

No. 605,215.

Patented June 7, 1898.

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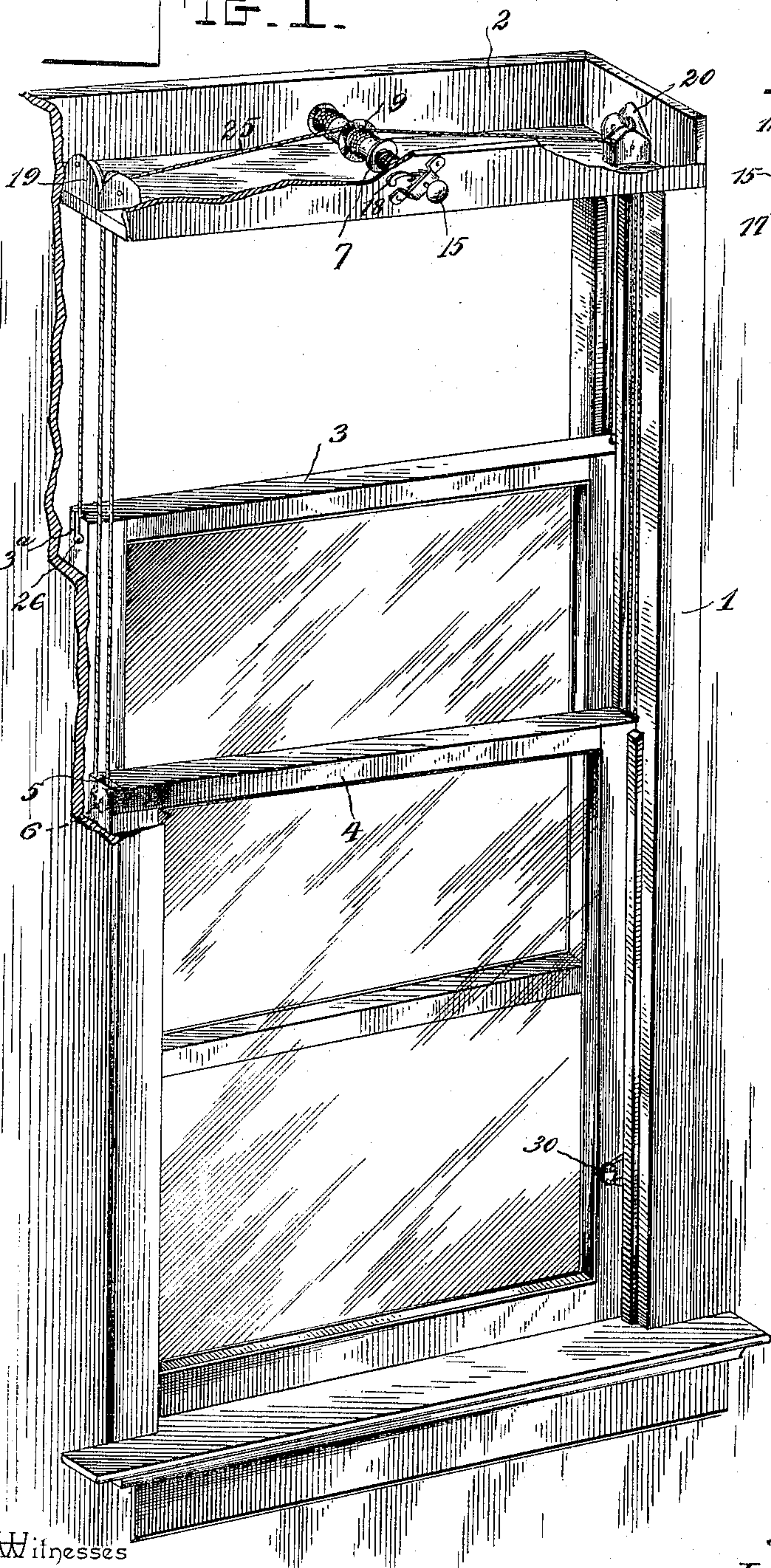
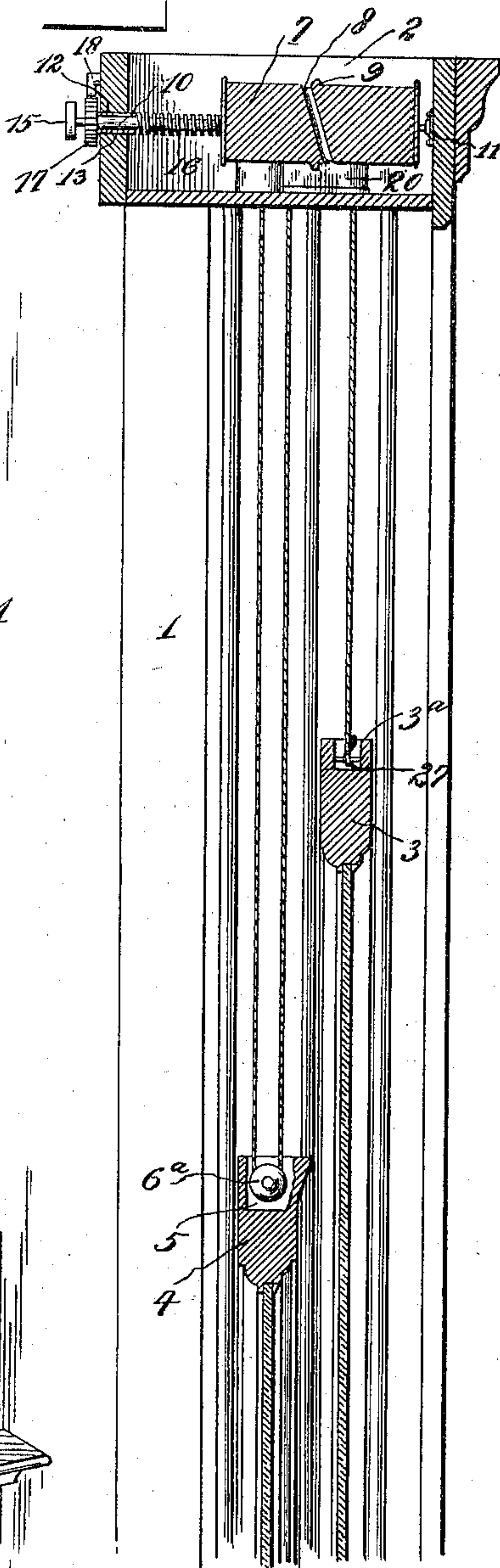


