

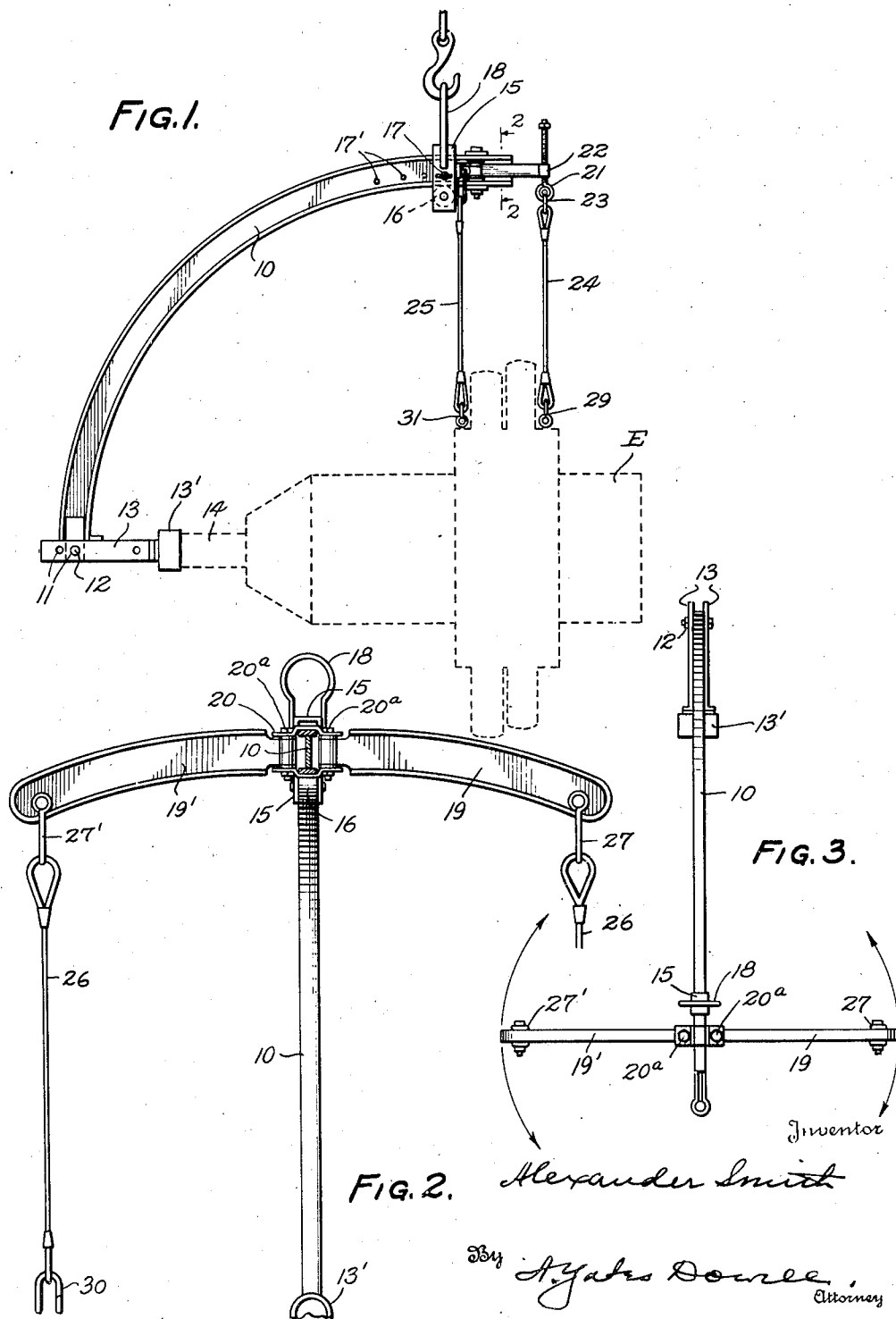
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HOIST ATTACHMENT

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HOIST ATTACHMENT

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This invention relates to hoist attachments, and an object of the same is to provide means for facilitating the lifting of heavy and cumbersome objects.

