May 15, 1945. W. F. SCHELD ET AL 2,376,278

SIGNAL DEVICE

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Fig. 1.

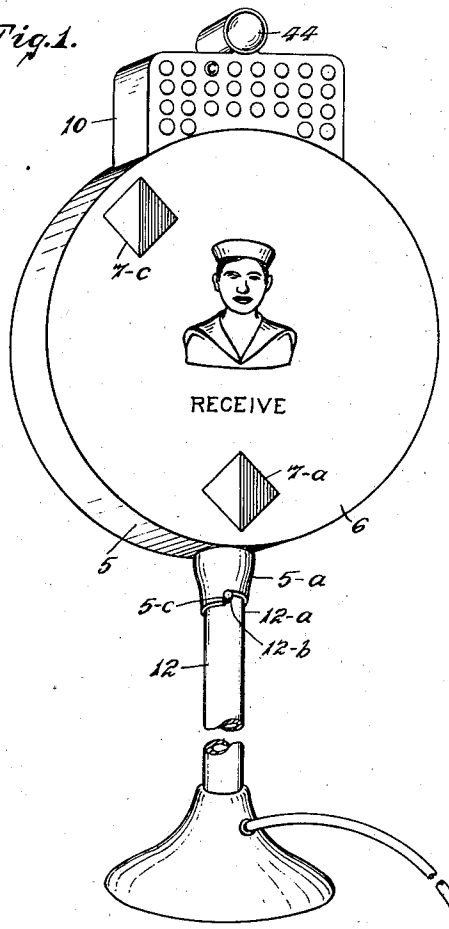
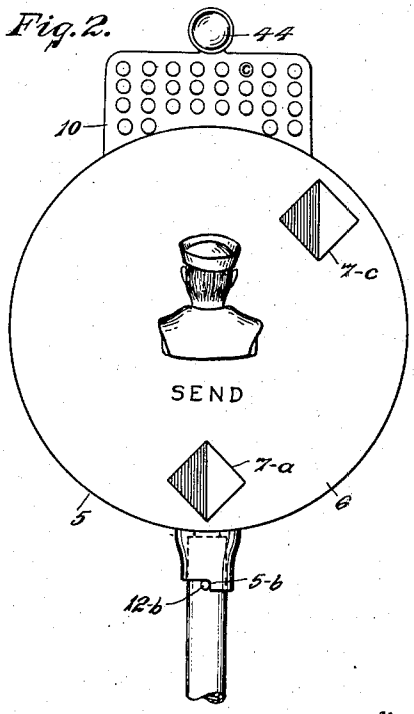


Fig. 2.



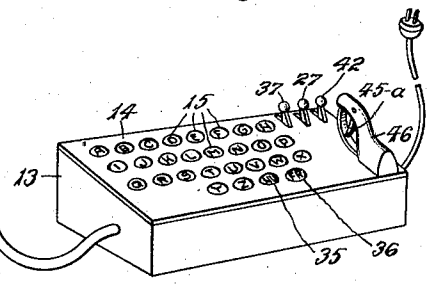


Fig. 3.

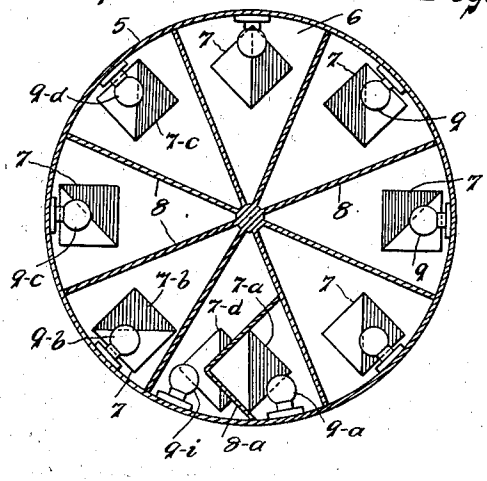


Fig. 4.

