

(No Model.)

H. E. DORMAN.

SASH BALANCE.

No. 321,284.

Patented June 30, 1885.

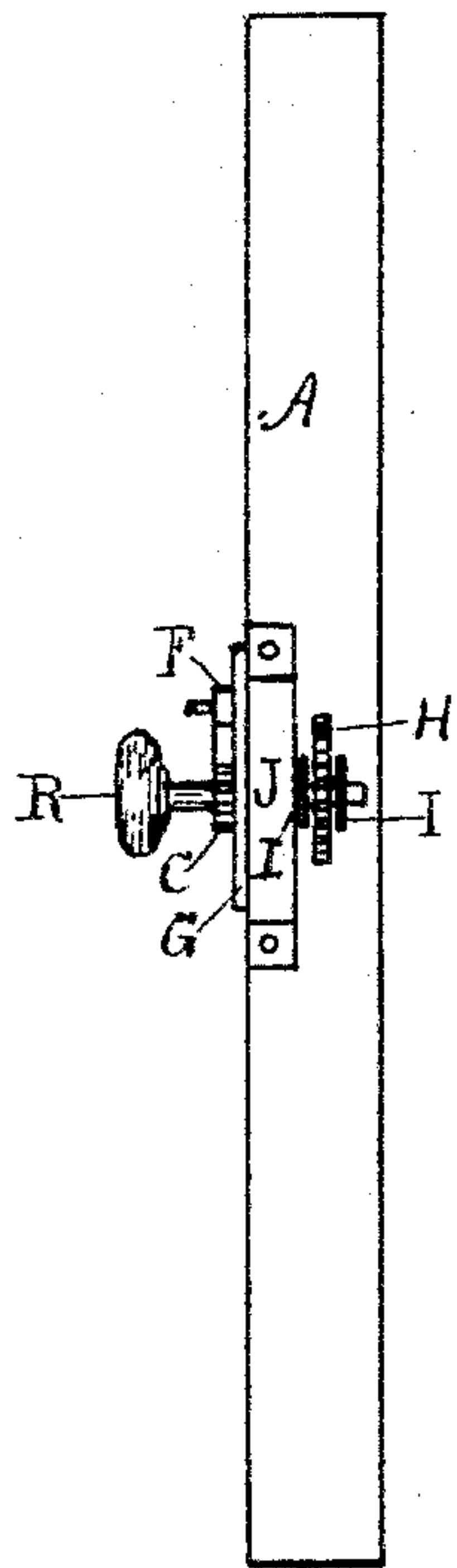


Fig. 3.

