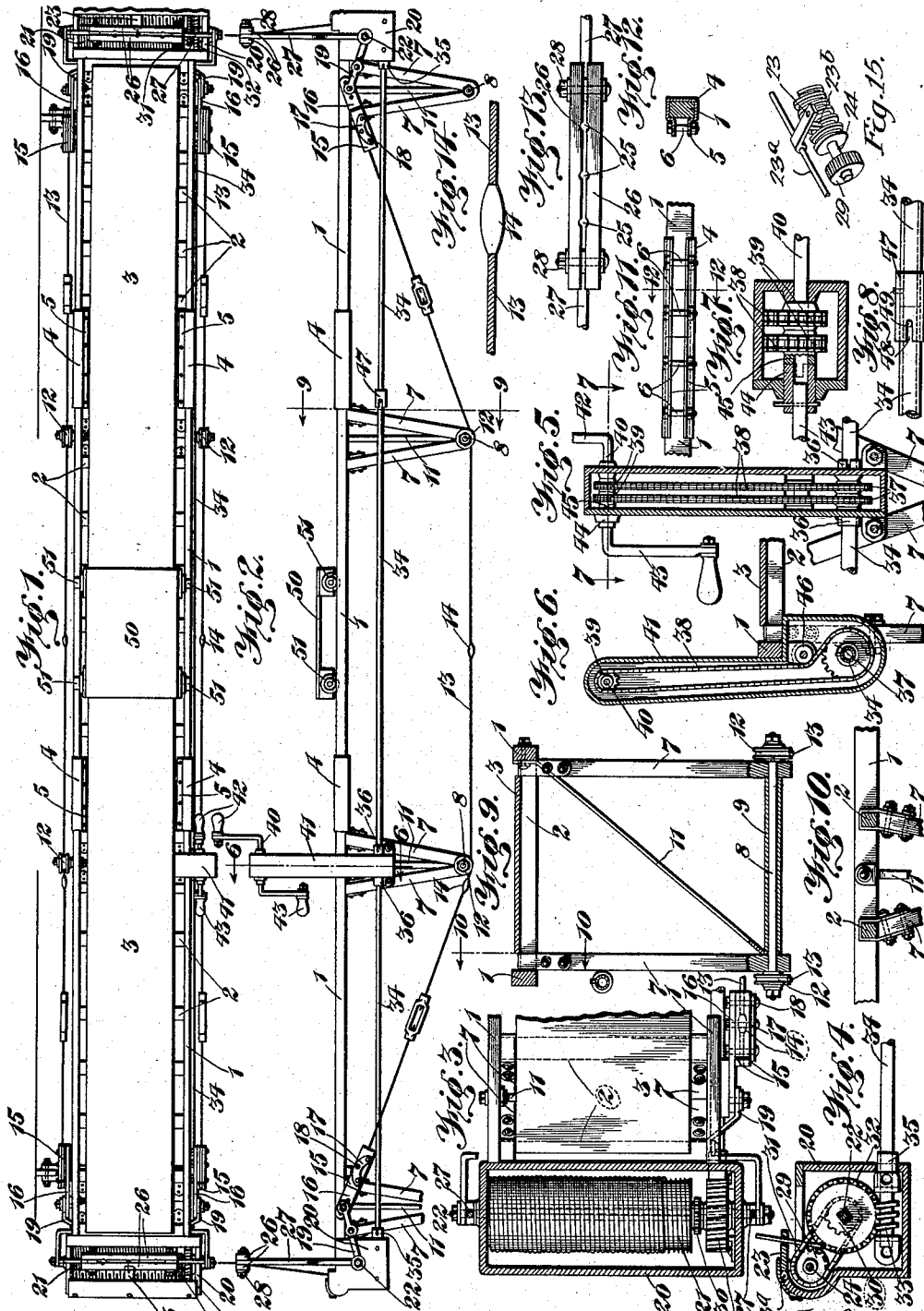


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SCAFFOLD.

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1,168,436.

Patented Jan. 18, 1916.



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# UNITED STATES PATENT OFFICE.

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## SCAFFOLD.

1,168,436.

Specification of Letters Patent.

Patented Jan. 18, 1916.

Application filed May 3, 1915. Serial No. 25,593.

*To all whom it may concern:*

Be it known that I, AUGUST STELZER, a citizen of the United States, residing at the city of St. Louis, Missouri, have invented a new and useful Scaffold, of which the following is a specification.

This invention relates to scaffolds.

An object of the invention is to provide an improved scaffold composed of one or more scaffold units, and improved manipulative mechanism in connection with the scaffold for winding and unwinding the supporting ropes so that the scaffold may be conveniently raised or lowered by the person upon the scaffold.

Another object is to provide an improved scaffold composed of a number of detachable sections having improved separable connecting devices whereby the sections may be conveniently assembled or detached, in combination with mechanism for raising and lowering the scaffold and comprising shafts revolubly supported below the scaffold sections and manipulative mechanism for operating said shafts concurrently or independently as desired.

