F. J. REILLY.

ATTACHMENT FOR PICTURE AND OTHER IMAGE PROJECTING APPARATUS.

APPLICATION FILED MAY 5, 1910.

994,276. Patented June 6, 1911.

Fig. 1.

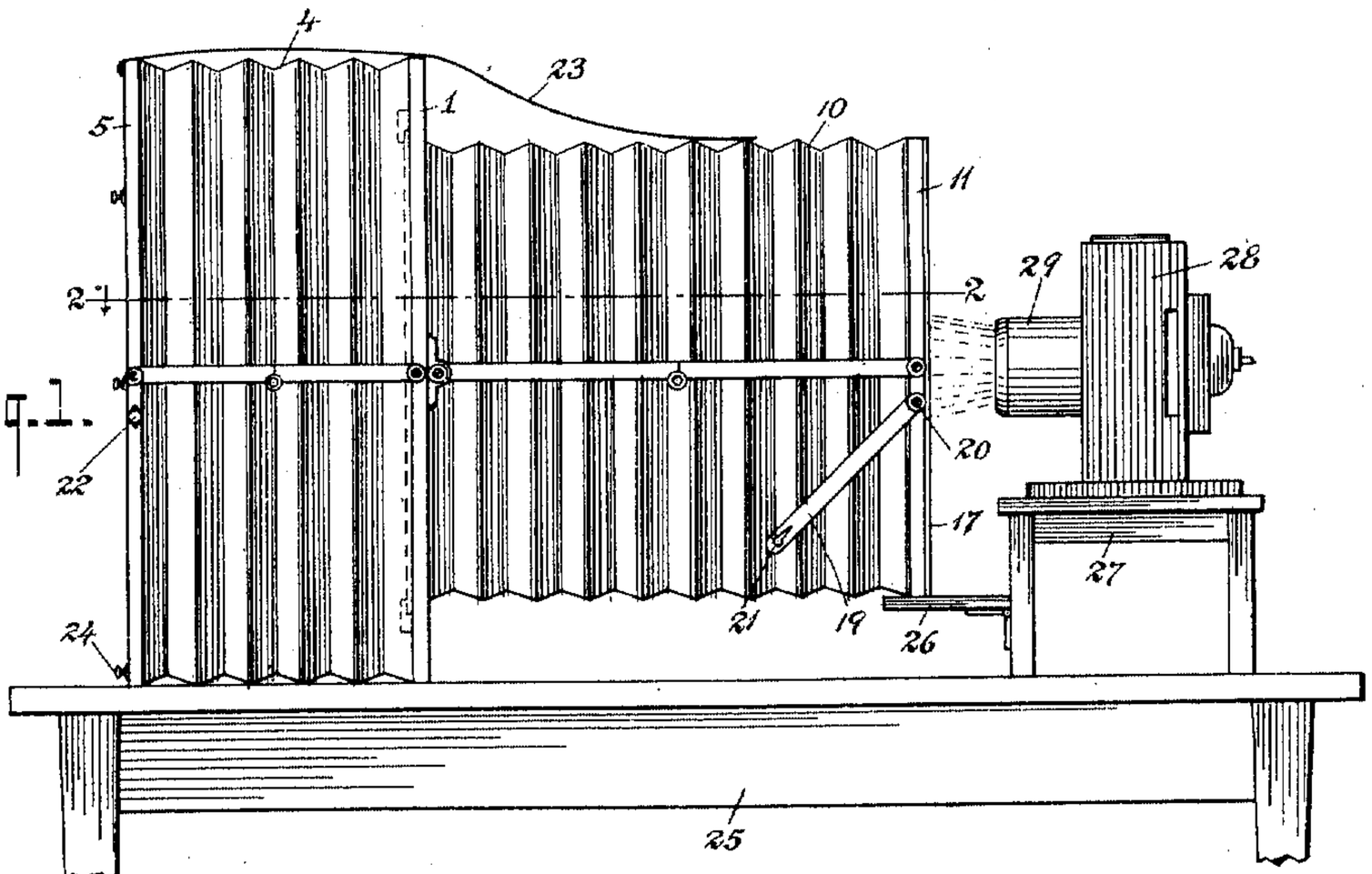


Fig. 2.

