E. RHEIMS & L. AUSCHER.

APPARATUS FOR OPERATING THE WINDOW SASHES OF CARRIAGE DOORS.

APPLICATION FILED FEB. 24, 1913.

1,085,877.

Patented Feb. 3, 1914.

2 SHEETS—SHEET 1.

Fig. 1

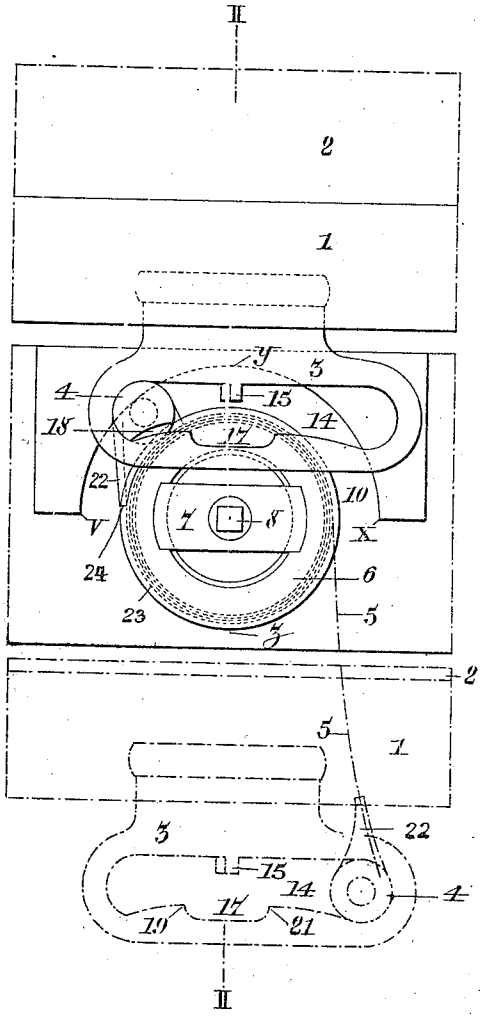
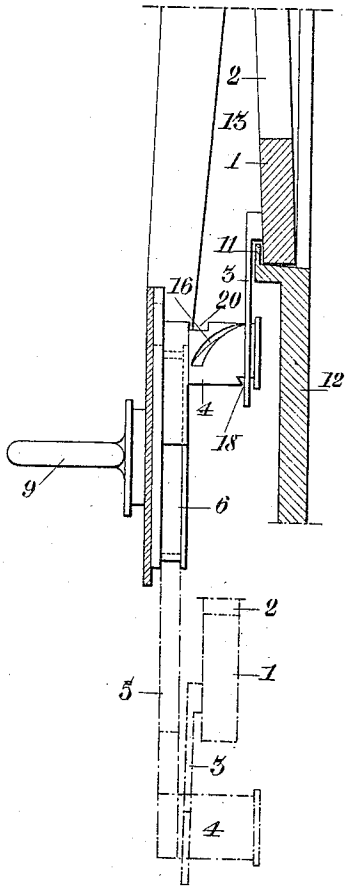


Fig. 2



WITNESSES

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Fig. 3

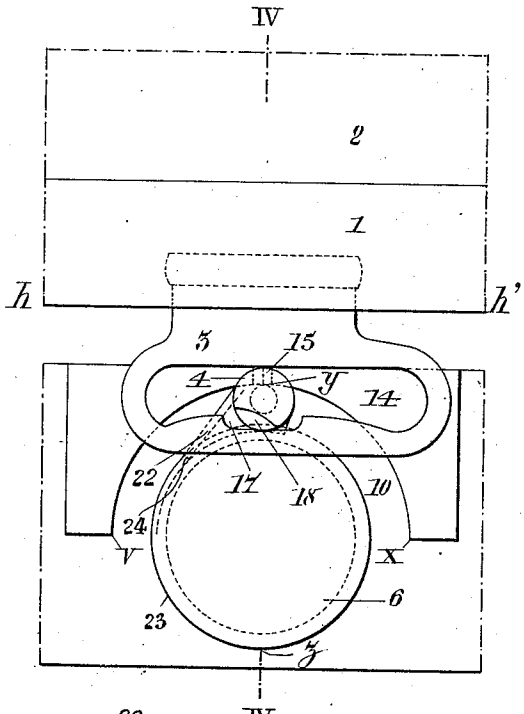
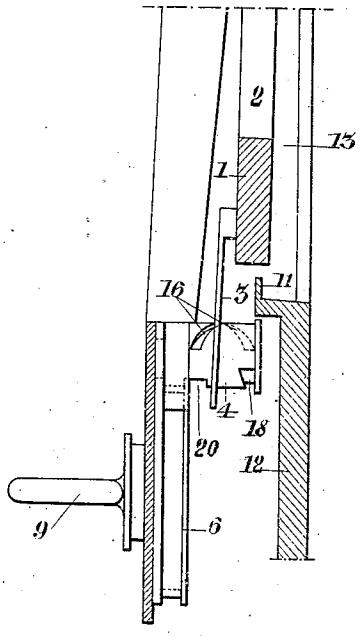


Fig. 4



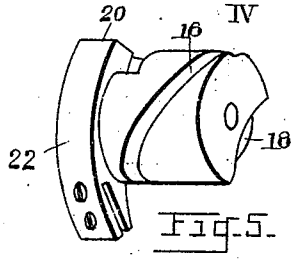


Fig. 5.

