(No Model.) 2 Sheets—Sheet 1.

T. W. COOPER.

EXTENSIBLE SCAFFOLD.

No. 537,631. Patented Apr. 16, 1895.

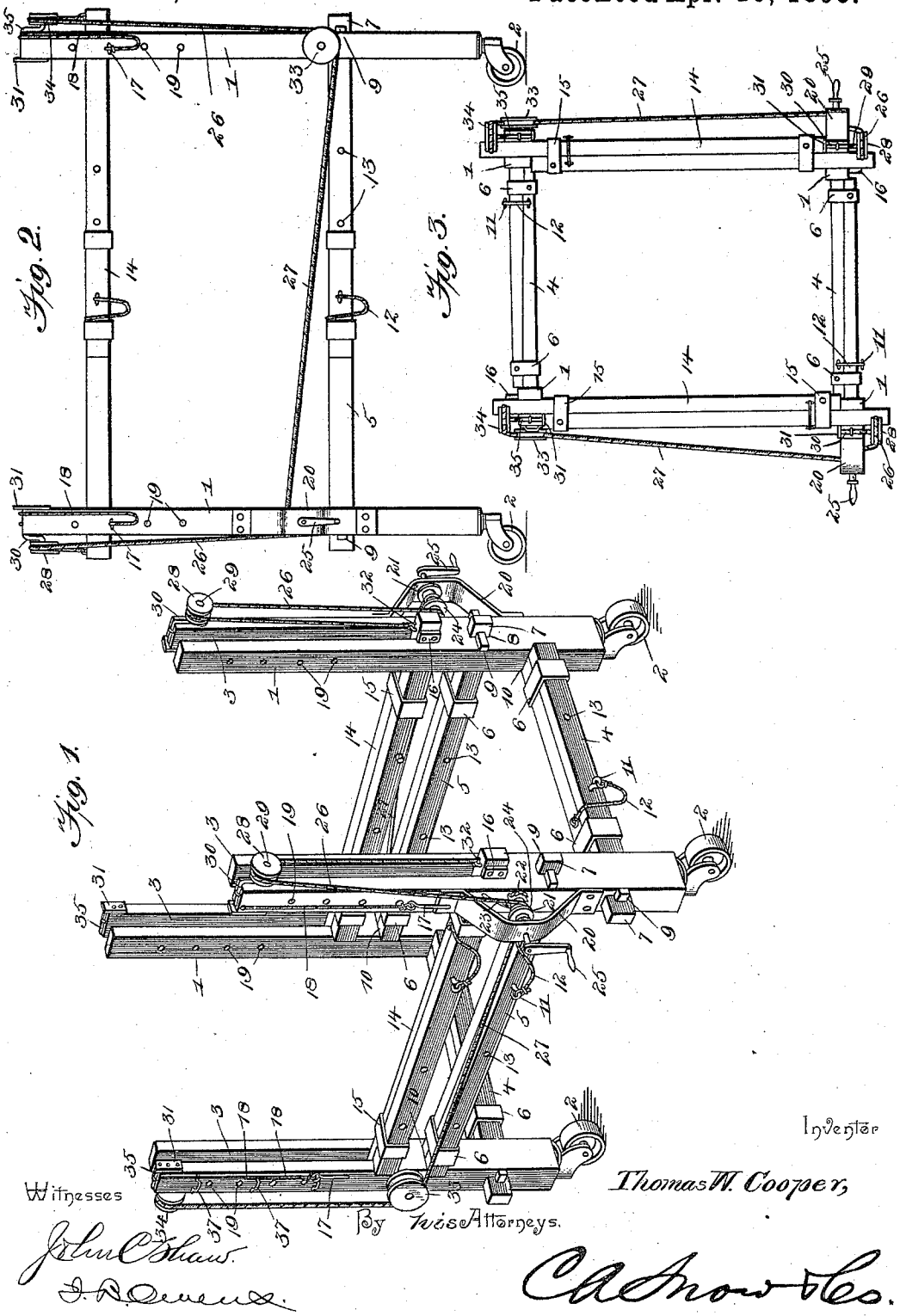

Fig. 2.

Fig. 3.

Fig. 1.

Witnesses
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D. D. Owen.

Inventor
Thomas W. Cooper,
By Their Attorneys.
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(No Model.) 2 Sheets—Sheet 2.

