Aug. 2, 1938. D. L. CHANDLER 2,125,543

WINDOW LOCK

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Fig. 1.

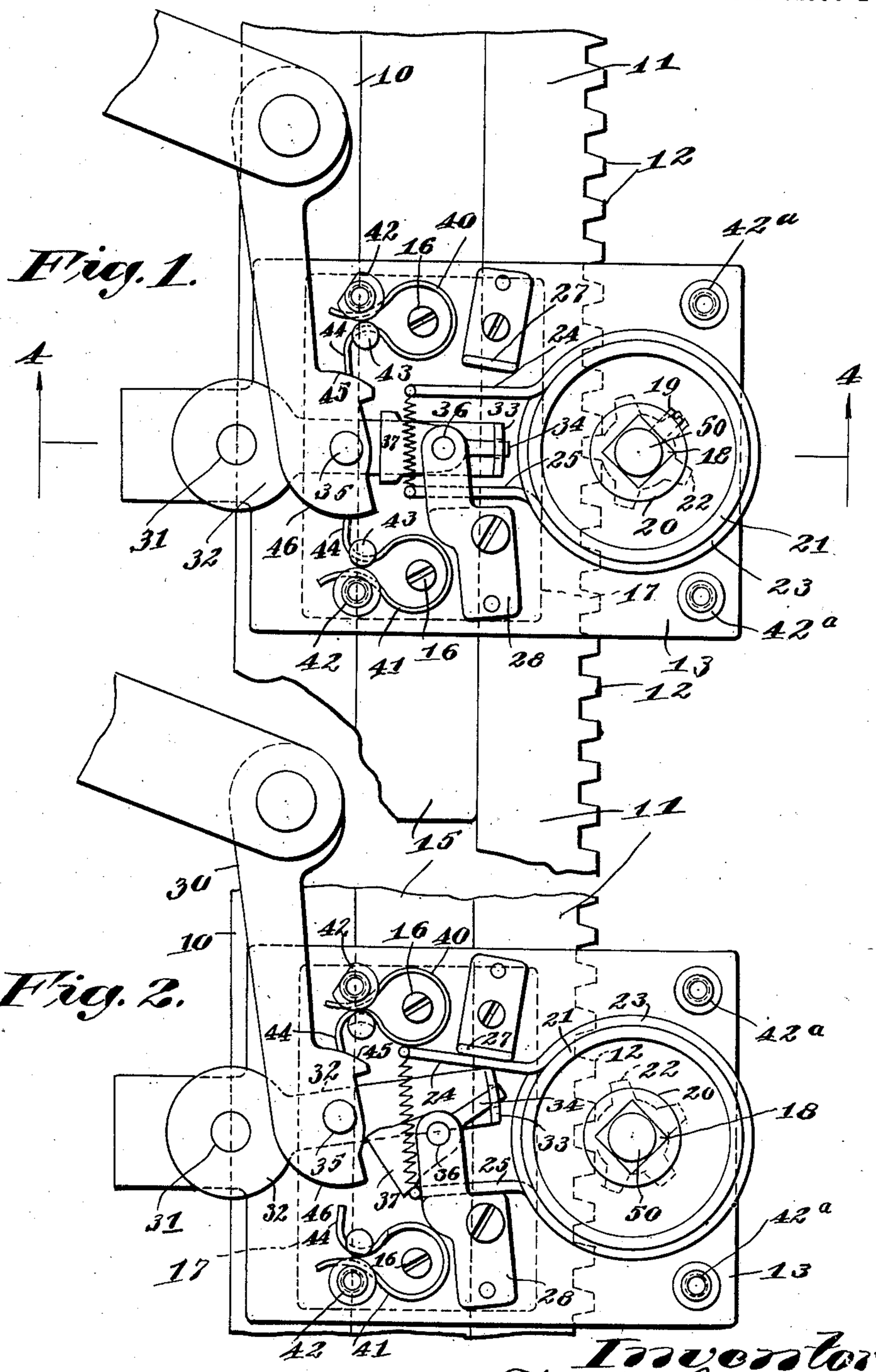

Fig. 2.

