

No. 625,352.

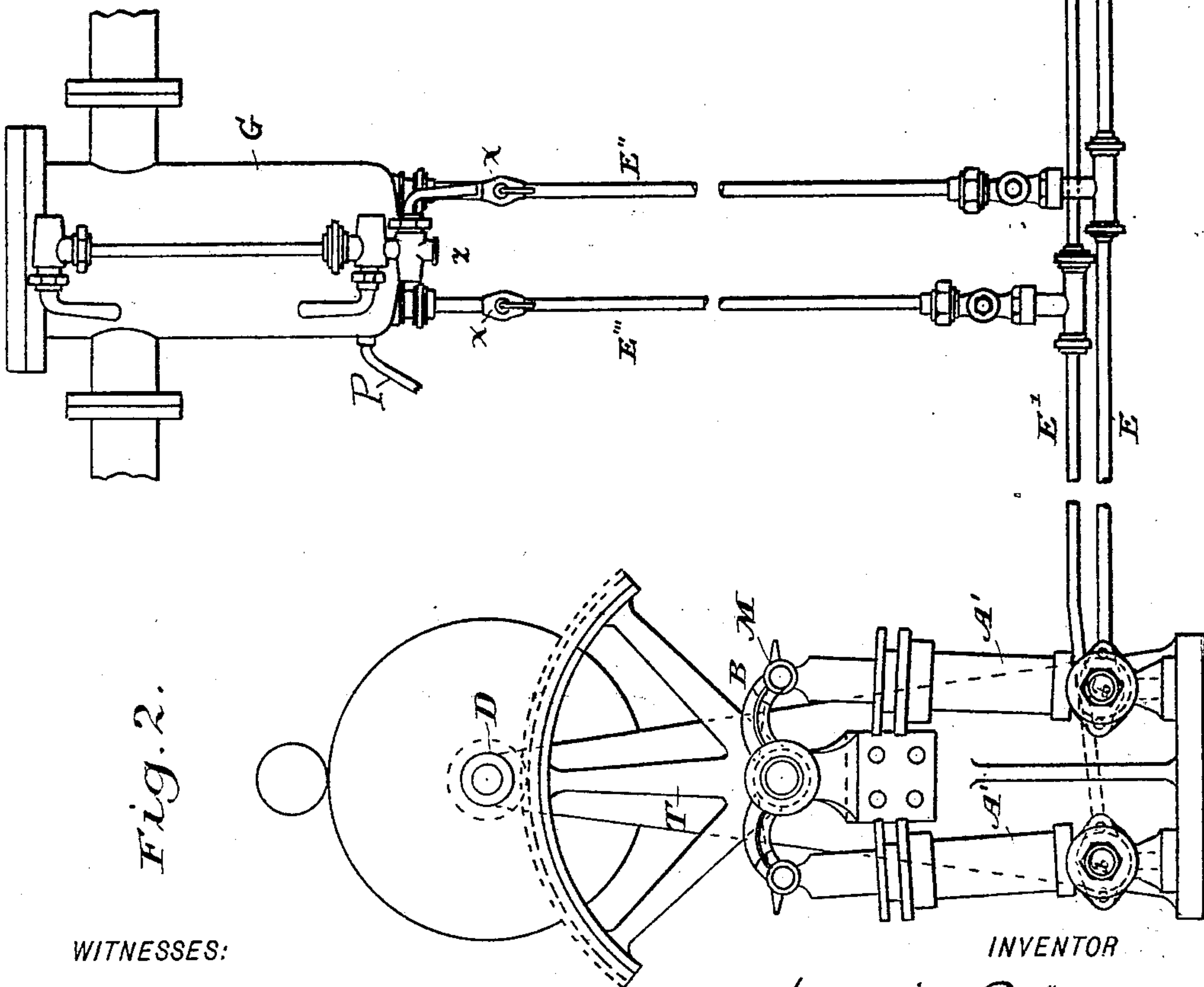
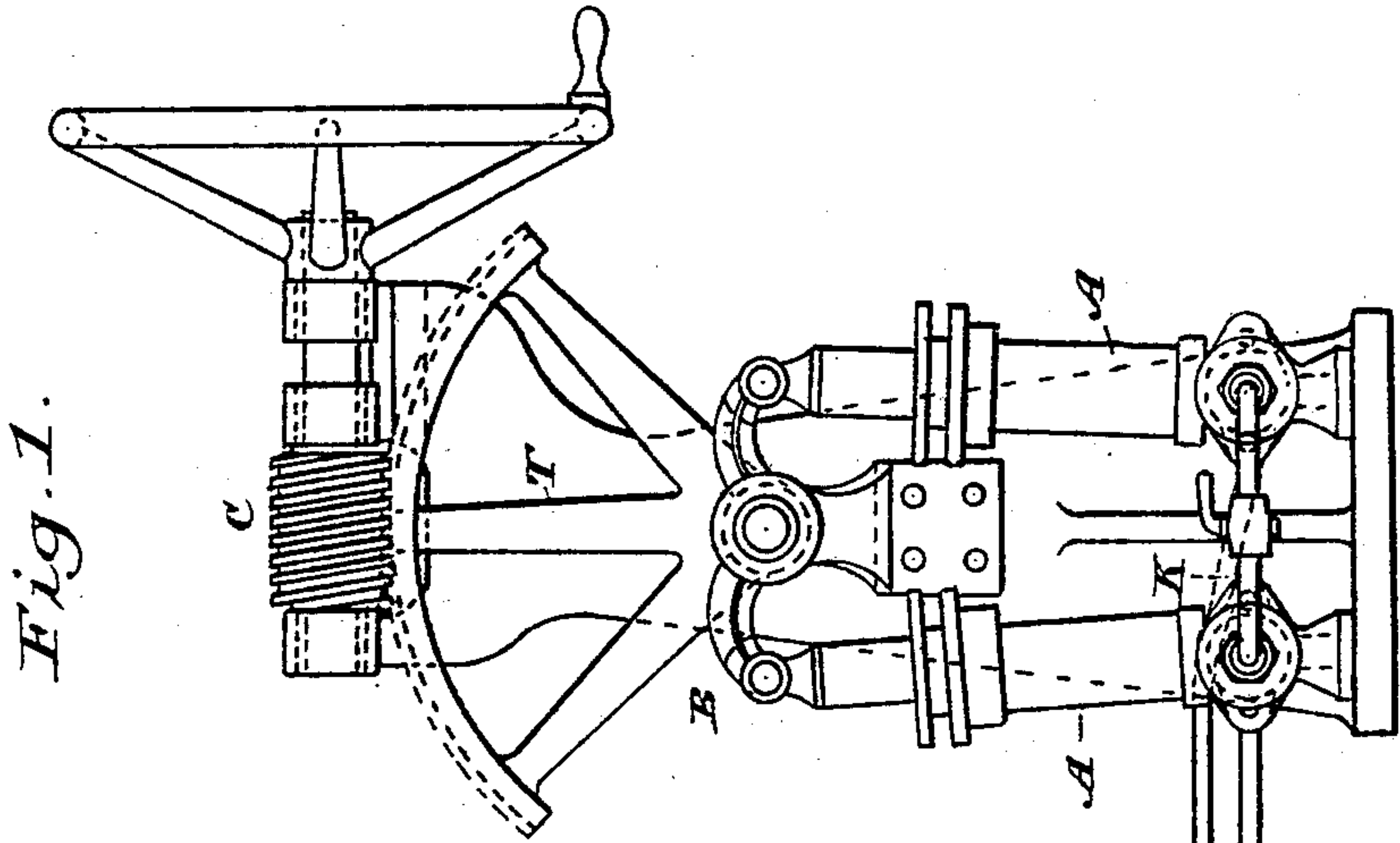
Patented May 23, 1899.

