

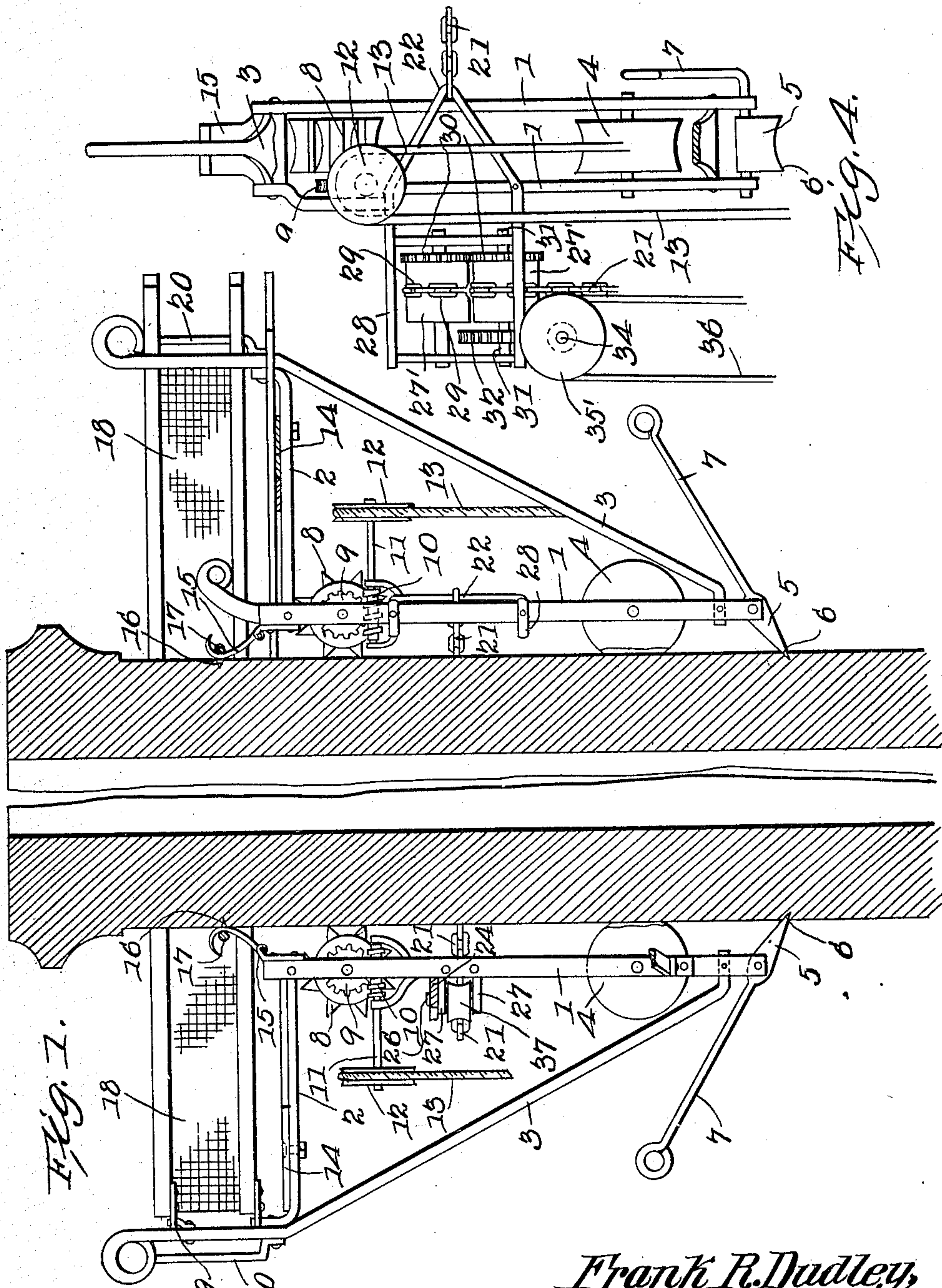
No. 860,359.

PATENTED JULY 16, 1907.

F. R. DUDLEY.
SCAFFOLD.

APPLICATION FILED MAY 16, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

E. J. Stewart
Wm. L. Smith

Frank R. Dudley,
INVENTOR.