Inventor
Daniel L. Chandler.
By James C. Hamilton
Attorney

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Fig. 3.

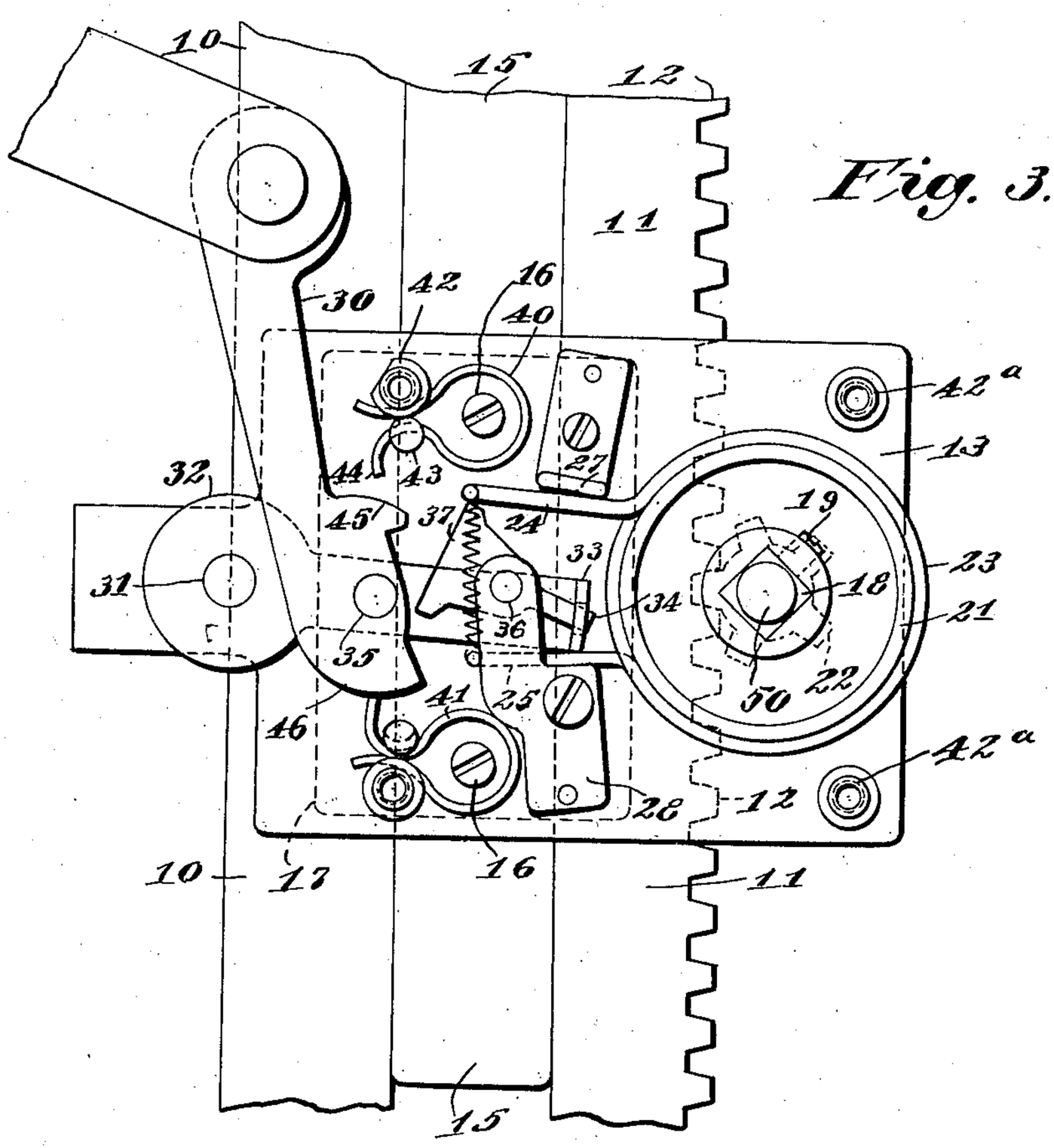
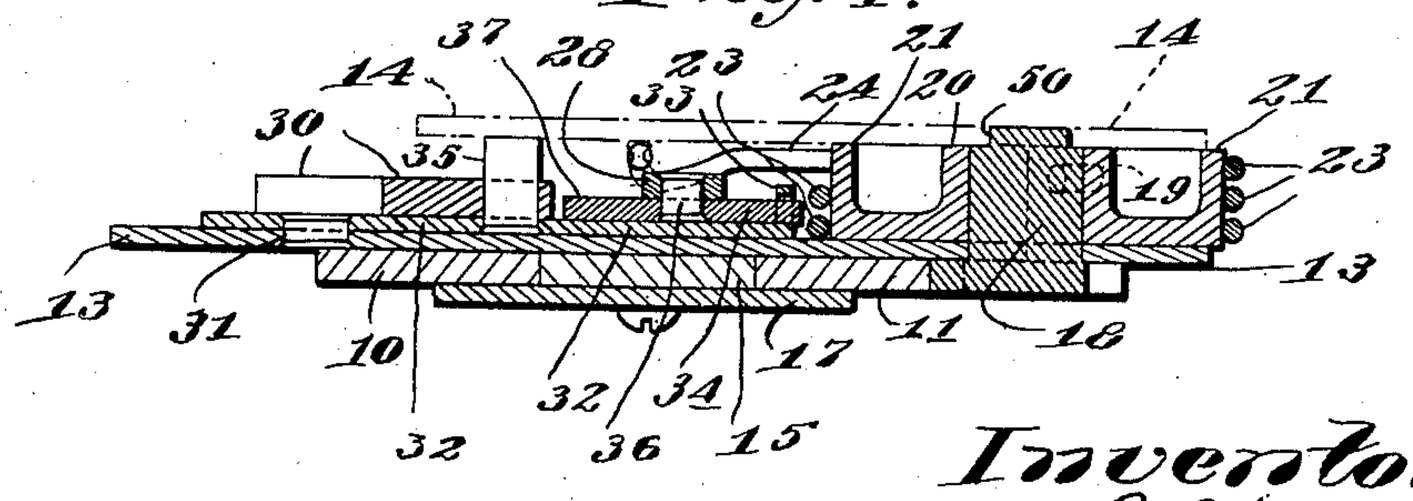


