J. M. KARL.

SASH BALANCE.

APPLICATION FILED DEC. 7, 1915.

1,195,167. Patented Aug. 15, 1916.

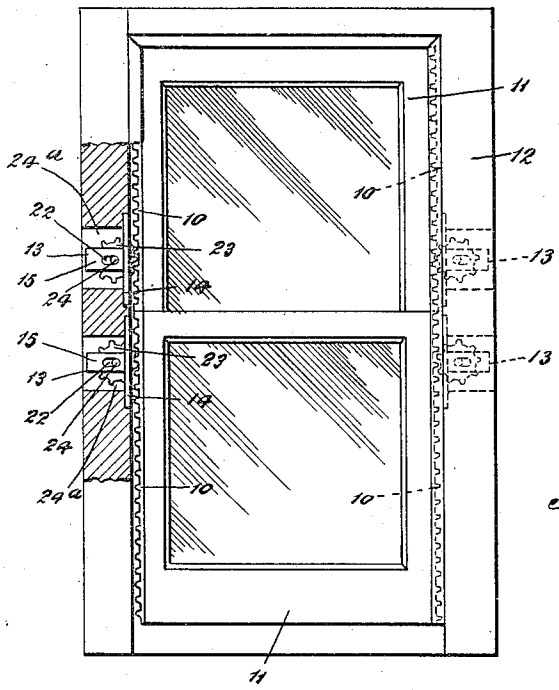

Fig. 1

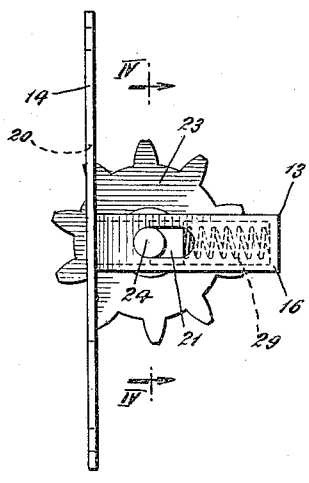

Fig. 2

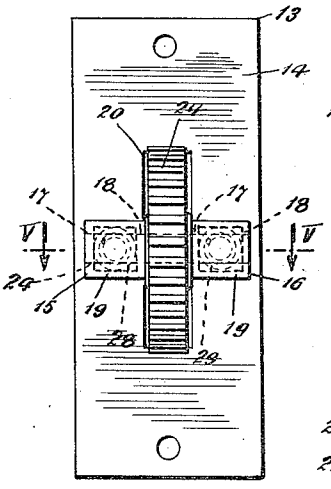

Fig. 3

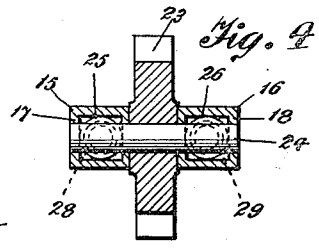

Fig. 4

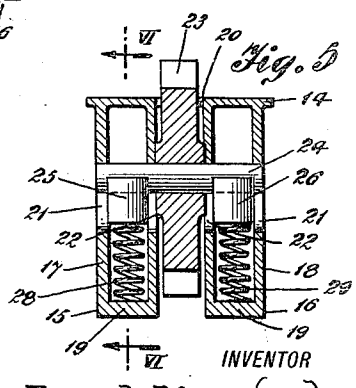

Fig. 5

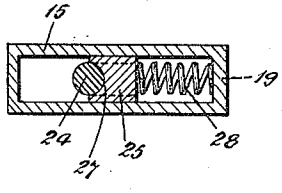

Fig. 6

WITNESSES

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JOSEPH M. KARL, OF ROSLYN HEIGHTS, NEW YORK, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO ROSLYN SPECIALTY COMPANY, INC., OF ROSLYN, NEW YORK, A CORPORATION OF NEW YORK.

SASH-BALANCE.

1,195,167. Specification of Letters Patent. Patented Aug. 15, 1916.

Application filed December 7, 1915. Serial No. 65,573.

To all whom it may concern:

Be it known that I, JOSEPH M. KARL, a citizen of the United States, and a resident of Roslyn Heights, in the county of Nassau and State of New York, have invented a certain new and useful Improvement in Sash-Balances, of which the following is a full, clear, and exact specification.

This invention relates to a class of devices adapted to be used in conjunction with windows.

My invention has for its object primarily to provide a device designed to be employed for yieldingly retaining the sash of a window when raised or lowered in its frame in a manner whereby the use of weights may be avoided, and which is of a form to allow the sash to be readily moved by the exertion of comparatively slight force. This is accomplished mainly by providing a toothed wheel adapted to be arranged on the frame of a window so that the wheel will be in rotatable engagement with a rack mounted on the opposed side edge of the sash, the toothed wheel being supported so as to be yieldingly held in mesh with the rack, and coacting with the wheel are a pair of brake shoes, or presser elements cushioned in a manner for frictionally checking the rotation of the wheel to hold the sash against movement when free of pressure other than the strain of the weight of the sash.

A further object of the invention is to provide a sash balance of a simple, efficient, and durable construction which is adapted to be made in various sizes for use in conjunction with windows of different types.

With these and other objects in view, the invention will be hereinafter more particularly described with reference to the accompanying drawing forming a part of this specification in which similar characters of reference indicate corresponding parts in all the views, and will then be pointed out in the claim at the end of the description.

