M. F. GALE.

DEVICE FOR ADJUSTING REFLECTORS.

No. 44,717. Patented Oct. 18, 1864.

Fig. 4.

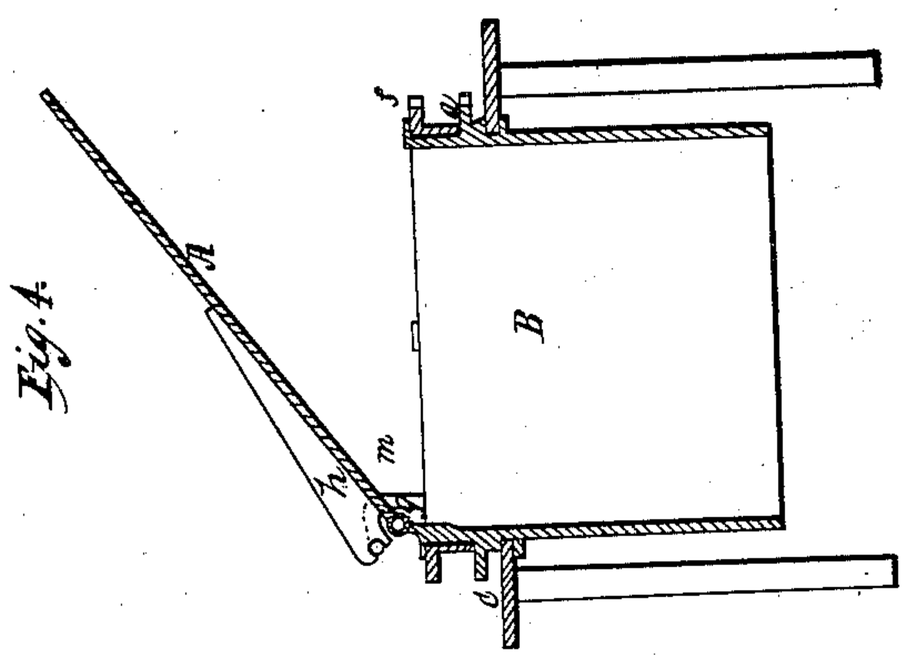


Fig. 3.

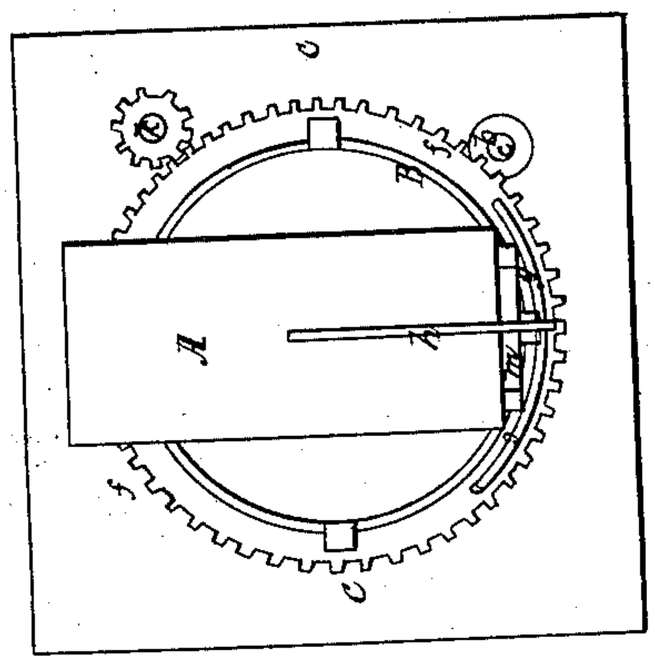


Fig. 2.