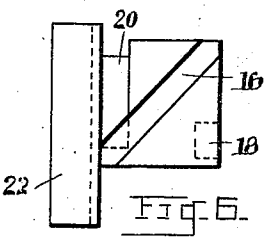


Fig. 6.

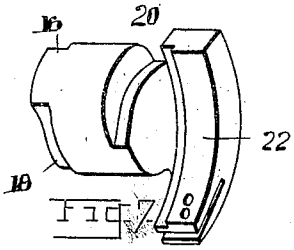


Fig. 7.

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UNITED STATES PATENT OFFICE.

EDMOND RHEIMS AND LÉON AUSCHER, OF PARIS, FRANCE.

APPARATUS FOR OPERATING THE WINDOW-SASHES OF CARRIAGE-DOORS.

1,085,877. Specification of Letters Patent. Patented Feb. 3, 1914.

Application filed February 24, 1913. Serial No. 750,336.

To all whom it may concern:

Be it known that we, EDMOND RHEIMS and LÉON AUSCHER, citizens of France, residing at Paris, France, have invented new and useful Improvements in Apparatus for Operating the Window-Sashes of Carriage-Doors, (for which we have filed the following patents: France, March 12, 1912, No. 441,233; Germany, April 30, 1912; Switzerland, January 7, 1913; England, January 10, 1913, No. 807; Belgium, January 18, 1913,) of which the following is a specification.

This invention has for its object to provide an improved apparatus for operating the window sashes of carriage doors.

In this improved apparatus the rotation of a single suitable part, handle or crank, allows of raising or lowering the window sash which it is desired to operate, and also of moving it to the extent required in order to bring its bottom bar in front of or behind the usual rail situated at the lower part of the window opening in the door, according as it is desired to close or to open said window opening.

The system forming the object of the present invention is distinguished from former systems by the fact that it permits of obtaining the transverse displacement of the glass as well toward the interior as toward the exterior by means of a connection, not yielding and of simple effect but positive and of double effect; a spur carried by a plate having an opening and rigid with the sash of the glass, travels for this purpose in a groove provided in a pin acting upon the said sash, and arranged inside of the opening of said plate, so that the transverse movement of the glass is guided in a continuous and positive manner. The same is the case with the vertical displacement of the glass, for its passage above the rail of the door window, either at the moment of opening or at the moment of closing; for this purpose the vertical displacement, of the glass is controlled by the ascending movement of the said pin, which raises the glass by means of the plate in which this ascending movement of the pin takes place, in both directions, for the passage above the coping, being the result of the rotation of the manipulating handle. In fact, during the phase of the movement which corresponds to the passage of the glass above the rail the pin is given a rotary movement about the axis of the handle controlling the system, it being understood that during this phase it is rigidly connected to a drum around which is wound a band intended to raise the sash. In the direction corresponding to the closing of the glass, the tension itself of said band assures the rigid connection in question, and in the direction corresponding to the opening of the glass this rigid connection is obtained in the manner which will be completely indicated in the following specification.

For facilitating the understanding of the description reference is made by way of example to the accompanying drawings wherein:—

Figure 1 is a rear elevation of a convenient form of the improved apparatus, the window sash being assumed to be fastened in its closed position. Fig. 2 is a view thereof partly in side elevation and partly in section on the line II—II of Fig. 1. Fig. 3 is a view corresponding to Fig. 1, the window sash being assumed to be completely raised but not fastened in its closed position. Fig. 4 is a view partly in side elevation and partly in section on the line IV—IV of Fig. 3. Figs. 5, 6 and 7 are detail views representing, in perspective, the special formation of the pin cooperating with the closed plate carried by the sash of the glass.

As shown, the bottom cross bar 1 of the frame of the window sash 2 has fixed to it for the guidance of a pin 4 a part 3 of special shape which is connected by a cord or flexible strip of steel 5 to a pulley 6 on which this strip is adapted to be wound. This pulley is fixed by any suitable means such as a connecting piece 7 to an axle 8 provided with an operating handle 9.

The carriage door is provided at 10 near the lower part of the window opening which is to be closed by the sash 2, with a circular track in which the pin 4 can engage when it has been moved by operating the handle 9 above the horizontal plane v—x.

11 is the usual rail, provided at bottom of the window opening of the door 12.

