

PATENT SPECIFICATION

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COMPLETE SPECIFICATION.

Improvements in and connected with Projection Screens.

We, ROBERT FORGIE HUNTER, of British Nationality, ARTHUR BLACKBURN, of British Nationality, and HUGO NAGEL, of German Nationality, all of 40, Doughty Street, London, W.C. 1, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

5 This invention relates to improvements in projection screens of the roller blind type and has for an object to provide an improved construction which, when the screen is in collapsed position, provides
10 an exceedingly compact and conveniently portable holder, the auxiliary parts of the screen forming a container therefor. A further object is to provide an improved construction of stretching device
15 for holding the screen in extended position.

In accordance with a feature of the invention the roller of the projection screen is mounted for rotation within and
25 between the side walls of a box while the free end of the screen is attached to a member which in the rolled up position of the screen serves as a lid for the box, the stretching device for the screen
30 coming wholly within the box in the collapsed position of the screen. In accordance with a further feature of the invention the stretching device for the screen comprises a pair of pivoted struts
35 connecting the lid member and the box, such struts being pivoted to one another about midway of their length and each of the struts being pivoted at one end either to the lid member or to the box
40 body and slidable at the other end in a guide in the box body or in the lid, so that on unrolling the screen the struts may move into extended position holding the screen open. The struts are held in
45 their position with the screen extended by means of a catch on the lid member engaging the strut sliding in the guide therein. A finger piece for releasing the catch is preferably provided with an
50 extension adapted when the lid is moved into closed position to engage with one or more upstanding projections on the bottom of the box body which serve to

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guide the lid into position, the extension thus serving as a lock to hold the box
55 closed. The same finger piece may thus be operated to release the lock holding the box closed permitting the screen to be unrolled and also, when the screen is extended, to release the extended strut
60 held by the catch when the screen is to be rolled up. Normally the box will form a base for the screen but where the screen is to be hung from a wall the box body will be provided with clips for this
65 purpose and the screen will depend therefrom.

One embodiment of the invention applied to a projection screen is illustrated by way of example in the accompanying drawings, in which Fig. 1 shows the apparatus in its closed position forming a box. Fig. 2 is a rear elevation showing the projection screen in extended position partly in section on the line 2—2
70 of Fig. 3, while Fig. 3 is an end elevation of Fig. 2. Fig. 4 is a detail to enlarged scale of the catch and locking mechanism, while Fig. 5 is a detail of the roller mounting.
80

Referring to the drawings, A indicates the usual projection screen of canvas, linen or the like adapted to be wound on or unwound from a spring roller B of the usual type. This spring roller is mounted
85 for rotation in blocks C secured within the side walls D of a shallow box E. The free end of the screen A is clamped by a strip of wood or metal F to a cross bar G secured to the bottom of a member H
90 which, when the screen is rolled upon its roller, forms the lid of the box as shown in Fig. 1. The lid member H is formed with a recess in its upper side holding a strap h by which the apparatus can be
95 carried when in closed position. An upstanding projection I secured to the bottom of the box E co-operates with a hole J in the cross bar G and lid H to guide the lid into its proper position on
100 the box.

The screen is brought into extended position by releasing a catch hereinafter described and by pulling the handle, thus operating a stretching device which
105 in the extended position of the screen

holds the screen taut. The stretching device which constitutes one feature of the present invention comprises as shown in Figs. 2 and 3 a pair of pivoted struts K and L adapted to be extended and collapsed. The strut K in the embodiment illustrated is pivoted at one end on one of the blocks C in the box body and at its other end is fitted with a spindle or roller M sliding in a slotted guide N secured to the lower side of the lid H. This strut K is preferably formed of two spaced members between which moves the strut L which is pivoted at O to the cross bar G of the lid and at the other end is fitted with a spindle or roller P movable in a slotted guide Q secured within the bottom of the box E. On extending the screen therefore by pulling on the handle the ends of the struts K and L move in their slotted guides N and Q and in the extended position assume the position shown in Fig. 2. They are held extended by means of a spring pressed pivoted catch R which engages beneath the spindle or roller M on the strut K, as shown in full lines in Fig. 4.

