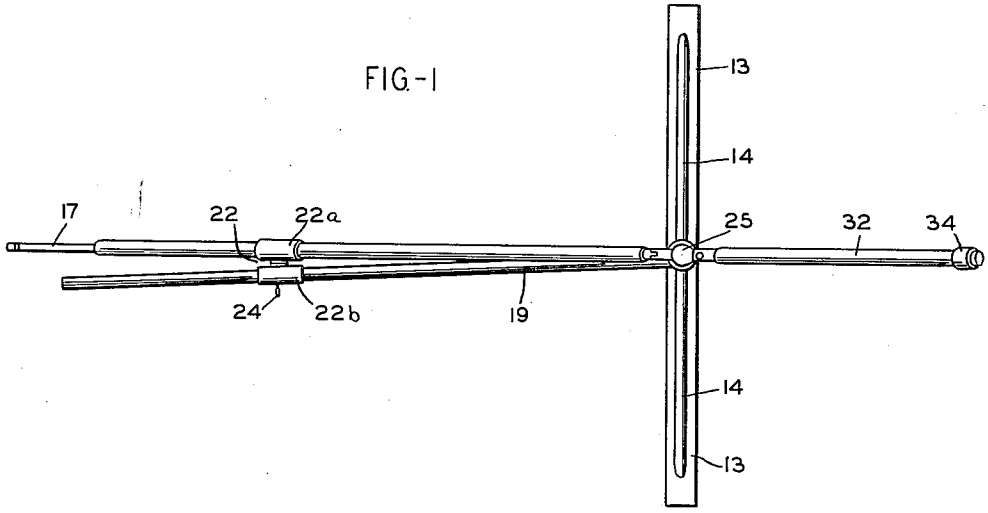
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HOIST

