

No. 724,423.

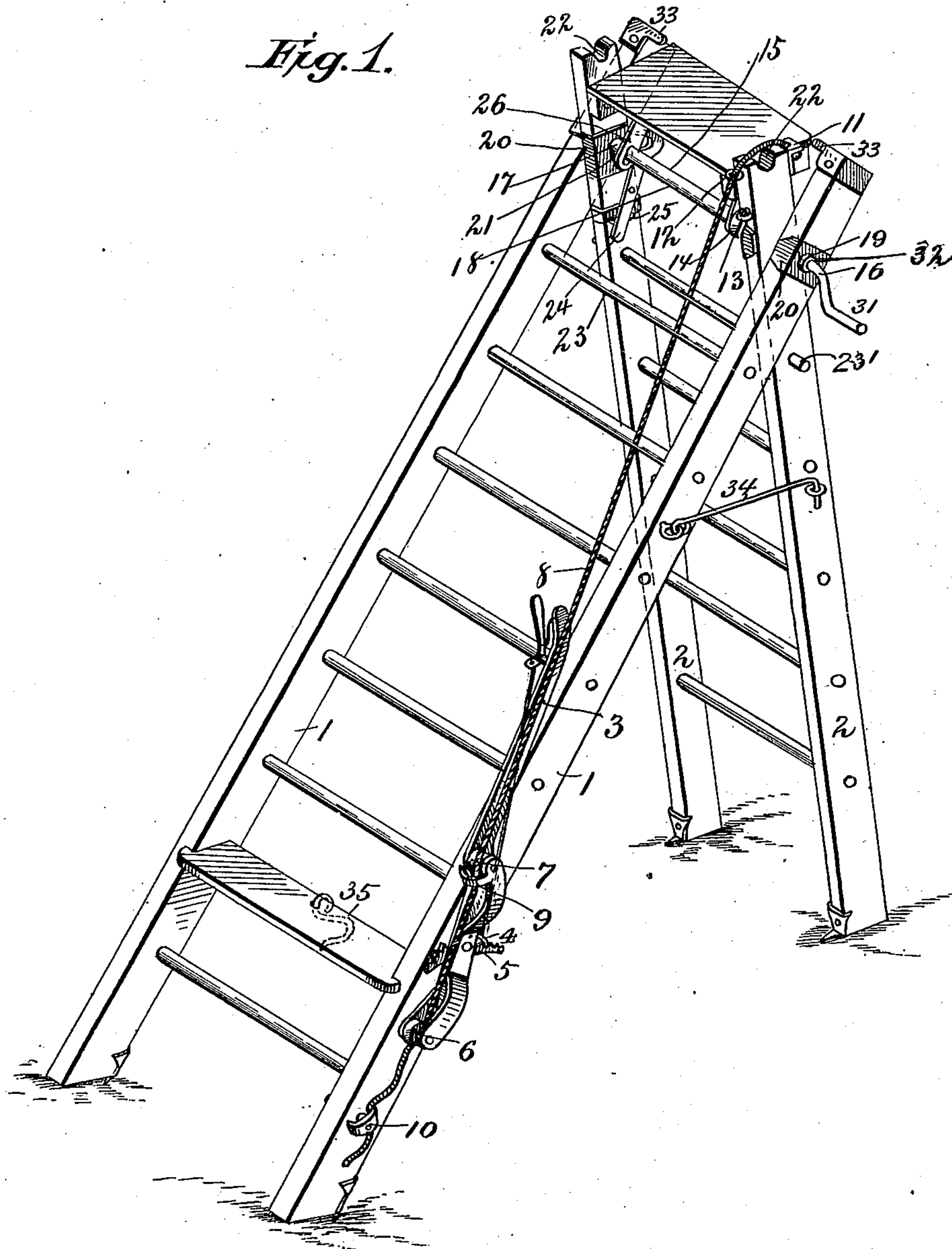
PATENTED APR. 7, 1903.