To release the catch R there is provided in a recess in the lid H a finger piece S fitted with a cam T. On pushing the finger piece into the chain dotted position shown in Fig. 4 the cam turns the pivoted catch R about its pivot *r* against the action of its spring releasing the roller M and allowing the spring of the screen roller to take control and effect collapse of the screen and close the box. The finger piece S is fitted with a plate like member U extending across the passage J in the box lid H and the plate U is provided with a hole which serves to permit the passage of the upstanding projection I and the sides of which engage the notch *i* in the projection I when the lid is in closed position. A spring V attached to the plate and anchored to the lid serves to permit movement of the plate and ensures that it will act as a catch engaging the upstanding projection I and holding the box closed. With wide screens it may be found necessary to provide two or more upstanding projections I in which case the plate U will be extended to engage the various catches.

Projection screens of canvas or the like sometimes tend to stretch more at one side than at the other and consequently do not remain flat when in extended position. To adjust any inequality in stretch of the screen we preferably provide for adjustment of one end of the

roller in its bearings. This adjustment is provided in the embodiment illustrated as shown in Fig. 5 by making the slot W in one of the blocks C in which the spindle of the roller B is mounted of elongated form and providing an adjusting screw X for raising or lowering the spindle.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A projection screen of the roller blind type in which the roller is mounted within the sides of a box and the free end of the screen or the like is attached to a member which in the fully rolled up position of the screen or the like forms the lid of the box, the projection screen having a stretching device connected to the lid and to the box body and in the closed position coming wholly within the box.

2. A projection screen as claimed in claim 1 in which the stretching device comprises a pair of pivoted struts each pivoted at one end either to the box body or the lid and at the other movable in a guide in the lid or in the box body.

3. A projection screen as claimed in claim 2 in which a pivoted catch in the lid is adapted to engage one of the struts and hold the screen in extended position.

4. A projection screen as claimed in claims 1 or 2 in which an upstanding projection or projections on the box co-operates or co-operate with a passage or passages in the lid to guide the lid into closing position.

5. A projection screen as claimed in claims 3 and 4 in which a catch on the lid serves to engage with the upstanding projection or projections to hold the lid closed.

6. A projection screen as claimed in claims 3 to 5 in which a finger piece in the lid serves either to release the catch holding the screen extended or the catch holding the box closed.

7. A projection screen as above claimed having means for adjusting the tension of the screen.

8. A projection screen constructed and arranged substantially as described with reference to the annexed drawings.

Dated this 15th day of September, 1930.
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and

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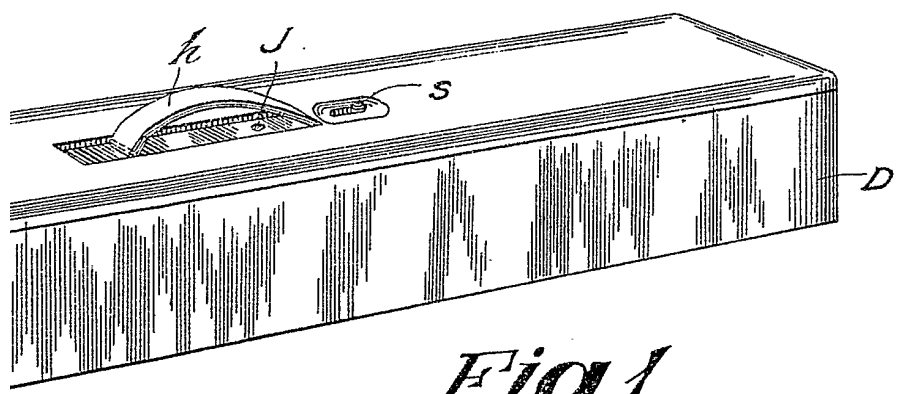


Fig. 1.

