July 18, 1939. T. P. FLYNN ET AL 2,166,780

PORTABLE TRAIL COMPRESSOR

Filed Oct. 25, 1937 2 Sheets-Sheet 1

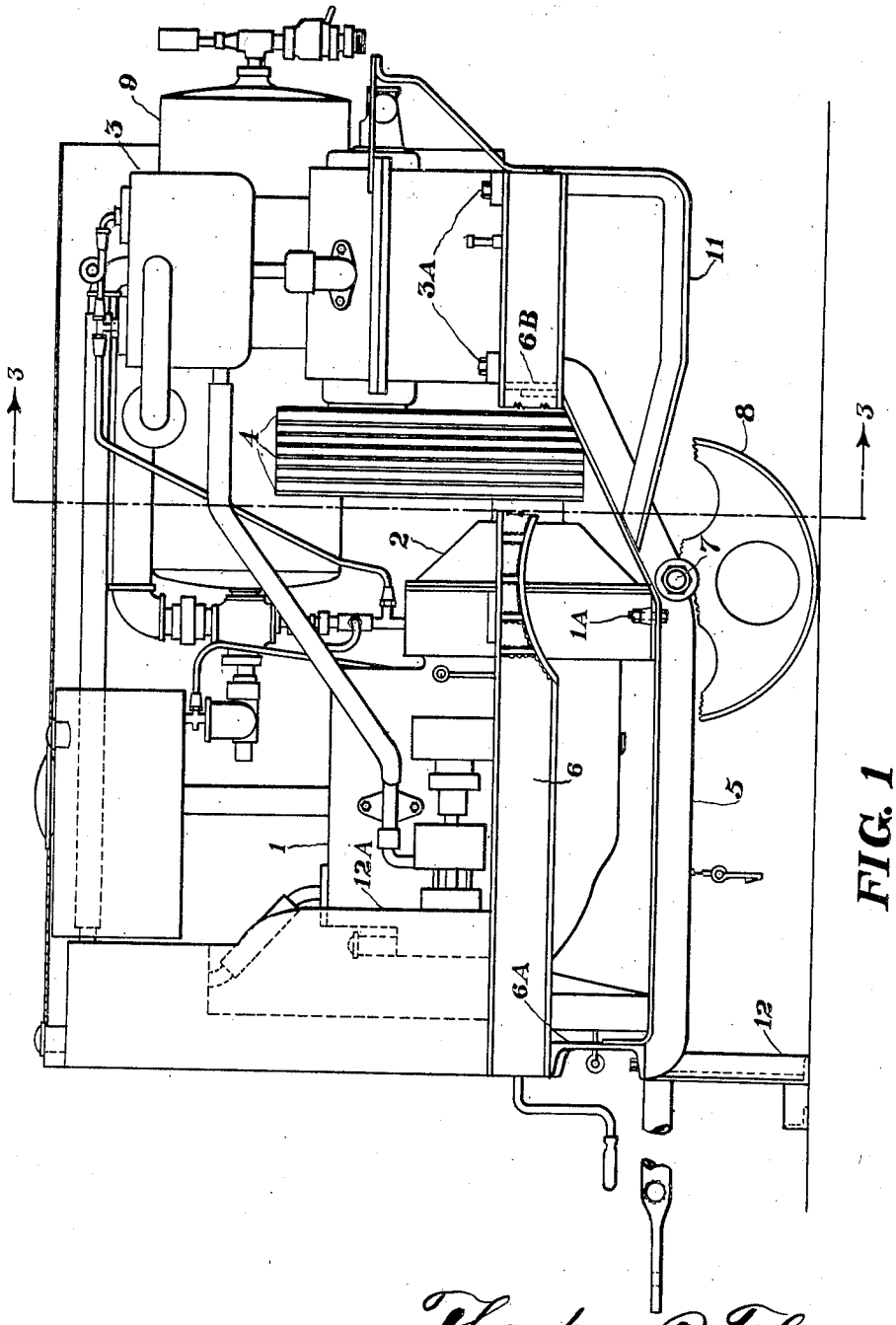


FIG. 1

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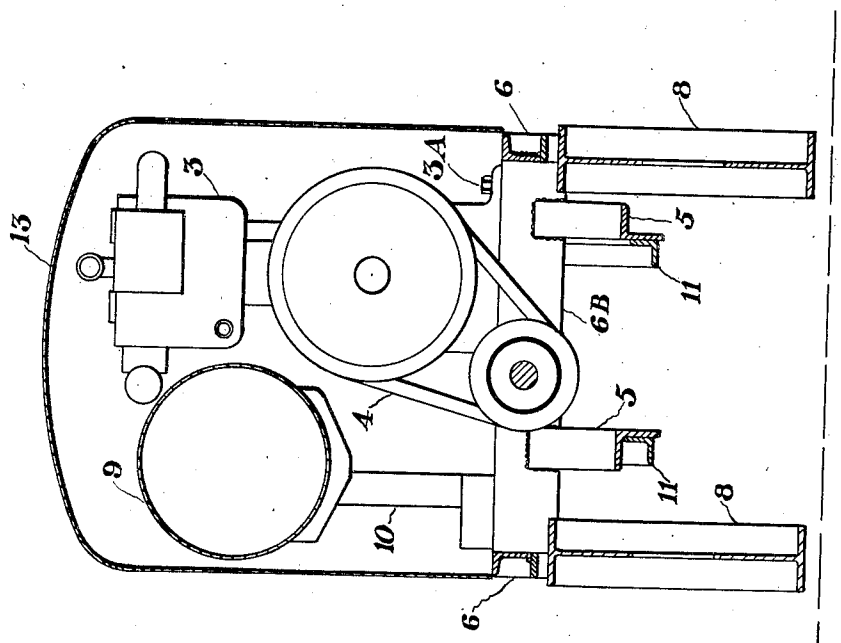


FIG. 3

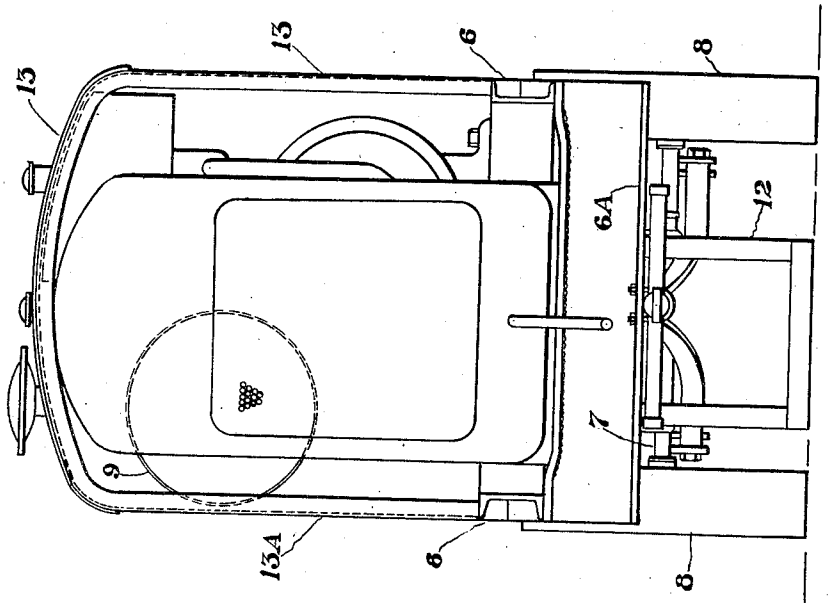


FIG. 2

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UNITED STATES PATENT OFFICE

2,166,780

PORTABLE TRAIL COMPRESSOR

Theodore P. Flynn and Raymond E. Neils, Portland, Oreg.; dedicated to the free use of the People of the United States of America

Application October 25, 1937, Serial No. 170,800

1 Claim. (Cl. 230—211)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

This application is made under the act of March 3, 1883, as amended by the act of April 30, 1928, and the invention herein described, if patented, may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment to us of any royalty thereon.

