A. BLANKENHAGEN.

LADDER.

APPLICATION FILED NOV. 3, 1914.

1,155,125. Patented Sept. 28, 1915.

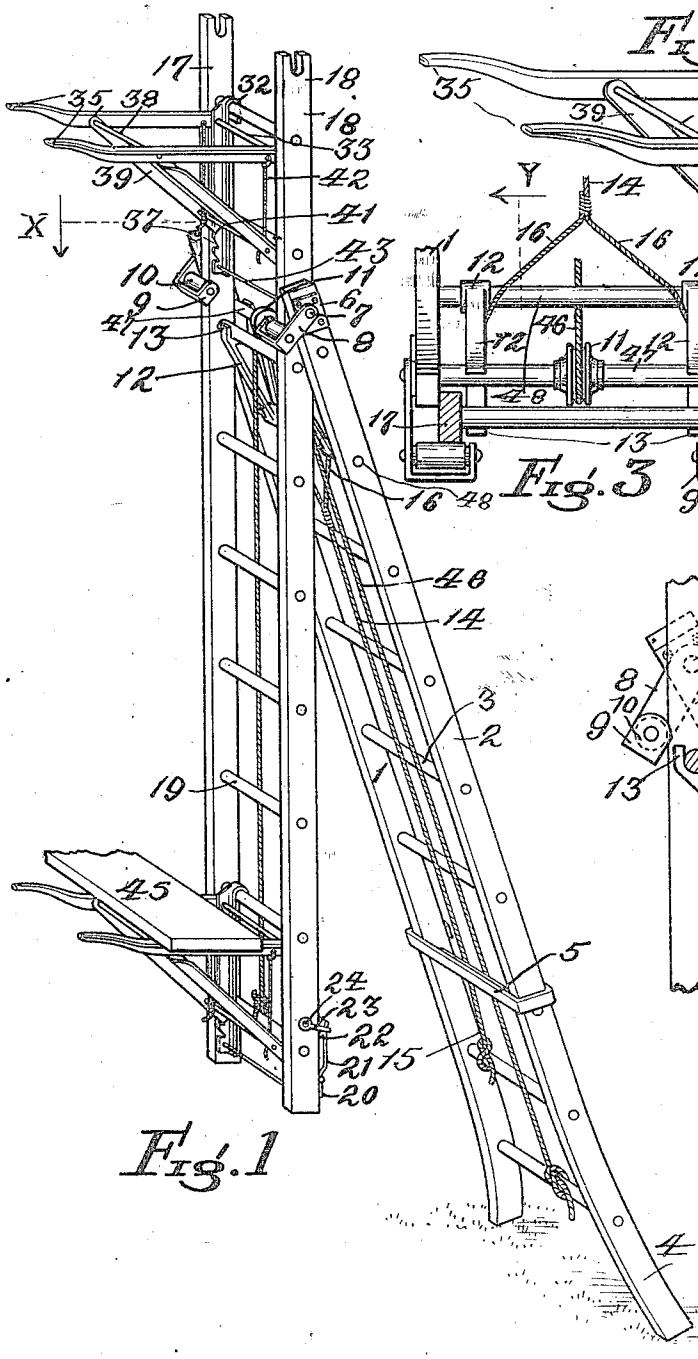

Fig. 1

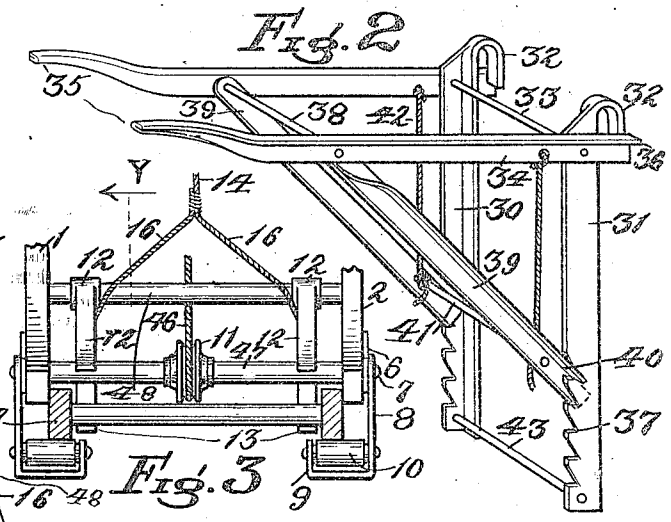

Fig. 2

Fig. 3

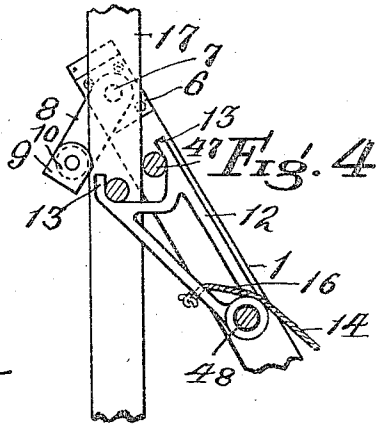

Fig. 4

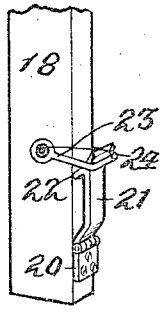

Fig. 5

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LADDER.