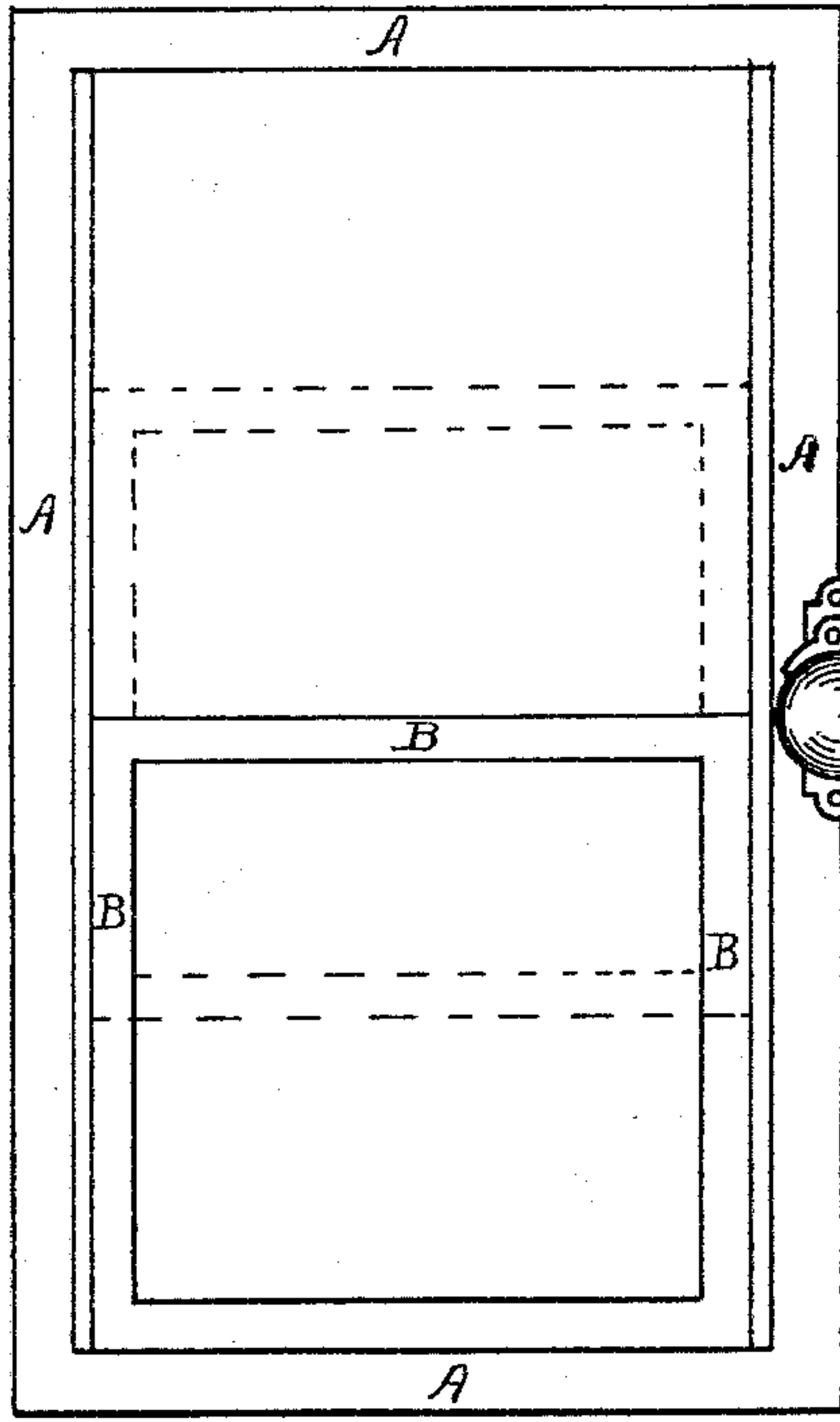


Fig. 1.

