

March 21, 1939.

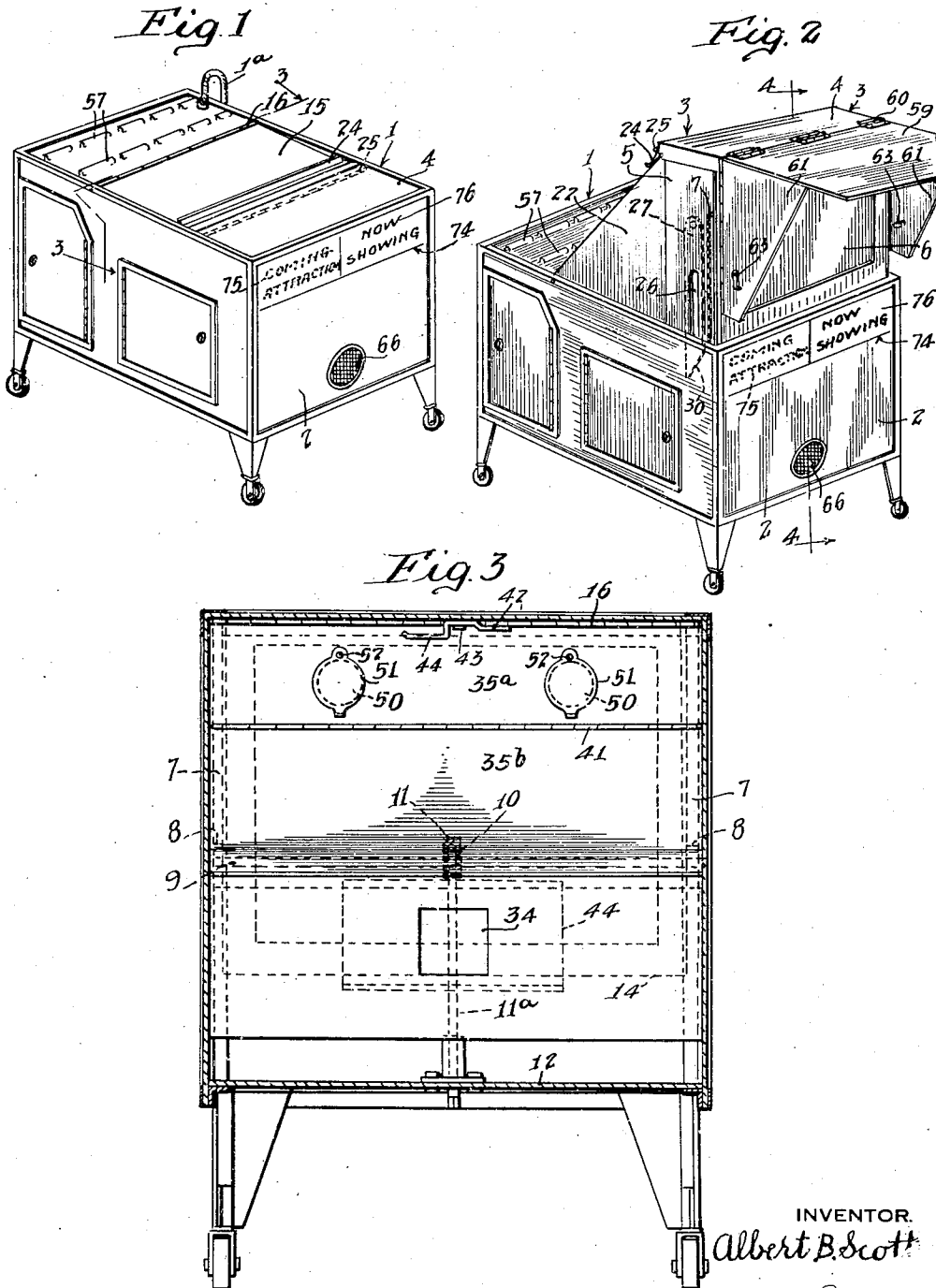
A. B. SCOTT

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PICTURE DISPLAY CABINET

Filed Oct. 23, 1936

2 Sheets-Sheet 1



INVENTOR.

