

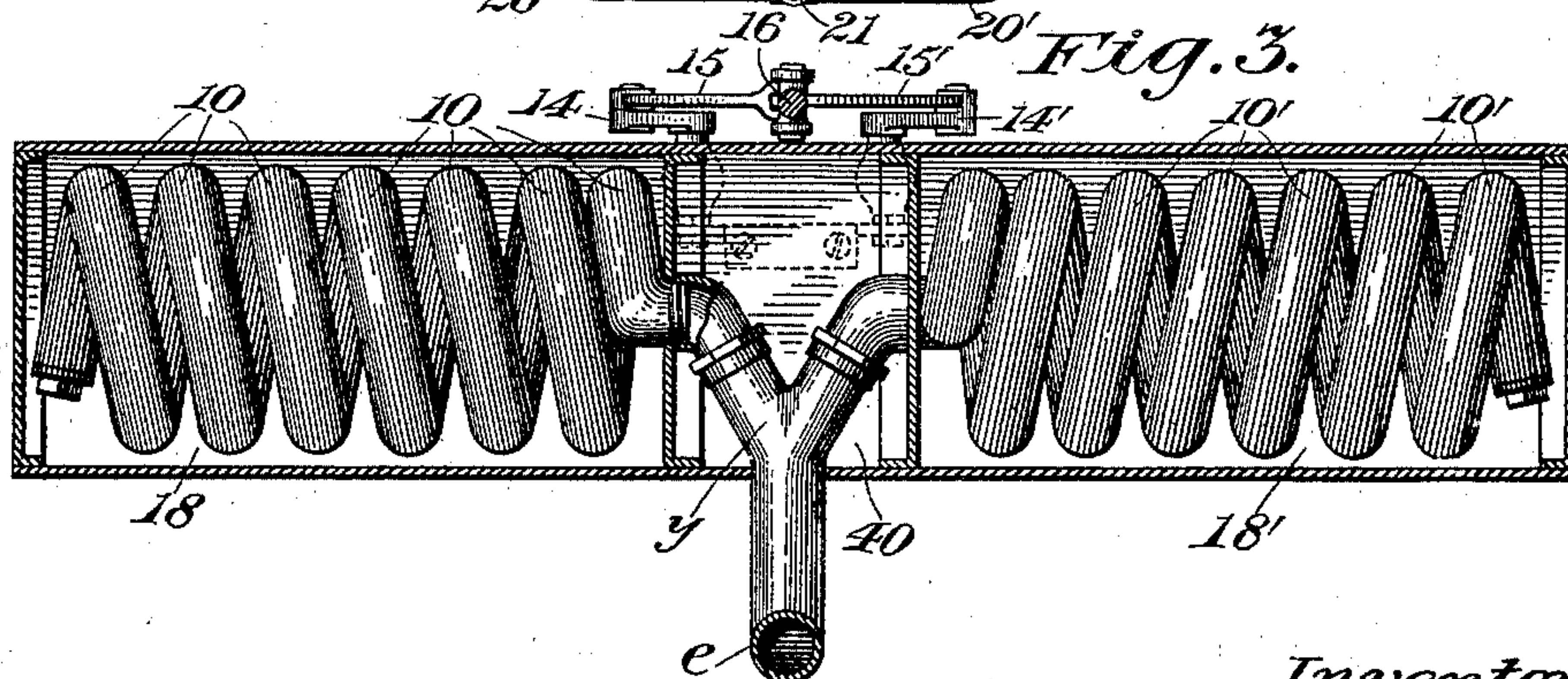
