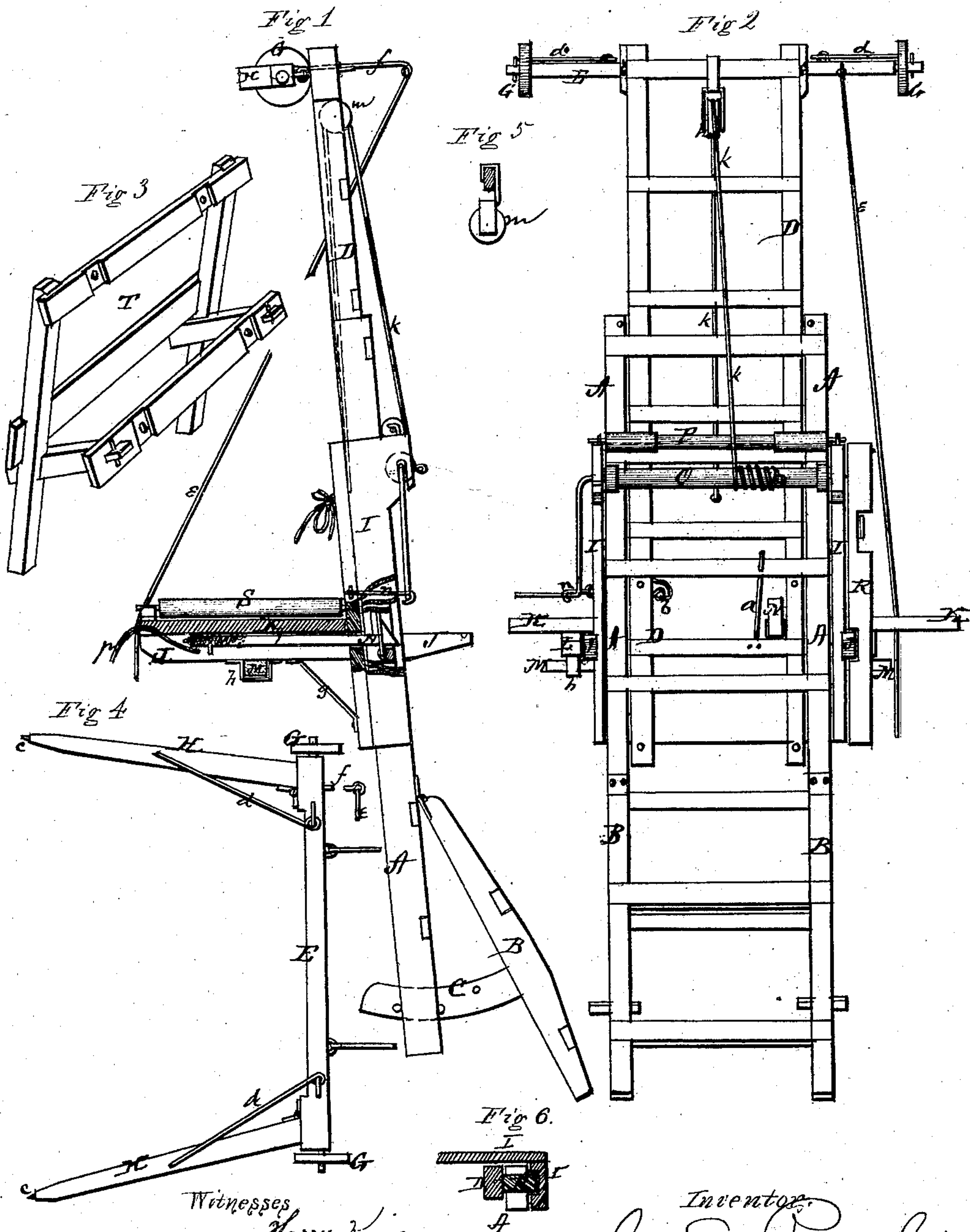


J. E. Rauch,

Scaffold.

No. 99,706.

Patented Feb. 8, 1870.



Witnesses
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Letters Patent No. 99,706, dated February 8, 1870.

IMPROVED SCAFFOLD AND LADDER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, J. E. RAUCH, of Selin's Grove, in the county of Snyder, and in the State of Pennsylvania, have invented certain new and useful Improvements in Combined Ladder and Elevating-Scaffold; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a "combined ladder and elevating-scaffold," for painters' or other mechanics' use.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a side elevation, and

Figure 2, a front view of the entire ladder and scaffold;

Figure 3 is a perspective view of an extra foundation-frame;

Figure 4 is a plan view of a frame, attached to the top of the ladder, for the purpose of keeping the ladder out from the building;

Figure 5 is a side view of a pulley; and

Figure 6 is a horizontal section of a portion of the machine, to be hereinafter described.

A represents the main ladder, made of any desired height, having two braces, B B, hinged a suitable distance from its lower end. These braces are connected by cross-bars, so as to form a sort of foundation-frame for the ladder, it being the intention that the ladder should not itself rest on the ground, but be supported by the braces or legs B B.

In mortises on the braces B B are secured segmental bars, C C, which project inward, and pass through mortises in the sides of the ladder A, where they are held at any point desired by means of pins, as seen in fig. 1. By this means, the foundation-frame can be placed at any angle desired from the main ladder.

At suitable points on the inner side of the main ladder A are secured metal plates or bars, which form guides to hold an additional ladder, D, within the sides of the main ladder A, allowing the ladder D to slide up and down with ease, but preventing it from becoming separated from the main ladder, unless so desired.