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FIG.-1



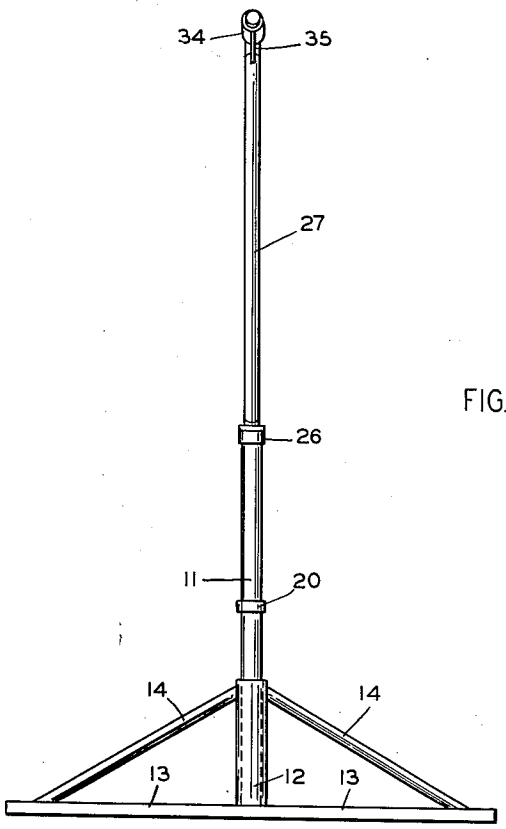


FIG.-3

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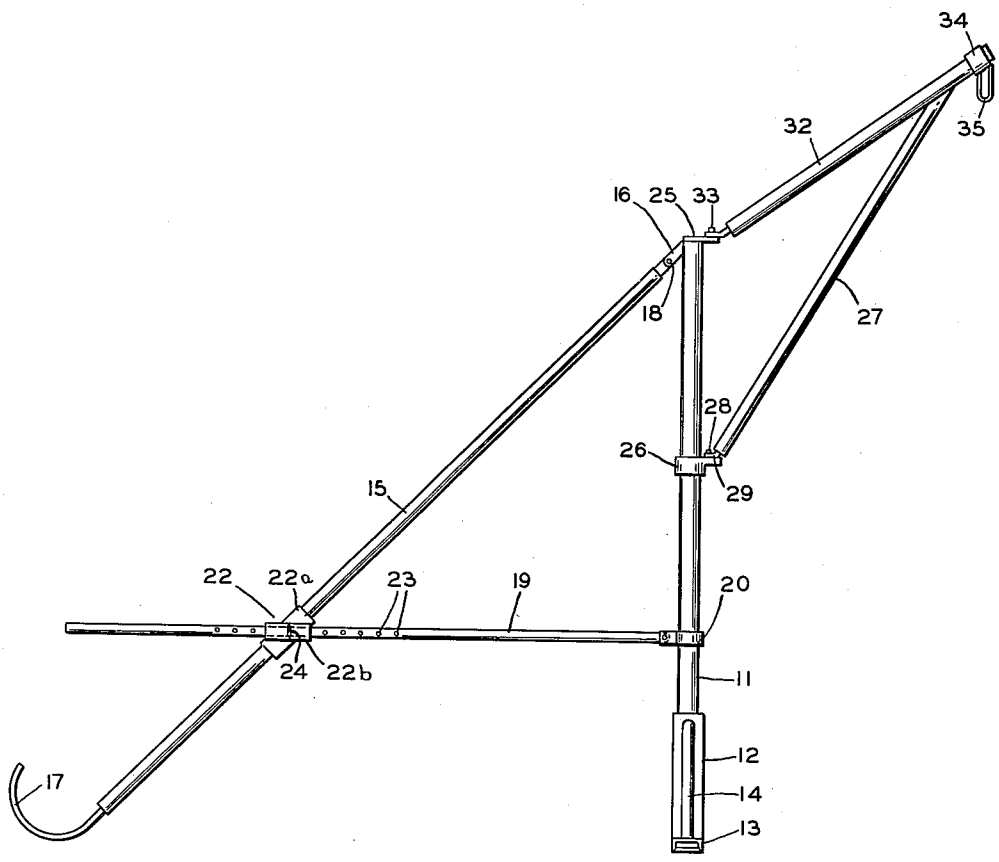


FIG.-2

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HOIST

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Application November 3, 1948, Serial No. 58,093

2 Claims. (Cl. 212—61)

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The invention relates to a portable hoisting crane of novel and improved structure. It is particularly adapted for use in building construction and repair work, and in such use it is normally positioned on intermediate floors or on the roof, for hoisting tools, construction materials, etc., from the ground level to the location of use. In preferred embodiment the crane is therefore of the fixed radius, circle swing type.

An object of the invention is to provide a crane of the character described which can be easily and quickly assembled and disassembled, the parts being readily carried from place to place by one workman.

A further object of the invention is to provide a crane such as defined in the last preceding paragraph, in which most of the structural elements can be formed from standard rolled or extruded structural shapes, such as tubing of circular or rectangular cross sectional contour made from aluminum or magnesium, or alloys of these non-ferrous metals.

Other objects and advantages will be apparent from a study of the following specification, in conjunction with the accompanying drawings, in which:

Fig. 1 is a top plan view of my hoisting crane;

Fig. 2 is a side elevational view of the crane, and

Fig. 3 is a front elevational view of the crane.

Before the invention here involved is specifically described, it is to be understood that the present invention is not limited to the details of construction and/or the specific arrangement of parts herein illustrated and/or described as the invention obviously may take other forms. It also is to be understood that the phraseology or terminology herein employed is for the purpose of description and not of limitation, the scope of the present invention being indicated by the appended claims.

Referring now to the drawings, the crane comprises a tubular mast 11, telescopingly inserted in a tubular socket 12 fixed to an elongated base member 13. The mast and socket in the embodiment illustrated are of hollow circular cross section, and the base member is also formed from hollow tubing but rectangular in cross section to provide a flat surface contact with the supporting floor or roof.

Preferably all elements of the crane above described and to be described are formed from light, non-ferrous alloys such as the strong alloys of aluminum and magnesium base, which lend themselves readily to mechanical fabrication

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processes such as rolling and extrusion, and which are markedly lower in specific gravity than are the ferrous alloys, so that the finished crane can be readily moved either as a unit, or after disassembly. Angularly inclined braces 14 are welded at their respectively opposed ends to the socket 12 and the base 13. The lower end of the socket 12 is likewise welded to the base, and the mast 11 is slidingly insertable into, or removable from, the socket.

At its rear, the mast 11 is supported by a trail member 15 of tubular character, which at its upper end telescopingly receives a spur 16 fixed to the top of the mast 11, and at its lower end telescopingly receives a curved foot 17. Both the spur and the foot may be fixedly attached to the trail member in any conveniently removable fashion, such as by set screws, bolts, or the like. A roll of roofing material, or any other convenient counterweight, may be disposed in the curve of foot 17.