Albert B. Scott

By *Lyon & Lyon*
ATTORNEYS

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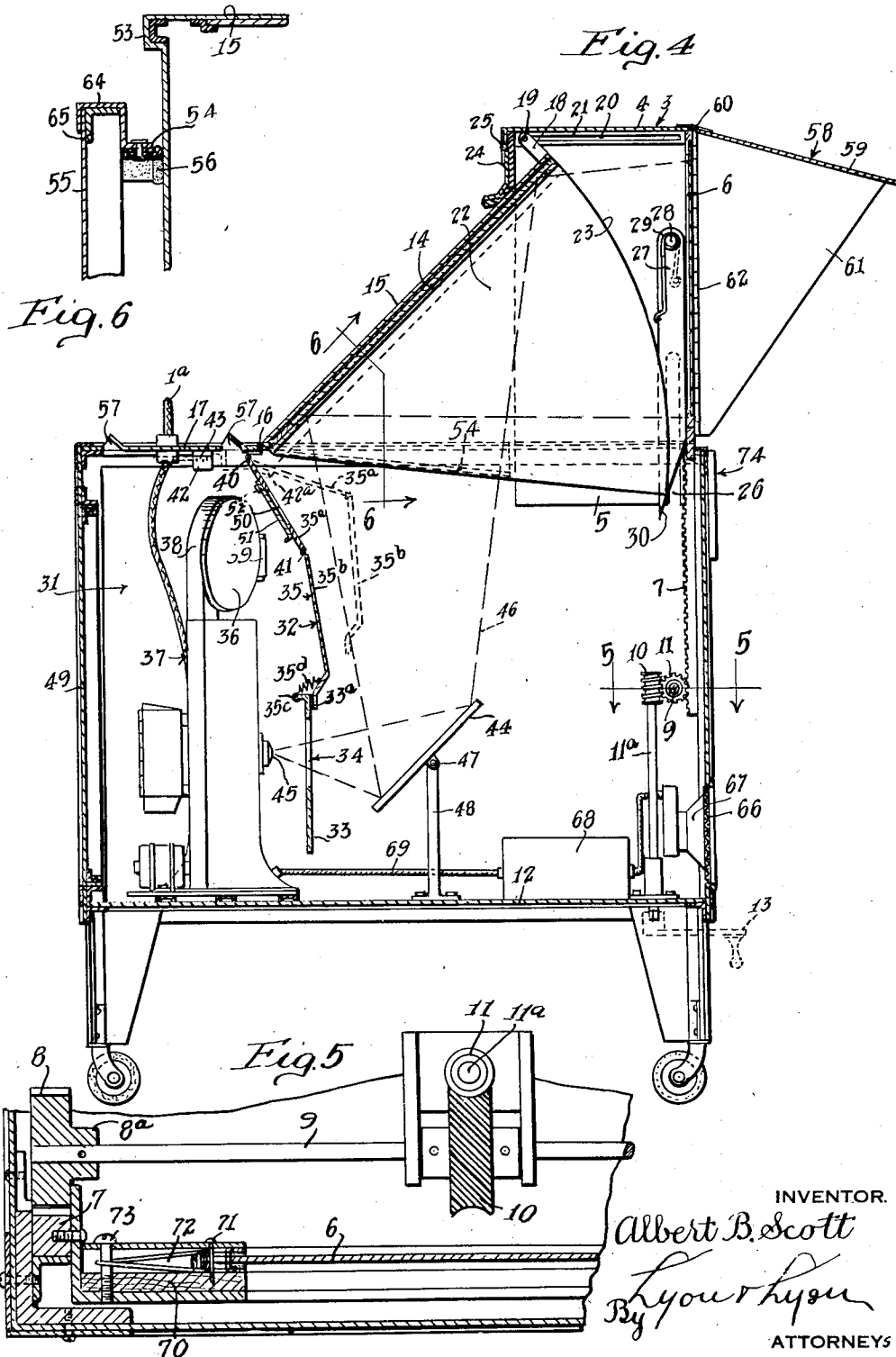
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UNITED STATES PATENT OFFICE

