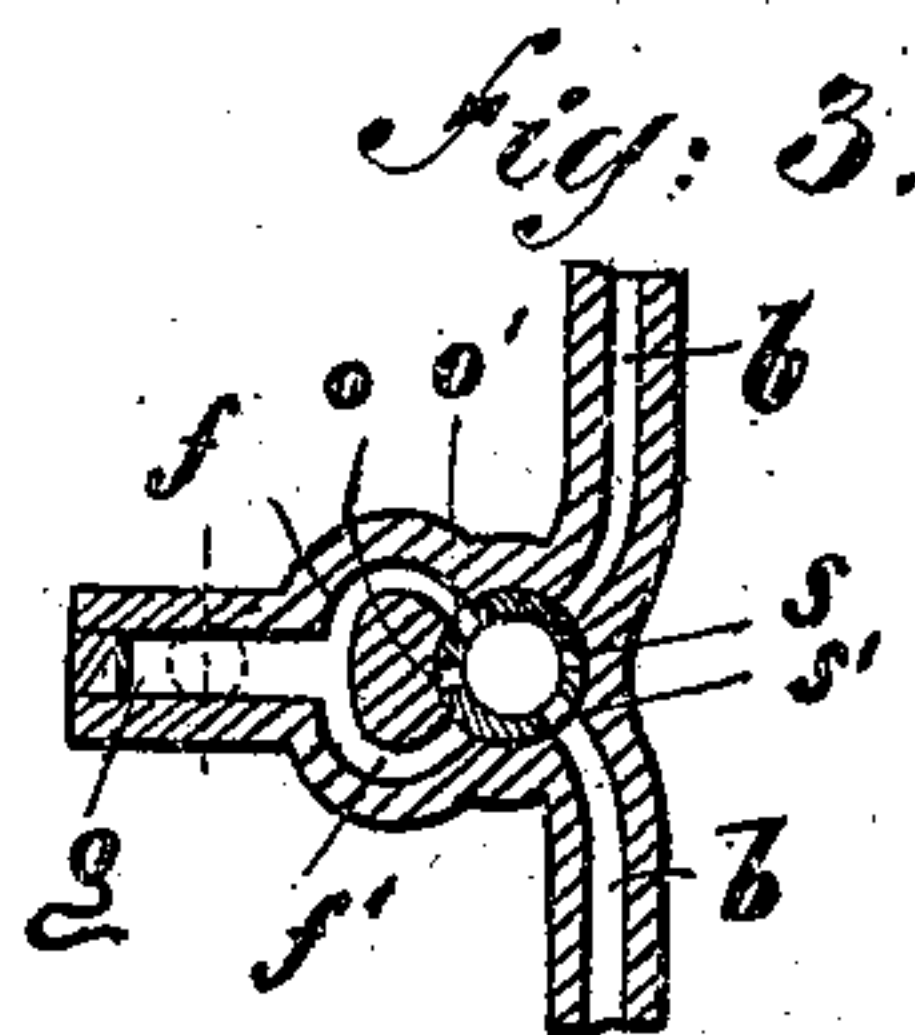
