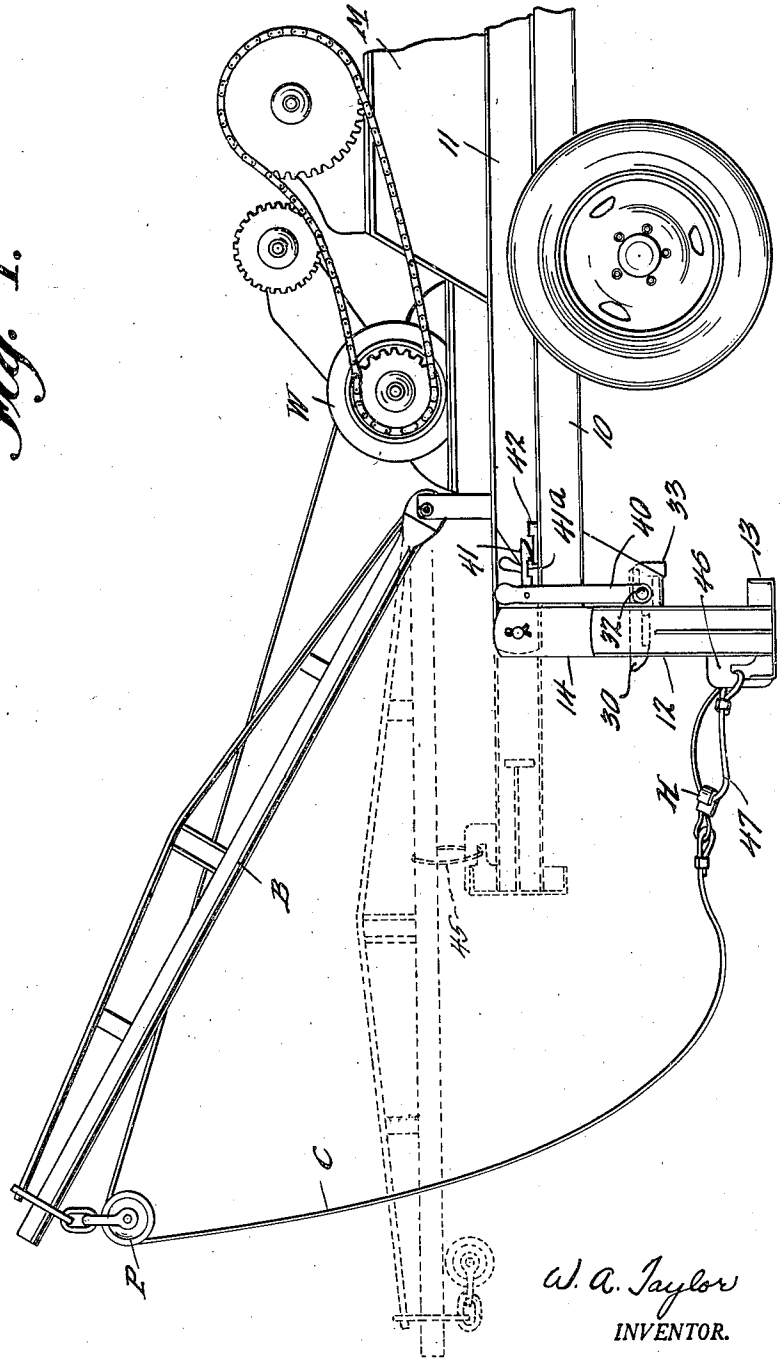
Dec. 6, 1949 W. A. TAYLOR 2,490,661

MOBILE WORK UNIT

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Fig. 1.



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Fig. 2.