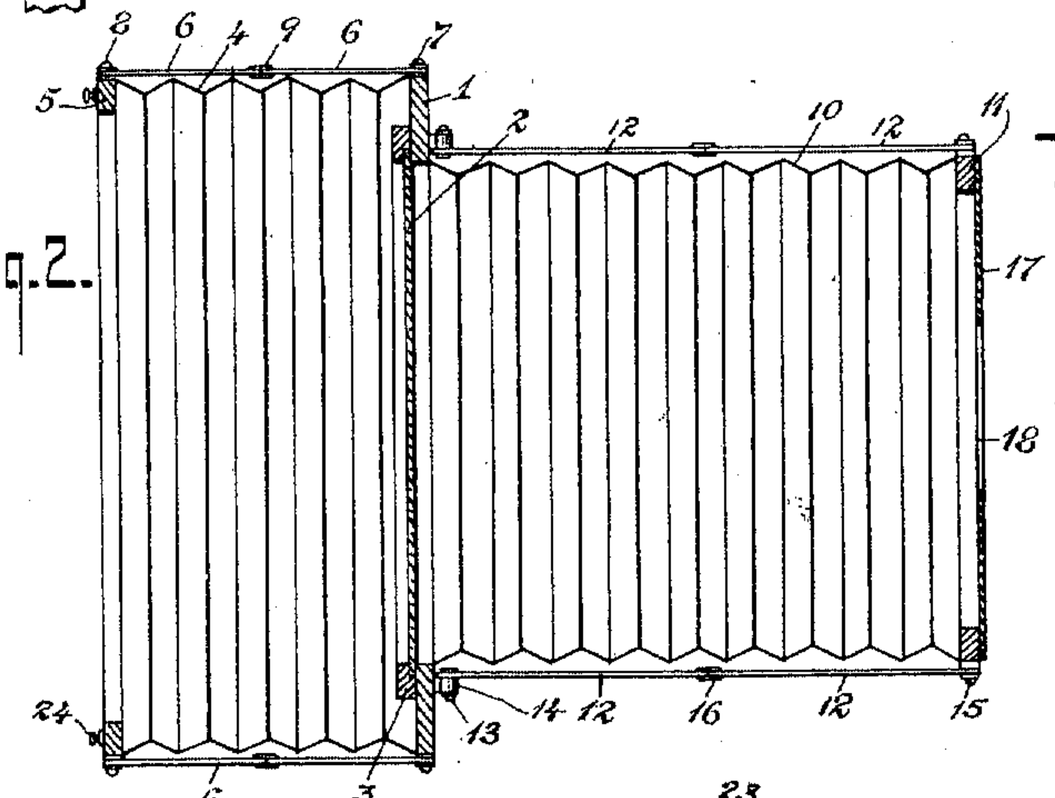


Fig. 3.

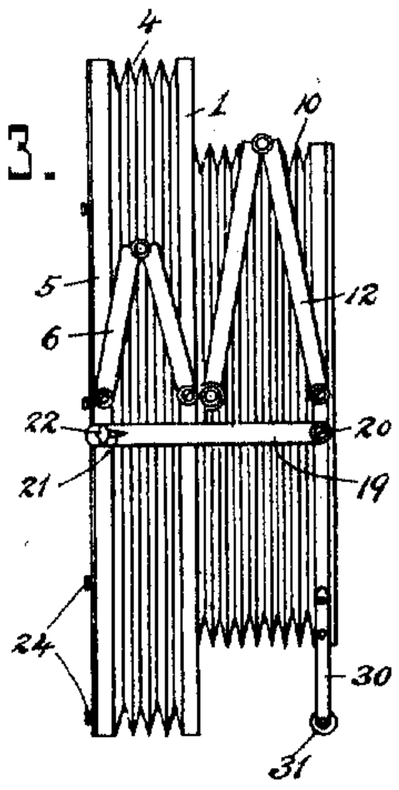
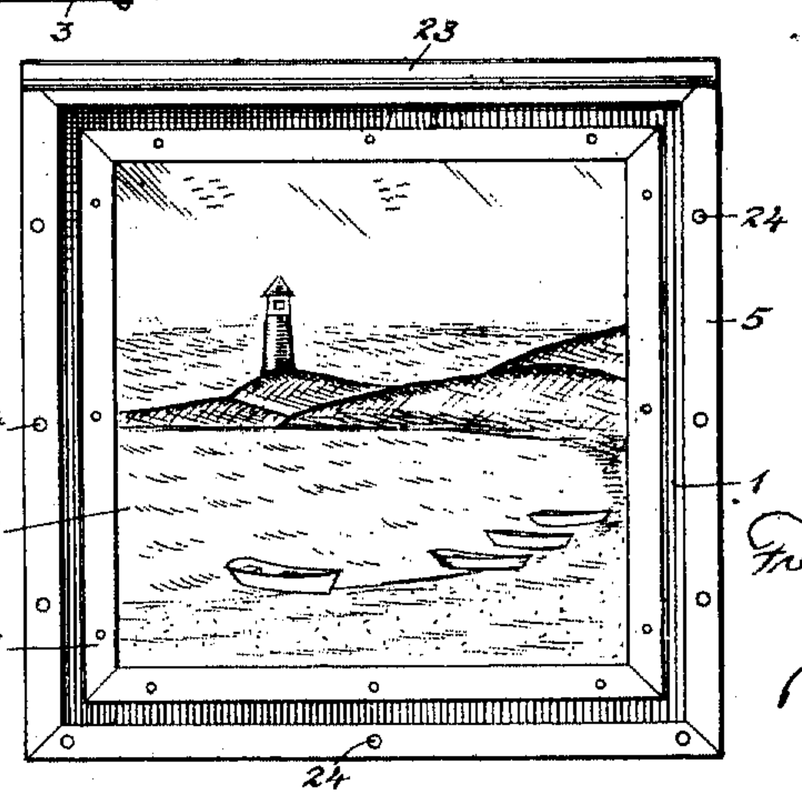


