

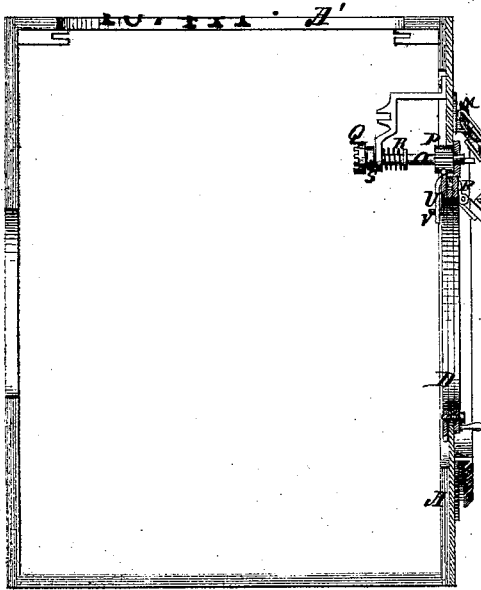
*N. Bryan,*

*Solar Camera.*

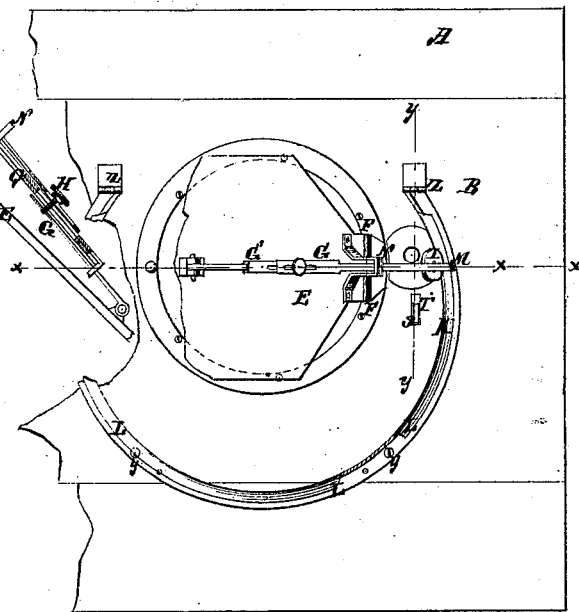
*No. 107,441.*

*Patented Sep. 20. 1870.*

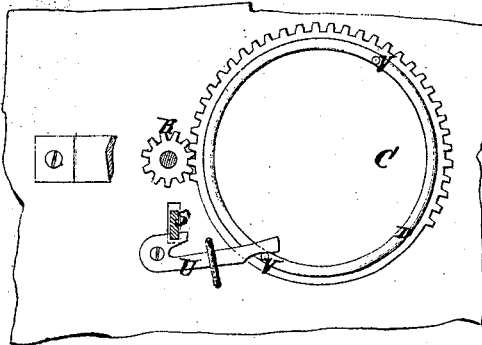
*Fig. 2*



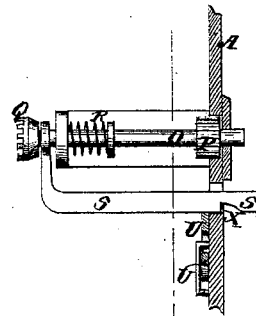
*Fig. 1*



*Fig. 4*



*Fig. 3.*



**Witnesses:**

*John. P. Lecher.*  
*Geo. W. Meade*

**Inventor:**

*N. Bryan*  
PER *Mmm*  
**Attorneys.**

# United States Patent Office.

NORMAN BRYAN, OF THOMASTON, GEORGIA.

Letters Patent No. 107,441, dated September 20, 1870.

## IMPROVEMENT IN SOLAR CAMERAS.

The Schedule referred to in these Letters Patent and making part of the same

*To all whom it may concern :*

Be it known that I, NORMAN BRYAN, of Thomaston, in the county of Upson and State of Georgia, have invented a new and useful Improvement in Solar Cameras; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

This invention relates to improvements in solar cameras, and consists in improved arrangements of apparatus for turning the reflector by clock-work attached for the purpose; also, in improved adjusting apparatus for varying the reflector, according to the sun's variations.

Figure 1 is a side elevation of my improved camera.

Figure 2 is a sectional elevation of the same, taken on the line *xx* of fig. 1.

