Sept. 24, 1957 M. E. CHENOWETH 2,807,045

SASH CONTROL MEANS

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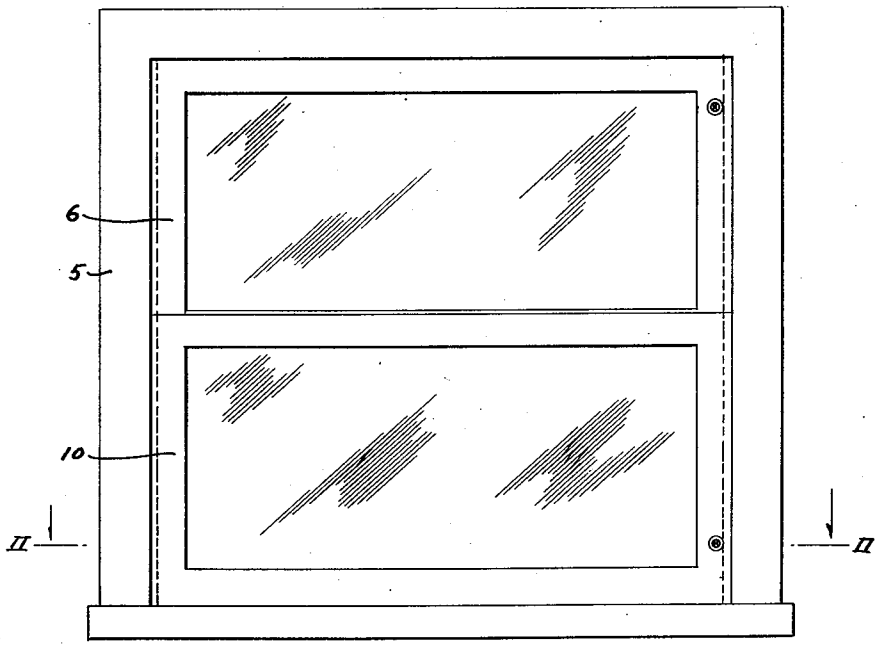



FIG. 1.

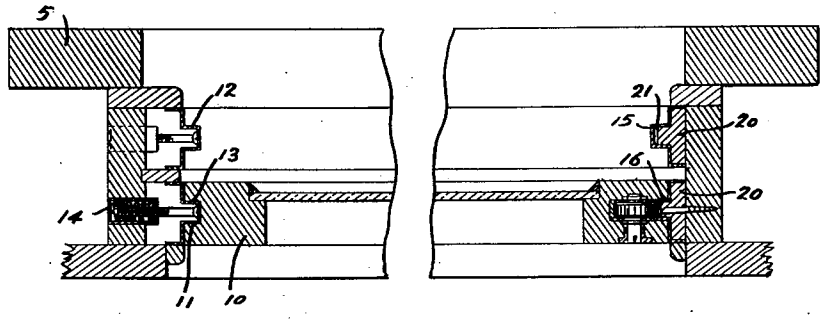



FIG. 2.

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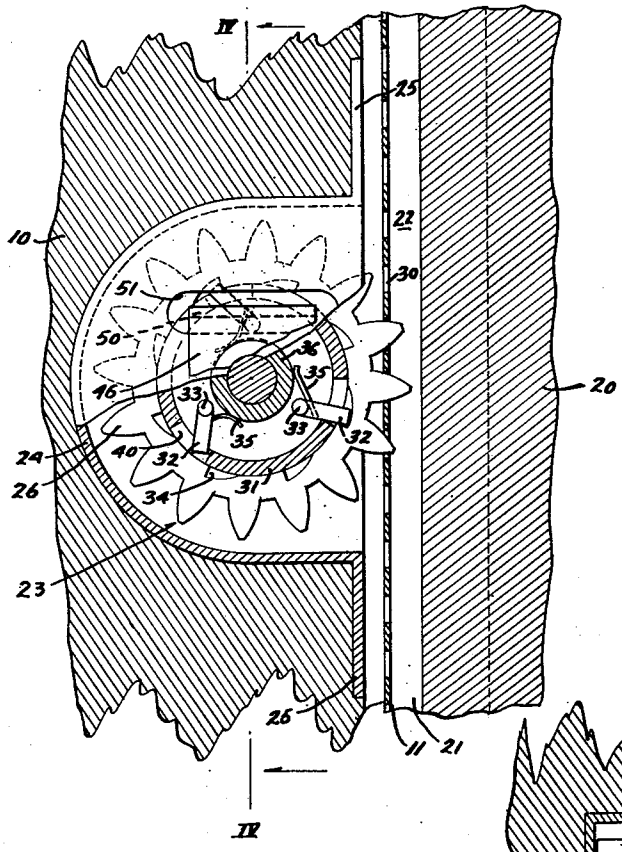



FIG. 3.

