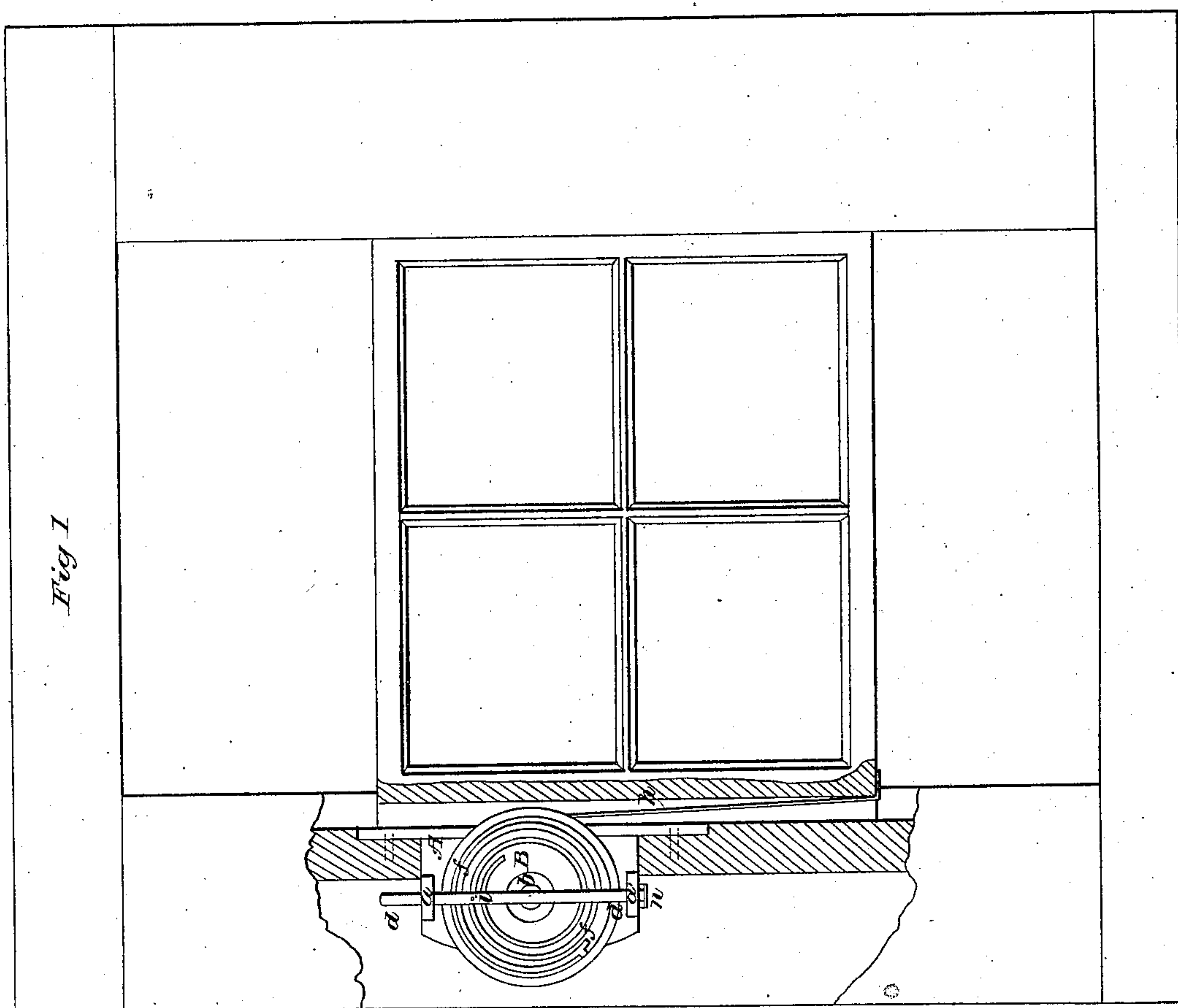
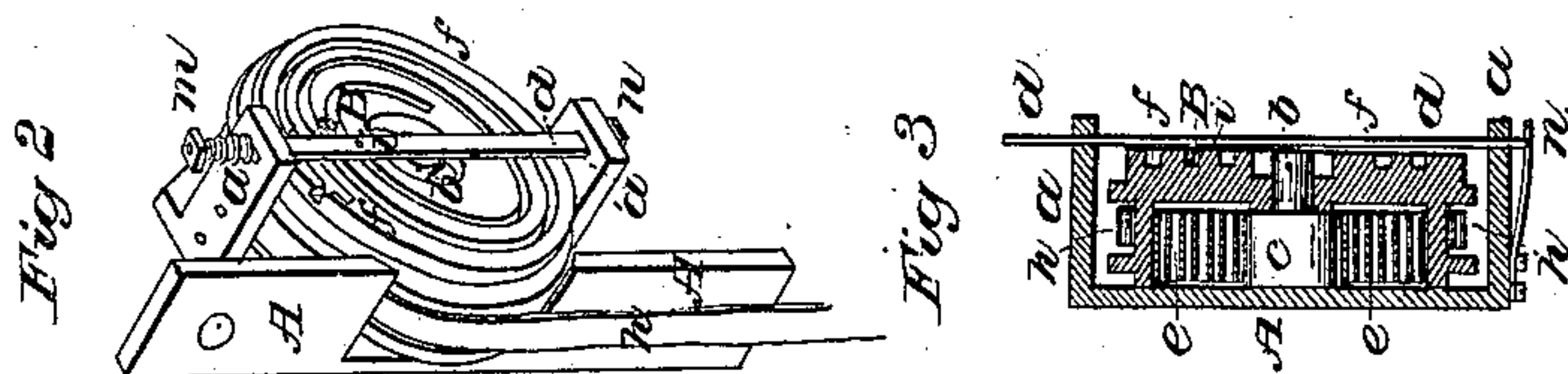


