently to be described. Adjacent to the free edge 24 of the end section 13 I provide a slit 25 which is slightly wider than the recess 23 but substantially aligned therewith. At its ends, this slit preferably joins with two small longitudinally arranged slits 26, the resultant U-shaped cut serving to provide an aperture into which a flat leaf spring may be inserted, where the use of such a spring is deemed to be desirable. The operation of the device may be further enhanced by providing two cuts or slits 27 adjacent to and parallel to the slits 26, the cuts 27 extending to the edge 24.

In the preferred construction, the outer face of the front signaling member 19 is printed or marked so as to be of relatively dark character, and the markings 17 on the rear signaling member are so arranged that under normal circumstances the dark regions will register with and show through the apertures or slits 20. It is also desirable that each of the sections 13, 14, 15 and 21 be of dark coloration, and the present structure is so designed that the printing or marking which produces this result may all be accomplished on a single surface of the blank. The printed or marked surface of the blank is shown uppermost in Figure 5. The under surface may be left completely unmarked.

Assuming that a leaf spring is to be employed to enhance the resilience of the device, I prefer to use a flat rectangular strip 28 (see Figures 6-8) which may be composed of any suitable material such as resilient plastic or the like. This strip has a width substantially equal to the length

of the slit 25 so that one end of the strip 28 may be inserted into this slit, as indicated most clearly in Figure 7. The strip 28 has a length slightly greater than the length of the section 13, and substantially equal to the length of the panel 15, this latter panel being slightly longer than each of the other sections of the blank.

In assembling the device, the spring 28 (if used at all) is first inserted into the slit 25 as indicated in Figures 6 and 7. The section 14 is then folded down along the line 10 so as to lie over the section 13, and the section 15 is then folded down in the same direction along the hinge line 11 and brought around so as to lie behind the section 13, as indicated in Figure 8. The section 16 is then folded down in the same direction along the hinge line 12 and brought around so as to overlie the section 14. Finally, the attachment flap 21 is folded inwardly over the section 16, and the section 19 is similarly folded and laid across the section 16. The free edge portion of the section 19 is then glued down or otherwise secured to the attachment flap 21, and this results in assembling the parts into the relationship shown most clearly in Figures 1, 2 and 3.

The two sections 13 and 14 conjointly define a bracing panel. It will be observed that the front signal member 19 is hinged to the nether bracing panel while the springy panel 15 is hinged to the upper bracing panel 14. Thus, the main sections 13, 14, 15 and 16 may be folded around the nether bracing panel 13, as described, so as to bring the rear signaling member 16 into a position overlying both bracing panels, and the final folding over of the lateral section 19 brings the signaling members 16 and 19 into a directly superposed relationship in which relative endwise movements thereof may be effected for signaling purposes.

When the parts are assembled, the recess or cut-out 23 serves to accommodate the end portion of the reinforcement element 28, thereby avoiding the possibility of any binding or impeding action which might otherwise take place. However, it is contemplated that the panel 15 may embody sufficient inherent resilience to permit the reinforcement 28 to be entirely dispensed with, and if the element 28 is not used, the recess 23 and the slits 25, 26 and 27 may be omitted.

It will be observed that in the finished structure, the springy panel 15 lies flat behind the device. By virtue of its hinged connection to the panel 14 along the hinge line 11, and its hinged connection along the opposite edge portion 12 to the rear signaling member 16, it affords a simple and convenient means for controlling the movements of the member 16. More particularly, it constantly urges the member 16 endwise into a normal relationship to the front signaling member. It is contemplated that in this normal relationship of parts, the dark areas 17 will show through the slits 20.

When the device is to be used, it is grasped between the fingers of the user's hand so that he is enabled to press the edge portions 11 and 12 of the springy panel 15 toward each other. When this is accomplished, the rear signaling member 16 is shifted so as to bring the lighter areas 17 into a position in which they show through the slits 20. This makes a sort of circular "spot" visible, and the alternate appearance and disappearance of this spot may be employed to transmit the desired signals. The adjustment of the parts in the manner described is accompanied by a resilient outward buckling of the springy panel

15, as shown most clearly in Figure 4, and when the pressure is released, this panel straightens out again into the position of Figure 3, and thus restores the parts into the normal condition.