Fig. 4.



Inventor
Daniel L. Chandler.

By James C. Hamilton.
Attorney

Patented Aug. 2, 1938 2,125,543

UNITED STATES PATENT OFFICE

2,125,543

WINDOW LOCK

Daniel L. Chandler, Somerville, Mass., assignor to Aresee Company, Inc., Salem, Mass., a corporation of Massachusetts

Application June 28, 1937, Serial No. 150,693

5 Claims. (Cl. 192—8)

My present invention relates to automobile door locks, and more particularly to an improved window pane lock which may be used with various window pane elevating mechanism for the purpose of fastening the window pane in any desired position in the window frame within the limits of its travel.

My present invention is an improvement over my earlier Patent Number 2,066,286, dated December 29, 1936. Certain of the features of my present invention are similar to the above cited patent but the means of releasing the brake on the lock differs considerably.

This lock is primarily designed to be used in connection with a window elevating mechanism, as shown in my co-pending application Ser. No. 150,694, filed June 28, 1937, but it may be used in any device in which the lock casing is directly attached to a prime mover which operates the window sash through the medium of an operating lever, as in the above referred to co-pending application.

The principal object of my invention is an improved lock for windows and the like;

Another object is an improved friction release mechanism for locks of the above described class, and

Other objects and novel features comprising the construction and operation of my device will be apparent as the description of the same progresses.

