

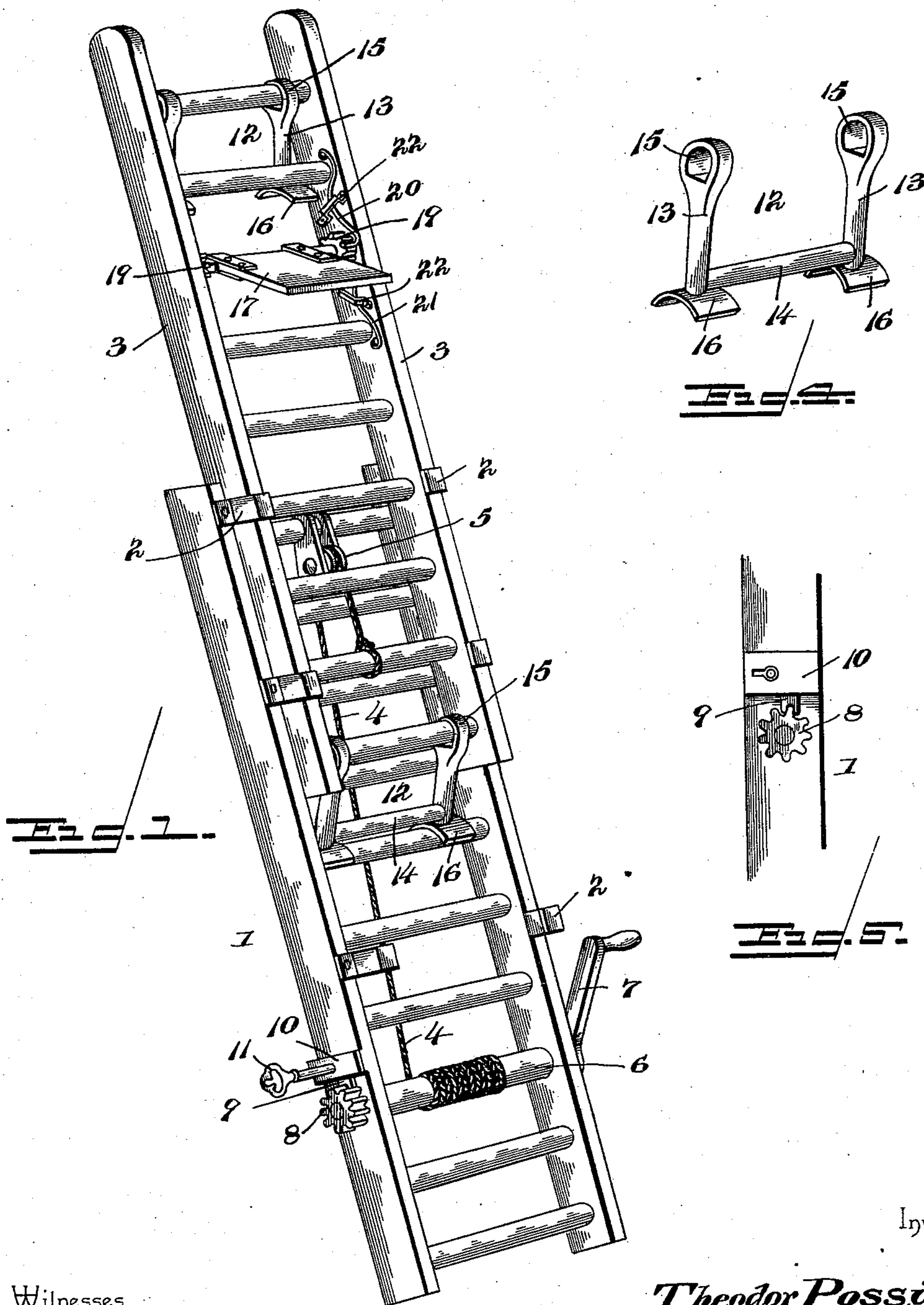
(No Model.)

2 Sheets—Sheet 1.

T. POSSIN.
EXTENSION LADDER.

No. 532,700.

Patented Jan. 15, 1895.



Inventor

Witnesses

E. H. Stewart

J. F. Riley

By his Attorneys.

