

N^o 13,314



A.D. 1910

Date of Application, 1st June, 1910—Accepted, 29th Sept., 1910

COMPLETE SPECIFICATION.

Improvements in and relating to Flash Light Apparatus.

We, DAVID CARL SHOBERG, and JOHN CALVIN GREENFIELD, of Avon, in the County of Bonhomme, and State of South Dakota, United States of America, Gentlemen, 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
5 by the following statement:—

This invention has reference to flash light apparatus wherein the flash light firing mechanism may be timed with the operation of the shutter of the camera, and wherein the entire apparatus is contained in a hood which is collapsible to occupy a small space, the level of said hood being doubly regulated.

10 The apparatus is of the kind in which the firing of the flash-light and the actuation of the shutter are controlled by pneumatic devices actuated from a single hand-operated bulb communicating with both of the devices. In accordance with this invention an improved firing mechanism is employed in which a firing device of the hammer type is adapted to be controlled by a pneumatic
15 bulb. This and other features of the invention will be more fully described with reference to the accompanying drawings, in which:—

Figure 1 is a perspective view of the present invention;

Figure 2 is a side elevation partly in section of the support;

Figure 3 is a front elevation of the flash light firing mechanism;

20 Figure 4 is a top plan view of the pan;

Figure 5 is a section along the line 5—5 of Figure 2;

Figure 6 is a central section of the hood;

Figure 7 is an end elevation of the flash light mechanism;

25 Figure 8 is a front elevation of the connection between the hood frame and the support;

Figure 9 is a top plan view of the pan supporting bar;

Figure 10 is a similar view of the base of the pan supporting standard;

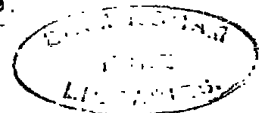
Figure 11 is a vertical section of the hood illustrating the same mounted on the frame;

30 Figure 12 is a perspective view of the device rolled.

Reference being had to the accompanying drawings, 10 indicates in general the adjustable standard which supplies a means whereby the hood may be supported. This standard comprises a main tubular section 10¹, the lower terminal of which is exteriorly threaded, while the upper terminal is provided
35 with an enlargement 11, said enlargement having a set screw 12 threaded therein. A secondary tubular member 10¹¹ reciprocates in said main section 10¹, and is retained at various heights therein by the set screw 12 operating in the enlargement 11. The upper terminal of the secondary section 10¹¹ is constructed similar to the upper terminal of the section 10¹, being provided with the enlargement 11¹,
40 in which is threaded the set screw 12¹. Reciprocating in the tubular secondary section 10¹¹ is the cylindrical support 13, said support adapted to be retained at various heights in the secondary section 10¹¹ by the set screw 12¹.

The support 13 has the opposite sides 14 thereof flattened and the transverse pins 15 piercing the same adjacent to each extremity of said flattened portion.

[Price 8d.]



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A collar 16 is mounted on the threads formed in the lower extremity of the main tubular section 10¹ and has pivotally connected thereto the bracing arms 17, said arms being adapted to brace the legs of the standard when the same are diverged. One of the arms 17 is provided with a sleeve 18 pivoted to the outer extremity thereof, said sleeve being provided with a set screw 19. 5

A pair of legs 20 are secured to a collar 21 slidable on the main tubular section 10¹, said legs being of U-shaped metal and are secured to two of the arms 17. The remaining leg 22 is tubular in cross section, and reciprocates in the sleeve 18, said sleeve being retained in various positions thereon by the set screw 19. This leg is somewhat longer than the remaining legs and is so constructed that the level of the flash light hood and pan carried at the upper extremity of the standard 13 may be adjusted by changing the position of the sleeve 18 upon the leg 22. The collar 21 is provided with a set screw 23 which is adapted to retain said collar in any desired position on the main tubular section. 10 15

