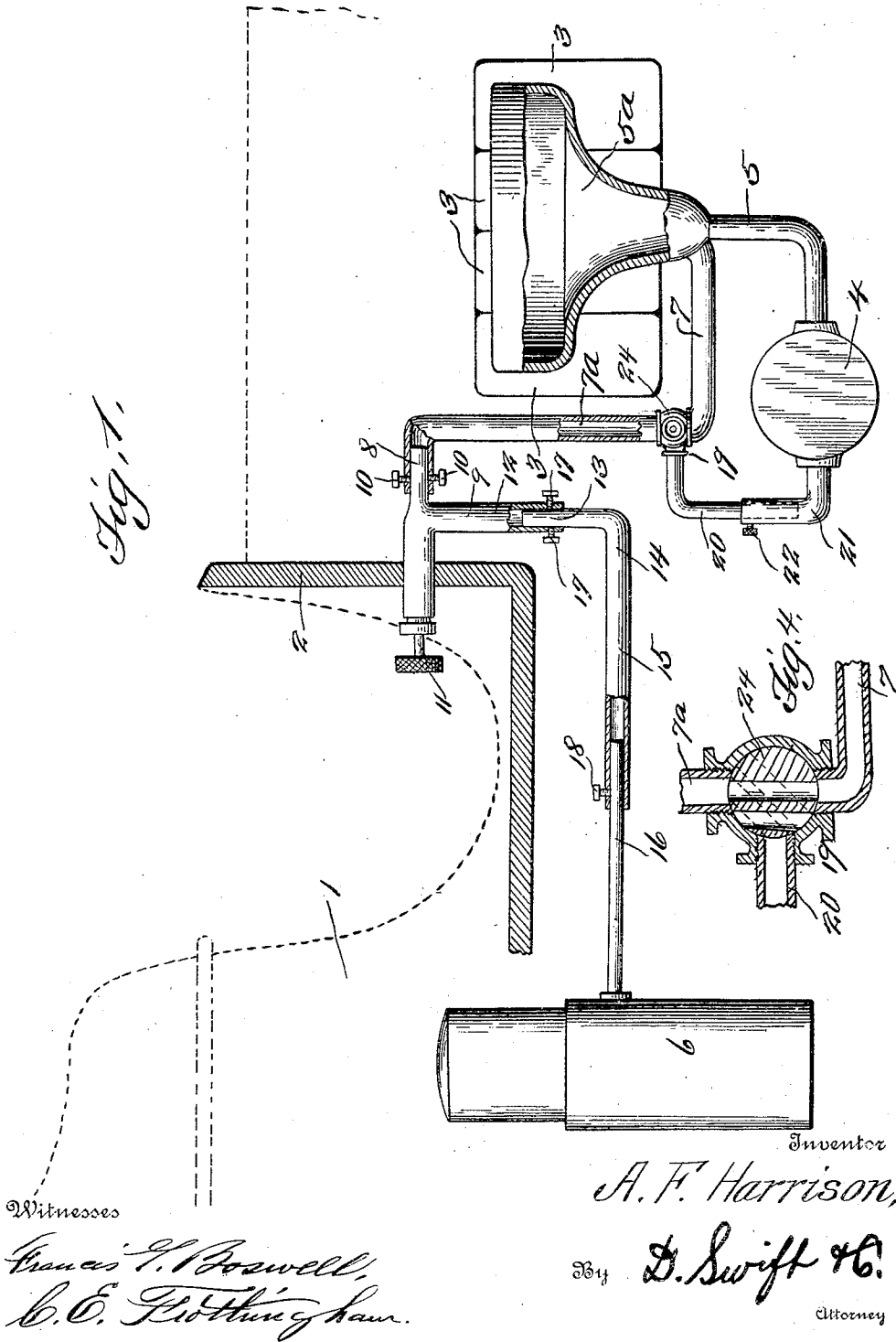


A. F. HARRISON.
 STARTING DEVICE FOR AUTO ENGINES.
 APPLICATION FILED FEB. 9, 1912.

1,042,672.

Patented Oct. 29, 1912.

