

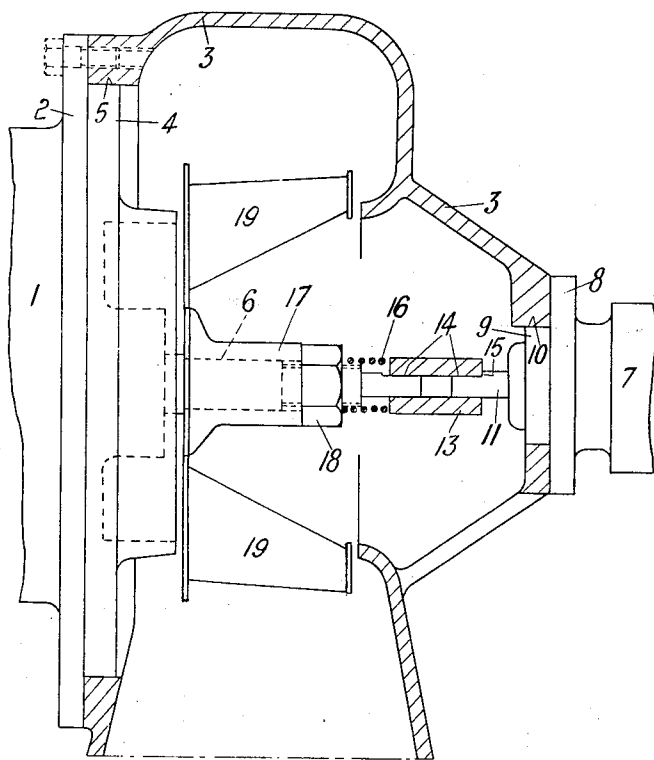
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AIR AND FUEL PUMP UNIT

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UNITED STATES PATENT OFFICE

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AIR AND FUEL PUMP UNIT

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This invention has reference to improvements in and relating to liquid fuel burning plant particularly of the type in which the spindle of the liquid fuel supply pump and the spindle of the pump-driving motor are located in axial alignment and in which there is sandwiched between the pump casing and the motor casing a fan casing in which operates a fan, carried by the motor spindle, adapted to supply air for combustion to the burner or atomizer.

An object of the invention is to provide improved means whereby the pump and motor spindles are coupled together in axial alignment, easily and quickly, and another object of the invention is to provide an arrangement of construction in which the coupling is housed wholly within the fan casing, so that no rotary parts are exposed.

According to this invention a liquid fuel burning plant of the above type comprises a fan casing which is formed as one integral unit provided with means whereby the motor and pump spindles are centered in axial alignment. Desirably the fan casing is formed on opposite sides thereof with machined orifices which are located on the same centre line and into which fit portions of the motor and pump casings which are machined with the motor and pump spindles centered. The adjacent ends of the motor and pump spindles are connected by a coupling located wholly within the fan casing. Desirably the said coupling is constituted by a spring-urged sleeve mounted on the motor and pump spindles so as to be rotatable therewith and axially slidable thereon.

The figure of the accompanying drawing is a sectional elevation of a fan casing sandwiched between a motor and a pump casing in accordance with the invention.

The motor casing 1 is provided with a radial flange 2 to which may be bolted the fan casing 3, a portion 4 of the motor casing 1, which projects from the face of the flange 2, being located in an orifice 5 in the fan casing 3. The periphery of the said portion 4 of the motor casing 1 is machined with the motor spindle 6 centered and the orifice 5 in the fan casing 3 is machined to fit and sleeve the

said machined portion 4 of the motor casing 1. Similarly the pump casing 7 is provided with a radial flange 8 to which may be bolted the fan casing 3, a portion 9 of the pump casing 7, which projects from the face of the flange 8, being located in an orifice 10 in the fan casing 3. The periphery of the said portion 9 of the pump casing 7 is machined with the pump spindle 11 centered and the orifice 10 in the fan casing 3 is machined to fit and sleeve the said machined portion 9 of the pump casing 7. The orifices 5 and 10 in the fan casing 3 are located on the same centre line, one on each side of the fan casing 3, so that the fan casing 3 is sandwiched between the motor and pump casings 1 and 7.

On the portion of the motor spindle 6 which is located within the fan casing 3 the fan 19 is secured. The end of the pump spindle 11, located within the fan casing 3, is spaced from the adjacent end of the motor spindle 6. A sleeve 13 is mounted on and bridges the adjacent ends of the motor and pump spindles 6 and 11. This sleeve 13 is mounted on the said spindles 6 and 11 so as to be capable of sliding thereon and rotates therewith. The sleeves 13 may be connected to the spindles 6 and 11 by a feather or key and a groove or, as shown, the spindles 6 and 11 may be provided with a flat 14 or flats and the interior of the sleeve 13 correspondingly shaped to fit thereon or the interior of the sleeve 13 and the spindles 6 and 11 may be of polygonal shape in cross section. The pump spindle 11 (or the motor spindle 6) may be provided with a stop 15 or collar forming an abutment against which the one end of the sleeve 13 is held by means of a spring 16 which embraces the motor spindle 6 (or pump spindle 11) and acts against the other end of the sleeve 13 and against the fan boss 17 or, as shown, against the securing nut 18 of the fan boss 17 (or against the pump casing 7).

What we claim is:—

1. Liquid fuel burning plant comprising a motor casing, a rotary driving spindle protruding from said motor casing, a pump casing, a driven spindle protruding from said pump casing, a fan secured on the protruding

end of said driving spindle, a fan casing constructed to house said fan and interposed between said motor and pump casings, two cylindrical machined surfaces formed on the fan casing and having their axial center lines in alignment, a cylindrical machined surface 5 formed on the motor casing and having its axial center line coinciding with the axial center line of the driving spindle, a cylindrical machined surface formed on the pump casing and having its axial center line coinciding with the axial center line of the driven spindle, said machined surfaces being so positioned that one machined surface on the 10 fan casing fits the machined surface on the motor casing and the other machined surface on the fan casing fits the machined surface on the pump casing whereby the driving and driven spindles are arranged in axial alignment and means for coupling together said 20 driving and driven spindles.

2. Liquid fuel burning plant according to claim 1 in which the machined surfaces on the motor and pump casings project outwardly from radial flanges formed respectively on the motor and pump casings and in

which the machined surfaces on the fan casing present orifices which fit the machined surfaces of the motor and pump casings respectively.

3. Liquid fuel burning plant according to claim 1 in which the means for coupling the driving and driven spindles includes a sleeve which bridges the adjacent ends of said spindles and is mounted so as to be capable of sliding axially thereon and rotating there- 75 with, said sleeve being spring-urged against a stop limiting axial sliding movement in one direction.

4. Liquid fuel burning plant according to claim 1 in which the motor casing is spaced 80 from the pump casing with the driving and driven spindles in axial alignment and in which the fan casing is interposed between and secured by bolts to radial flanges formed on said motor and pump casings whereby said 85 fan casing encloses the coupling means between the driving and driven spindles.

In testimony whereof we have signed our names to this specification.

JOHN GRAVES MCKEAN.

ROBERT FREDERICK JONES.

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