

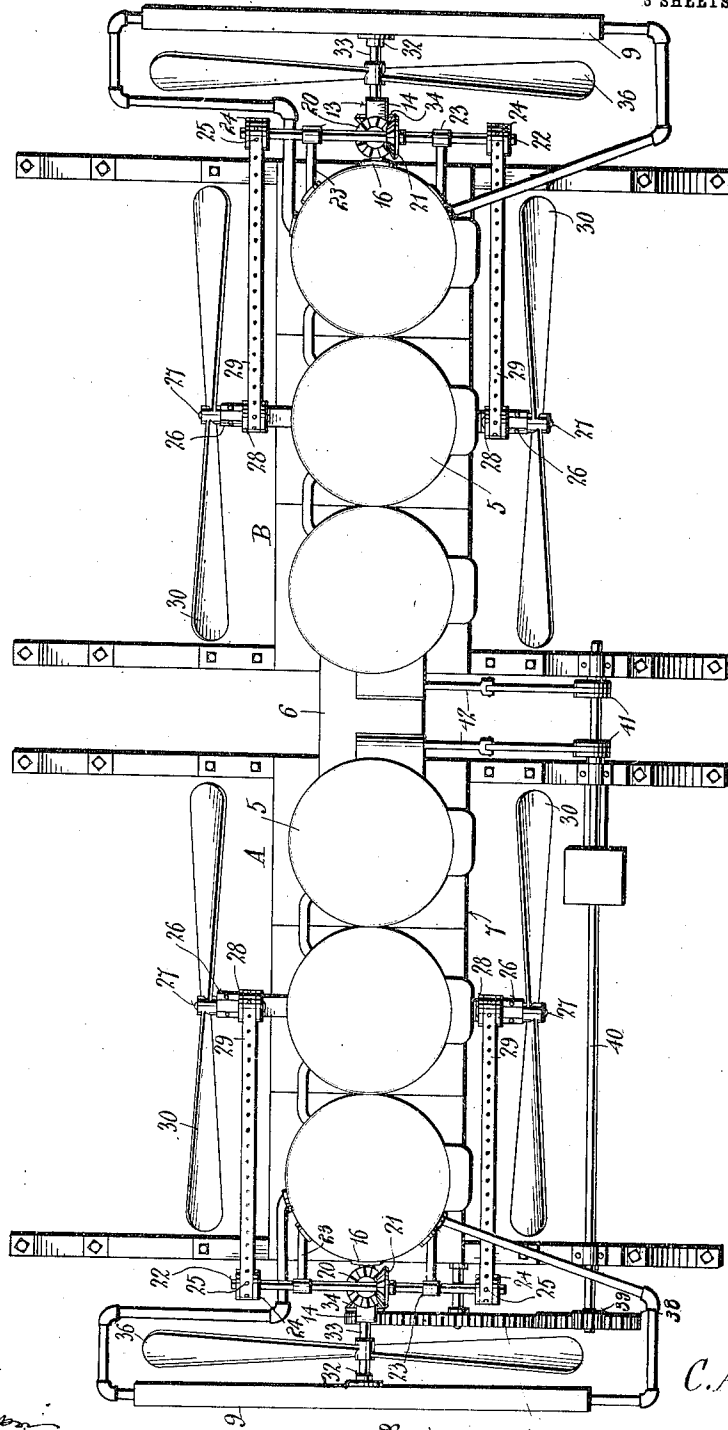
1,045,061.

C. A. MYERS.
COOLING DEVICE FOR GAS ENGINES.
APPLICATION FILED SEPT. 25, 1911.

Patented Nov. 19, 1912.

