July 8, 1958 G. W. WAY 2,842,378

SECTIONAL CRANE BODY

Filed May 29, 1953 2 Sheets-Sheet 1

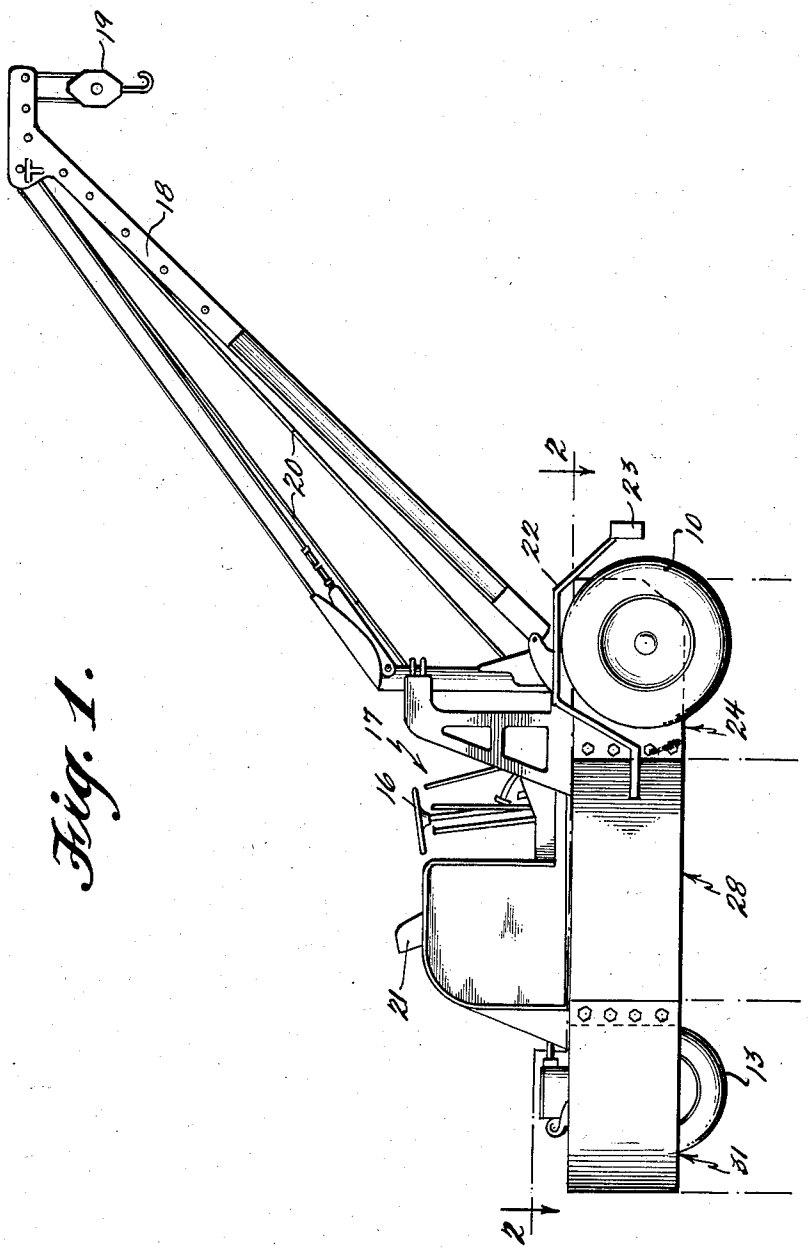


Fig. 1.