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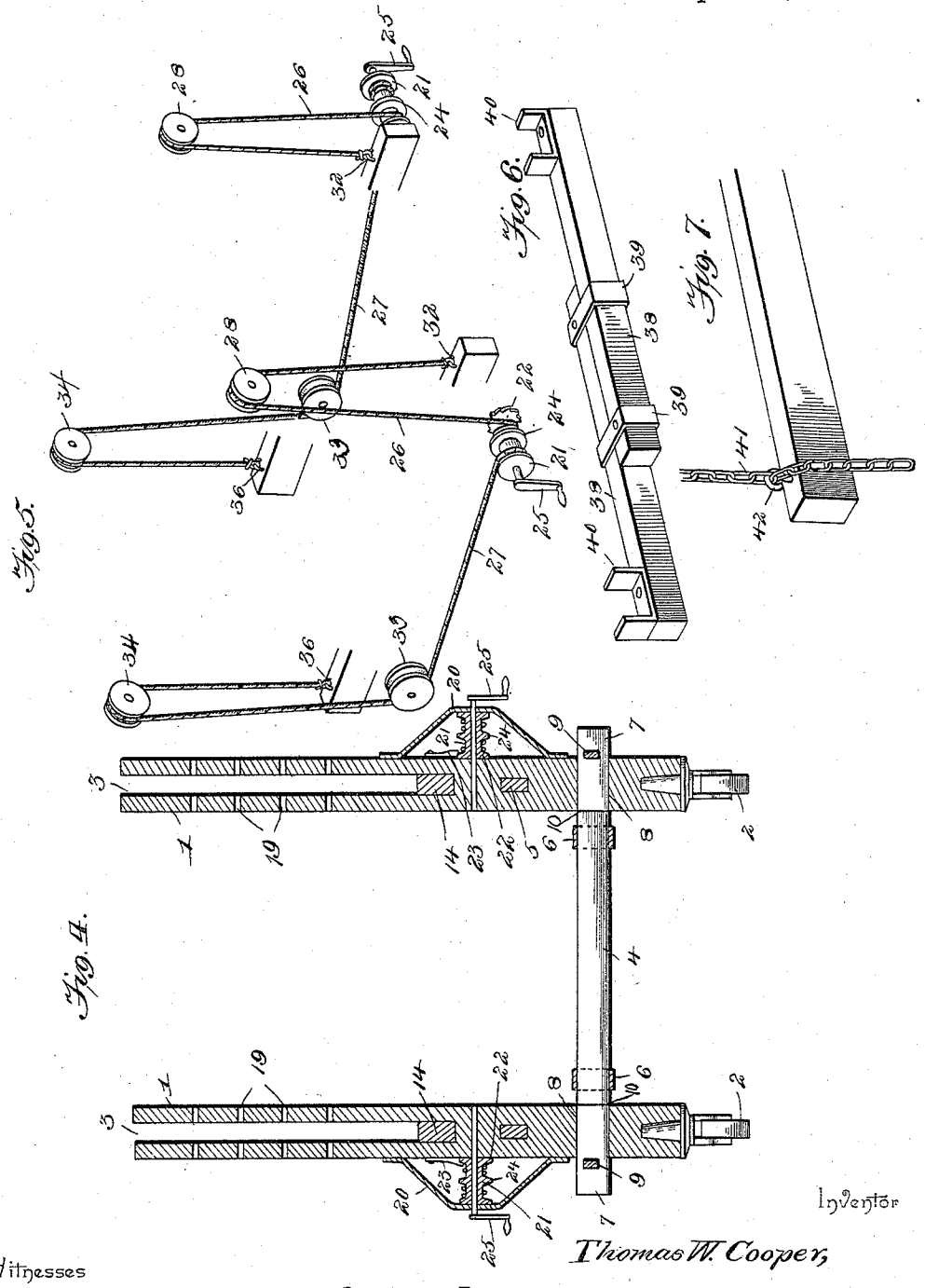

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 4.

Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS W. COOPER, OF BIG CABIN, ASSIGNOR OF ONE-HALF TO C. H. HAWKINS, OF CHELSEA, INDIAN TERRITORY.

EXTENSIBLE SCAFFOLD.

SPECIFICATION forming part of Letters Patent No. 537,631, dated April 16, 1895.

Application filed September 15, 1894. Serial No. 523,141. (No model.)

To all whom it may concern:

Be it known that I, THOMAS W. COOPER, a citizen of the United States, residing at Big Cabin, in the Cherokee Nation, Indian Territory, have invented a new and useful Extensible Scaffold, of which the following is a specification.

This invention relates to that class of scaffolds which are constructed so as to be extensible, and so that they may be enlarged in various directions to suit the conditions under which they are used; and the principal object is to provide an applicance wherein the adjustment will be more complete, and which will be safer for those operating on it. Various other objects are contemplated, such as durability and cheapness, and the full attainment of all will be apparent from the following specification.