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PICTURE DISPLAY CABINET

Albert B. Scott, Los Angeles, Calif., assignor to
S. C. K. Corporation, Los Angeles, Calif., a corporation of Nevada

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10 Claims. (Cl. 88—24)

This invention relates to a display cabinet and the general object of the invention is to produce a cabinet of simple construction carrying a screen upon which a picture or pictures can be projected by apparatus within the cabinet and so constructed that the screen can be extended from the cabinet into a display position but which, when not in use, will occupy a folded position within the body of the cabinet.

The invention is intended particularly for use in connection with the means patented to me December 19, 1933, in my prior Patent No. 1,340,148, on Projecting apparatus.

My prior patent covers projecting apparatus to be used for displaying scenes from attractions "now showing" in moving picture theatres, and attractions which are coming in the near future to the same theatre, and one of the objects of the present invention is to provide a cabinet particularly adapted to cooperate with the projecting apparatus covered by the said patent; also to provide a cabinet of this kind which will normally house the projection screen within the cabinet but which can be readily operated so as to extend the screen into a display position.

A further object of the invention is to provide a cabinet of this kind which will be compact and provided with reflectors arranged in such a way that a screen of relatively large size may be employed although the cabinet will occupy relatively small floor space.

A further object of this invention is to produce a cabinet of this type capable of being used for displaying moving pictures or other pictures particularly adapted to be used for advertising purposes in a foyer or in area in front of a theatre, and to construct the cabinet in such a way that when not in use it can be folded into a relatively compact space so that it will be capable of being trundled through the door of the theatre or other building at which it is used.

A further object of the invention is to provide special means for excluding light from the interior of the cabinet immediately to the rear of the screen; also to provide means for excluding side lights from falling on the front of the screen.

Further objects of the invention will appear hereinafter.

The invention consists in the novel parts and combinations of parts to be described hereinafter, all of which contribute to produce an efficient picture display cabinet.

A preferred embodiment of the invention is described in the following specification, while

the broad scope of the invention is pointed out in the appended claims.

In the drawings:

Figure 1 is a perspective of a cabinet embodying my invention and representing the same in its folded or closed condition.

Figure 2 is a perspective of the cabinet illustrated in Figure 1 but illustrating the same in its active condition in which the screen is extended and located out of the interior of the cabinet.

Figure 3 is a vertical cross section taken about on the line 3—3 of Figure 1 and further illustrating details of the cabinet and apparatus within the same.

Figure 4 is a vertical section taken about in the plane of the line 4—4 of Figure 2 and illustrating the relation of the parts when the cabinet is in its open or extended position for the screen.

Figure 5 is a horizontal section on Fig. 4 about on the line 5—5 upon an enlarged scale, certain parts being broken away, and further illustrating details of the means for extending and retracting the screen and also details of the mounting for the screen.

Figure 6 is a vertical section taken about on the line 6—6 of Figure 4 further illustrating details of the construction.

Referring more particularly to the parts, 1 indicates the body of the cabinet which is of box form, preferably having a substantially vertical front wall 2.

