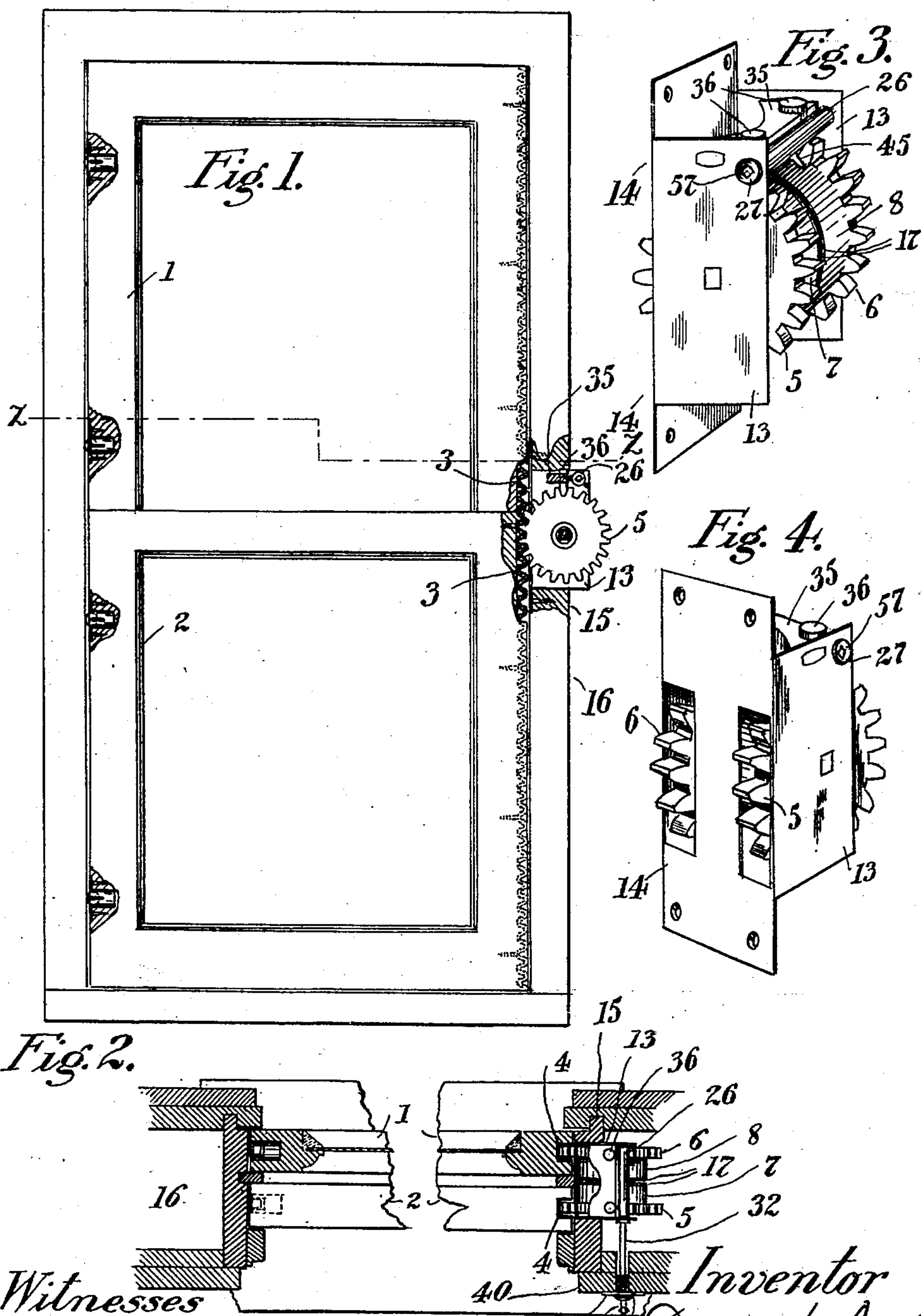


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SASH BALANCE AND LOCK.
APPLICATION FILED JULY 25, 1908.

