April 5, 1927. 1,623,221

R. WEIMER

COMBINED AUTO TRUCK AND SPRAYER

Filed Sept. 5, 1925

Fig. 1.

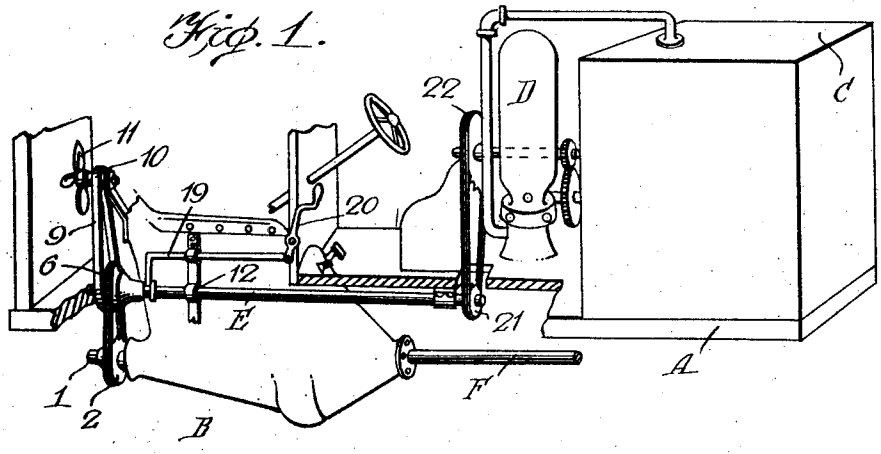


Fig. 2.

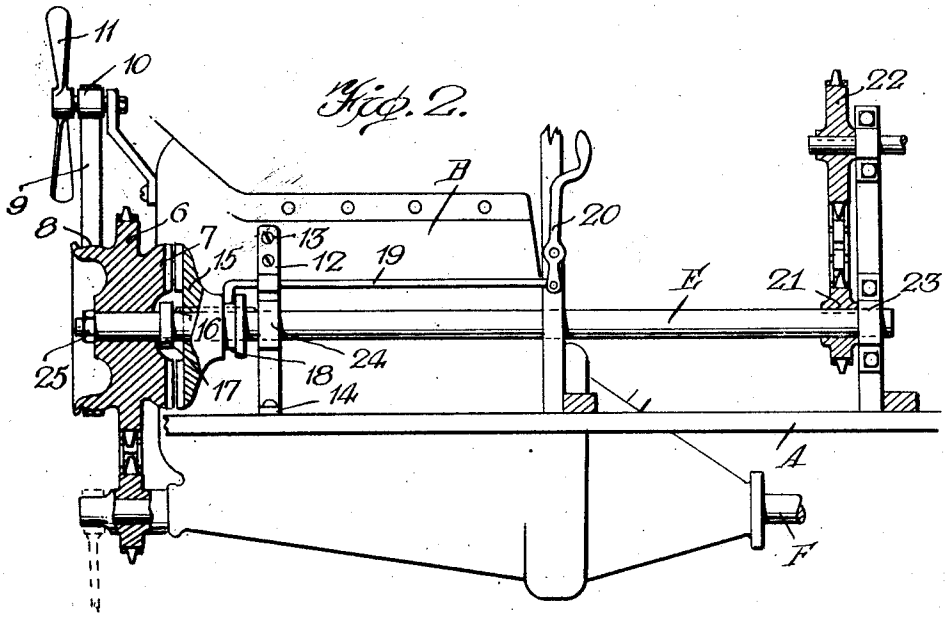
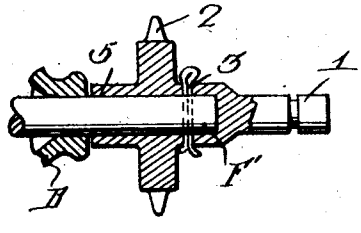


Fig. 3.



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UNITED STATES PATENT OFFICE.

ROBERT WEIMER, OF APPLE CREEK, OHIO.