3 SHEETS—SHEET 1.

FIG. 1



Witnesses
George L. Ladd

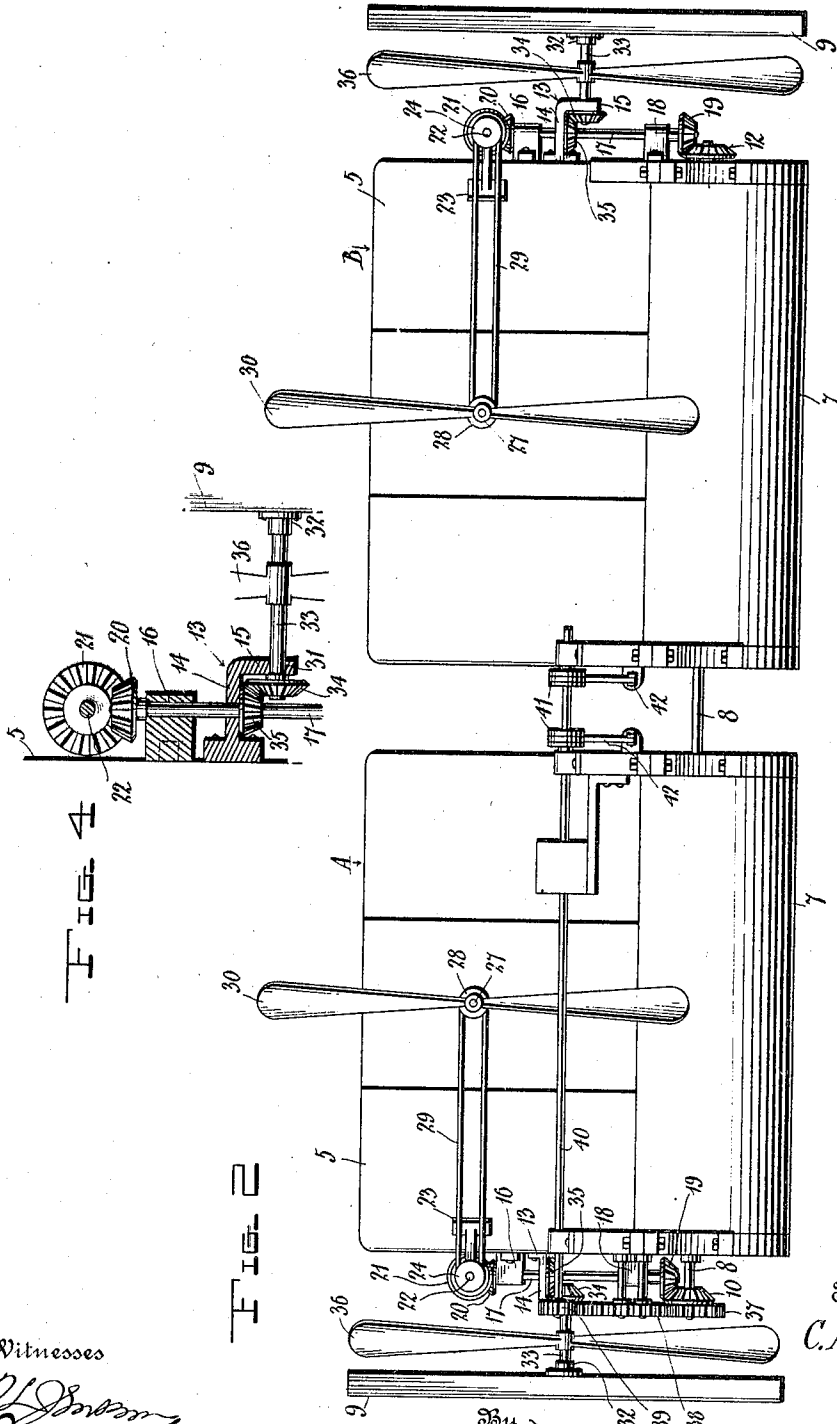
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3 SHEETS-SHEET 2.



Witnesses
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3 SHEETS-SHEET 3.

