Jan. 12, 1932. M. H. SPAULDING 1,840,920

PROJECTING APPARATUS

Filed Aug. 31, 1927

Fig. 1.

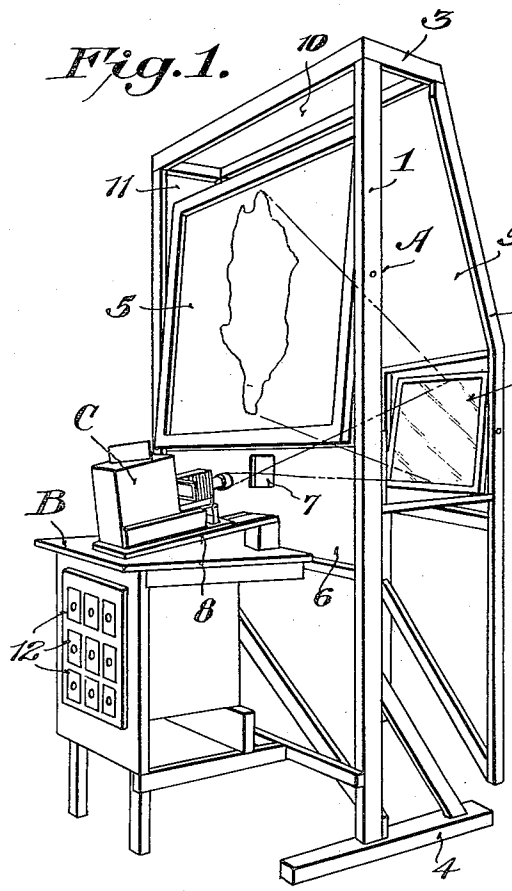
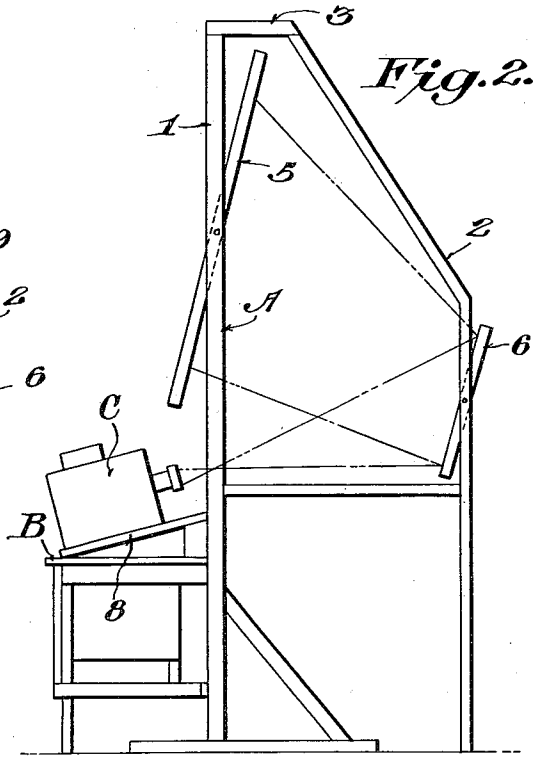


Fig. 2.



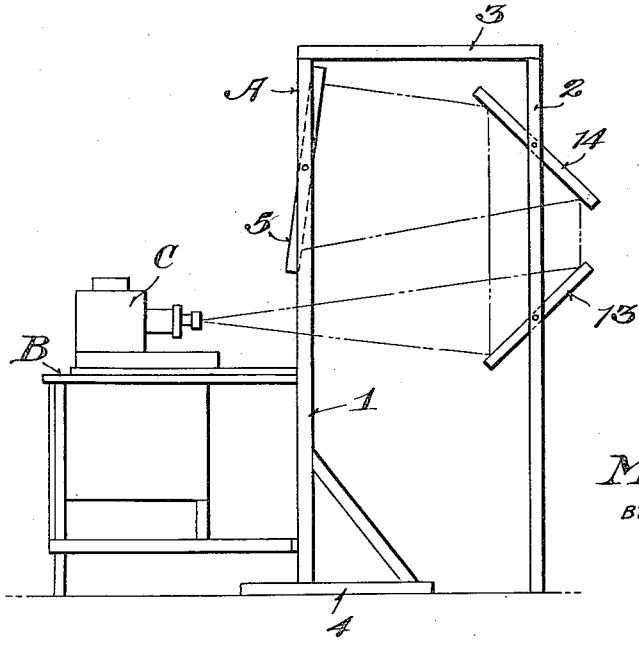


Fig. 3.

INVENTOR

M. H. Spaulding,

BY

Milans Milans

ATTORNEYS.

Patented Jan. 12, 1932 1,840,920

UNITED STATES PATENT OFFICE

MILO HERRICK SPAULDING, OF BOZEMAN, MONTANA

PROJECTING APPARATUS

Application filed August 31, 1927. Serial No. 216,645.