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Patented Mar. 9, 1909.

2 SHEETS—SHEET 1.



Witnesses

Adèle Meininger
Homer Bradford.

Inventor

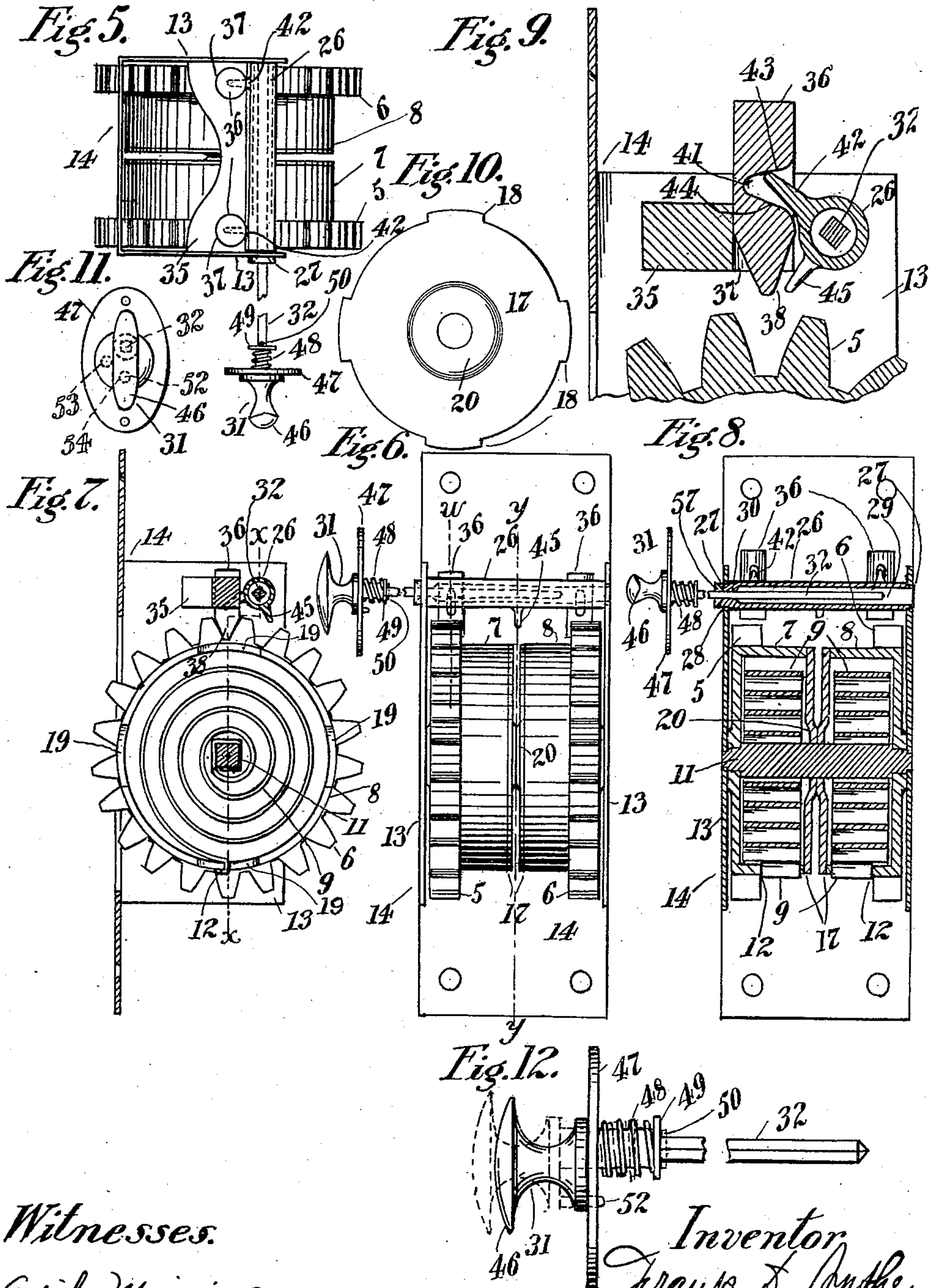
Frank D. Anthé,
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UNITED STATES PATENT OFFICE.

