

No. 646,318.

Patented Mar. 27, 1900.

B. P. RYDER.
COMPRESSED AIR MOTOR.

(Application filed Nov. 22, 1898. Renewed Feb. 26, 1900.)

(No Model.)

Fig. 1

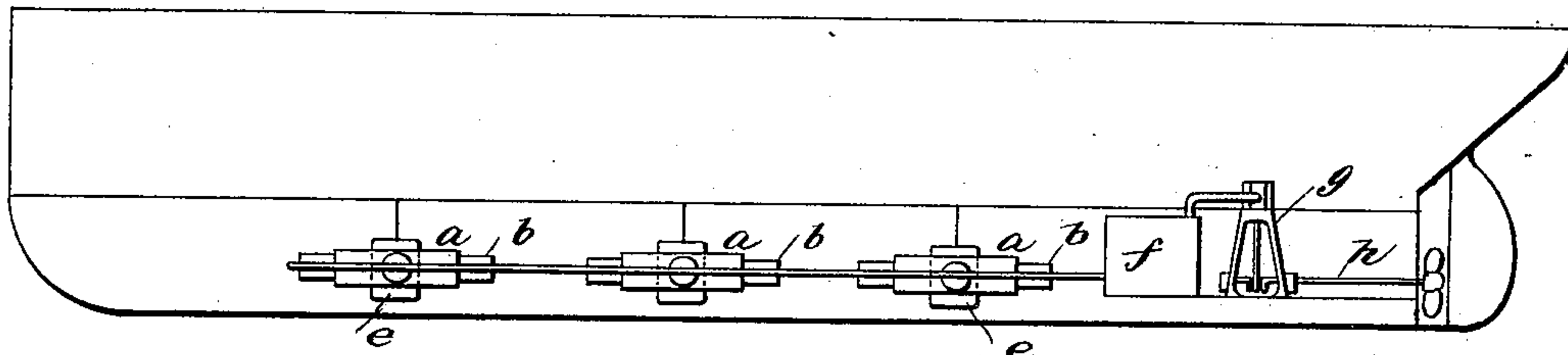


Fig. 2