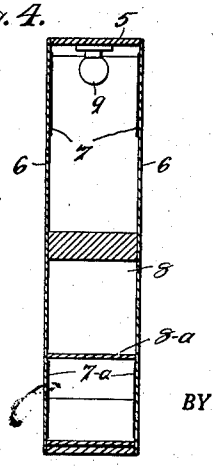
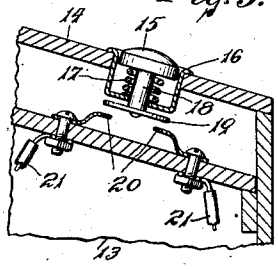


Fig. 5.



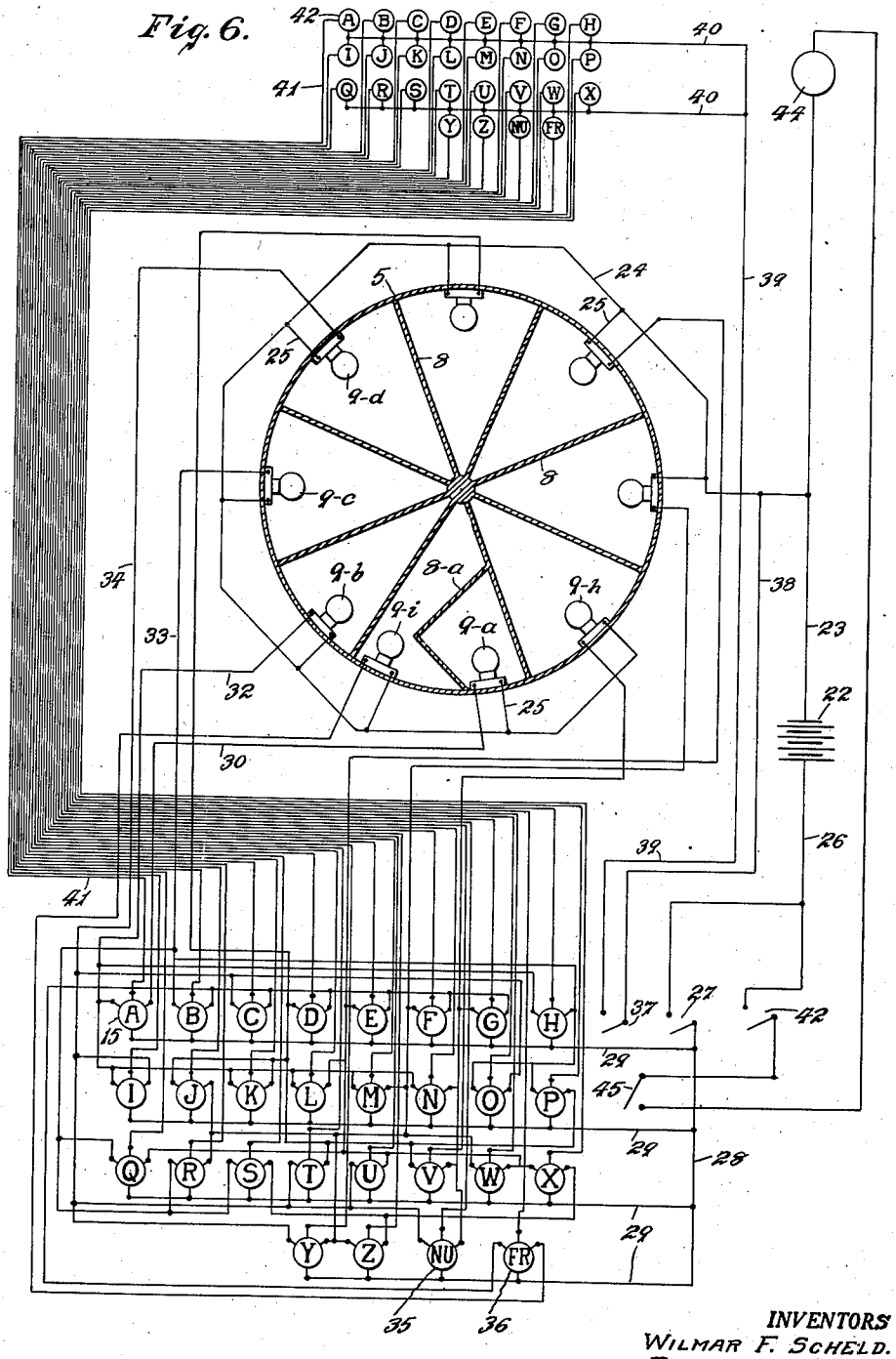
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Fig. 6.