The cabinet includes a screen carriage 3 (see Figure 2) which is of substantially box form having a cover plate 4 and side walls 5. This carriage is mounted for sliding movement in or out of the cabinet and preferably in an upward direction so that the screen 6 mounted on the carriage will be in an elevated position for displaying the pictures on the screen. In other words, Figure 2 represents the screen in its display position. Any suitable means may be employed for extending and retracting the screen carriage, but in the present instance this is accomplished by means of two vertical racks 7 (see Figures 3 and 4), said racks being secured above to the screen carriage 3, and guided within the cabinet body so that they can mesh with two pinions 8, said pinions being mounted on a horizontal cross-shaft 9 which can be rotated by means of a worm 10 meshing with a worm wheel 11 on the shaft 9. If desired this worm 10 may be driven by a small electric motor, but in the present instance it is illustrated as mounted on

a driving shaft 11^a that extends down through the bottom 12 of the cabinet so as to be capable of rotation by crank 13 (see Figure 4).

Associated with the screen carriage 3 in such a way that when the screen carriage 3 is extended a reflector 14 is provided which will move with the extended carriage 3 into a position which will enable it to reflect an image onto the screen 6.

This reflector 14 may be mounted in any suitable manner to accomplish this, but in the present instance it is mounted on the underside of a plate 15 which in the folded condition of the cabinet operates as a cover for a portion of the cabinet and cooperates with the top plate or cover plate 4 of the carriage 3 to form a substantially continuous cover for a considerable portion of the cabinet.

The plate 15 may be considered as a reflector frame and in the present instance this plate is connected to the cabinet body and to the carriage 3, being hingedly connected to one of these members and slidably connected to the other. In the present instance the plate 15 is connected by a hinge joint 16 to the forward edge of a fixed cover plate 17 which covers the rear end of the cabinet. The forward end of the plate 15 and reflector 14 extend into the rear side of the screen carriage 3 which is open, and at each side the plate 15 is provided with a hanger or bracket 18 having a pin 19 running in a slot 20 formed in a guide bar 21. These guide bars 21 are located directly under the cover plate 4 of the carriage 3.

In order to exclude the light from coming in at each side of the reflector plate 15 when in its extended position as indicated in Figure 4, I provide side plates 22 integral with the plate 15, and these side plates 22 are preferably of sector form with arcuate outer edges 23.

At the back of the carriage 3 at an elevated point 40 and just back of the upper end of the plate 15 where it projects into the carriage, means is provided for excluding the light, preferably in the form of a flexible flap 24 which if desired may have a horizontal hinge connection 25 permitting it to swing into a substantially horizontal position when the cabinet is folded up as indicated in Figure 1.

In the present construction, when the side plates 5 of the carriage 3 descend, they are substantially in line with the hubs 8^a of the pinions 8, and hence it is necessary to provide clearance slots 26 which extend vertically upwards in the side walls 5 from their lower edges. These slots enable the side plates 5 to pass down over the hubs 8^a. However, in the elevated position of the carriage these slots would admit light and hence in the construction illustrated it is necessary to provide a shutter 27 at each side to cover these slots in the elevated position of the carriage. Each of these shutters 27 is preferably in the form of an elongated flat-plate or bar pivotally supported on a pin 28 on the inside of its corresponding side plate 5; and a spring, which may be in the form of a coil spring 29 may be provided for urging each of these shutters 27 forwardly at its lower end. The lower end of each shutter 27 is formed with an inclined cam edge 30. When the carriage descends, this cam edge 30 strikes the corresponding hub 8^a and this swings the shutter to one side on its pivot pin 28.

The rear portion of the interior of the cabinet body constitutes a projection compartment 31 which is divided off from the remainder of the interior of the cabinet by a division wall 32 which is disposed in a general vertical direction. The