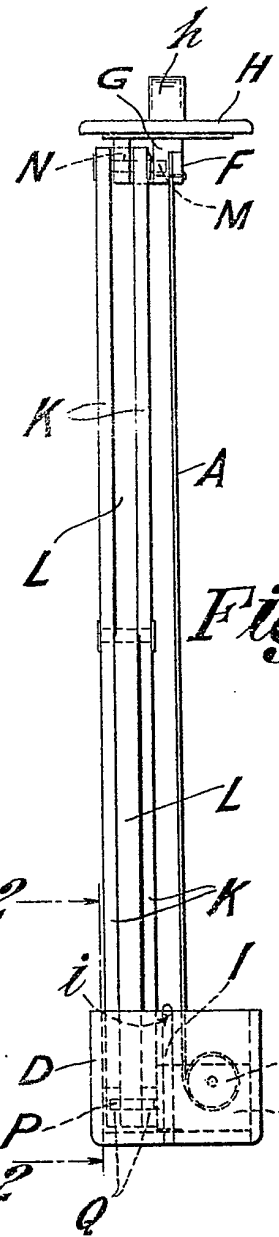
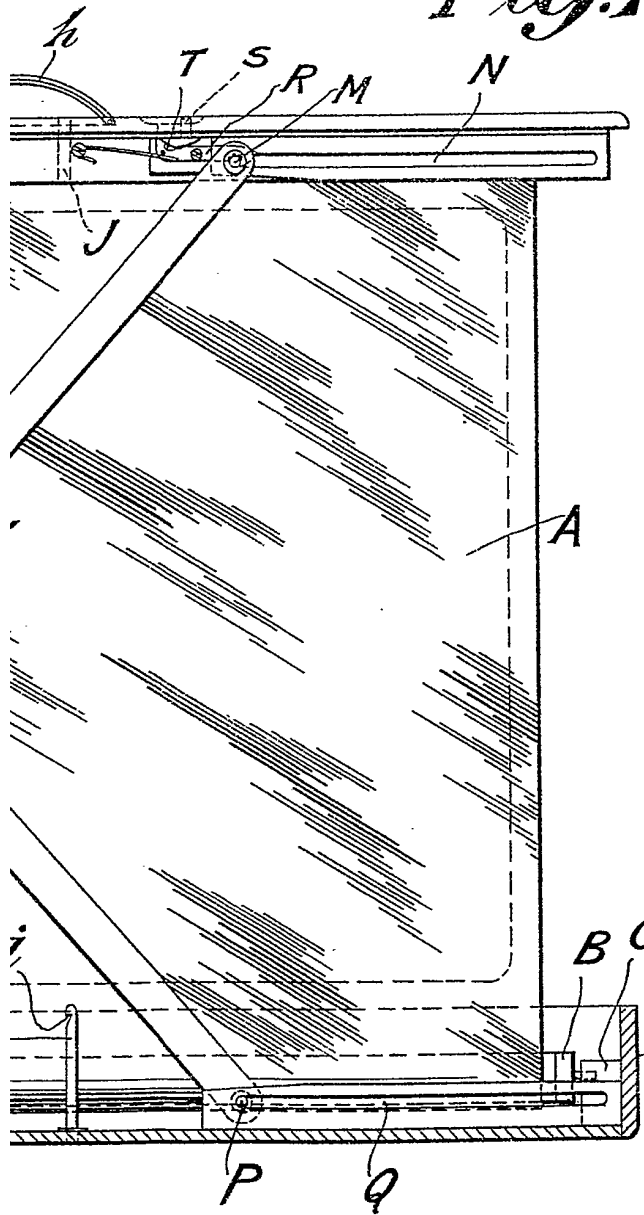


Fig. 3.

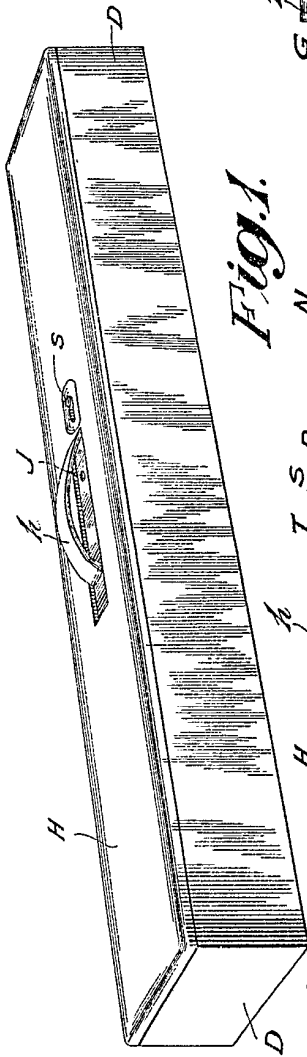


Fig. 1.