Theodor Possin

C. A. Snow & Co.

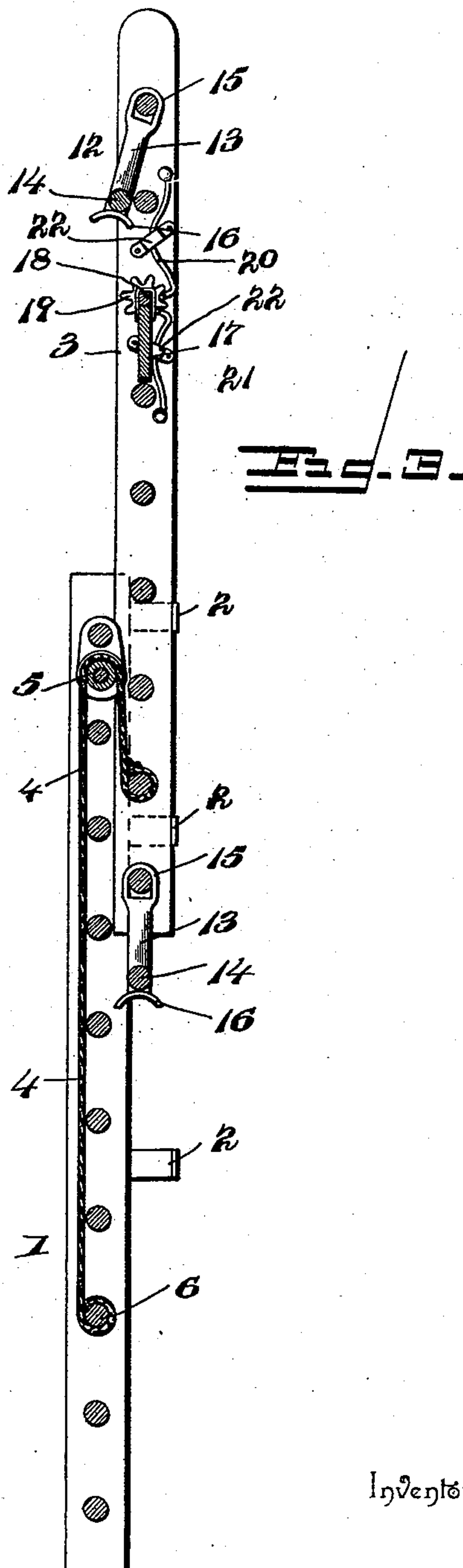
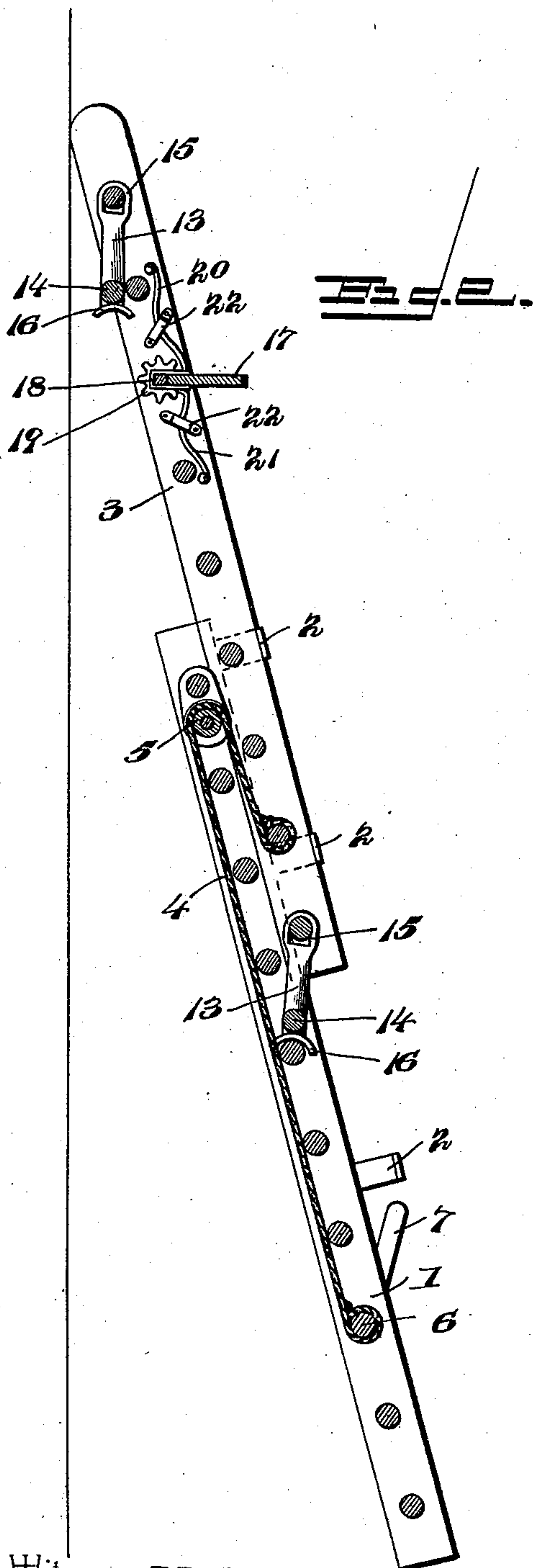
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UNITED STATES PATENT OFFICE.

THEODOR POSSIN, OF ROANOKE, VIRGINIA.

EXTENSION-LADDER.

SPECIFICATION forming part of Letters Patent No. 532,700, dated January 15, 1895.

Application filed April 23, 1894. Serial No. 508,691. (No model.)

To all whom it may concern:

Be it known that I, THEODOR POSSIN, a citizen of the United States, residing at Roanoke, in the county of Roanoke and State of Virginia, have invented a new and useful Extension-Ladder, of which the following is a specification.

The invention relates to improvements in extension ladders.

The object of the present invention is to improve the construction of extension ladders, and to prevent any liability of the extension section of the ladder accidentally falling in event of the hoisting mechanism being tampered with and released.