The extension ladder D is raised, by hand, as the workman passes up on the main ladder, and it is held at any point desired, by means of a hook, *a*, secured to one of the rounds of the sliding ladder, and thrown over any of the rounds of the main ladder.

In addition to this, a pin, *b*, is passed through the

side of the sliding ladder into the side of the main ladder, as seen in fig. 2, by which means the sliding ladder D is firmly and securely held at any height desired.

At the upper end of the sliding ladder D is attached a cross-bar, E, by means of pins or other suitable devices, so as to be readily removed and put on.

This cross-bar E extends a suitable distance beyond the sides of the ladder D, and is at each end provided with a small wheel or roller, G, which bears against the side of the building, so as to facilitate the raising of the ladder. In attaching the cross-bar E to the ladder D, it should be done in such a manner that the cross-bar can turn, it being rounded on the edges nearest to the ladder, for that purpose.

Near one end of the cross-bar E is hinged an arm, H, having a metal point, *c*, at its outer end, and braced by the rod *d*, in the position shown in fig. 4.

To the opposite side of the bar E is secured a rod or lever, *f*, from the outer end of which a cord or rope, *e*, hangs suspended.

When the ladder is being raised, the arms H H hang downward, allowing the wheels G G to bear against the side of the building; but as soon as it has been raised to the desired height, by pulling on the rope *e*, the bar E will be turned so as to bring the arms H H horizontally inward toward the building, the points *c c* holding them steady, thus keeping the entire ladder in its proper position.

If the building should not be high enough to necessitate the use of the sliding ladder D, the frame E G H is attached to the upper end of the main ladder A. The means for attaching said frame to either one of the ladders may be of various constructions; but I prefer the means particularly shown in figs. 1 and 4, consisting of staples inserted in the bar E, and pins hung on said staples, these pins being passed through the sides of the ladders and held by other smaller pins, as shown in figs. 1 and 2. The sliding ladder D being narrower than the main ladder A, there are blocks attached to the sides of the sliding ladder at the top, so that the same pins may be used for both ladders, to attach the cross-bar E.

The elevating-carriage I consists of a frame or box, of any desired height, embracing the main ladder on three sides, leaving the front open.

To the sides of the carriage I are secured arms J J, braced by the bars *g*, as shown in fig. 1, said arms supporting the platform K.

The platform K is, on its under side, provided with two cross-bars, L, which will fit directly on the outside of the arms J J, and are provided with square loops *h h*, projecting below the arms, and through said loop, a wedge-shaped bar, M, is passed, which effectually secures the platform to the carriage.

Under the platform K is secured a latch, N, pressed

outward through a slot in the carriage I, by means of a spring, *i*, so that when the carriage and platform are raised, as will be hereinafter set forth, the upper beveled side of the outer end of the latch will strike each successive round and be pressed inward. As soon as the latch has passed the round, the spring *i* will force it outward, so that it will rest on the round and support the carriage and platform at any desired height.

On the open side of the carriage I is placed a windlass, O, having its bearings in the sides of the carriage, which extend forward beyond the front side of the ladder.

From the windlass O a rope, *k*, leads upward around a pulley, *m*, suspended from the top round of the ladder D, and then passes downward on the inner side of the ladder, and is attached to the carriage I. By turning the windlass the carriage and platforms are raised and lowered at will, the crank of the windlass being held, when desired, by a hook, *n*.

When the carriage is to be lowered, the latch N will be withdrawn by a rope or cord, *p*, attached to its inner end, as shown in fig. 1.

At the upper end of the carriage I, above the windlass O, is placed a roller, P, which bears against the front side of the ladder and prevents friction in the raising and lowering of the carriage.

When the carriage I rises above the main ladder A and follows the sliding ladder D, there would be a space left between said sliding ladder and the sides of the carriage, which would cause the carriage to vibrate or move from side to side. To prevent this, I provide bars R R, which are placed in between the carriage and sliding ladder, in grooves provided for that purpose, on the inside of the sides of the carriage. The bars R R are placed on the side of the carriage, in suitable guides, until they are wanted. At the upper ends of said bars are pins, which rest on the top of the side of the carriage, so as to be carried upward with the carriage to the top of the sliding ladder.

When it is desired to have a long scaffold, two of these machines are placed at suitable distance apart,

and the boards forming the scaffold are placed on a roller, S, running across the platform K, as seen in fig. 1. The object of the rollers S is, that as the platforms are raised, the boards will not move the platforms any farther apart, but allow them to remain in the same position as when put up.

If the main ladder A should be long enough for the building, the sliding ladder D may be taken out and the foundation-frame T, the construction of which is plainly shown in fig. 3, bolted to the same at its lower end. By then having an extra carriage and upper brace-frame, the workman has two machines upon which to place his scaffold.

Having thus fully described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement upon the lower end of the ladder A of the braces B B and segmental bars C C, substantially as shown and described.

2. The combination of the cross-bar E, wheels G G, arms H H, points *c c*, braces *d d*, lever *f*, and cord *e*, all substantially as and for the purposes herein set forth.

3. The carriage I, platform K, and latch N, constructed and arranged to operate in connection with the rounds of the ladder, substantially in the manner and for the purposes herein set forth.

4. In combination with the carriage I and sliding ladder D, the bars R R, substantially for the purposes herein set forth.

5. The combination of the foundation-frame B C, ladders A D, top frame E G H, carriage I, platform K, latch N, windlass O, bars R R, and rollers P S, all constructed and arranged to operate substantially in the manner and for the purposes herein set forth.

In testimony that I claim the foregoing, I have hereunto set my hand, this 10th day of January, 1870.

J. E. RAUCH.

Witnesses:

C. L. EVERT,

C. M. ALEXANDER.