The frame supporting the flash light hood comprises a pair of converging standards 24 and 25. The standard 24 is detachably connected to the standard 13 of the adjustable support 10 by a U-shaped catch indicated in general as 26. This U-shaped catch has the bar or standard 24 riveted therein adjacent the base portion thereof and is provided with the catch 27 in the arms on the upper sides thereof and the teeth or serrations 28 in the edges of the lower sides. The outer terminals of the U-shaped member slope from the serrations to the catch or hook 27. The hook 27 engages the upper of the transverse pins 15 while the teeth or serrations engage the lower pin, consequently doubly securing said bar to the standard 13 in such a manner that the angle of the same to the vertical may be varied. A buckle 29 is also carried by the U-shaped catch 26, and supplies a means whereby the hood carried by the frame may be tightened or drawn taut as hereinafter more fully described. 20 25

It will be seen that, in view of the possibility of regulating the angular position of the leg 22 and of the catch 26, the hood is doubly adjustable so as to be adaptable to a large variety of levels. 30

As clearly shown in Figure 11, the forward sloping bar 25 is pivoted between the arms 26 of the U-shaped catch, while the vertical bar 24 is retained adjacent the base thereof. The hood 33 passes over the transverse bars and is secured to a buckle 29¹ carried on the base portion of the catch. 35

Transverse bars 32 are mortised to the upper extremities of the bars 24 and 25, the bar 32 which is supported by the standard 25 having permanently secured thereto the upper edge of the hood or bag 33. This bag passes over the transverse bar 32 carried by the standard 24 and thence downwardly parallel thereto and has secured to the lower extremity thereof the base bar 34. The hood is provided with sides formed integrally therewith, the outer edges of which slope from the transverse bar 32 supported by the bar 25 to the base bar 34, forming a triangular construction. 40

The hood has attached thereto adjacent to the bar 34, the strap 36 which co-operates with the buckle 29 carried by the catch to tighten the bag over the supporting bars. 45

The flash light mechanism comprises a bar 37 pivotally connected to the bar 24 by the bracket 38, said bracket being rigidly secured to said bar. The opposite extremity of the bar is slidably mounted on the standard 25 by the bracket 38¹ pivotally connected to said bar. In order to provide a means whereby the flash light apparatus may be supported securely by said bar, a collar 39 is secured rigidly thereto, said collar being spaced from the upper side of the bar 37. 50

The bar 37 thus supports the flash light apparatus and at the same time retains the hood in the open position.

The flash light pan 40 is secured to said bar by the post or stanchion 41; at the lower end of which is the base plate 42. This base plate is provided with the nose 43 which is received under the collar 39, securing said stanchion and 55

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plate to said bar. An orificed projection 44 is provided on one side of the plate adjacent to the nose 43 and provides a means whereby the tube from the immediate bulb may be passed through said base plate and conducted past the bar.

5 The post or stanchion 41 is provided with the ears 45 between which is pivoted the catch 46. The catch comprises a double catch member 47 adjacent to the upper extremity of the stanchion and the downwardly projecting operating arm 48. The immediate operating bulb 49 is interposed between the arm 48 and the standard 41 and is secured to the latter by the band 50 engaging the same. The nipple 51 of the bulb extends through the orificed projection 44
10 of the base plate 42 and is connected below said plate and adjacent to the bar 37 to the tube 52 extending to the hand operated bulb 53. The opposite side of the bulb has the tube 54 extending therefrom to the shutter of the camera generally indicated as A.

15 One side of the double catch member 47 has the spring 55 bearing there against, the tension of said spring being adjusted by the set screw 56. The opposite or outer side of the double catch member 47 engages the firing pin spring 57 which is secured to the base of the flash light pan. This firing pin spring 57 carries the firing pin 58 adjacent to the extremity thereof which is engaged by the catch 46 when the flash light apparatus is set previous to the
20 firing thereof. The firing pin is adapted to be projected through the opening 59 formed in the base of the firing pan and in contact with the anvil 60, a cap being interposed between the firing pin and the anvil 60 which will consequently be exploded when the same come in contact, firing the flash light powder in said pan.

25 The hood back of the flash light pan is provided with a flap 61 which is fastened by snap catches on the lower edge thereof when not in use, said flap providing a means whereby the flash pan may be filled from the rear.

30 It will be observed from the foregoing that upon pressing the bulb 53, the arm 48 will be forced outwardly against the tension of the spring 55 releasing the firing pin spring and causing the cap to be exploded. At the same time air will be forced through the tube 54 operating the shutter A of the camera.