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SIGNAL DEVICE

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10 Claims. (Cl. 35—14)

This invention relates to a signal device and more particularly to a device intended for use in semaphore signaling.

As well known, semaphore signals are sent with two flags which are held at relatively different angles for each letter of the alphabet. Heretofore, in order to instruct students in semaphore signaling, it has been necessary to provide an instructor who knows the system thoroughly and is capable of teaching others. Such instructors are not always available, however, particularly to such group as are in the auxiliary units of the military branches, and it has therefore been found very difficult to instruct novices in the use of the system. Further, even when such instructors are available for teaching groups of novices, there is nothing provided whereby the individual novice, or a few of them together, may practice the semaphore system in the absence of an instructor.

The device of our invention, therefore, is intended to take the place of an experienced instructor and is so designed that it may be operated by any person for the benefit of another, or a group of others, by simply pressing a button for each letter which is to be shown in semaphore. If desired, the letter corresponding to each signal may also be shown so that the students will be able to see the position of the flags for a particular signal and, at the same time, read the meaning thereof.

This device is also intended to show the position of the flags when the signals are being sent, as well as when they are being received, and provides an opportunity for the students to educate themselves in sending and receiving semaphore signals without an experienced instructor.

Further objects and advantages of our invention will be more clearly understood from the following description and from the accompanying drawings in which:

Fig. 1 is a perspective view showing our improved signal device together with the control keyboard instrument which is connected therewith.

Fig. 2 is a view of the opposite side of the said signal device.

Fig. 3 is a front view, in central vertical section, of the flag panel portion of the device.

Fig. 4 is a side view, in central vertical section, of the same.

Fig. 5 is an enlarged view, in central vertical section, showing the construction of the operating buttons in the control keyboard.

Fig. 6 is a diagrammatic view showing the electrical circuit in our improved signaling device.

As shown in the drawings, the device of our invention includes a flag panel 5 which may be circular in shape and has, at the front and back thereof, a screen 6 of suitable material such as fabric or the like. Each of said screens has flags 7 painted, or otherwise applied, on the inside surface thereof and the said flags are translucent while the remaining background on each screen is opaque. Therefore, when light is applied between said screens, the flags thereon will show clearly through the screens and appear on each side of the flag panel 5 as illustrated in Figs. 1 and 2 of the drawings.

The inside of the flag panel 5 is sectioned off by means of partitions 8 which provide a separate compartment for each set of two flags on the oppositely facing screens. Each of said compartments is provided with a light bulb 9 which, when turned on, will cause the flags to show through the screens 6—6. Since the remaining portion of the screens are opaque, these flags will show clearly through the screens and appear on the opposite faces of the flag panel 5 even in a normally lighted room.

In addition to the flag panel, we may also provide a letter display panel 10 which is preferably mounted at the top of the panel 5. This letter panel may contain a window for each letter in the alphabet and each is adapted to be illuminated to show the letter thereon from both sides of the panel 5. While we have not illustrated any particular form or construction for the letter windows in the panel 10, it will be understood that any suitable type may be used which will cause each letter to appear when a light in back of it is turned on.

The panel 5 is swivelly mounted on a pedestal 12 by means of a hub 5—*a* which fits over the end of a post 12—*a* and so that the said panel may be rotated about its vertical axis to present either side thereof towards the person or group of persons viewing the device and thereby show the signals either as being sent or received. The said hub is provided with stop shoulders 5—*b* and 5—*c* which engage a stop pin 12—*b* in the post 12—*a* to prevent complete rotation of the flag panel and thereby eliminate excessive twisting of the electrical conductors which extend through said post into the flag panel.

