C. M. HAYNES.

HANGING SCAFFOLD.

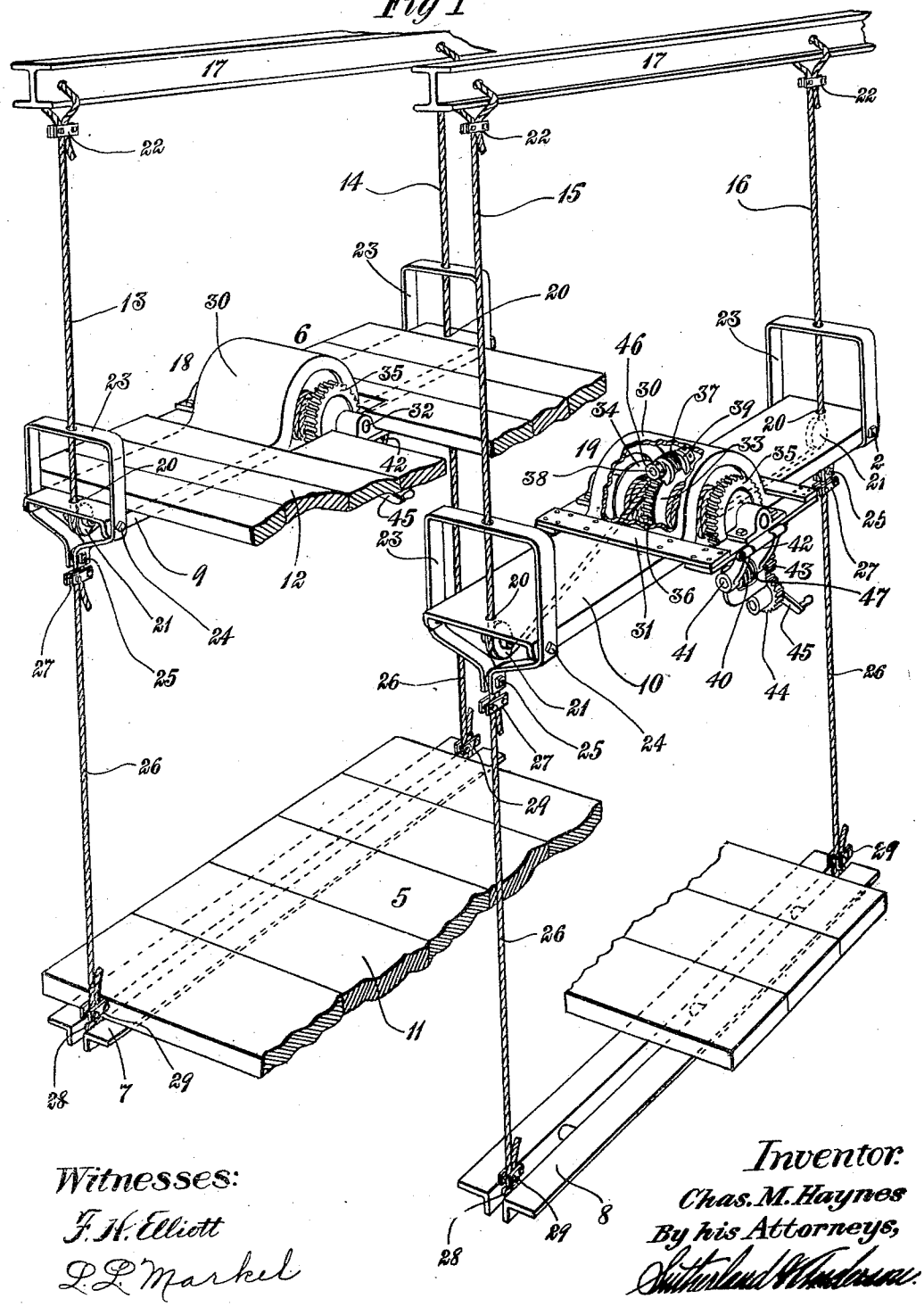
APPLICATION FILED OCT. 12, 1911.

