No. 776,637. PATENTED DEC. 6, 1904.

G. A. ALDRICH.

IMPULSIVE STEAM ENGINE.

APPLICATION FILED SEPT. 6, 1904.

NO MODEL.

Fig. I.

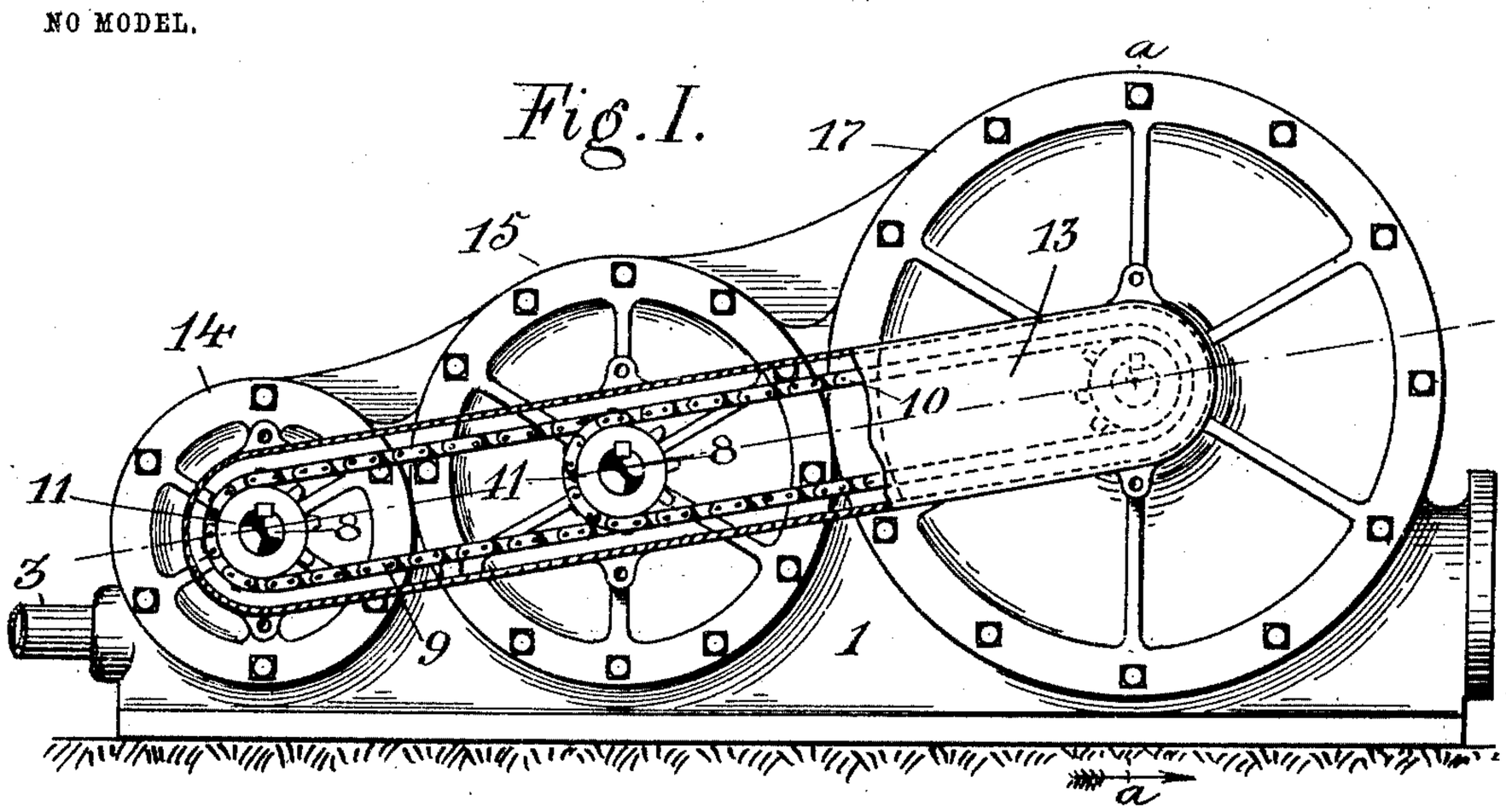


Fig. II.

