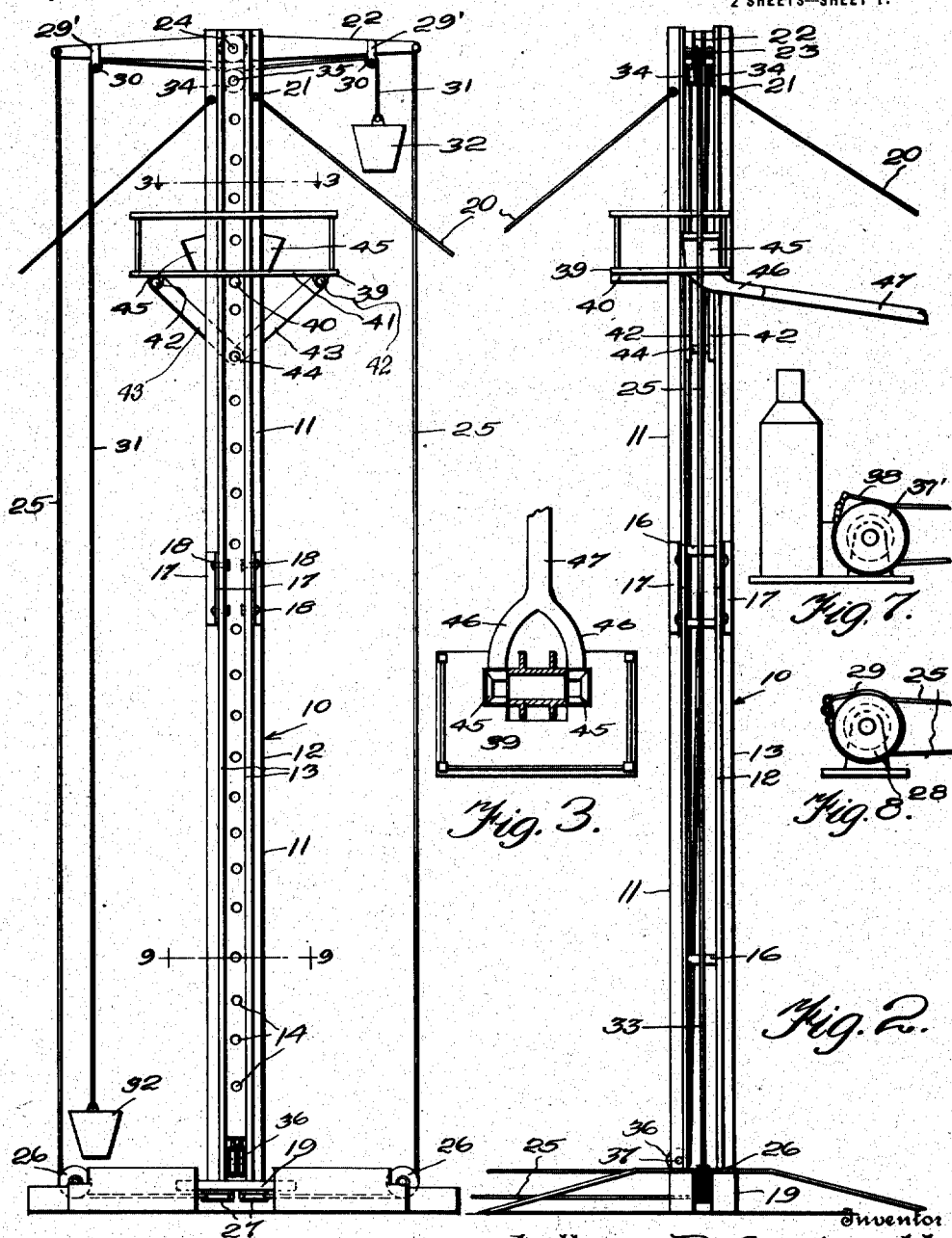


W. P. CANTWELL.
HOISTING MECHANISM.
APPLICATION FILED NOV. 7, 1917.

Patented Oct. 8, 1918.
2 SHEETS—SHEET 1.

1,280,660.