Various other objects will appear from the following description, without the necessity of specific mention thereof, so that in mentioning some of the objects of the invention I do not limit myself, but I intend to include within the scope of the appended claims all novel subject matter in the invention.

In the accompanying drawings in which I have illustrated a preferred embodiment of the invention Figure 1 is a plan view. Fig. 2 is a side elevation. Fig. 3 is an enlarged detailed view illustrating a part of the rope winding mechanism. Fig. 4 is a vertical section illustrating a part of the rope winding mechanism. Fig. 5 is a detail view illustrating the operating connections for the rope winding mechanism. Fig. 6 is a view further illustrating the operating connections. Fig. 7 also illustrates details of the operating connections. Fig. 8 is a view illustrating the coupling by which the units of the operating shafts are connected. Fig. 9 is a detail view illustrating a part of the bracing struts by which the tensioning devices of the scaffold are supported. Fig. 10 is a detail sectional view illustrating the connection between the struts and the scaffold. Figs. 11 and 12 are detail views of the connecting devices by which the several

units of the scaffold are united. Fig. 13 is a plan view of one of the guide devices for the supporting ropes or wires. Fig. 14 is a detail sectional view illustrating the structure of the engageable enlargement on the truss rods by which the scaffold is strengthened and braced. Fig. 15 is a detail perspective view illustrating one of the guides by which the ropes or cables are caused to wind properly on the drums.

The scaffold includes one or more sections. When a single section is used the operating mechanism for raising and lowering the scaffold is, of course, mounted on opposite ends of the scaffold section, as will be hereinafter made apparent. When a number of sections are used, the outer ends of the end sections support the operating mechanism. Each section of the scaffold includes side members 1 which are connected by suitably spaced members 2, thus forming a frame adapted to support the platform 3. The abutting ends of the side members 1 are firmly united by coupling devices including clamp sockets 4 into which the abutting ends of the side members extend. The sockets 4 are composed of flexible metal, and have laterally extending flanges 5 through which the clamping devices 6 extend. When the ends of the members 1 are placed within the sockets 4 the clamping members 6 are tightened so as to engage the connecting devices firmly with the abutting ends of both frames. By this arrangement the scaffold may be made of any desired length.

Certain of the sections support struts consisting of side members 7 having their upper ends attached to the side members 1 of the frames, and their lower ends rigidly or integrally united. The members 7 on one side of the frame are connected with the members 7 at the opposite side of the frame by a rod or shaft 8 which is inclosed within a tubular member 9 between the lower ends of the member 7. A diagonal brace 11 has one end connected to the shaft 8 adjacent to one end thereof, and said brace extends diagonally upwardly and is connected to the side member 1 at the opposite side of the frame. Thus a very strong strut or frame is provided for supporting the shaft 8. The shaft 8 extends through the member 7 and supports at each end thereof a roller 12. A truss rod or wire 13 is supported against the series of rollers 12 at each side of the scaffold, the opposite and upper ends of said

truss rods being secured to the end sections of the scaffold, as illustrated in Fig. 2. The truss rods have secured thereto at intervals engageable bodies or enlargements 14, which may be of lead or other suitable material. The enlargements 14 are adapted to be clamped between the wood blocks 15, the latter being clamped together between an inner supporting member 16 and an outer clamping member 17. Releasable clamping bolts 18 are passed through the members 15, 16 and 17 and are utilized for the purpose of clamping and holding the ends of the truss rods. The bodies or enlargements 14 are positioned at such intervals that irrespective of the number of units in the scaffold certain of the bodies or enlargements will be engaged between the clamping members 15. Since the latter are composed of wood which will yield and form recesses for the bodies or enlargements 14 it is obvious that a very strong connection is effected. The supporting members 16 are pivotally connected to brackets 19 near the ends of the end sections of the scaffold.

The outer end of each of the end sections of the scaffold is rigidly connected to a housing 20, in which a windlass roll 21 is revolvably supported upon a rod or shaft 22.

The lower ends of the suspending ropes or cables are connected to the rolls 21, so that by operating said rolls the scaffold may be raised or lowered at the will of the operator.

The suspending rope or cable at each end of the scaffold passes through a guide 23 which is in the form of a plate slidably supported upon a rod 23<sup>a</sup> and having a depending projection 23<sup>b</sup> engaging the threads of the shaft 24. Thus when the shafts 24 at the ends of the scaffold are revolved the guides 23 will be moved laterally to conform to the windings of the rope or cable upon the windlass drums 21.

From the guides 23 the ropes extend through guide holes 25 in the bracket members 26 supported above the housings 20 by arms 27 whose lower ends are affixed to the shaft 22. The rope or cable may be passed through any one of the holes 25, since the members 26 are separably held together by bolts 28, so that by releasing the bolts 28 the suspending ropes may be moved to any selected ones of the holes 25.

