No. 704,379. Patented July 8, 1902.

J. A. ROBERTSON & C. E. HUTCHINGS.

PHOTOGRAPHIC VIEW FINDER.

(Application filed Mar. 13, 1902.)

(No Model.)

Fig. 1.

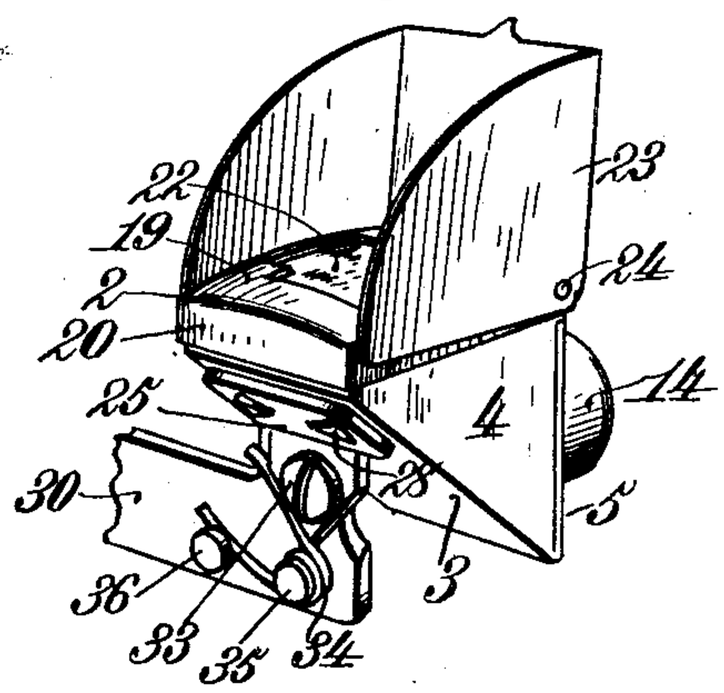


Fig. 3.

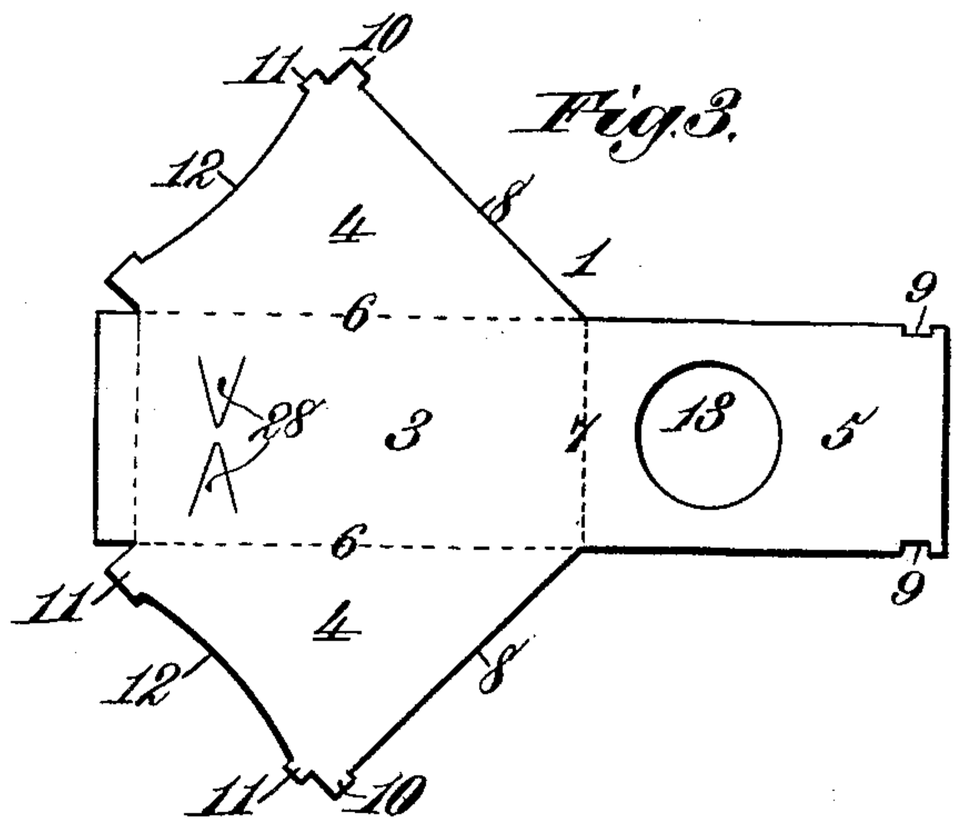


Fig. 2.