COMBINED AUTO TRUCK AND SPRAYER.

Application filed September 5, 1925. Serial No. 54,822.

My invention relates to improvements in devices for spraying fruit trees and vegetables during growth, and particularly to machines for transporting, mixing and applying by hydraulic pressure spray material simultaneously, during transportation.

Its principal objects are, first to provide means for conveying spray material by motor vehicle, and utilizing such motor to mix and agitate such material during transportation, and create hydraulic pressure to forcibly apply the mixture while the motor vehicle is either at rest or in motion; secondly, to combine a supply spray tank, hydraulic force pump and appliances for applying the spray mixture from the tank to the objects sprayed with a motor vehicle so as to both convey the tank and pump and drive the latter by means of the vehicle engine while the vehicle is either traveling or stationary; third to provide means for varying the speed of the vehicle with respect to the operation of the force spray pump and for actuating the force pump independently of the movement of the vehicle while applying the spray material to the objects sprayed; and it consists in the novel means employed for accomplishing said objects, as hereinafter set forth and stated in the appended claims.

My invention is illustrated by the accompanying drawings in which similar letters and figures of reference indicate like parts. Referring thereto, Fig. 1 is a side view of a power spraying machine embodying my invention, some parts being cut away for better illustration of the machanism.

Fig. 2 is an enlarged side view of the force pump driving mechanism in connection with the vehicle engine and the pump in detail, and Fig. 3 is a detail view in section of the means I employ for connecting the vehicle engine with the pump driving shaft.

In the drawings, A represents the frame of an ordinary motor vehicle in common use, B the engine thereof, and C the tank for spray material, and D a hydraulic force pump, such as is also in common use, and no claim is made thereto specifically. E is a shaft for driving the force pump D mounted in a bearing 24 near one end thereof and in a bearing 23 at the opposite end thereof, the bearing 24 being supported on an arm 12 secured by suitable bolts 13 and 14 to the side of the engine, substantially as shown in Fig. 2. F is the driving shaft of the engine B as commonly constructed for use in motor vehicles, its outer terminus F′ being generally used to afford means for cranking the motor, and for driving the fan 11 of the engine. In order to utilize the engine motor for also driving the force pump mechanism, which is the particular feature of my invention, I have provided the horizontal shaft E aforesaid, and mounted on its outer end an idle pulley 6 in form of a sprocket wheel, and combined with it a belt wheel 8, and a female portion of a clutch 7, best shown in Fig. 2, the belt pulley wheel 8 being secured in position on the end of the shaft E by a nut 25, and a stationary ring 17, secured on the shaft by a set screw; the combined belt pulley, sprocket wheel and clutch playing freely between said nut and ring. The male member of said clutch is fastened securely against rotation on the shaft by means of the spline 16, imbedded in the shaft, on which the clutch member may slide longitudinally to engage the female member, in the usual well known way. Said clutch is actuated into and out of engagement by means of the rod 19, which passes freely thru the arm 12 as its support, and is constantly in operative engagement with the groove 18, and with the short end of a hand lever 20 whereby said rod is actuated at pleasure of the operator of the machine. By said means the shaft E may be thrown into and out of gear with the sprocket and band pulley, so that the force pump, which is driven by the sprocket wheel 21 and 22, may be run independently of the movement of the motor vehicle, and the latter may stop or move at any desired rate of speed by the well known means now used to propel motor vehicles by gasoline engine or the like, which need no further illustration, as no claim is made thereto.