35 It will be understood that by regulating the tension of the spring 55 the flash light may be timed with the opening of the shutter in such a manner that the shutter will be opened previous to the flash, instantaneous with the flash, and after the flash at any period of time as desired.

40 When the adjustable standard is collapsed, the members 13 and 10¹¹ are contained within the section 10¹ while the legs 20 and 22 rest against the sides of said section the braces 17 thereof being interposed between the legs and said section. When folding the frame supporting the hood, the sleeve 38¹ slides upwardly on the bar 25 and when folded the bar 37 is contained between the bar 25 and the bar 24, the latter resting approximately parallel to the construction of the bracket 30.

45 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. Flash light apparatus of the kind in which the firing mechanism is operated pneumatically simultaneously with the camera shutter, comprising a spring actuated firing hammer, a pivotal spring catch normally engaging the hammer and a pneumatic bulb disposed so as to act, when expanded, upon the arm of
50 the catch and move this latter out of engagement with the hammer, substantially as described.

2. A flash light mechanism substantially as specified in Claim 1 in combination with a hood, the level of which is doubly adjustable, substantially as described.

55 3. A flash light apparatus substantially as in Claim 1 in combination with

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a hood which is collapsible to entirely contain the supporting elements and the flash light mechanism, substantially as described.

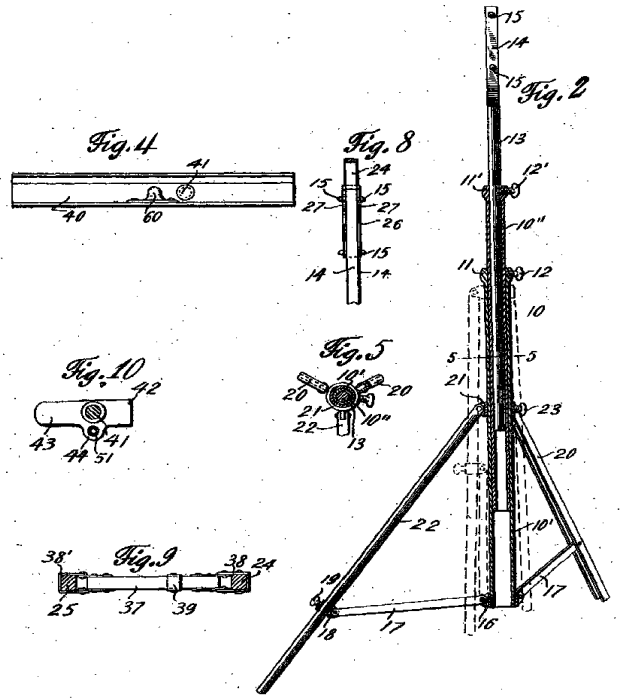
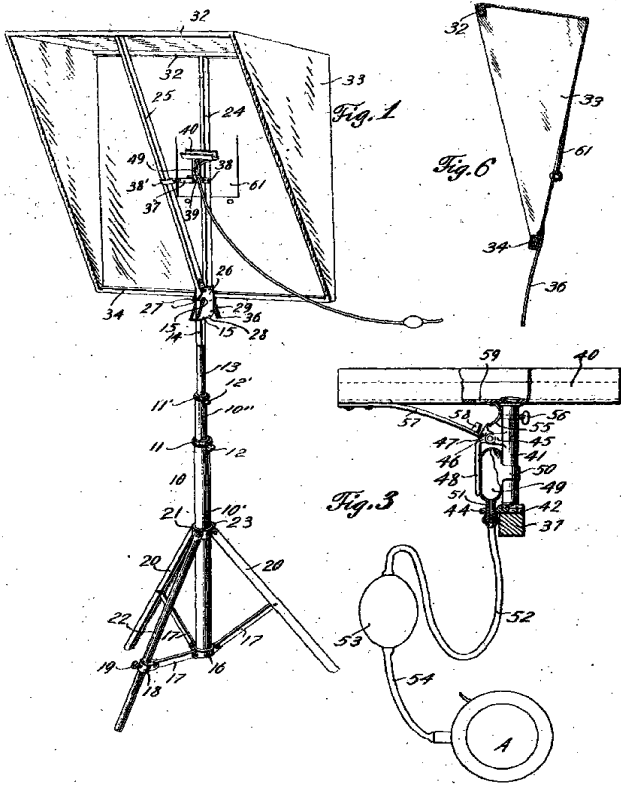
4. A flash light apparatus substantially as specified in Claim 3 characterized in that the support of said flash light mechanism retains the hood in its operative position, substantially as described.