M. PAIDASSY.
STEERING MECHANISM.

(Application filed Sept. 20, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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(No Model.)

Fig. 3.

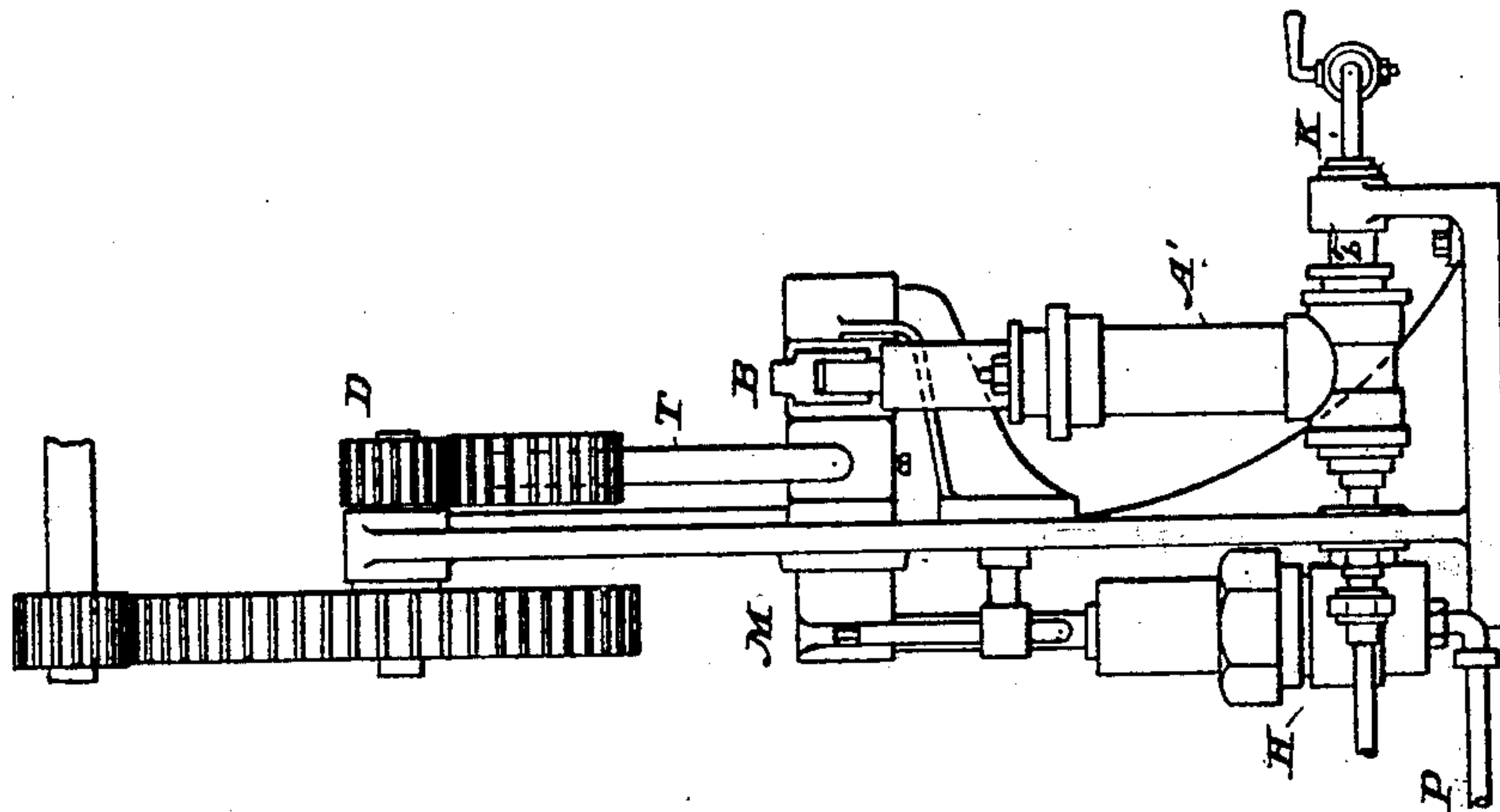
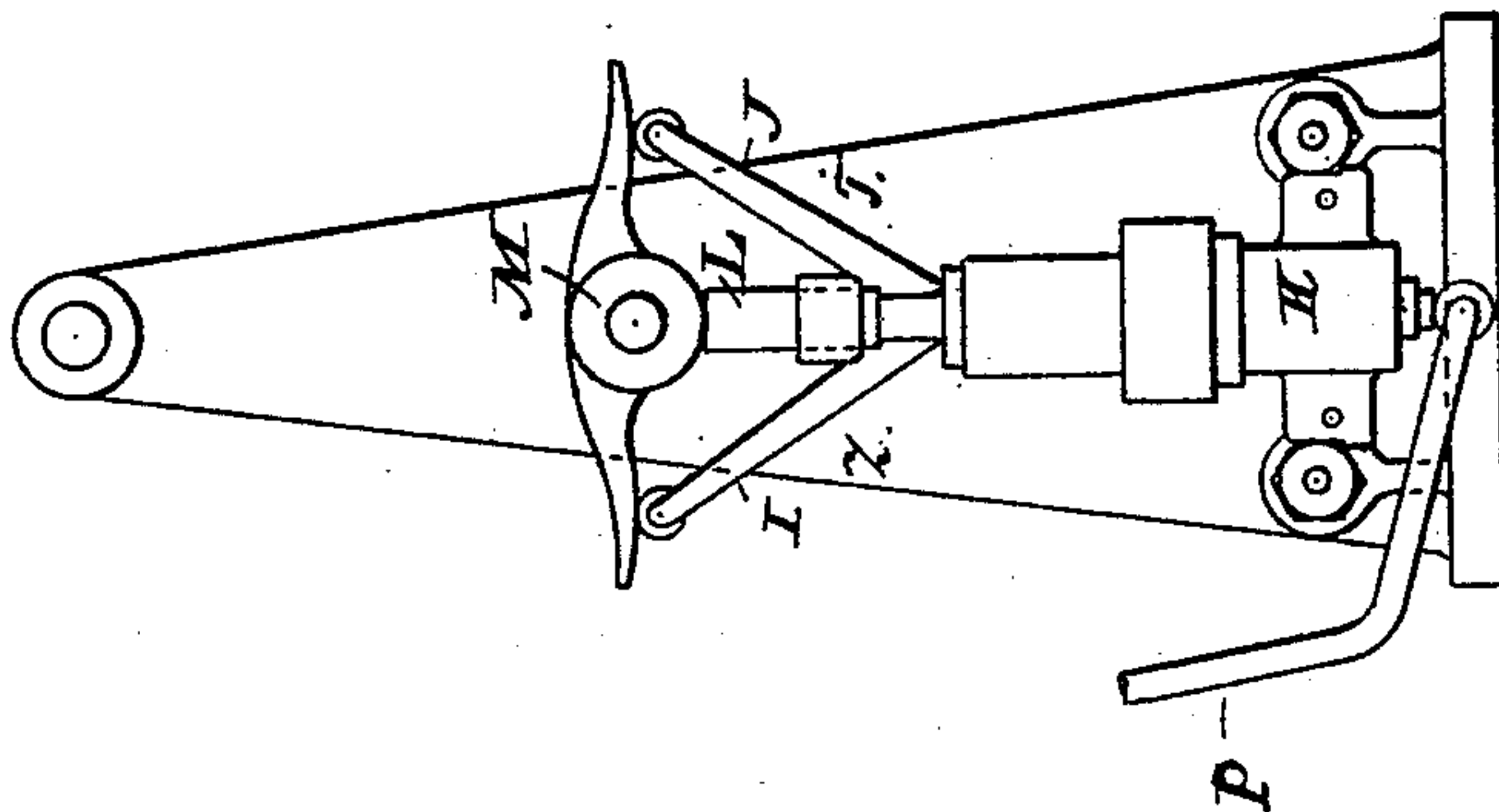