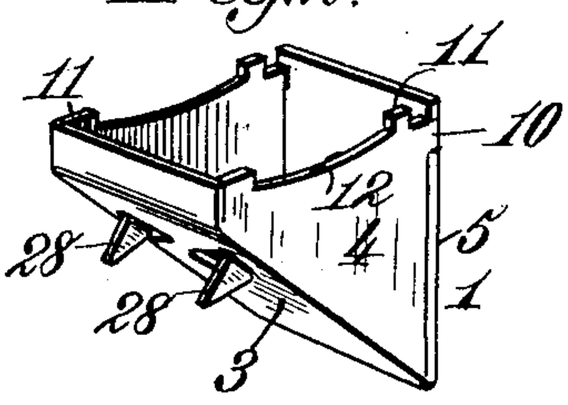


Fig. 4.

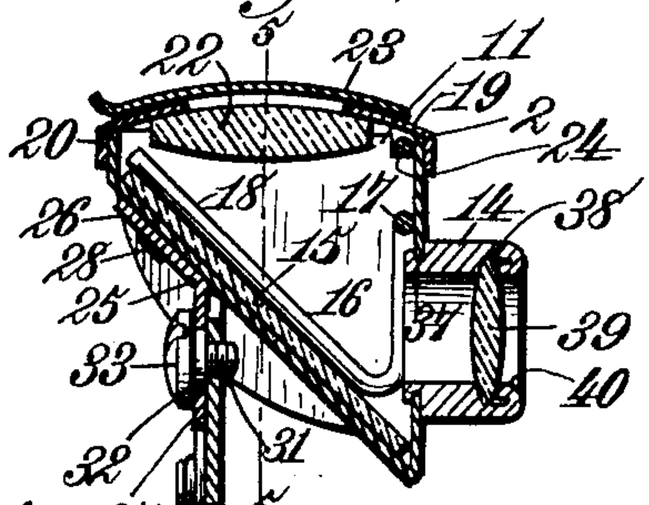


Fig. 8.

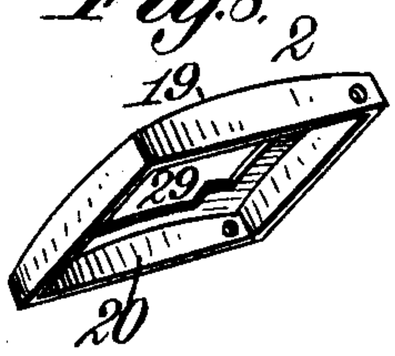


Fig. 5.

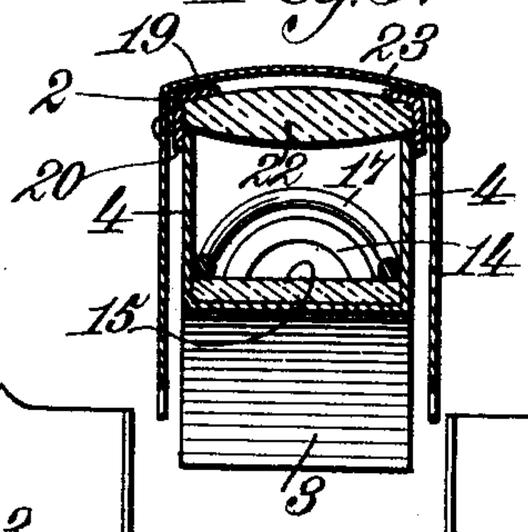


Fig. 9.

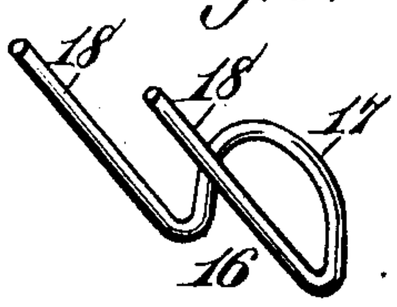


Fig. 6.