FIG. 3.



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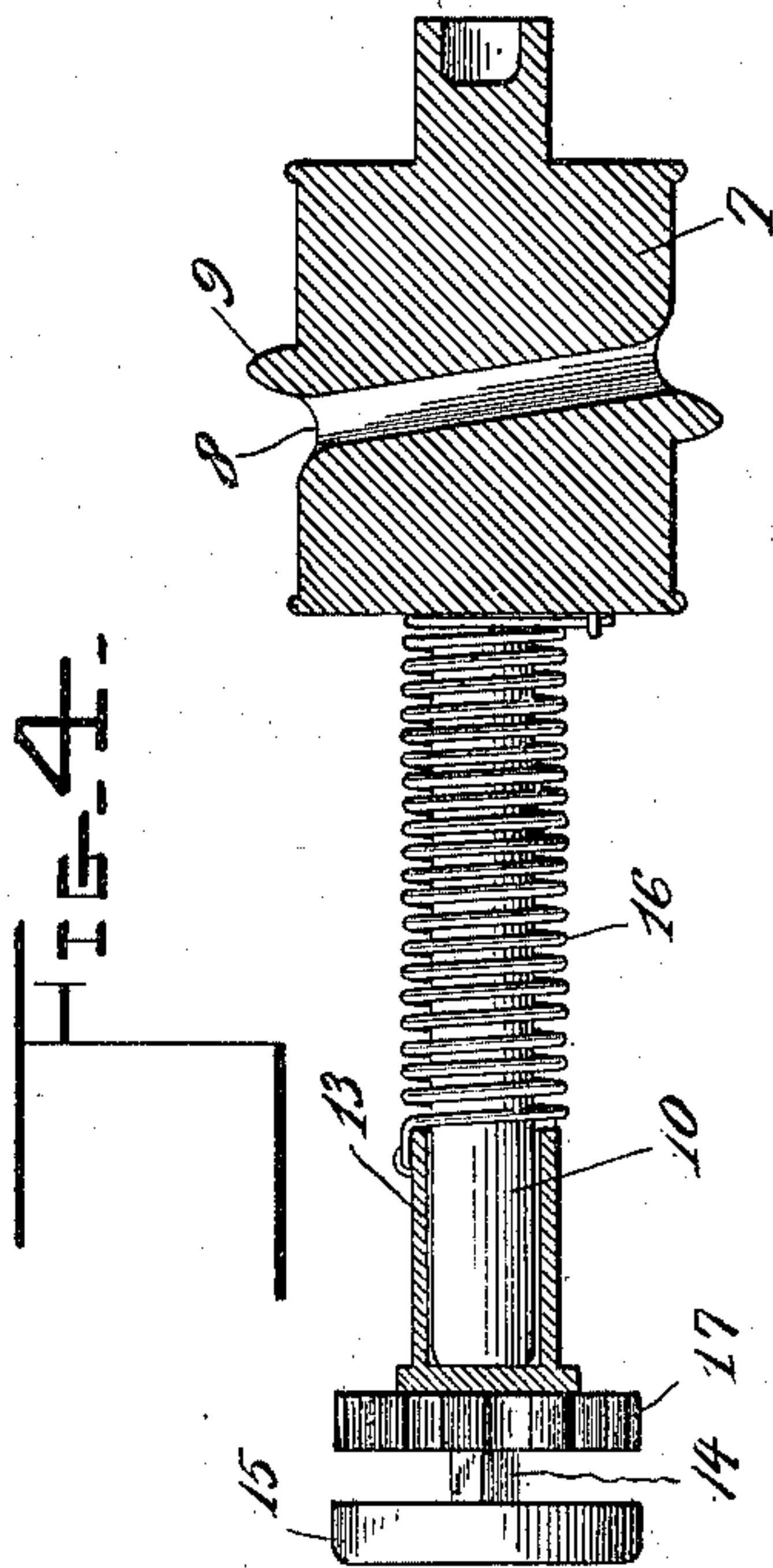
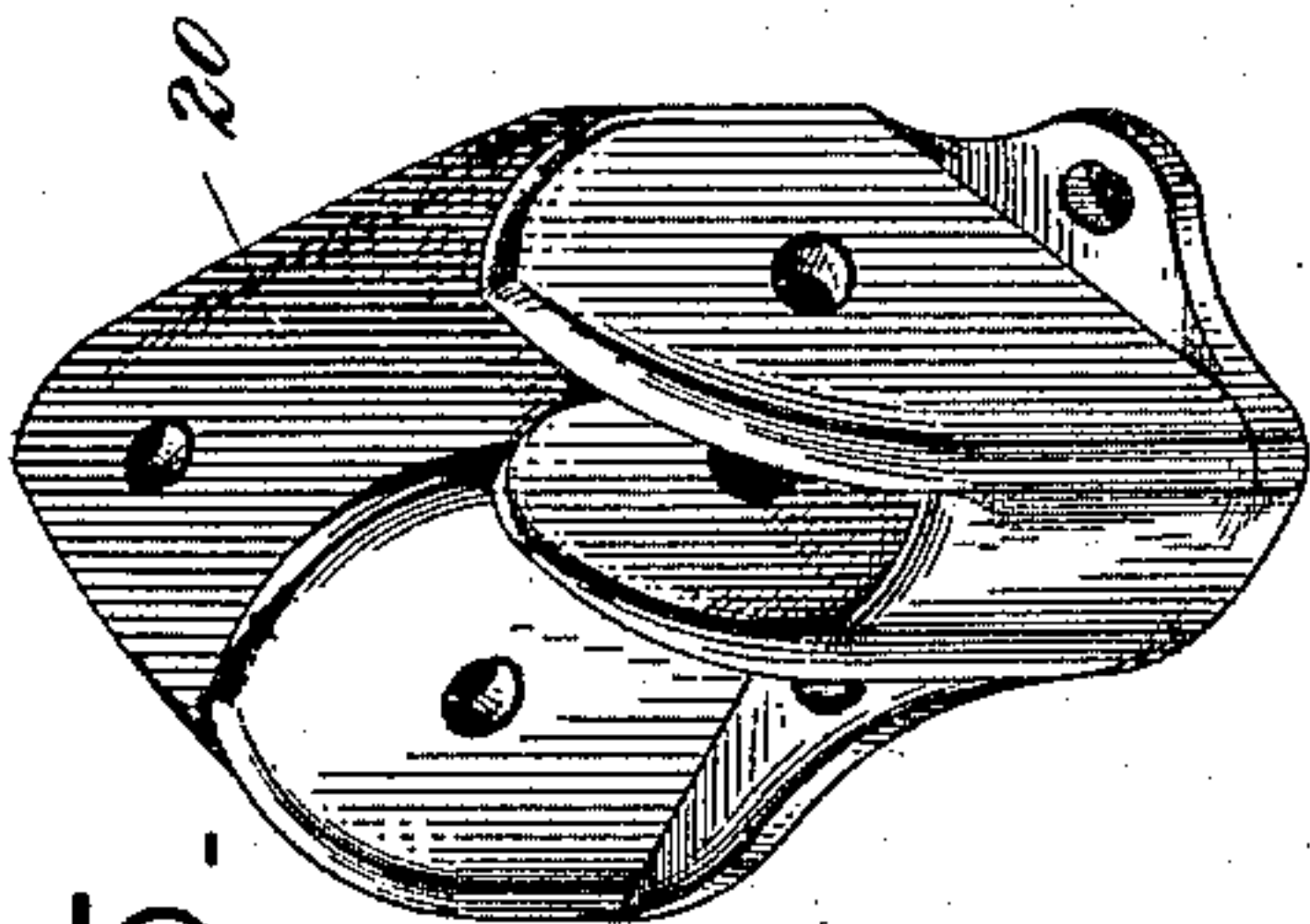