1,155,125. Specification of Letters Patent. Patented Sept. 28, 1915.

Application filed November 3, 1914. Serial No. 870,134.

To all whom it may concern:

Be it known that I, ALBERT BLANKENHAGEN, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented new and useful Improvements in Ladders, of which the following is a specification.

This invention relates to improvements in ladders especially of the extension type.

The object of the invention is to provide a ladder comprising fixed and movable members, the former adapted to rest on the ground and support the movable member with the latter preferably arranged approximately parallel with a vertical wall and provided with one or more adjustable brackets capable of supporting a platform or plank for the use of artisans, such as painters.

The invention contemplates the provision of means whereby brackets may be locked in position and when in place on the movable member of the ladder arranged to engage the wall and hold the member at a fixed determinate distance from the wall and approximately parallel therewith. Various other improvements as to the manner of supporting and holding the brackets and means of raising and holding the shiftable portion of the ladder, form portions of this invention.

A further object of the invention is to provide means for connecting the movable member of the ladder with the fixed or ground-engaging member.

With the foregoing and other objects in view, the invention consists in the novel construction, combination and arrangement of parts constituting the invention to be hereinafter specifically described and illustrated in the accompanying drawings which form a part hereof wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modifications which come within the scope of the matter hereinafter claimed.

In the drawings in which similar reference numerals indicate like parts in the different figures, Figure 1, is a perspective view of a ladder embodying this invention; Fig. 2, is a similar view of a bracket employed in connection with said ladder; Fig. 3, is a sectional view taken approximately on line X of Fig. 1; Fig. 4, is a sectional view approximately on line Y of Fig. 3; and, Fig. 5, is a perspective view of a coupling member employed for uniting the two parts of the ladder together.

Briefly, the ladder embodies fixed and movable members, the former adapted to rest on the ground and preferably in an inclined position and support the other portion in a position approximately parallel with respect to the side wall of a building, the movable member provided with adjustable brackets on which a platform or plank may be placed for the use of artisans working on a building.

Referring more specifically to the drawings, the fixed portion of the ladder constitutes a pair of upright stiles 1 and 2 extending between which are rungs 3. In practice, the lower or ground-engaging ends of the stiles 1 and 2 are preferably bent away from each other at 4 for the purpose of increasing the stability of the device. Near the lower end of the fixed member and secured to the stiles 1 and 2 is a cross bar 5 forming one member of a coupling element for uniting the two members of the ladder together. Usually the bar is provided with laterally-turned ends which engage the stiles 1 and 2 and are secured in position by frictional engagement therewith or by hold-fast devices, as is deemed best. The upper outer portions of the stiles 1 and 2 provided with plates 6 from which project pins 7 on which are pivotally mounted arms 8 having inturned L-shaped ends 9 opposing each other. Pivotally mounted between the outer and inner ends of each arm 8 are rollers 10. The upper rung 47 of the fixed member is provided centrally with a sheave 11 over which runs a flexible member 46 and the rung 48 immediately below this is provided with a pair of yoke-shaped coupling members 12 the outer ends 13 of each of which are spaced apart and constitute gripping jaws for a purpose to be later described. Extending from the faces of the coupling members 12 which are adjacent to the movable member of the ladder is a flexible member 14 in the form of a Y with the lower end 15 thereof depending in reach of an operator and with the upper end in the form of a yoke 16 separately connected with the two coupling members 12.

The movable or shiftable member of the ladder consists of a pair of parallel stiles 17 and 18 united by rungs 19 in the customary manner. This ladder is mounted

for use by positioning it between the upper rung 47 of the fixed member and the rollers 10 carried by the arms 8 so as to permit easy vertical shifting thereof. Pivotally secured to the lower face of the stiles 17 and 18 by means of a hinge 20 is a clip 21 having a hook-shaped upper end 22 which is held against the stile in the position shown in Fig. 5 by means of a keeper 23 pivoted at 24 when the ladder is in use, but when it is desired to collapse or pack the ladder for transportation, the lower end of the movable member is swung inwardly toward the bars 5; and after releasing the keeper 23, the hook-shaped clips 21 are passed around the bar 5 and the keeper replaced, thereby locking the two portions of the ladder in approximately parallelism. By this means the ladder may be transported as a unit to the place of operation.

