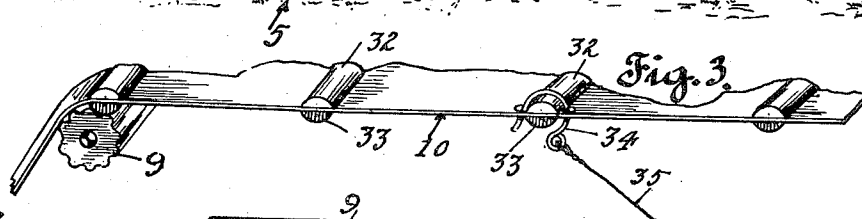
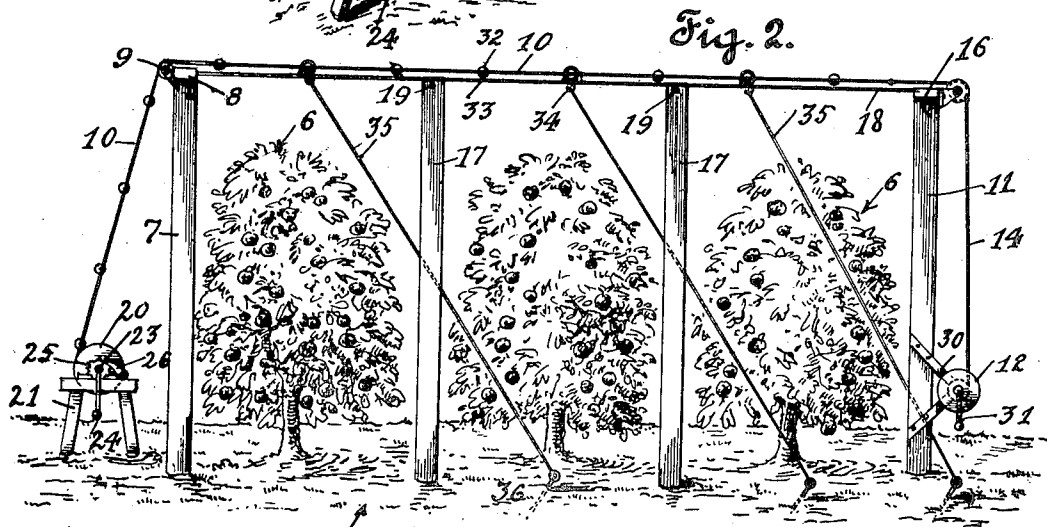
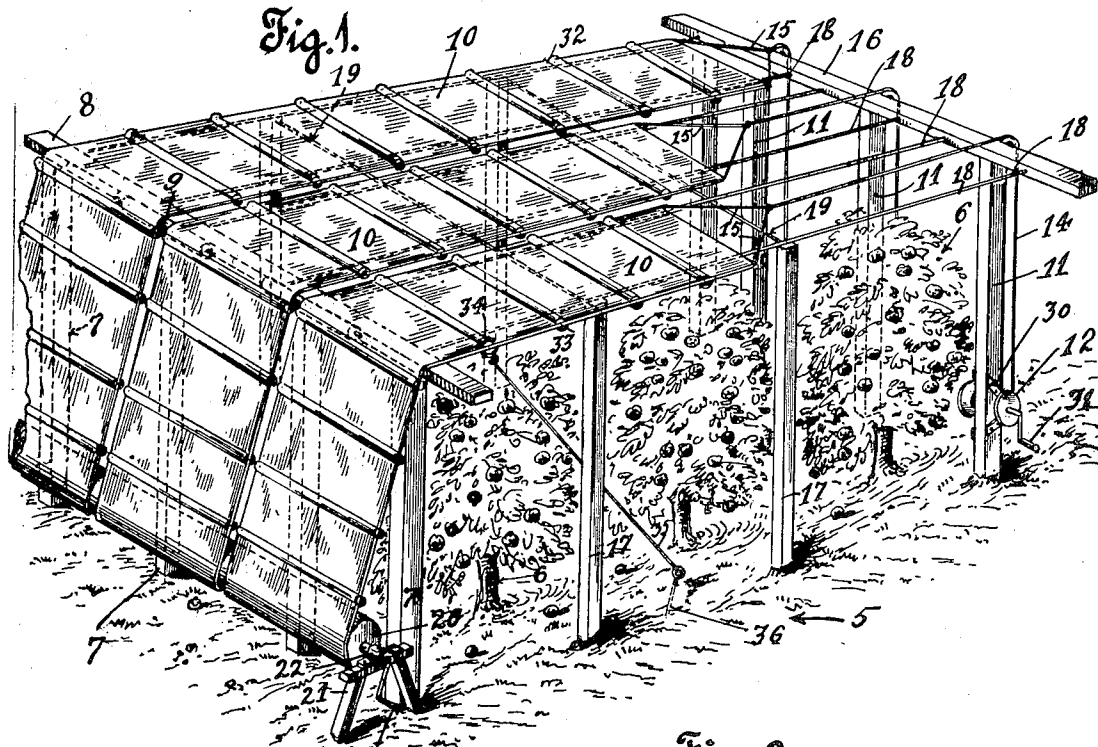


L. T. CADWALLADER & H. E. ANTHONY.
 PROTECTIVE COVERING FOR ORCHARDS.
 APPLICATION FILED MAR. 10, 1913.

1,106,624.