In the drawing, Figure 1 is an elevation, partly broken away, of a window showing the manner of using one form of sash balance embodying my invention in conjunction therewith. Fig. 2 is a side elevation of the sash balance. Fig. 3 is a rear elevation of the device. Fig. 4 is a section taken on the line IV—IV of Fig. 2. Fig. 5 is a section taken on the line V—V of Fig. 3, and Fig. 6 is a section taken on the line VI—VI of Fig. 5.

The device, or sash balance has a rack, or toothed bar 10 adapted to be fastened on one of the side edges of the sash, as 11, of the frame, as 12, of a window, the sash being slidably adjustable in upwardly and downwardly directions in the frame in the usual manner, and the sash balance also has a supporting member 13 adapted to be applied to the frame of the window in opposed relation to the rack 10.

The supporting member 13 is composed of a plate 14, and extending rightangularly from the central part of the plate are two spaced casings, or guides 15 and 16, both of which are preferably square, as viewed transversely, to provide each hollow guide with vertically disposed side walls 17, 18, and a rear end wall 19 which is opposed to the plate 14. Through the central part of the plate 14, and communicating with the space between the guides 15 and 16, is a vertically disposed elongated slot 20, while through the side walls of each of the guides are somewhat elongated openings 21 and 22. These openings of both of the guides are in register, and the ends of each opening are preferably semi-circular in shapes.

Partially projecting through the slot 20, and rotatably disposed in the space between the guides 15 and 16 is a toothed wheel 23 adapted to mesh with the rack 10 when the device is in use, and this toothed wheel is held on a shaft 24 which is journaled in the registered openings 21 and 22 of the guides 15 and 16 so as to be slidably movable therein as well as being rotatable.

In practice I prefer to employ two of the devices, or sash balances in conjunction with each sash of a window. One of the racks 10 is fastened by suitable means on each of the side edges of the sash so that the teeth thereof will extend toward the opposite stile of the frame of the window, and one of the supporting members 13 is arranged on each stile of the window frame so that the toothed wheel 23 will be in mesh with the rack, the plate 14 of each supporting member being secured by screws or otherwise to the edge of the frame opposed to the rack of its respective device, while the guides 15 and 16 of the supporting members are mounted in a recess 24^a provided in the

frame of the window, as illustrated in Fig. 1. When the sash is then raised, or lowered in the window frame the toothed wheel 23 of each of the devices will be rotated by the racks 10, and in order to check the rotation of the wheels of the devices for holding the sash against movement when the pull, or strain on the sash is released, interiorly of the hollow guides 15 and 16 of each of the devices are reciprocably disposed brake shoes, or presser elements, as 25 and 26. Each of the brake shoes is preferably in the form of a cylindrical block of a diameter so as to be freely movable in its guide, and the forward end of each shoe is correspondingly concaved, as at 27. The shoes 25 and 26 of each device are arranged in the guides 15 and 16 so that the end parts of the shaft 24 of the toothed wheel 23 are rotatably seated in the concavities of the shoes, and these shoes of each device are cushioned by means of springs, as 28 and 29, each of which is disposed between one of the shoes and the opposed end wall 19 of the guide thereof. The springs 28 and 29 of each device are tensioned for normally serving to force the shaft 24 yieldingly against the forward semi-circular ends of the walls of the openings 21 and 22 of the guides 15 and 16 as well as serving to force the toothed wheel 23 in a direction outwardly of the slot 20 of the plate 14 of the supporting member 13. The toothed wheel of each device will thereby be normally held in mesh with the rack 10 so that when the sash is raised, or lowered the toothed wheels of both devices will be rotated. The toothed wheel 23 of each device is of a diameter so that when its shaft abuts against the forward ends of the walls of the openings 21 and 22 of the guides 15 and 16 the wheel will be in tight engagement with the opposed rack of the sash, and by tensioning the springs 28 and 29 to withstand the force of strain slightly in excess of the weight of the sash the shoes 25 and 26 will frictionally hold the shaft 24 of each device against the side walls of the guides to prevent rotation of the shaft and the toothed wheel 23. By the exertion of comparatively slight force on the sash the springs will yield sufficiently to allow the toothed wheel of each device to be rotated for permitting the sash to be raised and lowered, and when the force is released from the sash it will be movably held in its adjusted position.

In the foregoing description, I have embodied the preferred form of my invention, but I do not wish to be understood as limiting myself thereto, as I am aware that modifications may be made therein without departing from the principle, or sacrificing any of the advantages of this invention, therefore I reserve to myself the right to make such changes as fairly fall within the scope thereof.

Having thus described my invention, I claim as new and desire to secure by Letters Patent.

In a sash balance, a supporting member composed of an apertured plate and two spaced hollow casings extending therefrom, said casings having registering openings transversely therethrough, and the said supporting member being adapted to be arranged on the frame of a window so that its apertured plate will be opposed to a rack mounted on an edge of the sash of the window, a shaft movably rotatable in the apertures of the casings, a toothed wheel on the shaft between the casings, and disposed through the aperture of the front plate for normally meshing with the rack, a pair of blocks one movable in each of the casings, and frictionally engaging the shaft of the wheel, and two springs one in each of the casings, and contacting with the block therein, said springs normally serving to force the blocks in frictional engagement with the shaft of the wheel for checking the rotation of the wheel to yieldingly hold the sash against movement when free of pressure other than the strain of its own weight.

This specification signed and witnessed this sixth day of December A. D. 1915.

JOSEPH M. KARL.

Witnesses:
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