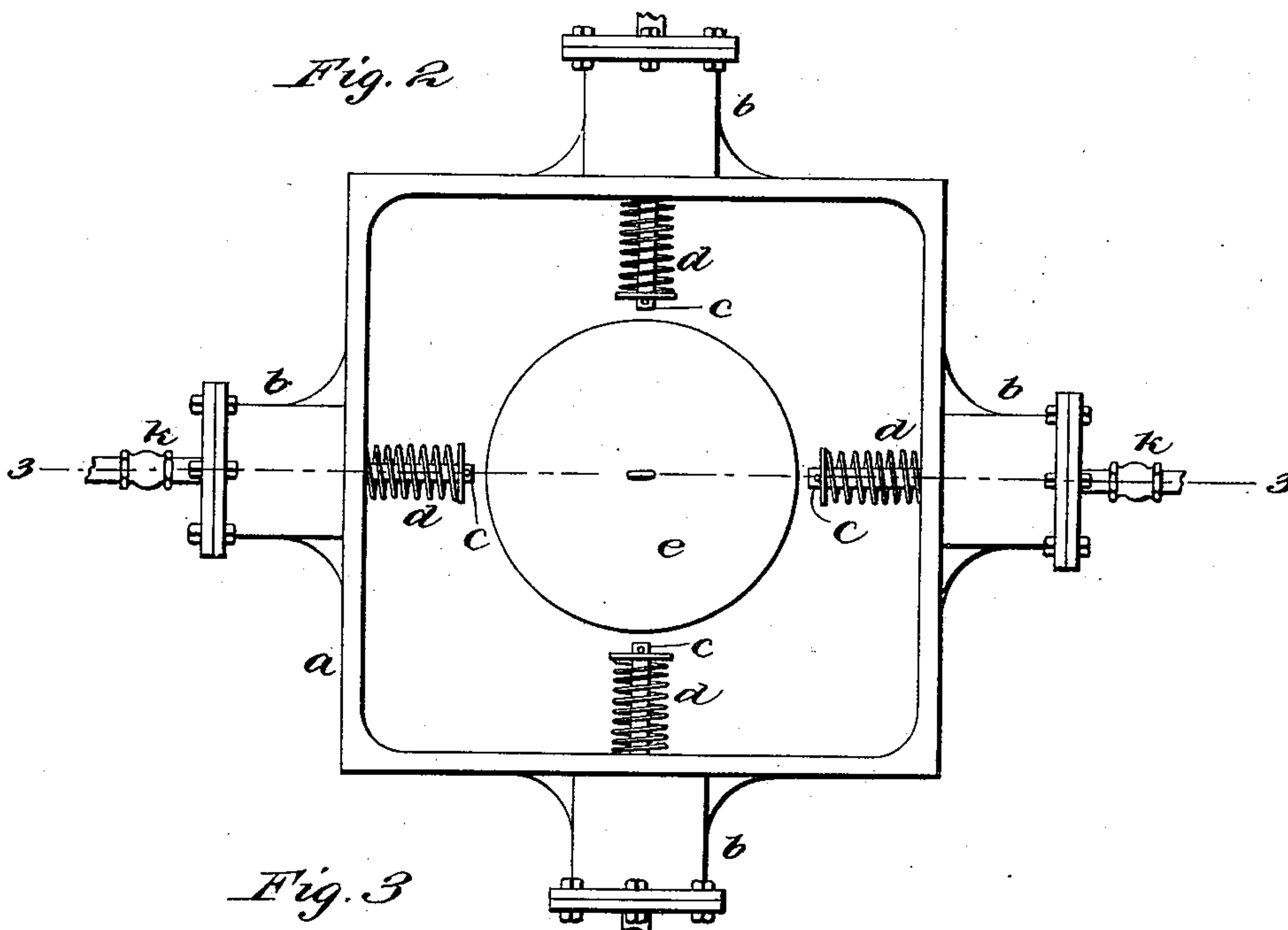
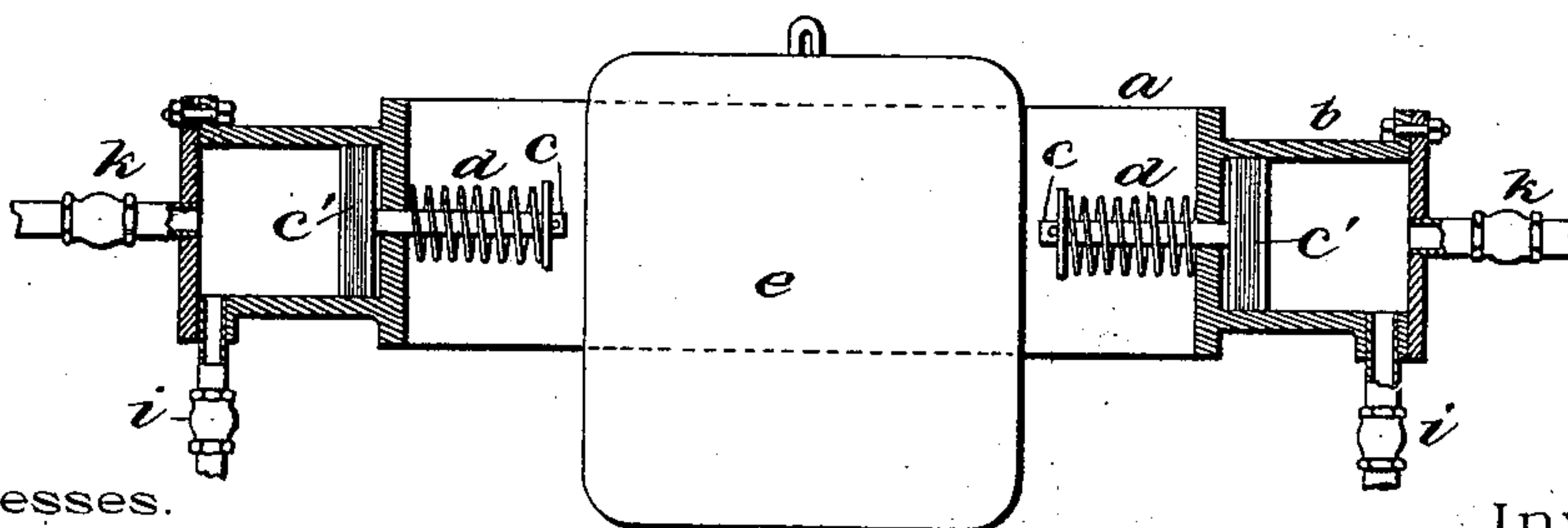


Fig. 3



Witnesses.

J. P. Coleman
Nellie Callahan

Inventor.

Benjamin P. Ryder
by
Wm. H. Finckel
Attorney.

UNITED STATES PATENT OFFICE.