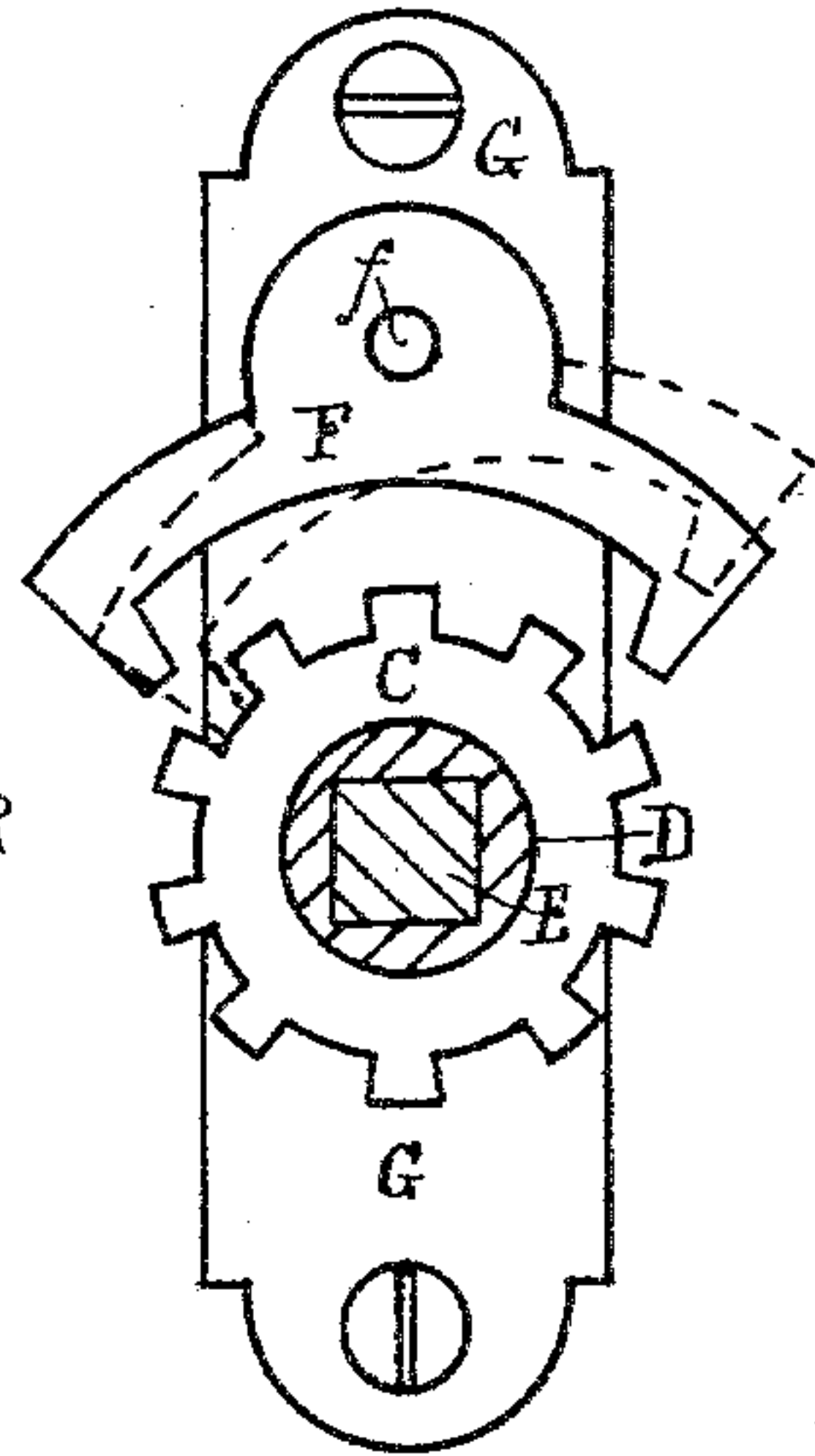


Fig. 2.

