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J. B. WEBB ET AL

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FLOOR TRUCK OVERHEAD CONVEYER DRIVE

Filed Aug. 14, 1948

2 SHEETS—SHEET 1

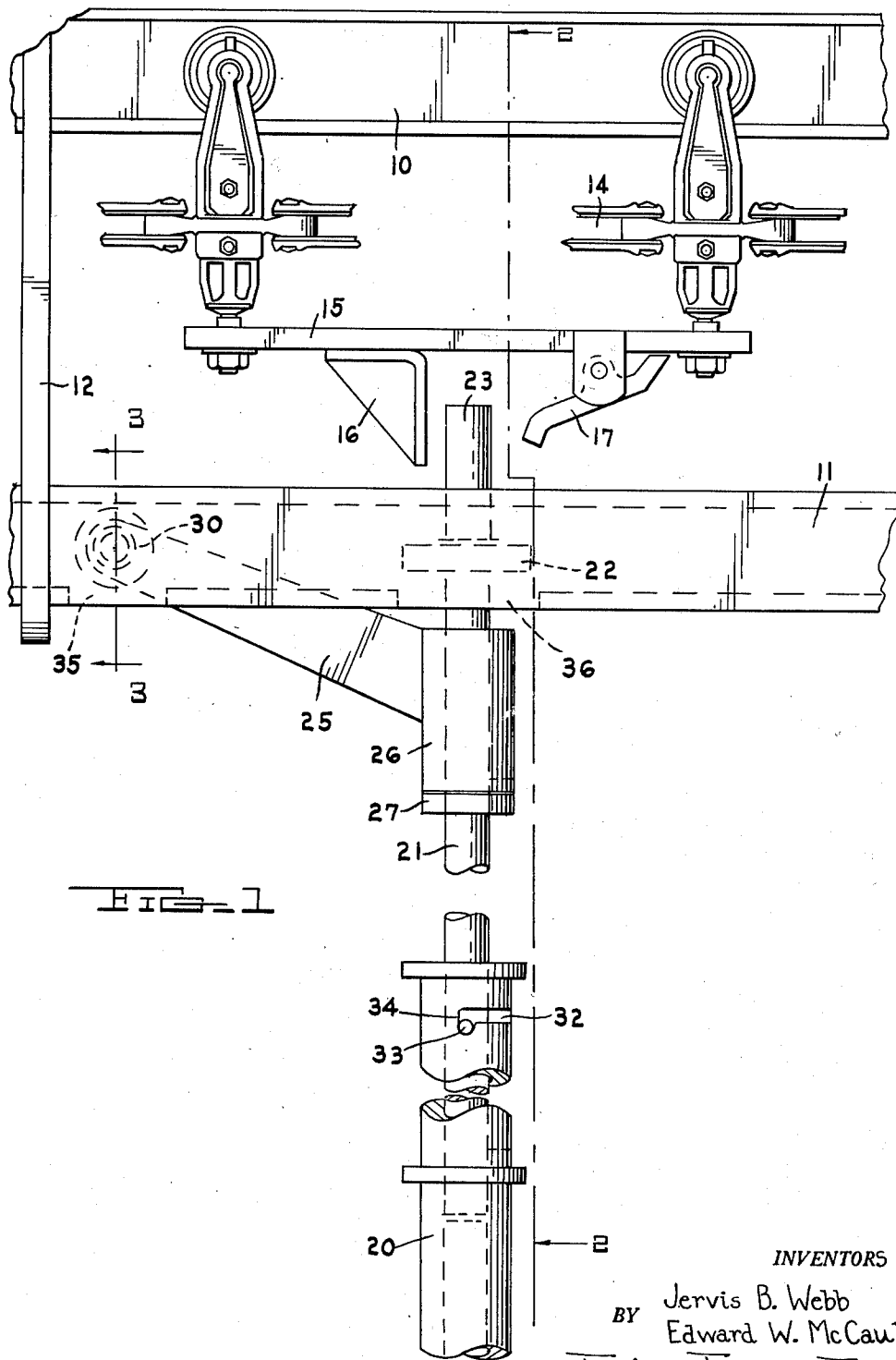


FIG. 1

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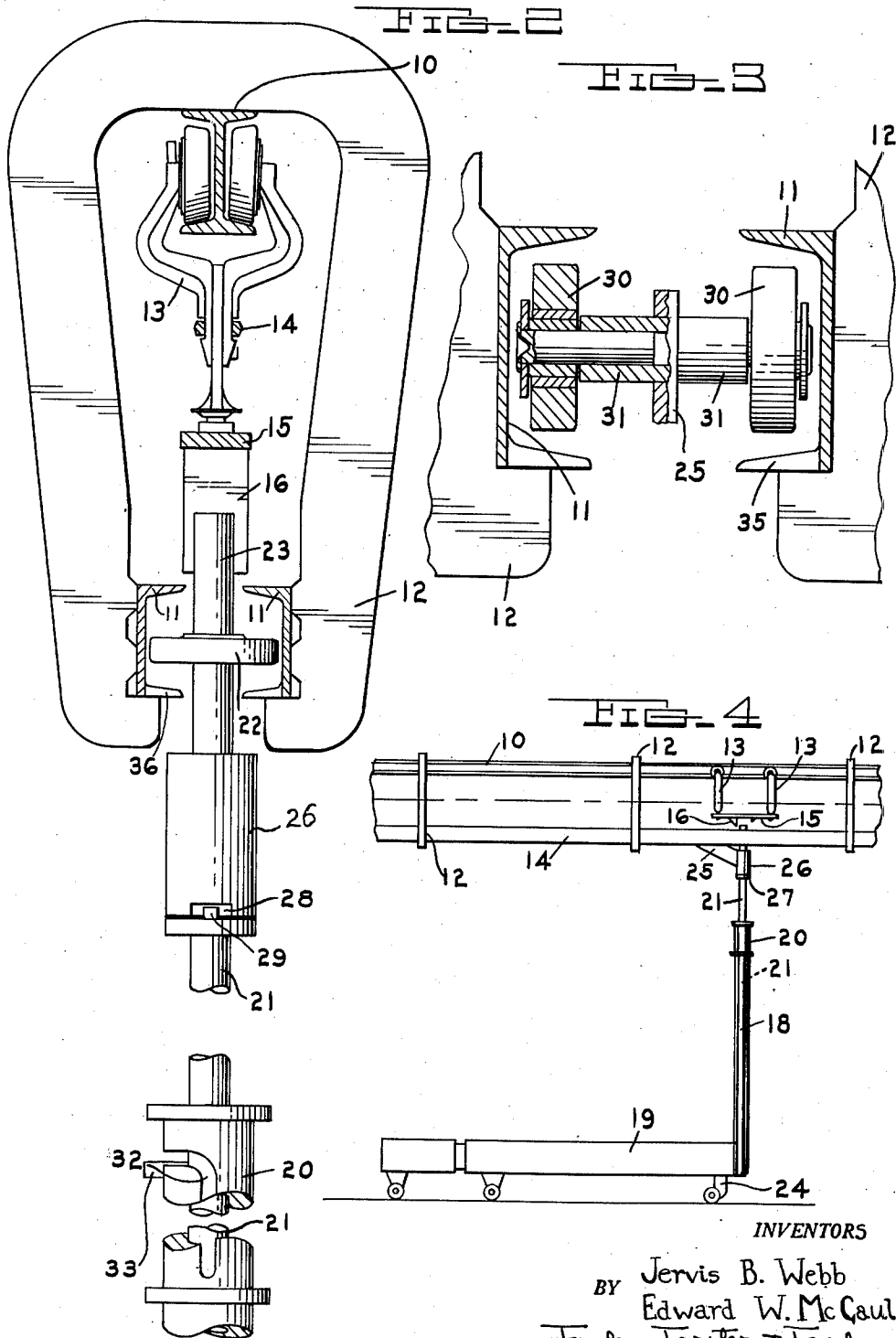
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2 SHEETS—SHEET 2



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FLOOR TRUCK OVERHEAD CONVEYER
DRIVE

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8 Claims. (Cl. 104-171)

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This invention relates to an overhead power conveyor system and more particularly to an overhead "power and free" conveyor drive for floor trucks.