For the operation of our improved device, we provide an instrument 13, including a keyboard 14 having a plurality of push buttons 15, one for each letter in the alphabet, which, upon being pressed downwardly, are adapted to close an electric circuit. The construction of said push but-

tons may be as illustrated in Fig. 5 wherein the button 15 is mounted in a casing 16 over a spring 17 and has a stem 18 to which is connected a suitable switch bar in the form of a disk 19. The said disk is in register with contact members 20, each of which is connected to a wire, as illustrated at 21, in the electric circuit hereinafter described.

The said contacts 20 may be sufficiently flexible to yield under pressure from the disk 19 and thereby insure proper electrical contact between said disk and all of the contacts 20. It will be understood that the required number of said contacts may be located around the axis of the switch and that all of said contacts will electrically contact the disk 19 when the button 15 is pressed downwardly.

As shown in Fig. 6 of the drawings, our improved signal device includes an electric circuit wherein each of said push buttons, or switches, in the keyboard of the instrument is electrically connected to the corresponding light bulb in the panel 5 for showing the semaphore signal corresponding to the letters on each of the individual push buttons and to the letter panel 10 for showing the letter corresponding to the signal being shown. This circuit may include a source of electric energy 22 which is connected to each of the light bulbs 9 by means of a common conductor 23 leading to the conductor 24 from which another conductor 25 is connected to one side of each of said bulbs. The other side of each bulb is connected by another conductor to one side of the corresponding switch button on the instrument board.

For the purpose of simplifying the description of our signal device, we will describe the electric circuit as connected for only a few of the letters of the alphabet for which our device may be operated to show the corresponding semaphore signals.

The source of energy 22 is connected by means of a conductor 26, through a suitable switch 27, to a conductor 28 and a plurality of conductors 29, to each of the switch buttons in the keyboard of the control instrument 14.

Taking the letter "A," as an example, it will be seen that the switch button 15 for said letter is connected to the conductor 29 by means of a contact such as shown at 20 in Fig. 5. Another conductor 30 leads from said switch to the light bulb 9—*a* which is located at the bottom of the panel 5, between the flags 7—*a* on the screens 6—6 and another conductor 32 leads from the said switch for the letter "A" to the bulb 9—*b*.

For the letter "B," it will be noted that the corresponding switch button is also connected to the conductor 30, leading to the light 9—*a*, and, in addition, to the conductor 33 leading to the bulb 9—*c*.

For the letter "C," the corresponding switch is also connected to the conductor 30, leading to the bulb 9—*a*, and, in addition, to the conductor 34 leading to the bulb 9—*d*.

It will be noted that all of the switches for the letters from "A" to "G" are connected to the bulb 9—*a*, by means of the conductor 30, and that each of said letters is separately and additionally connected to one of the other bulbs in the flag panel 5. Similarly, other groups of switch buttons are connected together to one bulb and individually to other bulbs in the panel 5 so that, when any one of the switch buttons is pressed, two of the flags will appear in their respective positions for the semaphore signal which denotes the letter or sign for which the button has been pressed.

In the operation of our improved signal device, the switch 27 is first closed to render the device operable. The semaphore signal for the letter desired is then shown on the screen by pressing downwardly upon the switch button in the control keyboard which denotes the said letter. For instance, when the switch "A" on the instrument board is pressed downwardly, the circuit to the electric light bulbs 9—*a* and 9—*b* will be closed. This will cause these bulbs to light and show through the opposite screen 6—6, on the panel 5, the flags which are located in the corresponding compartments. Therefore, when the letter "A" is pressed, the flags 7—*a* and 7—*b* will show through the screens and can be easily seen from the outside thereof from both sides of the member 5.

When the signal for the letter "C," for instance, is to be shown, the switch button "C" on the keyboard will be pressed downwardly. This will close the circuit to the lights 9—*a* and 9—*d* and the flags 7—*a* and 7—*c* will appear in the position denoting the letter "C" as illustrated in Figs. 1 and 2 of the drawings.

All of the combinations of flags corresponding to the other letters and symbols on the push buttons of the control instrument may be made to appear in the same manner as above described through the operation of the electrical circuit which is clearly illustrated in the drawings.