Witness
J. M. Lyle

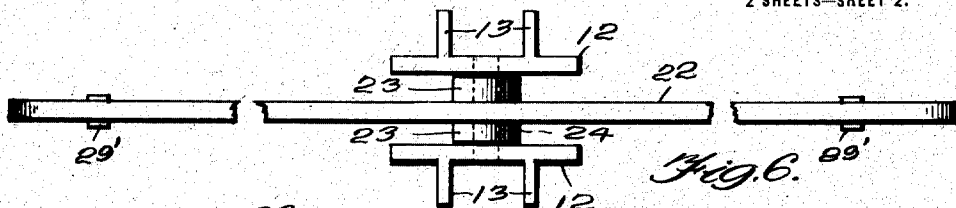
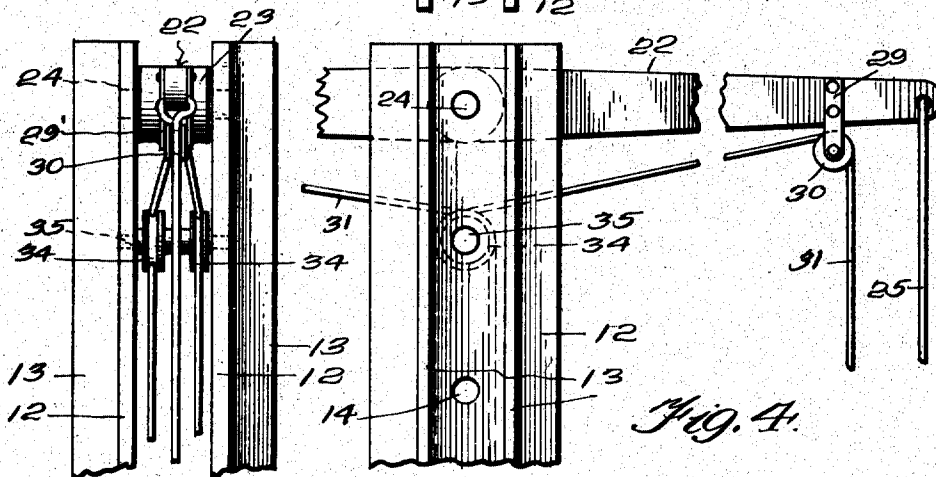
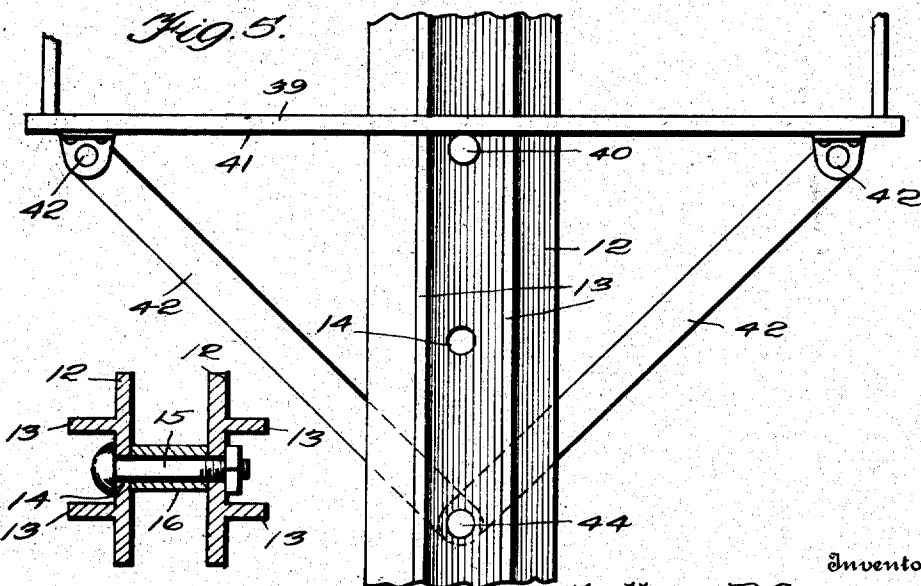
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Fig. 9.

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UNITED STATES PATENT OFFICE.

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HOISTING MECHANISM.

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Specification of Letters Patent.

Patented Oct. 8, 1918.

Application filed November 7, 1917. Serial No. 200,795.

To all whom it may concern:

Be it known that I, WILLIAM P. CANTWELL, a citizen of the United States, residing at Lima, in the county of Allen and State of Ohio, have invented certain new and useful Improvements in Hoisting Mechanism, of which the following is a specification.

My invention relates to hoisting apparatus for use in conveying material, in the construction of a house or building, while not necessarily restricted to this use.

As is well known, in the construction of tall buildings, it is customary to erect a tower, which must ordinarily extend above the top of the building. This tower is generally formed of wood or lumber and is expensive to construct. After the building is completed, the tower must be taken down or wrecked, which entails a further expense. It is found that the material of the tower is to a considerable extent destroyed or greatly injured by taking the same down. In connection with this form of tower, it is the common practice to operate a hoist or elevator, the same being moved by means of an engine.