FRANK D. ANTHE, OF COVINGTON, KENTUCKY.

SASH BALANCE AND LOCK.

No. 914,692.

Specification of Letters Patent.

Patented March 9, 1909.

Application filed July 25, 1908. Serial No. 445,379.

To all whom it may concern:

Be it known that I, FRANK D. ANTHE, a citizen of the United States, residing at Covington, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Sash Balances and Locks, of which the following is a specification.

My invention relates to sash balances and locks and has for its object the providing of a device of this character of simple construction and capable of controlling the operation of both the upper sash and the lower sash and locking the same in adjusted positions or when the same are entirely open or closed.

In my invention I employ a pair of spur gears, one for each sash, one of the sides of each of the sashes being provided with a rack, with novel means for locking and releasing said gears, which invention will be readily understood from the following description and claims and from the drawings, in which latter:

Figure 1 is a front elevation of a window provided with my improved device, partly broken away for better illustration. Fig. 2 is a horizontal section of the same on the line $z-z$ of Fig. 1. Fig. 3 is a rear perspective elevation of my improved device. Fig. 4 is a front perspective elevation of the same. Fig. 5 is a plan view of the same. Fig. 6 is a rear elevation of the same. Fig. 7 is a vertical section of the same taken on the line $y-y$ of Fig. 6 and showing the cover of the gear-casing removed. Fig. 8 is a vertical section of my improved device taken on the irregular line $x-x$ of Fig. 7. Fig. 9 is a detail in section on the line w of Fig. 6 showing manner of mounting and operating the detent-blocks. Fig. 10 is a side elevation of the cover for the gear casing. Fig. 11 is a front elevation of the operating key and its escutcheon-plate. Fig. 12 is a side elevation of the same.

1 represents the upper sash and 2 the lower sash.

3 are racks, one of which is let into the longitudinal groove 4 in one of the side edges of each of the sashes.

5 6 are spur gears arranged to mesh with the respective racks. The spur gears are respectively provided with annular flanges 7 8 extending toward each other and forming spring-barrels. A helical spring 9 is received by each barrel, one end thereof being secured to a shaft 11 and the other end thereof re-

ceived by a slot 12 in the barrel, there being a spring for each barrel similarly secured. The shaft 11 is stationary being secured in the sides 13 of a casing 14, this casing being arranged to be secured in one of the side stiles, as 15, of the window casing 16. The geared barrels are journaled about said shaft. Said springs serve the purpose of counterbalancing the sashes and are wound to sufficient extent to have said counterbalancing effect, and are so arranged that when the window-sash is lowered the spring will be wound tighter, the raising of the sash resulting in the partial unwinding of said spring. At the inner end of each barrel there is a cover 17 therefor which has tongues 18 received by recesses 19 in the end of the barrel, the said cover being dished outwardly as shown at 20 so that the dished portions adjacent said shaft may contact with each other and prevent friction between the balance of said covers for providing ease of movement. Said covers preferably have bearing on said shaft.

26 is a rock-shaft which has reduced ends journaled in apertures 28 in said sides 13, the said rock-shaft preferably being hollow, having a bore of larger diameter 29, which is reduced at the front end of said rock-shaft into the form of a socket 30 of polygonal cross-section for receiving a key 31 which has a long shank 32 also of polygonal cross-section and which may extend past said socket 30 into said bore 29 to desirable extent so that the same may be accommodated to different thicknesses of window-stiles. 35 is a cross-bar in said casing, preferably secured to the sides thereof.