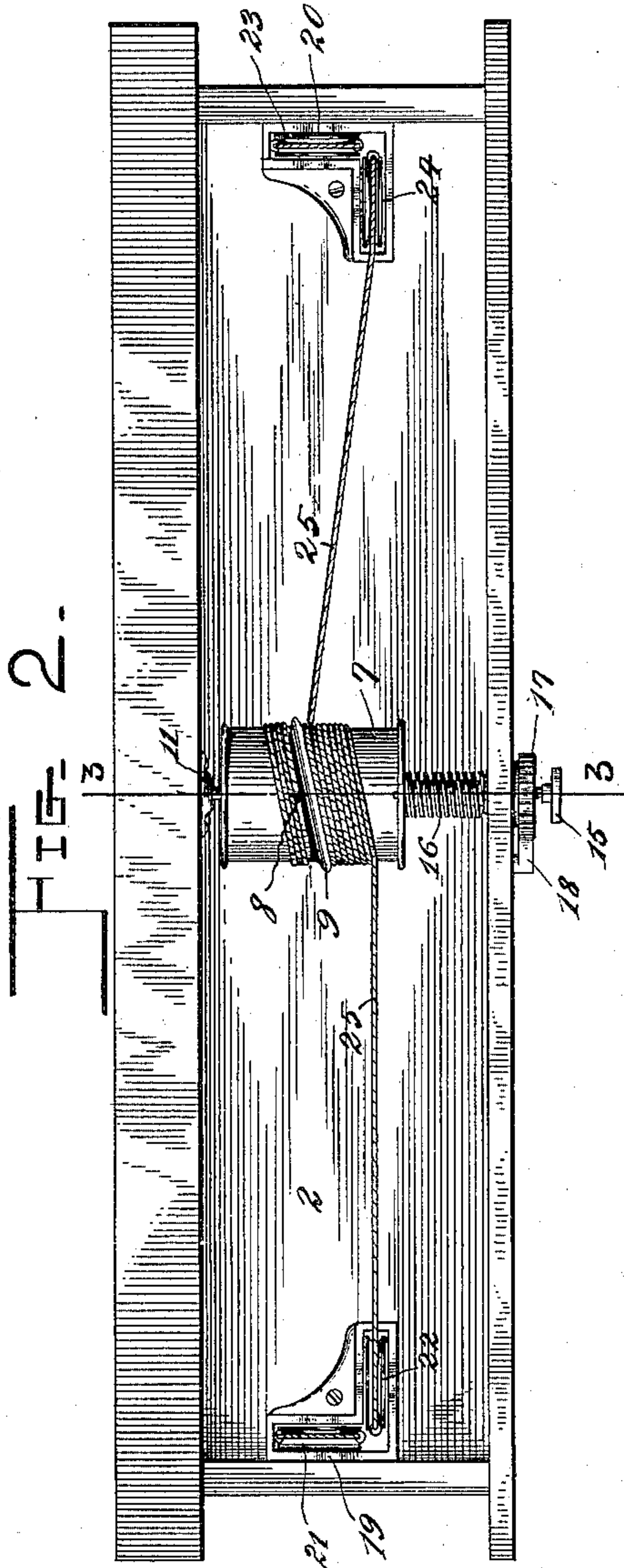
(No Model.)

