(No Model.)

B. MARSHALL.

SASH BALANCE.

No. 420,425. Patented Jan. 28, 1890.

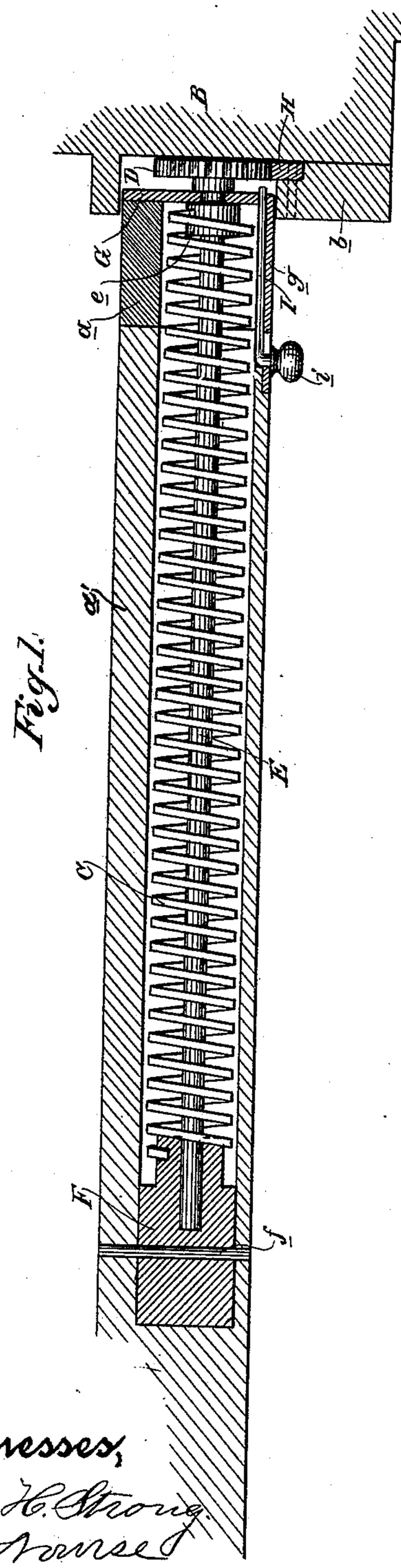

Fig. 1.