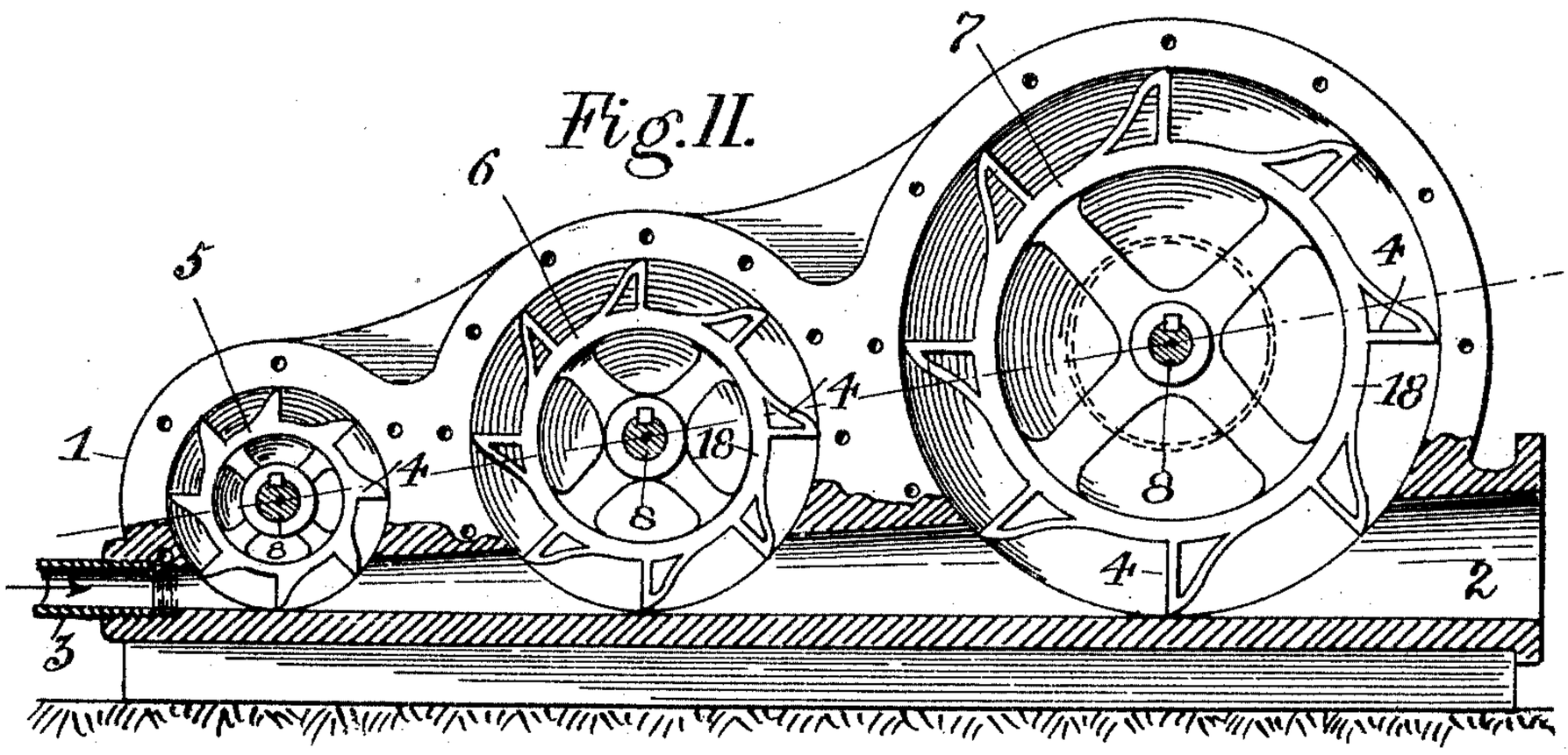


Fig. III.

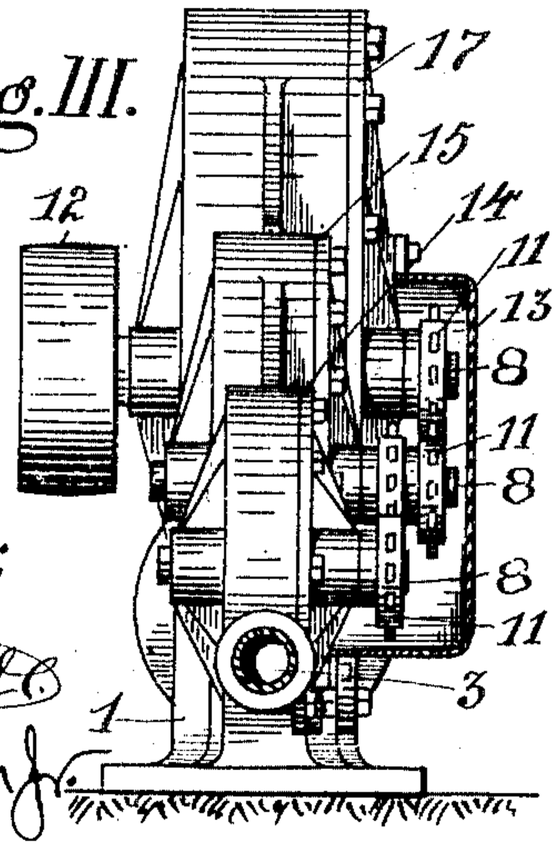
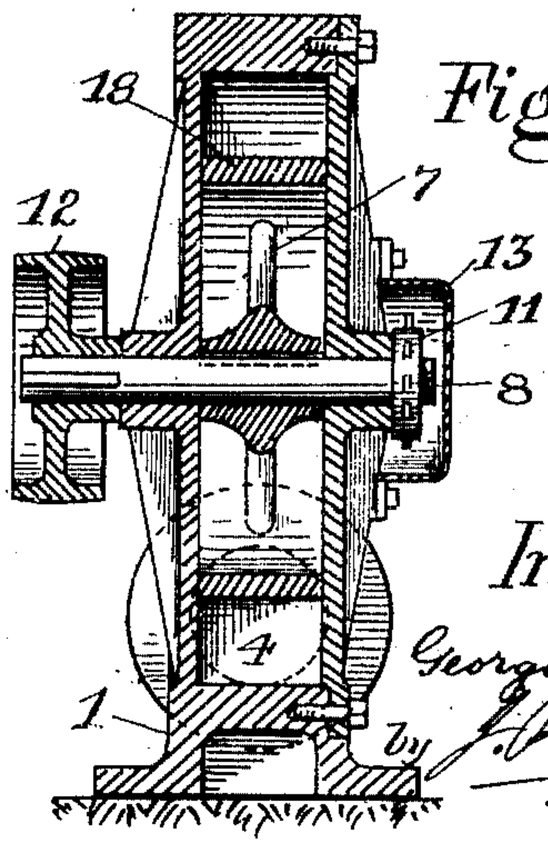