The trail member may be and here is pivotally, angularly adjustable with respect to the mast by forming the spur in two parts, mutually pivoted at 18. At an intermediate height a horizontal link 19 is pivotally attached at its right end (Fig. 2) to a ring clamp 20 on mast 11, and near its left end it is pivotally and adjustably fixed to trail member 15 in the following manner:

A swivel connector member 22 comprises two short sections of tubing mutually pivotally attached to each other, one section 22*a* adapted to slidably travel on trail member 15, and the other section 22*b* adapted to receive link 19. Link 19 is provided with a row of spaced perforations 23, and section 22*b* is perforated to receive a stop pin 24 insertable through aligned perforations in section 22*b* and link 19, so that the angularity between mast 11 and trail member 15 is adjustably predeterminable. It is obvious of course that in the position shown in Fig. 2, the lower surfaces of foot 17 and base 13 are in the same horizontal plane, and that a change in the position of the swivel connector by moving it laterally to the right or left on link 19 would respectively raise or lower the foot 17 with respect to base 13. Assuming a flat supporting surface, this would result in tilting of the mast 11 out of vertical alignment, but if the supporting surface happens to be sloping, or of uneven or stepped character, the swivel joint connector can be laterally moved to maintain vertical alignment of mast 11.

A pair of boom supporting brackets 25 and 26 are fixedly attached to mast 11. Bracket 25 is

here shown as welded to the top of the mast, but obviously it could be anywhere adjacent the top. Bracket **26** is shown at an intermediate height on the mast. A tubular boom **27** at its lower end has a removable pivotal connection with bracket **26**, and as here shown this consists of a pin **28** on bracket **26** insertable into a fitted aperture in a projection **29** fixed to the lower end of the boom. Obviously the pin could be on the boom, and the aperture could be in the bracket.

A jib brace **32** is welded at its outer end to the boom and at its inner end is provided with a pin-and-hole pivotal connection **33** to bracket **25**. The terminology "boom" and "jib brace" as arbitrarily applied to the respective members **27** and **32** may be reversed, if desired, since actually both members stiffen and support each other, and both members swing as a unit to perform the functions of a fixed radius boom.

The tip portion **34** of the boom assembly is provided with a U-shaped bracket **35** for the convenient attachment thereto of a pulley or other hoisting device.

Pin **28** on bracket **26**, and the pin of connection **33** between the jib brace **32** and the bracket **25**, may be threaded to receive retaining nuts to hold the boom assembly from accidental dislodgement. Ring **20** may be slidable on mast **11**, and may be fixed in any desired position by a set screw.

It will be readily apparent that the portable crane I have shown and described can be rapidly asembled and disassembled. The boom assembly can be lifted off its supporting pivot pins, the mast can be removed from socket **12**, and link **19** can be slipped out of swivel connector **22** so as to jack knife trail member **15** against the mast. If desirable or necessary some of the elements can be subjected to still further disassembly by removal of various bolts and set screws.

What I claim is:

1. A crane comprising a base, a socket fixed to and extending upwardly from said base, a mast having a lower end portion telescopingly removably insertable into said socket, a trail member secured to and extending angularly downwardly from a point adjacent the top end of said mast, said trail member being provided at its lower end with an upwardly curved foot adapted to receive and retain a counterweight, a link rod having one end thereof connected to said mast at an intermediate height on said mast and having a connection towards the other end thereof with said trail member at an intermediate height on said trail member, one of the last two said connections being a pivotal one, a boom pivotally connected to said mast on the opposite side of the mast from said trail member, and a jib brace fixed to said boom adjacent the free end of the boom, said jib brace being likewise pivotally connected to said mast at a point spaced from the pivotal connection of said boom and said mast, whereby said boom is adapted to swing in a circle of fixed radius with said mast as a center.

2. A crane comprising a base, a socket fixed to and extending upwardly from said base, brace means fixed to said socket near the upper end thereof and to said base at a point removed from the junction of the socket and the base, a mast having a lower end portion telescopingly insertable into said socket, a trail member secured to and extending angularly downwardly from a point adjacent the top end of said mast, said trail member being provided at its lower end with an upwardly curved foot adapted to receive and retain a counterweight, a link rod having one end thereof connected to said mast at an intermediate height on said mast, pivotal connector means connecting said rod with said trail member at an intermediate height on said trail member, a boom pivotally connected to said mast on the opposite side of the mast from said trail member, and a jib brace fixed to said boom adjacent the free end of the boom, said jib brace being likewise pivotally connected to said mast at a point spaced from the pivotal connection of said boom and said mast, whereby said boom is adapted to swing in a circle of fixed radius with said mast as a center.

PERRY E. MILLER.

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