An example of one of the many uses to which the present improved hoist or lifting device may be applied, is the removal of an airplane motor, such as a radial engine, from its crate and installation thereof in the nacelle of a plane, or the crating and uncrating of a motor irrespective of its particular installation. Ordinarily, the practice when installing motors of this type is to connect a hoist fitting to the end of the propeller shaft, then operate the hoist or crane to raise the motor from its crate, then make another connection to the rear gear section and swing the motor to a horizontal position, and finally make a third connection to the blower section to facilitate handling during installation. With the present improved hoist attachment, the connections may be made before the motor is lifted from its crate or from a prone position, means being provided whereby the motor may be easily maneuvered to any desired angle of installation while it is suspended from its moorings.

Another and more specific object of the invention, therefore is to provide a hoist attachment whereby devices such as radial airplane engines and the like may be raised from a given position and then maneuvered into the desired position of installation with a minimum of time and labor.

A further object is to improve hoist attachments of that type permitting shifting of the device being lifted to different positions while suspended from its moorings by rendering such attachments more flexible or adaptable for connection to different points on the device.

A still further object is to generally improve and simplify lifting and carrying mechanism.

The foregoing and other objects and advantages will become apparent in view of the following description taken in conjunction with the drawing, wherein:

Figure 1 is a view in perspective of a hoist attachment in accordance with the invention shown in the act of transferring a radial engine from its crate to its point of installation in an airplane;

Fig. 2, a section on the line 2—2 Fig. 1; and Fig. 3, a top plan view of the attachment.

Referring to the drawing in detail, 10 designates a supporting and carrying bar which it will be noted is channel-shaped for strength and of curved or arcuate configuration starting from a

point inwardly from the outer or suspension end thereof and terminating at the inner or connecting end of the bar. At its inner end, the bar is formed with a hole 11 adapted to receive a screw or stud bolt 12, by means of which a hangar bracket 13 may be pivotally connected to the bar, said bracket carrying a fitting 13' adapted to be threaded on the end of propeller shaft 14 forming a part of the object to be lifted, and which in the present instance is a radial airplane engine generally indicated at E.

The opposite extremity of the bar 10 has slidably mounted thereon a hanger or suspension assembly comprising a bearing yoke or bracket 15 provided with a bearing roller 16 and a latch bolt 17, the latter being adapted to engage in any one of a plurality of holes 17' formed in the bar 10 and lock the bearing bracket against shifting movement along the bar. A suspension yoke 18 is connected to bracket 15 for attachment to a hoist or crane cable, not shown.

A pair of swinging or hinged suspension arms 19, 19' are mounted on the outer extremity of the bar 10, said arms being connected above and below the bar by clamp brackets 20 and hinge pins or bolts 20a.

An adjustable suspension eye 21 is threaded through a yoke-shaped bracket or clevis 22 inserted over the outer free end of the bar 10, the legs of the yoke straddling the bar and being suitably secured thereto, as by welding. The eye 21 carries a clevis 23 from which a flexible cable 24 is suspended.

Additional flexible cables 25 and 26 are connected to the outer ends of the arms 19, 19' by means of clevises 27 and 27'.

It will be noted that the cables 24, 25 and 26 are arranged to provide a three-point suspension, the lower end of each cable being connected to the engine E in any suitable manner, as for example, by means of clevises 29, 30 and 31, which engage eyes 32 normally applied to engines of this type to facilitate handling.

In operation, assuming it is desired to lift a radial engine as illustrated in Fig. 1, it is only necessary to connect the fitting 13 to the end of the propeller shaft 14 and the cables 24, 25 and 26 to the eyes 32 and raise the engine from its crate, whereupon the engine may be maneuvered into any angle desired by sliding the bar carrying the engine along the slide bearings or rollers 16. One man can handle a large engine and can center or position the latter accurately without requiring constant shifting by the crane or hoist. In actual use, the improved

hoist attachment has not only reduced manual labor but has resulted in increased production due to the ease in which heavy objects may be handled and accurately positioned.

