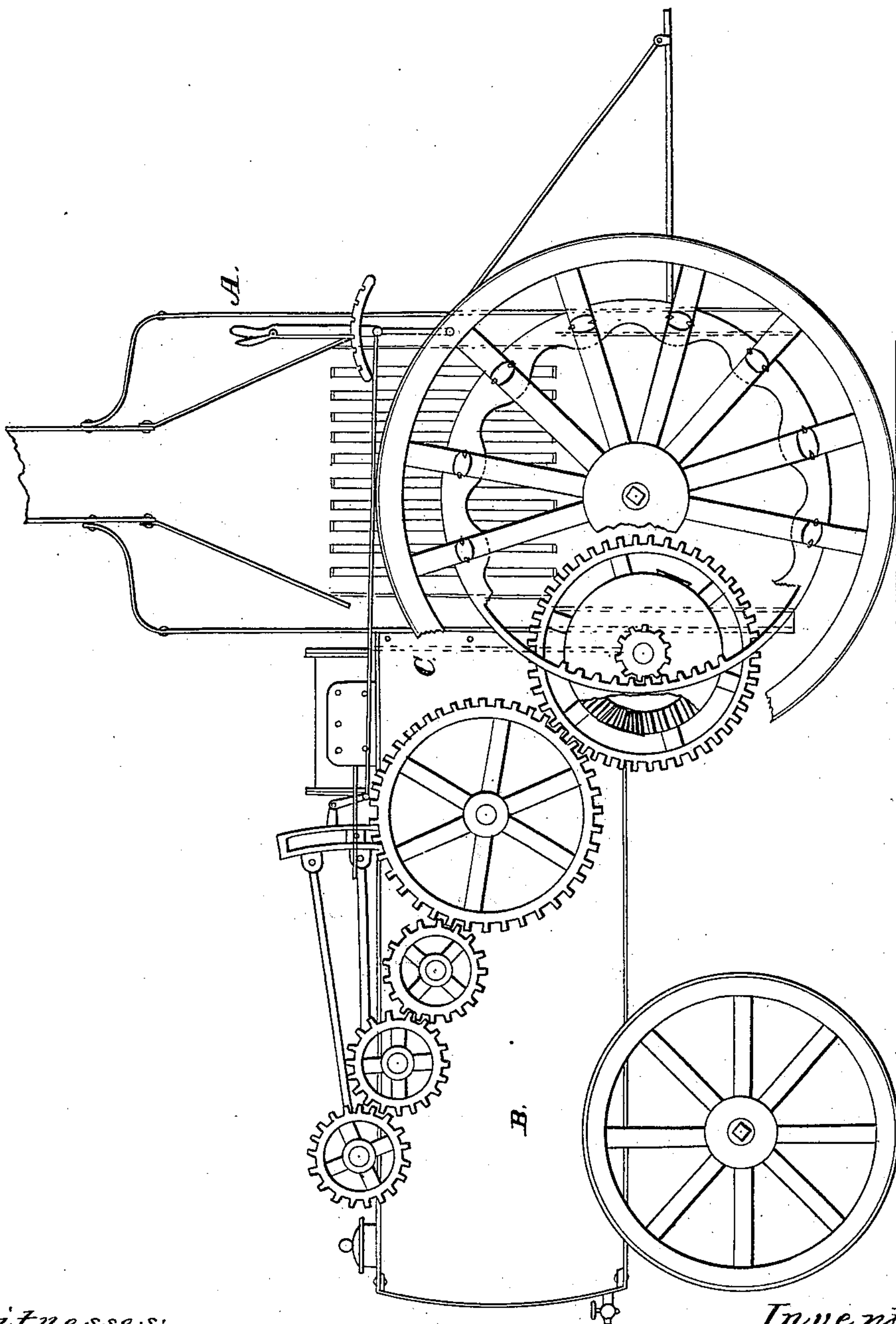


(No Model.)