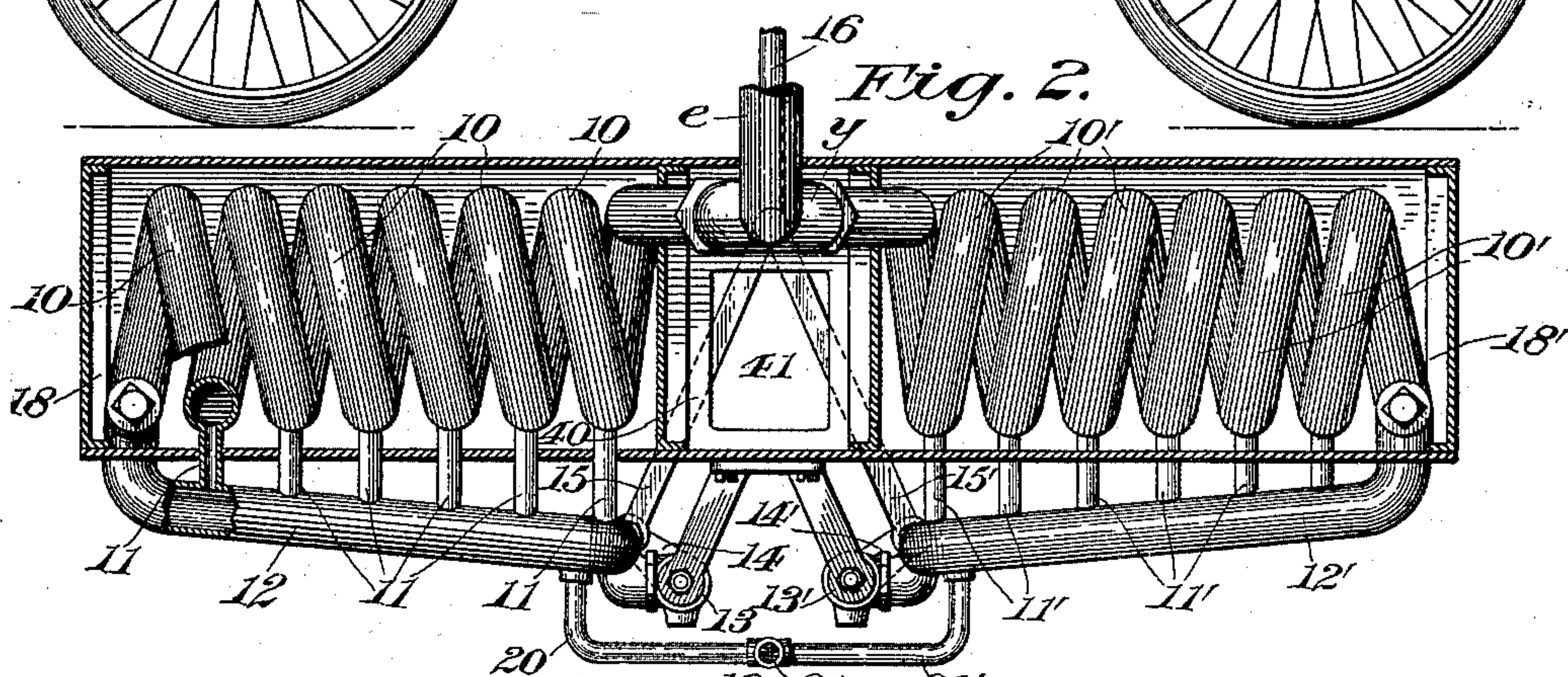