My invention has for its object to provide a simple and strong supporting structure, adapted to take the place of the ordinary tower, the supporting structure being formed in sections which may be readily assembled and separated, without liability of injury to such parts.

A further object of the invention is to provide means whereby a bucket or buckets, containing the material to be elevated, may be raised to a desired height, in proximity to a platform or the like, without liability of injury to the platform and shifted laterally to discharge into a chute or the like, arranged near or at the platform.

A further object of the invention is to provide a supporting structure, so constructed that a platform or other support may be conveniently connected therewith, and arranged at desired heights.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like

numerals are employed to designate like parts throughout the same,

Figure 1 is a side elevation of apparatus embodying my invention,

Fig. 2 is an edge elevation of the same,

Fig. 3 is a horizontal sectional view taken on line 3—3 of Fig. 1,

Fig. 4 is an enlarged fragmentary side elevation of the upper portion of the apparatus,

Fig. 5 is an edge elevation of the same,

Fig. 6 is a plan view of the swinging beam,

Fig. 7 is a side elevation of a power operated drum to operate the hoisting buckets,

Fig. 8 is a similar view of a brake controlled drum for controlling the swinging movement of the pivoted beam, and,

Fig. 9 is a horizontal sectional view taken on line 9—9 of Fig. 1.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 10 designates the supporting structure, as a whole, which may be formed in a plurality of sections 11. Each section 11 comprises a pair of flat bars 12, preferably formed of steel or iron, and provided with outwardly extending reinforcing ribs or flanges 13. Between the flanges 13, the bars 12 are provided with pairs of vertically spaced openings 14. The bars 12 in each section 11 are connected between their ends by a transverse bolt 15, passing through a pair of the openings 14, and a spacing element or sleeve 16, as clearly shown in Fig. 9.

The upper section 11 is arranged upon the lower section 11, in end to end relation, and is securely bound thereto, by means of angle-iron straps 17, attached to the flanges and the bars 12 by means of bolts 18 or the like.

The lower ends of the lower section 11 is provided with a base 19, rigidly secured to the lower ends of the bars 12, and adapted to be employed in anchoring or securing the lowermost section 11 to a suitable foundation.

The numeral 20 designates guy-wires, attached to the upper portion of the upper section 11, as shown at 21, and to the ground, at suitable distance from the base 19. It is obvious that any suitable number of these guy-

wires may be employed, and there may be guy-wires used in connection with each section 11, if found advantageous.

The numeral 22 designates a swinging beam which, as shown in Fig. 6, is provided between its ends with apertured trunnions or spacing elements 23, for the reception of a pivot element or bolt 24, inserted in a transverse pair of openings 14, of the upper sections 11. It is to be understood that the swinging beam 22 is vertically adjustable and for this purpose the bolt 24 may be inserted in any selected pair of transverse openings 14, in either section 11, depending upon the height that it is desired to arrange the same.

Connected with the opposite ends of the beam 22 is a cable 25, extending downwardly to pass about grooved pulleys 26, which are suitably pivoted near and spaced from the foundation 19. The cable 25 is then passed about suitably pivoted horizontal grooved pulleys 27, and extends beyond the same to be wound upon a single drum 28, for a number of turns to prevent slipping thereon. The rotation of this drum is controlled by means of a brake 29, of any well known or preferred construction.

Connected with the swinging beam 22 inwardly of and near the ends thereof, are depending brackets 29', within which are pivoted grooved pulleys 30, having a cable 31, passed thereover. The free ends of this cable are connected with buckets 32 or other load holding apparatus. The cable 31 is extended inwardly beyond the grooved pulleys 30 and portions 33 of the cable are passed about grooved pulleys 34, shown more clearly in Fig. 5. These grooved pulleys are rotatable upon a bolt 35, passed through a pair of the openings 14. The portions 33 of the pulley then extend downwardly in a vertical direction between the bars 12 and are passed under vertical grooved pulleys 36, pivoted upon a transverse shaft 37 suitably connected with the lower ends of the lowermost bars 12. The portions 33 of the cable are then extended forwardly and are wound about a power driven drum 37' for a number of turns to prevent slipping. This drum may be driven by an ordinary steam engine or the like and is equipped with the usual brake mechanism 38, for stopping the drum.