BENJAMIN P. RYDER, OF NEW YORK, N. Y., ASSIGNOR TO THE MODEL MARINE MOTOR COMPANY, OF WEST VIRGINIA.

COMPRESSED-AIR MOTOR.

SPECIFICATION forming part of Letters Patent No. 646,318, dated March 27, 1900.

Application filed November 22, 1898. Renewed February 26, 1900. Serial No. 6,618. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN P. RYDER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Compressed-Air Motors, of which the following is a full, clear, and exact description.

The object of this invention is to provide a simple, cheap, and efficient motor for use for propelling water and land conveyances.

In my invention I utilize the fore-and-aft and lateral motions of the structure to which my motor is applied for the purpose of actuating or running it in the place of steam and other agents.

In carrying out my invention I employ a frame in which are mounted a number of air-compressors, and between the piston-rods of these various compressors is suspended a weight, against which one after another of the piston-rods impinges and is thereby actuated as the frame is tilted by the movements of the conveyance or other object in which the apparatus is arranged. The air compressed is conducted to a suitable storage vessel and from that vessel is supplied to the engine, by which it is utilized to turn a propeller or wheel or whatever is to be power-driven, all as I will proceed now more particularly to set forth and finally claim.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a longitudinal section of a propeller vessel, showing in a somewhat-diagrammatic manner a plant embodying my invention. Fig. 2 is a plan view of one of the motors. Fig. 3 is a section taken in the plane of line 3-3, Fig. 2.

A frame *a*, of a size and shape adapted to the place where it is to be employed and made of suitable material, as metal, is provided with a number of air compressors or pumps *b*, of any suitable construction and having their piston-rods *c* projected inwardly. The said piston-rods are provided with springs *d* or other suitable means are employed for effecting the return stroke of the pistons *c*'. Suspended within the frame and between the pis-

ton-rods is a weight *e*—such as a ball, cylinder, or other shape—in such manner that it is to all intents and purposes motionless. As the frame is tilted in any direction one or another of the piston-rods is brought into contact with the weight, and thereby the piston is projected, it being released by the return movement. In this way the several air-compressors are actuated to obtain a supply of compressed air, which may be led to a receiver or storage-tank common to all, from which it is drawn to an engine or other apparatus to be driven. As illustrated in Fig. 1, a boat may have three (more or less) of these tilting frames rigidly secured above its keel and within its hold and the weights suspended from suitable supports beneath the deck-planking or otherwise, and the several air-compressors of these several frames may be piped up to a receiver or storage-tank *f*, common to all, from which the compressed air may be supplied to an engine or motor *g* for operating the propeller-shaft *h*. The fore-and-aft and lateral motions of the vessel will serve to operate the various air compressors or pumps, and thus provide a supply of compressed air in the receiver *f*.

The present development of the invention has demonstrated that sufficient power is obtained by means of my apparatus to propel a vessel of the dimensions of an ordinary steam or naphtha launch; but I do not mean to limit my invention to its use on small vessels or in marine vessels, but mean to include as within my invention its use both on land conveyances and on water conveyances.

The various air compressors or pumps *b* will be supplied with valves *i* to admit air into the cylinders upon the return strokes of the pistons and with valves *k* to permit expulsion of the air from the cylinders upon the outer or active strokes; but since my present invention does not contemplate an improvement in air compressors or pumps I deem it unnecessary to describe the details that will be employed in such compressors or pumps.

One advantage possessed by my apparatus in its application especially to small boats is that it may be stowed away beneath the deck,

and therefore the deck-room is not cramped or contracted, as it is in ordinary steam and naphtha launches.

What I claim is—

5 1. The combination with a vessel, of a compressed-air motor, comprising a frame, rigidly applied to the bottom of the hold of such vessel, a number of air-compressors mounted upon said frame and moving with it as it
10 moves with the vessel, and a weight suspended within said frame and between the several piston-rods of the said compressors and adapted to actuate the said piston-rods by direct contact therewith as the frame moves about
15 said weight, substantially as described.

2. A compressed-air motor, comprising a frame rigidly applied to an object, such as a

ship, having a motion of its own and which is imparted to the frame, a number of air compressors or pumps mounted upon said frame 20 and moving with it and having converging piston-rods, and a weight or ponderous body suspended within said frame and between the several piston-rods and actuating said piston-rods by direct contact therewith, all arranged 25 to operate, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand this 22d day of November, A. D. 1898.

BENJAMIN P. RYDER.

Witnesses:

WM. H. FINCKEL,

E. A. FINCKEL.