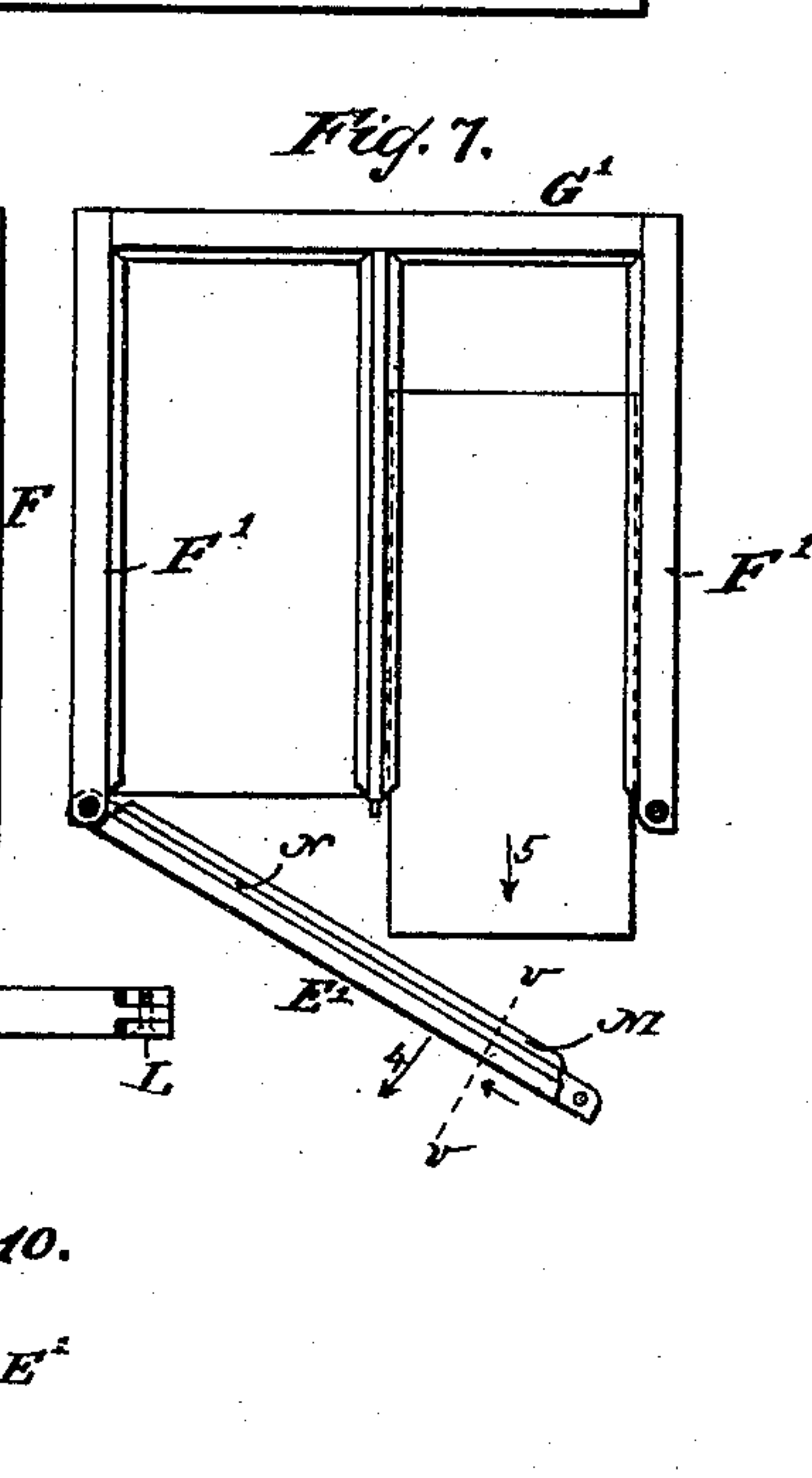
