Sept. 21, 1926.

1,600,535

W. J. CITRON

ATTACHMENT FOR PROJECTORS

Filed March 26, 1925

Fig. 2.

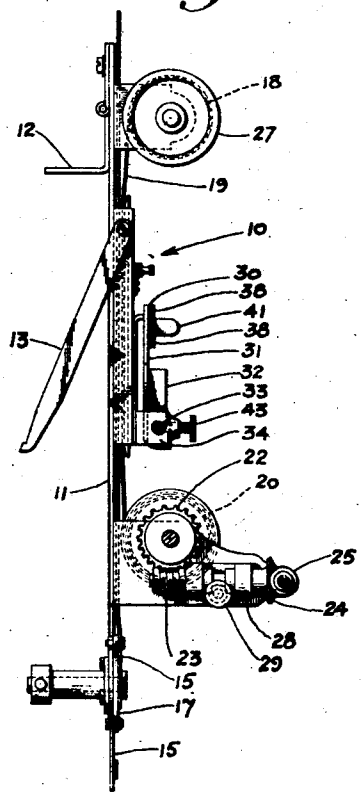


Fig. 1.

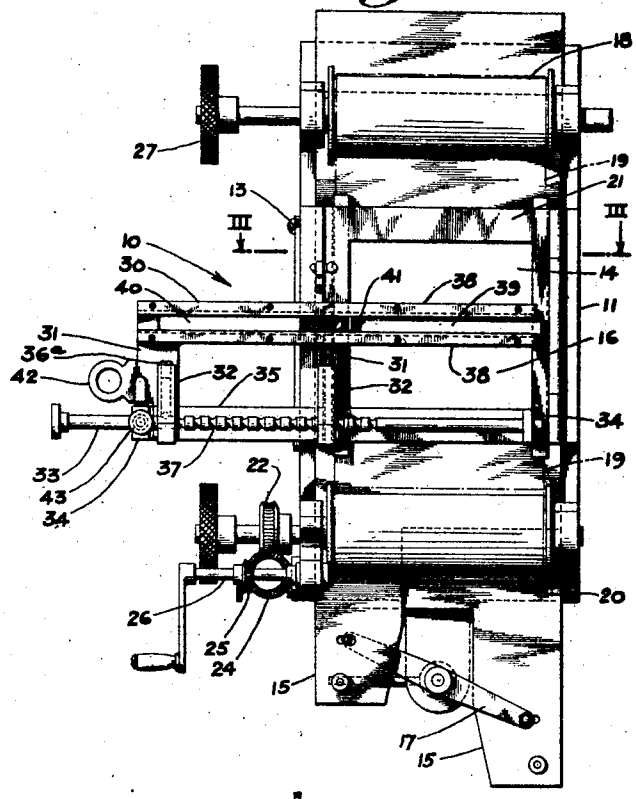


Fig. 5.

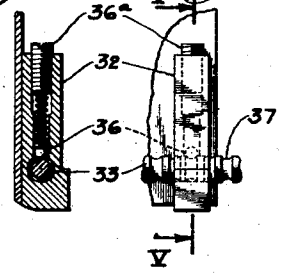
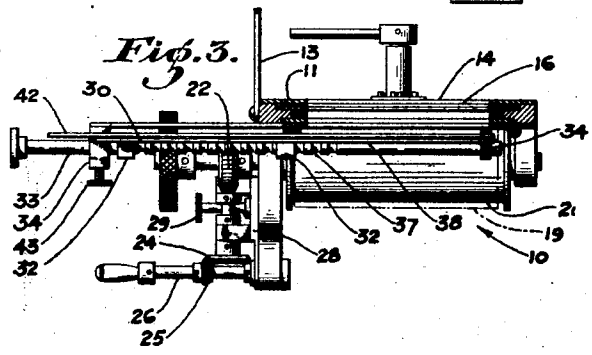


Fig. 4.

