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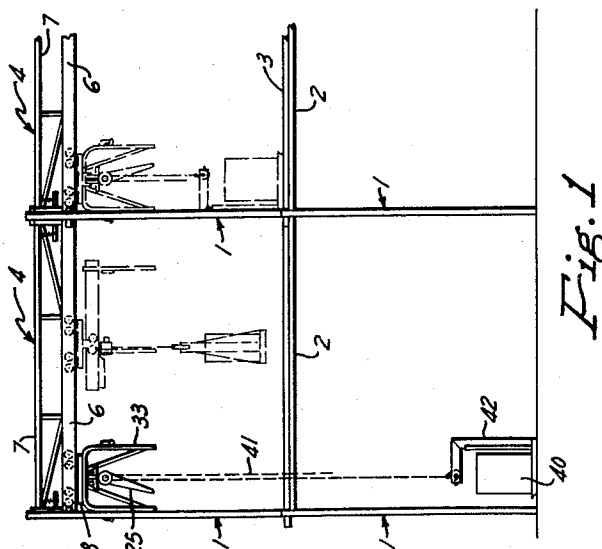
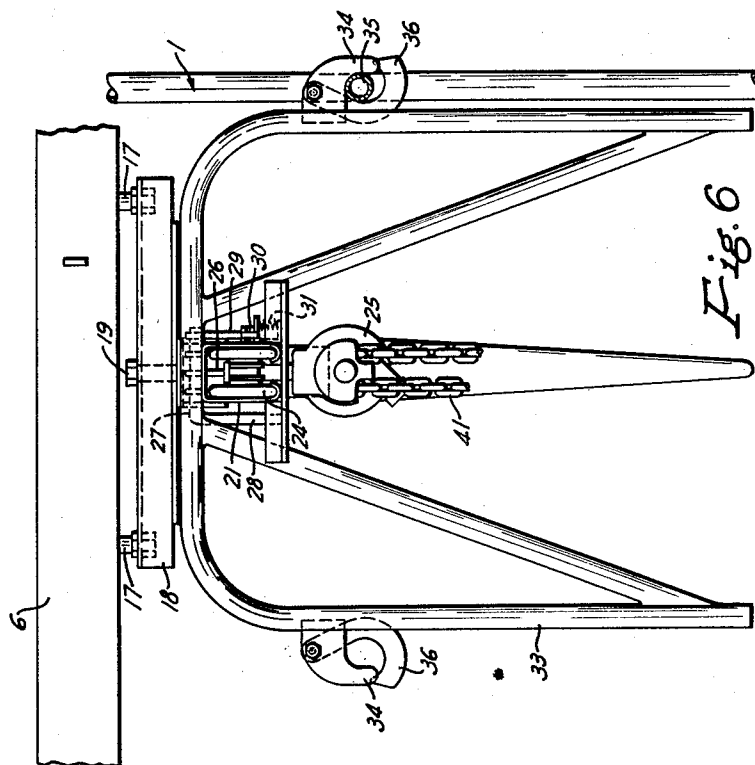
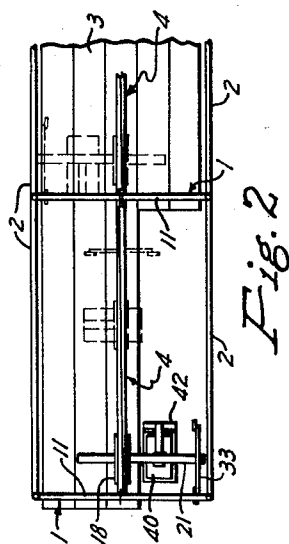
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SCAFFOLD MONORAIL CONVEYOR