In the accompanying drawings: Figure 1 represents a perspective view of a scaffold constructed after the manner of my invention; Fig. 2, an end elevation of my scaffold showing it extended; Fig. 3, a plan view; Fig. 4, a section taken through one side of the scaffold; Fig. 5, a detail perspective of one of the adjustable and vertically-movable bars, together with the hoisting ropes and pulleys for raising and lowering the same; Fig. 6, a perspective view of one of the cross-bars for resting upon the side bars of the scaffold; Fig. 7, a modification of the cords for raising the scaffold platform.

The reference numeral 1 indicates four vertical corner beams, which are provided at their lower ends with the casters or carrying-wheels 2, by which the scaffold is supported and by which it is made capable of transportation. The beams 1 are bifurcated at their upper portions to form the vertical passages 3, which extend from the upper ends of the beams downwardly to a point below the middles thereof. The beams 1 are connected to each other by means of the extensible bars 4 and 5. The bars 4 and 5 are each formed of two duplicate sections slidably movable on each other and held so related by means of the yokes 6, which are two for each bar and which are secured one to each section thereof and embrace the companion section. By this construction the bars are made extensible.

The ends of the bars 4 and 5 are reduced to form studs 7, which are projected through openings 8 in the beams 1 and held in place by keys 9, passing horizontally through said reduced portions or studs 7. Each of the bars 4 and 5 is provided with a shoulder 10 at its respective ends; and these shoulders are adapted to bear against the inner sides of the beams 1, so as to prevent the bars from outward movement in the openings 8 of said beams.

The bars 4 and 5 are four in number, two numbered 4 and two numbered 5; and the bars 4 are secured to the beams 1 so as to comprise the side-bars of the scaffold; while the bars 5 are secured to the opposite sides of the beams 1 and comprise the end-bars of the scaffold. The latter bars, 5, are arranged above the plane of the bars 4, and are constructed somewhat heavier than said bars 4.

Each of the bars 4 and 5 is provided with a locking-pin 11, which is secured to its respective bar by means of the cord 12. The cords 12 are one for each of the pins 11 and are, in turn, secured to the bars 4 and 5, to which the pin belongs. The pins 11 are adapted to lock the sections of the bars 4 and 5 in the desired positions, and this is effected by means of the openings 13, formed in the two sections of the bars and capable of registering so as to receive the pin. By these means the sections of the bars 4 and 5 may be held immovably in the proper position. Since the openings 13 extend throughout the length of the bars 4 and 5, it follows that the bars may be adjusted at any point along their lengths. Located in the passages 3 of the corner beams 1 are the extensible bars 14, which are two in number and which are applied one to one pair of the corner beams and one to the other.

The passages 3 of the beams 1 are arranged in transverse alignment in each front and rear pair, thus permitting one of the bars 14 to fit in the slots of one pair, while the remaining bar fits in the slots of the remaining pair. The bars 14 are formed of two duplicate sections having the yokes 15 fixed one to each

section and embracing the companion section, whereby the two sections are connected so as to be capable of sliding on each other, thereby increasing or diminishing the length of the bars.

Rigidly secured to the ends of each section of the bars 14 are the blocks 16, which operate to prevent the sections from moving too far in, and thereby becoming displaced. The bars 14 are adapted to move vertically in their respective passages 3, and to hold the bars at the desired positions the pins 17 are provided, and secured one to each of the beams 1 by means of the cords 18, fixed in turn to the upper ends of said beams.

19 indicates a series of vertically-aligned holes, which pass horizontally through the beams 1 and which are provided for the reception of the respective pins 17. By these means the bars 14 may be held at the proper height.

The mechanism for raising and lowering the bars 14 consists of a drum and pulley device for each bar; and each of these drums is mounted upon one of the beams 1, adjacent to the beam 14 with which it operates. This mounting is effected by means of the plates 20 which are formed of sheet metal and rigidly secured to the beams 1 at their ends.

21 indicates the drums; and these are revolubly journaled between the plates 20 and the beams 1, and are provided with a ratcheted periphery 22 operating with a pawl 23, whereby the drums are held at any position. Each of the drums 21 is divided into two sections by the circumferential rib 24, each section being designed for the reception of an elevating cord, as will better appear hereinafter.

25 indicates a crank for each of the drums 21, and these cranks project beyond their respective plates 20 so that they may be readily reached by the operator.