Fig. 4.



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ATTACHMENT FOR PICTURE AND OTHER IMAGE PROJECTING APPARATUS.

994,276. Specification of Letters Patent. Patented June 6, 1911.

Application filed May 5, 1910. Serial No. 559,583.

To all whom it may concern:

Be it known that I, FREDERICK J. REILLY, a citizen of the United States, and resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Attachments for Picture and other Image Projecting Apparatus, of which the following is a specification.

My invention relates to attachments for picture and other image projecting apparatus and has for its object to provide an attachment of this description by the use of which pictures or other images may be projected on a screen so as to be clearly and distinctly visible without making it necessary to darken the room in which the attachment and apparatus are being used. Heretofore to secure a distinct and clear reproduction of the image it has usually been necessary to darken the room in which the demonstration was taking place. Owing to existing circumstances, it is ofttimes almost impossible, particularly during daylight, to secure the required degree of darkness necessary to a perfect reproduction and furthermore in many instances and for various reasons this darkness is extremely objectionable and ofttimes dangerous.

The particular aim of my invention is to overcome these objectionable features and to make it possible to secure a clear and distinct reproduction in a brightly lighted room either during daylight or after nightfall.

Another object of my improvement is to so construct my particular attachment as to make it easily collapsible and capable of being folded into small compass so as to be readily carried or shipped about.

My invention will be fully described hereinafter and the features of novelty will be pointed out in the appended claims.

Reference is to be had to the accompanying drawings in which—

Figure 1 is a side elevation of my improved apparatus in operative position; Fig. 2 is a horizontal section thereof on the line 2—2 of Fig. 1; Fig. 3 is an elevation showing my improved attachment in its folded condition; and Fig. 4 is a front view thereof.

The attachment comprises a frame 1 of metal or other suitable material the opening of which is covered by a screen 2 of translucent material preferably in the nature of a glass plate secured in position by means of strips 3. To the outer periphery of this frame is secured the one end of a forwardly extending bellows 4 capable of being extended as shown in Fig. 2 and having its forward end fastened to a frame 5 similar to the frame 1. To maintain the bellows 4 in its extended position I provide levers 6 each pivotally secured at 7 and 8 to the respective frames 1 and 5 and pivotally connected with each other by means of a rule joint 9 so that said joint is capable of being broken only in one direction and is firmly held against movement in the other direction. These connected levers 6, of which I preferably provide two sets, arranged on opposite sides of said bellows, when extended thus act in the nature of single stiff levers and maintain the bellows 4 firmly in its extended position. The said bellows may be easily folded by breaking the joint 9 as shown in Fig. 3. A second folding bellows 10 preferably of reduced cross section has its one end secured to the inside edge of the frame 1 and its opposite end fastened to a frame 11 similar to the frame 5 and projects rearwardly from the frame 1 as illustrated in Fig. 2. This bellows 10 is maintained in its extended position by means of levers 12 pivotally connected at 13 to lugs 14 carried by the frame 1 and at 15 to the frame 11. These levers are connected together by a rule joint 16 and operate in the same manner as do the levers 6. A cover 17 provided with a central reduced opening 18 is secured to the outside surface of the frame 11 in any suitable manner as by means of screws or simply by gluing.

To secure the attachment in its folded condition I provide a strap 19 secured at 20 to the frame 11 and having an aperture 21 near its free end adapted for engagement with a button 22 carried by the frame 5. Thus after the bellows have been folded the aperture of the strap is engaged with the button 22 as indicated in Fig. 3 and prevents expansive movement of said bellows.

