F. W. PARSONS.

PORTABLE COMPRESSOR UNIT.

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1,415,047. Patented May 9, 1922.

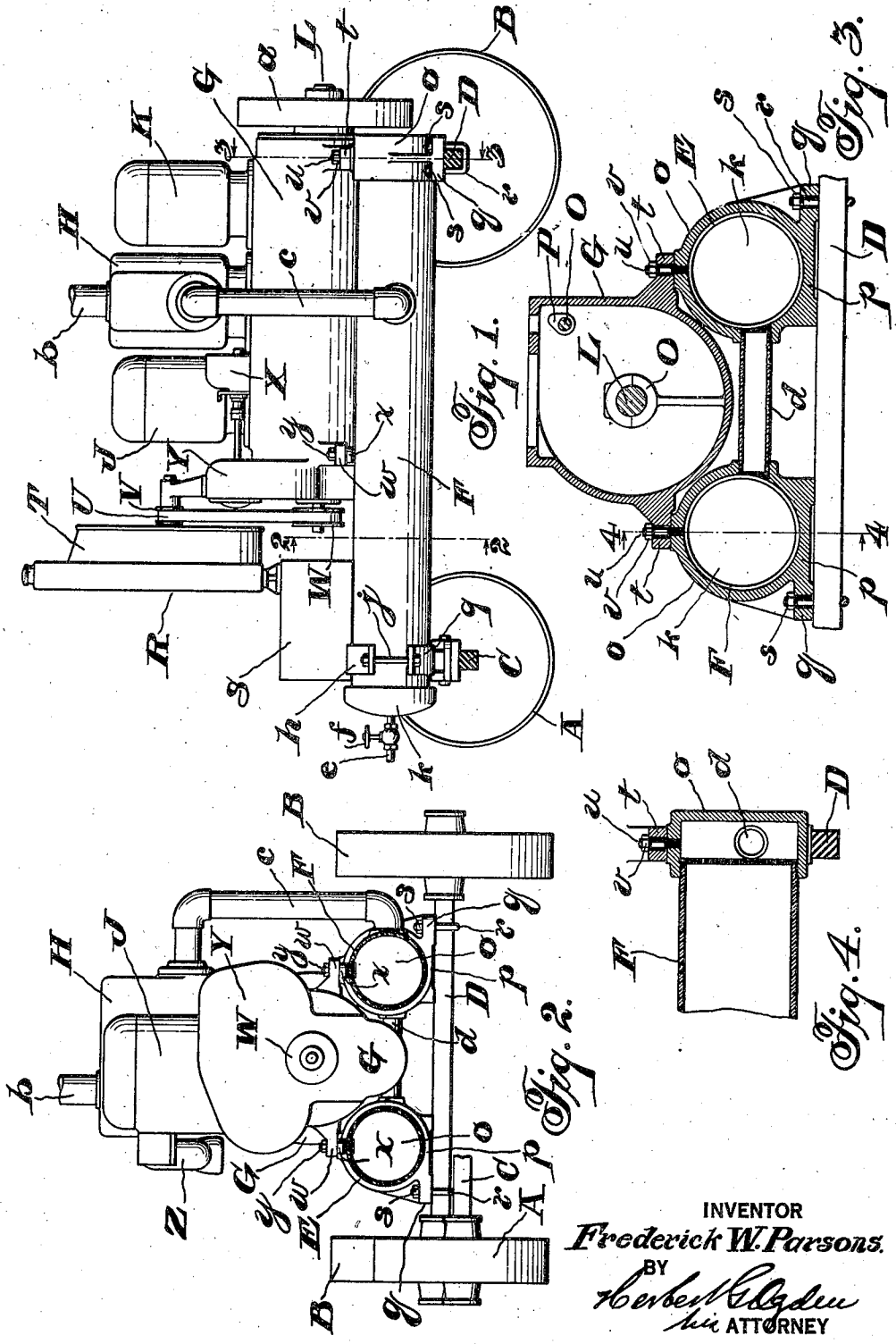


Fig. 1.

Fig. 3.

Fig. 2.

Fig. 4.

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PORTABLE COMPRESSOR UNIT.

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Application filed March 31, 1921. Serial No. 457,383.

To all whom it may concern:

Be it known that I, FREDERICK W. PARSONS, a citizen of the United States, and a resident of Elmira, county of Chemung, State of New York, have invented a certain Portable Compressor Unit, of which the following is a specification accompanied by drawings.

This invention relates to portable compressor units, including a vertical compressor and an engine for driving the same, preferably in the form of a combustion engine.

In such a self contained portable unit, the compressor, its driving means, and a receiver, are mounted on a suitable frame having wheels or skids for instance, and the objects of the present invention are to lighten, simplify and cheapen the construction, lower the center of gravity of a vertical compressor unit as much as practically possible, without detracting from portability, produce a compact and rigid structure with as few parts as possible, and enable the elements forming the unit to be readily assembled in the shop, and disassembled in the field if necessary, and also permit any part to be quickly removed where and when desired.

Further objects of the invention will hereinafter appear and the invention is shown in its preferred form in the accompanied drawings in which

Figure 1 is a side elevation, partly in longitudinal section, of a portable compressor unit embodying the invention;

Figure 2 is a transverse sectional elevation on the line 2—2 of Figure 1 looking in the direction of the arrows with the radiator and fan drive removed;

Figure 3 is an enlarged transverse sectional elevation on the line 3—3 of Figure 1 looking in the direction of the arrows and taken through the receivers and engine frame, and

Figure 4 is a detail longitudinal broken sectional view through the back head of a receiver tank on the line 4—4 of Figure 3 looking in the direction of the arrows.

