No. 618,053. Patented Jan. 24, 1899.

A. S. BROWN.

OPENER OR CLOSER FOR SKYLIGHTS.

(Application filed Dec. 4, 1897.)

(No Model.)

FIG. 1

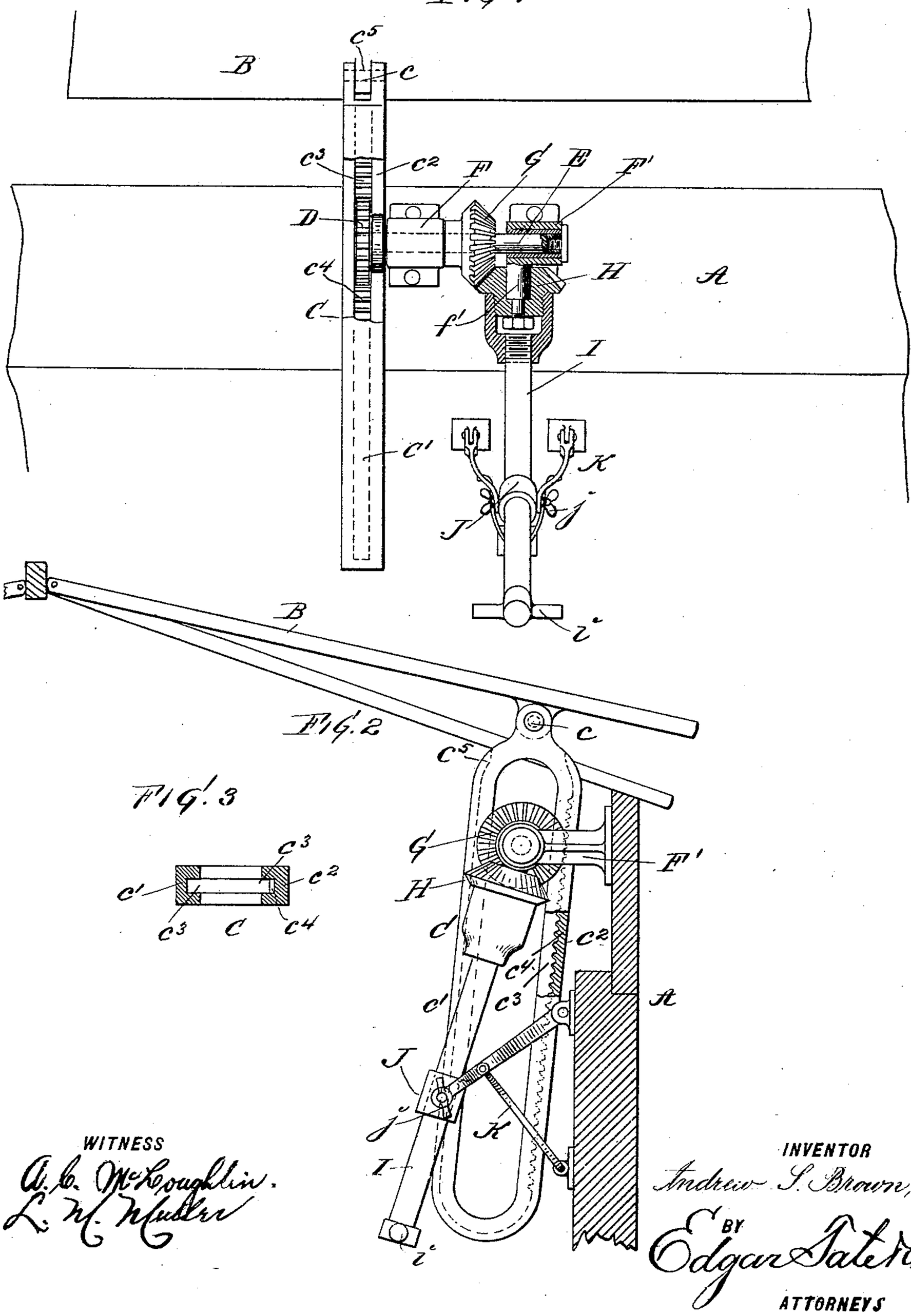

FIG. 2

FIG. 3

WITNESS

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OPENER OR CLOSER FOR SKYLIGHTS.

SPECIFICATION forming part of Letters Patent No. 618,053, dated January 24, 1899.

Application filed December 4, 1897. Serial No. 660,802. (No model.)