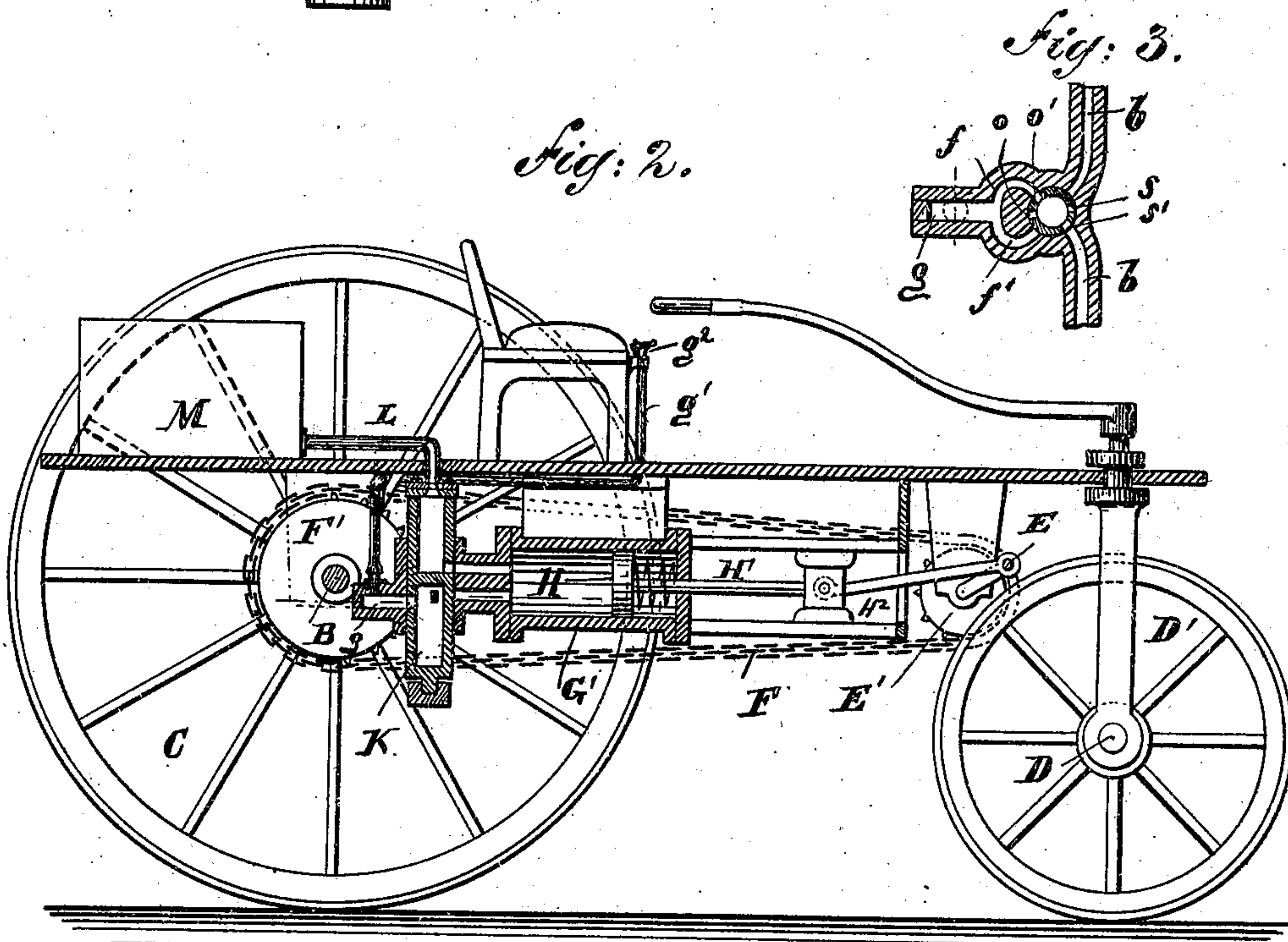