Fig. 3.



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Patented Sept. 21, 1926. 1,600,535

UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR PROJECTORS.

Application filed March 26, 1925. Serial No. 18,400.

This invention relates to improvements in stereopticon projectors, and more particularly to an attachment such as is illustrated in my application, Serial Number 671,888, filed October 31, 1923.

In said application I have shown and described an attachment for projectors whereby flexible film may be moved at will past a window in the projector so as to cause reading matter and the like, printed on the film, to be projected upon a screen and to travel from bottom to top thereof with a continuous motion, but sufficiently slow to permit reading of the text appearing on the film. In said attachment I have provided an adjustable means whereby the size of the window or aperture may be conveniently varied, particularly as to height, so as to disclose a single line or any desired number of lines of reading matter at one time. Also in such prior apparatus variation in the width of the window or aperture could be brought about by inserting an opaque plate in the usual slide carrier, which remains in place back of the film attachment.

In and by the present invention I have provided an improved means for controlling the window or aperture in a horizontal direction in such a way that each letter of a word may be separately projected in succession. This permits the operator to spell out a word, one letter at a time, in order to attract attention and emphasize some particular part of the announcement. The device may be operated so as to wipe out each letter after it has been projected sufficiently long, or optionally to allow the projected letters to remain exposed while other letters in turn are being uncovered. This mechanism I have termed a "spelling attachment." It is so mounted as to be swung out of the way quickly in order that the full width of the window or aperture may be uncovered for ordinary projection.

One form which my invention may assume is exemplified in the following description and illustrated in the accompanying drawing, in which

Fig. 1 shows a front elevation of an attachment embodying my invention;

Fig. 2 shows a side elevation of the same in place upon a stereopticon projector;

Fig. 3 shows a sectional view taken on line 3—3 of Fig. 1;

Fig. 4 shows an enlarged detail view in side elevation of the spacing mechanism used in connection with the spelling attachment;

Fig. 5 shows a sectional view taken on the line 5—5 of Fig. 4.

Referring in detail to the accompanying drawing, I show an attachment mounted on a slide carrier 10 in front of the condenser housing of a stereopticon projector not shown. This attachment includes a frame 11 hinged at its upper end to a bracket 12, which latter is fixed to the slide carrier. Thereby the entire attachment may be swung upwardly, out of the way of the slide carrier, and held in raised position by means of arms 13, so that the stereopticon projector may be employed in the ordinary way, using plates or slides.

Said frame 11 is provided with a window or aperture 14 to align with the window or aperture in the slide carrier, and this aperture or window is controlled or varied as to height or vertical dimensions by means of a pair of shutters 15 slidably mounted in vertical guides on the frame. Each shutter member has a rectangular aperture or window 16 corresponding to the aperture or window in the frame, and said shutters are moved simultaneously in opposite directions by a cross-arm 17 pivotally mounted on the frame, and provided with suitable means for manually turning it.

The frame at its upper portion carries a supply reel 18 for a flexible film 19, and near the lower end of said frame is a storage reel 20 for said film. The film thus passes downwardly across the aperture or window in the frame, and is preferably guided and held in

position by a hinged guide 21 on the front of said frame.

Means are provided for driving the storage reel, and such means in the present case includes a worm gear 22 fixed on the shaft of said storage reels, a screw 23 meshing with said worm gear, a bevel gear 24 on the end of said screw, which bevel gear meshes with a bevel pinion 25 on a crank shaft 26. This worm drive gives a reduction of about 80 to 1, which is approximately what is required in order to impart motion to the film sufficiently slow to permit the text of the projected matter to be read while the crank is being turned at a convenient speed. The upper or supply reel 18 is provided with a suitable crank or disk 27 for re-winding the film, and in order that the lower reel may be released at this time from the locking effect of a worm drive, I arrange the bearings of the screw shaft 23 upon a plate 28, which is supported pivotally at one end on the crank shaft 26. The other end of this plate is loosely held by a screw 29. Thus the screw shaft may be swung out of mesh with the worm gear 22 when the film is being rewound, and at other times said screw shaft will be meshed with the worm gear and securely held by the screw 29.