Fig. 4.



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UNITED STATES PATENT OFFICE.

MACARIUS PAÏDASSY, OF ST. PETERSBURG, RUSSIA.

STEERING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 625,352, dated May 23, 1899.

Application filed September 20, 1898. Serial No. 691,449. (No model.)

To all whom it may concern:

Be it known that I, MACARIUS PAÏDASSY, a subject of the Emperor of Russia, and a resident of St. Petersburg, Russia, have invented certain new and useful Improvements in Power-Transmitting Devices, of which the following is a specification.

My invention has for its object an apparatus which I term a "telemotor" and which is designed to transmit at every distance a reciprocating rotary motion. This apparatus is applicable for many purposes—as, for instance, for governing the position of a rudder on boats or ships, for closing and opening valves or doors at a distance, &c. On boats the apparatus can be applied directly to the rudder-head, eventually by means of levers, toothed segments, gear-wheels, &c., according to local conditions, while on large ships and the like it is preferred to apply the apparatus to the engine-valve designed to move the rudder, whereby this latter can be acted upon from any desired place on the ship.

On the accompanying drawings, Figure 1 represents a front view of the motor-engine of my apparatus. Fig. 2 is a front view of the transmitting-engine of the same. Fig. 3 is a side view of the transmitting-engine, and Fig. 4 represents a front view of a regulating-engine attached to the transmitting-engine.

My apparatus consists of two engines of almost the same construction, A A and A' A', Figs. 1 and 2, of which the first is the motor and the second the power-transmitter. Each of these engines consists of two cylinders pivoted at their lower ends on hollow trunnions and provided with pistons (plungers) the upper ends of which are connected to opposite ends of a double-armed lever or swing-beam B. On the axle of the beam B is fixed a toothed segment or arc. In the motor-engine the toothed arc is in gear with a worm-screw C, Fig. 1, acted on by a hand-wheel, while in the transmitting-engine the toothed segment meshes with a pinion D, which receives a rotary reciprocating motion and transmits it by means of any appropriate gearing to the rudder or other part to be moved.