A. GAAR.
Portable Engine.

No. 235,077.

Patented Dec. 7, 1880. .



Witnesses:

H. A. Schmidt
E. Kelihan

Inventor.

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UNITED STATES PATENT OFFICE.

ABRAM GAAR, OF RICHMOND, INDIANA, ASSIGNOR TO GAAR, SCOTT & CO.

PORTABLE ENGINE.

SPECIFICATION forming part of Letters Patent No. 235,077, dated December 7, 1880.

Application filed June 23, 1880. (No model.)

To all whom it may concern:

Be it known that I, ABRAM GAAR, a citizen of the United States, residing at Richmond, Wayne county, Indiana, have invented new and useful Improvements in Portable or Farm Engines, of which the following is a specification.

My invention relates to portable engines used for farm purposes, and its object is to improve their construction and efficiency for the ordinary purposes and conditions of their use.

To this end my invention consists in combining with a vertical boiler a horizontal and preferably cylindrical water-reservoir, which forms the ordinary foundation and support for the driving-engine and machinery, and in the provision of a partition forming a space for air or non-conducting material between the two, to prevent cooling of the boiler by radiation from contact with the water of the reservoir.

My invention is embodied in mechanism illustrated in the accompanying drawing, which represents a vertical longitudinal section of my improved portable boiler mounted with suitable machinery for farm purposes.

In the development and use of the farm or portable engine the fire-box or locomotive type of boiler has been found the best under all circumstances, chiefly because this form gives the best foundation and support for the horizontal slide-valve engine, which is very generally preferred, and is the best for all such general use.

The various parts of the engine, and the machinery generally, have been constructed and adapted to be used upon and in connection with a horizontal-cylinder boiler of this kind, and it is desirable, therefore, on the score of economy, as well as utility, to preserve the general form of the boiler; but in moving such boilers from place to place on wheels this type of boiler offers serious disadvantages in the danger of stripping and burning flues in traversing hills or uneven ground. For this important reason the vertical boiler is the safest and most preferable. To combine, then, the advantages of a vertical boiler for portable purposes with a horizontal shell as a foundation and support for the ordinary engine and machinery, and at the same time to furnish a reservoir for a supply of water, I use a vertical-flue boiler, A, of any approved design, preferably cylindrical, and connect with it a hori-

zontal cylindrical shell, B, which corresponds with the front end of the ordinary locomotive-boiler. The latter is formed of boiler-iron, and riveted or otherwise secured directly to the shell of the vertical boiler A, the whole thus forming, practically, one construction, very similar in form to the locomotive-boiler, which is mounted on wheels and furnished with the machinery used upon the ordinary horizontal fire-box portable-engine boiler, with or without the traction or self-propelling gear.

Near the boiler end of the reservoir I insert a partition, C, which forms the rear head of the water-reservoir, and leaves a space separating the boiler and reservoir, the object and purpose of which are to prevent loss of heat by radiation from contact of the water in the reservoir with the boiler-shell. This space may be filled with any non-conducting material, or by air simply, provision being made in the latter case for its expansion by a small perforation.

The advantages of this arrangement are manifest. The reservoir B may be kept supplied and replenished from time to time when the engine is in operation, thus avoiding the danger and loss of time resulting from an insufficient water-supply, or it may be of sufficient capacity to hold a supply of water for a given period of operation. In moving from place to place the reservoir may be emptied of its contents to lighten the load of the machine, for which purpose I provide suitable cocks. It may also serve as a heating-tank, in which the exhaust or surplus steam from engine or boiler may be utilized to heat the feed-water, and by suitable pipe-connections may be used to feed into the boiler by equalizing pressure without using a force-pump.

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

The combination, in a portable farm or traction engine, of a vertical boiler, A, a horizontal water-tank, B, secured thereto, and a partition, C, forming a space between the two, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ABRAM GAAR.

Witnesses:

M. E. McMEANS,
W. W. GAAR.