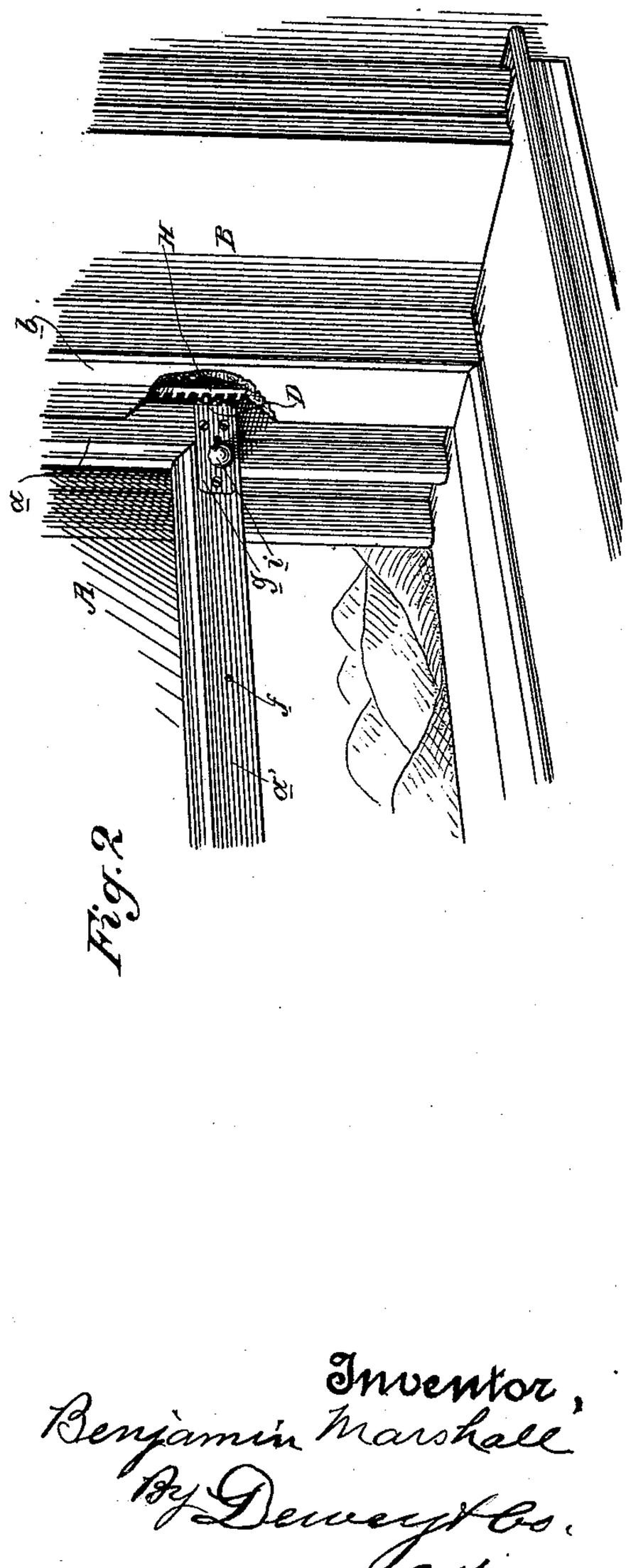

Fig. 2.

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UNITED STATES PATENT OFFICE.

BENJAMIN MARSHALL, OF SAN FRANCISCO, CALIFORNIA.

SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 420,425, dated January 28, 1890.

Application filed September 6, 1889. Serial No. 323,162. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN MARSHALL, of the city and county of San Francisco, State of California, have invented an Improvement in Sash-Raisers; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of devices for raising window-sashes in which a spring is employed; and my invention consists in the novel arrangement and combination of the spring, the pinion which it actuates, and the rack which the pinion engages, hereinafter fully described, and specifically pointed out in the claim.

My invention further consists, in combination with these parts, of a suitable catch for engaging the pinion or the rack and locking the sash in any position desired.

The object of my invention is to dispense with weights by the substitution therefor of a simply-arranged spring-actuated device which can be readily applied to any sash, and the use of which will simplify the construction of the window frames or casings.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a horizontal cross-section through the sash-rail. Fig. 2 is a detail perspective.

A represents, generally, any window-sash, of which *a* is one of the stiles, and *a'* is its bottom rail. B is the window casing or frame, of which *b* is one of its beads. In the bottom rail *a'* of the sash and from one end thereof is made a deep bore in which is seated a spiral spring C, and mounted on the stile of the sash is a pinion D, which is so connected with the spring that as it rotates in one direction it winds up the spring, and is itself rotated in the other direction by the unwinding of the spring. This connection, though it may be made in any suitable manner, I prefer to effect through the turn-rod E, which carries the pinion on its outer end, said rod being let into the bore of the sash-stile, the spring C encircling it. The rod has on its inner end a bearing F, in which it rotates, said bearing being fixed in the base of the bore by the pin *f*, or otherwise. The outer end of this rod passes through a plate G, screwed to the edge of the sash-stile *a*. The inner end of the spring C is attached to the fixed bearing F, and the outer end is attached to the rod E, (here shown as secured to an enlarged portion or collar *e* of the rod,) which serves as an abutment against the inner surface of the plate G, whereby the rod is held to its seat in the bore of the sash-rail.

Secured properly to the inner surface of the bead *b* of the window-casing is a rack H, with which the pinion D engages. The plate G has a flanged portion *g*, which overlaps the face of the sash-stile and serves as a carrier for a catch, (here shown as a sliding bolt I, (the end of which passes through plate G, and is adapted to be projected between the teeth of the pinion, or of the rack, if desired. This bolt may have a handle-knob *i*, for convenience in operating it, and which may also serve as a hold or grip whereby to manipulate the sash by hand.

The operation is as follows: Suppose the sash to be in a raised position. Now, upon putting it down, the pinion D, traveling in the rack H, turns the rod E, whereby the spring C is wound up. Then when the sash is down and is released the spring in unwinding returns the rod and rotates the pinion, which, traveling in the rack, raises the sash. The sliding bolt I, when pushed forward, engages the pinion-teeth, and thereby prevents it from turning, or engages the rack-teeth, as may be desired, and in this manner the sash may be locked in any position desired. Thus no weights are needed and the present complex construction of the window-casing is avoided. The catch may be a spring-catch, or other form, if desired, its function being to lock the sash by preventing the movement of the pinion in the rack. The rack H may be located suitably in any proper position on the casing in which the pinion may engage it.

I am aware that curtain-rollers are provided with internal springs which effect their rotation, and I also know of an arrangement of spring, winding-drum, intervening cord, and rack and pinion for raising a sash; but I do not claim such, broadly; but,

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

A sash-raising device consisting of a sash having its rail provided with a bore extending longitudinally within the same, a rod

seated within said bore and provided at one end with a pinion, a spring encircling said rod and adapted to wind as the sash is lowered, a rack on the window-casing engaged by said pinion, and a catch seated in the sash and adapted to engage the teeth of the pinion, substantially as described.

In witness whereof I have hereunto set my hand.

BENJAMIN MARSHALL.

Witnesses:
S. H. NOURSE,
H. C. LEE.