S. B. BENIGAR.
LADDER.

APPLICATION FILED APR. 29, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
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Inventor
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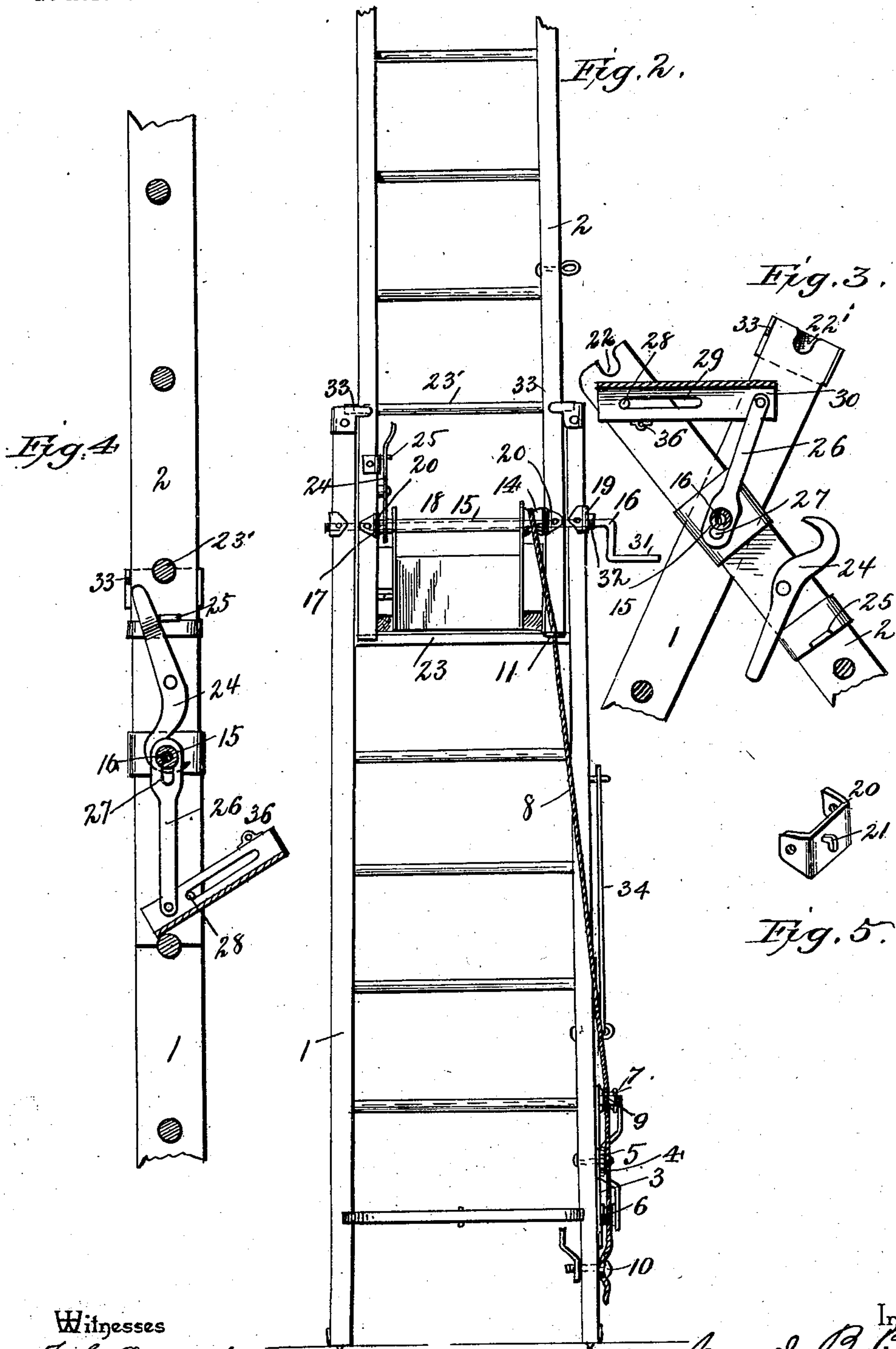
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LADDER.

APPLICATION FILED APR. 29, 1902.

2 SHEETS—SHEET 2.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

SAMUEL B. BENIGAR, OF EAST MONROE, OHIO.

LADDER.

SPECIFICATION forming part of Letters Patent No. 724,423, dated April 7, 1903.

Application filed April 29, 1902. Serial No. 105,131. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL B. BENIGAR, a citizen of the United States, residing at East Monroe, in the county of Highland and State of Ohio, have invented new and useful Improvements in Ladders, of which the following is a specification.

My invention relates to ladders, and more particularly to combined extension and step ladders, the object being to so construct the same that by the simple manipulation of a lever the ladder may be extended and when desired be converted into a step-ladder or folded.