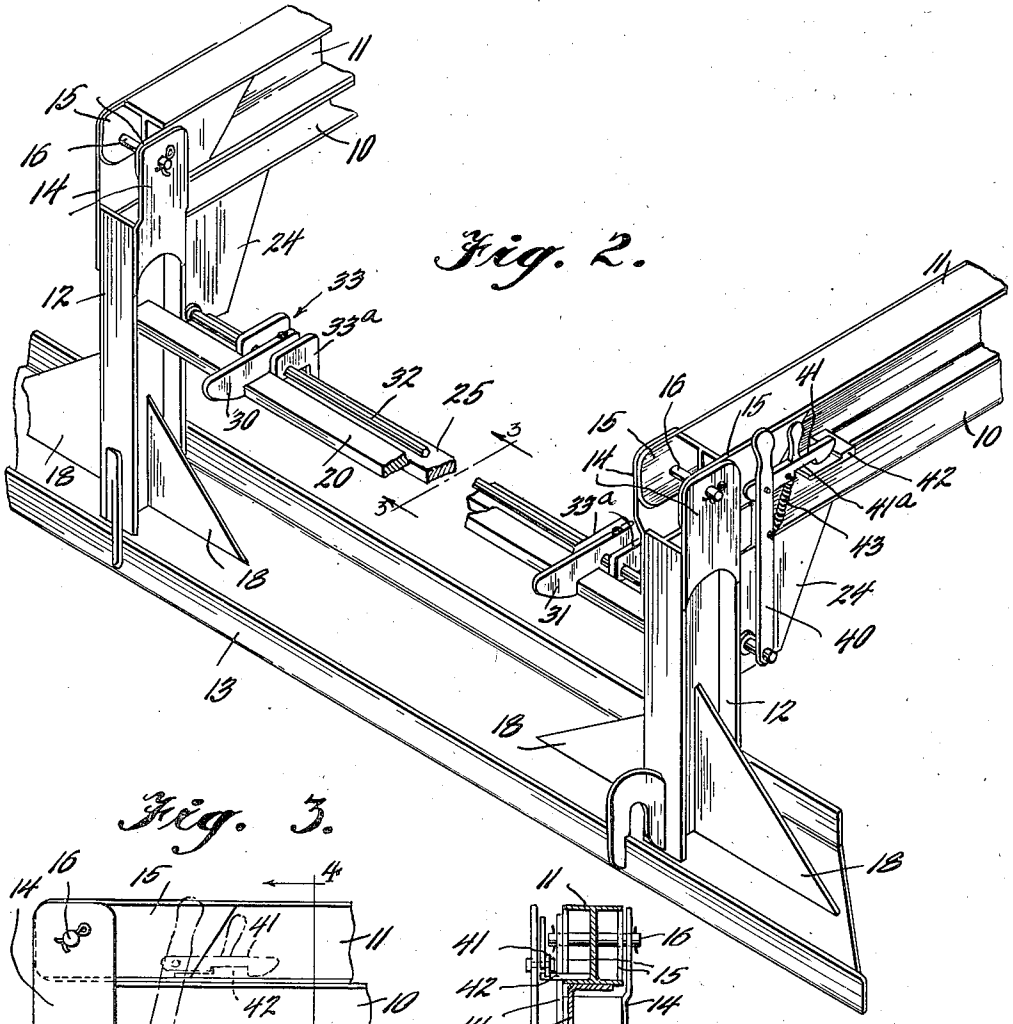


Fig. 3.

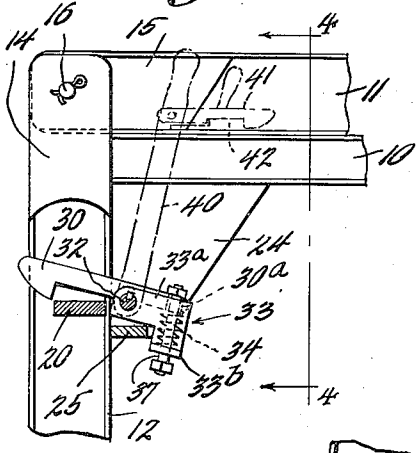


Fig. 4.