Referring more in detail to the drawings illustrating the preferred embodiment of my invention,

Fig. 1 is a plan view of the lock, the cover plate having been removed to better show the interior mechanism.

Fig. 2 is a view similar to Fig. 1 excepting that the lock releasing mechanism is released, as when the window pane is being lowered;

Fig. 3 shows the same mechanism in a second released position, as when the window pane is being elevated, and

Fig. 4 is a cross-section taken on the line 4—4 of Fig. 1.

Referring further to the drawings, Fig. 1 shows the apparatus in a neutral position. In Figs. 2 and 3, it is not material whether or not the view shown in Fig. 2 is the position of the lock when the window pane is being lowered or raised. This position may be reversed depending on the particular leverage used to operate the lock. In the present showing, the lock is connected to raising and lowering mechanism, as shown in my previously referred to co-pending application.

However, with any arrangement which may be associated with my lock, members 10 and 11 are to be assumed as being stationary preferably attached to the window or door frame. Member 11 differs over member 10 in that one edge is provided with rack teeth 12. The lock mechanism is confined between two flat plates, the bottom or base plate 13 and the cover plate 14, indicated in dot-and-dash lines in Fig. 4. Located between the members 10 and 11 is a slide member 15 to which the base plate 13 is firmly secured by means of the screws 16. On the back side of the members 10, 11 and 15, and secured to member 15, is a plate 17. The slide member 15 which is attached to the base plate 13 of the lock and, through other levers etc. not concerned with this present invention, operates the window pane, as disclosed in my co-pending application.

The window pane is elevated or lowered by the vertical movement of the lock, which for the purpose of simplicity may be considered to include all the apparatus attached or carried on the base plate 13. The locking feature herein incorporated is of the frictional type and is composed of the following elements. A solid pinion member 18 is journaled in the base plate 13, the central portion of which is set-screwed at 19 in the central boss portion 20 of the friction drum 21. The pinion teeth 22 are adapted to engage with the rack teeth 12. When the slide 15 and attached base plate 13 are elevated or lowered on the guides 10 and 11, the drum 21 revolves, either to the left or right, as the case may be. However, if the lock is acted upon from the wrong point, that is from the window pane instead of through the regular operating lever, the lock or plate 13 will not move. The reason for this is that surrounding the drum 21 I have placed a coiled spring member 23, the internal diameter of which is slightly smaller than the outside periphery of the drum 21 so that when the apparatus is in the neutral position shown in Fig. 1 any movement of the slide member 15 will cause the drum to rotate slightly and the extended ends 24 and 25 which are normally held together by a spring are stopped by either the stop member 27 or the lower top face of the bracket 28 thereby tending to tighten the spring still tighter around the said drum. This feature is important when the lock is used in an automobile window assembly as the window pane cannot be lowered from the outside by the simple expedient of pull-

ing down on the top of the window pane which may have been left slightly open for purposes of ventilation. The only way the lock can be operated is by means of the regular operating lever which by one means or another is connected to the lever 30. Located on the upper surface of the base plate 13, and pivoted to it at 31 is a lever 32 the outer end of which is up-turned at 33 and provided with an opening therein through which the lever 34 extends. The lever 30 is pivoted to the lever 32 at 35. The lever 34 is pivoted to the bracket member 28 at 36. The back end of the lever 34 is provided with a wide contact end, the outside corners of which are adapted to contact with the up-turned ends 24 and 25 of the spring member 23. Flat steel springs 40 and 41 held in place between under-cut posts 42 and 43 are provided for the purpose of centering the lever 30 in the neutral position shown in Fig. 1 when no pressure is being applied to the window operating lever. The bent ends 44 are adapted to engage against the cam surfaces 45 and 46 on the lever 30.