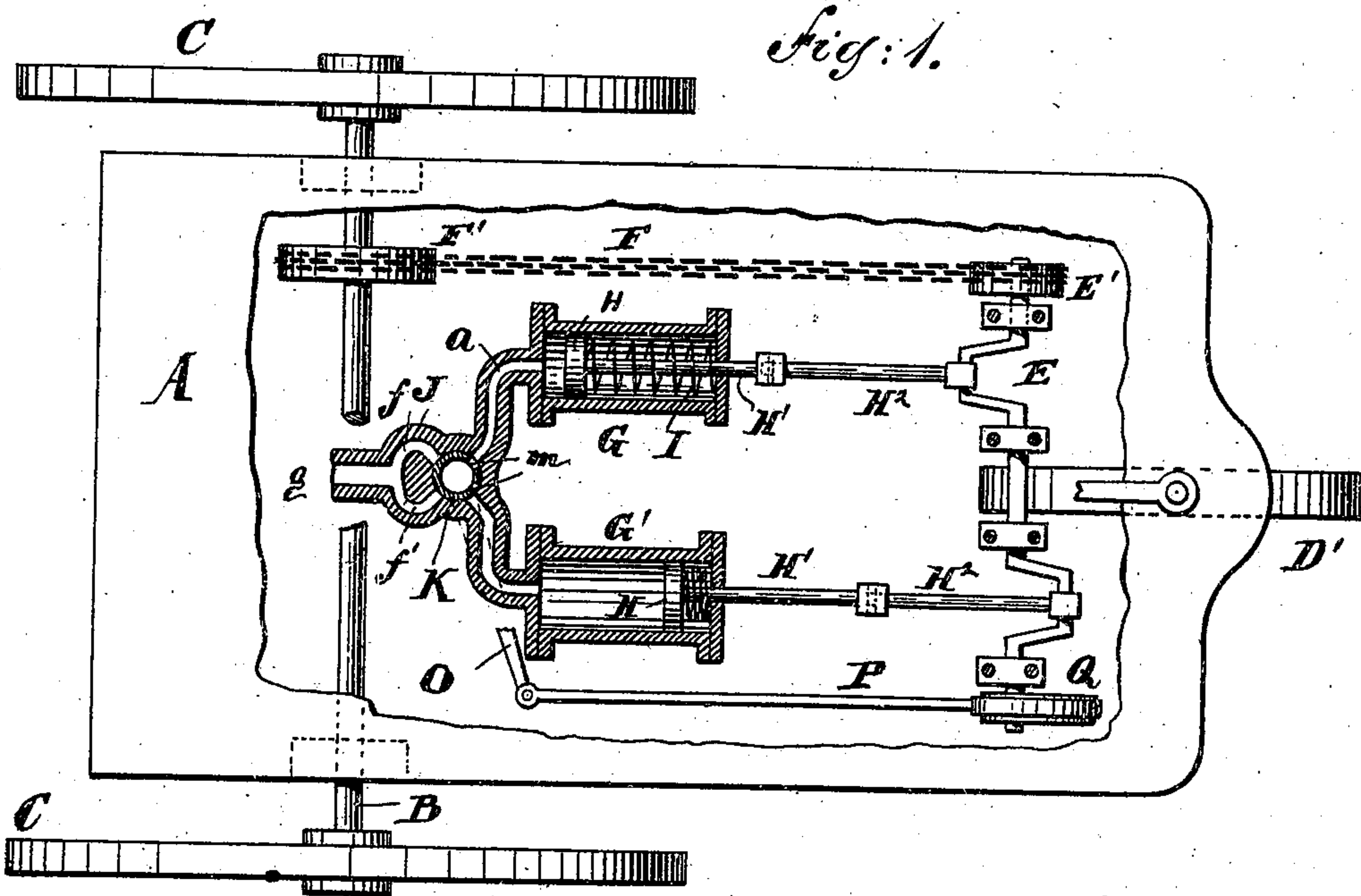