Filed Dec. 3, 1957

3 Sheets-Sheet 1



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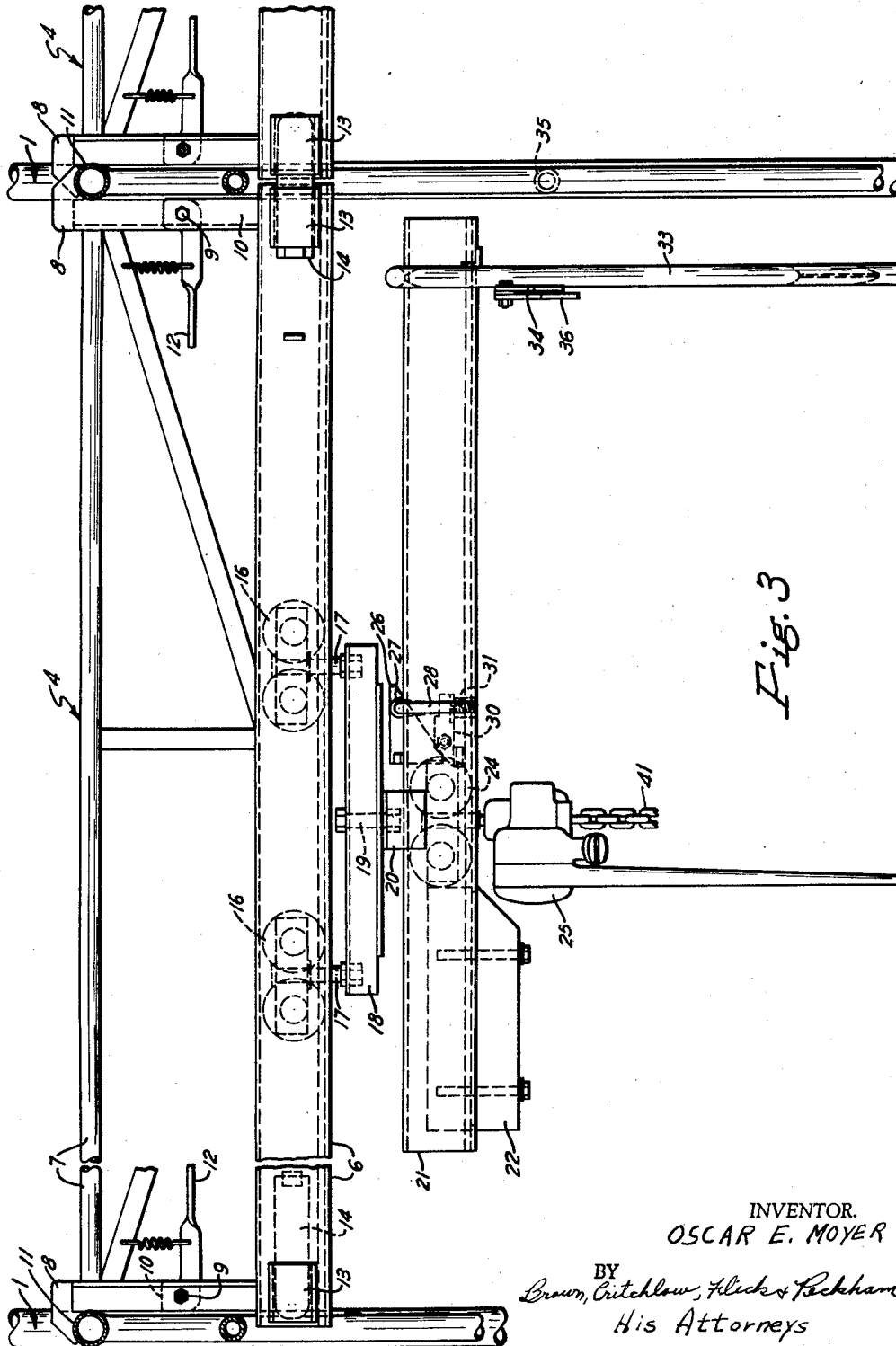
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3 Sheets-Sheet 2