Mounted on the rungs of the movable member of the ladder are a plurality of brackets and as they are all similar a description of one is believed to be sufficient for all and attention is directed especially to Fig. 2. Each bracket comprises a pair of parallel upright bars 30 and 31, the upper ends of which are downwardly turned to constitute hooks 32. Extending between the upper ends of the arms 30 and 31 is a cross bar 33 on the outer ends of which are pivotal arms 34 normally arranged at approximately right angles with respect to the bars 30 and 31. The front ends of the arm 34 project in parallelism and with their outer free ends 35 fashioned to constitute widely divergent prongs, preferably sharpened for engagement with the side walls of a building or equivalent structure. The opposite ends 36 of these bars extend away from the building and are arranged in approximate lapping engagement with the side faces of the hooks 32 of the arms 30 and 31 so that when the arms 34 are in their operative or working position the open ends of the hooks 32 are closed. The lower portion of the front edges of the bars 30 and 31 are provided with a plurality of notches 37 and extending between the arms 34 near their median portion is a cross bar 38 which serves to hold them in parallelism and also constitutes pivoting means for a pair of braces 39, the lower ends 40 of which are adapted to engage in the notches 37. The lower ends 40 of the braces 39 are held in parallelism by means of a cross bar 41. For the sake of added security, flexible means, such for instance, as ropes or chains 42 are extended from the horizontal arms 34 to the braces 39 to provide means for supporting these braces in case the lower ends 40 of the braces accidentally escape from the notches 37. For strengthening purposes a bar 43 extends between the lower ends of the bars 30 and 31.

The brackets are positioned by raising the ends 35 of the arms 34 until the arms 34 and bars 30 and 31 are in approximate parallelism which lowers the rear ends 36 of the arms 34 and uncovers the openings formed by the hooks 32. The hooks 32 are then hooked over a rung and are swung to their horizontal position, in doing which the shorter ends 36 of the bars 34 move upwardly and lock under the rung, thereby preventing any accidental displacement of the bracket while in use. The lower ends 40 of the braces 39 are then secured in the notches 37, the members 42 connected to any suitable portion of the braces 39 and a platform or plank 45 is placed on the upper face of the bracket.

It will be apparent of course, that in use two ladders will be utilized and a plank or platform extended between the parallel brackets of the two ladders. If it is desired to shift the position of the platform at any time, any bracket may be shifted without removing the ladder from its position and at the same time, by making the movable ladder of considerable length a plurality of brackets and platforms may be employed, thereby enabling different elevations to be obtained by the workmen in their use without shifting the ladder from its position.

For the purpose of raising or lowering the movable member of the device, a flexible member, such for instance, as a rope 46, is secured to some suitable place as, for instance, one of the rungs of the movable member and passed upwardly over the sheave 11 and down to any suitable place adjacent to the lower end of the fixed member of the ladder so as to be within reach of an operator. When it is desired to shift the movable portion of the ladder the operator slightly raises the movable member by force exerted downwardly on the flexible member 46 by releasing the gripping members 12 which are then drawn outwardly by means of the flexible member 14 which shifts them out of the path of the rungs of the movable member which is then raised by the flexible member 46 to any desired position or lowered by releasing force thereon and when the proper position is secured the gripping members will fall to their locking position by gravity and engage one of the rungs of the movable ladder for locking it against movement.

I claim:—

1. A ladder of the class designated comprising fixed and movable sections, the latter when in its operative position adapted to be supported in a vertical position and in parallelism with a wall by the fixed section, the latter extending in an inclined direction and at an angle to the movable section, means for loosely coupling the sections to-

gether, brackets carried by said movable section arranged to rest against said wall for holding the movable section in spaced relation therewith.

2. A ladder of the class designated comprising fixed and movable sections, the latter when in its operative position adapted to be supported in a vertical position and in parallelism with a wall by the fixed section, the latter extending in an inclined direction and at an angle to the movable section, means for loosely coupling the sections together, brackets carried by said movable section arranged to rest against said wall for holding the movable section in spaced relation therewith, and means for securing the brackets to the movable member, said means permitting the shifting of said brackets.

3. A ladder of the class designated comprising a fixed and movable section, means for loosely coupling said sections together, said movable section adapted when in its operative position to extend in an upright manner and in parallelism with a supporting structure, the fixed section extending downwardly from said movable section and at an inclination to comprise a support and brace for wedging said movable section toward said supporting structure, a removable bracket capable of supporting a platform detachably secured to the movable section and adapted to engage said supporting structure for holding the movable section of the ladder in spaced relation to said structure, any weight on said platform operating to force the movable section inwardly toward the wall by reason of the inclined position of said fixed section.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ALBERT BLANKENHAGEN.

Witnesses:
C. E. HUMPHREY,
A. L. MCCLINTOCK.