Disposed near the uppermost section 11 of the support, at a desired vertical point, and preferably surrounding three sides thereof, is a railed platform 39, which has its longitudinal portion arranged upon and supported by a horizontal rod 40, passing through a pair of the openings 14. Pivoted to the transverse portions 41 of the platform 39, as shown at 42, are angularly arranged bars 43, the lower ends of which are

overlapped, apertured, and arranged between the bars 12, for the reception of a bolt 44, passed through two of the openings 14. It is obvious that the platform will be securely held to the support section 11 and that as the rod 40 and the bolt 44 can be readily removed from the openings 14, this platform may be vertically adjusted, and secured to the support section at any desired vertical position.

The numeral 45 designates a pair of hoppers, for the reception of concrete or the like, which are arranged near and above the platform 39, and secured to the bars 12, by any suitable means. These hoppers are connected with pipes 46, discharging into a common pipe or flue 47, which may be employed to convey or conduct the concrete or like material to any portion of the building under construction as is well known.

The operation of the apparatus is as follows:

With the parts of the apparatus arranged as shown in Fig. 1, the upper bucket 32 is loaded and is now ready to be dumped into the corresponding hopper 45. This being the case, the drum 28 is allowed to slowly turn or revolve, so that the swinging beam 22 may assume an inclined position, with its ends to the right arranged lowermost. This movement will cause the bucket 32 to the right to travel inwardly toward the hopper 45 to the right, whereby its contents may be conveniently emptied into this hopper. The drum 28 is now held against turning movement by the brake mechanism and the beam 22 is temporarily locked in the inclined position. When the upper bucket 32 is emptied and the lower bucket 32 is filled or being filled, upon the drum being slightly released, for gradual turning movement, the lower bucket will restore the beam 22 to the normal horizontal position, at which time the drum is again locked against turning movement thereby retaining the beam 22 in the horizontal position. The cable 31 is now moved in an opposite direction to elevate the bucket 32 to the left and lower the bucket 32 to the right, the bucket at the left moving outwardly of the platform 39 and not injuring the same. When the bucket to the left is in the upper position, the beam 22 is then swung in an opposite direction, to bring this bucket in proximity to its hopper 45 so that the contents thereof may be discharged into this hopper. The further operation of the apparatus is believed to be obvious and will therefore not be stated.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit

of the invention or the scope of the sub-joined claims.

Having thus described my invention, I claim:

1. In apparatus of the character described, the combination with a supporting structure; of a beam pivoted between its ends with the supporting structure and adapted to assume a normal approximately horizontal position; means to normally hold the beam in the approximately horizontal position, and to release the same so that its opposite ends may alternately assume lowered positions; and hoisting devices connected with the opposite end portions of the beam and adapted to alternately swing said ends to the lowered position.

2. In apparatus of the character described, the combination with a supporting structure; of a beam pivotally connected between its ends with the supporting structure and adapted to normally assume an approximately horizontal position; a cable connected with the end portions of the beam, to normally hold the beam in the approximately horizontal position, and to release the same so that its opposite ends may alternately assume lowered positions; a drum receiving the cable thereon to control its movement; and hoisting devices connected with the opposite end portions of the beam and adapted to alternately swing said end portions to lowered positions.

3. In apparatus of the character described, the combination with a supporting structure, of a beam pivotally connected with the supporting structure, a cable connected with the end portions of the beam, a drum receiving the cable thereon to control its movement, pulleys connected with the

end portions of the beam, a second cable passed about the pulleys, load holding apparatuses connected with the ends of the second cable, and a drum having the second cable wound thereon for controlling its movement.

4. In apparatus of the character described, the combination with a supporting structure, said supporting structure comprising spaced bars provided with vertically spaced pairs of openings; a transverse beam adapted for arrangement between the spaced bars; a pivot element connected with the beam and adapted for insertion in a selected pair of openings; means for controlling the swinging movement of the beam; and hoisting devices connected with the end portions of the beam.

5. In apparatus of the character described, the combination with a supporting structure, comprising spaced bars having vertically spaced pairs of openings; a transverse beam adapted for arrangement between the beams; a pivot element connected with the beam and adapted for insertion within a selected pair of openings; means to control the swinging movement of the beam; hoisting devices connected with the ends of the beam; a rod adapted for insertion within a selected pair of openings; a platform adapted to be supported by the rod; diagonal bars connected with the platform; a bolt connecting the corresponding ends of the diagonal bars and adapted for insertion within a selected pair of openings; and hoppers arranged near and above the platform and connected with the supporting structure.

In testimony whereof I affix my signature.

WILLIAM P. CANTWELL.

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