2 Sheets—Sheet 2.

M. BARBER & J. P. ASHBY.
SASH BALANCE.

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Patented June 7, 1898.



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UNITED STATES PATENT OFFICE.

MELVIN BARBER AND JOHN P. ASHBY, OF OKLAHOMA, OKLAHOMA TERRITORY, ASSIGNORS OF ONE-THIRD TO JOSEPH B. ROLATOR, OF SAME PLACE.

SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 605,215, dated June 7, 1898.

Application filed November 6, 1897. Serial No. 657,685. (No model.)

To all whom it may concern:

Be it known that we, MELVIN BARBER and JOHN P. ASHBY, citizens of the United States, residing at Oklahoma, in the county of Oklahoma and Territory of Oklahoma, have invented a new and useful Sash-Balance, of which the following is a specification.

Our invention relates to improvements in sash-balances; and the object that we have in view is to provide an improved construction by which sashes of unequal weights may be balanced without resorting to the employment of independent weights for the sashes, thus dispensing with the use of the usual weight-boxes and materially simplifying the construction of the sash-balance.

A further object of the invention is to provide an improved construction which may be adjusted to accommodate sashes of different weights and which may also be applied with ease and facility.

To the accomplishment of these ends our invention consists in the combination, with a frame or casing and an upper sash, of a lower sash having guide devices, a rotatable double spring-controlled drum mounted on the head of said casing, guide-sheaves on the frame-head over the sashes, and a single continuous running cord coiled on the sections of the drum, extending thence around the guides of the lower sash, thence over the guide-sheaves, and attached to the upper sash; and the invention further consists in the novel combination of elements and in the construction and arrangement of parts, which will be hereinafter fully described and claimed.

To enable others to understand our invention, we have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view, partly broken away and in section, of a spring sash-balance constructed in accordance with our invention. Fig. 2 is a top plan view of the window-casing with our improved sash-balancing mechanism applied to and within the head thereof. Fig. 3 is a vertical transverse sectional view on the plane indicated by the dot-

ted line 3 3 of Fig. 2. Fig. 4 is an enlarged detail sectional view through the spring-controlled drum and the tension-adjusting device for the spring. Fig. 5 is a detail perspective view of the pulley-support for one of the two pairs of guide-pulleys employed in connection with our improved sash-balance.

Like numerals of reference denote corresponding parts in all the figures of the drawings.

1 designates the casing of an ordinary window, provided with a hollow or chambered head 2. 3 is the upper sash, and 4 is the lower sash. These sashes are guided within the casing or frame 1 by the usual beads or strips, and the upper sash 3 is provided with short grooves 3^a, while the lower sash is provided with the recesses 5, in which are set the guide-pulleys 6 6^a to accommodate the running sash-cord presently described.

7 designates the drum or cylinder, which is arranged in a horizontal position transversely across the central part of the chambered or hollow head 2, and this drum or cylinder is provided with a transverse opening 8 and with a central spiral guide-flange 9. If desired, the drum may be provided at its ends with radial annular flanges to prevent the sash-cord from running off the ends of the drum or cylinder. This drum 7 has a central shaft 10, the rear end of which is journaled in a suitable bearing 11, fixed in the rear side of the chambered head 2 of the casing or frame. In the front side of the chambered head 2 of the casing is provided a suitable opening or journal-bearing 12, which is in alinement with the bearing 11 in the rear side of the chambered head, and in said opening or bearing 12 is journaled a tubular winding shaft or arbor 13, which is arranged, preferably, to extend through the front wall of the chambered head 2, although this shaft may be contained wholly within the hollow part or chamber of the head 2, if desired. The front protruding end of this winding shaft or arbor is made angular or of other polygonal form to receive an angular nut or key 15, which is adapted to be fitted to the angular end 14 of the shaft, and said nut or key 15 may be

readily applied when it is desired to increase the tension of the spring 16, which controls the drum or cylinder 7, or the nut or key may be detached when the device is in service after having been properly installed. The inner part of the tubular winding-shaft 13 receives the front end of the drum-shaft 10 to form a journal and support for the front end of the drum-shaft, and around this drum-shaft is fitted the coiled tension-spring 16 to confine the spring properly in position. One end of this helical spring is fastened to the drum or cylinder 7 in any suitable way, while the other end of the spring is fastened to the inner end of the tubular or socketed winding-shaft 13. This tubular shaft may be rotated by the nut or key in order to place the spring under tension, and thus operate to control the drum or cylinder 7, and the spring is prevented from uncoiling by the provision of a ratchet 17 and a pawl 18. As shown, the ratchet and pawl are arranged on the front exposed side of the head 2 of the window-casing; but it is evident that these parts may be placed or arranged inside of the head 2, so as to be concealed from view. The ratchet is fastened in a suitable way to the short tubular winding-shaft, while the pawl is attached to the casing-head 2 either by a pivot and held by a spring in engagement with the ratchet or a spring-pawl may be used.