The cylinders of the motor and transmitting engines of my apparatus are connected together by tubings E E', the ends of which are attached to the hollow trunnions of the respec-

tive cylinders, while the opposite ends of these trunnions are connected with each other in the same engine by means of a tube K, provided with a cock, Figs. 1 and 3. The tubes E E' are connected by corresponding tubings E'' and E''', provided with cocks α and valves z , to a vessel or chamber G, in which a constant pressure is maintained. For this purpose all the tubes E E' E'' E''', as also the vessel G, are filled with water or other fluid and the vessel G is in communication with a steam-boiler or other reservoir of a constant pressure.

For the action of the apparatus the cock on the tube K on the motor-engine must be closed. Then by turning the hand-wheel of this engine to the right or left, as the case may be, the worm C will turn in the corresponding direction the toothed segment, and consequently the swing-bar B, which compels one of the pistons of the motor-engine to descend and the other to be lifted. As the cylinders of the motor-engine are in communication with those of the transmitting-engine, the hydraulic pressure compels the corresponding pistons of the transmitting-engine to mount and descend, thus moving by interposition of the swing-bar B of this engine the toothed segment, and consequently the pinion D, to the right or left in strict conformity with the motions of the hand-wheel of the motor-engine. The axis of the pinion D being connected to the rudder mechanism or other part to be moved, it is evident that the motions of such parts will be governed in strict conformity with the movements of the hand-wheel of the motor-engine.

My apparatus has an additional controlling device in the form of a controlling or regulating engine placed behind the transmitting-engine, Figs. 3 and 4, and consisting of a single cylinder H, communicating with the reservoir G by an independent pipe P. The piston (plunger) of this engine has three rods I, J, and L. The middle rod L serves to guide the piston and the two inclined (at equal angles) rods I and J act on the opposite end of a swing-bar or walking-beam M, keyed on the same axle with the swing-bar B, so as to move therewith.

It is evident that the swing-bar M will assume the same position as the swing-bar B of the transmitting-engine when acted upon by

the hand-wheel of the motor-engine, supposing the cock on the communicating-tube K of the motor-engine be closed; but when this cock is opened and the two cylinders of the
 5 motor-engine are free to communicate with each other if on the return of the motor-pistons to neutral or middle position should the swing-bar B of the transmitting-engine be in some inclined position by reason of leakage
 10 the rods J and I of the piston in the cylinder H will act on the swing-bar M, and on the opening of the valve in pipe K compel the swing-bar B to assume the horizontal position, the fluid passing freely from one motor-
 15 cylinder to the other through pipe K. This will bring the rudder (or other movable part) to its middle position, and thus the additional controlling-engine affords a sure and effective means to bring the rudder (or other part) in
 20 its middle position.

In ships I prefer to use as a reservoir of constant pressure G an ordinary receptacle for condensed water, which is always used where large steam-conduits exist. In this
 25 case the condensed water will supply for all occasional leakages in the tubes E E' E'' E''', avoiding the necessity of special pumps, &c.

I claim as my invention—

1. A telemotor apparatus comprising a pair
 30 of motor-cylinders with pistons therein, a pair of transmitting-cylinders having pistons, independent pipe connections between said motor and transmitting cylinders, a walking-beam having its ends connected to the pistons
 35 of the motor-cylinders, a similar walking-beam having its ends connected to the pistons of the transmitting-cylinders and having operating connections to the part to be operated, and means for rocking said first-named
 40 walking-beam, substantially as described.

2. In combination a pair of motor-cylinders having pistons with means for operating the same, a pair of transmitting-cylinders having pistons, having connections to the part
 45 to be operated, independent pipe connections between said motor and transmitting cylinders, a pipe connection between the motor-cylinders having a cut-off valve, a single cylinder in proximity to the transmitting-cylinders in communication with a source of fluid-
 50 supply under pressure, a piston in said single cylinder and operating connections from said piston to the pistons of the transmitting-cylinders for centering the same when the cut-off valve is open, substantially as described. 55

3. In combination, a pair of motor-cylinders having pistons with operating connections to the parts to be operated, a pair of transmitting-cylinders having pistons, a walking-
 60 beam having its ends connected with the pistons of each set of cylinders, independent pipe connections between the motor and transmitting cylinders, a pipe connection between the motor-cylinders having a cut-off
 65 valve, a second walking-beam rigidly carried by the axis of the walking-beam of the transmitting-cylinders and movable therewith, a single cylinder in communication with a source of fluid under pressure, and a piston
 70 in said second cylinder, and arms operated simultaneously by said piston and bearing against opposite ends of said second walking-beam, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

MACARIUS PAÏDASSY.

Witnesses:

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 M. BREITFUSS.