It will be understood that no attempt has been made herein to enumerate the various advantages inherent in the improved hoist attachment, and it will be obvious, also, that certain changes in construction and design may be adopted without departing from the scope of the invention as defined by the appended claims.

What is claimed is:

1. A hoist attachment for use in lifting heavy objects comprising an arcuate shaped lifting and carrying bar, a suspension and bearing member mounted on said bar and adapted to be connected to a hoist, crane or the like, a fitting pivotally connected to one end of said bar to be connected to a part of the object to be lifted, a flexible cable adjustably connected to the opposite end of said bar, a pair of laterally swinging arms also connected to the bar inwardly from said latter suspension cable, and additional cables connected to the outer ends of said arms and coacting with said end cable to provide a three-point suspension for connection to the object, and whereby when an object is lifted by means of the suspension bar, the latter may be shifted along said bar to maneuver the object to any desired position.

2. A hoist attachment for use in lifting heavy objects such, for example, as airplane engines having a propeller shaft, comprising an arcuate shaped lifting and carrying bar having a fitting pivotally connected to one end and adapted to be connected to one end of the propeller shaft, a pair of swinging arms connected to the bar inwardly of its opposite end, flexible cables connected to the outer end of said bar, and means for connecting the bar to a hoist, cable or the like comprising a suspension member having a bearing in the lower extremity thereof over which said bar is adapted to have movement, and a yoke adapted to be connected to said hoist cable, and whereby when the hoist cable is operated to lift the engine, the latter may be maneuvered into any desired position by sliding the bar along its bearing.

3. A hoist attachment for use in lifting heavy objects, comprising a lifting and carrying bar having the major portion thereof of arcuate shaped contour, a fitting connected to one end of said bar and a flexible cable connected to the opposite end of the bar, a pair of arms connected to said bar inwardly of said cable, additional cables connected to the outer ends of said arms, and means for suspending the bar from a hoist cable including a member having bearings in the lower extremity thereof over which said bar has movement.

4. A hoist attachment for use in installing

airplane engines, comprising a suspension member having bearing rollers in the lower extremity thereof and a yoke connected to the upper end thereof for attachment to a crane or hoist cable, a lifting and carrying bar of channel shape in cross section and of generally over-all arcuate shape slidably mounted in said suspension member, a bracket pivotally connected adjacent one end to said bar and carrying a fitting adapted to be connected to the end of the propeller shaft of the engine, a suspension cable adjustably connected to the opposite end of said bar, a pair of swinging arms secured to the bar inwardly of said cable, additional suspension cables connected to the outer ends of said arms, said latter cables together with said end cable forming a three-point suspension for connection to the engine.

5. A hoist attachment for use in lifting heavy objects, comprising a lifting and carrying bar having the major portion thereof of arcuate shaped contour, suspension members connected to the opposite ends of said bar, a bearing member slidably mounted on said bar and adapted to be connected to a crane or hoist cable, the bar being slidable in said bearing member when the object being lifted is in suspended position, and additional suspension members carried by said bar adjacent one extremity thereof and supported in spaced relation with respect to one another and also with respect to one of said first-named suspension members in a manner such as to provide a three-point suspension for said object.

6. A hoist attachment for use in lifting heavy objects, comprising an arcuate-shaped lifting and carrying bar, a fitting pivotally mounted on one extremity of said bar and a suspension cable adjustably mounted on the opposite extremity of said bar, a suspension and bearing member also mounted on the bar and adapted to be connected to a hoist cable or the like, and additional suspension cables carried by said bar and providing with said first-named suspension cable a three-point suspension means for connection to the object to be lifted, said bar being shiftable in said suspension and bearing member.

7. A hoist attachment for use in lifting heavy objects, comprising an arcuate shaped lifting and carrying bar, a fitting pivotally connected to one end of said bar, cable supporting means mounted on the bar adjacent its opposite extremity, cables suspended from said supporting means, said supporting means being movable to in turn move said cables to a plurality of different positions laterally of the bar, and means including a bearing member for suspending the bar from a hoist cable, the bar being movable on said bearing member to facilitate placement of the object being lifted.

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