

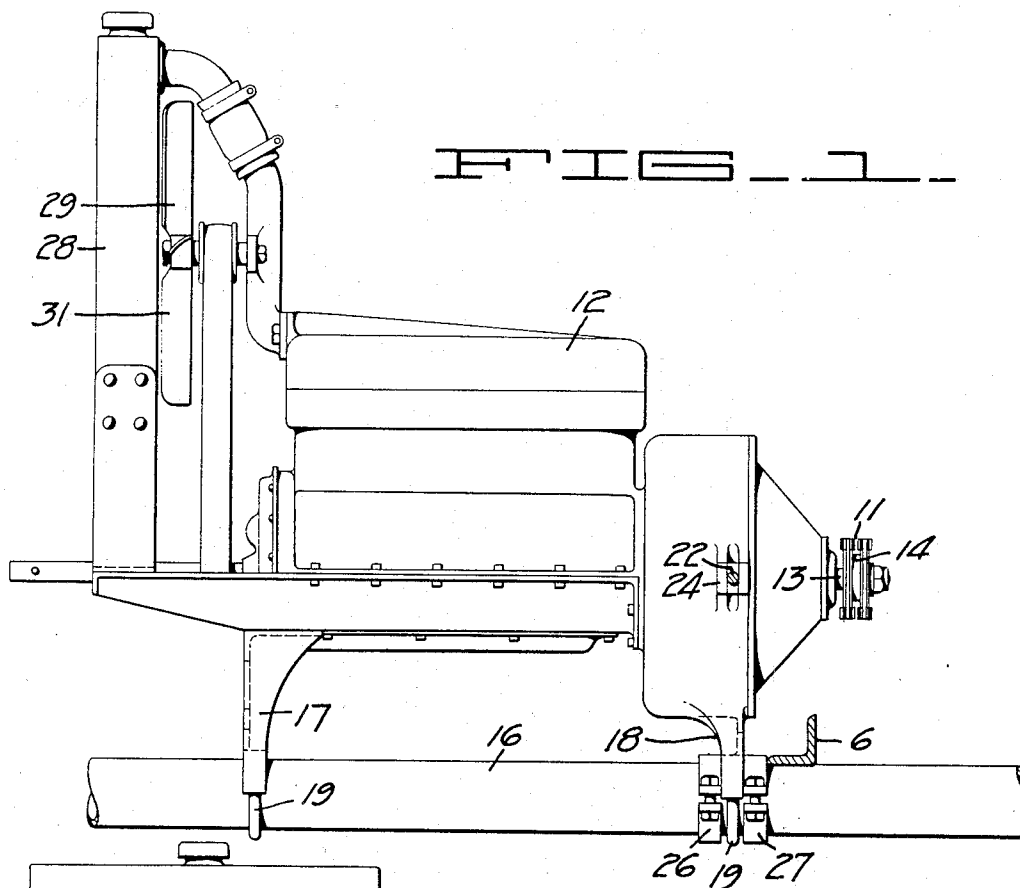
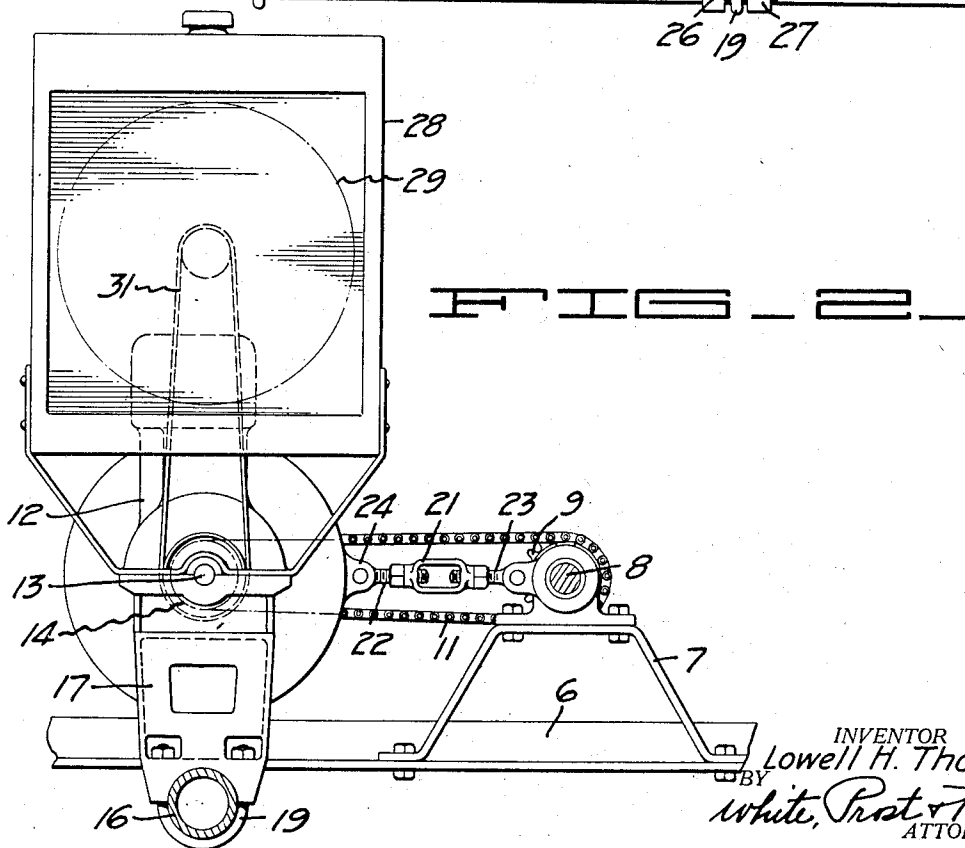
Aug. 1, 1933.