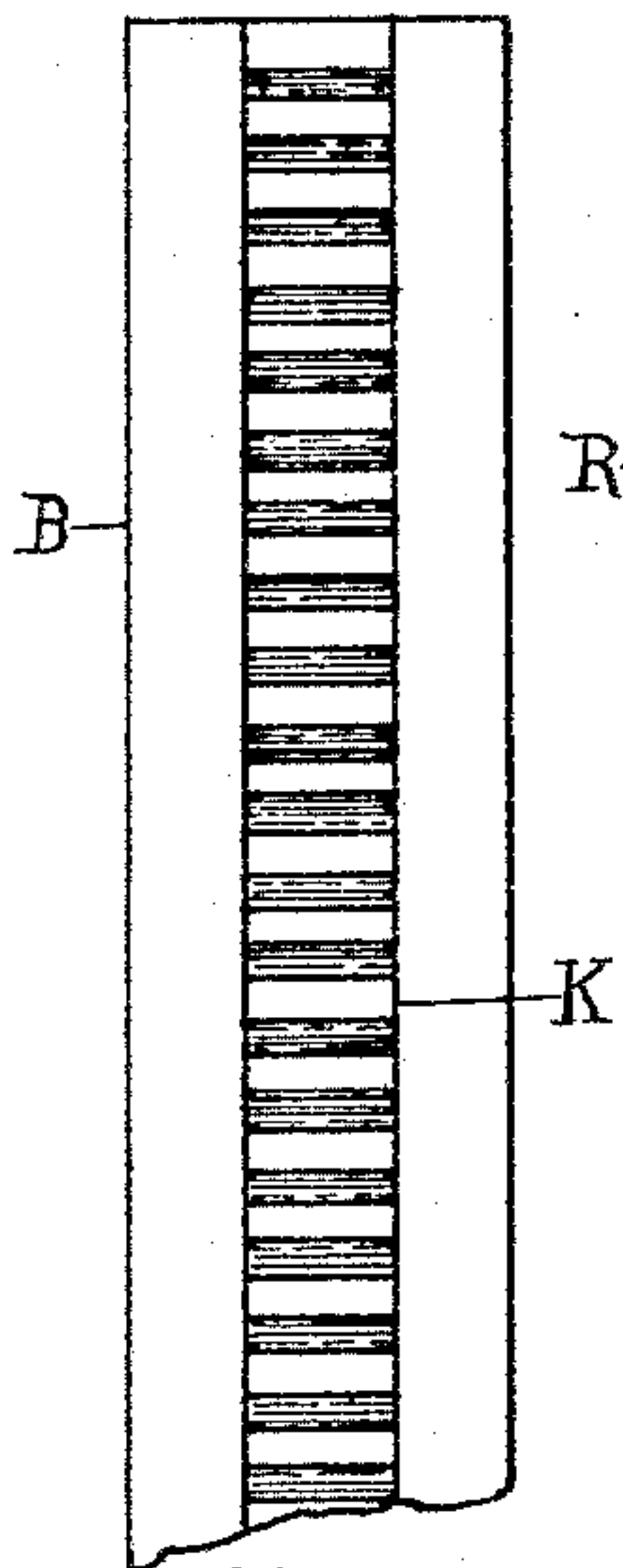


Fig. 5.

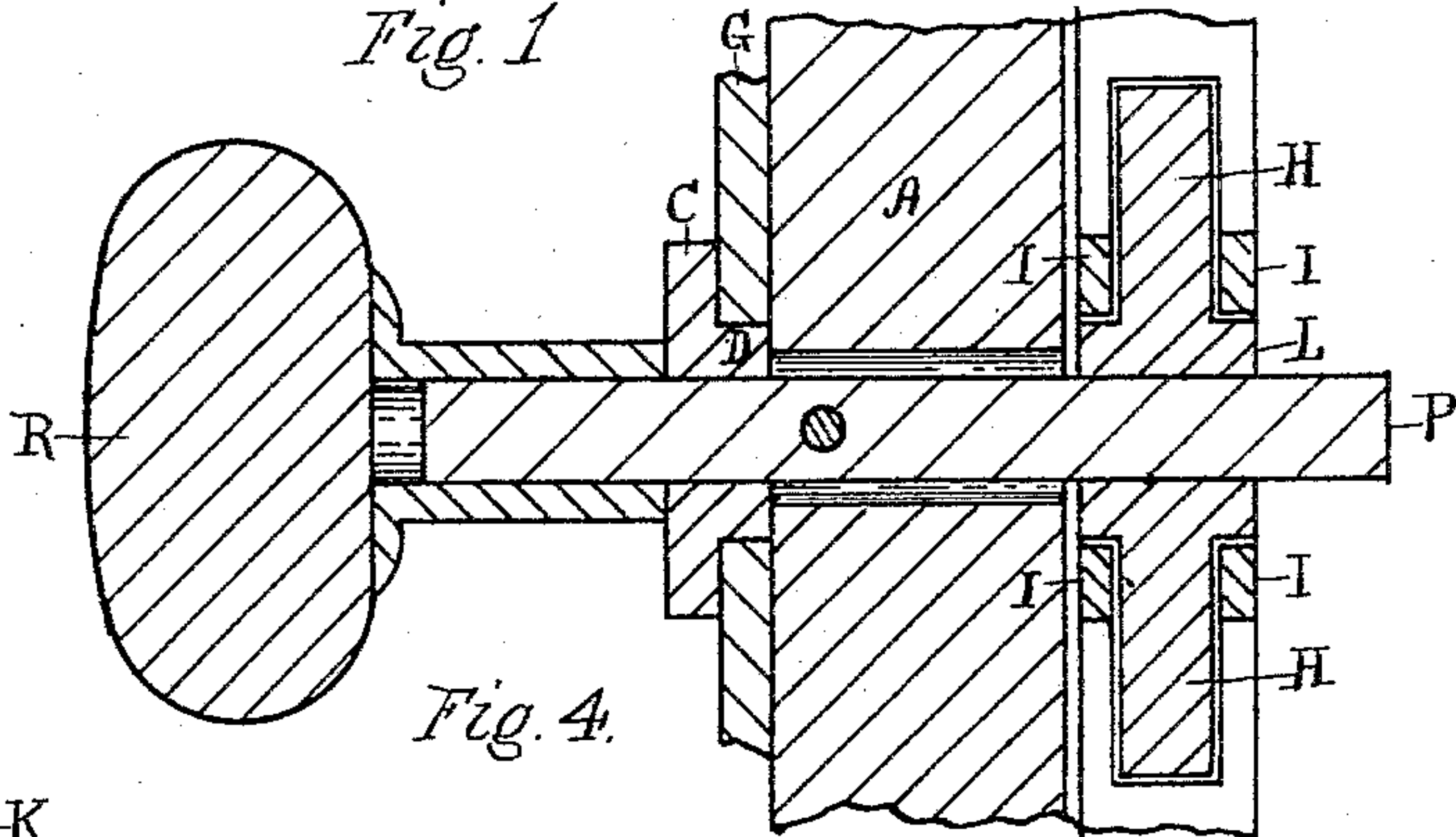


Fig. 4.