lower portion of this wall 32 may be a fixed plate 33 through which an opening 34 is formed for the passage of the light rays that project the image to be thrown on the screen 6. However, the upper portion 35 of this division wall 32 is preferably mounted so that it is movable in a forward direction so as to allow clearance for opening the cover 36 of the projection apparatus 37 which stands in the projection compartment 31. This projection apparatus 37 is of the type illustrated in my patent referred to above; and in inserting the continuous film in the film magazine 38, it is necessary to open the door 36, swinging the same outwardly on its hinge 39. By making the upper portion 35 of the division wall movable, this part of the wall can be swung forwardly as indicated by the dotted lines in Figure 4. In order to accomplish this, the movable part 35 is preferably made of two hinged sections 35^a and 35^b, the upper section 35^a having a hinge connection 40 attaching it to the under side of the cover plate 17, and the lower edge of the section 35^a being connected by a hinge 41 with the section 35^b. Detachable hooks 35^c attached by springs 35^d are provided for holding the lower edge of the section 35^b against the forward side of the upper edge of the fixed wall section 33. A soft pad strip 33^a may be provided as shown to make this joint light-proof.

If desired means may be provided for latching the movable portion 35 in its extended position so that it projects forwardly from the projection compartment 31. For this purpose I may provide a latch bar 42 mounted on a pivot pin 43 under the cover plate 17 and capable of being swung around so that the tongue 42^a formed at the end of this latch can engage the upper section 35^a of the division wall as indicated in dotted lines in Figure 4.

Within the forward portion of the cabinet I provide a primary reflector 44 from which the image is projected from the lens of the projection machine located at 45, and the image thrown onto this primary reflector is reflected up onto the reflector 14, which may be considered a secondary reflector from which the light is reflected onto the rear of the screen 6 to produce the image visible from the front. The dotted lines 46 indicate the limits of the beam of light that forms the image.

In practice the reflectors 14 and 44 are parallel, or nearly so, and in order to provide for adjusting their relation to insure proper register for the picture on the screen, the reflector 44 is preferably mounted for adjustment on a substantially horizontal pivot pin 47 which may be supported on a suitable stand 48.

The projection compartment 31 is accessible at the rear of the cabinet through a hinged door 49, and in order to enable the attendant to ascertain whether the picture is properly cast on the screen 6, I provide the upper section 35^a of the division wall 32 with one or more "peep holes" 50 (see Figure 3) which have movable covers or shutters 51 pivoted at 52.

The cabinet is preferably provided with means for supporting the side edges of the reflector plate 15 when in its horizontal or folded condition. This tends to prevent buckling of this plate which might strain the reflector 14 if the same were a glass plate. For this purpose I may form the cover plate 15 with a projecting flange 53 (see Figures 4 and 6), and when the plate 15 is in its depressed position, this flange 53 rests upon a flange 54 which is formed at the upper edge of the side wall 55 of the cabinet body. At this point, in

order to exclude the light and also to prevent the flange 54 from scratching the side plate 22, I provide the flange 54 with a flexible packing strip 56. This packing strip may be of folded felt or any other suitable material. At other points throughout the cabinet where there is any possibility of light entering, I provide packing strips of felt or similar material.

The cover wall 17 is preferably provided with ventilating openings 57 (see Figures 1 and 4).

In order to exclude side lights from the forward side of the screen which might interfere with the clearness of the picture, I prefer to provide a hood 58 which is preferably constructed as indicated in Figure 4. In other words, this hood is foldable or removable and preferably comprises an upper plate 59 connected by a hinge connection 60 to the forward edge of the cover plate 4 of the carriage, and in the open position of this hood the plate 59 is supported on two side plates 61 which have hinge connections 62 on the carriage 3 at the front. When it is desired to fold up the hood 58 when the carriage 3 is to be retracted into the cabinet body, the two side plates or panels 61 are swung inwardly on their hinges 62 and the plate 58 is then swung downwardly, and if desired, small pivoted latches 63 may be provided for latching over the side edges of the plate 59 to hold it down.

In the folded position of the cabinet it will be evident that the brackets 18 will hold the forward end of the plate 15 in a slightly depressed position, and hence the supporting flange 54 (see Figure 4) should extend in an inclined direction, being depressed toward its forward end. This flange 54 may be formed as an extension on a cornice 64 hung over an angle iron 65 which is a frame member for supporting the side plate 55 (see Figure 6).