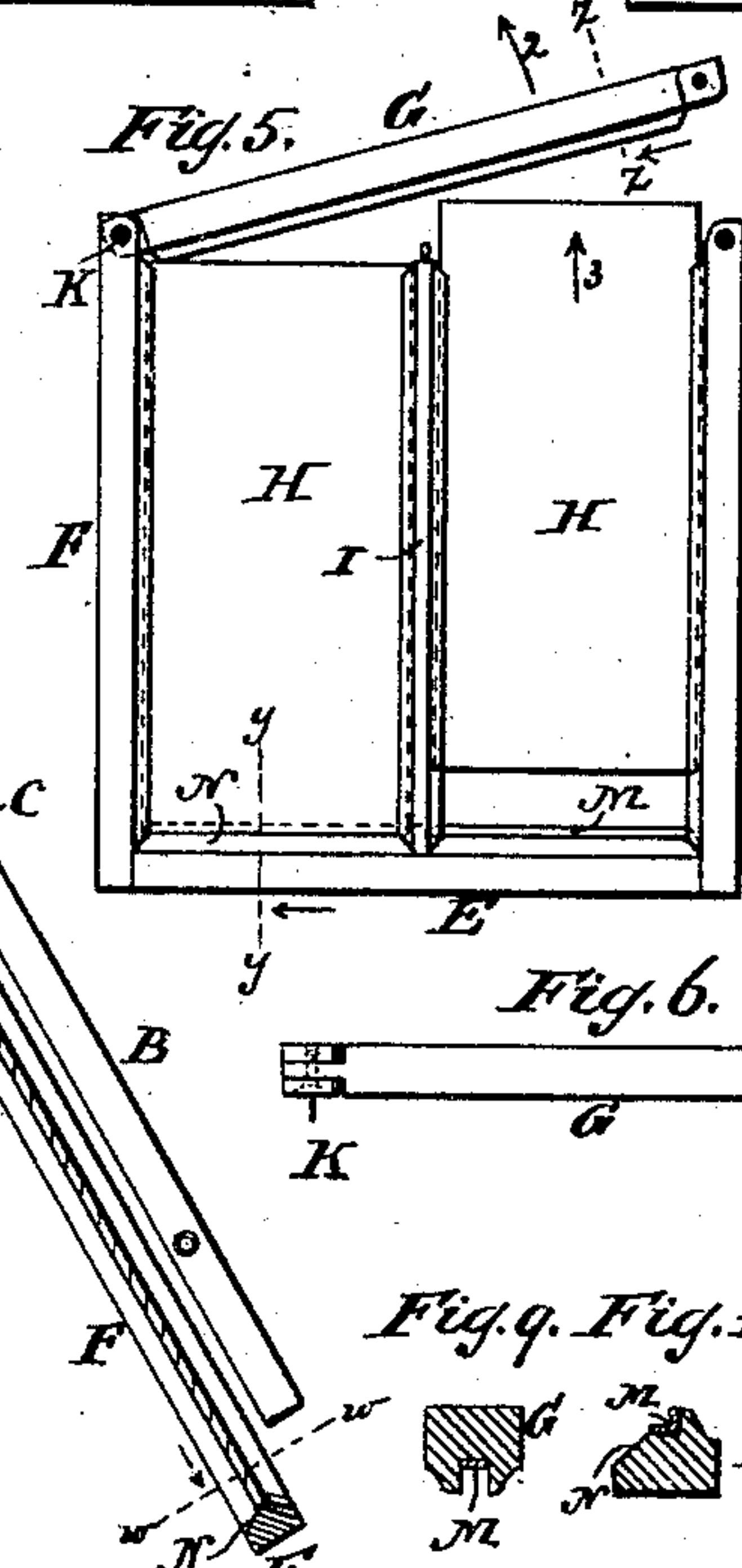
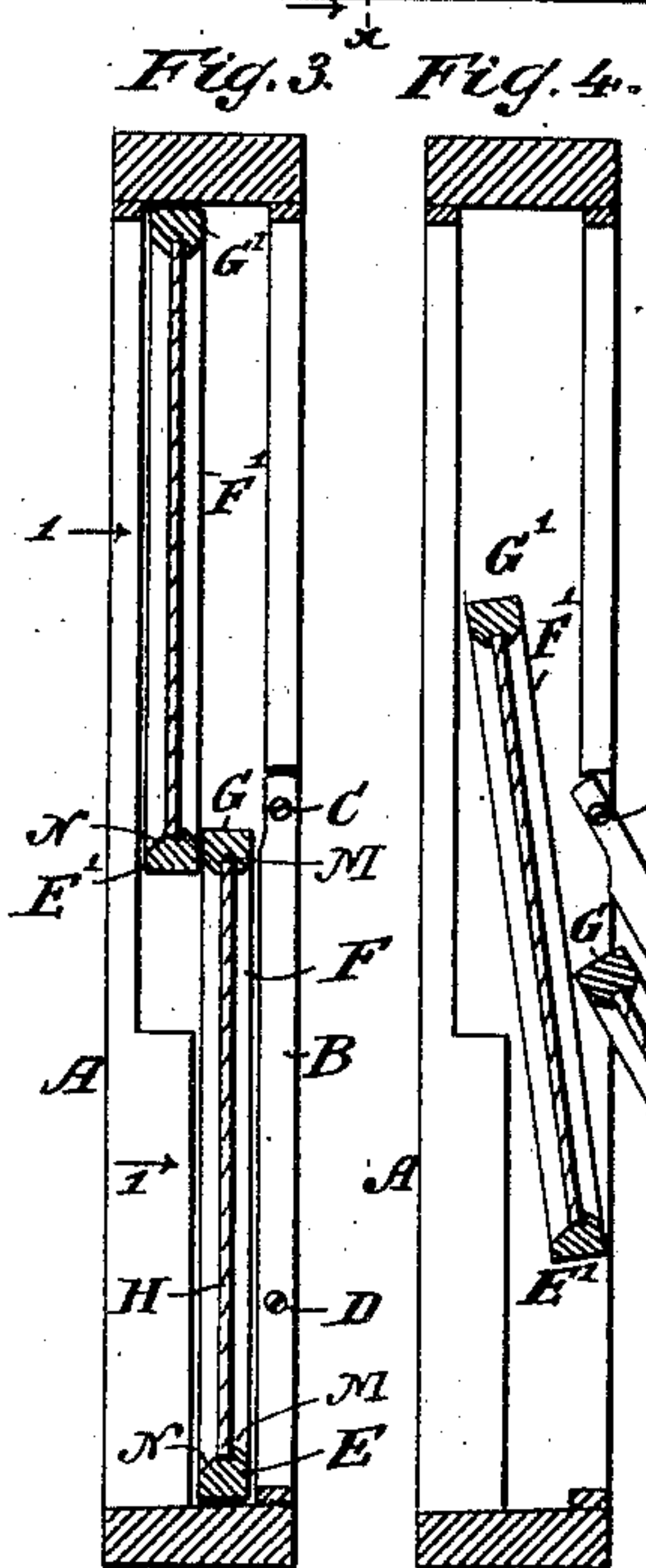