(No Model.)

G. KELLER.  
MOTOR.

No. 504,272.

Patented Aug. 29, 1893.



WITNESSES:

Marion Hall  
Charles Schroeder.

INVENTOR:

G. Keller.

BY

Apex Rogers.

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

GOTTLIEB KELLER, OF WEST HOBOKEN, NEW JERSEY, ASSIGNOR OF TWO-FIFTHS TO ALPHONSE DE RIESTHAL, OF BROOKLYN, AND SOLOMON BLOG, OF NEW YORK, N. Y.

## MOTOR.

SPECIFICATION forming part of Letters Patent No. 504,272, dated August 29, 1893.

Application filed February 12, 1892. Renewed January 10 1893. Serial No. 457,950. (No model.)

*To all whom it may concern:*

Be it known that I, GOTTLIEB KELLER, a citizen of Switzerland, and a resident of West Hoboken, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Vehicle-Motors, of which the following is a specification.

This invention relates to an improved motor which is to be driven by compressed gas, such as compressed air, carbonic acid gas and the like, and which motor is especially adapted for propelling vehicles.

In the accompanying drawings, Figure 1 is a plan-view of a vehicle provided with my improved motor, parts being broken out and others in section. Fig. 2 is a vertical longitudinal central sectional view of the same. Fig. 3 is a horizontal detail sectional view through the valve casing.

Similar letters of reference indicate corresponding parts.

A is the wagon platform, B the rear and driving axle, and C the driving wheels fixed on the same.

In the front of the platform A a single steering wheel D or two steering wheels D' are mounted on a swivel axle D<sup>2</sup>.

The vehicle can be finished in any suitable way, either as a carriage, buggy, car, &c.

To the under side of the wagon platform A' the motor is attached. Said motor drives a crank-shaft E carrying a sprocket-wheel E' over which a driving chain F passes, that also passes over a sprocket-wheel F' on the driving axle B, so that the driving axle is rotated when the motor is in operation.

The motor is constructed with cylinders G and G' which are arranged as shown in Fig. 1, each containing a piston H connected with the piston-rod H' passing through a suitable opening in the end of the cylinder, and each piston rod H' is connected by a connecting rod H<sup>2</sup> with the crank-shaft E. A helical spring I surrounds the piston-rod H between the front head of the cylinder and the piston, as shown. The rear end of each piston is in communication with two channels *a* and *b*, which lead to a valve casing J containing the cylindrical rocking valve K provided with the

transverse partition *d*. The casing J also contains two channels *f f'*, which are united with the common channel *g*, connected with a tube *g'* leading to the seat and provided at its end with a cock *g<sup>2</sup>*.

The tubular valve J is divided into two compartments by the horizontal partition *d*, the upper compartment being provided with two lateral apertures *m* that can register with the ends of the two channels *a* for the two cylinders G G'. Said upper compartment of the tubular valve J is connected by a hose L or other suitable contrivance with a receptacle M for compressed air or gas. The lower compartment of the valve is provided with two apertures *o o'*, which can register with the channels *f f'* in the valve casing J, and with two apertures *s s'* that can register with the channels *a a'*.

The rocking cylindrical valve K is provided with an arm O, which in turn is connected by a rod P with an eccentric disk Q on the crank-shaft E, so that when said crank-shaft is rotated the governing valve K is rocked. By the rocking of said governing valve K the apertures *m m* in the upper compartment of the cylindrical valve are alternately brought in register with the ends of the two channels *a* leading to the cylinders G G', and thus the compressed air or gas is alternately admitted into the two cylinders. At the same time, however, that the compressed air or gas is admitted into one cylinder the exhaust channel *b* of the other cylinder must be in communication with one of the apertures *s* or *s'* of the bottom compartment of the cylindrical rocking valve K, as is, for example, shown in Fig. 3, which shows the valve K in the position corresponding to Fig. 1, so that as the compressed air or gas passes through the corresponding channel *a* into the cylinder G the exhaust gas or air can pass through the corresponding channel *b* out of the cylinder G' and into the outlet channels *f g*.

When it is desired to stop the vehicle the supply of compressed gas to the motor is cut off, and at the same time the cock *g<sup>2</sup>* is closed, which causes the power cylinders to act as brake cylinders.

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

5 In a motor, the combination, with two cylinders, of a valve-casing provided with a vertical bore for a valve and with two inlet-channels extending from said bore to the two cylinders, two outlet-channels extending from said cylinders to the bore for the valve, a  
10 vertically cylindrical rocking-valve in said bore, which valve is closed in its bottom and open at the top and is divided into two compartments by a horizontal transverse partition, the upper compartment having two ap-  
15 ertures adapted to register with the inlet-

channels of the cylinders, and the lower compartment having four apertures being adapted to register with the outlet-channels leading to the cylinders, and with channels leading to the outlet-port of the valve-casing, and 20 an inlet-pipe for the operating medium connecting with the top of said rocking-valve, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses. 25

GOTTLIEB KELLER.

Witnesses:

OSCAR F. GUNZ,

CHARLES SCHROEDER.