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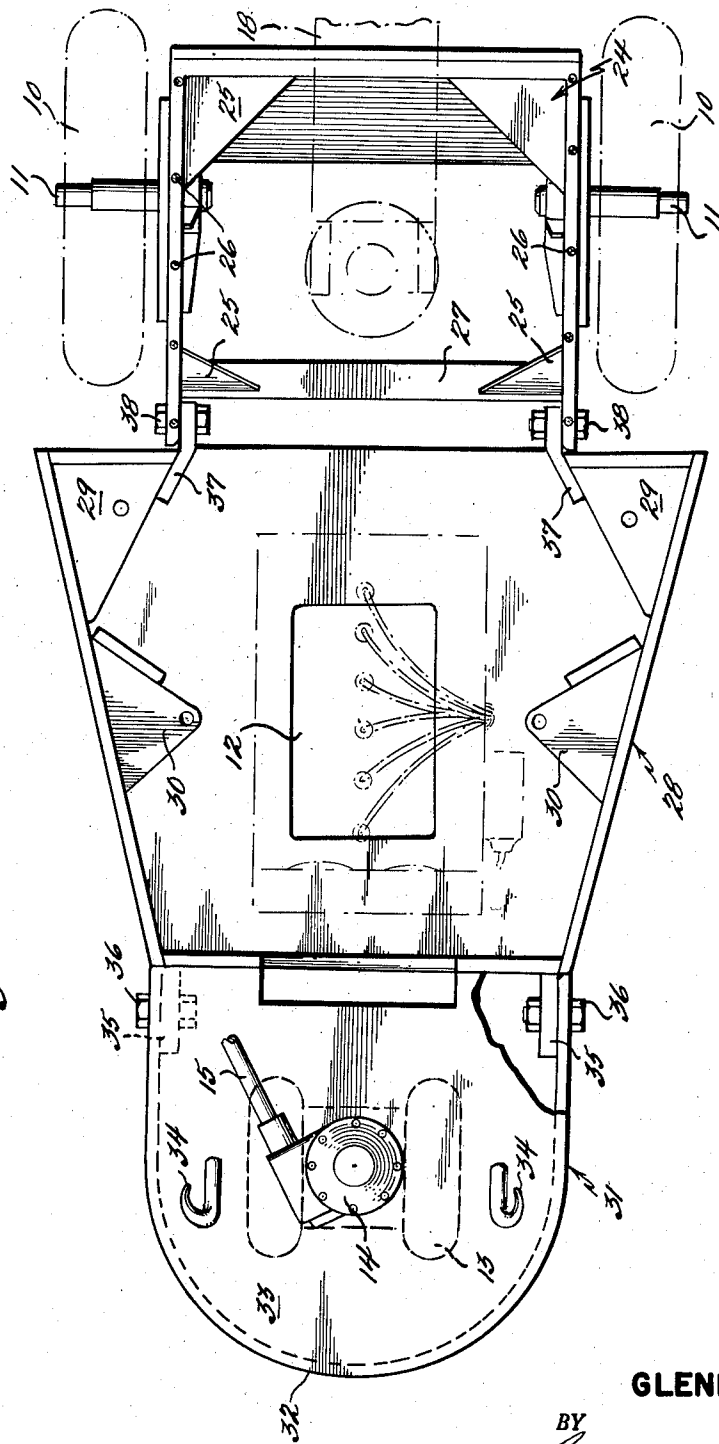


Fig. 2.

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SECTIONAL CRANE BODY

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Application May 29, 1953, Serial No. 358,466

1 Claim. (Cl. 280—106)

The present invention relates in general to cranes and more particularly to mobile cranes of a boom type.

Heretofore cranes have been devised and used which had complicated bulky structures and which necessitated the use of large separate counter-balancing weights, in addition to the structure itself, and which many times required tie-downs in order to lift and manipulate the desired loads.

This has been a serious drawback in crane structures generally and particularly as regards mobile cranes. One of the major difficulties encountered has been the necessity of having a frame structure for the crane which was of sufficient dimensions in both length and width to accommodate extraneous weights in order to permit utilizing the crane for designed or desired loads.

Additionally, cranes heretofore constructed have been difficult to handle and maneuver due to the required frame structure and bulk.

A further drawback of cranes, particularly of the mobile type, has been the necessity of constructing an entirely separate overall and complete crane for each weight range and use to which it was to be put. For additional weight requirements, the overall dimensions became more cumbersome and use of the crane became more difficult.

Cranes which have been constructed and built heretofore have ordinarily been devised to operate within a given load limit and could not be redesigned to function for a different specific use or range of usable loads.

It is an object of the present invention to provide a crane, particularly a mobile crane which overcomes the drawbacks of cranes heretofore known.

A further object of the present invention is to provide a mobile crane of extreme simplicity in construction and design in which the counter-balancing weight is entirely self-contained and in which no additional extraneous weights or tie-downs are required.

Still another object of the present invention is to provide a mobile crane which is of a frameless nature in that the entire operating weight is in the crane body without the necessity of extended frames.

An additional object of this invention is to provide a mobile crane which has overall dimensions suitable for small work area and which will also have the desired operational characteristics.

Yet another object of the present invention is to provide a mobile crane which is comprised of sections which are interchangeable in order to adapt the crane to different jobs with a minimum of expense as regards initial production cost and also with respect to purchasers and users faced with ever varying uses and applications for such a crane.

A still further object of the present invention is to provide a mobile crane having a high degree of mobility and which is of a safe design and construction with reference to workers in its immediate vicinity.

