(No Model.) 2 Sheets—Sheet 1.

H. J. SEIGNEURET.

GAS ENGINE EXHAUST FURNACE.

No. 485,988. Patented Nov. 8, 1892.

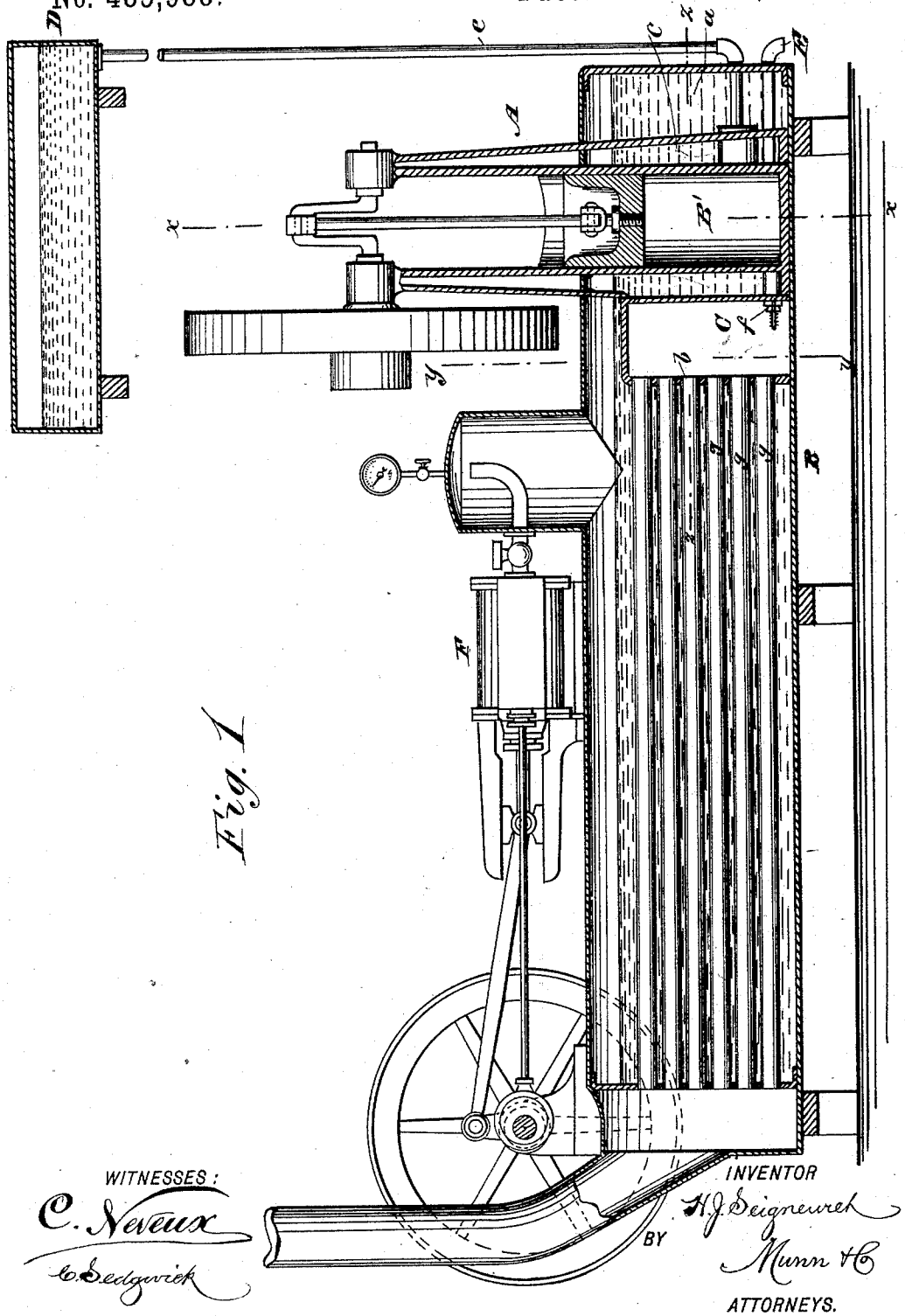

Fig. 1.

WITNESSES:

C. Neveux

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INVENTOR

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2

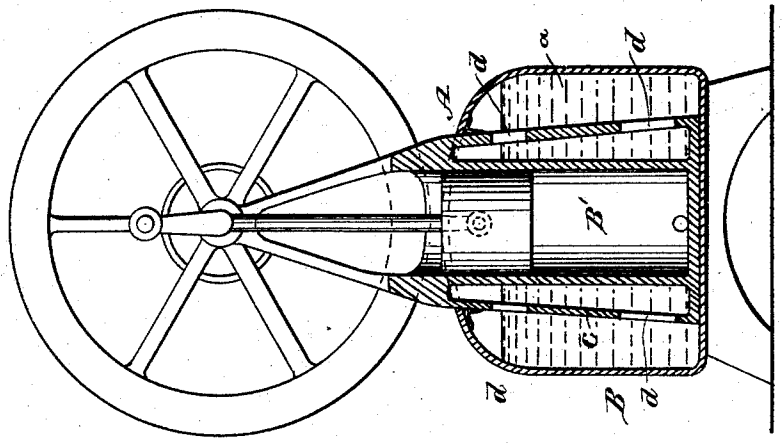


Fig. 3

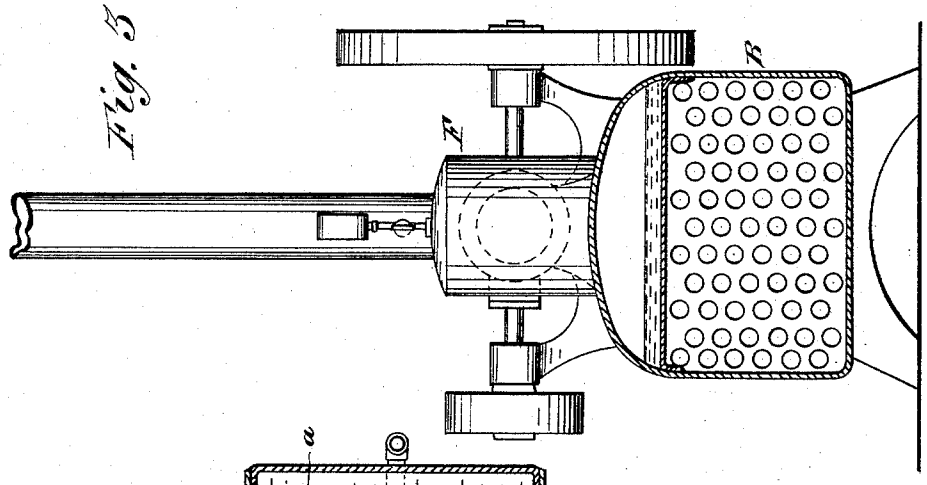
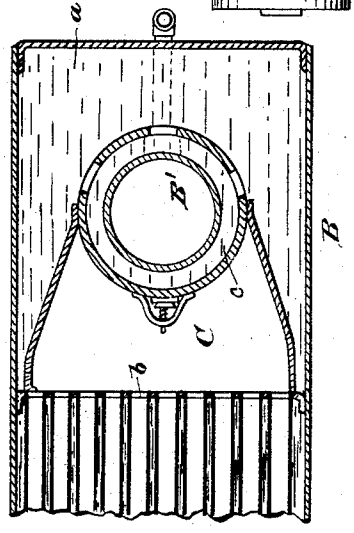


Fig. 4



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UNITED STATES PATENT OFFICE.

HIPPOLYTE JOSEPH SEIGNEURET, OF HENDERSON, MINNESOTA.

GAS-ENGINE EXHAUST-FURNACE.

SPECIFICATION forming part of Letters Patent No. 485,988, dated November 8, 1892.

Application filed March 17, 1892. Serial No. 425,307. (No model.)

To all whom it may concern:

Be it known that I, HIPPOLYTE JOSEPH SEIGNEURET, of Henderson, in the county of Sibley and State of Minnesota, have invented a new and Improved Gas-Engine Exhaust-Furnace, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a vertical longitudinal section of my improved gaso-steam engine. Fig. 2 is vertical transverse section taken on line *x x* in Fig. 1. Fig. 3 is a vertical transverse section taken on line *y y* in Fig. 1, and Fig. 4 is a horizontal section taken on line *z z* in Fig. 1.

Similar letters of reference indicate corresponding parts in all the views.

The object of my invention is to combine a gas-engine and a steam-engine in such a manner as to utilize the heat contained in the products of combustion in the gas-engine in the generation of steam for propelling the steam-engine.

My invention consists in the combination, with the steam-boiler, of a gas-engine placed in the water-space of the boiler and arranged to exhaust into the fire-box or combustion-chamber of the boiler, all as will be hereinafter more fully described.

The gas-engine A, which is used in connection with the boiler B, may be of any well-known type. In the present case I have represented an "Otto" vertical gas-engine, the cylinder B′ of which is placed in the water-space *a* of the boiler. The water-space in this case is located in the end of the boiler corresponding with the front end of the fire-box, and between the said water-space and the flue-sheet *b* there is a combustion or heating chamber C. In the present case the gas-cylinder B′ of the gas-engine A is provided with a water-jacket *c*, which communicates freely with the water-space in the boiler through apertures *d*, formed in the jacket; but the outer jacket may be dispensed with and the water may be brought into direct contact with the walls of the cylinder. The gas-engine being of ordinary construction will require no description.

The gas-supply pipe *e* is connected with the gasoline-tank (or gas-supply) D, and air is drawn in through the induction-pipe E, and the charge is compressed in the usual way and ignited by electricity or in any other desirable way. The hot products of combustion resulting from the explosion of the gas in the cylinder B′ are exhausted into the combustion or heating chamber C through the exhaust-valve *f*. The said products of combustion passing through the chamber C and flues *g*, together with the heat communicated to the water in the water-space *a*, serve to generate steam in the boiler B, which is utilized in driving the steam-engine F, which is of well-known construction and will therefore need no special description.

The gas-engine may be of the class which generates the gas as it is used, or it may take gas from the street-main or from a gas-producer. The parts of the engine which do not admit of being placed under water are arranged outside the boiler. The boiler is provided with the usual hand-holes and man-holes.

By means of my improvement the heat due to the combustion of the gases in the gas-engine cylinder, which has heretofore been wasted, is utilized in generating steam for motive power or other uses.

In carrying out my invention I do not limit or confine myself to any particular form of steam-engine, boiler, or gas-engine, nor to any particular arrangement of the engine or boiler, as both boiler and engine may be vertical or horizontal, as taste or the requirements of use may dictate.

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

1. The combination, with a steam-boiler, of a gas-engine in the water-space thereof and exhausting into the heating-compartment or combustion-chamber of the boiler, substantially as set forth.

2. The combination, with the boiler having a combustion-chamber and a water-chamber at one end communicating with the water-space of said boiler, of a gas-engine the cylinder of which is within said water-chamber and an exhaust-valve connecting said cylinder with the combustion-chamber, substantially as set forth.

HIPPOLYTE JOSEPH SEIGNEURET.

Witnesses:
HERMAN OHDE,
CHAS. JOYCE.