5. A flash light apparatus substantially as described and as shown in the accompanying drawings.

Dated this 31st day of May, 1910.

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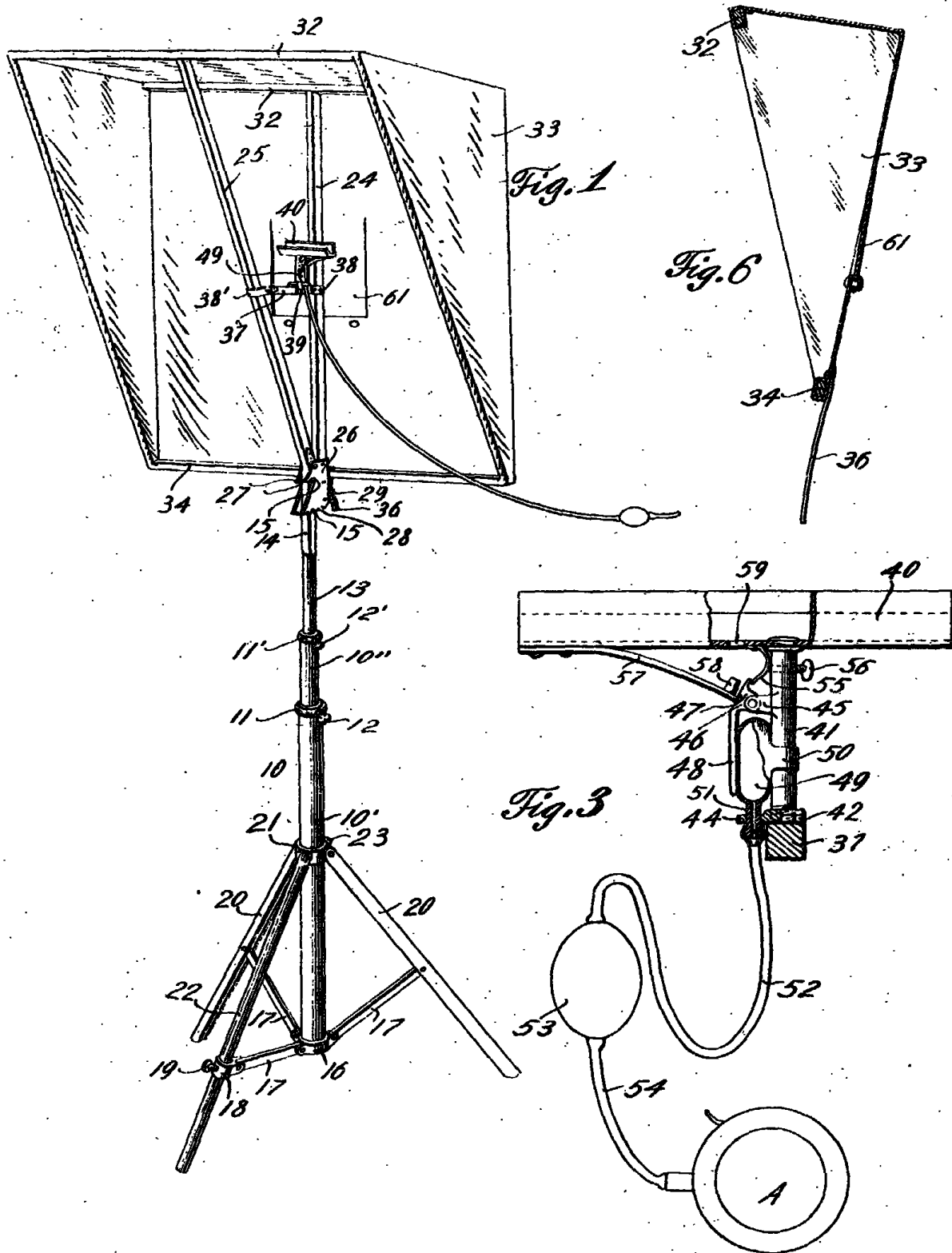
SHEET 1.