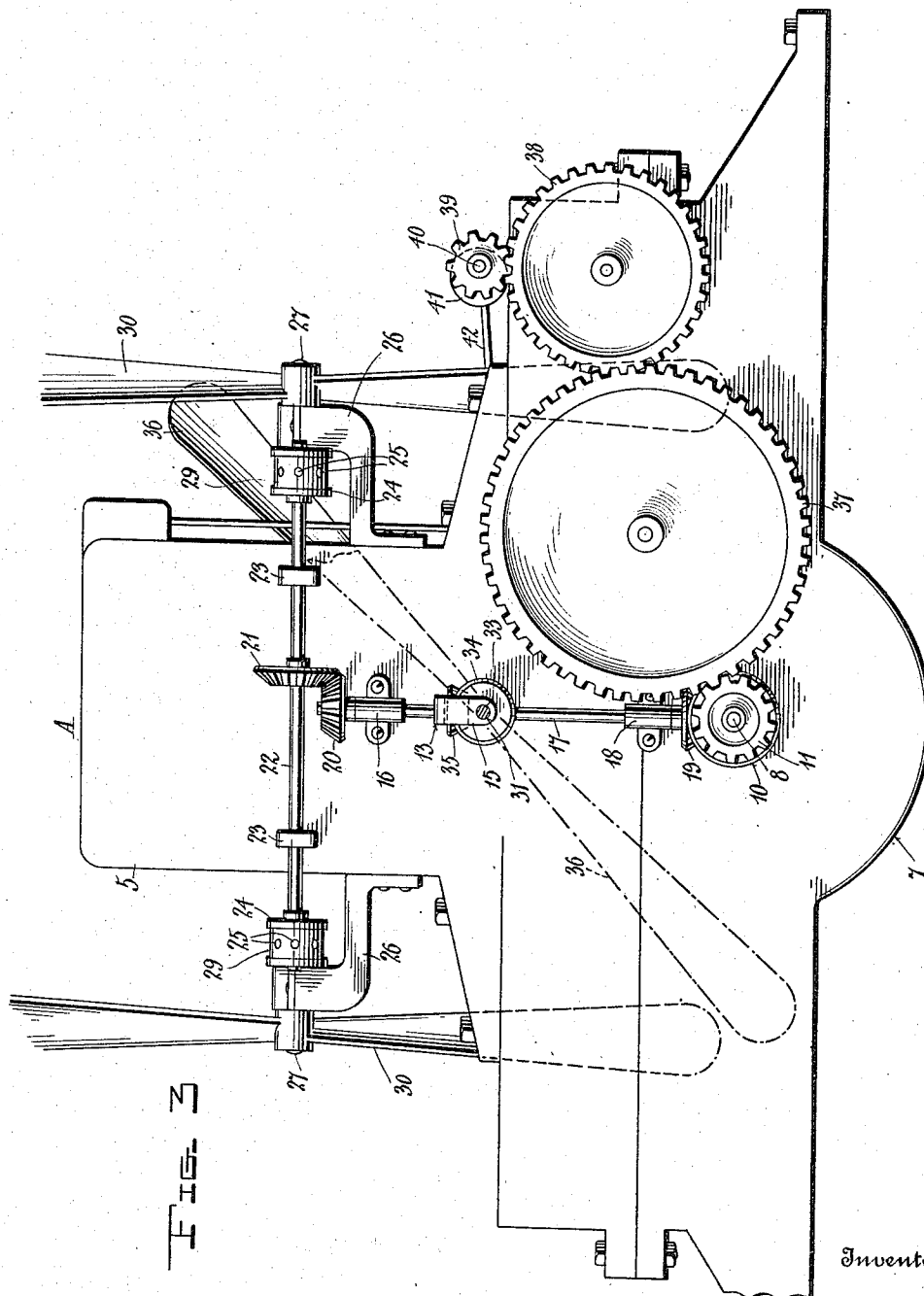


FIG. 3

Witnesses

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UNITED STATES PATENT OFFICE.

CHARLEY A. MYERS, OF LEXINGTON, NEBRASKA.

COOLING DEVICE FOR GAS-ENGINES.

1,045,061.

Specification of Letters Patent.

Patented Nov. 19, 1912.

Original application filed July 2, 1910, Serial No. 570,147. Divided and this application filed September 25, 1911. Serial No. 651,148.

To all whom it may concern:

Be it known that I, CHARLEY A. MYERS, a citizen of the United States, residing at Lexington, in the county of Dawson, State of Nebraska, have invented certain new and useful Improvements in Cooling Devices for Gas-Engines; 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.

This invention relates to an improvement in cooling devices for gas engines, and forms a division of an application filed by me on July 2, 1910, Serial No. 570,147, for an improvement in automobiles.

The principal object of this invention is to provide a series of sets of cylinders, the cylinders of both sets being disposed in alinement, a single crank shaft associated with all of said cylinders and a plurality of fans operatively connected to said crank shaft for directing air against the exterior surfaces of said cylinders.

Another object of the invention is to provide a plurality of sets of cylinders as above described, radiators respectively disposed at either end and in spaced relation to said sets, and fans disposed between the sets of cylinders and the radiators and operatively connected to said crank shaft for directing air against the ends of said sets.

A further object of the invention is to provide a novel gearing whereby the pump and the fans may be simultaneously operated.

A still further object of the invention is to provide a cooling device of the class described, which is composed of a minimum number of parts, is therefore simple in construction and is cheap to manufacture.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings: Figure 1 is a top plan view of an engine constructed in accordance

with my invention, Fig. 2 is a side elevation thereof, Fig. 3 is an end view, and Fig. 4 is a detail view of the gearing.

Like reference numerals designate corresponding parts in all of the figures of the drawings.

Referring to the drawings, the invention comprises a pair of sets of cylinders A and B respectively, each set including a plurality of cylinders 5 formed from a single casting, the cylinders of both sets being arranged in alinement. These sets are spaced apart and the water jackets of the cylinders of each set are connected by pipes 6. Associated with the cylinders 5 of each set is a single crank case 7. Longitudinally disposed within the crank cases 7 and extending outwardly from the opposite ends thereof is a crank shaft 8. Disposed in spaced relation to the opposite ends of each set of cylinders are radiators 9-9, a portion of each radiator only being shown.