Fig. 6.

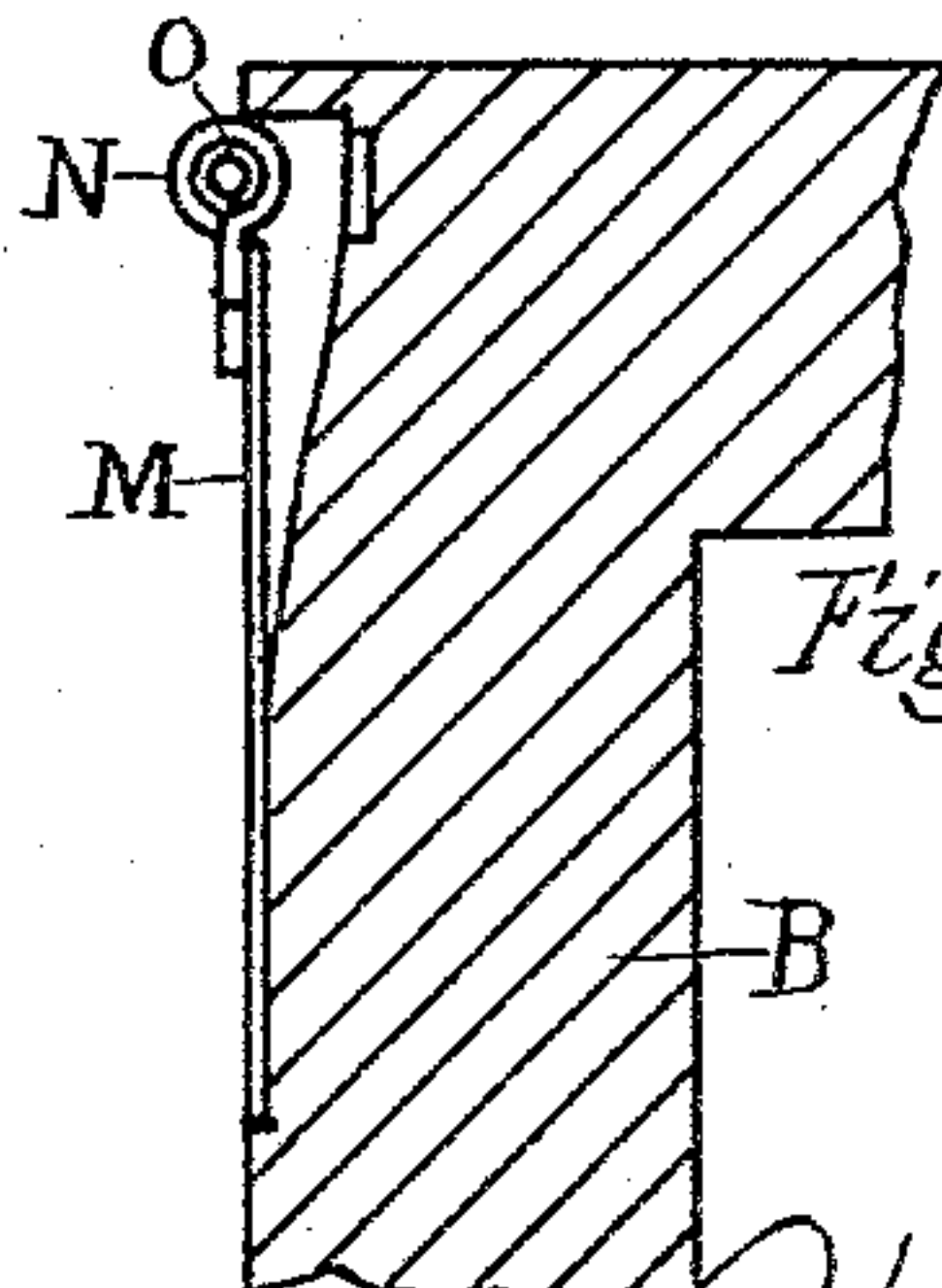


Fig. 7.