L. H. THOEN

1,920,444

ENGINE MOUNTING

Filed Oct. 10, 1927



INVENTOR
Lowell H. Thoen.
BY *White, Post & Tupper*
ATTORNEYS

UNITED STATES PATENT OFFICE

1,920,444

ENGINE MOUNTING

Lowell H. Thoen, Stockton, Calif., assignor, by
mesne assignments, to Caterpillar Tractor Co.,
San Leandro, Calif., a Corporation of Cali-
fornia

Application October 10, 1927. Serial No. 225,109

4 Claims. (Cl. 308—11)

My invention relates to means for supporting engines, and is especially adapted for use on mechanisms such as harvesting machinery in which the power unit is more or less flexibly connected to a driven shaft.

An object of my invention is to provide an engine mounting which permits of a simple adjustment of the engine relative to the driven shaft.

A further object of my invention is to provide an engine mounting which will facilitate the assembly and disassembly of an engine upon its support.

An additional object of my invention is to provide an engine mounting which is simple but which affords ample supporting strength.

My invention possesses other advantageous features, some of which with the foregoing will be set forth at length in the following description where I shall outline in full that form of the engine mounting of my invention, which I have selected for illustration in the drawing accompanying and forming part of the present specification. In said drawing I have shown one form of engine mounting embodying my invention, but it is to be understood that I do not limit myself to such form since the invention, as set forth in the claims, may be embodied in a plurality of forms.

In the drawing:

Fig. 1 is a side elevation of an engine mounted according to my invention.

Fig. 2 is a front elevation of the engine mounting as disclosed in Fig. 1.

The engine mounting of my invention preferably comprises a supporting shaft on which the engine is pivotally mounted together with means for adjusting the position of the engine with respect to a driven shaft.

In the preferred embodiment of my invention as disclosed in the accompanying drawing, the entire mechanism is arranged on a support 6 which is disclosed as an angle iron having an inverted stirrup 7 on which is journaled a driven shaft 8. The driven shaft also carries a sprocket 9 in engagement with one or more chains 11 which transmit to it the power derived from an engine 12. The drive shaft 13 of the engine is substantially parallel to the driven shaft 8 and carries sprockets 14 in engagement with the chains 11. It is desirable that the tension in the chains 11 be variable to compensate for wear and stretching and also that the sprockets 14 and 9 be adjustable so that their alinement can be corrected.

To this end, I preferably mount the engine 12 on a supporting shaft 16 which preferably is se-

cured in a suitable manner to the channel 6 and forms a portion of the support. The shaft 16 usually is a tube but can be made solid if desired. Depending from the engine 12 are supporting brackets 17 and 18 which encompass the upper half of the supporting shaft 16 and are clamped thereto by U-bolts 19 encircling the lower portion of the supporting shaft 16 and firmly bolted to the brackets. These brackets can be cast integrally with the engine as bracket 18 is shown, or they can be separate castings suitably fastened to the engine as disclosed in connection with bracket 17. In either case, they permit the engine 12 to be pivoted about the axis of the supporting shaft 16 so that the engine can be rocked toward and away from the driven shaft 8. Inasmuch as the axis of the supporting shaft 16 is preferably parallel to the driving shaft 13 and to the driven shaft 8, any desired tension can be placed on the chain 11 solely by rocking or pivoting the engine 12.