We hereby dedicate the invention herein described to the free use of the People of the United States of America to take effect on the granting of a patent to us.

This invention relates to air compressors and one of its objects is an arrangement and assembly of the elements of the portable type of air compressor to render it capable of being disassembled and transported by horsepack or by hand in such places as mountains where trails and narrow passages are the only available routes for traveling.

To provide such an air compressor it is evident that each unit to be carried must conform to a maximum weight requirement, which, for a regular horsepack is 300 pounds. This invention embraces a compressor capable of providing sufficient compressed air to operate a conventional rotating rock drill hammer, built up of five quickly detachable units, each unit weighing less than 300 pounds, and particularly shaped to permit transportation by regular horsepack.

Another object of this invention is to provide such an air compressor, which, when disassembled may be quickly reassembled and made ready for operation.

Other objects of this invention are to provide a portable compressor of the type mentioned, which, when assembled has a very low center of gravity to prevent tipping and a narrow width to permit passage on narrow mountain trails.

These and other objects and advantages of this invention will be apparent from the following description considered together with the accompanying drawing.

In the drawing:

Figure 1 is a side view of this invention with one side of the compressor and half of the roof removed, showing the underslung arrangement of the gas engine.

Figure 2 is a front view showing the manner in which the gas engine is offset from the vertical center line of the main frame and running gear.

Figure 3 is a cross-sectional view taken along line 3—3, of Figure 1, and shows relative positions of belt pulleys arranged to decrease height and width, and accommodate a storage tank.

Referring with more particularity to the drawing in which like numerals denote like parts, the numeral 1 designates a gas engine which drives a compressor pump 3 by means of a starting and stopping clutch 2 and belts 4. The engine 1 has supporting members 5, 5 suspended below the main frame 6. This gives a low center of gravity and decreases the height of the compressor as a whole. The engine supports 5, 5 are fastened to the main frame 6 by means of cross members 6A and 6B, which cross members also serve to support and anchor brackets for the axle 7. The wheels 8, 8 are mounted on the extreme ends of said axle 7. The air receiver tank 9 is disposed on one side of the compressor pump 3 by means of supports 10. A secondary frame 11 serves as a rest to limit backward tilting of the unit, and a folding rest 12 limits forward tilting as well as serving as a third point of support for the assembled compressor.

By offsetting the engine 1 and the compressor 3 on opposite sides of the vertical center line of the frame 6, as shown in Figures 2 and 3, space is provided for the air receiver tank 9 near the compressor pump, and permits a passage for air to cool the compressor pump. A light weight metal wall deflector 12A directs the forced air from the engine fan to the compressor pump 3, thereby eliminating any tendency for air to become trapped between said pump and the roof 13. This directed circulation of air aids radiation of heat from the receiver tank 9 and the pump 3, thereby eliminating a wide range between the air at atmospheric temperature and the temperature after compression, with resulting lower condensation conditions.

With this arrangement and construction minimum height, width, and length is accomplished.

When this compressor is of a size delivering 60 cubic feet of air, it is demountable into five separate units, none of which weigh more than 300 pounds, and is accomplished by removing the engine bolts 1A from the engine supports, the bolts 3A of the compressor pump, bolts of the receiver tank support 10, roof support 13A, anchor bolts at frame 6, and disconnecting the pipe and hose lines between the engine 1 and the compressor pump 3. Also the pipe lines between the compressor pump 3 and the tank 9 and belts 4 are removed. These units can then be packed for transportation. The five packs consist of the engine 1, the compressor pump 3, the air receiver tank 9 with pipes and fittings, the roof 13 with engine radiator and fuel supply tank nested therein, and the runnings of the main frame 6 and wheels 8, 8.

Having thus described our invention, we claim:

In a portable air compressor assembly, a fan-cooled motor disposed on the forward end of the assembly, a compressor pump on the rearward end of the assembly, said pump being vertically off-set above and completely separated from the motor, removable belt and pulley means for driving said pump with said motor, and means deflecting cooling air from the fan of said motor to said pump.

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