36 are detent-blocks or dogs sliding in guideways 37 of said cross-bar. These guideways are preferably parallel with one of the radii of said spur-gears and the detent-blocks slide in said guideways in similar parallel lines so that the tooth ends 38 of said detent-blocks may be received between the teeth of said spur-gears when moved in such parallel lines so that the same may form a direct obstruction to the rotation of said gears in both directions. By this construction the objection to pivoted pawls is avoided, pivoted pawls having a tendency to swing on their pivots when stress is placed on the gear to rotate it in one of its directions of rotation. By my improved construction the gears are locked and also released by a direct radial movement of said detent-blocks. Said de-

tent-blocks are each provided with a socket 41 for receiving a lug 42 of said rock-shaft, there being a lug on said rock-shaft for each of said detent-blocks. Said lugs extend into
 5 said sockets and move said detent-blocks by engagement with the upper wall 43 or the lower wall 44 on said sockets. Said rock-shaft is provided with a pin 45 for preventing over-throw of said rock-shaft by engagement
 10 thereof with the cross-bar 35, and thereby preventing the movement of the lugs beyond the range of said sockets.

47 is an escutcheon-plate secured to the inside facing-board 40 of the stile of the window-frame. 48 is a spiral spring received
 15 about the key 31 between said escutcheon-plate and an inner plate 49 secured to the key, as by a pin 50. The spring 48 urges the handle toward the escutcheon-plate. A preferably elongated handle 46 is on the key and
 20 is provided with a pin 52 which is received into either of the holes 53 54 in the escutcheon-plate. When the pin 52 is received in the hole 54 the handle is in up and down position and the detent-blocks 36 are in en-
 25 gagement with the teeth of the spur-gears, thereby locking the window-sashes in place. If it is desired to adjust said sashes the handle 46 is pulled outwardly against the resistance of the spring 48, thereby releasing the
 30 pin 52 from the hole 54 and the handle is turned so that it will be directed into a side-wardly extending position and the pin 52 allowed to be received by the hole 53. In this
 35 manner the position of the handle indicates whether the sashes are locked or unlocked. The handle extends to both sides of the longitudinal axis of the shank 32 so that when the handle is pulled there is a direct pull on
 40 said shank, preventing binding of the same. In assembling the casing is secured in the stile of the window casing, distanced from the inside facing-board 40 of the latter. For
 45 permitting the outer end of the shank 32 of the key to be inserted into the socket 30, I provide said socket with a tapering mouth 57.

My improved device is simple in construction and is strong and durable and not liable to get out of order. There are few parts and
 50 it will be noted that when the handle 46 is turned for releasing the detent-blocks that either or both of the sashes may be adjusted to position and that after adjustment the handle may be again turned for moving the
 55 detent-blocks into engagement with the teeth of the spur-gears for definitely locking the sashes in adjusted positions, the movements of the detent-blocks being in lines parallel to the radii of said gears for moving
 60 the detent-blocks in lines toward and from the center of said gears and thereby causing positive locking of said gears.

Having thus fully described my invention what I claim as new and desire to secure by
 65 Letters Patent is.

1. In a sash balance and lock, the combination with the upper sash and the lower sash and a rack on each of said sashes extending longitudinally of one of the sides thereof, of a pair of spring-tensioned gears in
 70 mesh with said respective racks and independently rotatable about a common axis by the sliding of said sashes, detent-blocks arranged to engage the teeth of said respective gears, and means for simultaneously
 75 moving said detent-blocks substantially radially into engagement with and simultaneously retracting the same substantially radially from said teeth.

2. In a sash balance and lock, the combination with the upper and the lower sash and a rack on each of said sashes extending longitudinally of one of the sides thereof, of a pair of spring-tensioned gears in mesh with
 80 said respective racks and independently rotatable about a common axis by the sliding of said sashes, detent-blocks for the said respective gears, said detent-blocks movable substantially radially of said gears, and means for moving said detent-blocks simul-
 85 taneously.

3. In a sash balance and lock, the combination with the upper sash and the lower sash and a rack on each of said sashes extending longitudinally of one of the sides thereof, of a pair of spring-tensioned gears in mesh with said respective racks and independently rotatable about a common axis
 90 by the sliding of said sashes, detent-blocks for said gears, a casing in which said gears are mounted, guideways in said casing extending substantially radial of said gears, and means for shifting said detent-blocks in
 95 said guideways between the teeth of said gears for locking the same against rotation in either direction and retracting said detent-blocks from said gears.