In order to accomplish this independent action of the driving shafts E and F, and at the same time maintain the usual action of the fan 11, I substitute for the belt pulley usually mounted on the shaft F to drive the fan pulley 10, a pulley and crank shaft attachment, shown in Fig. 3, comprising in combination a sprocket wheel 2 mounted on a sleeve 5 into which the end of the drive shaft F′ extends, and to which the sleeve is secured by the pin 3 passed therethru; the sleeve terminates outwardly with a spindle 1 on which is mounted the crank arm G, in

the usual way. The sprocket pulley 2 is mounted in direct alignment with the sprocket wheel 6, and they are connected with a sprocket chain, and the belt wheel 8 at the side of the sprocket wheel is in direct alignment with the belt pulley 10 of the fan 11, whereby the motor engine operates in the manner usual in motor vehicles. Thus it is apparent that an ordinary motor vehicle and its engine and chassis may be converted by the simple and inexpensive attachment described, into a means for also driving the force pump for spraying mounted on the chassis in connection with the spray tank C, and, when not desired for spraying purposes, the drive shaft E for the spray pump may be detached, and the belt pulley for driving the fan may be restored on the drive shaft F by the removal of the sprocket pulley and sleeve attachment therefrom, leaving the motor vehicle ready for other uses than spraying.

I do not limit my claims of invention to mere matter of form which is capable of considerable modification depending on the kind of motor vehicle employed, but all of which are within the scope of my invention. I am aware it is not new to combine vehicles for transportation of spray material and force pump and tank for spray material mounted thereon.

I am also aware it is not new to combine a power shaft with the drive shaft and fan shaft of an auto truck, all being driven by the same sprocket chain extended around aligned sprocket pulleys on the several shafts, and such I do not broadly claim.

As my invention relates particularly to means for operating a force pump in connection with the drive shaft of the auto-truck engine, such as commonly used, the rotation of which is too rapid for the purpose, and because it is necessary to change the diameter of the drive shaft pulley, and mount it on a sleeve it is also necessary to provide a double pulley for the power shaft of different diameters to attain proper rotation of both power shaft and fan shaft, and also provide an idle belt pulley to drive the fan shaft integral with a sprocket pulley for the power shaft. To accomplish this two fold object, I substitute for the ordinary belt pulley on the drive shaft, in common use, a sprocket pulley attachment, comprising a sleeve with a short spindle at one end integral therewith—the spindle provided with a crank shaft ratchet pin, as commonly used—and a sprocket pulley on said sleeve, integral therewith, and bore a pin hole thru said sleeve so as to register with the pin hole in the drive shaft for the usual belt pulley removed, and thereby provide means for using the starting crank in the usual manner, and at the same time provide a sprocket pulley of proper diameter aligned with the sprocket pulley on the power shaft, and a belt pulley of proper diameter aligned with the fan belt pulley, the two pulleys on the power shaft being normally idle thereon and solidly united.

Thus the only change required to restore the auto truck after removal of the power shaft is the removal of the sleeve, and replacement of the original belt pulley on the drive shaft, by means of the linch-pin 3, as aforesaid.

What I claim is:

1. In a power spray rig, the combination with a motor vehicle engine and chassis, of a longitudinal shaft rotarily mounted on said engine, a bearing for one end of said shaft, a support bar for said bearing secured on said engine body, a driven pulley mounted idly on said shaft comprising a sprocket wheel and belt pulley solidly united and of different diameters and one member of a clutch, means for actuating said clutch manually, a drive pulley mounted on the opposite end of said shaft, a driven pulley in operative engagement with said drive pulley, a hydraulic force pump in operative engagement with said driven pulley, and means, including an attachment mounted on the engine drive shaft comprising a short spindle, a sleeve integral therewith, and a sprocket pulley on said sleeve, to drive said horizontal shaft.

2. In a device of the character described, the combination with the drive shaft and fan shaft of the engine, an intermediate power shaft, a double idle pulley thereon, comprising a sprocket wheel, and a belt pulley adapted to drive the fan-shaft; an attachment for the drive shaft comprising a short spindle, a sleeve extension thereon adapted to engage the end of said shaft, and a sprocket pulley on said sleeve adapted to drive said sprocket wheel on the power shaft; and means for intermittently clutching said idle pulley with said power shaft.

In witness whereof I hereunto set my hand at Wooster, Ohio, this 31st day of August, A. D. 1925.

ROBERT WEIMER.