It is obvious from the foregoing that the size of the window or aperture may be varied as to height by a movement of the shutters 15 in opposite directions, such adjustment being from full open position to closed position. I find it desirable in projecting announcements and other reading matter to emphasize or call attention to some particular line or word. For this purpose the shutters can be moved so as to reduce the vertical dimensions of the window or aperture to a size just sufficient to permit one line of reading matter to be projected. In order to emphasize or call attention to some particular word or words, it is desirable to provide for horizontal control of the aperture or window, and this I accomplish by the so-called "spelling attachment" of the present invention.

In its preferred form, this spelling attachment consists of a frame 30 which in length is approximately twice the width of the window or aperture across which the film travels, and which is arranged to be positioned across said aperture near the middle thereof. This frame 30 has a plurality of legs 31 near one end, each leg being formed with a bearing 32 slidably mounted on a rod 33. This rod is supported in bearings 34 fixed to the hinged gate 21, so as to swing therewith. One of these bearings, to-wit, the one at the left in Fig. 1, is supported in extended position by an arm 35, so as to allow ample movement of the bearings 32 along the rod. One of the bearings 32, as shown in Fig. 5, carries a spring-pressed ball 36 to co-operate with notches 37 formed on the rod 33. Preferably there is a screw 36[a] for adjusting the tension of the spring. The distance between the notches 37 corresponds with the spacing of the letters on the film, so that when the frame 30 is shifted from one notch to the other, it will have travelled the distance between two letters on the film.

The frame 30 is formed with guides 38 to slidably receive a bar 39. This bar is approximately the same length as the frame 30, and is formed with a small opening 40 intermediate its ends. This opening is of a size to permit the rays projected by a single letter to pass through. Preferably there is a stud or button 41 on the bar, so that it can be conveniently adjusted within the guideways.

In the use of this spelling attachment, the frame 30 ordinarily at the outset will be shifted to the right of the position shown in Fig. 1, so that the opening 40 will line up with the first letter of the word to be spelled. Thereafter the entire frame 30 can be advanced intermittently to the left a distance corresponding with the spaces between the adjacent letters, so that the opening 40 will traverse the entire width of the window or aperture across which the film travels. A handle 42 is preferably provided for the frame, and the operator by grasping this handle can conveniently move the frame one step at a time, owing to the action of the spring-pressed ball 36 co-operating with the notches in the rod 33.

That part of the frame 30 overhanging the legs 31 is open between the guides 38, so that the projected rays may pass through the opening 40 in any position of adjustment of said opening.

From the foregoing, it will be seen that when the opening 40 in the bar 39 is used, only one letter at a time will be projected, and each letter will be wiped out before the next letter comes into view. This is a very effective and attractive feature for some purposes, but at other times it is desirable to allow all letters to remain on the screen after they have been projected. To accomplish this the bar 39 is moved to a position where the open portion of the frame 30 is uncovered, that is to say, the bar will be moved to the left of the position shown in Fig. 1. The shiftable frame is then moved to its initial position, which will be to the extreme right of that shown in Fig. 1, so that the space between the shutters will be covered by the left-hand half of the frame 30. Then as the frame is advanced step by step to the left, the letters are projected in successive order, but remain projected on the screen instead of being wiped out as when the opening 40 is used.

When it is not desired to use this spelling

attachment, the frame 30 can be swung downwardly to a horizontal position about the rod 33, thus clearing the space in front of the window or aperture. The slidable bar 39 permits of positioning the opening 40 at any desired point in front of the aperture or window, so as to adjust it to the position of the letters on the film. An adjustment is also provided for the rod 33 so that the notches therein may be set in accordance with the position of the letters on the film. This latter adjustment consists of slidably mounting the rod 33 in its bearings 34 and providing a set screw 43 for one of these bearings, so as to hold the rod in adjusted position.