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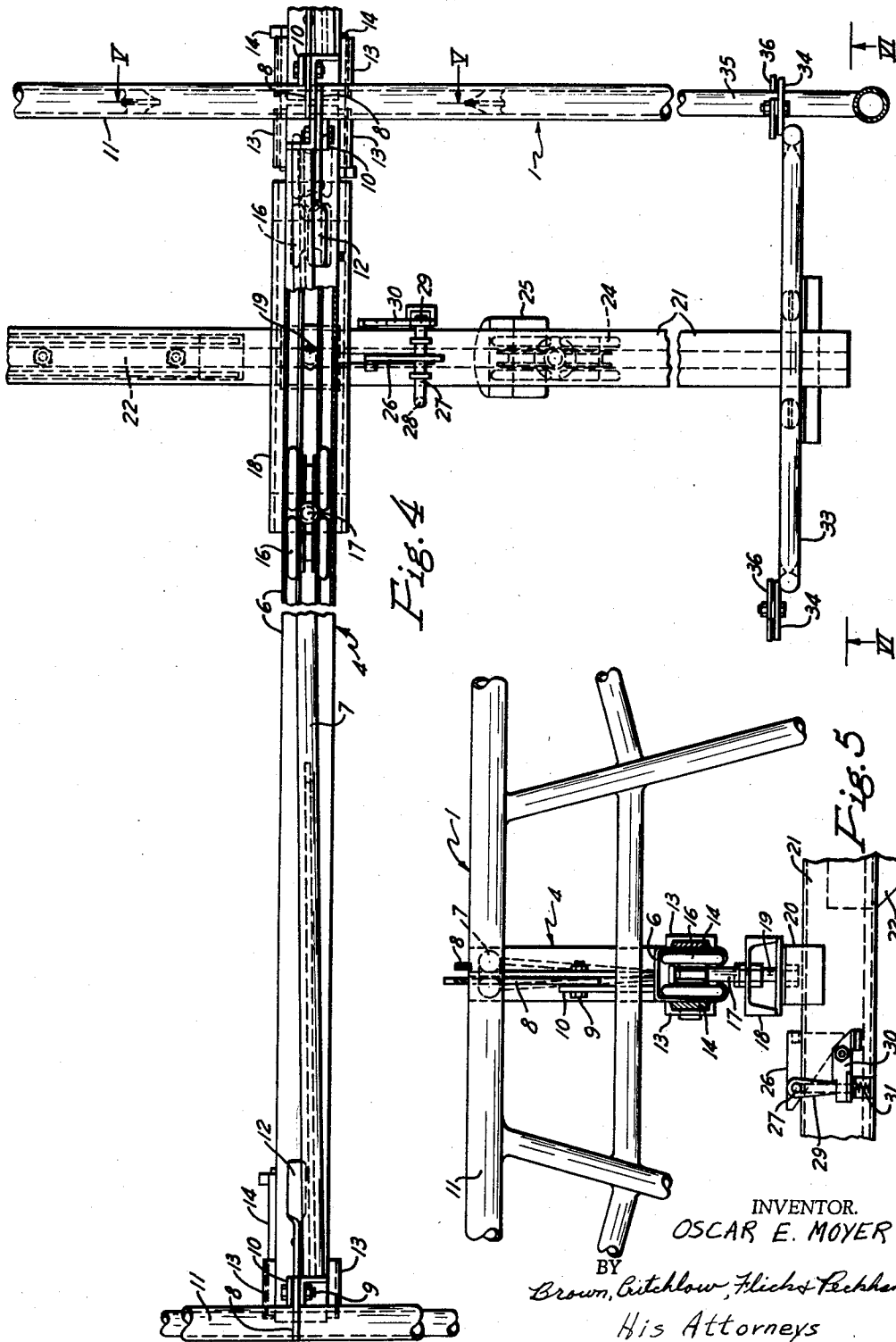
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SCAFFOLD MONORAIL CONVEYOR

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3 Sheets-Sheet 3



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2,912,121

SCAFFOLD MONORAIL CONVEYOR

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3 Claims. (Cl. 212—17)

This invention relates to monorail conveyors, and more particularly to one that is designed especially for use in a scaffold.

In erecting a building it is common practice to build a scaffold beside it, from which work on the building is carried on. To provide the workmen on the scaffold with the necessary building materials, an elevator may be placed beside the scaffold or a hoist mounted on the scaffold. In the first case the building material may be carried in wheelbarrows, which can be run along the scaffold platform to the desired working position after being removed from the elevator. If a hoist is used, the material will either have to be carried by workmen along the scaffold platform or be loaded into wheelbarrows on the platform.

It is among the objects of this invention to provide a conveyor which can be mounted inside of a scaffold, which can lift loads of material from the ground and deposit them on the scaffold platform, which can convey the material along the platform to any desired location, which is easy to assemble in the scaffold at any height, which is made from lightweight parts, and which is inexpensive.