In case it is desired to employ a loud speaker with the picture projection apparatus, the forward wall of the cabinet should be provided with an opening preferably provided with a screen 66 (see Figures 1 and 4), at which the loud speaker 67 is located. Back of this loud speaker a box 68 may be provided for amplifying apparatus connected by a cable 69 to the interior of the projection apparatus 37 where proper electrical connections would be made with sound translating apparatus (not illustrated).

The screen 6 may be mounted in any suitable manner, but as illustrated in Figure 5, it may be mounted in a suitable frame 70 in such a way that the screen can be placed in tension. For this purpose the edges of the screen would be provided with rods 71 connected by elastic bands 72 with pins or screws 73 at the outer edge of the screen frame.

On the forward side of the forward wall of the cabinet I prefer to provide a sign 74 which would cooperate with the projection apparatus 37 in the manner described in my prior patent, that is to say, this sign 74 would have two legends 75 and 76 preferably formed in neon lights and these legends would be switched on alternately, controlled automatically to synchronize with the character of the pictures being thrown on the screen. In other words, if the pictures thrown onto the screen illustrate scenes from a play showing in the theatre at the time, the legend "Now showing" would be lighted, and vice versa.

The cabinet illustrated is mounted on caster wheels that facilitate its being moved in and out through the doorway of a building such as a theatre.

The wrench 13 is a socket wrench, and is re-

moved after using it. A disconnectible electric cord 1a (see Fig. 1) is employed for supplying the apparatus with electric current.

For safety against fire, the projection machine 37 is preferably constructed in accordance with my prior Patent No. 2,008,878, dated July 23, 1935, which discloses a construction for automatically stopping the water and shutting off the light circuit in case the film should become broken.

The magazine 38 is preferably constructed in accordance with my Patent No. 2,020,521, entitled "Projecting apparatus", dated November 12, 1935.

It is understood that the embodiment of the invention described herein is only one of the many embodiments this invention may take, and I do not wish to be limited in the practice of the invention, nor in the claims, to the particular embodiment set forth.

What I claim is:

1. In a picture display cabinet of the kind described, the combination of a closed substantially light-proof cabinet body having a forward wall in a substantial vertical plane, a rigid screen frame and a screen juxtaposed on the rear side of said forward wall, means for guiding the screen frame and screen to slide in a plane substantially parallel to said forward wall, and out into display position, a primary reflector within the body to receive the projected image, means connected with the screen frame and moving therewith for excluding light from the space behind the screen, and a secondary reflector associated with the screen and movable therewith for reflecting the image from the primary reflector onto the screen.

2. In a picture display cabinet of the kind described, the combination of a closed substantially light-proof cabinet body, a rigid screen carriage guided to slide substantially parallel with the forward wall of the body in and out of the body, a screen carried by the screen carriage, means for preventing light from entering the cabinet body through the space between the screen carriage and the walls of the cabinet body, a primary reflector within the body for receiving a projected image, and a secondary reflector receiving the reflections directly from the primary reflector and connected with the cabinet body and with the screen carriage so as to move the secondary reflector into position to cooperate with the primary reflector to cast the image directly onto the screen from the secondary reflector, said parts cooperating to exclude light as the carriage moves into its outermost position.

3. In a picture display cabinet of the kind described, the combination of a cabinet body, a screen carriage guided to slide out of said body parallel with the front thereof into a display position, a secondary reflector having a hinge connection with one of said parts and a sliding connection with the other of said parts for bringing the secondary reflector into active position, a screen carried by the screen carriage, means located at the side of the carriage and moving with the same for preventing entrance of light into the screen carriage when the same is extended into its active position, and a primary reflector for receiving the projected image and cooperating with the secondary reflector to reflect the same onto the screen.