The shaft 24 has a sprocket wheel 29 which is connected with a sprocket wheel 30 on the shaft 22 by a chain 31, so that the shaft 24 will be driven by the shaft 22. A worm gear 32 is attached to each of the shafts 22, and said gears mesh with worms 33 on the outer ends of the independently revoluble shafts 34. Thus, by revolving either of the shafts 34 individually either end of the scaffold may be raised or lowered, and by revolving said shafts jointly both ends of the scaffold may concurrently be

raised or lowered. The shafts 34 are journaled in bearings 35 supported by the housings 20, and the inner ends of said shafts are journaled in independent bearings 36. The inner end of each of the shafts 34 is equipped with a sprocket wheel 37. Each sprocket wheel 37 is driven by an independently operable chain 38 passing around the sprocket wheels 37 and around the driving sprockets 39. The sprockets 39 are supported on a shaft 40 at the upper end of a housing 41, one of said sprockets 39 being fixed to the shaft and the other being loose upon the shaft. The shaft may be rotated by a crank 42 in connection with said shaft, thus operating the sprocket 39 which is rigid on the shaft. Also, the loosely mounted sprocket may be independently operated by a crank 43 having a clutch member 44 in engagement with a clutch member 45 integral with the hub of the loosely mounted sprocket wheel. By operating both of the cranks 42 and 43 together both of the shafts 34 will be simultaneously rotated, thus enabling the operator to raise or lower both ends of the scaffold at his option. Also either of the cranks may be independently operated thus raising or lowering one end of the scaffold independently of the opposite end. The sprocket chains 38 operate against idle rollers 46 supported between the wheels 37 and 39.

The shafts 34 are preferably arranged in separable sections so that they may be extended or reduced in length as the scaffold is extended or reduced in length. The abutting ends of the shaft sections are connected by sleeves 47 adapted to pass on to the ends of the shafts 34 and having slots 48 adapted to form interlocked engagement with pins 49 on the shafts 34, so that one section of the shaft 34 will thus drive the connected sections.

The side members 1 of the scaffold may be utilized as rails for the wheels of a movable seat 50. The seat 50 is supported upon a small truck including the flanged wheels or rollers 51 which operate upon the upper edges of the side members 1 of the scaffold, the flanges of the wheels operating against the inner surfaces of the side members and thus preventing derailment of the seat. Thus the operator is enabled to move himself along the scaffold without the necessity of rising.

The arrangement of the worm 33 with respect to the worm gears 32 is such that the device will be supported with very considerable weight thereon, without the necessity of any independent latching or locking device to prevent unwinding of the windlass rolls. Indeed, as the weight is increased the frictional engagement between the worms and the worm gears also increases, so that there is no possibility of accident by

the scaffold dropping, due to the unwinding of the supporting ropes.

It will be understood that I do not restrict myself to specific features of construction, but

What I claim and desire to secure by Letters Patent is:

1. A scaffold comprising a number of detachably united platforms, a revoluble roll supported transversely at each end of the scaffold and in substantially the same horizontal plane therewith, a bracket at each end of the scaffold above the rolls respectively, a single suspending rope at each end of the scaffold having its lower end connected to the corresponding roll, said ropes being guided by said brackets, two independently revoluble shafts extending longitudinally of the scaffold toward the center thereof for operating said rolls, and independent actuating connections for actuating said shafts independently of each other.

2. A scaffold comprising a platform, a revoluble roll at each end of said platform in substantially the same horizontal plane therewith, a rope arranged to wind on each roll to suspend the platform, a bracket above each roll through which the rope extends, two longitudinal shafts supported by the platform, gearing connecting said shafts with said rolls, respectively, and mechanism for revolving said shafts independently of each other.

3. A scaffold comprising a platform, a revoluble roll supported transversely at each end of the platform in substantially the same horizontal plane therewith, two independently revoluble shafts for revolving said rolls independently of each other, a support intermediate of said rolls, a device in said support for operating one of said

shafts independently of the other, an additional device in said support for operating the other of said shafts independently of the one previously mentioned, a single rope connected to and arranged to wind on each roll, a rigid guide bracket for the rope above the roll, and a movable guide for the rope adjacent to each roll.

4. A scaffold comprising a platform, a roll supported at each end of the platform in substantially the same horizontal plane therewith, two independently revoluble longitudinal shafts for revolving said rolls independently of each other, gear devices entraining said shafts with said rolls, respectively, mechanism intermediate of said rolls for operating said shafts independently or concurrently as desired, a single suspending rope connected with each roll, a rigid guide bracket for the rope above each roll.

5. A scaffold comprising a platform, a roll at each end of said platform in substantially the same horizontal plane therewith, longitudinal shafts geared with said rolls, means for operating said longitudinal shafts effectively to revolve said rolls to wind or to unwind the supporting ropes, a single rope for suspending each end of the platform and connecting with the corresponding roll, guide brackets for the ropes above said rolls, and a device for guiding the winding of the rope on each of said rolls.

In witness whereof, I have signed this specification in the presence of two subscribing witnesses.

AUGUST STELZER.

Witnesses:

L. C. KINGSLAND,  
BERNIE M. WATSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."