W. H. DOANE.

Scroll-Saws.

No. 134,650. Patented Jan. 7, 1873.

Fig. 1.

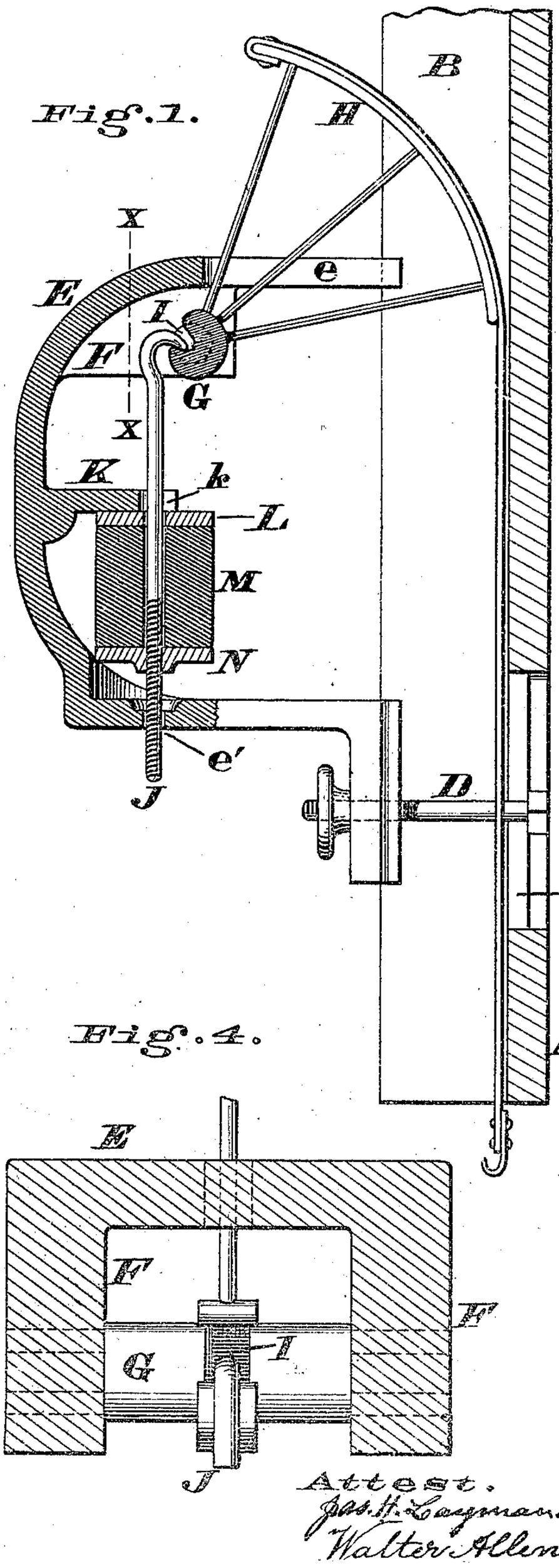


Fig. 2.

