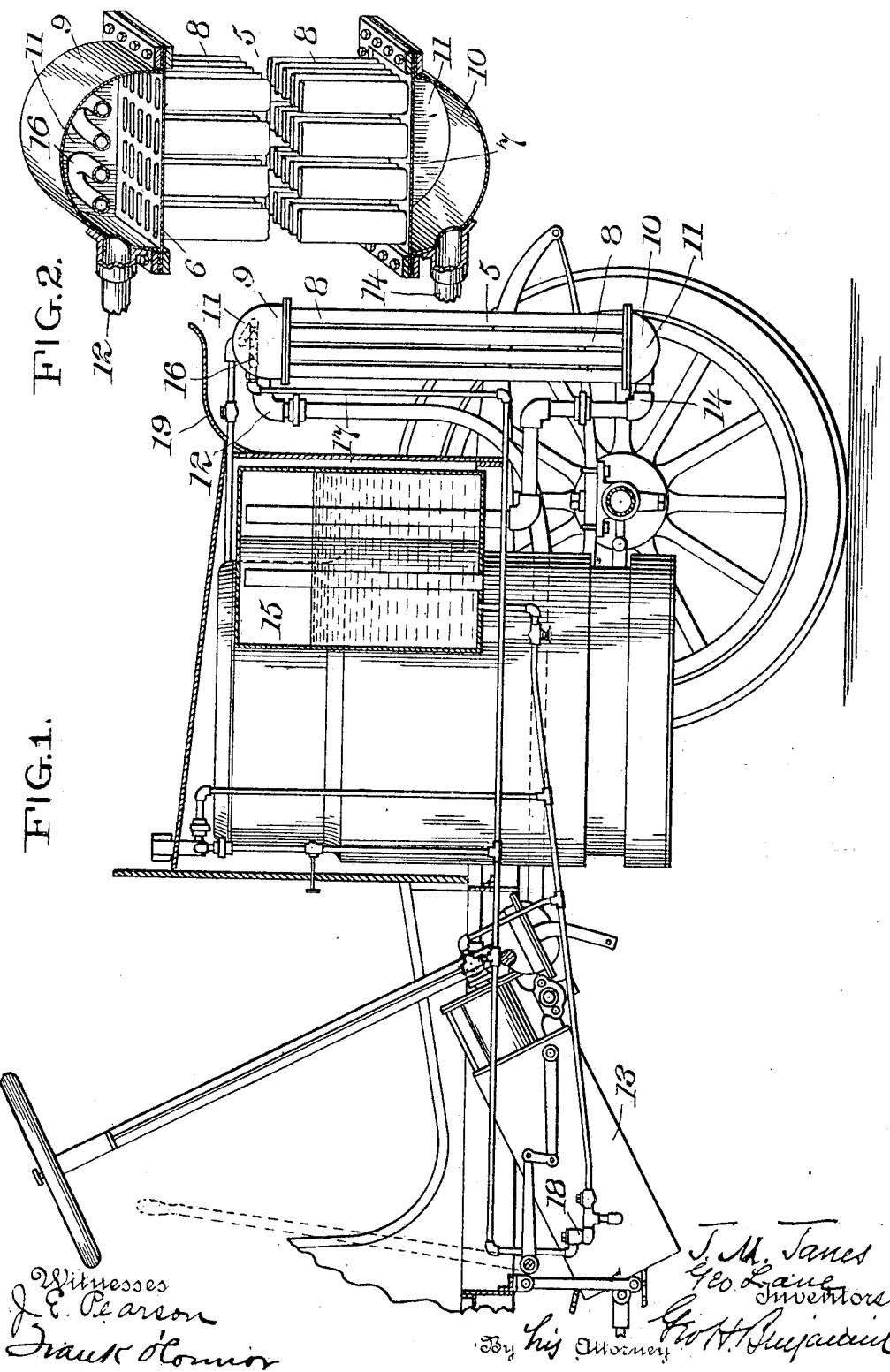


No. 798,902.

PATENTED SEPT. 5, 1905.

J. M. JANES & G. LANE.
CONDENSER.

APPLICATION FILED SEPT. 9, 1904.



UNITED STATES PATENT OFFICE.

JOHN M. JANES AND GEORGE LANE, OF POUGHKEEPSIE, NEW YORK.

CONDENSER.