It will thus be noted that when the lever 30 is depressed, shown in Fig. 3, the up-turned end of the lever 32 depresses the spring extension member 25 against the lower part of the bracket 28 while at the same time one of the rear corners of the lever 34 contacts with the other spring extension member 24 and pushes it up against the stop member 27. The spring 23 is now released around the drum 21 and the lock together with the slide 15 may be depressed. When the lever 30 is thrown in the reverse direction, the opposite action of the levers 32 and 34 again opens the spring 23 but when the force is taken away from the lever 30, the levers 32 and 34 come to rest in the neutral position, as shown in Fig. 1 and the lock is then rigidly fixed to the rack guide member 11.

The cover plate 14 rests on the shouldered posts 42 and 42*a*, the shouldered end 50 of the pinion body 18 being journaled therein. An extension portion on the pivot 35 also bears against the under side of the plate 14 thereby supporting levers 30 and 32.

Having thus described my invention, what I claim as new is:

1. An improved friction lock for window elevating mechanisms comprising in combination, a lock base member secured to a slide member located between two guide members, one of said guide members being provided with rack teeth on its outer edge, a pinion engaging in said rack teeth and journalled in said base member, a friction drum secured to said pinion, a coil spring provided with a plurality of convolutions surrounding the periphery of said friction drum, the normal internal diameter of said convolutions being slightly less than the outer periphery of said drum, substantially parallelly disposed extension members comprising the two ends of said spring extending away from said convolutions and connected together at their ends by means of a tension spring, a lever pivoted to said base member one end of which extends between the said parallelly disposed spring extension members and having an up-turned portion located on its free end, one end of a secondary lever engaged in said up-turned portion of said lever, said secondary lever being pivoted in a bracket member attached to said base member, back contact members located on said secondary lever being adapted to engage the up-turned ends of said spring extension members, stop members attached to said base member being adapted to limit the expansion movement of said spring extension members, an operating lever pivoted to said first lever at a point between the pivot point and the up-turned end of said first lever, said operating lever being adapted to operate said first and secondary levers for the purpose of separating the extension members of said spring convolutions, neutralizing springs attached to said base member adapted to engage cam surfaces on said operating lever for the purpose of centering and neutralizing said levers.

2. An improved friction lock for window elevating mechanisms and the like comprising in combination, a lock base member secured to a slide member, a slide way one side of which is provided with rack teeth, a friction drum located on said base and attached to a pinion journalled through said base and engaged with the said rack teeth, a coil spring surrounding the periphery of said drum and normally tightly engaged thereon, extension members projecting from said spring member, two levers individually pivoted to said base, one end of each lever being slidably connected together, the slidable end of one lever and the opposite end of the other lever being adapted to contact and spread the said spring.

3. An improved friction lock for window elevating mechanism and the like comprising in combination, a lock base member and slide slidably mounted in slide-ways, one side of said slide-ways being provided with rack teeth and engaged with the teeth of a friction drum mounted on said base member, a friction coil spring surrounding the periphery of said drum, said spring normally tightly engaged around said periphery, extensions attached to the ends of said spring, two levers individually pivoted to said base, one end of each lever being slidably connected together, the slidable end of one lever and the opposite end of the other lever being adapted to contact and spread the said spring.

4. An improved friction lock for raising and lowering window pane mechanism in automobile doors and the like comprising in combination, a sliding lock engaged over slide ways, a pinion driven drum located on said base, said pinion engaging in rack teeth formed on one side of said slide-ways, extension members located on the ends of a coil spring normally adapted to tightly engage around the periphery of said drum, two levers individually pivoted to said base, one end of each lever being slidably connected together, the slidable end of one lever and the opposite end of the other lever being adapted to contact and spread the said spring.

5. In a lock assembly for window sashes in automobile doors, a vertically slidable lock unit adapted to slide on a rack-toothed slide-way, a friction spring normally engaged tightly around the periphery of a friction drum, said drum directly geared to said rack teeth, two levers individually pivoted to said base, one end of each lever being slidably connected together, the slidable end of one lever and the opposite end of the other lever being adapted to contact and spread the said spring.

DANIEL L. CHANDLER.