Further objects and advantages of the device of the present invention will be readily apparent to those skilled in the art pertaining to the present invention from the

following detailed description of an embodiment of the invention, which is illustrative only, taken together with the accompanying drawings in which:

Figure 1 is a side elevational view of the crane of the present invention; and

Figure 2 is a top plan view of the invention with parts removed for clarity and taken substantially on line 2—2 of Figure 1.

In the drawings the crane of my invention is shown which includes driving wheels **10** on axles **11** which are secured in the body of the crane. Drive means for the wheels are generally indicated at **12** which consists of a motor and interconnecting shafts and gears to wheels **10**, which form no part of my invention.

Rear wheels **13** are pivotally mounted on the chassis or body of the crane and a worm gear assembly **14** is utilized in conjunction with control means partially shown at **15** which are connected to steering wheel **16** in order to control the crane.

Normal control mechanisms generally designated **17** are provided to control and actuate the boom **18** which are of a standard type as regards the present invention.

A load block **19** and cables **20** are also utilized in a usual manner in order to be capable of a job for which the crane is designed.

A seat **21** is preferably pivotally mounted on the crane chassis to permit a gas tank or other necessary appurtenances to be placed thereunder. Fenders **22** and bumper **23** can also be provided if desired.

The foregoing individual components do not form an important part of the present invention however as will appear from the following.

The essence of the present invention resides in eliminating separate frame means and extraneous weights and tiedowns and the like while at the same time providing a sufficient base and weight for a mobile crane of a desired type.

The body or chassis of the crane consists preferably of three separate and severable units which are adapted to be secured together and which are interchangeable with respect to one another so as to permit adapting a completed crane to a desired purpose.

The crane body consists of the sections delineated between broken lines in the drawings. A front section **24** has the wheel axles **11** pressed into the sides which consist of heavy gauge steel plates preferably welded together at the corners and having reinforcing angle plates **25**, also of a heavy gauge steel, to firm the structure and at the same time add weight to the structure. Threaded bolt holes **26** are provided in the top of the plates and are adapted for securing a top cover plate which has the boom **18** operatively mounted thereon as illustrated in broken lines in Figure 2. Cross braces such as shown at **27** also interlock the heavy gauge steel plates and are preferably welded to form an integral unit.

The center section shown at **28** is also formed of heavy gauge steel plates, welded together and having corner gussets **29** as also side gussets **30**. The gussets serve not only as braces and additional weight but also are adapted for securing the drive motor **12** and required power takeoffs, transmissions, gearings and cable drums to the center section. These individual elements are not shown in place and connected for clarity. The various controls such as broadly indicated at **17** are also mounted on the center section **28**.

As shown in the drawings, the center section **28** is in the shape of a truncated triangle with the base facing forward. This shape permits a narrowed rear for maneuverability as will be apparent but is not critical.

The rear section is shown at **31** which is also composed of heavy gauge sheet steel and has a rounded end as at **32**. A heavy gauge sheet steel top plate **33** is fixed on

section **31** and carries means **34** for obvious use. The steering wheels **13** are pivotally suspended from plate **33** in conjunction with worm gear **14**.

Preferably a full floating axle is carried by front section **24** with suitable drive means for driving wheels **10**. Any conventional drive means may be employed, such for example as that illustrated in U. S. Patent to Weaver, No. 2,299,445.

A plate **35** is secured to the rear of section **28** and bolts **36** are inserted in holes formed therein and extend through the plate forming rear section **31**. These bolts fix sections **28** and **31** together in a removable or separable manner.

Angled plates **37** are welded to section **28** at the front end and to angle gussets **29**. Bolts **38** extend through plates **37** and the plates forming the sides of section **24** to removably and separably secure sections **24** and **28** together.

It will accordingly be seen that the three sections can be disconnected from one another and connected to different sections of different dimensions and weights to satisfy requirements for different jobs.

The curved rear end **32** gives a greater mobility and safety to workers in the area since there are no protruding or extended frames in that vicinity.

The entire necessary weight for the crane is provided in the material forming the three sections and no separate frame or beams are required.

Manifestly additional sections could be utilized and changes made in details of construction without departing from the scope and spirit of the present invention.

I claim:

A frameless body for a mobile crane, comprising a forward section, an aft section and an intermediate section, means for detachably securing said sections in end to end relation, each of said sections consisting of side and top plates, rigidly connected at adjoining edges, stub axles mounted directly and solely in the side plates of said forward section, means for mounting a boom on the top plate of said forward section, substantially directly above said axles, a steered wheel mounting depending from and supported directly and solely by the top plate of said aft section, and motor supporting gussets of heavy gauge metal carried by respective side plates of said intermediate section and directed horizontally inwardly in opposed sets.

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