No. 798,902.

Specification of Letters Patent.

Patented Sept. 5, 1905.

Application filed September 9, 1904. Serial No. 223,875

To all whom it may concern:

Be it known that we, JOHN M. JANES and GEORGE LANE, citizens of the United States, residing at Poughkeepsie, county of Dutchess, 5 State of New York, have invented certain new and useful Improvements in Condensers, of which the following is a specification.

Our invention relates to a surface condenser adapted for use upon a motor-carriage.

10 Our invention consists in the construction of the condenser.

The object of our invention is to provide a condenser of large cooling-surface, of low cost, which will not clog, and which may be readily 15 cleaned.

The accompanying drawings will serve to illustrate our invention, in which—

Figure 1 is a side elevation of a motor-car, showing the condenser mounted in front of 20 the car, also its relation to the boiler, engine, water-tank—the latter being shown in section—and the interposed pipe connections between such parts. Fig. 2 is a perspective vertical section taken through the condenser.

25 In the drawings, 5 indicates the condenser. The condenser consists of two perforated sheet-metal heads 6 7, with several rows of flattened tubes 8 soldered or expanded into each head. These tubes we prefer to construct 30 of five-eighths of an inch by twenty-six-gage brass tubes, flattened so that each tube is about one inch wide by one-eighth of an inch thick. These tubes are placed in the heads about one-eighth of an inch apart and four rows deep 35 and are arranged so that the tubes of the same row transversely and the corresponding tubes of each row longitudinally will be in line, the object of which arrangement is to promote free circulation of air between the tubes and 40 to facilitate external cleaning.

Situated over the head 6 and under the head 7 are metal casings 9 10, (shown as semicircular in section,) with their opposite ends 11—i. e., at the sides of the condenser—closed.

45 12 indicates a pipe connected with the interior of the upper casing 9 and the exhaust of the engine 13.

14 indicates a pipe connected to the interior of the lower casing 10 and the interior of the 50 water-tank 15.

Located in the interior of the upper casing 9 is a coil of pipe 16, which forms a feed-water

heater. This coil is connected to a pipe 17, which leads to the delivery-orifice of a pump, (indicated at 18 and operated by the engine 13.) 55

Situated somewhat back of the condenser on the motor-car and having its top curved forward over the condenser is a wind-shield 19, the object of which is as the vehicle moves rapidly forward to direct air-currents downward back of the condenser, and thus create a circulation of air between the tubes of the condenser, thereby materially improving the action of the condenser and at the same time carrying away the hot air which otherwise 65 would bank up back of the condenser. A further object is to prevent the heat arising from the condenser from flowing backward into the faces of the occupants of the motor-car.

The operation of the condenser will be readily understood. The exhaust from the engine passes by pipe 17 into the interior of the casing 9 and heats the coil 16 containing the feed-water. The steam and water of condensation pass down through tubes 8, the steam 75 being condensed in such tubes and the water of condensation collecting in the casing 10, from whence, through back pressure in the condenser, it passes by pipe 14 and is delivered into the interior of the water-tank 15. 80

To clean the condenser, it is only necessary to remove the casings 9 or 10, when access can readily be obtained to the vertical tubes 8.

We wish it understood that we do not limit ourselves to the precise shape given to the 85 vertical tubes 8 or their specific arrangement as shown in the heads 6 7, as we may find it convenient to change the shape and position of such tubes. Further, the shape of the upper and lower casings and wind-shield 90 may be altered without departing from the intent of our invention.

Having thus described our invention, we claim—

1. A condenser comprising several series of 95 vertical tubes, each series consisting of several tubes of greater width than thickness and arranged in line, the outer tubes of each series presenting their narrowest parts to incoming air-currents, closed casings situated at the opposite ends of said tubes, and a water-heating device in the upper casing.

2. A condenser comprising several series of separated vertical tubes, each series consist-

ing of several tubes of greater width than thickness and arranged in line, the outer tubes of each series presenting their narrowest parts to incoming air-currents, closed casings situated at the ends of said tubes, an induction and an eduction pipe leading respectively into and from an upper and a lower casing, and a water-heating device in the upper casing.

In testimony whereof we affix our signatures in the presence of two witnesses.

JOHN M. JANES.
GEORGE LANE.

Witnesses:

G. H. SHERMAN,
FRANK O'CONNOR.