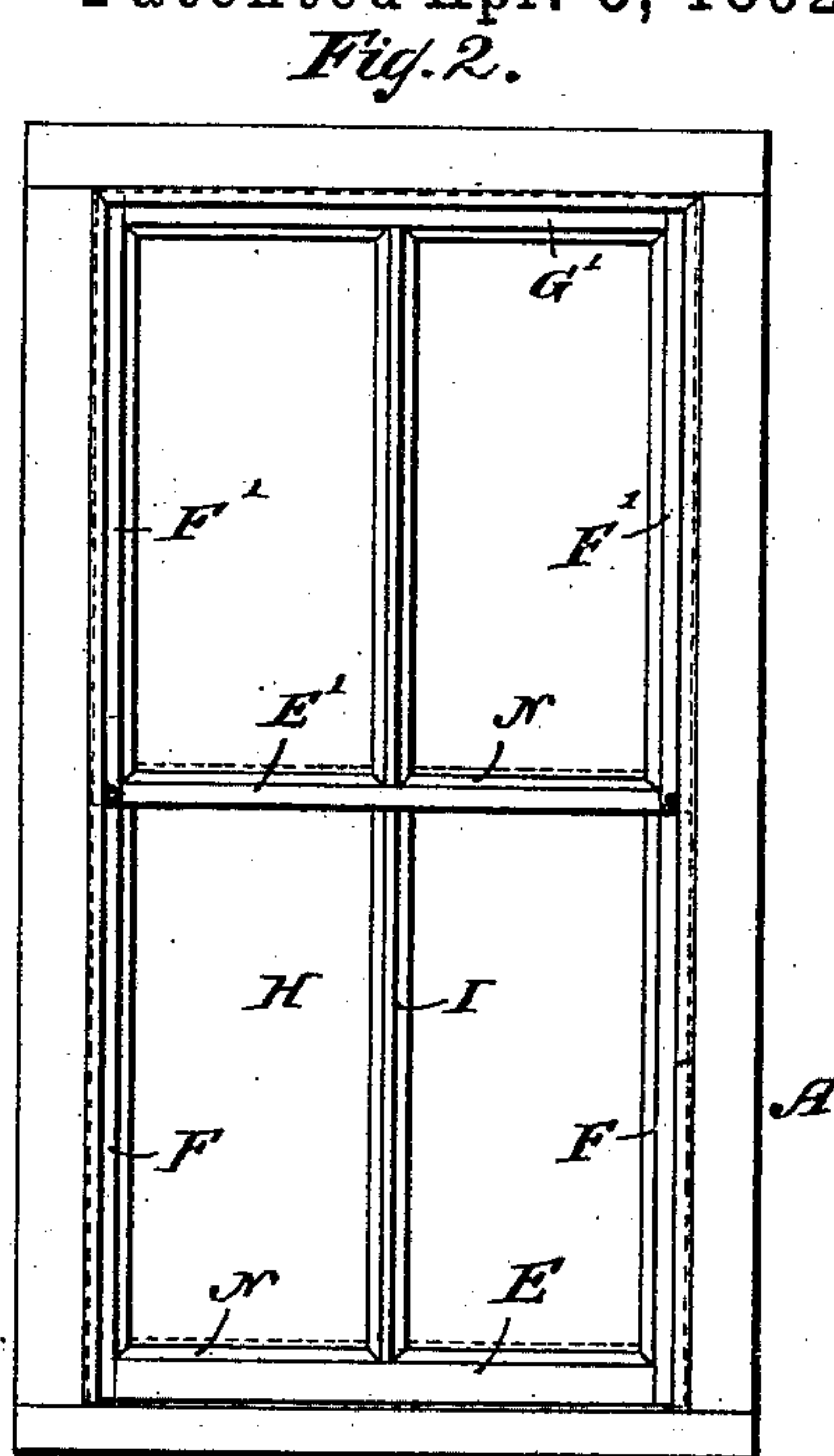