Fixed to one section of the drums 21 are the respective cords 26, which are passed upwardly from their drums and over the pulleys 28. The pulleys 28 are one for each of the cords 26, and are mounted upon the trunnions 29 of the rods 30. The rods 30 are, in turn, rockably mounted in grooves formed in the upper ends of the beams 1 to which they are secured; while the inner ends of the rods are held in place by plates 31 recessed to receive the rods and secured to the inner sides of the beams 1. It will be observed that the trunnions 29 are related to the rods 30 as a crank-arm, and that they, and consequently their attached pulleys, may swing in and out of the vertical line occupied by the bars 14 so as to permit said bars to be raised out of the slots or passages 3. From the pulleys 28 the cords 26 extend downwardly to the staples 32 of the ends of the bars 14, which ends are directly below the pulleys 28. By these means said ends of the bars 14 are connected to the drums 21, so that they may be raised or lowered at will.

Connected to the remaining sections of the drums 21 are the cords 27, each of which extends horizontally and toward the opposite side of the scaffold, where they pass over pulleys 33 and thence up to pulleys 34, fixed to the rocking rods 35 of the adjacent beams 1. These rods 35 are similar to the rods 30 and have the same effect upon the pulleys 34 as the rods 30 have upon the pulleys 28. From the pulleys 34 the cords 27 extend downwardly to the staples 36, of the adjacent ends of the bars 14. By these means the remaining ends of the bars 14 are connected to the drums 21 so as to move in unison with the first ends. Thus, when it is desired to raise the bars 14, all that will be necessary is to operate the drums 21, which will wind the cords 26 and 27 over their respective drums and raise the bars, as will be understood.

37 indicates a series of foot steps, which are arranged in vertical alignment on one of the beams 1, and which are provided to permit the operator to climb the beam in reaching the bars 14, which may have been elevated.

The cross-bars of Fig. 6 consist of two duplicate sections 38, each provided with the yokes 39, which are one for each section and which embrace the companion section, as the various other yokes with which the extensible bars of my scaffold are provided. Rigidly secured to each end of the cross-bars of Fig. 6, or to the outer end of each section thereof, are the U-shaped metallic plates 40, which are adapted to embrace or partially embrace the bars 14, and by that means connect the cross-bars of Fig. 6 to the bars 14. These cross-bars are useful when the scaffold is moved alongside of a building and when it is desired to make a platform for the mechanic to stand upon. In event of this, the cross-bars are stretched from one of the beams 14 to the other, and with their plates 40 embracing each beam. It will now be possible to lay boards across the cross-bars in the formation of a platform.

The use of my scaffold does not differ from that of prior devices, and therefore a detailed description is unnecessary. It will suffice for me to say that to raise the scaffold the drums 21 should be operated to raise the bars 14, which will make the platform as high as the operator may desire it. On the other hand, to enlarge the scaffold, the bars 4 and 5 may be extended or drawn out and the corner beams 1 moved away from each other. It will be observed that during this adjustment the bars 14 will move in unison and will not be effected by changes in the size of the scaffold.

The modification of Fig. 7 consists in the substitution of chains 41 for the ropes 26 and 27, and in this event the staples 32 and 36 are substituted by the hooks 42, which will permit adjusting the chains at any point along their lengths. This adjustment of the chains as well as of the ropes becomes necessary when the size of the scaffold has been changed

by extending the bars 4 and 5. When the scaffold has been extended, it will be necessary to make the ropes or chains longer; and when contracted, the ropes or chains should be shorter.

Various changes in the size, proportion and arrangement of the parts of my invention may be resorted to without departing from the substance thereof. Therefore I desire it understood that I am not restricted to the precise construction here shown, but am entitled to all such variations as come within the above definition.

Having thus described the invention, I claim—

1. A scaffold comprising in its construction the combination of four vertical corner beams having longitudinal slots in their upper ends, each pair of said slots being in alignment with each other, extensible bars rigidly secured to the beams whereby they are joined to each other and made capable of being extended or contracted, an extensible bar arranged in each pair of aligned slots in the corner beams and movable vertically therein, two drums respectively mounted on a corner beam adjacent to each of the vertically-movable bars, and cords connected to the drums and connected to their respective vertically-movable bars, substantially as described.

2. In a scaffold, the combination of two vertical beams having their upper ends slotted or bifurcated, a bar located in the slots and movable vertically therein, a drum, cords connected to the drum and to the bar, a pulley mounted at the top of each beam and rockable on swinging trunnions upon which the pulleys are respectively mounted so as to make them capable of swinging in and out of alignment with the bar, 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.

THOMAS W. his × mark COOPER.

Witnesses:
F. M. SMITH,
JOHN D. MARKER.