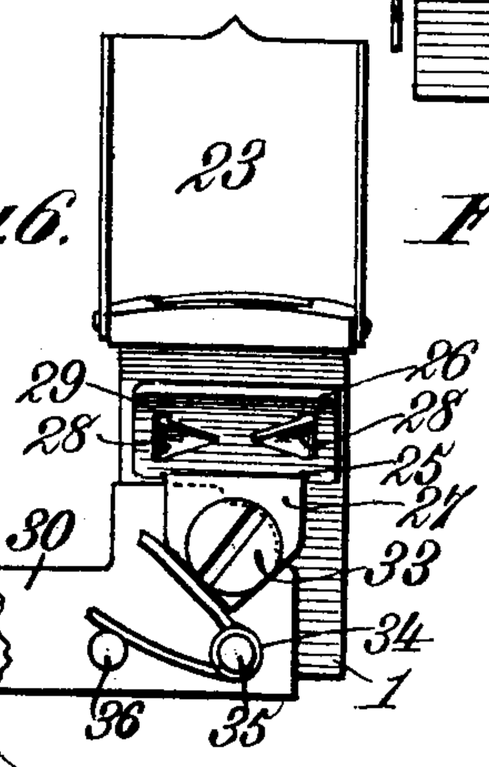
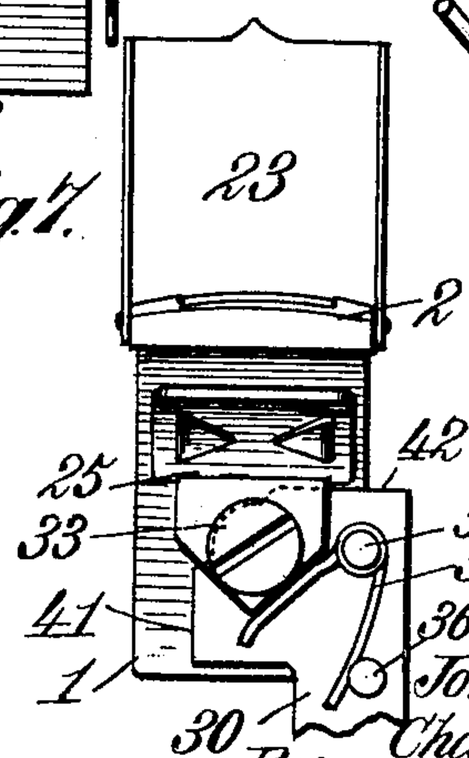


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN A. ROBERTSON AND CHARLES E. HUTCHINGS, OF ROCHESTER, NEW YORK, ASSIGNORS TO ROCHESTER OPTICAL AND CAMERA COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

PHOTOGRAPHIC VIEW-FINDER.

SPECIFICATION forming part of Letters Patent No. 704,379, dated July 8, 1902.

Application filed March 13, 1902. Serial No. 98,108. (No model.)

To all whom it may concern:

Be it known that we, JOHN A. ROBERTSON and CHARLES E. HUTCHINGS, citizens of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented new and useful Improvements in Photographic View-Finders, of which the following is a specification.

This invention relates to view-finders for photographic cameras, and has for its object to provide a device of the character referred to which will comprise but few parts that are capable of being rapidly and easily assembled together and which may be manufactured at small cost. It also has for its object to provide improved means for connecting the finder to its support in such manner that it will be securely held in place in its two adjusted positions.

To these ends our invention consists in the features and in the construction, combination, and arrangement of parts hereinafter described and particularly pointed out in the claims following the description, reference being had to the accompanying drawings, wherein—

Figure 1 is a perspective view of our improved finder, showing the same in position for use. Fig. 2 is a similar view of the body portion of the finder-casing. Fig. 3 is a plan view of the blank on which the body portion of the casing is formed. Fig. 4 is a vertical longitudinal sectional view of the finder and its support. Fig. 5 is a sectional view taken on the line 5 5 of Fig. 4. Figs. 6 and 7 are rear views of the finder and its support, showing the finder in two different positions. Fig. 8 is a detail perspective view of the cap or cover of the finder, and Fig. 9 is a similar view of the spring employed for holding the reflector in position.

Our improved finder consists, broadly, of a hollow casing having the general shape of a right-angled prism in the front of which is fitted an object-lens, and in the rear of which lens is arranged at an angle of forty-five degrees a reflecting-mirror, and in the top of said casing is arranged the magnifying-lens, which operates, as usual, to magnify the image of the view cast upon and reflected upwardly by the reflector, a hinged hood being provided for shielding the magnifying-lens from light, as usual. The said casing consists of two parts, each consisting of a single integral piece of metal stamped or bent into shape and comprising a body portion 1 and a cap or cover 2, constructed in the manner which we will now describe.