In power conveyor systems for factory material handling various attempts have been made through the use of "power and free" systems to combine the advantages of a power conveyor providing continuous movement along a particular path with the freedom of movement of an ordinary floor truck, so that a load might be attached to a power conveyor line and removed from the same at will for movement by manual or other power means. Among such attempts have been systems incorporating power chain drives submerged below the floor surface and adapted to engage a drive pin attached to a floor truck, as well as overhead power conveyors incorporating suspended chains or drawbars which could be hooked on to floor supported trucks.

While the submerged floor drive is highly satisfactory and in many respects preferable when installed during the construction of the floor itself, such system may be considerably more expensive of installation than the overhead type where it is necessary to install it in an already completed floor. On the other hand, the overhead drives for floor trucks have been generally subject to numerous limitations and disadvantages as where the chains or drawbars have been suspended from overhead power conveyors in a manner in which unused drawing elements have constituted hazards and nuisances or where difficulty of engagement or disengagement with a moving power line has prevented convenient "power and free" usage. The present invention is primarily directed to overcome these and various other limitations of the conventional overhead power drives for floor trucks while preserving the economy of construction and installation cost incident to such overhead systems.

More specifically, it is an object of the present invention to provide an overhead conveyor drive for floor trucks wherein the trucks are provided with upwardly extending masts adapted to engage an overhead power chain in a manner whereby suspended and depending draught elements may be avoided.

Another object is to provide a guide track for confining such masts to a path directly below the power drive.

A further object is to provide a drive connection between the conveyor and the floor truck masts which may be readily engaged or disengaged at will.

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Another object is to provide a stabilizing member on the mast which operates to minimize the bending of the mast when engaged by the power drive.

5 A further object is to employ the guide track in rendering such stabilizing member operative.

These and other objects will be apparent from the following description of a particular embodiment of my invention and from an examination 10 of the drawings forming a part hereof wherein:

Fig. 1 is a side elevation of the overhead conveyor including the upper end of a mast in position to become engaged by the power drive.

Fig. 2 is an end elevation along the line 2-2 15 of Fig. 1.

Fig. 3 is a sectional view through the guide track and a stabilizing roller taken along the line 3-3 of Fig. 1.

Fig. 4 is a side elevation of the conveyor track 20 with a typical floor truck thereunder positioned to receive driving engagement.

Referring to Figs. 1 and 2, it will be seen that the overhead track system incorporates an I-beam 10 and a pair of opposed channel members 11 held in spaced relationship by a plurality of yokes 12 at intervals along the length of the track. Conventional wheeled trolleys 13 are adapted to travel along the I-beam and to carry and be propelled by a power chain 14. A spacer member 15 is suspended between two of the trolleys 13, and a drive bracket 16 and pivoted dog 17 are connected by suitable means to such member. A telescoping mast 18 is adapted for rigid connection to the front end of a floor truck 19 and such mast includes a lower tube 20 and an upper shaft 21 adapted to slide within such tube. A wheel 22 is journaled on the shaft 21 and otherwise adapted to roll along either of the guide track channel members 11, thereby holding the upper end 23 of the shaft 21 in aligned position for engagement with drive bracket 16 and also operating to steer the floor truck 19 which is provided with free swivel type front wheels 24. A stabilizing arm 25 is rigidly connected to an elongated sleeve 26 which is positioned vertically on the shaft 21 by a collar 27.

As best seen in Fig. 2, limited pivotal movement of the sleeve 26 relative to the shaft 21 is permitted by the slot 28 in the sleeve and a lug 29 rigidly associated with the collar 27. The arm 25 extends rearwardly and upwardly, passing between the lower flanges of the channel members 11, and is provided at its end with a pair of wheels 30 journaled on a shaft 31 passing through 55 a hole on the end of the arm 25. It will be seen

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that driving force applied to the end 23 of the shaft 21 tending to bend the mast 12 will cause the rearward end of the stabilizing arm 25 to raise up to a position where the wheels 30 will contact and react against the upper flanges of the channel members 11. Such reaction will operate to inhibit further bending of the mast and thereby permit a substantially lighter mast construction than would otherwise be possible.

