No. 816,212. PATENTED MAR. 27, 1906.

C. A. BLACK, Jr.

VENTILATOR LIFTER.

APPLICATION FILED JAN. 17, 1905.

Fig. 1.

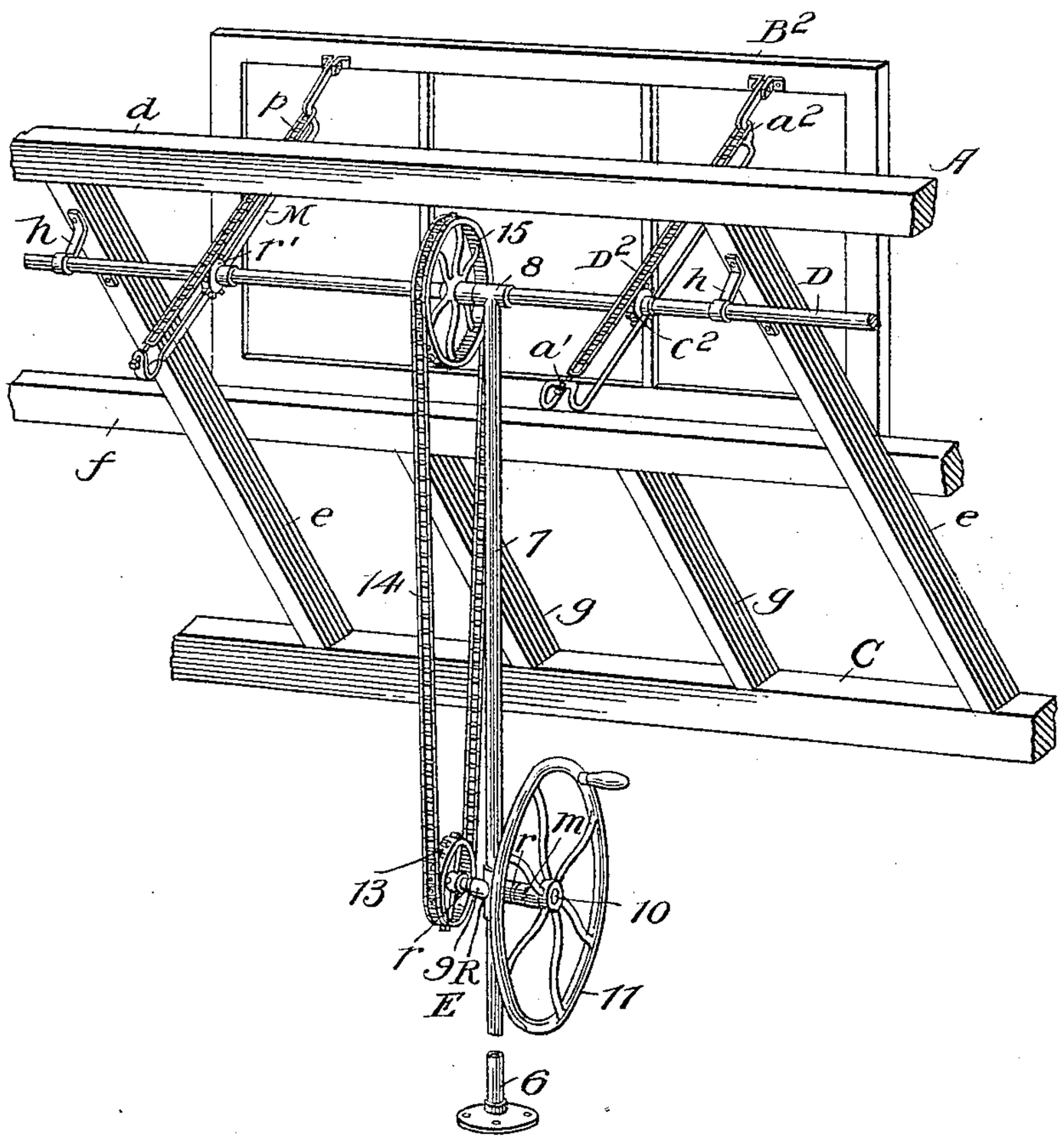
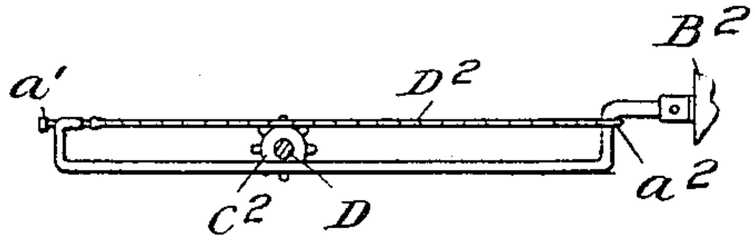
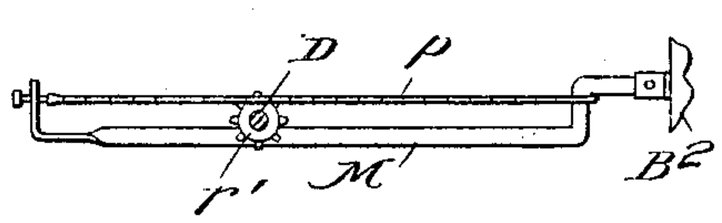


Fig. 2.