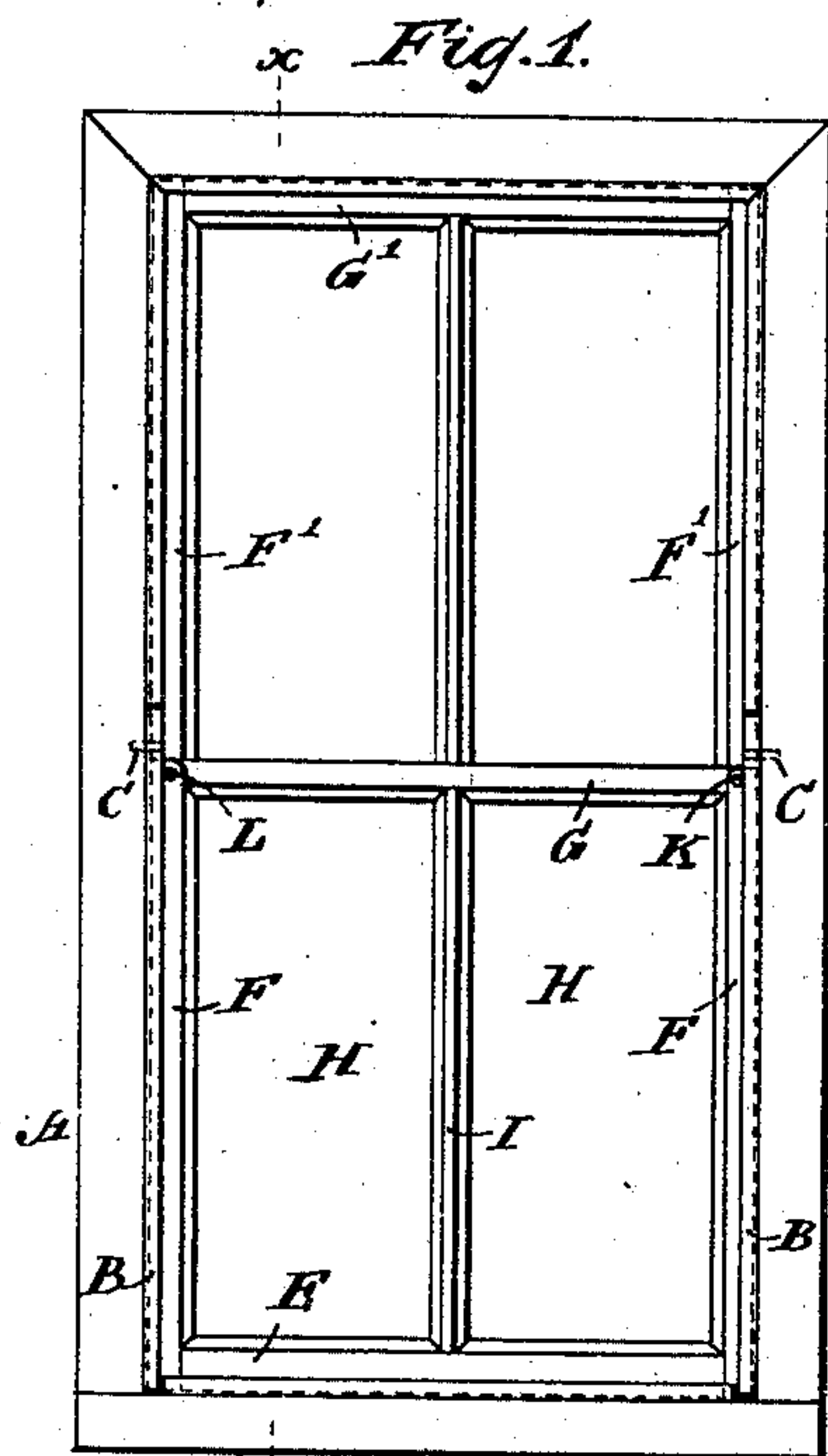