Fixedly secured to one end of the crank shaft 8 is a combined bevel gear 10 and a gear wheel 11, while on the opposite end of said crank shaft is fixedly mounted a single bevel gear 12. Secured to the outer end of each set of cylinders is an L-shaped bracket 13, said bracket including a horizontal arm 14 and a downwardly extending vertical arm 15. Secured to each cylinder directly above the bracket 13 is a bearing 16. Journaled in the horizontal arm 14 of the bracket 13 and the bearing 16, is a vertical shaft 17, said shaft being disposed in alinement with the adjacent end of the crank shaft 8. A second bearing 18 is secured to the respective end of the cylinder for receiving the lower end of the shaft 17, and carried by the lower end of said shaft is a bevel gear 19 which meshes with the respective bevel gear 10.

Secured to the upper end of the shaft 17 above the bearing 16 is a bevel gear 20, which meshes with a bevel gear 21 fixedly connected to a horizontal shaft 22, said shaft being supported in bearings 23-23 mounted upon the adjacent cylinder. Mounted upon the outer ends of the shafts 22 are pulleys 24-24, which are each formed with teeth 25. Secured to the opposite side of the central cylinder of each set of cylinders and projecting outwardly therefrom are brackets 26-26 in which is journaled a short shaft 27. Mounted upon the

outer end of each shaft 27 is a pulley 28, said pulleys being disposed in alinement with the pulleys 24. Trained over each alined pair of pulleys 24 and 28 is a belt 29 by means of which the shaft 27 may be rotated. Mounted upon each shaft 27 is a fan 30. Secured to the adjacent radiator 9 in alinement with a perforation 31 formed in the depending vertical arm 15 of the bracket 13, is a bearing 32. Disposed within the perforation 31 and the bearing 32 is a shaft 33, the inner end thereof being provided with a bevel gear 34 which meshes with a similar bevel gear 35 mounted upon the vertical shaft 17 below the horizontal arm 14 of said bracket 13. Mounted upon each of said shafts 33 is a fan 36. It will thus be observed that the fans 30 and 36 of each set are simultaneously operated from the single crank shaft 8.

Journalled upon that end of the cylinder contiguous to the gear wheel 11 is a large gear 37, which meshes with said gear 11. Also mounted upon that end of the cylinder is another gear 38, which in turn meshes with the gear 37. A pinion 39 meshes with the gear 38, and said pinion is carried by a longitudinal shaft 40, said shaft being journalled in suitable bearings mounted upon that set of cylinders. Carried by the opposite end of the shaft 40 is a pair of eccentrics 41—41, and connected to said eccentrics are the usual pitmen 42 for operating the pump (not shown).

From the foregoing, it will be observed that by this means the cylinders of each set are quickly cooled and that the single crank shaft not only drives the fans, but also actuates the pump.

What is claimed is:

1. In a gas engine, the combination with a series of sets of jacketed cylinders, the cylinders of said sets being disposed in alinement, radiators respectively disposed in spaced relation to the outer ends of the first and last sets, connections between the jackets of the cylinders of each set and its respective radiator, fans respectively sup-

ported on opposite sides of each set, other fans respectively disposed intermediate the radiators and the respective sets of cylinders, a single crank shaft associated with all of said cylinders, and operating means for said fans connected to said crank shaft.

2. In a gas engine, a set of cylinders disposed in alinement, a crank shaft associated with said cylinders, a vertical shaft supported for rotation at one end of the cylinder, driving means connecting the shaft and crank shaft, a horizontal shaft supported for rotation above said vertical shaft, driving means connecting the vertical and horizontal shafts, fans respectively supported on opposite sides of the cylinders, and driving means for the fans connected to said horizontal shaft.

3. In a gas engine, a set of jacketed cylinders disposed in alinement, a radiator disposed in spaced relation to one end of said set, a connection between the jackets of the cylinders and the radiator, a crank shaft associated with said cylinders, a vertical shaft supported for rotation intermediate the set of cylinders and the radiator, driving means connecting the shaft and the crank shaft, a bracket secured to said set and perforated to receive the vertical shaft, a horizontal shaft supported at one end in the bracket and having its other end supported by the radiator, a fan mounted upon the last mentioned shaft, driving means between the last mentioned shaft and the vertical shaft, a second horizontal shaft supported for rotation above said vertical shaft, driving means connecting the last mentioned horizontal shaft and said vertical shaft, fans respectively supported on opposite sides of the set of cylinders, and driving means for the fans connected to the last mentioned horizontal shaft.

In testimony whereof, I affix my signature, in presence of two witnesses.

CHARLEY A. MYERS.

Witnesses:

GEO. C. GILLAN,
A. W. GOFF.