Figure 3 is a partial section on the line *yy*; and

Figure 4 is a section on the line *zz* of fig. 3.

Similar letters of reference indicate corresponding parts.

A represents the front plate of a camera-box.

B is a brass, or other metal plate, attached to the slide A of the box, for the attachment of the apparatus.

C is a large opening through the same, to allow the light rays to be thrown into the box.

D is a toothed-wheel rim fitted to the edge of the plate B, in the hole C, to turn freely. It has a groove in the outer edge for the edge of plate B, and is preferably made of three rings connected together by screws, the central ring being of lesser diameter than the others, to form the groove.

E is the reflector. It is hinged at F, to the toothed wheel rim, and hangs obliquely therefrom to receive the sun's rays and throw them into the camera. It is supported by an extension-brace, G G', the parts of which slide on each other, and are clamped together by a screw, H. The said brace is connected to the reflector by a hinged joint, and has a grooved roller, I, at the opposite end, running on a circular rail, K, attached to the plate B, below the wheel-rim D, and arranged eccentrically to the same.

This rail has an oblique flange, L, projecting downward from it, on which a hook, M, adjustably attached to the brace G G', works to hold the said brace, or the wheel in the end of it, down snugly on the rail K, and prevent the wind, when acting on the reflector, from forcing it out of place.

N is a yoke attached to the reflector, and arranged with the brace, to support it laterally while allowing it to move longitudinally through it.

For turning the reflector by a clock-mechanism, a shaft, O, is provided inside the case, with one pinion,

P, gearing with the wheel-rim, and another, Q, to be geared with one of the wheels of a clock-train. This shaft is arranged to slide in the direction of its length, to gear or ungear with the clock-train, and has a spring, R, to throw it out of gear, the end on which the pinion Q is, passes through the end of a bent bar, S, passing through a slot in the plate B, and having a notch, X, in the lower edge, which drops down and catches on the plate at the lower edge of the slot, when the shaft is moved forward to gear with the clock-movement, and holds it in gear against the action of the spring.

U is a trip-lever pivoted to the plate under the bar S, and arranged to be raised against it by a pin, V, on the wheel-rim D, when it is required to stop the movement of the reflector when the sun goes down.

Another pin, W, on the said rim strikes the lever U on the top and arrests the reflector, when turned back again to be set in operation in the morning.

For gearing the shaft and wheel-rim with the clock-movement, it is pushed forward by force applied on the outer end, or on the outer end of the bar S, until the bar drops and engages, by its notch X, with the plate B.

The gearing, and the connection of the same, should be such as to turn the reflector a half revolution in twelve hours.

The rail K should be a complete half circle, larger than rim D, and placed eccentrically below it, so that the center will be further away from the wheel-rim than the ends, the object of which is to cause the reflector to follow the elliptic movement of the sun, the reflector being thrown forward to meet the rising sun, and falling away, increasing the angle with the plate B until noon, then diminishing it again till evening.

This ring is hinged at Z, and provided with adjusting-screws, Y, for moving the lower part out and in, as a further means of adjusting the reflector to follow the movement of the sun.

By means of the extension-brace G G', the reflector may be raised or depressed, as the sun varies north or south in winter and summer.

The clock-movement may have an additional spring to aid in propelling the reflector, or the additional spring may be attached to the shaft O.

The camera-case may have an opening, A', for the dial of the clock, through which the time may be observed.

It will be seen that, by this arrangement of apparatus, the reflector may be set in the morning in the proper position to receive the sun's rays and throw them into the camera, and will be caused, by the clock-mechanism, to follow the sun, and be kept in the correct relative position throughout the day.

Having thus described my invention,  
I claim as new and desire to secure by Letters  
Patent—

1. The combination, with the reflector E and wheel-  
rim D, hinged together, as described, of the extension-  
brace G G', curved rail K, hooked bar M, and flange  
L, all substantially as specified.

2. The arrangement of the rail K, eccentrically  
with the toothed rim D, and for adjustment to or  
from the vertical plane of the plate B, all substantially  
as specified.

3. The combination, with the sliding shaft O, catch-  
bar S, and spring R, of the trip-lever U, pin V, and  
wheel-rim pinion P, all substantially as specified.

The above specification of my invention signed by  
me this 14th day of March, 1870.

NORMAN BRYAN.

Witnesses:

JAMES W. HIGHTOWER,  
W. SAWYER.