Fig. 3.





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VENTILATOR-LIFTER.

No. 816,212. Specification of Letters Patent. Patented March 27, 1906.

Application filed January 17, 1905. Serial No. 241,425.

To all whom it may concern:

Be it known that I, CHARLES A. BLACK, Jr., a citizen of the United States, residing at Hightstown, in the county of Mercer and State of New Jersey, have invented new and useful Improvements in Ventilator-Lifters, of which the following is a specification.

This invention has for its object a new and improved device for opening and closing the sashes of greenhouses and other like structures, and is an improvement on my Letters Patent granted to me, No. 780,151, being dated January 17, 1905.

With this object in view the invention consists of the details of construction and arrangement which will more fully appear hereinafter.

In the accompanying drawings, which form a part of this application, Figure 1 is a perspective view showing my invention in operative position. Fig. 2 is a side elevation of my invention. Fig. 3 is a modification of my invention having only one member.

Like numerals and letters of reference indicate corresponding parts in the several views.

Referring to the accompanying drawings, A represents the framework of a greenhouse or a similar-constructed building, consisting of the usual uprights, which serve to support the beam C, which in turn supports the ridge-pole *d* by means of the rafters *e*.

A bar *f* is provided, as shown, being fastened in the usual manner to the rafters *e* and being provided with the usual supports *g*.

A line-shaft D is provided, being situated near the ridge-pole *d*, being suspended therefrom by means of the brackets *h*, said brackets being provided at their ends with journals through which the said line-shaft D rotates.

E designates a standard composed of two sections 6 and 7 of tubing or pipe, which rises perpendicular from the floor of the greenhouse and the upper end thereof is provided with the journal 8, through which revolves the line shaft D. The sections 6 and 7, comprising the said upright tubular standard E, are joined together by means of the T or four-way tubular arm 9, the horizontal arms being provided with a reducer *r*, which serves as a journal to receive the shaft 10, which operates in same. One end of said shaft 10 has keyed thereto the hand-wheel 11 for turning purposes. The other end of shaft has keyed thereto the sprocket-wheel 13, which meshes with the sprocket-chain 14, said chain also meshing with the large sprocket-wheel 15, which is keyed to the line-shaft D and revolves the same when said sprocket-wheel is operated.

My improved lifter-arm, as shown in Figs. 1 and 2, consists of two parallel members, the upper ends of which converge, so as to be readily pivoted to the free end of the ventilator-sash B^2, and the lower ends thereof being curved back upon themselves and joined together.

A sprocket-chain D^2 is provided, one end of which is connected to the point a^2, which is situated at the upper end of the lifter-arm. A screw-bolt a' is provided for tightening the sprocket-chain when necessary. The parallel members of the said lifter-arm pass on one side of the line-shaft and are wide enough apart to allow the small sprocket-wheel C^2, which is keyed to the line-shaft D, to operate therein and to mesh with the sprocket-chain D^2, which is situated on the opposite side of the line-shaft D to that of the parallel members of the lifter-arm.

The letter M designates a modification of my invention, being provided with only one member, the upper end of which is pivotally connected to the free end of the ventilator-sash B^2 and the lower end being curved and is provided with a sprocket-chain *p*, which meshes with the sprocket-wheel *r'*, which is keyed to the shaft D.

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

1. In a lifter for ventilators, the combination with a line-shaft, and means for revolving the same, of a lifter-arm having one end pivotally connected to the ventilator-sash, said lifter-arm being composed of two parallel members joined together at each end, a sprocket-chain having one end secured to the lifter-arm and the other end secured to a screw-threaded tightener operating in the other end of the lifter-arm, and a sprocket-wheel, secured on the line-shaft, whereby the ventilator-sash may be raised and lowered, substantially as set forth.

2. In a lifter for ventilators, the combination with a line-shaft, and means for revolv-

ing the same, of a lifter-arm having one end pivotally attached to the ventilator-sash, a sprocket-chain having one end attached to one end of the lifter-arm and the other end secured to a screw-threaded tightener operating in the other end of the said lifter-arm, and a sprocket-wheel secured on the line-shaft and meshing with said sprocket-chain, whereby the lifter-arm is caused to raise and lower the ventilator-sash, substantially as set forth.

In testimony whereof I affix my signature in presence of two subscribing witnesses.

CHAS. A. BLACK, JR.

Witnesses:

D. W. MEASUROLL,

C. B. RALPH.