While the present invention is particularly applicable to a film attachment of the character shown in my prior application above mentioned, it is obvious that it may be applied to the usual projector for co-operation with slides or plates.

Various changes in the construction and arrangement of the several parts herein shown and described may be employed, without departing from the spirit of my invention, as disclosed in the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. The combination with a projecting apparatus having a projecting aperture and an image-support disposed across the same, said image-support containing reading matter on horizontal lines, adjustable means for varying the size of said aperture in a vertical direction, so as to permit the projection of a single line of reading matter, a horizontally movable mask for controlling said aperture in a horizontal direction, and means for retarding the horizontal movement of said mask at spaced intervals so as to uncover at each movement a space corresponding to one letter of the reading matter.

2. The combination with a projecting apparatus having a projecting aperture and an image-support disposed across the same, said image-support containing reading matter on horizontal lines, adjustable means for varying the size of the aperture in a vertical direction so as to permit the projection of a single line of reading matter, a mask movable horizontally across said aperture, having a small window to admit light rays from a portion of the image-support corresponding in size to one letter, adjustable means whereby said window portion of the mask may be covered, and means for retarding the horizontal movement of the mask at spaced intervals corresponding to one letter at each movement.

3. In combination with a projecting apparatus having a projecting aperture and an image-support disposed across the same, means for controlling the projecting aperture in a horizontal direction, comprising a mask movable across said aperture in a horizontal direction and provided with a small window to admit light rays from a restricted portion of the image-support, and friction means for retarding the movement thereof at regularly spaced intervals.

4. The combination with a projecting apparatus of means for controlling the projecting aperture in a horizontal direction, comprising a mask disposed across the said aperture, a horizontal track member on which the mask is mounted for sliding movement, and a friction stop between the mask and horizontal track member serving to check the movements of the mask at regularly spaced intervals.

5. The combination with a projecting apparatus of means for controlling the projecting aperture in a horizontal direction, comprising a mask disposed across said aperture, a horizontal track member on which the mask is mounted for sliding movement, a friction stop between the mask and horizontal track member serving to check the movements of the mask at regularly spaced intervals, and an adjustable member on the mask having a small window adapted to be disposed in front of the aperture of the projecting apparatus.

6. The combination with a projecting apparatus of means for controlling the projecting aperture in a horizontal direction, comprising a mask disposed across the said aperture, a horizontal track member on which the mask is mounted for sliding movement, and a friction stop between the mask and horizontal track member serving to check the movements of the mask at regularly spaced intervals, said mask being mounted on the track member so as to swing in a vertical plane to uncover the aperture of the projecting apparatus.

7. The combination with a projecting apparatus of means for controlling the projecting aperture in a horizontal direction, comprising a mask disposed across the said aperture, a horizontal track member on which the mask is mounted for sliding movement, a friction stop between the mask and horizontal track member serving to check the movements of the mask at regularly spaced intervals, and a hinged member on which said mask and track are mounted.

8. The combination with a projecting apparatus of means for controlling the projecting aperture in a horizontal direction, comprising a mask disposed across the said aperture, a horizontal track member on which the mask is mounted for sliding movement, a friction stop between the mask and horizontal track member serving to check the movements of the mask at regularly spaced intervals, and means for adjusting said track member longitudinally.

9. In combination with a projecting ap-

paratus having a projecting aperture and an image-support disposed across the same, adjustable means for varying the size of the aperture in a vertical direction, and means for controlling said aperture horizontally and comprising a horizontal track member formed with depressions at regularly spaced intervals, a mask slidably mounted on said track member, a spring-pressed catch carried by the mask and co-operating with the depressions on said track member, and a slidable bar carried by said mask and provided intermediate its ends with a small window.

WILLIAM J. CITRON.