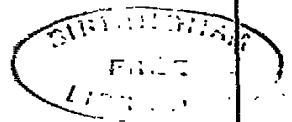
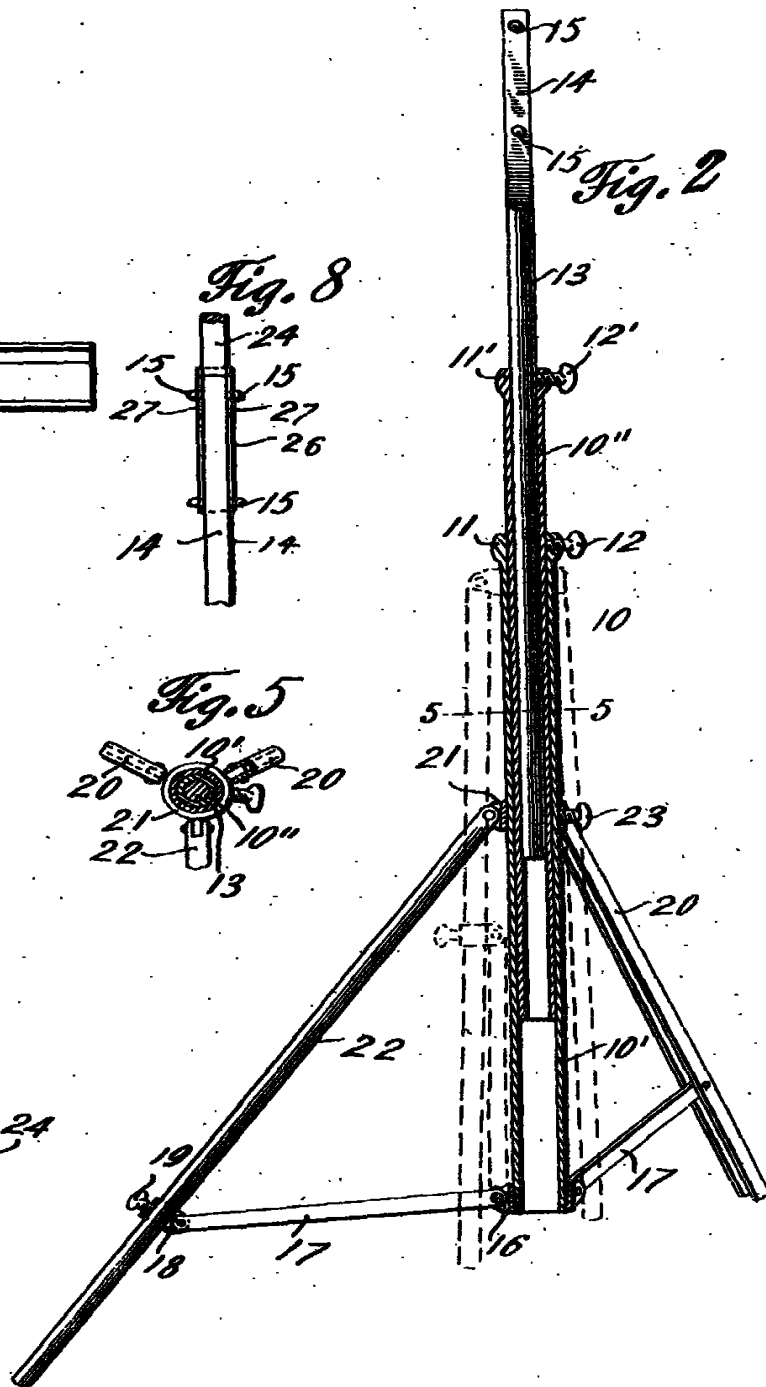
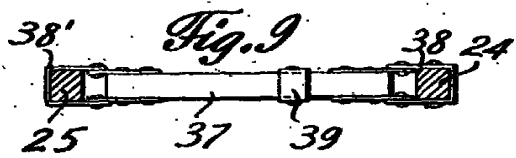
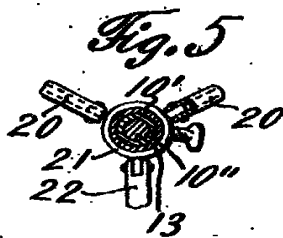
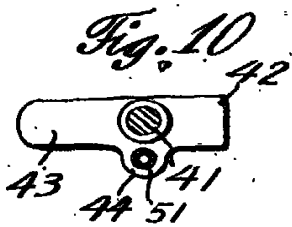
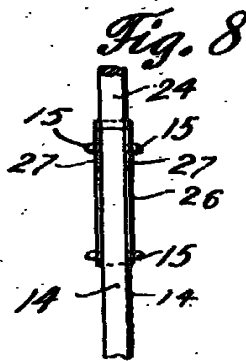
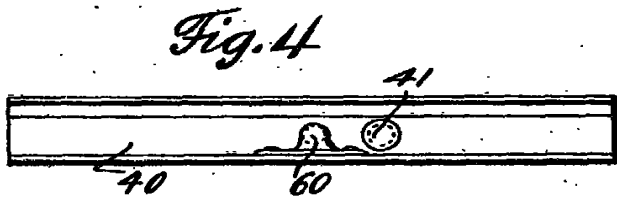