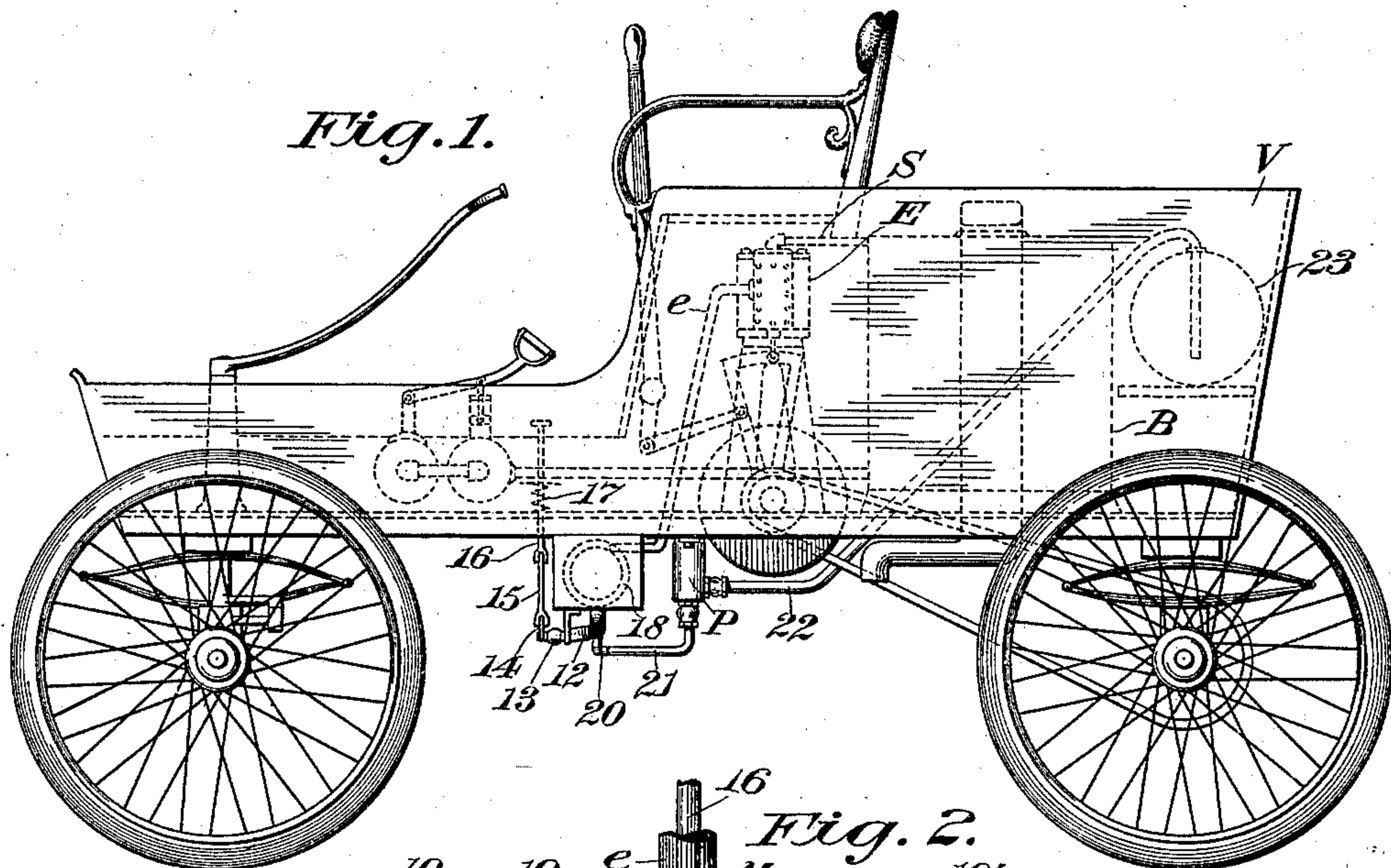
No. 671,211.