13 is one of the two side ways for guiding the sash in its rising and falling movements.

According to this invention the part 3 is formed with an opening 14 in which the pin 4 can move. The upper side of this opening has a spur 15 adapted to engage in a

groove 16 of special form formed in the pin 4 when the latter is moved in the opening 14 near the vertical plane y—z and above the vertical plane v—x, that is to say, when the sash is in its highest position. The form of this groove is such that according to the direction of rotation of the handle 9, the lower part of the frame 1 which is then on the level h—h' will be able to move in front of or behind the rail 11 owing to the movement imparted to the spur which is fixed to the said frame. So long as the spur 15 of the part 3 is engaged in the groove 16 of the pin 4, relative motion of the said part 3 parallel to the axis of the said pin can take place without jamming owing to a recess 17 provided for this purpose in the lower part of the opening 14.

In order to insure that the spur 15 shall be situated at the requisite moment exactly opposite one or the other end of the groove 16 in the pin 4, this pin is formed with two grooves 18 and 20 in which two projections 19 and 21 provided at each end of the recess 17 of the part 3 are adapted to engage respectively according to the direction of the motion. By this means the proper connection between the part 3 and the pin 4 will always be insured with certainty as well as the position of the spur 15 in relation to the two ends of the groove 16 with which it cooperates to produce the horizontal translation movement of the cross-bar 1 as hereinbefore stated.

Fig. 1 shows in full lines the position of the pin 4 in the opening 3 when the sash is closed, and in dash and dot lines the position of the said pin when it is below the plane v—x which position it retains during the whole of the vertical rising or falling movement of the sash. Figs. 1 and 2 of the drawings also show the sash in its completely lowered position. Figs. 3 and 4 show the spur 15 in the middle of the groove 16 of the pin 4.

The improved apparatus enables the window sash to receive by the rotation of a single operating part, both its upward and downward vertical translation movement as well as its horizontal translation movement for the purpose of moving the bottom cross bar of the window sash in front of or behind the usual rail which is provided on the bottom part of the window opening and which keeps the sash in its closed position.

It should be observed that the joining of the band 5 to the pin 4 is effected by a beak-shaped member 22, rigid with this pin, and into which the end of the band 5 is locked by means of screws. When the pin 4 has completed its ascending movement, the beak-shaped member 22 strikes a shoulder 24 provided at that place, in the cheek 23 fixed on the side of the drum 6, and it then engages the semi-circular guide v, y, x; from that moment the member 22, hence the pin 4, are rigid with the drum 6 in such a way that when the glass is closed and when the handle is manipulated for the purpose of opening it, the shoulder 24 of the cheek 23 pushes against the beak-shaped member 22; the result is that the pin 4 turns with the handle and that the glass mounts above the rail then redescends, its transverse movement in addition being guided by the spur 15 which then runs in the groove 16 of the pin 4. The simultaneity of the movements, horizontal as well as vertical, of the glass is obtained due to the helicoidal form of the groove 16 of the pin 4 in which the spur of the plate is guided.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A device for manipulating the glass windows of carriage or other doors, this device permitting of effecting the opening, closing, and the passage, above the rail of the door, of the sash of the glass by means of a sole manipulating member, the device in question comprising a plate (3) mounted on the lower cross piece of the sash of the glass; an opening (14) of completely closed contour arranged in the plate (3); a pin (4) engaging in the opening (14) and provided with a beak (22); a band (5) fixed to the said beak and winding upon a drum (6); a manipulating handle (9) operating the said drum; a helicoidal groove (16) provided on the pin (4) and in which engages a projecting spur (15), rigid with the plate (3), during the raising movement of the sash of the glass, for the purpose of controlling positively the passage of this sash above the rail (11) toward the outside or toward the inside according to the direction of rotation of the drum (6).

2. A device for manipulating the glasses of carriage or other doors, this device permitting of effecting the opening, the closing, and the passage, above the rail of the door, of the sash of the glass, by means of a sole manipulating member, the device in question comprising a plate (3) mounted on the lower cross-piece of the sash of the glass; an opening (14) of completely closed contour arranged in the plate (3); a pin (4) engaging in the opening (14) and provided with a beak (22); a band (5) fixed to the said beak and winding upon a drum (6), a manipulating handle (9) actuating said drum; a helicoidal groove (16) provided in the pin (4) and in which engages a spur (15), rigid with the plate (3); two other grooves (18—20) arranged at the two ends of the helicoidal groove (16) of the pin (4); projections (19, 21) provided on the inner edge of the opening (14) arranged in the plate (3), and engaging in the said grooves

so as to assure constantly the connection between the pin (4) and the spur (15) and to constantly maintain and without friction the rigid connection between this pin and the sash: during the ascending or descending movements of this latter.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

EDM. RHEIMS.
LÉON AUSCHER.

Witnesses:
ANDRÉ BORDILLON,
JULES FAYOLLET.