In the drawing, the principal elements of the unit are illustrated in sufficient detail to enable the invention to be understood, those details however, which form no part of the invention have been omitted for simplicity and the drawings have been made as nearly diagrammatic as possible.

Referring to the drawings the front wheels A and the rear wheels B of a portable compressor unit are indicated on the front and rear axles C and D respectively. The axles of the machine form the usual transverse elements of the frame of the carriage and in accordance with this invention the longitudinally extending side elements or reaches of the carriage frame are formed by the receiver tanks E and F of a duplex receiver. An engine frame in the form of a crank case G is mounted on and extends longitudinally of the duplex receiver, and in this instance for illustrative purposes a vertical compressor cylinder H and two combustion engine cylinders J and K are shown mounted on the crank case G, substantially in accordance with the construction forming the subject matter of the co-pending application of Earl W. Taylor, deceased, Serial No. 487,326, filed July 25, 1921. As in the application referred to, the combustion engine cylinders J and K, preferably of the four cycle type, are located at each side of the compressor cylinder H and a common crank shaft L, operating in suitable crank shaft bearings O in the crank case G is provided for the three cylinders. A cam P on a counter-shaft Q is indicated for operating the valves of one of the combustion engine cylinders but the details of the valve mechanism are omitted for simplicity.

The unit is shown provided with the usual radiator R at the front of the machine mounted on a box or casing T. A belt U running over the pulleys V and W adapted to be suitably driven from the engine crank shaft is provided for driving the radiator fan. A starting motor X or other suitable starting device may be mounted on the crank case G and said crank case may also be provided with a gear case Y for housing suitable starting gearing. The combustion engine cylinders J and K may be provided with the usual intake manifolds Z and a flywheel *a* is conveniently located at the back of the machine on the crank shaft L. Air enters the compressor at the intake *b* and is discharged through the discharge pipe *c* to the duplex receiver, the two tanks F and E of which are in communication through the pipe *d* at the back of the machine. Air under pressure is supplied to the point of work from the supply pipe *e* controlled by the hand valve *f*.

In order to conveniently and securely fasten the receivers E and F to the axles C and D but in such manner that the parts may be readily assembled or disassembled, I have provided saddles *g* on the front axle and suitably connected thereto on which the front ends of the main body portions of the receivers are adapted to rest. Straps *h* are suitably clamped to the saddles *g* as by means of the bolts *j*. Each receiver is provided with a front head *k* and a back head *o* suitably and removably secured thereto as by means of screw threads for instance indicated in Figure 4. The back heads *o* are provided with bases *p* having feet *q* adapted to be secured to the rear axle D as by means of the U-bolts *r* having the nuts *s*.

The crank case G is provided with the outwardly extending hind feet *t* adapted to be secured to the back heads *o* as by means of the bolts *u* and nuts *v*. As shown the apertures in the hind feet *t* through which the securing bolts *u* pass are slightly larger than the diameter of the bolts, affording clearance for purposes of adjustment in aligning the parts. The crank case G is also provided with the fore feet *w* adapted to be adjustably connected to the main body portions of the receivers E and F as by means of the studs *x*, screw threaded into the receiver shells and provided with the adjusting nuts *y*.

The fluid connection *d* in the form of a pipe between the receiver tanks, is connected to the two back heads *o*, and in addition to affording communication between the tanks, forms an additional transverse brace or strut for stiffening purposes. The crank case G lies between the receivers E and F and partially below the level of the tops of the receivers, which lowers the center of gravity and increases the stability of the machine.

The entire construction of the portable compressor unit is such that the parts may be readily assembled and disassembled. Different parts may be removed for inspection, repair or adjustment without disturbing the remaining parts and the manner in which the axles, receivers, crank case and driving and driven elements are mounted and connected together affords strength and rigidity and enables the machine to withstand great vibration without injury or derangement of parts.

I claim:—

1. A portable compressor unit, comprising a main supporting frame in the form of a duplex receiver extending longitudinally of the unit, an engine frame forming a crank case adjustably supported upon said duplex receiver, and lying partially between and below the level of the tops of the receiver tanks and a vertical engine driven compressor mounted on said crank case.

2. A portable compressor unit, comprising a main supporting frame consisting of a plurality of longitudinally extending receivers in communication with each other and having body portions and front and back heads, the back heads being connected together by transverse end connections, an engine frame in the form of a crank case extending longitudinally of the receivers and supported upon the back heads and body portions of the said receivers and lying partially between and below the level of the tops of the receivers, and a vertical engine driven compressor mounted on said crank case.

3. A portable compressor unit, comprising a main supporting frame consisting of a plurality of longitudinally extending receivers having body portions and removable front and back heads, the back heads being in communication with each other and being connected together by transverse end connections, an engine frame in the form of a crank case extending longitudinally of the receivers, and supported rearwardly upon the said back heads and adjustably supported at its forward end upon the body portions of the receivers, the said crank case lying between and partially below the tops of the receivers, and a vertical engine driven compressor mounted on said crank case.

4. A portable compressor unit comprising a main supporting frame consisting of longitudinal side elements or reaches in the form of cylindrical receivers having body portions and removable front and back heads, and transverse end elements adapted to form axles connecting the said receiver heads at front and back, a fluid connection between the said back heads affording communication between the said receivers, an engine frame in the form of a crank case extending longitudinally of the receivers and provided with outwardly extending feet at the front and rear ends, the hind feet being supported on the receiver back heads, and the front feet being adjustably supported upon the main body portions of the receiver, the body of the crank case lying between and partially below the tops of the receivers, and a vertical engine driven compressor mounted on said crank case.

In testimony whereof I have signed this specification.

FREDERICK W. PARSONS.