E. I. PEARSON.

ENGINE COOLING MEANS.

APPLICATION FILED JAN. 17, 1921.

1,399,871. Patented Dec. 13, 1921.

Fig. 1.

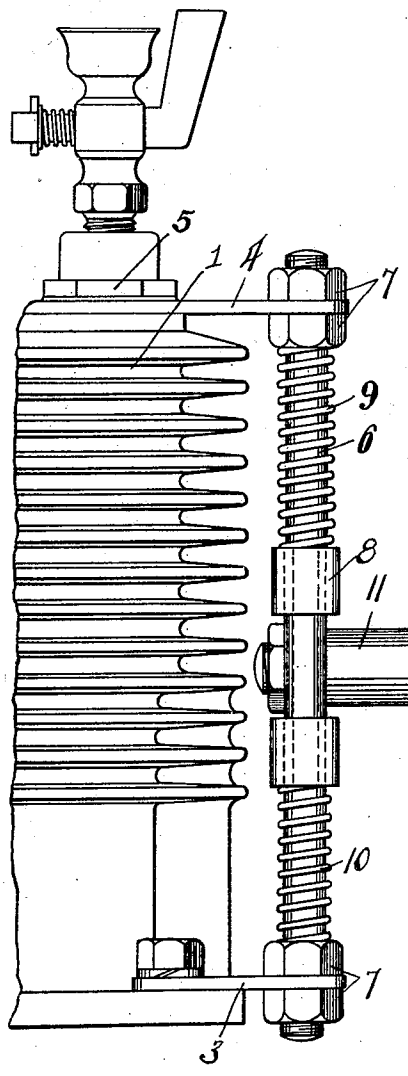
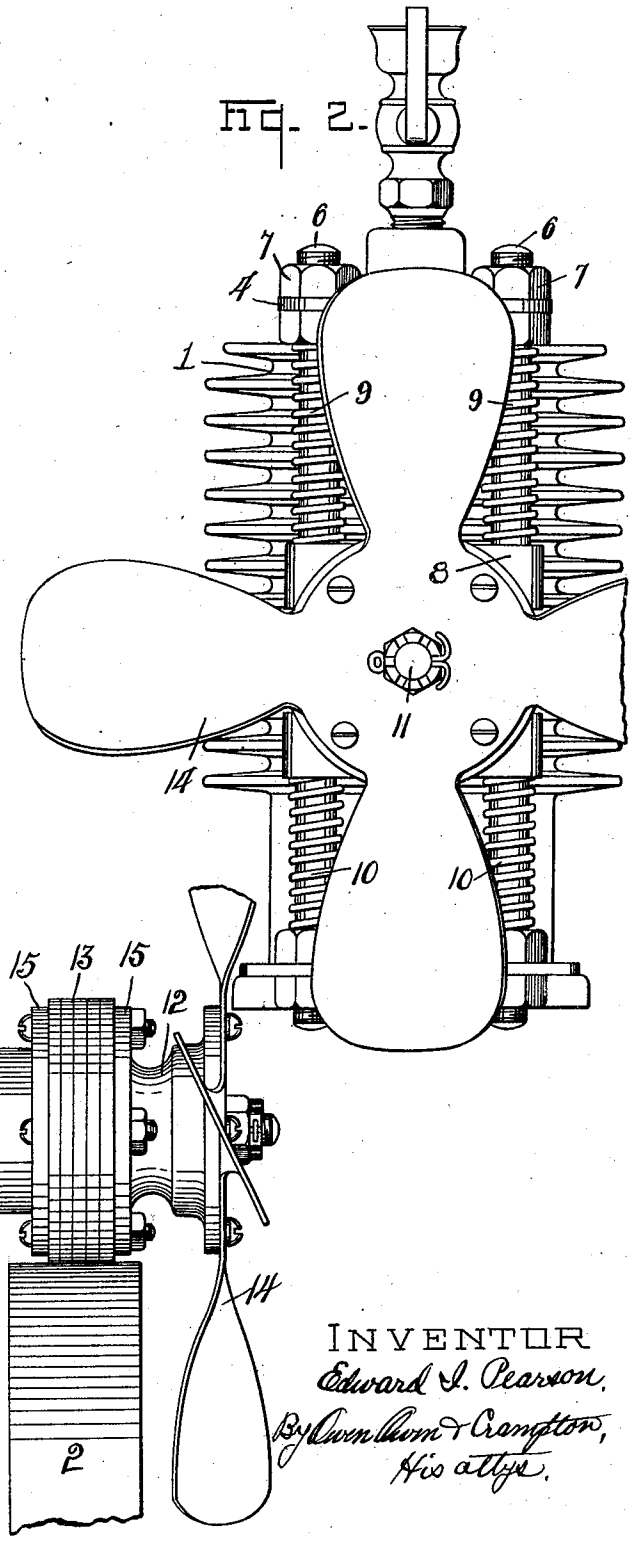


Fig. 2.



INVENTOR

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ENGINE-COOLING MEANS.