By *C. A. Snow & Co.*
ATTORNEYS

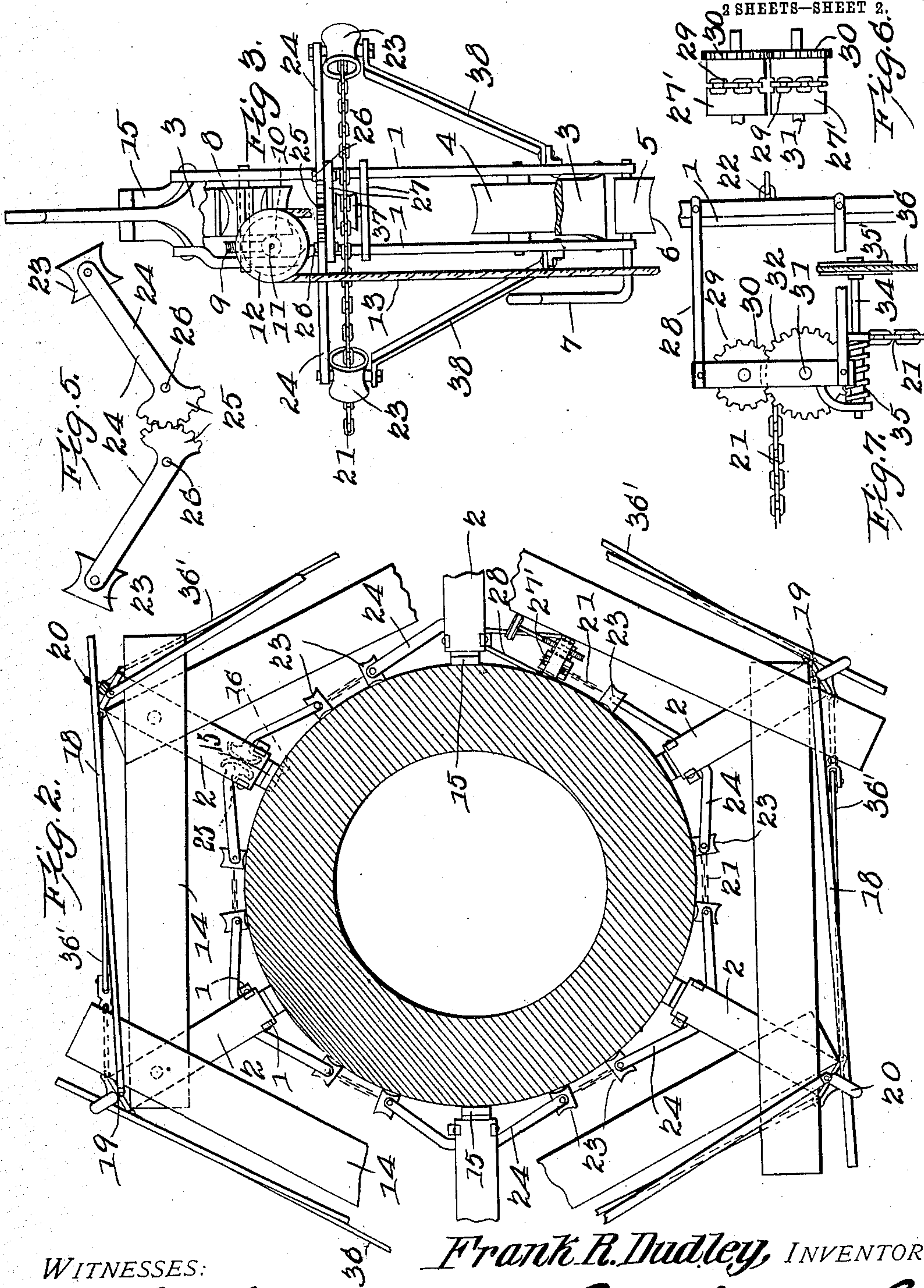
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UNITED STATES PATENT OFFICE.

FRANK R. DUDLEY, OF FITCHBURG, MASSACHUSETTS.

SCAFFOLD.

No. 860,359.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed May 15, 1906. Serial No. 316,982.

To all whom it may concern:

Be it known that I, FRANK R. DUDLEY, a citizen of the United States, residing at Fitchburg, in the county of Worcester and State of Massachusetts, have invented a new and useful Scaffold, of which the following is a specification.

This invention has relation to movable scaffolds and it consists in the novel construction and arrangements of its parts as hereinafter shown and described.

10 The object of the invention is to provide a scaffold adapted to be used for ascending and descending the exterior walls of chimneys, spires, monuments or other structures having precipitous walls. To cause the scaffold to ascend or descend, the operator remains upon the ground and the apparatus is provided with such operating means as to enable the operator to adjust the position of the scaffold upon the structure to a nicety.

