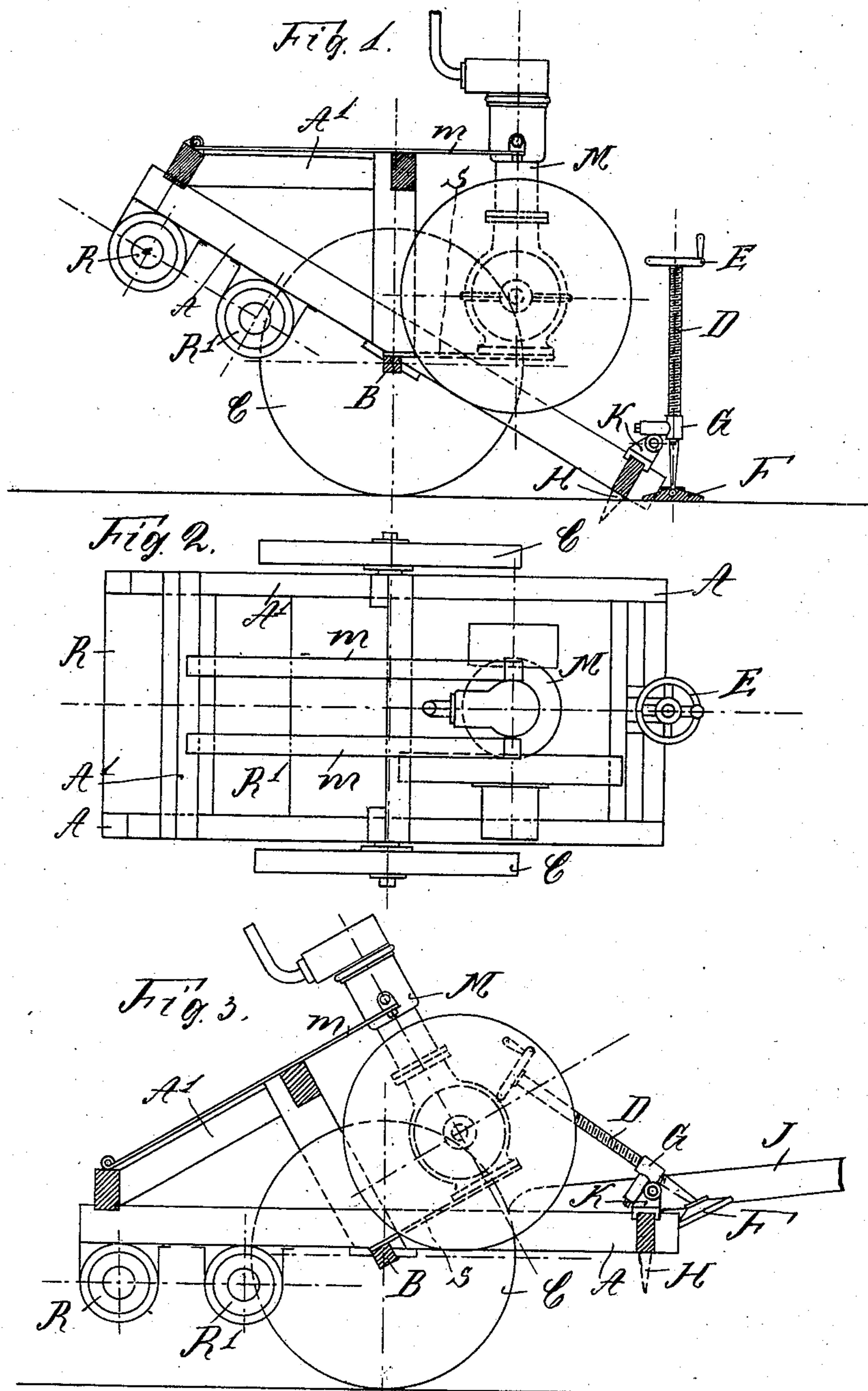


(No Model.)

W. MAYBACH.  
PORTABLE HYDROCARBON ENGINE.

No. 577,167.

Patented Feb. 16, 1897.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

WILHELM MAYBACH, OF CANNSTADT, GERMANY.

## PORTABLE HYDROCARBON-ENGINE.

SPECIFICATION forming part of Letters Patent No. 577,167, dated February 16, 1897.

Application filed July 11, 1896. Serial No. 598,850. (No model.)

*To all whom it may concern:*

Be it known that I, WILHELM MAYBACH, a subject of the King of Würtemberg, and a resident of Cannstadt, in the Kingdom of Würtemberg, in the German Empire, have invented certain new and useful Improvements in Portable Hydrocarbon-Engines, of which the following is an exact specification.