In accordance with this invention, mounted in a scaffold is a track, preferably in sections that can be easily handled and hooked together. A trolley travels along the track and pivotally supports on a vertical axis a short movable rail below the track. A load-supporting member is suspended from the movable rail and is movable lengthwise of it. To normally retain the supporting member beneath the pivotal axis of the short rail, means are provided which are releasable to allow the supporting member to be moved toward one end of the rail after it has been turned at right angles to the track. The outer end of the movable rail is provided with means for supporting that end when the load-supporting member is near it. The supporting member includes a hoist which can lift building materials from the ground up into the scaffold, after which the load and the movable rail can be moved along the conveyor to the desired location.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which

Fig. 1 is a fragmentary side view of a scaffold equipped with my monorail conveyor;

Fig. 2 is a plan view thereof;

Fig. 3 is an enlarged side view of the conveyor;

Fig. 4 is an enlarged fragmentary plan view of the conveyor, with parts broken away in section and with the hoist in the right hand dotted line position shown in Fig. 2;

Fig. 5 is a fragmentary vertical section taken on the line V—V of Fig. 4; and

Fig. 6 is a fragmentary side view of the conveyor taken on the lines VI—VI of Fig. 4.

Referring to Figs. 1 and 2 of the drawings, a more or less conventional metal scaffold is shown, which is constructed at the job from prefabricated end frames 1 connected together by suitable braces 2. The scaffold con-

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tains a working platform 3 formed from planks laid across the end frames. Disposed in the upper part of the scaffold is a monorail conveyor having a stationary track extending lengthwise of the center of the scaffold.

5 The track is made in sections 4 that can be assembled end to end. The length of each section is substantially the same as the distance between a pair of adjacent end frames of the scaffold.

Each track section has a horizontal rail 6, which is 10 in the shape of an inverted channel with inturned lower edges as shown in Fig. 5. A truss 7 is secured to the top of the rail to stiffen it and to provide means for supporting it in the scaffold. Thus, at each end of the truss there is a vertical hook 8, the lower end of which is 15 connected by a pivot 9 to the end of the truss and to the upper end of a short bar 10 mounted on the rail. The upper end of the hook hooks over the upper cross member 11 of an adjoining end frame 1, and the lower end of the hook extends horizontally away from the end 20 frame to form a handle 12 for swinging the hook away from the supporting cross member. The ends of the rail are provided with sleeves 13, in two of which splice bars 14 are slidably mounted for insertion in the sleeves of adjoining rail sections to hold the sections in line.

25 The overhead track supports a trolley that has two sets of wheels 16 inside of the rail where they are supported by its lower inturned edges. Rods 17 extend down out of the rail from the trolley wheels and support a horizontal bar 18, from the center of which a pivot pin 19 extends downward. The lower end of the pin is pivotally 30 mounted in a bracket 20 secured to the top of a movable rail 21 that may be the same shape as the rail of the track. The movable rail extends in opposite directions away from the bracket. In one direction it extends far enough to locate its outer end near the side of the scaffold when the rail is turned at right angles to the track 35 above it, as shown in Figs. 2 and 4. The other end does not need to extend out so far, but only far enough to support a counterweight 22 for a purpose that will be described presently.

Traveling inside of the movable rail is a small trolley 40 24 which pivotally supports a load-supporting member, preferably a manually operable chain hoist 25, below the rail. As shown in Fig. 3, the hoist is normally maintained directly below the axis of rotation of the movable 45 rail by means of a releasable stop. One form of stop that may be used in a vertical triangular plate 26, which extends through a slot in the top of the rail and into a space between the front wheels of trolley 24. The opposite end of the plate above the rail is rigidly connected to a horizontal rod 27 pivotally mounted on top 50 of the rail. One end of the rod is bent down beside the rail to form a handle 28 that can be swung toward the trolley in order to swing the stop plate up out of the path of the trolley. Rigidly mounted on the other end 55 of the rod is a depending bar 29, the lower end of which normally engages the free end of the top of a latch 30 that is pivotally connected to the side of the rail. The latch is pressed up against the lower end of the bar by means of a coil spring 31. This holds the rod against accidental turning. It can only be turned after the latch has been swung down by hand to free the bar.