20 The scaffold consists of a number of sections provided with frictional contact wheels or spurs which are adapted to engage the walls of the structure. The said sections are lashed together by a binding chain which passes horizontally around the structure and which is provided with means whereby its slack in making the loop around the structure is taken up by the operator upon the ground. Suitable means is also provided for rotating the friction spurs or wheels in either direction. This rotating means is also operated from the ground.

30 The invention also embraces other features the advantages of which will be hereinafter pointed out.

In the accompanying drawing:—Figure 1 is a vertical sectional view of a stack showing vertical planetary views of the scaffold sections applied thereto. 35 Fig. 2 is a horizontal sectional view of the stack showing the movable scaffold applied thereto. Fig. 3 is an edge elevation of one of the scaffold sections. Fig. 4 is an edge elevation of another scaffold section. Fig. 5 is a top plan view of arms having rings adapted to act as guides for the lashing chain. 40 Fig. 6 is a top plan view of a pair of rollers between which the lashing chain is adapted to pass. Fig. 7 is a side elevation of a frame for supporting said rollers.

Each of the scaffold sections is provided with the 45 uprights 1, 1 to the upper ends of which are fixed the horizontal pieces 2, the braces 3 connecting the outer ends of the horizontal pieces 2 with the lower ends of the uprights 1. The wheel 4 is journaled between the uprights 1 near the lower ends of the same. The 50 spur 5 is fulcrumed at the lower ends of the uprights 1 and below the journal point of the wheel 4, said spurs are provided with the pointed or sharpened end 6 and the operating end 7. The friction or spur wheels 8 are journaled between the uprights 1 near the upper 55 ends thereof and to the side of the said wheel 8 is attached the gear wheel 9. The worm gear 10 meshes

with the said gear wheel 9 and to the outer end of the shaft 11 thereof is fixed the pulley 12. The rope 13 passes around the said pulley 12. The plank 14 is attached to the horizontal piece 2 and to the extreme 60 upper ends of the uprights 1 is attached the hook 15 which is provided on its under face with the spurs 16. The rope 17 is adapted to pass around the chimney and the hooks 15 and lash the same so that the spurs 16 are held in frictional contact with the chimney. 65 Each scaffold section is provided with a balustrade 18 which is adapted to extend across the chimney to the next adjacent scaffold section. Said balustrade is fixed at one end 19 to one of the scaffold sections and at its other end passes through a loop 20 70 provided on the next adjacent scaffold section. Thus it will be seen that as the scaffold ascends a chimney and the sections gradually come together that the free end of the balustrade 18 may work in and out of the eye 20 and thus compensate for the varying diameter of the stack or structure. 75

In so far as has been described, all of the scaffold sections are of the same construction there is one section however which is provided with a means for taking up the slack in the lashing chain. The said lashing chain 80 21 is fixed at one end to the eye 22 of the said odd scaffold section. The chain 21 then passes around the stack being located in the guides 23, 23. The said guides are held by the arms 24. The inner ends of said arms 24 are provided with gear segments 25, 25 85 which intermesh. The said arms 24 are pivoted at the points 26, 26 to the plates 27, 27 attached to the uprights 1. It is understood that the arms 24 and their attachments are provided only on the ordinary scaffold sections and not upon the odd scaffold section 90 above alluded to. The chain 21 then passes between the rollers 27', 27', said rollers 27' being suitably journaled in the laterally extending arms of the frame 28 which is located upon the odd scaffold member. The said rollers 27' are provided in their peripheries with 95 the registering grooves 29 which are adapted to receive the links of the chain 21 and prevent the same from slipping between the rollers. Each roller 27' is provided at its edge with a gear disk 30, the disk of one roller intermeshing with the disk of the other and to the 100 shaft 31 of one of the said rollers 27' is fixed a gear wheel 32. The worm gear 35 meshes with the said gear wheel 32 and to the end of the shaft 34 carrying the said worm gear 33 is fixed a pulley 35' around which the rope 36 105 passes. The ropes 13 and 36 extend from the scaffold to the ground where they may be operated. To cause the scaffold to move vertically, the ropes 13 are operated which in turn rotate the pulleys 12 and the rotary motion is transmitted through shafts 11, worm gears 110 10 and gear wheels 9 to the spur gears 8. The spurs thereof being in frictional contact with the surface of the structure, the scaffold is raised or lowered accord-

ing to the direction in which the spur gears 8 are rotated.