The tube 20 and shaft 21 are provided respectively with a bayonet type slot 32 and pin 33. When the pin 33 is seated in the upper end 34 of the slot 32, the upper end 23 of the shaft 21 is in position to receive drive from the bracket 16. If it is desired to disengage drive the shaft 21 is lifted slightly and rotated 90 degrees to a position where the pin 33 can drop to the lower end of the slot 32, such movement being sufficient to disengage drive. In order to accommodate such disengagement, the lower flanges of the channel members 11 may be cut away at desired stations as indicated at 35 and 36 thereby permitting the wheel 22 and wheels 30 to drop through the guide track or as an alternative the lower flanges of the channel members 11 may be omitted entirely since they are never engaged by any of the moving parts.

It will be seen with this arrangement that a floor truck 19 may be positioned below the conveyor track and the mast 21 moved up to engaging position whereupon the next drive bracket 16 to come along will engage the mast, the pivotal dog 17 moving to permit the entrance of the upper end 23 of the shaft 21 and then returning to its normal position to lock the mast against relative forward movement.

While a satisfactory embodiment of the invention has been described above in detail, it will be understood that numerous modifications may be incorporated without departing from the scope of my invention as defined in the appended claims. We claim:

1. A mast propelled floor truck conveyor system comprising an overhead power conveyor, a guide track below said power conveyor, a floor truck, and an upwardly extending mast rigidly associated with said floor truck, said mast being adapted at its upper end to pass through said guide track and to engage said power conveyor.

2. A mast propelled floor truck conveyor system comprising an overhead power conveyor, a guide track below said power conveyor, a floor truck, an upwardly extending mast rigidly associated with said floor truck, said mast being adapted at its upper end to pass through said guide track and to engage said power conveyor, said mast also being provided with a stabilizing arm adapted to engage said guide track and to resist bending moment applied to said mast by said power conveyor in driving the same.

3. A mast propelled floor truck conveyor system comprising an overhead power conveyor, a floor truck, an upwardly extending mast rigidly associated with said floor truck, said mast being provided with a retractable element adapted when retracted to disengage said power conveyor, and a guide track below said power conveyor adapted to position said mast laterally when said element is extended to engage said power conveyor.

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4. A mast propelled floor truck conveyor system as set forth in claim 3 wherein said mast is provided with a longitudinally extending arm adapted to engage and react against said guide track in resisting the bending moment applied to said mast through driving engagement with said power conveyor.

5. A mast propelled floor truck conveyor system comprising an overhead power conveyor, a floor truck, an upwardly extending mast rigidly associated with said floor truck, said mast being provided with a retractable element adapted when retracted to disengage said power conveyor, a guide track below said power conveyor adapted to position said mast laterally when said element is extended to engage said power conveyor, a rotatable sleeve on said retractable element, a longitudinally extending arm rigidly associated with said sleeve and adapted to engage and react against said guide track in resisting the bending moment applied to said mast through driving engagement with said power conveyor.

6. A mast propelled floor truck conveyor system comprising an overhead power conveyor, a floor truck adapted for total support by the floor surface and an upwardly extending mast rigidly associated with said floor truck, said mast being adapted at its upper end for engagement with said power conveyor, the drive connection between said mast and power conveyor being adapted to impart substantially horizontal forces only.

7. A mast propelled floor truck conveyor system comprising an overhead power conveyor, a floor truck adapted to travel on a trackless floor surface, and an upwardly extending mast rigidly associated with said floor truck, said mast being adapted at its upper end for engagement with said power conveyor, the drive connection between said mast and power conveyor being adapted to impart substantially horizontal forces only.

8. A mast propelled floor truck conveyor system comprising an overhead power conveyor, a floor truck adapted to travel on and be totally supported by a trackless floor surface, and an upwardly extending mast rigidly associated with said floor truck, said mast being adapted at its upper end for engagement with said power conveyor, the drive connection between said mast and power conveyor being adapted to impart substantially horizontal forces only.

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