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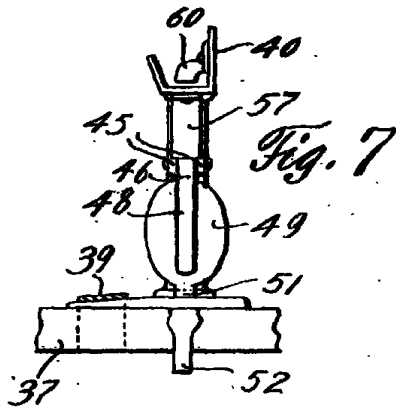


Fig. 11

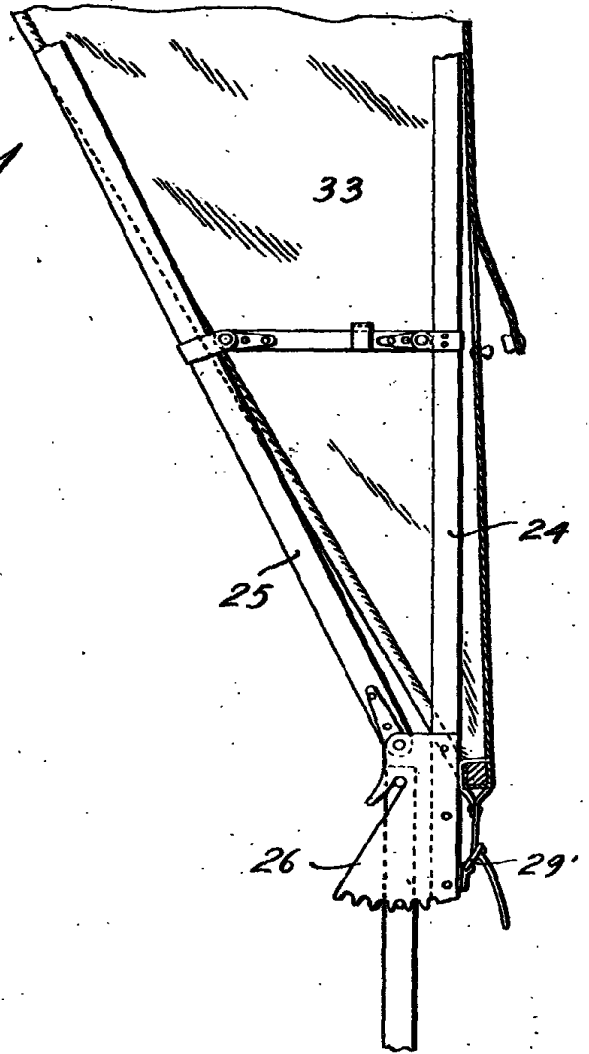


Fig. 12