When the scaffold is properly positioned upon the structure, the power ends 7 of the levers 5 are swung
5 down by gravity which forces the working ends 6 of the said levers in contact with the sides of the structure and elevates the wheels 4 off of the structure, the slack in the loop of the chain 21 having first been taken up. At the same time the lashing 17 is brought around the
10 stack and the hook 15 and the scaffold sections are thus firmly secured in place.

The operation of the means for taking up the slack in the loop of the chain 21 operates as follows:—The rope 36 is operated so as to rotate the pulley 35 together
15 with its shaft 34 and worm gear 33. This rotary motion is transmitted to the gear 31 and one of the rollers 27. As the said rollers 27 are connected together by the gear disks 30, 30, they rotate simultaneously and the chain 21 is drawn between the said rollers. As the
20 said chain is fixed at one end to the eye 22 carried by the odd scaffold section, the slack is taken up from the loop of the said chain about the structure. The scaffold sections are connected together by the tackle 36' (see Fig. 2) and by this means are kept at the proper
25 distance with relation to each other. The friction roller 37 is located beneath the segmental ends 25 of the arms 24 and is adapted to keep the chain 21 off of the uprights 1. The spurs upon the wheels 8 and at the shorter end 6 of the lever 5 are preferably curved
30 horizontally so that they will cut any joints of a square, octagon or round chimney. The outer ends of the arms 24 bear against the side of the chimney or structure and prevent the scaffold section from twisting sidewise on the structure. The rods 38, 38 are pivoted at their
35 lower ends to the uprights 1 and the rings 23 are pivoted between the upper ends of the rods 38 and the free ends of the arms 24.

In order to adapt the scaffold for use on all kinds of structures the spurs of the wheels 8 may be made re-
40 movable, and may be taken off and a tire of rubber or leather used instead. Thus the scaffold would not break the slate of a church steeple or other structure.

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

45 1. A movable scaffold consisting of sections adapted to be applied to the walls of a structure, a means for lashing said sections together, a spur wheel journaled to each sec-

tion and adapted to engage the structure, a roller journaled in vertical alinement with said spur wheel and also adapted to engage the wall of the structure, a means for
50 rotating said spur wheel and a lever fulcrumed to each section and adapted to engage the walls of the structure and lift the roller out of contact therewith.

2. A movable scaffold consisting of sections adapted to be applied to a structure, a means for lashing said sections
55 together, spur wheels attached to said sections and adapted to engage the structure, rollers journaled to said sections and also adapted to engage the walls of the structure, spur levers fulcrumed to said sections and having sharpened ends adapted to engage the walls of the struc-
60 ture and lift said rollers out of contact therewith, and a means for rotating said spur wheels.

3. A movable scaffold consisting of sections adapted to be applied to a structure, means for lashing said sec-
65 tions together, spur wheels journaled to said sections and adapted to engage the structure, rollers journaled to said sections and adapted to engage the walls of the structure, spur levers fulcrumed below said rollers and having sharp-
70 ened ends adapted to engage the wall of the structure, hooks fixed to the upper ends of the sections and having spurs adapted to engage the walls of the structure, and means for lashing said hooks to the structure.

4. A movable scaffold consisting of sections adapted to be applied to the walls of a structure, a means for moving
75 the scaffold, a means for lashing the sections together consisting of a chain fixed to one scaffold section and passing around the structure and parts of the remaining scaffold sections and passing between grooved rollers journaled upon the first said scaffold section, and a suitable means
80 for rotating the said rollers.

5. A movable scaffold consisting of sections adapted to be applied to the walls of a structure, a suitable operating means for accomplishing the movement thereon, a means
85 for lashing said sections together consisting of a flexible connection fixed at one end to one of the sections and passing around the structure, guiding rings attached to the other scaffold sections and receiving said flexible connection, and rollers fixed to the first said scaffold section and receiving between them said flexible connection, and a
90 means for rotating said rollers.

6. A movable scaffold consisting of sections adapted to be applied to the walls of a structure and means for ac-
95 complishing movement thereon, a means for lashing said sections together, a means for preventing said sections from twisting upon the walls of the structure consisting of arms pivoted to the sections and adapted to bear at their outer ends against the walls of the structure and having at their inner ends segmental gears which intermesh.

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

FRANK R. DUDLEY.

Two witnesses:

CHARLES S. DUDLEY,
ELLA M. DUDLEY.