With the stop 26 out of the way, the hoist trolley can be moved toward the far end of the rail, but since its weight at that end would tilt the rail, means is provided 60 for supporting the outer end of the rail at such times. This can be done by mounting a frame 33 or the like on the outer end of the rail and providing its opposite sides with hooks 34 for hooking over a horizontal cross piece 35 in an adjoining end frame, of the scaffold, as 70 shown in Figs. 4 and 6. To lock the frame 33 to the end frame, a pivoted latch 36 may be connected to each

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hook. When the hoist trolley is in its inner position where it is held by stop 26, the counterweight 22 counterbalances the weight of frame 33 at the opposite end of the rail so that the rail will remain horizontal as it is moved back and forth along the track above it.

When it is desired to lift a load of bricks, concrete blocks or other building material onto the scaffold working platform, the trolley 18 and movable rail 21 are moved along the track to a point above the location of the load, which may be near one end of the scaffold as shown in Figs. 1 and 2. The planks forming the working platform will be omitted in this area. The movable rail then is swung around at right angles to the track to the position shown in full lines in Fig. 2. One of the hooks 34 is hooked over a cross piece 35 of the adjoining end frame to hold the rail level while the hoist 25 is moved out toward the frame 33 until it is directly over the load 40. The hoist chain 41 then is lowered and hooked onto a carrier 42 of any desired construction, which supports the load. The hoist is operated to lift the carrier and load above the scaffold platform. Then the hoist is pulled back along rail 21 to its inner position, where it is held by stop 26, and the frame 33 is unhooked from the scaffold end frame so that the rail can be swung back beneath the track. The next operation is to push trolley 18 along the track, as indicated in dotted lines in Figs. 1 and 2, until it reaches the area where the load is to be set down. At this point the rail again is swung around perpendicular to the track, and frame hook 34 is hooked onto an end frame as before. Stop 26 is released and the hoist is moved out along the rail to the desired point, whereupon the load is set down on the platform. This may be in the dotted line position shown at the right in Figs. 1 and 2. After the load has been deposited, the hoist is pushed back to its inner position below trolley 18, and the movable rail can be swung back beneath the track and returned to the loading position.

With this inexpensive conveyor, which also serves as a materials elevator, the track can be lengthened easily by adding sections as the scaffold is lengthened. The conveyor can pick up loads at any point along the scaffold and set them down on the working platform in any desired location. The entire conveyor is located within the boundaries of the scaffold. The use of wheelbarrows for carrying material from one point to another on the scaffold platform is eliminated. The entire conveyor is easy to assemble and remove, and the hoist can be moved along the track and the movable rail with little effort.

According to the provisions of the patent statutes, I have explained the principle of my invention and have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

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1. A scaffold monorail conveyor comprising a track, a trolley traveling along the track, a short movable rail below the track, pivot means connecting the movable rail to the trolley on a vertical axis to permit that rail to be turned relative to the track, a load supporting member suspended from the movable rail and movable lengthwise of it, a frame mounted transversely on one end of the movable rail, and means projecting from the side of said frame adapted to be supported by an adjacent portion of a scaffold for holding the rail substantially level and at an angle to the track while said load-supporting member is moved toward said end of the movable rail.

2. A scaffold monorail conveyor comprising a track, a trolley traveling along the track, a short movable rail below the track, pivot means connecting the movable rail to the trolley on a vertical axis to permit the rail to be turned relative to the track, a load-supporting member suspended from the movable rail and movable lengthwise of it, and means carried by one end of the movable rail for releasably engaging an adjacent portion of the scaffold to hold the rail substantially level after it has been turned crosswise of said track, whereby said end of the rail will not sag when said load-supporting member is moved toward it.

3. A scaffold monorail conveyor comprising a track, a trolley traveling along the track, a short movable rail below the track, pivot means connecting the movable rail to the trolley on a vertical axis to permit the rail to be turned relative to the track, a load-supporting member suspended from the movable rail and movable lengthwise of it, means normally retaining said member beneath said pivot means, said retaining means being releasable to allow said supporting member to be moved toward one end of the movable rail, a frame mounted on said end of the movable rail transversely thereof, and means projecting from the side of said frame adapted to be supported by an adjacent portion of a scaffold for holding the rail substantially level and at an angle to the track while said load-supporting member is moved toward said end of the movable rail.

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