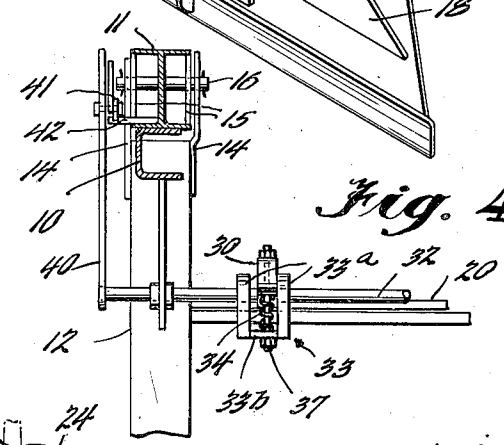
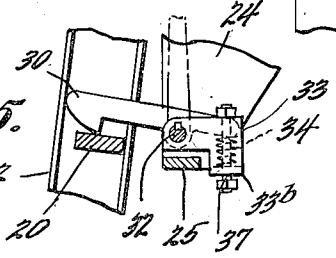


Fig. 5.



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MOBILE WORK UNIT

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8 Claims. (Cl. 212—145)

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The present invention relates to a mobile work unit and particularly to a wheeled vehicle having mounted thereon a mechanism or machine such, for instance, as a crane.

The typical mobile crane includes a truck body and a crane mechanism mounted thereon, generally toward the rear of the body and above the rear axle of the truck. In the operation of the unit the crane is called upon to lift relatively heavy loads located to the side or rear of the vehicle. It is customary to provide such a unit with auxiliary means for transmitting to the ground upon which it rests a substantial portion of the weight of the crane and its load so that the wheels of the unit will not be unduly stressed or caused to sink into the ground if the ground is soft. Auxiliary means of this character may comprise a stand which is so mounted upon the rear of the truck body that it may be moved from a raised or inoperative position to a lowered or operative position when the unit is to be made use of in the lifting of heavy loads, reverse movement of the stand being effected when the unit is to be transported.

In accordance with the present invention, a mobile work unit of the general type described is provided with a stand or auxiliary supporting means of novel character, more effective in use than those heretofore designed or suggested, and in association with this stand there is provided a stand-locking means which is so designed and constructed that the stand is automatically locked in operative position when its is moved into that position, is rigidly secured and held in operative position during the time that the unit is in actual operation, but may be manually released at the convenience of the operator when the unit is being prepared for movement. As a result of the provision of this locking means the auxiliary support or stand may be operatively positioned very quickly when the unit reaches the site where operations are to be conducted. It may be released easily and quickly after the work has been completed, and provides a helpful instrumentality for use in association with such a unit as a mobile crane, which is called upon to operate quickly and in situations where ground conditions are frequently unsatisfactory.

One embodiment of the invention is illustrated in the accompanying drawings in which;

Figure 1 shows in side elevation a portion of the rear end of a mobile crane unit, the boom of the crane and the auxiliary supporting stand being shown in operative and inoperative positions, respectively, by dotted and full lines;

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Figure 2 is a perspective view of the auxiliary supporting or ground engaging stand, showing the means for attaching the stand to the main frame members of a truck body, and also showing the latching mechanism;

Figure 3 is a section on line 3—3 of Figure 2;

Figure 4 is a section on line 4—4 of Figure 3;

Figure 5 is a view similar to Figure 3, but showing the main or primary latching means in a position somewhat different from that in which it is shown in Figure 3.

The mobile unit may vary widely in details of design, as will be apparent. That which is illustrated by way of example includes a truck body having side sills or parallel longitudinally extending frame members such as those indicated at 10. These frame members may conveniently be channels and upon the upper flanges of these channels there may be mounted, as clearly shown in Figures 2, 3 and 4, longitudinally extending I-beams 11, the rear terminal ends of which overhang or project beyond the ends of the side sills 10. The members 10 and 11 may be secured together by bolts, rivets or by welding so as to together comprise parallel beams well able to support relatively heavy machines such as that diagrammatically illustrated at M in Figure 1 and which includes a prime mover of some sort, a winding drum W driven by the prime mover, and a boom B mounted for swinging movement about an axis or for universal movement about a point. At is outer end the boom B carries a pulley P and a working cable C passes over this pulley, one end of the cable being wound around the winding drum W and its other end provided with any suitable means, such as that indicated at H, for engaging a cable or any other portion of an object to be lifted. The details of the crane and its operating mechanism comprise no portion of the present invention and need not, therefore, be specifically illustrated or described.