The conditions which portable hydrocarbon-engines should most answer if they shall be properly suitable for agricultural use are low weight and great mobility, so that said engines may be employed on any ground. Furthermore, to insure a convenient portability and also a secure stability during work the load should be distributed in the most favorable manner attainable. Finally, the suspension of the motor should be effected so as to prevent the engine from being injured by the shocks of the carriage, and on the other hand the vibrations of the engine when at work should be hindered from acting too strong upon said carriage.

The afore-enumerated conditions are all combined in the portable hydrocarbon-engine forming the subject of this application, and in order to make my invention more clear I refer to the accompanying drawings, in which similar letters refer to similar parts throughout the different views, and in which—

Figure 1 is a diagrammatical side view of my improved portable hydrocarbon-engine, showing the latter in position for work. Some parts are in section. Fig. 2 is a plan of the engine; and Fig. 3 is a view similar to Fig. 1, the engine being shown in position for transport.

The main frame A of the portable engine is carried by the axle B, and the latter is carried by the wheels C. An auxiliary frame A', supported by the main frame A, holds the engine or motor proper, M, by the mediation of the springs or elastic arms *m*, and similar springs or elastic arms *s* are secured to the axle B, also for the purpose of supporting the motor M. Said latter springs may be secured, if desired, to the side portions of the main frame, and I wish it to be understood that in view of the axle B being rigidly connected with the main frame I may regard said axle as a part of said frame.

The hydrocarbon requisite for driving the

motor is contained within a vessel R, secured to the frame A, and a similar vessel R', also secured to said frame, contains the cooling-water for the cylinder of said motor.

Turning—i. e., raising or lowering—the frame A when inclined or when the motor is in its proper working position, respectively, is effected by means of a threaded spindle D, that is furnished with a crank or hand wheel E. The nut G of said spindle is hinged to a bracket K, fixed to the frame A, and a supporting-plate or foot-plate F is hinged to the spindle itself by means of a ball-joint or a similar contrivance. One or more spikes H serve for securing the frame against lateral displacements, and the frame is finally furnished with suitable means for holding a thill J, Fig. 3.

The first particularity of the construction aforedescribed resides in the carriage of the portable engine having one axle only, so that the whole possesses a low weight and may be easily moved. The second particularity resides in the engine or motor proper being mounted in such a manner that on the frame A being in a horizontal position the point of gravity of the whole arrangement lies about vertically over the axle B, and if the frame A is in an inclined position or the motor is in proper working position, respectively, the point of gravity is displaced in the direction to the front end of the frame for such an extent as to insure the requisite stability of the whole.

Having thus fully described the nature of this invention, what I desire to secure by Letters Patent of the United States is—

1. In a portable hydrocarbon-engine, the combination with the inclinable carriage-frame, and the engine proper carried by said frame, of one wheeled axle supporting the latter; said engine proper being arranged upon the carriage-frame in an inclined position, in such a manner, as to extend with its upper portion beyond that plane of said axle which stands rectangularly to the plane of the said frame, for the purpose as described.

2. In a portable hydrocarbon-engine, the combination with the inclinable carriage-frame, an auxiliary frame arranged upon the latter, springs held by said auxiliary frame, other springs held by said carriage-frame,



and the engine proper held by said springs, of one wheeled axle supporting said carriage-frame; said engine proper being held by the said springs in an inclined position, in such  
5 a manner, as to extend with its upper portion beyond that plane of said axle which stands rectangularly to the plane of the said carriage-frame, for the purpose as described.

3. In a portable hydrocarbon-engine, the  
10 combination with the inclinable carriage-frame, and the engine proper carried by said frame, of one wheeled axle supporting the latter; said engine proper being arranged upon the carriage-frame in an inclined position, in  
15 such a manner, as to extend with its upper portion beyond that plane of said axle which stands rectangularly to the plane of the said frame, and means for adjusting the degree of inclination of the latter, for the purpose as  
20 described.

4. In a portable hydrocarbon-engine, the

combination with the inclinable carriage-frame, and the engine proper carried by said frame, of one wheeled axle supporting the latter; said engine proper being arranged upon  
25 the carriage-frame in an inclined position, in such a manner, as to extend with its upper portion beyond that plane of said axle which stands rectangularly to the plane of the said frame; a nut hinged to the more loaded end  
30 of the latter; a threaded spindle held by said nut; a foot-plate attached to said spindle, and means for rotating the latter, for the purpose as described.

In testimony whereof I have signed this  
specification in the presence of two subscribing witnesses. 35

WILHELM MAYBACH.

Witnesses:

F. DURAND,  
CHR. BAUER.