In forming the body portion 1 we first make a blank of the shape shown in Fig. 3 of the drawings and consisting of a thin piece of sheet metal comprising a rectangular portion 3, provided on each of its sides with a wing 4 and at one end with a rectangular extension 5. The wings 4 are bent up at right angles to the body portion 3 along the dotted lines 6, and the rectangular extension 5 is bent up at an angle of forty-five degrees to the portion 3 along the dotted line 7 and in such manner as to abut against the edges 8 of the wings 4. The rectangular portion 3 of the blank when thus bent up into shape forms the rear of the finder-casing, which, as will hereinafter appear, is inclined at an angle of forty-five degrees to a horizontal plane, the front portion 5 standing vertically. The opposite side end portions of the rectangular extension 5 are provided with rectangular recesses 9, and the ends of the wings 4 are provided with correspondingly sized and shaped tongues 10, which when the blank is bent up into shape enter the recesses 9 and prevent the sides of the casing, composed by the wings 4, from being bent inward or from collapsing. The edges of the wings 4, which form the top of the casing when the blank is bent up into shape, are provided near their opposite ends with upwardly-projecting tongues 11, and said edges of the wings between said tongues are concaved for the purpose hereinafter explained. When the blank has been bent up into shape, as described, it forms a hollow casing having the general form of a right-angled prism, as most clearly shown in Fig. 1 of the drawings. In the front 5 of the casing is formed a circular aperture 13, in which is fitted a short lens-tube 14, which will be more fully hereinafter described. The rectangular portion 3 of the casing, as before stated, is inclined when in place at an angle of forty-

five degrees to a horizontal plane and forms a support or rest for the reflecting-mirror 15, which rests thereagainst and is held in place by a spring 16. Said spring is conveniently formed of a piece of resilient wire, which is first bent into U shape, and its looped end is then bent over at an angle of about forty-five degrees to its parallel members. The looped portion 17 bears against the inner side of the vertical front portion 5 of the casing and encircles the lens-tube 14, so as not to obstruct the passage of the light-rays through the latter, while its parallel members 18 bear against the edges of the reflecting-mirror and hold the latter to its seat on the inclined portion 3 of the casing. The cap 2 is formed from a rectangular piece of sheet metal which is stamped up into dish shape—that is to say, it is so stamped up that its body or top portion will be arched, as indicated at 19, and will have depending flanges 20 on its four sides, as shown. The arched portion 19 of the cap is apertured, as at 29, and fitted in said cap is a magnifying-lens 22, the arched formation of the top of the cap forming a seat for the curved top of the lens. As shown, the lens is somewhat shorter than the cap, and when the cap is fitted over the top of the body portion 1 the curved under side of said lens is seated upon the concaved portions 12 of the wing 4, before described, and the tongues 11 project into said cap between the ends of the latter and the ends of the lens and hold the lens accurately centered beneath the aperture 21. The lens 22 is thus securely, immovably, and accurately held in place, and the cap also serves to hold the sides and ends of the body portion of the casing closely in place.

The numeral 23 indicates a hood which is pivotally connected to the cap 2 by a pin 24, which passes through suitable perforations formed in said hood and in the forward ends of the side portions of the cap. This hood is of usual and well-known construction and is for the purpose of shading the magnifying-lens from the direct rays of light and need not be described in detail. Secured near the upper end of the rear portion 3 of the body 1 is a bracket 25, which consists of a metallic plate bent intermediate its ends at an angle of forty-five degrees to provide an attaching portion 26 and a hinged sleeve 27. The attaching portion 26 rests against the rear side of the back portion 3 of the body of the finder and is secured thereto by tangs or prongs 28, struck up from the back 3 by forming V-shaped incisions therein, as shown, said tangs or prongs being first bent up at a right angle to the back 3, then passed through the incisions or slits 29, formed in the attaching portion 26, and then finally bent or clenched down upon the portion 26, thus firmly and rigidly securing the attaching-bracket to the finder-casing. Attached to any suitable part of the camera is a bracket-arm 30, consisting of a flat metallic plate provided with a screw-hole 31, which when the attaching-bracket of the finder is secured to said bracket-arm registers with a corresponding screw-hole 32, formed in the portion 27 of said attaching-bracket. The attaching-bracket rests against the rear side of the bracket-arm 30 and is pivotally secured to the latter by a screw 33, which passes through the screw-holes 31 and 32. A spring 34 is coiled intermediate its ends about a pin or projection 35 on the rear side of the bracket-arm 30 and bears at one end against a pin or projection 36 and at its other end against the attaching-bracket 25. As most clearly shown in Figs. 6 and 7 of the drawings, the vertical depending portion 27 of the attaching-bracket 25 is V-shaped, or, in other words, its two opposite sides are formed at right angles to each other, and when the finder-casing is secured in place to the bracket-arm 30 the free end of the spring 34 will bear against one or the other of said V-shaped sides, according to whether the finder be turned to a horizontal or vertical position, and will operate to hold the finder in either of said positions, the inner edge of the attaching-plate 26 at such times abutting against either the edge 41 or 42 of the bracket-arm 30. Fitted in the aperture 13 of the vertical front portion 5 of the finder-casing is a lens-tube consisting of a small metallic cylinder or tube, one end of which is reduced, as at 37, said reduced end being fitted in the aperture 13 and expanded or spread therein, so as to firmly hold the lens-tube in place. Said lens-tube near its other or outer end is provided with a shoulder 38, against which is seated the objective 39, and the latter is secured in place against said seat by spinning the outer end of said tube against the objective, as indicated by the numeral 40.