4. In a sash balance and lock, the combination of a casing, a pair of toothed spring-barrels independently rotatable therein, the teeth of said spring-barrels being adapted to respectively engage racks on the sashes, detent-blocks for making engagement with the said teeth of said toothed spring-barrels, and means for simultaneously releasing said
 110 detent-blocks from said teeth of said pair of spring-barrels and for causing simultaneous engagement of said detent-blocks with said teeth of said pair of spring-barrels said spring-barrels being locked against rotation
 115 in either direction when their teeth are engaged by said detent-blocks.

5. In a sash balance and lock, the combination of a casing, a pair of toothed spring-barrels independently rotatable therein, a detent-block for each of said toothed spring-barrels, said casing provided with guideways for said detent-blocks extending substantially radial of said toothed spring-barrels, and means for moving said detent-blocks
 120 125 130

into engagement with the teeth of said toothed spring-barrels comprising a rock-shaft, and means between said rock-shaft and detent-blocks for moving the latter
5 endwise.

6. In a sash balance and lock, the combination of a casing, a pair of toothed spring-barrels independently rotatable therein, a detent-block for each of said toothed spring-
10 barrels, said casing provided with guideways for said detent-blocks extending substantially radial of said toothed spring-barrels, means for simultaneously moving said de-
15 tent-blocks into engagement with the teeth of said toothed spring-barrels comprising a rock-shaft and means between said rock-shaft and detent-blocks for operating said
20 detent-blocks, said rock-shaft having a bore terminating in a reduced end of polygonal cross-section, and a key of polygonal cross-section arranged to extend into said bore
25 spaced from the sides of said key except at said reduced end.

7. In a sash balance and lock, the combination of a casing, a pair of toothed spring-barrels independently rotatable therein, a de-
30 tent-block for each of said toothed spring-barrels, said casing provided with guideways for said detent-blocks extending substantially radial of said toothed spring-barrels, means for simultaneously moving said de-
35 tent-blocks into engagement with said toothed spring-barrels comprising a rock-shaft and means between said rock-shaft and detent-blocks for moving said detent-blocks
40 end-wise, said rock-shaft having a bore terminating in a reduced end of polygonal cross-section, a key provided with a shank of polygonal cross-section arranged to extend
through said reduced end into said bore dif-

ferent distances for accommodating window
stiles of different thicknesses, said key having
45 a handle which extends to both sides of the longitudinal axis of said shank and position-
ing means for said key.

8. In a sash balance and lock, the combination of a gear-casing, a rock-shaft jour-
50 naled in said gear-casing, a pair of toothed spring-barrels independently rotatable in said gear-casing, a detent-block for each of said toothed spring-barrels, said rock-shaft
55 having operative connection with said detent blocks for moving the latter into and out of engagement with said toothed spring-barrels, said rock-shaft having a bore terminat-
ing in a reduced end of polygonal cross-section provided at its outer end with a tapered
60 mouth, and a key received within said tapering mouth and reduced end, substantially as and for the purposes specified.

9. In a sash balance and lock, the combination of a casing, toothed spring-barrels
65 having common rotary axes rotatable independently therein, detent-blocks for said toothed spring-barrels movable substantially radial of the same, the side faces of said de-
tent-blocks being provided with recesses, and
70 a rock-shaft having lugs received by said recesses and engaging the end walls of said recesses for moving said detent-blocks toward and from said toothed spring-barrels, said
75 detent-blocks arranged to be received between the teeth of said toothed spring-barrels for locking said spring-barrels against rotation in either direction.

In testimony whereof, I have hereunto
subscribed my name in the presence of two
80 subscribing witnesses.

FRANK D. ANTHER.

Witnesses:

ADÈLE MEININGER,
COLEMAN AVERY.