The swinging stand or support includes parallel members or legs indicated at 12 and a transverse ground engaging member 13. The legs are fabricated of I-beams of suitable length and cross-section, the upper end of each leg being pivotally attached to the overhanging end of the associated horizontally extending beam 11, the specific means for attachment illustrated including parallel plates 14 welded or otherwise suitably attached to the edges of the flanges of the associated leg 12, plates 14 being disposed respectively, in parallelism with plates 15 which are welded or otherwise suitably attached to the edges of the flanges of the associated beam 11. The

pairs of parallel plates 14 and 15 just described are suitably apertured for the reception of the pivot pins 15 and the pivot pins 16 which are thus utilized to pivotally attach the stand to the truck frame are disposed with their axes in alignment so that the stand is constrained to swing about the common axis of the pivot pins 16 in its movements from operative to inoperative position and vice-versa.

The ground engaging member preferably comprises a channel 13 of relatively large cross-section as shown and the outer or free ends of the I-beam members 12 which comprise the principal portions of the legs of the stand are suitably secured, as by welding, to the web of the channel, suitable bracing members 18, which may comprise triangular webs as illustrated, being provided for the purpose of preventing relative angular movements of the legs of the stand with respect to the ground engaging member.

A transversely disposed bar 20 connects the webs of the I-beam members 12 and this bar not only stiffens the stand but comprises a catch adapted to be engaged by a latching means supported upon the truck body when the auxiliary stand is moved into operative position. Swinging movement of the stand from its inoperative position as indicated in dotted lines in Figure 1, to the operative position shown in full lines in that figure, may continue until the inner flange of each I-beam 12 strikes the substantially vertical edge of a bracket member 24 depending from the truck body, the upper edge of the bracket member 24 being welded or otherwise suitably secured to the bottom flange of the associated side sill 10. The lower end of each bracket 24 is connected to the lower end of the opposite bracket by means of a transversely extending bar 25, the bar being so positioned that its rearwardly facing edge surface likewise comprises a stop surface adapted to be engaged by the leg members 12 as they are moved into operative position.

The means for automatically latching the stand in operative position includes two similar primary latch members 30 and 31 both such members being loosely mounted upon a transversely disposed latch supporting rod 32. Fixed upon rod 32 are two brackets 33, each comprising parallel side portions 33*a* having aligned apertures through which rod 32 extends, and a transverse web 33*b* connecting the lower ends of members 33*a*. The brackets 33 may conveniently be formed of sheet metal by stamping and bending operations or may be cast and, when affixed to rod 32, the side portions 33*a* serve as confining guards for the loosely mounted latch members 30 and 31. Intermediate the inner end of each latch 30 and 31 and the associated transverse web 33*b* of bracket 33 is disposed a helical spring 34 which is normally under compression so as to continuously urge the latch to move in a counterclockwise direction about the axis of rod 32 (Figure 3). The extent of movement of each latch relative to the associated bracket 33 under the influence of spring 34 is limited by a bolt 37 which passes through a slot 30*a* in the end of the latch and through an aperture in the web 33*b* of the bracket 33, bolt 37 being provided with heads at both ends one of which, at least, is adjustable, so that the relative angular movements of bracket and latch may be adjusted in extent when desired.

Upon one end of rod 32 is affixed an operating handle 40 to which, in turn, is pivotally connected a latch 41 having a recess 41*a* adapted to receive a catch 42 when the latch is moved longitudinally

of the truck body from the position in which it is shown in Figure 2 to the position in which it is shown in Figure 3. In such movement the latch rides along the upper surface of one lower horizontal flange of the I-beam 11, a tension spring 43 maintaining the latch in close engagement with such surface while permitting its free end to ride over the catch 42 when that catch is engaged by the cam-shaped end of the latch.