As well known by those experienced in semaphore signaling, a signal, composed of the flags rendered visible by the lights 9—*h* and 9—*d*, is included in the samphore code to indicate when the signals which are to follow will be for numerals. For this signal, we have provided an additional switch button 35, identified by the inscription "N U," when pressed, will light the said lights 9—*h* and 9—*d* to show their respective flags and thereby present the signal indicating that numerals are to follow.

Another switch key 36 is also provided to signal "front" which is the signal used between each combination of letters forming a word. Upon pressing of the said switch key 36, the bulbs 9—*a* and 9—*i* will be lighted; thus showing the flags 7—*a* and 7—*d* at the bottom of the flag panel, and in superimposed position, which is the position for the signal denoting "front."

It will be noted that a partition 8—*a* is provided around the flag 7—*a* in order to separate the same from the flag 7—*d* so that the said flag will not show excepting when it is required in connection with the signal for "front."

It is believed that the operation of our device for each of the other letters will be clearly understood from the above description and the illustration of the electrical circuit thereof and that no further description is therefore necessary.

When it is desired that the letters which are shown on the flag panel in semaphore be also shown in type in the separate letter panel 10, the switch 37 is first closed. This will establish the electric circuit through the conductors 23, 38, the said switch 37, the conductors 39 and 40—40, to each of the bulbs in said panel.

It will be noted that in addition to the conductors which are connected to the bulbs in the flag panel 5, each of the switch buttons in the keyboard has an additional conductor leading directly to the corresponding light in the letter panel. As shown, the switch button for the letter "A" is connected to the corresponding light in

said letter panel by means of the conductor 41. Therefore, when the switch button for "A" is pressed downwardly, the bulbs 9—a and 9—b will be lighted to show the respective flags on the panel 5 and the circuit will also be closed through the conductor 41 to light the corresponding bulb 42 in the letter panel 10. Similarly, each of the other switch buttons, when operated, will light the bulbs for showing the respective two flags for the semaphore signal and, at the same time, will also light the bulb for the corresponding letter or symbol in the alphabet board. It will be understood that the said letter panel 10 need not be used except when it is desired and that the operation thereof may be controlled by means of the switch 37. Therefore, when it is desired to have a student read the signals as they are shown on the flag panel 5, the said switch 37 will be left open to render the letter panel 10 inoperable.

As an added convenience in the use of our signal device, we may provide an additional bulb 44 for sending signals by the "blinker" system. The said bulb may be located over the letter panel 10, as clearly illustrated in Figs. 1 and 2, and is provided with a control switch 42 and an operating switch, indicated at 45. This switch may be in the form of a telegraph key, or, if desired, a trigger type switch on a "blinker gun" such as commonly used in "blinker" signaling devices. When the said switch 42 is closed, the "blinker" dot and dash code is transmitted through light from the bulb 44 by the operation of the blinker switch 45. A suitable lens is preferably provided at each side of said bulb 44 so that the light therefrom may be seen from either side of the flag panel. In order that the operator may become thoroughly familiar with the actual operation of the "blinker gun," we have mounted the switch 45 in a portion of the "blinker gun," as indicated at 46 on the control instrument, wherein the said switch is operatable by the trigger 45—a.

From the above, it will be clearly understood that we have provided a novel and very useful signal device which will greatly aid in instructing in the use of the semaphore signaling system; our device being such that a student may operate it himself to clearly and distinctly produce flag signals in their correct position. It may also be operated by any person, regardless of whether or not he may know the semaphore system, and the signals displayed studied by the student who may call out the meaning of the signals as they appear.

It will be also understood that, by simply reversing the flag panel 5, the student is given an opportunity to view the signals either in the position in which they are sent or in which they are received. The screen 6, which shows the flags in the signal receiving position, may be marked with the word "Receive" and the opposite side, which shows them in the signal sending position may be marked "Send." Also, a figure of the person who is supposedly sending or receiving the signals is shown on the respective side of the flag panel; the receiving side showing the face while the sending side shows the back of the person as clearly illustrated in Figs. 1 and 2.

In the operation of the device, a signal may be first shown in the flag panel in semaphore. After the student has had an opportunity to study the signal, the switch 37 may be operated to show the meaning of said signal on the letter panel 10, while the signal is still showing, so that the student may see whether or not he has read the signal correctly.