Patented Aug. 11, 1914.



Witnesses,
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UNITED STATES PATENT OFFICE.

LEWIS T. CADWALLADER AND HOWARD E. ANTHONY, OF LOS ANGELES, CALIFORNIA.

PROTECTIVE COVERING FOR ORCHARDS.

1,106,624.

Specification of Letters Patent.

Patented Aug. 11, 1914.

Application filed March 10, 1913. Serial No. 753,223.

To all whom it may concern:

Be it known that we, LEWIS T. CADWALLADER and HOWARD E. ANTHONY, citizens of the United States, and residing in the city of Los Angeles, county of Los Angeles, and State of California, have invented a new and useful Improvement in Protective Coverings for Orchards, of which the following is a specification.

This invention relates to protective coverings for orchards, and the principal object is to provide a flexible covering which may be drawn above and form a temporary roof for an orchard.

It is a further object to provide a supporting frame work for such a protective covering together with rolls upon which the fabric may be wound, and suitable drums to wind the cable in drawing the protective covering over the frame work.

In the drawings accompanying this specification—Figure 1 is a perspective view of a small section of an orchard showing the covering drawn over a portion of the frame work. Fig. 2 is a side elevation of the frame work and the operating mechanism. Fig. 3 is a side elevation on an enlarged scale showing an end view of one of the corner rolls. Fig. 4 is a front elevation of one of the corner rolls.

More specifically in the drawings, 5 designates the ground upon which are growing the trees 6 which require a certain amount of protection from low temperature and excessive winds. Preferably erected outside the margin of the grove at a point from which the worst winds occur, are erected the uprights 7 upon which is secured the cross frame 8, the timbers being high enough to reach above the top of mature trees.

The outer and upper corners of the cross timber 8 have spaced thereon at suitable intervals the corrugated rollers 9, these rollers being so disposed upon the cross beam 8 that the fabric 10 carried thereover will clear the timbers completely.

At the opposite end of the orchard are erected the uprights 11 spaced in any desired manner to support the winding drums 12 in line with the cable 14 which is preferably connected by means of the spreaders 15 to the free end of one of the fabric strips or curtains 10.

To brace the uprights 11 the cross bar 16 is preferably secured to their tops being on the same level with the cross bar 8. Inter-

mediate of the uprights 7 and 11 are placed the uprights 17 spaced any suitable distance in the orchard to assist in supporting the guide wires 18 connecting the bars 8 and 16 by means of the cross wires 19 stretched transversely between a pair or more of uprights 17.

Winding drums 20 preferably of greater diameter than the rolls 9 are provided, located outside and beyond the uprights 7 so an inclined curtain face is provided, and preferably mounted upon frame work 21 having a journal 22 thereon through which is carried the axle 23 provided on its terminal end with a crank handle 24.

To regulate the movement of the drum 20, a ratchet 25 is preferably secured rigidly to the axle which engages with the pivoted pawl 26 mounted on the frame work 21 in suitable relation to the ratchet pinion.

Pinions and ratchets may be also secured to the shaft of the winding drum 12 which are supported in suitable brackets 30, the drums also having a crank handle 31.

To keep the fabric stretched in the proper plane, transverse battens 32 and 33 are placed at desired intervals on either side of the fabric which is preferably of light canvas; a pair of these battens being secured by suitable nails or rivets passed through the battens and the fabric 10.

To secure the fabric intermediate the frames 8 and 16 guy wires 34 have hooks 35 adapted to be engaged around the outer end of the battens and through openings in the fabric at proper intervals, and are connected to suitable stake pins 36 which may be driven in the ground at a proper location to put tension on the guy wire 34, so as to hold the battens with the fabric firmly to the guide wires 18.

What we claim is:

1. A protective covering for orchards, comprising a supporting frame work, guide wires connecting said frame, a movable curtain reinforcing battens for said curtain, a roll to support said curtain, and means to draw said curtain on said guide wires.

2. A protective covering for orchards, comprising a frame, guide wires supported on said frame, a movable curtain adapted to be supported on said guide wires transverse battens secured to said curtain, a curtain supporting roll supported adjacent one end of said frame, a winding drum adjacent the oppositely disposed end of said frame,

and a cable connected to said curtain and adapted to be wound on said drum.

3. A protective covering for orchards, comprising a frame, guide wires supported
5 on said frame, a movable curtain adapted to be supported on said guide wires, a roll supported adjacent one end of said frame, a winding drum adjacent the oppositely dis-
posed end of said frame, corrugated rollers
10 to guide said curtain mounted on said frame,

and a cable secured to said curtain and carried over said rollers to said winding drum.

In witness that we claim the foregoing we have hereunto subscribed our names this 27th day of February, 1913.

LEWIS T. CADWALLADER.
HOWARD E. ANTHONY.

Witnesses:

W. P. KEENE,
MARIE BATTEY.