Patented Apr. 2, 1901.

J. B. GOSSMAN.
CONDENSER.

(Application filed Mar. 28, 1900.)

(No Model.)



Witnesses:

C. W. Smith
Chas. J. Schuch

Inventor:

Joseph B. Gossman

By his Attorney

F. A. Richards.

UNITED STATES PATENT OFFICE.

JOSEPH B. GOSSMAN, OF HARTFORD, CONNECTICUT.

CONDENSER.

SPECIFICATION forming part of Letters Patent No. 671,211, dated April 2, 1901.

Application filed March 28, 1900. Serial No. 10,475. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH B. GOSSMAN, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Condensers, of which the following is a specification.

This invention relates to condensers; and it has for its primary object the provision of an improved device of this class whereby steam or vapor may be condensed preparatory to being discharged into the atmosphere or into a tank for supplying fluid to the pressure-generator.

A further object of the invention is the provision of a receptacle employed in connection with a condensing coil or coils, which receptacle is adapted for receiving the condensate water or other fluid and the discharge end of which may be normally closed, means being provided for emptying said receptacle when desired.

A further object of the invention is the provision of means whereby liquid may be removed from the conduit or receptacle communicating with the condensing-coil and forced directly into the tank for supplying fluid to the pressure-generator, whereby the exhaust will be condensed, and when a steam-generator is employed the temperature of the water in said tank will be increased and an increment of supply added, so that practically the same water may be evaporated in the boiler over and over again.

A further object of the invention is the provision of a condenser for a steam-carriage composed of separated coils connected with the exhaust-pipe of the engine in such a way that the connection is located in a cold-air space, which serves to aid in cooling said connection, and thereby to start the condensation of the steam immediately upon its delivery to the condensing apparatus. Hence my invention may be advantageously employed in steam-automobiles or similar vehicles used in street traffic, the exhaust from which is usually discharged into the atmosphere, and thus tends to frighten horses and is otherwise objectionable for various reasons.

In the drawings accompanying and forming part of this specification, Figure 1 is a side view of a steam-automobile with my im-

proved condensing apparatus in place. Fig. 2 is a side view of the condensing apparatus in detail, the inclosing casing being shown in section; and Fig. 3 is a plan view of the device shown in Fig. 2 with the casing in section.

Like characters designate similar parts in all the figures of the drawings, referring to which—

V designates the body of the vehicle, the rear wheels whereof may be driven by a reversible steam-engine E, obtaining a supply of steam through a pipe S from the boiler B and suitable sprocket-wheels and a chain W. Exhaust-steam is conducted from the cylinder of the engine by a pipe e to the condensing apparatus, which in the present instance is constructed in duplex form and consists of a series of connected condensing-coils 10 and 10', respectively, which are disposed laterally beneath the vehicle-body, both series of coils being connected with the exhaust-pipe e by a fitting y. Each series of coils is preferably formed of a pipe coiled around a horizontal axis, so that each individual coil forms a chamber, which may be provided near its bottom with an aperture through which the condensed products may pass and be conducted through pipes 11 and 11' into receptacles or conduits 12 and 12', disposed below the chambers and slightly inclined toward their inner ends. These receptacles are shown as pipes connected with the chambers of the respective condensing-coils by the pipes 11 and 11', above mentioned, and have near their inner ends conduits 20 and 20', which terminate in a pipe 21, leading to a pump P. This pump may be operated by any convenient means and is provided for the purpose not only of removing any "back pressure" in the condensing-receptacles, but, furthermore, for serving as a means for forcing the condensate water or other product through a pipe, such as 22, into a tank 23 containing the supply for the generator. It will therefore be seen that the supply of fluid in the tank will in this manner be constantly restored and that in case of steam the warm condensate water will tend to increase the temperature of the feed-water in the tank, while if the amount of exhaust-steam should exceed the capacity of the condensing apparatus any excess of

such steam will be forced into the feed-water and be thus condensed. Means are also provided for discharging the accumulated products of condensations, these means consisting, substantially, of valves 13 and 13', which are normally closed, and the stems of which carry arms 14 14', connected by links 15 15' with a vertical rod 16, which is sustained in an elevated position by a spring 17 and which may be depressed by the foot of the operator to open said valves to remove back pressure in the condensing-coils and receptacles or to permit the condense-water to escape from the receptacles 12 12' directly into the atmosphere.

15 In order to increase the rapidity of operation, and hence the efficiency of my improved apparatus, I prefer to incase the condensing chambers or coils in cooling-chambers, such as 18 18', adapted for containing water or some other cooling agent, which may be conveniently replaced when desired.

Connection *y* is, as shown, located in a separate compartment 40 of the tank containing the condensing-coils and is therefore exposed to the action of the atmosphere, which aids in the condensing work to be accomplished, the atmosphere or air-draft passing through said chamber 40, the front and rear walls of which are provided with openings, such as 41, for that purpose.

My invention is not limited in use to steam-carriages, nor is it limited to the exact construction of the devices shown and described nor to the number of condensing-coils employed.