It will be observed that the signaling device is thus of unusually simple structural nature. There are no moving parts and no mechanism that might get out of order. The desired springy effect is achieved without the use of any metal or rubber springs, and even where the reinforcement 28 is deemed desirable, it is of such a character that it may be and preferably is composed of a simple material other than metal. Furthermore, the resilient action of the springy panel is simple, efficient, and reliable, and serves also as a guide for the reciprocative movements of the rear signal member 16, effectively maintaining this member in proper alignment at all times. Of primary advantage is the fact that the entire device may be composed of a single piece of flat sheet material, which need be marked or printed on only one surface thereof, and that the entire structure may be held together by a single glueing operation.

While in the preferred construction, the light and dark areas 17 on the front surface of the member 16 are provided by merely printing or otherwise applying suitable pigment to this surface (e. g., by printing with black ink upon a white background or with white ink upon a darker background), it will be understood that the desired effect could be achieved in various other ways, if desired. For example, the member 16 might have a mirrored surface upon which the suitable areas are provided by blackening or darkening certain predetermined regions, but in such a case it has been found that the desired signaling effect is not of uniform character since the mirrored surface would appear light only in certain angular positions with respect to an exterior source of light to be reflected by it. In any case, the term "light and dark areas" as used herein and in the appended claims is intended to include within its scope any means equivalent to that shown whereby the desired variations in the appearance of the "spot" may be effected by simple reciprocating movements of the character described.

In general, it will be understood that the details herein described and illustrated to explain the general nature of the invention may be modified by those skilled in the art without departing from the spirit and scope of the invention as expressed in the appended claims.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent is:

1. A blinker signaling device composed of superposed flat substantially rectangular elements comprising upper and nether bracing panels, a front signaling member overlying said panels and hinged to the nether one, a springy panel lying behind said panels and hinged to the upper one, and a rear signaling member hinged to the springy panel and lying directly behind said front signaling member, said front member having adjacent spaced apertures therein and said rear member presenting spaced light and dark areas for alternate registry with said apertures during relative sliding movements of said members.

2. A blinker signaling device as set forth in claim 1, said upper bracing panel being hinged

along one of its edges to said nether bracing panel and being hinged along its opposite edge to said springy panel, whereby said bracing panels and said springy panel may form integral parts of a single blank of sheet material.

3. A blinker signaling device as set forth in claim 1, said upper bracing panel being hinged along one of its edges to said nether bracing panel and being hinged along its opposite edge to said springy panel, said springy panel being hinged along its opposite edge to said rear signaling member, whereby said bracing panels, said springy panel, and said rear signaling member may form integral parts of a single blank of sheet material.

4. A blinker signaling device as set forth in claim 1, said nether bracing panel being hinged along one of its edges to said front signaling member and along an adjacent edge to said upper bracing panel, and said upper bracing panel being hinged along its opposite edge to said springy panel, whereby said front signaling member, said bracing panels, and said springy panel may form integral parts of a single blank of sheet material.

5. A blinker signaling device as set forth in claim 1, said nether bracing panel being hinged along one of its edges to said front signaling member and along an adjacent edge to said upper bracing panel, said upper bracing panel being hinged along its opposite edge to said springy panel, and said springy panel being hinged along its opposite edge to said rear signaling member, whereby said front signaling member, said bracing panels, said springy panel, and said rear signaling member may form integral parts of a single blank of sheet material.

6. A blinker signaling device as set forth in claim 1, said springy panel being hinged along one of its edges to said upper bracing panel and along its opposite edge to said rear signaling member, said springy panel being of such a length that pressure on said hinges will cause outward resilient buckling of said springy panel as the rear signaling member is moved endwise in one direction relative to said front signaling member, the nether bracing panel being provided with means for supporting a relatively narrow leaf spring extending lengthwise of the springy panel on its under side for enhancing the resilience of said springy panel.

7. A blinker signaling device comprising a single blank of sheet material of elongated substantially rectangular configuration, said blank being divided by parallel transverse hinge lines into adjacent main sections defining, in order, a nether bracing panel, an upper bracing panel, a springy panel, and a rear signaling member, said blank being also provided with a lateral section hinged to a side edge of said nether bracing panel and defining a front signaling member, whereby said main sections may be folded around said nether bracing panel to bring the rear signaling member into a position overlying both bracing panels, and whereby said lateral section may then be folded over the rear signaling member to bring said signaling members into directly superposed relationship in which relative endwise movements thereof may be effected for signaling purposes, said springy panel lying behind said bracing panels and yieldably urging said rear signaling member endwise into a normal relationship to the front signaling member.

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