By securing the view-finder casing to the bracket-arm 30 in the manner described it will be obvious that said finder may be turned either to a horizontal or a vertical position, and when turned to either of said positions the finder will be held fixed by the free end of the spring 34 bearing against one or the other of the V-shaped sides of the attaching-bracket 25. The bracket-arm 30 may be attached to any convenient part of the camera, provided the axis of the objective 39 be coincident with the axis of the camera-lens.

Having described our invention, what we claim is—

1. A view-finder casing, comprising a body portion consisting of an integral piece of sheet metal bent up into substantially a right-angular prismatic shape, a flanged cap fitted over the upper open end of said body portion, an objective fitted in the vertical front portion of said casing, a reflector fitted in the rear inclined portion thereof, and a magnifying-lens fitted in the said cap, substantially as described.

2. In a view-finder casing, comprising a body portion consisting of an angular piece of sheet metal bent up into substantially a right-an-

gular prismatic shape and having fitted in its front portion an objective, and in its rear inclined portion a reflector, a spring fitted within said casing and holding said reflector to its seat, a cap fitted over the upper open portion of the body of the casing and a magnifying-lens fitted within said cap, substantially as described.

3. In a view-finder, the combination with a casing comprising a body portion formed of an integral piece of sheet metal bent up into substantially right-angular prismatic shape and having fitted in its front vertical portion an objective, a reflector seated against the rear inclined portion of the casing, a spring for holding said reflector to its seat and consisting of a resilient wire bent intermediate its ends to encircle the objective and resting against the vertical front side of the casing, and terminating in parallel rearwardly-inclined arms that bear against the edges of the reflector, and a cap fitted over the upper open end of said casing and provided with a magnifying-lens, substantially as described.

4. In a view-finder, a casing comprising a body portion consisting of an integral piece of sheet metal bent up into substantially a right-angular prismatic form and provided in its front vertical edge with an objective, and in its rear inclined portion with a reflector, of a flanged cap fitted over the upper, open end of said casing, and a lens fitted within said cap and resting on the opposite upper side edges of the casing, substantially as described.

5. In a view-finder, a casing comprising an integral piece of sheet metal bent up into substantially a right-angular prismatic form, and having an objective fitted in its vertical front face, and a reflector against its rear inclined face, the opposite upper side edges of said casing being concaved, of a flanged arch-shaped apertured cap fitted over the upper open end of said casing, and a lens fitted within said cap and resting on said concaved edges, substantially as described.

6. In a view-finder, a casing comprising an integral piece of sheet metal bent up into substantially a right-angular prismatic form, and having an objective fitted in its vertical front face, and a reflector against its rear inclined face, the opposite upper side edges of said casing being provided with upwardly-projecting tongues, a lens resting on said upper edges between said tongues, and a flanged cap fitted over the upper open end of said casing, substantially as described.

7. In a view-finder casing, the combination with a bracket-arm adapted to be secured to a camera, of a view-finder provided with an attaching-bracket pivoted to said bracket-arms, said attaching-bracket having a V-shaped extension, and a spring supported on said bracket-arm and arranged at its free end to bear against either of the sides of said V-shaped extension to hold the finder in either a vertical or a horizontal position, substantially as described.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

JOHN A. ROBERTSON.
CHAS. E. HUTCHINGS.

Witnesses:
MINNA STULL,
GEO. W. REILLY.