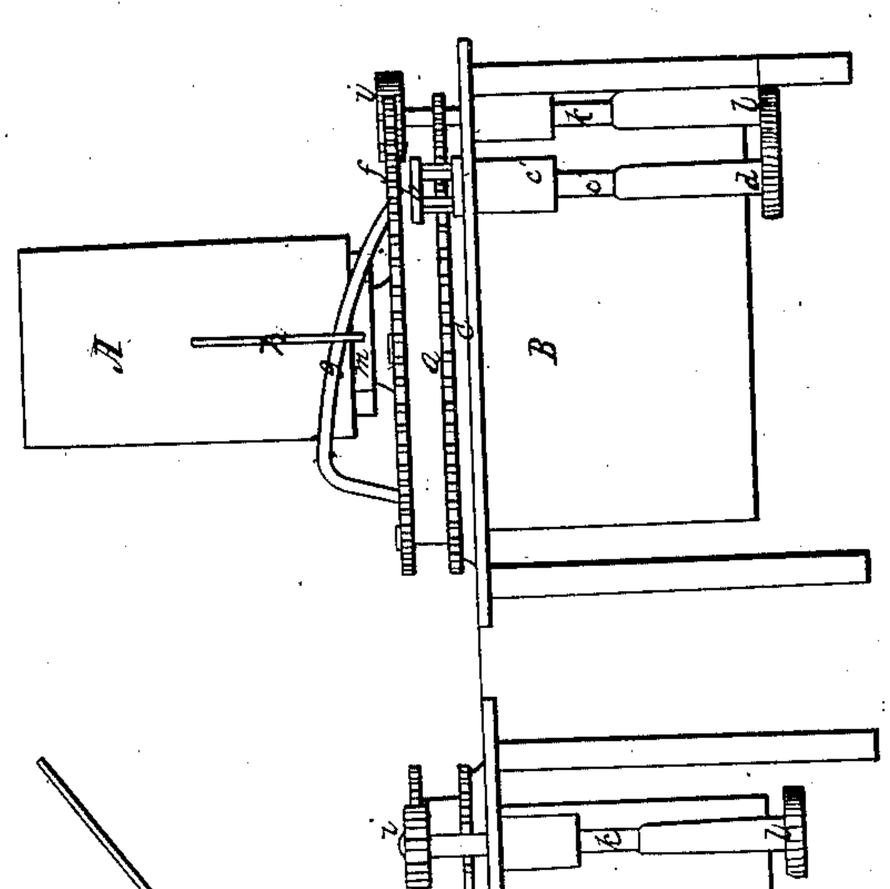
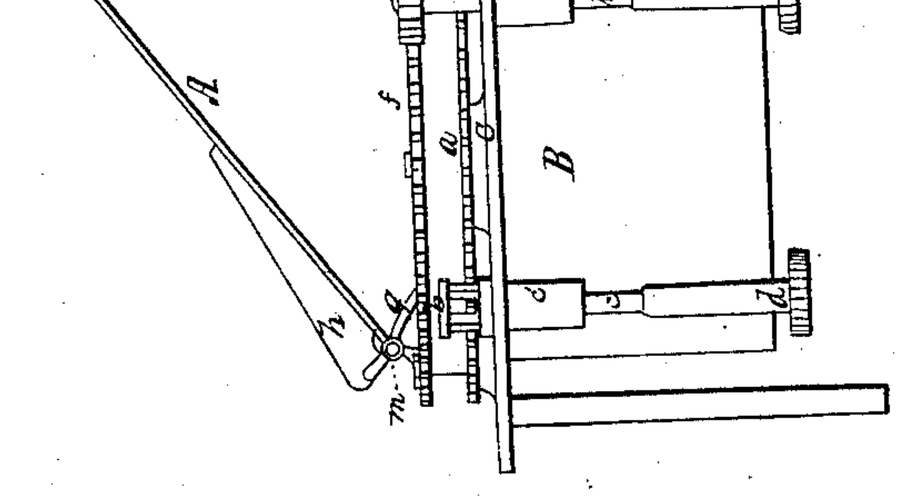


Fig. 1.



Witnesses:

Frederick Curtis.

F. P. Hale Jr

Inventor

Mary F. Gale

by his attorney

R. Hladey

UNITED STATES PATENT OFFICE.

MOSES F. GALE, OF BOSTON, MASSACHUSETTS.

DEVICE FOR ADJUSTING REFLECTORS.

Specification of Letters Patent No. 44,717, dated October 18, 1864.

To all whom it may concern:

Be it known that I, MOSES F. GALE, of Boston, of the county of Suffolk and State of Massachusetts, have invented a new and useful Mechanism for adjusting a Reflecting-Mirror, and Particularly that of a Solar Camera; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figures 1, and 2, are side views. Fig. 3, an end view, and Fig. 4, a transverse section of a mirror and its supporting tube and frame as provided with my invention.

In these drawings, A, denotes the reflector or mirror as hinged at one extremity (as shown at, *m*,) to one end of a tube, B, which is open at each end, and is so fixed within a frame or plate, C, as to be capable of being freely revolved axially therein.

The machinery for effecting the rotary movement of the tube, which, while being revolved, turns the mirror also around, consists of a toothed annulus or row of teeth (*a*), and a pinion (*b*) the said annulus being fixed to and concentrically on the tube. The pinion is attached to a shaft (*c*) which has a bearing in the supporting frame or a stud, *c'*, projecting therefrom, and is provided with a milled head, *d*.

There is also applied to the mirror a mechanism for varying its angle of inclination to the plane of the outer end of the tube, such mechanism being described as follows: A toothed annulus, (*f*) is placed concentrically on the tube, (B,), and should be capable of being freely revolved on the tube. The said annulus supports an inclined wire or cam, (*g*,) which is shaped and extended from the annulus as shown in the drawings. The wire (*g*) runs through a rib, *h*, projecting from the mirror. Furthermore, a pinion (*i*) fixed to a sliding shaft (*k*) provided with a milled head (*l*) engages with the toothed annulus, *f*. By taking hold of the head (*l*) and revolving it, the annulus will be turned on the tube and will so move the cam wire, *g*, (which should be curved as shown in Fig. 3) as to cause it to vary the inclination of mirror to the plane of the end of the tube. When it may be desirable to revolve the tube, the mirror and the annulus (*f*) without revolving the pinion of such annulus, the said pinion should first be moved out of engagement with the annulus, which may be effected by simply laying hold of the milled head and moving the shaft of the pinion endwise.

By means of the two mechanisms for moving the mirror, its plane of reflection may be readily adjusted at any time so as to cause the reflected rays of the sun to pass through the tube in directions parallel to its axis.

I am aware of the invention of David A. Woodward, as patented on the fifth day of March, A. D. 1861, it being for adjusting or operating the reflector of a solar camera, and therefore I do not claim such.

What I claim as my invention, is—

The arrangement and combination of the hinge, (*m*,), the rib, (*h*), the cam (*g*,) the toothed annulus (*f*), and the pinion (*i*) and its shaft together and with the mirror, A, the tube, B, and the supporting plate or frame, C, substantially in manner and for the purpose as hereinbefore specified.

M. F. GALE.

Witnesses:

R. H. EDDY,

F. R. HALE, Jr.