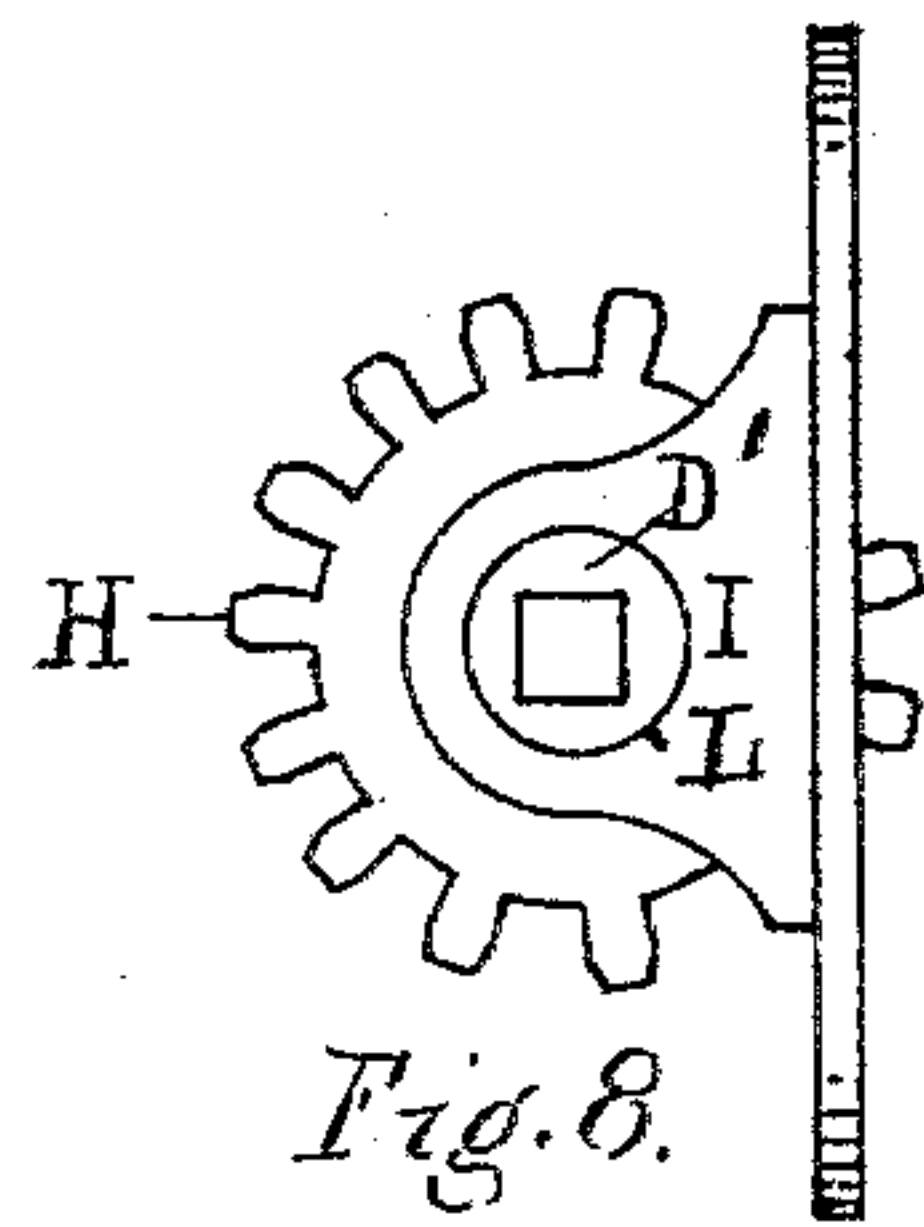


Fig. 8.

Witnesses
Merrick H. Leonard
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Inventor
Henry E. Dorman

UNITED STATES PATENT OFFICE.