Fig. IV.



Witnesses:

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No. 776,637. Patented December 6, 1904.

UNITED STATES PATENT OFFICE.

GEORGE A. ALDRICH, OF SAN FRANCISCO, CALIFORNIA.

IMPULSIVE STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 776,637, dated December 6, 1904.

Application filed September 6, 1904. Serial No. 223,471. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. ALDRICH, a citizen of the United States of America, residing at San Francisco, county of San Francisco, and State of California, have invented certain new and useful Improvements in Impulsive Steam-Engines; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to rotative engines or motors impelled by the impulsive action of steam or other elastic fluids, as hereinafter described, and illustrated by drawings that form a part of this specification.

My invention consists in a plurality of wheels of varying diameter and consequent velocity that successively receive the impact of a jet of steam or other elastic fluid, each wheel absorbing in part the energy of the fluid until the latter falls to atmospheric pressure or that of a condenser and is liquefied or inert.

The object of my invention is to produce in a very simple form apparatus to receive and transmit the kinetic energy of elastic fluids escaping under pressure. To this end I provide apparatus as illustrated in the drawings.

Figure I is a side view of one of my improved engines or motors. Fig. II is another view, partially in section, with the side plates removed. Fig. III is an end view of Fig. I, and Fig. IV is a transverse section through Fig. I on the line *a a*.

In the various forms of motive apparatus driven by the impact of fluids the common construction is to divert or reverse the jet or current after its impingement on the vanes or buckets of the wheels. In my invention a similar result is attained by continuing the fluid in one course, interrupting it at a plurality of points with the vanes of wheels, each of which receives in part the energy of the fluid, these vanes or wheels having velocity corresponding to retardation of the velocity of the fluid. This I accomplish by devices as illustrated in the drawings, 1 being a base or supporting frame constructed with a divergent fluid-passage 2, expanding according to the increase of volume and decreased velocity of the fluid discharged from a nozzle 3. In the path of this divergent passage 2 are the vanes 4 of a series of wheels 5, 6, and 7, or any number required by the difference between the initial and final pressures of the fluid employed. These are shown in the present drawings. These wheels 5, 6, and 7 are made of different diameters, so that by a uniform rate of revolution their vanes 4 will move at the required velocity when they are acted upon by the fluid discharged from the nozzle 3 and through this passage 2.

The shafts 8 of the wheels 5, 6, and 7 are connected together by any suitable means, pitch-chains 9 and 10 and pinions 11 being shown in the drawings; but bands, friction or tooth wheels can be employed for the same purpose. From one of the shafts 8, preferably that of the wheel 7, power is transmitted from a pulley 12, as shown in Fig. III. The chains 9 and 10 and pinions 11 are inclosed in a removable casing 13, that may, if required, contain oil for lubrication.

The wheels 5, 6, and 7 are accessible from the side by removing the plates 14, 15, and 17. They can be made in any suitable form, with the vanes 4 integral or fastened to the rims 18, as may be preferred.

The nozzle can be of any of the recognized forms, parallel or as shown or with a contracted throat to gage the volume of fluid admitted; so, also, in respect to other constructive features I do not confine myself to the proportions or precise construction shown, as these may be much varied in practice.

Having thus explained the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a turbine-motor, a nozzle, a divergent passage leading from said nozzle, a series of vane-wheels of successively-increasing diameters, intersecting said divergent passage, the shafts of said wheels being geared together by suitable means to revolve at the same velocity, and a power-transmitting pulley on one of said shafts, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE A. ALDRICH.

Witnesses:

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ELMER WICKES.