1,085,607.

Patented Feb. 3, 1914.

2 SHEETS—SHEET 1.

Fig 1



Witnesses:

F. H. Elliott

L. L. Markel

Inventor.

Chas. M. Haynes

By his Attorneys,

Sutherland & Anderson.

C. M. HAYNES.

HANGING SCAFFOLD.

APPLICATION FILED OCT. 12, 1911.

1,085,607.

Patented Feb. 3, 1914.

2 SHEETS—SHEET 2.

Fig. 3.

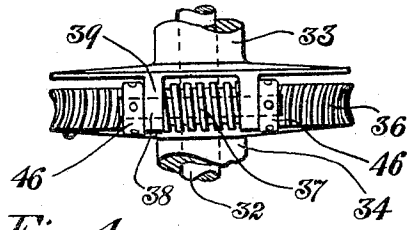


Fig. 2.

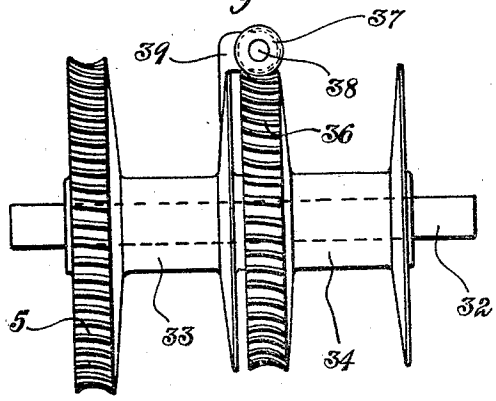
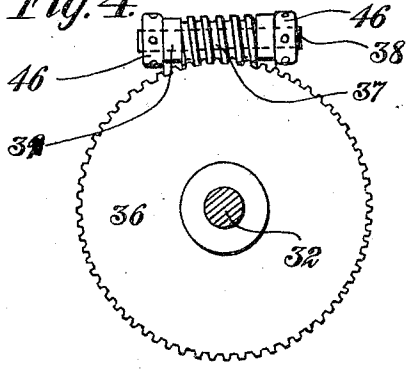


Fig. 4.



Witnesses:

F. H. Elliott.

L. L. Markel.

Inventor.

Chas. M. Haynes

By his Attorneys,

Sutherland & Ludlum.

UNITED STATES PATENT OFFICE.

CHARLES M. HAYNES, OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-HALF TO JOHN O'NEIL, OF NEW YORK, N. Y.

HANGING SCAFFOLD.

1,085,607. Specification of Letters Patent. Patented Feb. 3, 1914.

Application filed October 12, 1911. Serial No. 654,358.

To all whom it may concern:

Be it known that I, CHARLES M. HAYNES, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Hanging Scaffolds, of which the following is a specification.

This invention relates to hanging scaffolds, the object of the invention being to provide an effective apparatus of this character by which the workmen on the platform of the scaffold will be protected against injury from objects falling from above said platform, and by which several suspending cables may be operated simultaneously or in unison to raise or lower the scaffold in its entirety or any desired part thereof or whereby one or more of said cables may be operated independently of another or others to level the scaffold or some part thereof.

In the drawings accompanying and forming part of the present specification I have shown in detail one convenient form of embodiment of the invention which to enable those skilled in the art to practise the same will be set forth fully in the following description, while the novelty of the invention will be included in the claims succeeding said description.

Referring to said drawings: Figure 1 is a perspective view of a scaffold involving my invention. Fig. 2 is a detail view in elevation of reel mechanism, and, Figs. 3 and 4 are top plan and side elevations of said reel mechanism.

Like characters refer to like parts throughout the several figures of the drawings.