On opposite sides of the centrally-disposed spring-controlled drum 7 and in vertical alignment with the sashes 3 4 we provide the pulley-supports 19 20. Each pulley-support is a single casting of angular form, as shown by Fig. 5, and this casting comprises the two members arranged at right angles to each other and the perforated ears or lugs, through which may be passed suitable screws to fasten the pulley bracket or support to the casing-head. The pulley-bracket 19 at the left-hand side of the casing carries two guide-pulleys 21 22, which are journaled therein to have their arbors or journals lie at right angles to each other, while the other pulley-bracket 20 at the right-hand side of the casing carries two pulleys 23 24, which in like manner are journaled in the bracket 20 to have their arbors lie at right angles to each other. The pulleys 21 23 of the brackets are arranged over and in vertical line with the upper sash 3, while the other pulleys 23 24 are over and in vertical line with the lower sash 4.

25 designates the single continuous running sash-cord which is common to both sashes to be operatively connected therewith and with the centrally-disposed winding-drum 7. One end of this sash-cord is attached to the upper recessed corner of the upper sash 3, as at the point 26, thence the cord runs up over the pulley 21, thence down to and around one pulley 6 in the upper corner of the lower sash 4, thence up to and around the pulley 22, thence over to and around the drum 7, on one

side of the spiral flange 9 thereof, thence through the opening 8 in the drum and coiled around the drum on the opposite side of the flange 9, thence the cord runs over the pulley 24, down to and around the other sheave 6^a in the other corner of the lower sash 4, thence up and around the sheave 22, and, finally, it is carried down and attached to the upper recessed corner of the upper sash 23, where it is fastened, as at the point 27.

From this description it will be observed that we employ a single cord which is fastened at its respective ends to the corners of the upper sash; that it is slidably connected to the corners of the lower sash, and that it is coiled on the centrally-disposed drum to rotate the latter when one or the other of the sashes are raised or lowered.

The described arrangement of the sash-cord and the employment of the spring-controlled drum provide a simple contrivance by which the tension of the spring which controls the drum is utilized as the means for counterbalancing the weight of the sashes, and the employment of the winding-shaft in connection with the spring and the drum in the manner described enables the spring to be put under more or less tension in accordance with the difference in the weight of the sashes.

While we have shown and described our improved sash-balance as applied to the head 2 of the window-casing, we do not strictly limit ourselves to this particular arrangement of the parts, because we are aware that the balance may be arranged on the sashes themselves.

In the drawings we have shown the lower sash equipped with a lock 30, consisting of a slidable plate arranged to bind against the casing and to be controlled by an eccentric thumb-piece; but this form of the lock is immaterial, and other styles of locks may be used, if desired.

Various changes in the form and proportion of parts may be made without departing from the spirit of our invention.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination with a frame or casing, and an upper sash, of a lower sash having the guide devices, a rotatable, double, spring-controlled drum mounted on the head of said casing, guide-sheaves on the frame-head over the sashes, and a single continuous running cord coiled on the sections of the drum, extending thence around the guides of the lower sash, thence over the guide-sheaves, and attached to the upper sash, substantially as described.

2. In a sash-balance, the combination of a winding-drum provided with an extended shaft, a tubular winding-shaft fitted loosely on the drum-shaft to rotate independently thereof and provided with means by which the tubular shaft may be rotated, a coiled

spring fitted on the drum-shaft and attached
at its ends to the tubular shaft and the drum
respectively, and a detent device connected
with said winding-shaft to restrain the latter
5 from rotation under the recoil of the spring,
substantially as described.

In testimony that we claim the foregoing

as our own we have hereto affixed our signatures in the presence of two witnesses.

MELVIN BARBER.
JOHN P. ASHBY.

Witnesses:

AMOS BOUSE,
GEORGE E. WILSON.