A further object of the invention is to enable the extension section to be reversed, to counteract any tendency to warp, thereby preventing any liability of its binding in the ways or guides of the lower or main section of the ladder; and another object of the invention is to provide an adjustable shelf adapted to be arranged in a horizontal position, irrespective of the inclination or position of the ladder.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings and pointed out in the claims hereto appended.

In the drawings: Figure 1 is a perspective view of an extension ladder constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view, the ladder being in an inclined position. Fig. 3 is a similar view, the ladder being in a vertical position. Fig. 4 is a detail perspective view of one of the swinging catches. Fig. 5 is a detail of the lock for the winding drum.

Like numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designate a lower or main section of an extension ladder provided with guides 2, and having sliding therein an extension section 3. Each section of the ladder consists of suitable sides, and connecting transverse rungs; and the guides, which form ways for the extension section, are substantially L-shaped, and are secured to the sides of the lower or main section.

The extension section is hoisted by means of a rope or cable 4 passing over a pulley 5,

and having one end attached to one of the lower rungs of the extension ladder section 3, and its other end wound around a windlass shaft 6, journaled in suitable bearings of the lower or main section, and located a suitable distance from the ground, in order that a removable crank handle 7 may be within easy reach. The pulley is arranged within a suitable block or bearing, and depends from the top rung of the lower or main section, and by rotating the windlass shaft it will be readily apparent that the extension section will be moved upward in the ways formed by the L-shaped guides.

In order to prevent the windlass shaft from being tampered with and released, a cog wheel or ratchet 8 is arranged on the outer face of one of the sides of the lower or main section 1 of the ladder, and connected with the windlass shaft, and is arranged to be engaged by a notched bolt 9 of a lock 10, which may be of any suitable construction, and which is operated by a key 11. In the accompanying drawings only one shaft is employed for winding the cable or rope, but it will be readily apparent that with those windlasses employing two shafts and having cog wheels arranged adjacent to a side of the ladder, the lock may be arranged to engage one of those cogs without employing one especially for this purpose.

The extension section is provided at each end with a swinging catch 12, which is approximately rectangular, being composed of similar sides 13, and a lower cross or connecting piece 14. The swinging catch is provided at the upper ends of its sides 13 with bearings 15, to receive the rung, thereby forming an economic hinge; and at the bottom the swinging catch is provided with curved shoes 16 to engage the rungs of the main section 1. It will be seen that when the ladder is in an inclined position the swinging catch, hanging in a vertical position, is arranged to engage automatically the rungs of the lower or main section 1, whereby should the lower section be tampered with and the cable or rope released, the extension section will be prevented from falling any distance as the swinging catch will engage automatically the next lower rung, should it not be in engagement with a rung. When it is desired to lower the

extension section, the ladder is brought to a vertical position, as illustrated in Fig. 3 of the accompanying drawings, to carry the swinging catches away from the rungs of the lower or main section, to prevent the catches from interfering with the downward movement of the extension section.

A shelf 17 is journaled between the sides of the extension section, and has mounted or fixed on its journals 18 ratchet wheels 19, arranged adjacent to the inner faces of the sides of the extension section, and adapted to be engaged by upper and lower pawls 20 and 21. A pair of upper and lower pawls is pivoted to the inner face of each side of the extension section; and each pawl is arranged in a keeper 22. The shelf is adapted to be turned to bring it into a horizontal position to enable it to assume that position, whatever may be the inclination of the extension ladder.

The shelf may be swung to either side of the extension section; and to counteract warping, which would interfere with the free sliding of the extension section; the latter is made reversible by reason of a swinging catch being arranged at each end of it. From time to time the extension section should be turned end for end, and also turned over to bring its inner side outward, and by this changing the position of the extension section, any tendency of the same to warp is prevented.

It will be seen that the ladder is simple and comparatively inexpensive in construction, that it is positive and reliable in its operation, and that accidents due to the sudden accidental downward movement of the extension section are prevented.

It will also be apparent that the extension section is prevented from warping, and is thereby caused to move freely in the guides or ways, and that the shelf may be readily arranged in a horizontal position. The lock will prevent any tampering with the wind-

lass, and the double arrangement of pawls at each side or end of the shelf, enables the latter to sustain a heavy weight.

Changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

What I claim is—

1. In an extension ladder, the combination of a lower or main section provided with ways, an extension section sliding in the ways, a windlass for hoisting the extension section, a cog wheel arranged on the lower or main section and connected with the windlass, and a key operated lock having a bolt arranged adjacent to said cog wheel and interlocking with the teeth thereof, substantially as described.

2. In an extension ladder, the combination of a main section provided with ways, a reversible extension section provided at each end with a swinging catch to engage the rungs of the main section, and an adjustable and reversible shelf journaled between the sides of the extension section, and arranged to swing through the spaces between it and the adjacent rungs, and provided with means for locking it in its adjustment, substantially as described.

3. The combination with a ladder provided with bearings, an adjustable shelf provided with journals arranged in the bearings, ratchet wheels fixed to the journals, and pawls mounted on the ladder and engaging the ratchet wheels, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

THEODOR POSSIN.

Witnesses:

D. SAYLOR GOOD,
EVERETT PERKINS.