When the latch 41 has thus engaged catch 42 the bracket 33 will have been revolved about the axis of rod 32 to such an extent that latches 30 and 31 are lifted to the position in which latch 30 is shown in Figure 3, the catch bar 20 of the stand being thus disengaged. The stand may then be elevated to inoperative position, as shown in dotted lines in Figure 1, and secured in inoperative position by any suitable means, for instance, by attaching the free end of the stand to the lowered boom B by means of a rope or cable 45.

Welded to the lower end of each leg member 12 and likewise to one flange of the ground engaging member 13, is a U-shaped element 46. These elements comprise bracing members and furthermore define, with the ground engaging element, apertures or eyelets for the reception of the looped ends of a cable such as indicated at 47 in Figure 1. After having been used as an auxiliary support it is only necessary for the operator of the unit, in order to move the stand to its inoperative position, to first release the latching mechanism by moving handle 40 so as to free the stand and to then connect the cable C to the cable 47 and tension the cable by means of the winding drum W. As the tension is applied, the ground engaging member 13 is drawn rearwardly and upwardly and the truck or work unit is thrust bodily forwardly. The effect is to quickly transfer the weight of the body entirely to the wheels of the vehicle, which may thus be placed in condition for travel over the highways in a minimum of time.

It will be understood that minor changes in design and arrangement of the component elements of the mechanism may be readily made, all without departure from the invention as defined in the appended claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a mobile work unit, in combination, a wheeled machine supporting body, a stand for providing auxiliary support for the rear end of the body when the unit is in use, said stand being mounted upon the rear end of the body for movement from a raised and inoperative position into a lowered and operative position, and means for automatically and releasably securing the stand in operative position when it is moved into that position, said means including a latch engaging element on the stand, a latch supported on the body, means yieldingly urging the latch into locking position, and mechanism for manually releasing the latch when desired.

2. In a mobile work unit, in combination, a wheeled machine supporting body, a stand for providing auxiliary support for the rear end of the body when the unit is in use, said stand being mounted upon the rear end of the body for movement from a raised and inoperative position into a lowered and operative position, and means for automatically and releasably securing the stand in operative position when it is moved into that position, said means including a latch engaging element on the stand, a latch support-

ing bar mounted on the body for rocking movement about its axis, a latch loosely mounted on said bar, a bracket fixed on the bar, resilient means acting on the bracket and latch, and normally tending to rock the latch in one direction of rotation about the axis of said bar, and means limiting the relative movement of the bracket and latch under the action of said resilient means.

3. The combination set forth in claim 1 in which said mechanism includes an operating handle and secondary latching means for latching the operating handle in such position that the primary latch is held in inoperative position.

4. In a mobile work unit, in combination, a wheel machine supporting body, a stand for providing auxiliary support for the rear end of the body when the unit is in use, said stand being mounted upon the rear end of the body for movement from a raised and inoperative position into a lowered and operative position, and means for automatically and releasably securing the stand in operative position when it is moved into that position, said means including a latch engaging element on the stand, a bracket member mounted on the body for movement about a horizontal axis, a latch mounted for pivotal movement about said axis, a spring normally tending to cause movement of the bracket and latch in opposite directions of rotation about said axis, and means limiting the relative movements of latch and bracket in one direction.

5. The combination set forth in claim 4 in which said last mentioned means includes a bolt and both latch and bracket are provided with apertures through which the bolt loosely extends.

6. The combination set forth in claim 4 in which the bracket is fixed on a horizontally disposed rod and mechanism is provided by means of which the rod may be manually adjusted angularly, said mechanism including a handle and a secondary latching means for latching the handle in a predetermined position.

7. The combination set forth in claim 4 in which the bracket is fixed on a horizontally disposed rod and mechanism is provided for manually adjusting the rod angularly, said mechanism including a lever having a handle, a latch pivotally mounted on the lever, a catch fixed on the body, and a slideway on the body along which the latch may move, a spring connecting the latch and lever serving to maintain the catch in contact with the slideway.

8. In a mobile work unit in combination, a body having parallel side sills, beams mounted on said side sills and overhanging the same at the rear ends thereof, and a U-shaped stand the legs of which are pivotally connected to the overhanging ends of said beams.

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