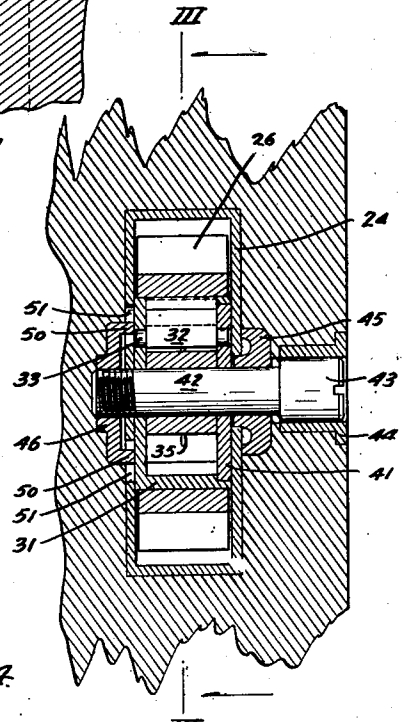



FIG. 4.

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2,807,045

# SASH CONTROL MEANS

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6 Claims. (Cl. 16—201)

My invention relates in general to windows for houses and other buildings, and more particularly to means for controlling the movement of the slidable sashes thereof.

My invention relates to that type of window in which the sashes are frictionally held in place and which may be removed by lateral movement of the sash against spring tension means in order to disengage the opposite edge on the sash from the coacting runner. However, it is well known that in this type of window it is difficult to adjust the spring tension of the sash guiding channels which, as is well understood, if held too tightly, the window will be difficult to operate, whereas if the spring tension is not sufficient, the window will slip and will drop as a result of jarring or vibration.

The principal object of my invention has been to provide a window of this type having sash control means whereby the spring tension means may be light enough to insure easy lifting operation of the window sash, but which provides sufficient friction against slipping downwardly.

Another object is to provide control means by which the resistance against lowering may be accurately adjusted to suit all types of sliding sashes.

Another object is to provide a window sash counterbalance having ratchet means which are inactive when the window is being raised, but which will become engaged when the window is lowered to hold the same in adjusted position.

Moreover, my device is provided with a brake controlled gear pinion which is engageable with a gear rack formed in the adjacent window guide.

Furthermore, it has been an object to provide window balancing means which are economical to manufacture and which may be readily installed in existing windows.

The above objects and advantages have been accomplished by the device shown in the accompanying drawings, of which:

Fig. 1 is a face view of a double sash window to which my invention has been applied;

Fig. 2 is an enlarged sectional plan view taken on line II—II of Fig. 1;

Fig. 3 is an enlarged fragmentary sectional view of my control means taken on line III—III of Fig. 4; and

Fig. 4 is an enlarged sectional view taken on line IV—IV of Fig. 3.

Referring to Figs. 1 and 2, **5** represents the window frame having an upper sash **6** and a lower sash **10**. The sashes are the type formed with a longitudinal groove **11** in each of its edges.

As illustrated in these two figures, the left hand groove of each of the sashes **6** and **10** is engageable with a guide member **12** and **13**. Each of the guide members at these sides of the sashes is provided with suitable spring tension means **14** which press the sash toward the right hand side of the frame in frictional contact with the guides **15** and **16** formed at the opposite side of the frame. Each of the guides **15** and **16** is preferably supported by a backing strip **20**, space **21** being provided back of the face portion **22** of the strip to be hereinafter described.



My control means comprises a one-way brake device **23** mounted within a pinion housing **24** set into the face of the sash at a point opposite the face portion **22** of the guide and securely fastened in place by means of the flanges **25**. Within the housing there is mounted a gear pinion **26**, the forward portion of which is exposed and projects beyond the edge surface of the sash. The projecting teeth of the pinion engage with suitable apertures **30** formed in the face portion **22** of the guide, whereby as the sash is raised and lowered, the gear pinion will be caused to rotate. The space **21** behind the face portion of the guide provides clearance for the projecting teeth of the pinion. The pinion is carried by a pawl casing **31** rotatably mounted in the housing and is rotatable in one direction with the casing by the engagement of any one of a series of ratchet pawls **32** having trunnions **33** for pivotal mounting within the pawl casing and having the outer ends engageable with suitable ratchet pawl notches **34** formed in the inner periphery of the pinion. Each of the pawls is formed with a tension spring **35**, the free end of each of which engages a bushing **36** mounted at the center of the pawl casing. The free end of each of the pawls is mounted within an opening **40** formed in the wall of the pawl casing. The pawl casing is provided with a cover **41** which fits preferably into a suitable recess formed in the outer rim of the casing wall.

