

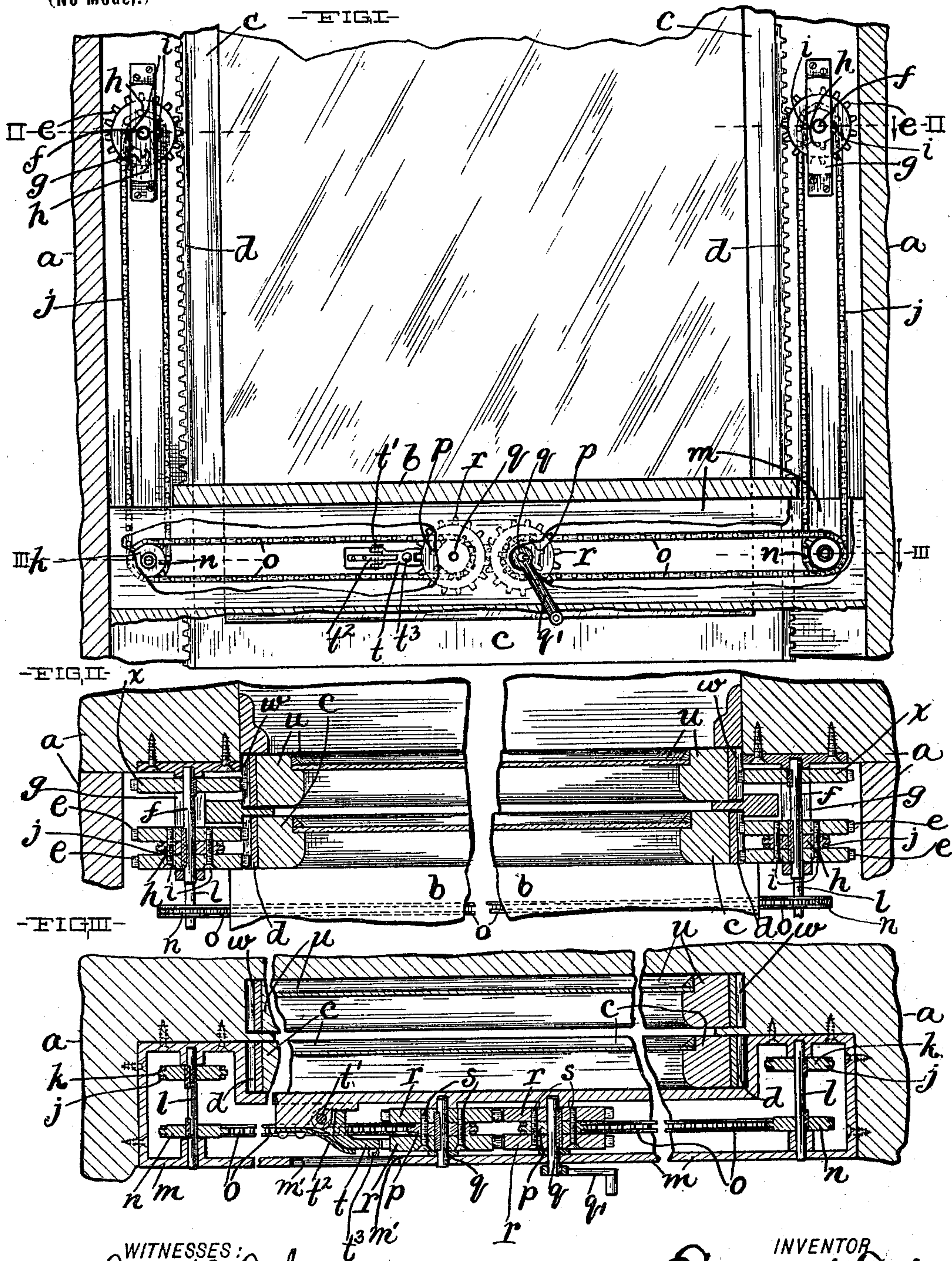
No. 670,929.

Patented Apr. 2, 1901.

E. FEDER.
SASH OPERATING MECHANISM.

(Application filed July 21, 1900.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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SASH-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 670,929, dated April 2, 1901.

Application filed July 21, 1900. Serial No. 24,347. (No model.)

To all whom it may concern:

Be it known that I, EMANUEL FEDER, a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Window-Sash-Operating Mechanism; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in mechanism for operating a sliding window-sash, gate, or door.

The invention relates more especially to mechanism that is operatively connected with each side edge of a window-sash and has the arrangement required to accommodate the sliding of the said sash below the window-sill.

The object of this invention is to provide mechanism of the character indicated that is simple in construction and reliable in its operation and that can be conveniently applied and easily operated.

With this object in view the invention consists in certain features of construction and combinations of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure I is a side elevation showing the lower portion of the window-casing, the window-sill, the window-sash, and my improved mechanism for operating the said sash. Portions are broken away in this figure to more clearly show the construction. Fig. II is an enlarged top plan in section on line II II, Fig. I, and portions are broken away to reduce the size of the figure. Fig. III is an enlarged top plan in section on line III III, Fig. I, and portions are broken away to reduce the size of the figure.