While we have described our invention as embodied in the signal device illustrated in the accompanying drawings, it is desired to have it understood that the said device may be modified to a greater or lesser degree without departing from the scope of our invention as set forth in the appended claims. For instance, the device may be constructed as a compact portable unit, for use by the individual or a small group of students, by swivelly mounting a smaller flag panel 5 directly upon the control instrument 13, instead of on a separate pedestal 12, so that the complete signal device may be carried as an integral unit.

We claim:

1. In a signal device of the character described, the combination of a screen for showing semaphore signals thereon, control means including a plurality of selectively operatable members for causing semaphore signals denoting different letters to show on said screen, and means associated with said signals to indicate the meaning thereof as they are shown on the screen.

2. A semaphore signal device of the character described comprising a translucent screen for showing different semaphore signals thereon by means of flags rendered visible through said screen upon the operation of a respective manually operatable member, two of said flags on said panel being adapted to show in superimposed position to present the semaphore signal indicated "front," and one of said two flags being adapted to show independently of the other.

3. A signal device of the character described including a panel having a translucent screen at each side thereof, each of said screens having an outer surface and an inner surface, normally invisible signal indicia on the opposed inner surfaces of said screens, light means between said screens for rendering said indicia visible through the screens, and means for selectively controlling said light means.

4. A signal device of the character described including a panel having a translucent screen at the opposite sides thereof, a plurality of figures denoting semaphore flags and opposing applied upon the opposed inner surfaces of said screen, partitions between said screens separating said indicia, and light means in each of said partitions selectively operatable for selectively rendering said flags visible through each of said screens.

5. A signal device comprising a panel having a translucent screen at each side thereof, a plurality of pairs of figures denoting flags inscribed upon the inner surfaces of said screens, one flag of each of said pairs being on one screen and the other directly opposite on the other screen, light means positioned between each pair of said flags and means for selectively operating said light means to show said flags on the opposite exterior surfaces of said screens.

6. In a signal device of the character described, the combination of a panel reversibly mounted upon a stand; said panel comprising a translucent screen on opposite sides thereof, means within said panel for rendering signals visible through directly opposite portions of said screens, and means for selectively causing said figures to show in different positions around said screens.

7. In a semaphore signaling device of the character described, the combination of a standard, a panel swivelly mounted on said standard; said

panel comprising spaced screens at opposite sides of said panel, a plurality of partitions between said screens forming separate compartments within said panel, signal insignia upon the inner surfaces of said screens forming the opposite sides of said compartments, a light medium within each of said compartments, and means for selectively controlling said light medium to cause said signal insignia to show through said screens.

8. A signaling device of the character described comprising a standard, a panel swivelly mounted on said standard, said panel comprising a hollow structure, a translucent screen on opposite faces thereof, a plurality of partitions forming separate compartments between said screens, each of said compartments containing a light medium, insignia oppositely positioned at each side of said light medium upon the inner surfaces of said screens, and means for controlling said light medium to selectively render said signal insignia visible through said screens.

9. A signal device of the character described comprising a hollow panel having a translucent screen forming a surface thereof, a plurality of partitions within said panel each of said partitions having a figure denoting a flag inscribed upon the wall thereof formed by the interior surface of said screen, a light medium in said compartment, and means for selectively showing said figure through said screen and upon the exterior surface thereof; one of said compartments having a partition forming an auxiliary compartment overlapping a portion of the figure on the wall of said compartment, a signal denoting a flag upon the wall of said auxiliary compartment superimposed upon the flag in the other compartment, a separate light medium within said auxiliary compartment, and means for selectively controlling said light mediums for showing the said flags in superimposed position or the flag on the auxiliary compartment separately through the walls of said compartments and upon the exterior surface of said screen.

10. A signal device of the character described comprising a translucent screen having upon the back thereof indicia denoting semaphore signals, light means for rendering said signals visible through said screen, a control keyboard including a plurality of selectively operatable members for controlling said light means, and letter showing means associated with said screen for showing letters indicating the meaning of the signals displayed on the screen; said letter showing means being selectively controllable with said control keyboard and having an electric switch for selectively rendering the same operatable with said signals.

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