As will hereinafter appear I provide reel mechanism of a novel character by which the scaffold in its entirety or as a unit or some part thereof may be raised or lowered or by which one or more of the supporting cables for the scaffold may be operated independently of another or the remainder so as to level the platform supporting members or some similar part and as to details, this reel mechanism may vary radically; that is, it may be employed successfully with scaffolds of various structures, although a scaffold which is highly advantageous is illustrated in Fig. 1 of the drawings. This scaffold comprises in its make-up a platform structure 5 and a reel structure 6. The two structures may differ decidedly, although as illustrated the platform structure comprises a pair of parallel members 7 and 8, while the reel structure also comprises a pair of parallel members 9 and 10. The members 7 and 8 in the present case constitute platform supporting members, and they may be bridged by planks or boards as 11 to present a platform or deck upon which the workmen stand, while working at their respective trades. The members 9 and 10 are adapted to be crossed by boards or planks 12 which, if desired, may be lighter than the platform boards and which planks or boards 12 act as a roof or cover to effectually protect a workman standing upon the platform planking or boards 11, this being of especial advantage when it is remembered that articles are constantly falling from points above the platform and by protecting the workmen in the manner indicated, they cannot be injured by such falling objects.

While it is immaterial what form the members 9 and 10 take, they are represented as being channel beams or girders and the platform suspending cables 13, 14, 15 and 16 are directly associated therewith, these cables being connected with overhead beams or girders each denoted by 17 and which overhead beams or girders may be either within or out of the building. As a matter of fact the manner of supporting the platform is not a matter of consequence. These cables 13, 14, 15 and 16 in addition to supporting the platform also present a means in connection with reel mechanisms whereby the scaffold can be raised or lowered, and there are two of such reel mechanisms shown, being designated respectively in a general way by 18 and 19, the reel mechanism 18 being shown in detail in Figs. 2 to 4 inclusive.

A specific description of one of the reel mechanisms will apply to the other as they are duplicates, and this description will be hereinafter given.

At this time I might state that the cables 13 and 14 are windable upon the reel mechanism 18, while the cables 15 and 16 are similarly operative by the reel mechanism 19. In the present instance the several cables depend from the overhead beams 17 and extend through perforations as 20 near the ends of the beams or girders 9 and 10 and under guide sheaves as 21 located beneath

said perforations. The upper ends of the cables are passed through appropriate holes in the supporting beams 17, the free portions of the cables being clamped to the bodies thereof by means of clamps as 22.

It will be understood that by turning the reel mechanisms 18 and 19 as will hereinafter appear, in one direction the several described cables may be wound thereupon to elevate the scaffold, while by paying off the cables from said reel mechanisms, said scaffold can be lowered.

Situated near opposite ends of the two side members or beams 9 and 10 are yokes each denoted by 23, the upper cross bars of which are perforated, and through the perforations the several supporting cables pass. In the present instance the several yokes or bails 23 are pivotally supported, by virtue of which they can be folded down upon the respective beams 9 and 10 to thereby save space in storage or transportation. The pivots for this purpose are denoted in each instance by 24. The primary purpose of these yokes or bails 23 is to prevent the beams 9 and 10 from turning turtle. The sides of the yokes 23 are continued below the two beams 9 and 10 and converge, being connected below said beams by bolts or other pins 25, around which the sustaining cables 26 for the platform supporting structure are passed and held by clamps 27. The platform supporting members 7 and 8 are provided with bolts 28 around which the lower portions of said cables 26 are carried and held by clamps 29. It will, therefore, be clear that the platform supporting structure is flexibly supported by the reel mechanism carrier, so that when said reel mechanism carrier is raised or lowered, corresponding results will follow with respect to the platform structure.

Each side member or beam 9 is shown as arched as at 30 between the ends thereof and under the respective arches the reel mechanism is supported, being carried in the present instance by substantially rectangular frames as 31.