To all whom it may concern:

Be it known that I, ANDREW S. BROWN, a citizen of the United States, residing at New York, (Brooklyn,) in the county of Kings and State of New York, have invented certain new and useful Improvements in Opener or Closers for Skylights, &c., of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to mechanism for opening and closing pivoted or hinged skylights; and it has for its object to provide a simple and improved mechanism of this class which will be compact in construction, effective in operation, and adapted to be mounted in close relation to the outer wall of the skylight-frame, so that it can be conveniently used for ships' skylights and in analogous positions and arrangements.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by the same letters of reference in each of the views, and in which—

Figure 1 is an elevation, partly in section, showing my improved mechanism in position. Fig. 2 is a vertical transverse sectional view through the skylight-frame, the mechanism being shown in side elevation. Fig. 3 is a detail transverse sectional view through the pivoted arm which carries the skylight. Fig. 4 is a vertical sectional view through the skylight-frame, showing in side elevation a modified form of my improved skylight mechanism adapted for general application and use other than in connection with ships' skylights; and Fig. 5 is an end elevation of the construction shown in Fig. 4.

Referring to the drawings, A designates the skylight-frame, and B the pivoted or hinged skylight. At a suitable point near the outer or free end of the skylight B is connected by a pivoted or hinged joint, as at *c*, an arm C, which swings or depends downwardly from the skylight. This arm embodies two parallel side bars c' c^2, which embody longitudinal grooves, as at c^3, in their opposite faces, the bottom of one of said grooves being provided with teeth, and c^4 forming a rack, as shown.

In the arms C, between its side rods c' and c^2, is arranged a pinion D, the periphery of which travels in the grooves c^3 of the respective bars c' c^2 and engages the longitudinal rack c^4. The pinion is thus retained or housed within the arm C by means of the receiving-grooves in the respective side bars of the same and is held in connection with said arm and against lateral displacement. The gear-pinion D is carried upon a shaft E, transversely arranged with relation to the arm C and bearing in suitable brackets F F′, projecting from the skylight-casing A. This shaft carries a vertical bevel-gear G, meshing with a corresponding horizontal bevel-gear H, arranged at the top end of a rotary operating-arm I.

To provide for the separation of the different parts, the grooves of the side bars of the arm C terminate in a bifurcated pivotal top end, as shown in dotted lines at c^5 in Fig. 2 and in Fig. 1, whereby when the pivot *c* of said arm is disconnected the arm may be disengaged from the inclosed gear-pinion D. The arm is preferably of loop shape, as shown. The rotary operating-arm I is supported upon a bearing-pin *f*′, projecting downwardly from the bracket F′ and through the bevel-gear H, the gear being adapted to turn upon this pin. (See Fig. 1.)

A lower bearing for the operating-arm I is provided by a cylindrical collar J, embracing said arm and carried upon a suitable bracket K, projecting from the skylight-casing. Said collar may be provided with set-screws, as at *j*, by the adjustment of which the arm I may be secured in fixed position to maintain the skylight and the operating mechanism in their adjustment. A handle *i* may be provided at the lower end of the arm I, by which it may be rotated, or any suitable means for connection of an operating device may be employed.

It will be understood from the foregoing description and by reference to the drawings that the mechanism will maintain a compact position near and with relation to the wall of the casing of the skylight and that it requires no rods or arms or operating devices extending downwardly a material distance, by means of which improved construction and arrangement the mechanism is especially adapted for convenient use upon ships' skylights and in similar positions and arrange-

ments where the space is contracted and where projecting devices would be a serious obstruction.

It will be noted that the pivoted arm C in the modified form illustrated in Figs. 4 and 5 is the same in its general construction as the form of said arm illustrated in Figs. 2 and 3, having the grooves in its opposite inner faces and the rack in the bottom of one of said grooves, and also that the shaft E in the modified form carries the pinion operating in said grooves and rack in the arm. The only essential variation in construction and arrangement between the form illustrated in Figs. 1, 2, and 3 and the modified form illustrated in Figs. 4 and 5 consists in the operating mechanism which is connected with the shaft E and which is above described.

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

1. The combination with the swinging sash, of an arm pivotally secured thereto, said arm comprising two parallel bars having oppositely-situated grooves in their inner faces, a rack in the bottom of one of said grooves, a pinion between said arms, extending into said grooves, and intermeshing with said rack, and means for operating said pinion.

2. An improved skylight mechanism, comprising, in combination with the skylight, a pivoted or hinged arm depending therefrom and embodying side bars having grooves in their opposite faces and provided with teeth forming a rack-bar within one of said grooves, a transversely-mounted shaft carrying a pinion operating between the side bars of said arm and within the grooves thereof, gear mechanism carried by said shaft, gear mechanism meshing with the mechanism upon the shaft and operated by a downwardly-projecting rotary rod or arm, and adjusting mechanism engaging said rotary rod or arm to lock it in adjusted position, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 2d day of December, 1897.

ANDREW S. BROWN.

Witnesses:
L. M. MULLER,
A. C. MCLOUGHLIN.