My invention relates to new and useful improvements in projecting apparatus and has for its principal object the provision of such a device which is compact in form and in which the projecting machine is positioned relative to the screen, which receives an image, so that a lecturer or other person may operate the machine and still be in such a position that he may use a pointer or similar instrument for directing attention to the image reflected upon the screen.

Another object of the invention resides in the provision of a projecting apparatus in which the operator may stand between the screen and the audience and in which the projecting machine is positioned in front of the screen, the image being first reflected upon a mirror, positioned in the rear of the screen and then reflected onto the screen which in the instance shown in the drawings is translucent.

With the above and other objects in view, which will appear as the description proceeds, my invention consists in the novel details of construction, and arrangement of parts, described in the following specification and illustrated in the accompanying drawings, and while I have illustrated and described the preferred embodiments of the invention, as they now appear to me, it will be understood that such changes may be made as will fall within the scope of the appended claim.

In the drawings:

Fig. 1 is a perspective showing one of the side plates of the supporting frame structure removed.

Fig. 2 is a side elevation with one of the side plates of the supporting frame structure removed; and

Fig. 3 is a view similar to Fig. 2 illustrating a slightly modified form of the invention.

In the drawings A denotes generally a supporting structure including a front frame 1, a rear frame 2, a top 3, and floor engaging members 4, B denotes generally a table or stand positioned in front of the supporting structure A, and C denotes generally a projecting apparatus of any desired and well-known construction. Pivotally mounted within the front frame 1, for swinging adjustment, is a translucent screen 5, and pivotally mounted in the rear frame 2, for swinging adjustment, is a mirror 6. The front frame, beneath the translucent screen 5, is closed by a plate 6 having an opening 7 therein, this opening 7 being positioned in front of the lens of the projecting machine so that an image may be reflected from the machine onto the mirror 6, in the instance shown in Figs. 1 and 2 of the drawings the projecting apparatus or machine being mounted upon an inclined support 8. The rear frame 2, above the mirror 6, is closed by the plate 9, the top frame 3 is closed by a plate 10, and the ends are closed by the plates 11, the end plate 11 on the right hand side of the frame structure being shown as removed in Figs. 1 and 2 of the drawings.

The table or stand B which supports the projecting apparatus, as quite clearly illustrated in the drawings, is positioned directly in front of the frame 1 and is preferably provided with a plurality of drawers or receptacles for containing lantern slides or the like.

In Fig. 3 of the drawings I have illustrated a slightly modified form of the invention in which the projecting machine C is shown as resting flat upon the table or stand D and in which the rear frame 2 of the supporting structure A supports two mirrors which I have designated as 13 and 14. The mirrors are pivotally mounted in the frame for swinging adjustment with the mirror 13 arranged below the mirror 14. In all other respects the form shown in Fig. 3 is similar to that disclosed in Figs. 1 and 2.

From the above it is thought that the detailed construction will be understood and I will now endeavor to more clearly set forth the operation and advantages of my device. In that form of the invention shown in Figs. 1 and 2 the translucent screen 5 and mirrors 6 are placed at relative angles and the projecting machine is also placed at an angle so that the image is reflected through the opening 7 onto the mirror 6 and from the mirror 6 into the translucent screen 5. In this type the slides which are used in the projecting machine are used as in an ordinary lantern,

it being unnecessary to reverse the slides in the machine. In that form of the invention disclosed in Fig. 3 the projecting machine or lantern C is in horizontal position, the mirror 13 is arranged at approximately a 45° angle to the lantern and the mirror 14 is arranged at approximately a 45° angle to the mirror 13. The image is reflected from the projecting apparatus C through the opening 7 onto the mirror 13, from the mirror 13 to the mirror 14 and is then reflected from the mirror 14 to the translucent screen 5. In this form of the invention a reversal of the slides in the projecting machine or lantern is necessary but there is a more correct image projected without keystone distortion.

I lay particular advantage on the position of the projecting machine or lantern relative to the screen. The projecting machine or lantern is arranged close to the screen, in front thereof, and a lecturer or other operator may not only operate the projecting machine but may call attention to the image projected upon the screen by the use of a pointer or the like. Such a device will be of particular advantage in classrooms or the like.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:

A projecting apparatus formed as a unitary structure to be moved intact from place to place including connected front and rear frames and a stand extending forwardly from the front frame and connected thereto, a screen carried by the front frame and mounted on a horizontal axis for swinging movement, a mirror carried by the rear frame and mounted on a horizontal axis for swinging movement, the axis of the mirror being on a plane lower than the axis of the screen, and a projecting device mounted on the stand in front of the front frame and positioned to throw an image on the mirror from which it is reflected to the screen.

In testimony whereof I hereunto affix my signature.

MILO HERRICK SPAULDING.