HENRY E. DORMAN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR, BY DIRECT
AND MESNE ASSIGNMENTS, OF A PART TO AMOS K. ROBERTS AND JOHN
L. TUTTLE, BOTH OF SAME PLACE.

SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 321,284, dated June 30, 1885.

Application filed November 24, 1884. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. DORMAN, of
the city and county of Worcester, in the Com-
monwealth of Massachusetts, have invented
5 certain new and useful Improvements in Win-
dow-Sash Lifters and Fasteners; and I do
hereby declare the following to be a full, clear,
and exact description of the invention, such
as will enable others skilled in the art to make
10 and use the same, reference being had to the
accompanying drawings, which form a part of
this specification, and to the letters of refer-
ence marked thereon.

The object of this invention is to provide a
15 more convenient, durable, and practical lifter
and fastener than any now in use, and adapt-
ed to all kinds of window-sash to be raised
and lowered.

My device consists of the combination, with
20 the window frame and sash, of the square
spindle, of a suitable length for any thickness
of the window-frame, and provided with a
knob or crank on the end, the other end in-
serted in the square hole in the round hub of
25 a toothed fastening-wheel having its bearings
in a holder provided with a straddle or straight
latch pivoted to its face so as to drop into the
toothed notches. Said holder is fastened to
the face of the window casing or frame by
30 screws. Said spindle is also inserted in the
square hole in the round hub of a geared
wheel, said hub having bearings at each end
in a double holder set in the frame and fast-
ened with screws to the jamb of the frame, so
35 that the geared wheel can revolve in the
holder and gear into a straight rack-gear fast-
ened in the edge of the sash. There is an
anti-friction roll mounted in the end of a flat
steel spring, which is fitted in and fastened to
40 the upper opposite corner of the sash, which
serves to relieve and balance the sash, so it
will not cramp when it is raised and lowered.

Referring to the drawings, Figure 1 repre-
sents a side view of the frame and sash, show-
45 ing my device attached thereto. Fig. 2 rep-
resents the device with the knob and spindle
removed, showing the toothed fastening-wheel,
its round hub with its square hole, and the
holder provided with the straddle-latch piv-
50 oted to its face and fastened to the face of the
casing or frame. Fig. 3 represents an inner
edge view of the frame, showing a side view
of my device. Fig. 4 represents a sectional

side view of my device inserted in the win-
dow-frame, showing the position of the sev- 55
eral parts. Fig. 5 represents an edge view of
the window-sash, showing the straight rack-
gear fitted therein. Fig. 6 represents the op-
posite edge of the sash, showing the anti-
friction roll mounted in the flat steel spring 60
and fastened to the upper corner of the sash.
Fig. 7 represents an edge view of the same
and a side view of the sash. Fig. 8 represents
the geared lifting-wheel having a square hole
in the round hub having its bearings in the 65
two ears of the holder, the teeth projecting
through the face-plate of the holder, so as to
gear into the rack-gear fastened to the edge of
the sash.

Similar letters refer to similar parts through- 70
out the several views.

A denotes the window-frame, and B the
sash. C denotes the toothed fastening-wheel
with its round hub D, and E the square hole
in the same. F denotes a straddle-latch piv- 75
oted to the holder G, at *f*, so that it will latch
into the toothed wheel in either direction; or
a straight bolt may be used in its stead, if
desired. H denotes the geared lifting-wheel
with its round hub L and square hole D, 80
mounted in the holder I I, so as to gear into
the rack-gear K of the sash B. The flat spring
M is fastened in a notch at the upper corner
of the sash B, and provided with an anti-fric-
tion roll, N, mounted on pivot *o*. The knob 85
R serves as a handle to the spindle P; but a
crank may be substituted, if desired. The
clasp J holds the device to the edge of the
frame.

Having thus fully shown and described my 90
invention, what I claim, and desire to secure
by Letters Patent, is—

The combination, with the rack-bar K, the
holder I, and the cog-wheel H, having hubs
on its opposite faces journaled in the holder 95
I, of the shank P, fitting in an angular hole
through the hub of wheel H, a plate, G, car-
rying a latch, F, and a toothed wheel, C, fit-
ting around shank P, and formed with a
rounded hub turning in plate G, substantially 100
as described.

November 20, 1884.

HENRY E. DORMAN.

Witnesses:

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JONA. LUTHER.