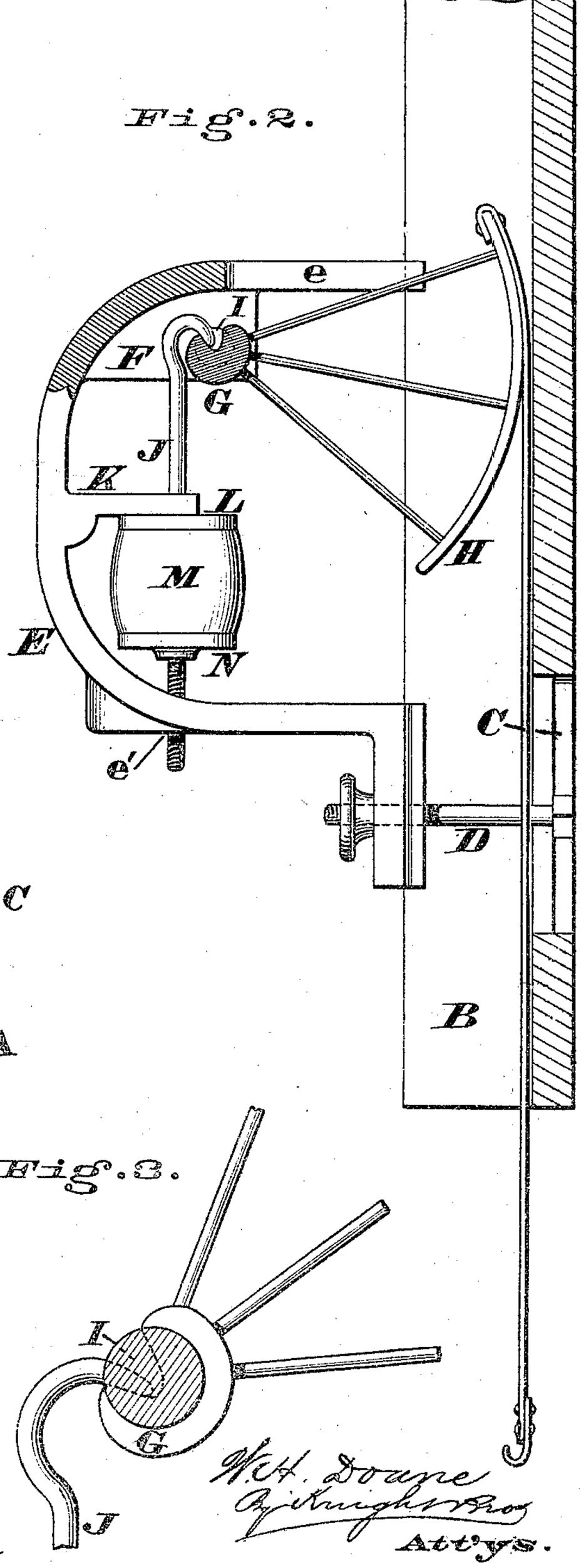


Fig. 4.




Fig. 3.




Attest.
Jas. H. Layman.
Walter Allen

W. H. Doane
By Knight Bros
Att'ys.

# UNITED STATES PATENT OFFICE.

WILLIAM H. DOANE, OF CINCINNATI, OHIO, ASSIGNOR TO J. A. FAY & CO., OF SAME PLACE.

## IMPROVEMENT IN SCROLL-SAWS.

Specification forming part of Letters Patent No. **134,650**, dated January 7, 1873.

*To all whom it may concern:*

Be it known that I, WILLIAM HOWARD DOANE, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Scroll-Saws, of which the following is a specification:

This is a device for maintaining the proper tension of the saw-blade of a scroll-sawing machine; and comprises a spring or cushion, preferably of India rubber and cylindrical in form, inclosed between suitable heads, of which one, being fixed, constitutes an abutment, while the other head, being movable, communicates the resilient property of the spring, through the medium of a stem, whose hooked upper extremity occupies a cavity near the axis of a segmental pulley, with whose arc or tire the saw-blade is connected by the customary strap. The bearing-point or shoulder of said cavity is located as near as possible to the axis or center of oscillation of the segment-pulley, in order that a very slight compression of the spring may correspond with a full stroke of the saw-blade, whereby the said spring is preserved in complete efficiency without liability to have its substance heated or its resilient qualities impaired.

In the preferred form of my invention the said tension devices are all contained in a compact and peculiarly-formed adjustable guard or housing, and have the movable spring-head adjustable on the stem, so as to enable the attendant to adapt the apparatus to a longer or a shorter blade and to vary the tension of the spring at will.

### *General Description.*

Figure 1 is a vertical section of my tension device in the normal or elevated position of the saw-blade. Fig. 2 is a partially-sectionized elevation of the same parts, the saw-blade being at the limit of its downward stroke. Fig. 3 is an enlarged vertical section of the segment-pulley's fulcrum. Fig. 4 is an enlarged transverse section in the line *x x* of Fig. 1, looking rearward.

A is a portion of the supporting-frame or stanchion, the same having flanges B and a vertical slot, C, for the attaching-screw D of a guard or housing, E, of the represented approximately U form. The housing E has, near its upper part, ears F, which, being perforated, as shown, serve as the journal-bearings of the journals G of a segment-pulley, H, to whose tire or arc the saw-blade is connected by means of the customary steel or leather strap, and to accommodate which pulley the said housing is slotted at *e*. A cavity, I, in the pulley's hub receives the hooked upper extremity of a vertical rod or stem, J, which, traversing freely a notch, *k*, in lug K and upper (stationary) head L and perforated cylindrical rubber spring or cushion M, is screwed into lower (adjustable and movable) head N of said cushion, whence it passes freely down through guide-hole *e'* in the lower part of the housing E.

The above-described preferred form of my devices may be varied in non-essential particulars. For example, the spring M may be located above instead of below the segment-pulley and act by a pushing instead of the represented pulling force.

A spiral or helical spring may be used instead of the rubber cylinder.

Two or more attaching-screws in connection with guide-flanges may replace the single attaching-screw and vertical slot.

### *Operation.*

The lower head N being screwed down or slackened, the housing E is raised or lowered to the proper point for engagement of the strap with the saw-blade, and secured in this position by means of the screw D. The head N is then screwed up until the proper tension is obtained, and the machine is then ready for work.

The above-described arrangement and relation of parts enabling the employment of a powerful spring or cushion subjected to very slight compression, such spring is thereby rendered practically everlasting as to its resilient properties.

It will be seen that all the operative parts G H L M N of my saw-straining device are contained within the housing E and the recessed or flanged and slotted stanchion A, these parts being arranged and operated in the smallest practicable space, and no part of them projecting beyond these two members.

My machine is capable of being run at the highest speed without trembling or vibration,

and consequently so as to saw smoothly and equally without loss of power.

*Claims.*

I claim herein as new and of my invention—

1. The segment-pulley recessed rock-shaft G, in combination with the spring M and its attachments, when constructed and operated in the manner and for the purpose shown and described.

2. The herein-described housing E, combined with the recessed and slotted stanchion A and containing the entire saw-straining devices G H L M N, in the manner and for the purpose set forth.

In testimony of which invention I hereunto set my hand.

W. H. DOANE.

Attest:

GEO. H. KNIGHT,

JAMES H. LAYMAN.