The U-bolts 19 can be tightened sufficiently so that the engine 12 is held in place solely by friction but in addition to such fastening, I preferably provide a spacer which includes a turn buckle 21 engaging a pair of stub shafts 22 and 23. The shafts are threaded to fit the turn buckle and one of them is preferably pivoted between ears 24 cast integrally with the crankcase housing of the engine 12 while the other is pivoted to an ear on the journal for the driven shaft 8. By suitably revolving the turn buckle 21, the engine is rocked or pivoted about the supporting shaft 16 and is firmly held in any adjusted position.

The brackets 17 and 18, when the U-bolts are loosened, permit the engine 12 to be moved axially along the supporting shaft 16 so that the sprockets 14 can be alined with the sprockets 9. When this adjustment has properly been made I preferably clamp in position a pair of collars 26 and 27 which constrain further axial movement of the engine on the shaft 16 and while maintaining the axial alinement permit pivotal or rotary movement of the engine about the shaft.

Not only does the supporting shaft 16 form a convenient mounting so that the engine can be moved as a body for adjustment with respect to the driven shaft 8, but it also forms a major support for the engine itself inasmuch as the brackets 17 and 18 can be made sufficient in number and sufficient in strength to stiffen materially the structure of the engine. This is advantageous in that it permits the engine crankcase and similar parts to be made of somewhat lighter construction than might ordinarily be the case and is par-

ticularly advantageous in case the engine and allied transmission machinery are made up of a number of separate units bolted together. The supporting shaft 16 then acts as a firm foundation to insure the proper alinement of all of the components.

As disclosed in the drawing, I preferably extend the engine framework forward sufficiently to support the radiator 28 together with the usual fan 29 and driving belt 31. There is thus no necessity for any flexible connection between the movable engine and the radiator or fan therefor. With this construction the entire engine and cooling system swings as a unit about the supporting shaft and the connections between the engine and radiator can be those necessary to take care of only the incidental vibration of the mechanism. In a like manner the gasoline tank can be mounted on the same support as the engine and swing with the engine so that there will be no flexible connections necessary between any of the motive units.

With the mounting of my invention there is not only an adjustment provided so that the engine and driven shaft can be suitably alined and positioned but there is also provided a very stiff mounting for the engine on a single support which is subject to a minimum of weaving and misalignment. In this way superior results are obtained over previous engine mountings which are composed of a plurality of pieces or parts subject to relative motion tending to throw the engine and driven shaft out of alinement and to subject them to racking forces and strains.

I claim:

1. An engine mounting comprising a horizontal supporting shaft, an engine, a plurality of spaced upright brackets secured to said engine and pivoted on said shaft, said brackets serving to reinforce the engine structure and holding the engine in balanced position with the center of

gravity of the engine approximately vertically above the axis of said shaft, means for rigidly holding said engine in balanced position, and a driving connection to said engine.

2. An engine mounting comprising a horizontal supporting shaft, an engine, a plurality of spaced upright brackets secured to said engine and pivoted on said shaft, said brackets serving to reinforce the engine structure and holding the engine in balanced position with the center of gravity of the engine approximately vertically above the axis of said shaft, a driven shaft substantially parallel to said supporting shaft, a driving connection between said engine and said driven shaft, and adjustable means for rigidly holding said engine in balanced position.

3. An engine mounting comprising a horizontal supporting shaft, an engine, a plurality of spaced upright brackets secured to said engine and pivoted on said shaft, said brackets serving to reinforce the engine structure and holding the engine in balanced position with the center of gravity of the engine approximately vertically above the axis of said shaft, means secured to said supporting shaft and cooperating with a bracket to constrain the engine against axial movement along said supporting shaft, means for rigidly holding the engine in balanced position, and a driving connection to said engine.

4. An engine mounting comprising a horizontal supporting shaft, an engine, a plurality of spaced upright brackets secured to said engine and pivoted on said shaft, said brackets serving to reinforce the engine structure and holding the engine in balanced position with the center of gravity of the engine approximately vertically above the axis of said shaft, a driven shaft, and means interconnecting said driven shaft and said engine to maintain said engine in a substantially fixed balanced position on said supporting shaft.

LOWELL H. THOEN.

45

120

50

125

55

130

60

135

65

140

70

145

75

150