To cover the opening of the frame 5 and protect the screen 2 against injury when the attachment is not in use either in its folded or unfolded condition I provide a preferably flexible cover 23 having its one edge secured to the one edge of the frame 5 and provided adjacent to the remainder of its periphery with spaced openings adapted to be engaged with similarly spaced buttons 24 located on the said frame 5. When it is

desired to utilize said cover it is simply folded down over the opening of the frame 5 and the openings thereof and buttons 24 engaged with each other to secure said cover in position to completely cover the said opening and thus protect the interior of the attachment and particularly the screen 2 against injury.

In use the attachment in its extended condition may be set on a table or other support 25 the bellows 4 resting thereon and the end of the reduced bellows 10 being supported on a shelf 26 which may form part of a second smaller support 27 located on the table 25. This support 27 also serves as a carrier on which to mount the lamp or other projecting apparatus 28 the lens tube 29 of which is arranged axially of the attachment and with its end in close proximity to the opening 18. In this position of the parts the cover 23 is folded back as indicated in Fig. 1 so as to leave the opening of the frame 5 free and the screen 2 visible from the front of the attachment. It is to be understood that the image is projected on to the screen 2 which is practically in darkness so that the reproduction is clear and distinct even though the room in which the demonstration is taking place is highly illuminated. That is the forwardly extending bellows 4 forms a hood for shading the front surface of the screen 2 and the rearwardly extending bellows 10 serves as a hood to shade the rear surface of said screen. Furthermore the rays of light being directly projected from the rear of the screen into the darkness of the interior of said bellows 10 are not dimmed by the surrounding light of the room so that even in broad daylight a clearly defined image is reproduced on the screen 2. In other words the two bellows 4 and 10 form a substantially continuous open-ended channel or tube at an intermediate point of which the screen 2 is secured. Owing to the fact that in the illustration the screen is of translucent glass the image although projected on the rear of said screen is visible to the audience from the front. This screen instead of being a glass plate may be of any translucent material such as tracing linen, tracing paper or ordinary fabric.

My invention may be used with an ordinary stereopticon or with a moving picture or other image projecting machine and is extremely valuable for use in connection with lectures in school rooms. When my invention is used the operator or the lecturer, and the audience are in the light and not in darkness as in ordinary cases so that the lecturer has the advantage of seeing his audience and the audience the lecturer. Furthermore in the case of a disturbance of any kind the cause may quickly be found and remedied and the tendency to a panic which is always present in gatherings of this kind may be averted. After the lecture or other demonstration has been finished the attachment may be folded into a small compass and either stored away or carried or otherwise transmitted to some other location.

It will be noted that the bellows 10 corresponds substantially in cross sectional area to the surface area of the screen so that the light is confined directly to said screen and is not diffused over unnecessary surface as might be the case if said bellows were larger. Further the bellows 4 is larger in cross section than the area of the plate 2 so as to provide the largest possible extent of view to the audience. It will be seen that the aperture 18 is comparatively small and that the cover 17 prevents any light other than the rays from the projecting apparatus from entering the interior of the bellows 10 from the rear. If desired instead of having the cover 17 the frame 10 itself may be formed with a reduced opening corresponding to the opening 18.

Instead of supporting the end of the reduced bellows 10 on a shelf as shown in Fig. 1 the said bellows may be provided adjacent to its free end with a downwardly projecting standard 30 in which is journaled a roller 31. This standard with its roller is of the required length to properly support said bellows in position on the table or other support and does away with the necessity for the shelf 26 or an equivalent support.

Various changes in the specific construction shown and described may be made within the scope of the claims without departing from the spirit of my invention.

I claim:

1. An attachment of the kind described comprising a screen on which the image is projected and hoods extending in opposite directions from said screen for shading opposite surfaces thereof, said hoods being of different cross sectional areas.

2. An attachment of the kind described comprising a screen on which the image is projected and folding hoods extending in opposite directions from said screen for shading opposite surfaces thereof and means for maintaining said hoods in their extended condition.

3. An attachment of the kind described comprising a screen on which the image is projected and folding hoods extending in opposite directions from said screen for shading opposite surfaces thereof and means for maintaining said hoods in their extended condition, and a cover for covering the open end of said forwardly extending hood.

4. An attachment of the kind described comprising a screen on which the image is projected and hoods extending in opposite directions from said screen for shading opposite surfaces thereof the forwardly ex-

tending hood being provided at its front end with an opening corresponding in size substantially to the cross sectional area of said hood while the rearwardly extending hood is provided at its rear end with a reduced opening.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FREDERICK J. REILLY.

Witnesses:
JOHN A. KEHLENBECK,
G. V. RASMUSSEN.