The pawl casing is rotatably supported upon an adjusting screw **42** which passes through the casing and the cover thereof, and through the bushing **36** as well as through the pinion casing **24**. The enlarged head **43** of this screw preferably passes through a bushing **44** set into the face of the sash. The head of the screw engages an abutment washer **45** which bears against the outer face of the pinion housing. The inner end of the adjusting screw is threaded and passes into a brake pad **46** located at the opposite side of the pinion housing. This brake pad is formed at each end with an inwardly turned brake finger **50** which passes through a suitable opening **51** formed in the housing and which is brought to bear against the pawl casing **31**. As will be clear from Fig. 4, the inner surface of this pad is free of the wall of the pinion housing so that inward pressure produced by the screw upon the pad will cause the fingers to bear against the pawl casing and thereby produce the desirable frictional contact of the pawl casing within the pinion housing.

From Fig. 3 it will be obvious that when the window sash is being raised, the pinion will be rotated in clockwise direction and the ratchet pawls **32** will pass into and out of the ratchet pawl notches formed in the pinion. No resistance to the raising of the window will, therefore, be offered by the device. When, however, the window reaches its uppermost position and tends to move downwardly, one of the pawls **34** will engage one of the ratchet notches of the pinion and will thereby transfer the counterclockwise rotative movement of the pinion to the pawl casing. Since this casing is pressed against the outer face of the pinion housing in adjustable frictional contact therewith, it will be seen that resistance to the downward movement of the window will be presented. The adjusting screw **43** provides means for adjusting the amount of friction between the pawl casing and the pinion, whereby the window may be maintained in counterbalanced position but which can be lowered by exerting a suitable amount of pressure thereon.

Obviously, when it is desired to remove the sash equipped with my invention, it is only necessary to force the window laterally against the left hand spring pressed guide until the right hand edge of the window is free of the coacting guide at which time the right hand edge of

the window may be removed clear of the window frame and the window may be removed therefrom.

While I have shown and described my invention as in combination with a take-out type of window which is spring pressed, it is obvious that the invention is applicable also to windows which are freely slidable in the casing without any spring pressure. These and other modifications of the details herein shown and described may be made without departing from the spirit of my invention or the scope of the appended claims.

What is claimed is:

1. Sash control means comprising a housing, an adjusting screw carried by said housing, a friction drum rotatably mounted upon said screw, a gear pinion rotatably mounted upon the periphery of said drum, said friction drum having a brake face on one side opposing a flat face of said housing about said screw and movable axially of the latter to have braking contact with the flat face, means coacting with said screw to shift said pawl casing relative to said housing to bring the brake face into such braking contact with the flat face, and ratchet means between the drum and the pinion, whereby the pinion may be frictionally restrained in one direction only.

2. Sash control means comprising a housing, an adjusting screw carried by said housing, a pawl casing rotatably mounted upon said screw, a gear pinion rotatably mounted upon the periphery of said casing, ratchet means carried by said casing and said pinion for preventing relative rotation thereof in one direction only, and means carried by said adjusting screw for causing frictional contact between said casing and said housing.

3. Sash control means comprising a housing, an adjusting screw carried by said housing, an annular pawl casing rotatably mounted upon said screw, a gear pinion rotatably mounted upon said casing and formed on its inner periphery with a plurality of ratchet teeth, a plurality of ratchet pawls carried by said casing and extending through openings formed in the peripheral wall thereof for engagement with the ratchet teeth of said pinion, and axially adjustable means carried by said adjusting screw for causing frictional contact between said casing and said housing.

4. Sash control means comprising a housing, an adjusting screw carried by said housing, a pawl casing rotatably mounted upon said screw, a gear pinion rotatably mounted upon said casing, ratchet means carried by said casing and said pinion for preventing free relative rotation thereof in one direction only, and a brake pad carried by said screw and formed with fingers for passage through slots formed in said housing and for bearing contact with said casing, whereby said casing may be forced into adjustable frictional contact with said housing.



5. Sash control means, comprising a housing formed with opposite sides, a pawl casing carried by said housing, a pivot screw passing through one of said sides, a threaded member mounted upon said screw and disposed at and bearing against the outer surface of the other of said sides, a gear pinion mounted between said sides and rotatable upon the periphery of said casing, said pinion being formed on its inner periphery with a plurality of ratchet teeth, and ratchet pawl means mounted within said casing and extending through slots formed in the peripheral wall thereof for engagement with the ratchet teeth of said pinion.

6. A brake mechanism for a window sash control, comprising a housing having opposed side walls, a pivot screw carried by said housing, an annular pawl casing disposed within said housing and rotatably mounted upon said screw, a gear pinion mounted within said housing and retained in position of relative rotation upon the periphery of said pawl casing by the sides of said housing, said pinion being formed on its inner periphery with a plurality of ratchet teeh, ratchet pawl means mounted within said casing and extending through slots formed in the wall thereof for engagement with said ratchet teeth, and screwthreaded means engaging the end of said screw and having clamping engagement with said casing, whereby the frictional engagement between said casing and said housing may be adjusted.

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