1,399,871. Specification of Letters Patent. Patented Dec. 13, 1921.

Application filed January 17, 1921. Serial No. 437,718.

To all whom it may concern:

Be it known that I, EDWARD I. PEARSON, a citizen of the United States, and a resident of Toledo, county of Lucas, and State of Ohio, have made an Invention Appertaining to Engine-Cooling Means; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to cooling means, more particularly for use in connection with internal combustion engines, and has for its object the provision of simple and efficient means of this character, which is capable of being easily and quickly attached to an engine and obviates the use of the customary belt or chain for driving the fan. Further objects and advantages of the invention will be apparent from the following detailed description thereof.

While the invention, in its broader aspect, is capable of embodiment in numerous forms, a preferred embodiment thereof is illustrated in the accompanying drawings, in which,—

Figure 1 is a side elevation of the front portion of an engine embodying the invention, with parts broken away, and Fig. 2 is a front elevation thereof, with parts broken away and removed.

Referring to the drawings, 1 designates the casing or a cylinder of an engine of either the single or multiple cylinder type, and 2 the engine fly-wheel, located at the forward side or end thereof.

Plates or bracket arms 3 and 4 project forward from the engine, the former being bolted or otherwise suitably secured to the base portion of the casing, and the other being secured to the top of the casing under a flange of a cylinder plug 5, or in any other suitable manner. The bracket plates 3 and 4 are connected in advance of the casing by two parallel vertical guide rods 6, which are spaced transversely of the casing and secured to the plates, in the present instance, by nuts 7 threaded on the rods.

A frame or slide member 8 is mounted for vertical floating movements on the guide rods 6 and has its movements cushioned at top and bottom by respective sets of coiled compression springs 9 and 10 mounted on the rods 6 above and below the frame 8. The spring sets are in continual thrust engagement with the frame 8 and serve to normally retain it in one position of its movement.

A short shaft 11 is fixed to and projects forwardly from the central portion of the frame 8 and carries at its outer end a sleeve or hub 12 for free rotation thereon. This sleeve or hub is provided with a wheel 13 for frictional peripheral engagement with the fly-wheel 2 whereby it is driven by a rotation of the fly-wheel, and the sleeve also carries, at its forward end, a fan 14, which is operated during a running of the engine to create and direct a current of air rearwardly around the engine casing for cooling purposes. While the wheel 13 may be of any suitable construction and material, it is found preferable in practice to have the friction surface thereof composed of a plurality of leather disks which are firmly clamped together between flanges 15 of the hub sleeve. The desired amount of frictional pressure between the wheels 2 and 13 is obtained by a proper adjustment of the pressure of the spring sets 9 and 10 on the frame 8, and for this purpose it is preferable to make the upper set of springs 9 exert a greater downward pressure on the frame 8 than is exerted upward thereagainst by the springs 10.

It is evident that my cooling attachment may be easily and quickly attached to any engine and the position of the fan and wheel 13 adjusted to suit the size of the fly-wheel, and that the springs exert a practically constant pressure on the frame 8 and permit an adjustment of such frame to compensate for any wear in the coacting surfaces of the drive and driven wheels 2 and 13.

I wish it understood that my invention is not limited to any specific construction, arrangement, or form of the parts, as it is capable of numerous modifications without departing from the spirit of the claims.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is,—

1. In combination, an engine casing, a fly-wheel in advance of the casing, guide means attached rigidly to the casing in advance thereof and having a vertical guide rod, a frame guided for free vertical movements by the guide means, a shaft projecting for-

ward from the frame and movable therewith, a driven wheel and a fan fixedly carried by the shaft with the wheel positioned over the fly-wheel for engagement therewith, spring means mounted on the rod and acting on the frame to cause the driven wheel to bear against the fly-wheel, and a second spring means acting upward against the frame to partially counteract the pressure of the first spring means against the frame.

2. In combination, an engine casing, a fly-wheel in advance of the casing, guide means attached rigidly to the casing and having a pair of fixedly spaced vertical guide rods, a cross-head frame guided for vertical movements by the rods, a shaft projecting forward from the frame and movable therewith, a driven wheel and a fan fixedly carried by the shaft with the wheel positioned over the fly-wheel, a coiled spring mounted on each guide rod above the cross-head frame to act on the frame to cause the driven wheel to bear downward against the fly-wheel, and a coiled spring mounted on each rod below the frame and acting upward against the frame to partially counteract the pressure of the first spring means against the frame.

3. In combination, an engine casing, a fly-wheel in advance thereof, bracket members detachably secured to the upper and lower portions of the casing and projecting forward therefrom, vertical transversely spaced guide rods connecting and carried by the bracket members, a frame guided for vertical movements by the guide rods, a shaft projecting forward from the frame, a friction wheel carried by the shaft and in frictional peripheral engagement with the fly-wheel, a fan fixedly connected to and driven by the friction wheel, and means coacting with the frame to support it for yielding vertical movements and exerting a predetermined downward pressure thereon.

In testimony whereof I have hereunto signed my name to this specification.

EDWARD I. PEARSON.