Having described my invention, I claim—

1. The combination, with a vehicle, of a motor; means connecting the same with the driving-axle of the vehicle; a condensing-coil connected by a conduit with the cylinder of the motor; a series of pipes tapping the turns of said condensing-coil; a receptacle with which said pipes communicate; a valve normally closing said receptacle; and means carried by the vehicle and under control of the motorman for actuating said valve.

2. The combination, with a vehicle, of a motor; means connecting said motor with the driving-axle of the vehicle; a condensing-coil connected by a conduit with the cylinder of the motor; a casing carried by the vehicle and in which said coil is located; means for discharging the condense-water collected in the coil; a receptacle into which said means is discharged; a valve normally closing said receptacle; and means carried by the vehicle and under the control of the motorman for actuating said valve when it is desired to discharge the contents of said receptacle.

3. The combination, with a vehicle, of a motor carried thereby; means actuated by the motor for driving the vehicle; a casing carried by the vehicle; a condensing-coil located in said casing; a conduit connecting the condensing-coil with the cylinder of the motor; conduits tapping each respective turn of the condensing-coil; an inclined receptacle into

which said conduits open; a valve in said receptacle; and a rod under the control of the motorman and connected by linkage with said valve.

4. The combination, with a vehicle, of a motor carried thereby; means connecting the motor with the driving-axle of the vehicle; a casing secured to the vehicle; a condensing-coil located in said casing; an inclined receptacle into which said coil discharges; a valve in said receptacle, said valve having an arm; a rod spring-actuated in one direction and mounted in the floor of the vehicle; and linkage connecting said rod with the valve.

5. The combination, with a vehicle, of a motor and mechanism actuated by said motor for propelling the vehicle; a casing carried by the vehicle; a series of connected condensing-coils mounted in said casing; inclined receptacles for the reception of the contents of said coils; pipes connecting the coils and receptacles; a valve located in each receptacle, each of said valves having an arm; links connected to the arms of the valves; and a push-rod pivoted to said links.

6. The combination, with a vehicle, of a motor; means connecting said motor with the driving-axle of the vehicle; a casing having separated chambers carried by the vehicle, the wall of the casing between said chambers having an opening; condensing-coils located in said chambers and connected with each other; inclined receptacles; a series of pipes connecting the respective turns of each condensing-coil with said receptacles; valves in the receptacles; and linkage under the control of the motorman for actuating said valves.

7. The combination, with a vehicle, of a motor; means actuated by the motor for propelling said vehicle; a condensing-coil carried by the vehicle; a conduit connecting said coil and the cylinder of the motor; a receptacle into which said coil discharges; a pump for withdrawing the contents of said receptacle; and a tank communicating with the pump.

8. In a motor-vehicle, the combination, with a motor of a steam-generator; means for connecting said motor with the driving-axle of the vehicle; a casing secured to the bottom of the vehicle, said casing having an opening in its wall; a condensing-coil located in the casing and having an extension located in a part thereof adjacent to said opening where by it is exposed to the air; a receptacle connected with said condensing-coil; and means for withdrawing the contents of said receptacle.

9. The combination, with a tank having cooling-chambers and an intermediate compartment open to the atmosphere, of condensing-coils located in the cooling-chambers; a conduit connecting said coils and passing through the compartment of the tank; an exhaust-pipe leading to said conduit; receptacles for receiving the condensed fluid; and a series of pipes tapping each turn of the coils and connected with the receptacles.

10. The combination, with an engine, of a tank having a series of cooling-chambers and an intermediate compartment, the latter being open to the atmosphere; condensing-coils
5 located in the cooling-chambers of the tank; a conduit connecting said coils and disposed in the compartment; an exhaust-pipe leading from the cylinder of the engine to said conduit; a receptacle connected to each condens-
ing-coil; a series of short pipes tapping each to respective turn of the condensing-coils and leading to said receptacles; and means for withdrawing the condensed products from the receptacles.

JOSEPH B. GOSSMAN.

Witnesses:

WM. H. BLODGETT,

WM. H. BLODGETT, Jr.