In the drawings forming a part of this specification, and in which like symbols of reference represent corresponding parts in the several views, Figure 1 is a view of the device when used as a step-ladder. Fig. 2 is a view, broken away, of the ladder in its extended position; Fig. 3, a sectional view showing the operation of the foot-table; Fig. 4, a sectional view of one side of the ladder in its extended locked position; and Fig. 5, plates forming journals for the hinge-round.

1 represents the lower, and 2 the upper, section of my ladder, the latter fitting within the former.

3 is a hand-lever for extending the parts of the device, having a pawl 4 operating in a ratchet 5.

6 and 7 are pulleys over which rope 8 passes and is held in position thereon by clamp 9.

10 is a screw-bolt or the like for holding and adjusting the rope 8. The rope 8 after passing over the pulleys is passed through eye 11 in the lower part of section 2 of the ladder, and 12 is an eye for hook 34 to lock sections when used as angle-ladder. The end of rope 8 is secured in an eye 13 on section 2 of the ladder and passes over a pulley 14 on a hinge-round 15, said hinge-round consisting of screw-rod 16 and tubular sections 17 and 18, journaled on the same. The screw-rod 16 passes through perforations 19 in the sections 1 and 2 through plates 20, attached to the same. The plates 20 have L-shaped perforations 21 formed in them to receive rod 16 and permit limited play of the same therein, the object being to permit the upper section 2 to be slightly raised, so that the recesses 22, formed on the lower ends of rail-

ings of section 2, may engage round 23 of section 1 and recesses 22' engage round 23', extended beyond the side railings. When in its extended position, the ladder is adapted to be locked by the hook 24 engaging round 15 and locked by a lug 25.

26 represents the braces or legs to hold the table in its operative position, said legs having perforations 27 somewhat larger than the rod 16 to permit limited play of the same.

28 represents pins connected with section 2 and engaging slots 29 in the sills 30 of the table.

36 is a spring-latch to lock the table when in use to prevent the same from collapsing.

31 is a crank on rod 16 to operate the same, and 32 a nut screwed on rod 16 to lock the same when in use.

33 represents lugs or stops on the lower section 1 of the ladder to hold the upper section in its operative position with relation to the lower.

34 is a hook to hold the sections when used as a step-ladder, and 35 a hook to lock the parts when collapsed.

The operation of the device will be understood from the foregoing. When it is desired to extend the ladder, the lever 3 is operated and the parts extended. The recesses are then made to engage round 23 and the clamp 24 engage the screw-rod 16. When it is desired to use it as a step-ladder, it is placed in the position shown in Fig. 1 and the parts locked by hook 34.

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

1. A ladder, composed of a plurality of sections, a hinge-round connecting the sections, a cable connected with the upper and lower sections and passing over the hinge-round, and a lever having engaging means at opposite sides of its fulcrum to receive the cable and extend the sections.

2. In a ladder, a plurality of sections having a hinged connection, a rope connecting the upper section with the lower, a lever to operate the rope to extend the ladder, a foot-table connected with the upper section for use as a step-ladder, and means for locking the ladder in its extended or partially-extended positions.

3. A ladder, composed of a plurality of sections, a hinge-round connecting the sections, recesses formed in the ends of the railings of the sections for engaging the rounds of the
5 opposite section, enlarged bearings formed in the upper section to receive the hinge-round, and a hook to engage the hinge-round and lock the sections when alined.

4. A ladder, composed of an upper and a
10 lower section having a hinged connection, a cable connecting the sections, a lever for operating the cable to control the sections, pulleys on the lever over which the cable rides, and locking means for the lever.

15 5. In a ladder, a lever to extend the sections of the same, a cable operated by the lever, a hinge-rod connecting the sections, enlarged journals for said rod, and recesses in the ends

of the upper section to engage a round on the lower when the parts are in alined position. 20

6. A ladder, composed of hinged sections, a foot-table supported by the rod connecting the sections, means for locking the table when used as a step-ladder, a cable connecting the
25 sections, a lever connected with the cable, pulleys on the lever upon which the cable rides, and recesses formed in the ends of the railings of the sections for engaging the rounds of the opposite section when the sections are alined. 30

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

SAMUEL B. BENIGAR.

Witnesses:

DAVID F. PATTON,
ALONZO REED.