I will now describe in detail the reel mechanism 18, which is shown in detail in Figs. 2 to 4 inclusive, said reel mechanism being a counterpart of the one on the other side. The side bars of the supporting frame 31 have bearings to sustain the shaft 32 upon which are loosely mounted primary and secondary spools 33 and 34 respectively, which as will be understood, are coaxial, and although they are shown as supported by a common shaft, this is not essential. Said spools 33 and 34 as shown are in juxtaposition. Neither is it essential that I employ two spools. I may employ any other number depending upon the number of cables to be operated upon. These spools or drums are adapted to be operated simultaneously or one of them to be independently operated, and various means may be provided for securing these results. By operating all the spools together, the scaffold as a unit can be either raised or lowered, while by operating one or more spools or drums independent of the remainder, the platform supporting structure may be leveled, so that owing to this condition each reel mechanism performs a double office. The spool or drum 33 has rigidly connected therewith a worm gear 35, while the spool or drum 34 has a substantially similar worm gear 36 also rigidly connected therewith.

In mesh with the worm gear 36 is a worm 37, the shaft 38 of which is rigidly connected therewith and is supported by a bracket or bearing 39 upon the spool 33. The worm gear 35 is in mesh with the worm 40, the shaft 41 of which is sustained for rotation by a bracket 42 fastened to the under side of the frame 31. To said shaft is fastened a gear 43 in mesh with the companion gear 44, the shaft of which is provided with an operating device such as the hand crank 45. It will be clear that the worm 37 and the worm gear 38 normally lock together the two spools 33 and 34, so that when the spool 33 is turned through the primary influence of the hand crank 45 or otherwise, said spools 33 and 34 will be operated as one, by reason of which all four of the cables 13, 14, 15 and 16 can be either reeled onto or off the two sets of spools 33 and 34 simultaneously to accomplish which in the present instance, it is necessary to actuate the two cranks 45 or their equivalents at the same time or practically so. By rotating the shaft 38 the worm 37 will be turned so as to thereby operate the worm gear 36 and hence the spool 34 whereby said spool can in like manner either reel on or off its cable and by such individual operation of any one spool the leveling of the scaffold can be obtained. The worm shaft 38 is shown provided at its ends with duplicate fixed collars 46 having holes to receive an operating rod, bar or its equivalent by which said shaft 38 can be rotated.

In conclusion I desire to call attention to the fact that the primary operating elements for the reel mechanisms are situated below the reel carrying structure so that the workmen while on the platform or platform structure can readily operate the hereinbefore described hand cranks constituting in the construction illustrated such primary operating elements and this without any fear of being injured. Furthermore the worm carrying bracket 42 as shown in Fig. 1 may be swung on a pivot as 47 thereby permitting disengagement of the worm 40 and worm gear 35 so that the latter will be free to turn independently of the hand crank and interposed gears, to thus facilitate the rapid

unwinding of the cables while the scaffold rests on the ground and hence obtain sufficient cable lengths to reach from the drums or spools to the support 17. Automatic locking means may be provided to hold the bracket 42 in normal position with the gears 35 and 40 in mesh and against any possible accidental release thereof.

What I claim is:

1. A hanging scaffold combined with cables for supporting the same, reel mechanism comprising a plurality of spools for receiving the respective cables, and worm gearing, one spool being provided with one element of the worm gearing and another spool being provided with the other element of said worm gearing.

2. A hanging scaffold combined with cables for supporting the same, reel mechanism comprising a plurality of coaxial spools, for receiving the respective cables, a worm rotatively mounted upon one of the spools and revoluble therewith, and a worm gear carried by another spool and in mesh with said worm.

3. A hanging scaffold provided with reel mechanism comprising coaxial primary and secondary spools, a rotative worm supported by the primary spool for revolution therewith, a worm gear rigid with the secondary spool and in mesh with said worm, and worm gearing for rotating the primary spool and through the first mentioned worm gearing, said secondary spool.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES M. HAYNES.

Witnesses:

SAMUEL P. WATSON,
MARTHA M. DALY.