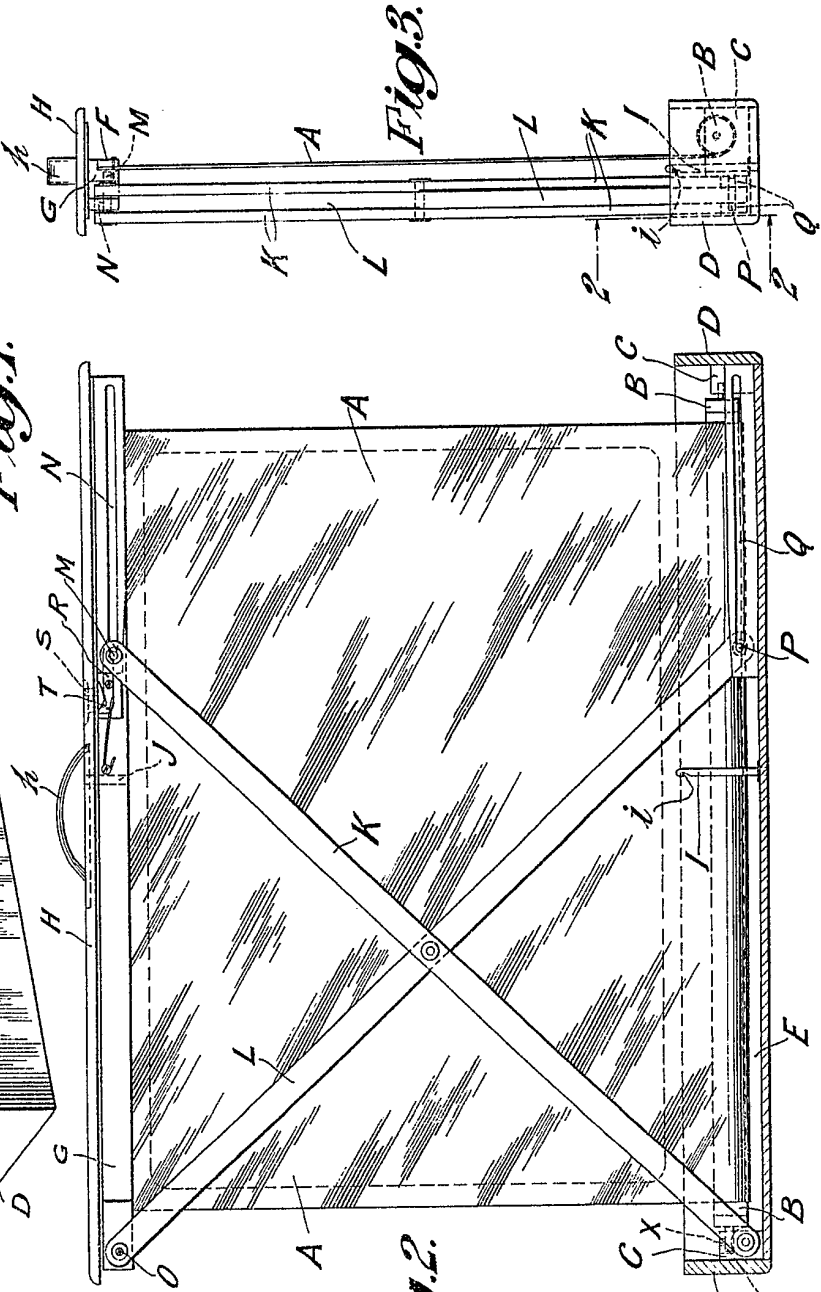


Fig. 3.

Fig. 2.

[This drawing is a reproduction of the Original on a reduced scale.]