Referring to the drawings, *a* designates the window-casing, *b* the window-sill, and *c* a window-sash that is arranged to slide in a vertical plane at the outer longitudinal edge of the said sill and is slidable below the sill. The outer side edge of each stile of the sash *c* is provided with a vertically-arranged rack *d*, that is fixed to the sash in any approved manner. Each rack *d*, preferably centrally between the ends thereof, is operatively engaged by two pinions *e* and *e*, whose axes are arranged in line horizontally. The said pinions are operatively mounted upon a horizon-

tally-arranged shaft *f*, that is supported from a bracket *g*, that projects laterally from and is rigid with the window-casing. The said pinions *e* and *e* are arranged far enough apart to accommodate the location between them of a sprocket-wheel *h*, that is operatively mounted upon the aforesaid shaft *f*, and the said sprocket-wheel *h* and the adjacent pinions are fixed together in any approved manner—as, for instance, by means of screws *i* (see Fig. II)—so that the pinion-engaging rack *d* and connected sash are actuated in in the one direction or the other, according as the aforesaid sprocket-wheel *h* is rotated in the one or the other direction. Each sprocket-wheel *h* is operatively connected, by means of an endless chain *j*, with a sprocket-wheel *k*, (see Fig. III,) that is located at one end of and below the window-sill. The sprocket-wheel *k* is fixed upon or operatively connected with a shaft *l*, that is arranged horizontally and supported from one end of a metallic frame *m*, arranged below and extending longitudinally of the window-sill at the inner side of the path of the window-sash and suitably secured to the window-casing. Another sprocket-wheel *n* is fixed upon or operatively connected with the shaft *l* and is operatively connected, by means of an endless chain *o*, with a sprocket-wheel *p*, that is operatively mounted upon a horizontally-arranged shaft *q*, supported from the frame below the central portion of the window-sill.

There are two sprocket-wheels *p* and *p*, that are operatively connected with the different racks, respectively, of the window-sash, and each sprocket-wheel *p* is interposed between two pinions *r* and *r*, that are operatively mounted upon the shaft *q* that bears the said sprocket-wheel, and each sprocket-wheel *p* and the adjacent pinions are secured together in any approved manner—as, for instance, by means of screws *s*—so that the said pinions and sprocket-wheel shall be rotated in unison. The pinions *r* upon each shaft *q* mesh with the pinions *r* upon the other shaft *q*, and one of the said shafts is operatively provided with a crank *q'* for turning the same, and obviously the window-sash *c* is raised or lowered, according as the said crank is turned in the one or the other direction. The pinions *r* of each pair of pinions are diametrically larger

than the sprocket-wheel p , interposed between the said pinions, so that there is no liability of the displacement from the said sprocket-wheel of the chain engaging it.

5 Preferably the right-hand shaft q is provided with the operating-crank, and means for directly engaging and locking the forward pinion of the pinions upon the other shaft q is provided and consists, preferably, of a
10 forked latch t , that embraces a tooth of the said pinion and is pivoted vertically, as at t' , to a bracket m' , rigid with or formed upon the frame m , and a suitably-applied spring t^2 acts to retain the said latch in its pinion-locking
15 or operative position. Obviously when the latch t is in its operative position the window-sash-operating mechanism cannot be operated by means of the crank q' ; but the crank and the connected mechanism can only
20 be operated upon rendering the said latch inoperative by swinging it out of engagement with the latch-engaged pinion, and the latch is provided, preferably, with a knob or handle t^3 to facilitate the manipulation of the
25 latch.

It will be observed that the mechanism hereinbefore described is simple in construction and reliable in its operation, does not interfere with the sliding of the sash below the
30 window-sill, and operates equally upon opposite stiles of the sash.

Figs. II and III of the drawings show a double window. The sash c is the inner sash of the window, and u represents the outer
35 sash, that has each stile thereof provided upon its outer longitudinal edge with a rack w , secured to the said sash in any approved manner, and the racks w of the sash u mesh with pinions x , operatively mounted upon the
40 shafts f of the mechanism hereinbefore described. It will be observed, therefore, that the inner sash and the outer sash of the dou-

ble window are simultaneously lowered or raised by means of the one and the same operating-crank.

The frame m is slotted, as at m' , to accommodate access to the latch t .

What I claim is—

1. The combination, with a window-casing and the sliding sash, of two racks secured to
50 the different stiles, respectively, of the sash, two suitably-supported pinions meshing with each rack, and a sprocket-wheel interposed between the said pinions, and the said sprocket-wheel and the adjacent pinions having their
55 axes coincident and being rotatable together, an endless chain engaging the sprocket-wheel at one stile of the sash, another endless chain engaging the sprocket-wheel adjacent to the
60 other stile of the sash, and mechanism for simultaneously operating the said chains.

2. The combination, with the window-casing, the window-sill, and the sliding sash, of two suitably-supported pairs of pinions arranged below the window-sill with the pin-
65 ions of each pair of pinions in mesh with the pinions of the other pair of pinions, a sprocket-wheel interposed between the pinions of each pair of pinions, and the pinions of each pair of pinions and the interposed sprocket-wheel
70 being rotatable together, two endless chains engaging the different sprocket-wheels, respectively, two racks secured to opposite stiles, respectively, of the sash, pinions meshing with the racks and operatively connected
75 with the aforesaid chains, all arranged and operating substantially as shown, for the purpose specified.

Signed by me at Cleveland, Ohio, this 12th day of July, 1900.

EMANUEL FEDER.

Witnesses:

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A. H. PARRATT.