4. In a picture display cabinet of the kind described, the combination of a substantially light-proof cabinet body, a screen-carriage guided to move in and out of the body, a screen carried thereby, a primary reflector within the body for receiving a projected image, a secondary reflector

connected with the cabinet body and with the screen-carriage, and mounted so as to move into position to cooperate with the primary reflector to cast the image onto the screen, said screen-carriage having side walls with clearance slots therein, and movable shutters carried by the carriage and extending over said slots for excluding light at said slots in the extended position of the carriage.

5. In a picture display cabinet of the kind described, the combination of a cabinet body, a screen-carriage guided to slide substantially vertically from the interior of the body, a secondary reflector hingedly connected to the body and having a sliding connection with the carriage and operating to move into an inclined position back of the screen-carriage when the screen-carriage is in its extended position, a screen carried by the carriage, a primary reflector to receive the projected image and cooperating with the secondary reflector to reflect the same onto the screen, and an extension of the carriage wall associated with the upper end of the secondary reflector in its extended position for excluding outside light from the interior of the cabinet.

6. In a picture display cabinet of the kind described, the combination of a cabinet body having a forward wall, a screen juxtaposed on said forward wall, means for guiding the screen to slide out into display position, a primary reflector within the body to receive the projected image, a secondary reflector associated with the screen and movable therewith for reflecting the image from the primary reflector onto the screen, said cabinet body having a rear wall with a doorway and door therein, a division wall toward the rear forming a projection compartment for a projection machine, said division wall operating to exclude light from the forward part of the cabinet when the door is open, and having a shuttered "peep-hole" through which the picture on the screen may be seen from the interior of the projection compartment.

7. In a picture display cabinet of the kind described, the combination of a cabinet body, a screen-carriage guided to slide out of said body into a display position, a secondary reflector having a hinge connection with one of said parts and a sliding connection with the other of said parts for bringing the secondary reflector into active position, a screen carried by the screen-carriage, a primary reflector for receiving the projected image and cooperating with the secondary reflector to reflect the same onto the screen, said screen-carriage having side walls, and sector-shaped side plates at the sides of said secondary reflector projecting into the rear side of the

screen-carriage, and lying within the side walls of the cabinet body.

8. In a picture display cabinet, the combination of a cabinet body, a screen-carriage movably mounted in the cabinet body so that it can be moved out of the same into a display position, a screen carried by the screen-carriage, a division wall in the cabinet body dividing off a projection compartment from the remainder of the interior of the body, a projection machine in the compartment having a film magazine with a door mounted to swing open toward the division wall said division wall having a portion thereof movably mounted in the casing so as to be capable of movement away from the interior of the projection compartment.

9. In a picture display cabinet, the combination of a cabinet body, a screen-carriage movably mounted in the cabinet body so that it can be moved out of the same into a display position, a screen carried by the screen-carriage, a division wall in the cabinet body dividing off a projection compartment from the remainder of the interior of the body, a projection machine in the compartment having a film magazine with a door mounted to swing open toward the division wall said division wall having a portion thereof movably mounted in the casing so as to be capable of movement away from the interior of the projection compartment, and means for holding the said movable portion of the division wall in position after the same has been moved away from the projection compartment.

10. In a picture display cabinet, the combination of a substantially light-proof cabinet body, a screen carriage guided to move substantially vertically from the interior of the body, said screen carriage having a screen in its forward wall and having a cover wall and side walls, a cover wall for the cabinet having a hinged section extending into the rear side of the screen carriage and below the cover wall of the screen carriage, said hinged section having side walls lying substantially against the inner faces of the side walls of the screen carriage and cooperating with the same to exclude light from the interior of the screen carriage when the same has been moved upwardly from the interior of the cabinet body, said screen carriage having a back wall with a flexible flap for engaging the upper face of the hinged section to exclude light from passing into the interior of the screen carriage from the rear side, a projection machine within the cabinet body, and reflectors for reflecting light from the projection machine onto the inner face of the screen.

ALBERT B. SCOTT.