(No Model.)

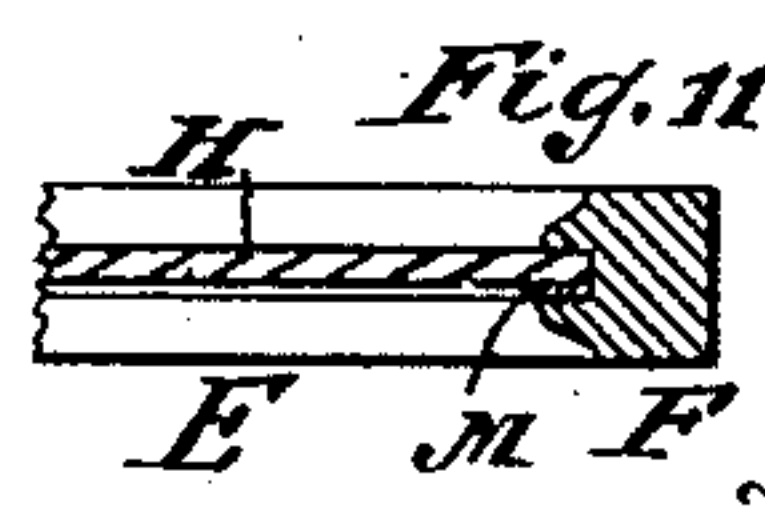
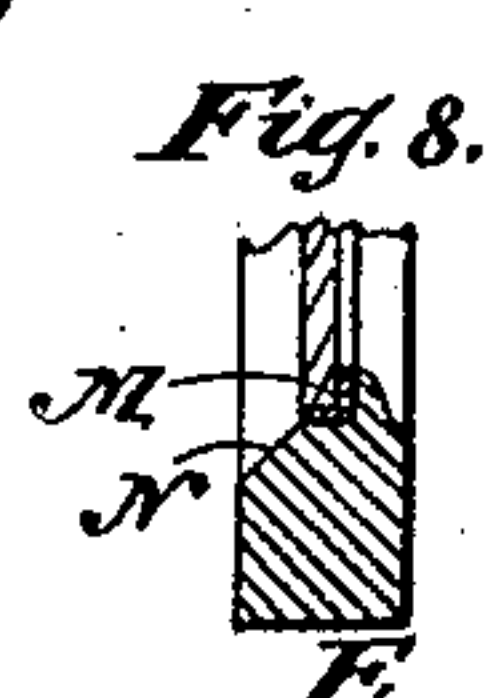
H. A. HOWE.
WINDOW SASH.