J. Shopland,  
Sash Balance.

*Sash Balance.*

N<sup>o</sup> 15,528.

*Patented Aug 12, 1856.*



# UNITED STATES PATENT OFFICE.

JOHN SHOPLAND, OF HONESDALE, PENNSYLVANIA.

## SPRING-PULLEY FOR WINDOW-SASHES.

Specification of Letters Patent No. 15,528, dated August 12, 1856.

*To all whom it may concern:*

Be it known that I, JOHN SHOPLAND, of Honesdale, in the county of Wayne and State of Pennsylvania, have invented certain new and useful Improvements in Spring-Pulleys for Hanging Sash, Doors, &c.; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part thereof, in which—

Figure 1 represents one of the pulleys in question as attached to a window frame, for operating the sash thereof. Fig. 2 represents a perspective view of the pulley stretched from the frame, and Fig. 3 represents a vertical cross section of the pulley, taken near its center.

Similar letters where they occur in the several figures denote like parts in all.

The nature of my invention consists in providing a spring pulley, with a self acting spring brake, which shall compensate for the unequal strength of the coiled spring in the pulley, as it is wound up, or let out, and thus causing it to act with more uniform power.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A, represents the frame in which the pulley B, is hung and works. This frame has cast or wrought upon it two arms  $a$ ,  $a'$ , and a pivot  $b$ , upon which pivot, a drum  $c$  may be made for the spring to wind upon. The pulley B, is made like a short cylinder, with one open end. Its periphery is provided with the customary groove or depression for the cord, or chain to wind upon. A coiled spring  $e$ , is arranged within the pulley wheel B, one end of which coiled spring is attached to the pulley, and the other end to the pivot  $b$ , or drum  $c$  upon it.

On the face of the closed end of the pulley wheel B, is cut a cam groove  $f$ , of a helical form, in which a small stud  $i$ , in the bar  $d$ , takes. The bar  $d$ , passes through suitable

openings in the arms  $a$ ,  $a'$ ,—its lower end resting upon a spring  $n$ , fastened on the underside of the lower arm ( $a'$ ). When the pulley wheel is turned so as to wind up its inclosed spring, the stud  $i$ , and the bar  $d$ , are carried by the helical groove  $f$ , toward the spring  $n$ —the end of said bar pressing against said spring—so that one spring shall counteract, or compensate for the increasing power of the other one, as it continues to be wound up.

In Fig. 1, the spring pulley is shown as applied to a sash— $h$  being the cord, chain, or band by which the sash is connected to said pulley. In this figure the sash is represented as partially pulled down from the top,—now continue to draw the sash down and the helical spring is wound up; but as it winds up, the stud  $i$ , in the bar  $d$ , is held with an increasing pressure against the top of the groove  $f$ , by the increasing resistance of the spring  $n$ . So that to let go the sash at any point in its movement, it will remain there. Such could not be the case were it not for the brake composed of the stud, bar, and a spring  $n$ , for it the helical spring alone were used it would be either too weak when uncoiled to hold up the sash or too powerful when wound up to allow the sash to remain down.

A spring and nut  $m$ , Fig. 2, may be used on the bar  $d$ , to regulate its pressure on the spring  $n$ , if found desirable.

Having thus fully described the nature of my invention what I claim therein as new and desire to secure by Letters Patent is—

In combination with the pulley and spring, the self acting compensating brake for holding the pulley at any fixed point, regardless of the increased power of the coiled spring as it is wound up, in drawing down, or raising up a sash, door, or other thing to which it may be attached, substantially as herein described.

JOHN SHOPLAND.

Witnesses:

A. B. STOUGHTON,  
THOS. H. UPPERMAN.