No. 472,458.

Patented Apr. 5, 1892.



WITNESSES:
Edward Wolff.
William Miller



INVENTOR:
Hermon A. Howe.
BY
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his ATTORNEYS.

UNITED STATES PATENT OFFICE.

HERMON A. HOWE, OF MIDDLETOWN, CONNECTICUT.

WINDOW-SASH.

SPECIFICATION forming part of Letters Patent No. 472,458, dated April 5, 1892.

Application filed April 30, 1891. Serial No. 391,158. (No model.)

To all whom it may concern:

Be it known that I, HERMON A. HOWE, a citizen of the United States, residing at Middletown, in the county of Middlesex and State of Connecticut, have invented new and useful Improvements in Window-Sashes, of which the following is a full, clear, and exact specification.

The object of this invention is to enable the glass in windows to be readily taken out and replaced; and the invention consists in the novel features set forth in the following specification and claim and illustrated in the accompanying drawings, in which—

Figure 1 is an inside view of the window. Fig. 2 is an outside view of Fig. 1. Fig. 3 is a section along $x x$, Fig. 1. Fig. 4 is a view similar to Fig. 3, with the sashes partly removed. Fig. 5 shows the lower sash opened. Fig. 6 is a plan view of the lower sash. Fig. 7 shows the upper sash opened. Fig. 8 is a section along $y y$, Fig. 5. Fig. 9 is a section along $z z$, Fig. 5. Fig. 10 is a section along $v v$, Fig. 7. Fig. 11 is a section along $w w$, Fig. 4.

The window-frame A is provided with strips B B, jointed or pivoted at C. By removing the screws or fastenings D, Fig. 3, the strips B can be swung out of place, as seen in Fig. 4 and indicated by arrows 1 in Fig. 3, so that the window-sashes can be taken out of the frame. The lower sash is shown composed of a bottom rail E, side rails F, and top rail G. The sash is shown as being supplied with two glasses or lights H, separated by rail I; but of course one glass may be used for the sash. The top rail G is held in place by a joint or pivot K and a screw or fastening L, Fig. 1, and by loosening said screw or fastening the top rail can be moved or swung to the opening position, Fig. 5, as indicated by arrow 2, so that the glass or glasses can be slid out of place, as indicated by arrow 3. In case a glass is broken or damaged it can thus be readily removed and another substituted.

In the case of the upper sash I have found it

convenient to make the lower rail E' swinging or opening, so that when said rail E' is opened, as indicated by arrow 4, Fig. 7, the glass is slid out of place, as indicated by arrow 5, after which another glass can be readily slipped into the rails F' G' of the upper sash. The rail F or F' and the rail G or E' are rounded at the meeting portions of the ends, which are pivoted together for the purpose of facilitating the opening and closing movements of the swinging rails.

The various rails are grooved or recessed for the insertion or sliding of the glass, and said grooves are provided with cushioning material M, such as felt, plush, cloth, or rubber, whereby the glass is eased.

The bottoms of the sashes at the outside are beveled or inclined, as at N, so that the water or rain will readily run off and the effects of the weather withstood. When the cushioning material rests against a side of the glass, I prefer to have such cushion on the inside of said glass, as the pressure from the outside, as in case of a wind-storm, will then press the glass against the cushion.

What I claim as new, and desire to secure by Letters Patent, is—

A window-sash composed of the side rails F F and end rails E G, one of said end rails being hinged at one end to a side rail and having its other end detachably secured to the other side rail, so that said end rail can be swung open or shut on its hinge without becoming detached from the sash, said hinge supporting side rail and the hinged end rail having their meeting or hinged ends rounded, so as to permit of a ready swing of the end rail, and the lower end rail being beveled on the outside from the bottom of the glass downward to avoid the formation of a groove or hollow, substantially as described.

HERMON A. HOWE.

Witnesses:

MILON DAVIDSON,
ARTHUR G. WARREN.