2 SHEETS—SHEET 1.

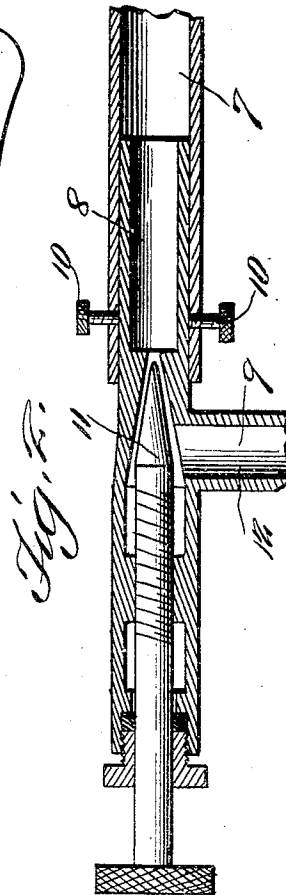
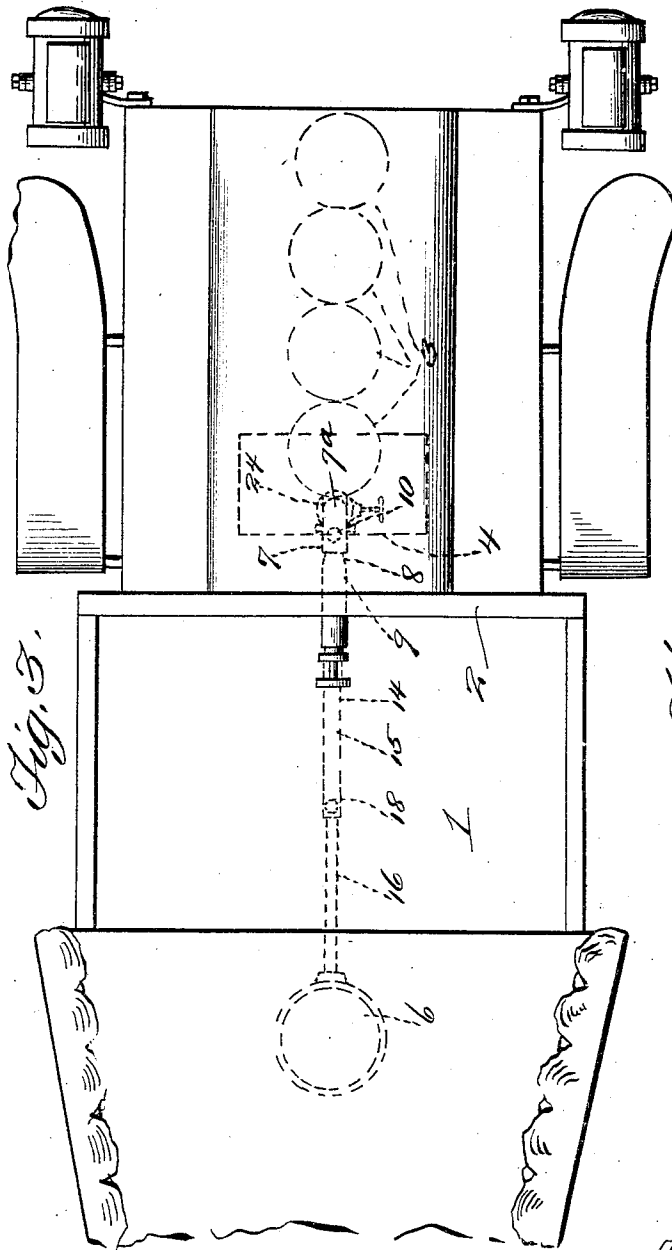


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Witnesses

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UNITED STATES PATENT OFFICE.

ALVIN F. HARRISON, OF TOPEKA, KANSAS.

STARTING DEVICE FOR AUTO-ENGINES.

1,042,672.

Specification of Letters Patent.

Patented Oct. 29, 1912.

Application filed February 9, 1912. Serial No. 676,545.

To all whom it may concern:

Be it known that I, ALVIN F. HARRISON, a citizen of the United States, residing at Topeka, in the county of Shawnee and State of Kansas, have invented a new and useful Starting Device for Auto-Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to the art of automobiles and the like, and particularly to a new and useful starting device for the engine.

Heretofore it has been found difficult to start the engine of an automobile, in cold weather, especially after the automobile has stood for any length of time in the cold. In other words, that after considerable cranking of the engine shaft it has been found arduous to make the carbureter respond sufficiently by the suction in the engine, to supply fuel to the engine. This difficulty is experienced considerably in cold weather.

The principal object of the invention is to provide means to overcome this difficulty, and to accomplish this purpose this means is arranged that, a supply of already formed gas may be introduced into the engine cylinders independent of the carbureter.

One of the features of the invention is to provide a connection between the carbureter and the cylinder, through which the supply of already formed gas is introduced, which connection not only connects the carbureter with the cylinders, but also constitutes a reservoir to hold the already formed gas. Another feature of the invention is the provision of means for introducing already formed gas, mixed with air through the air intake channel of the carbureter.

The invention comprises further features and combination of parts, as hereinafter set forth, shown in the drawings and claimed.

In the drawings: Figure 1 is a diagrammatic view showing the application of the starting device to the engine of an automobile. Fig. 2 is a sectional view of the connection between the source of supply of already formed gas and the connection between the engine cylinders and the carbureter. Fig. 3 is a plan view of Fig. 1. Fig. 4 is a detail sectional view of the valve 24.

Referring to the drawings 1 designates the automobile, while 2 denotes the front dash, whereas 3 designates the engine cylinders, which are of the usual construction. The usual form of carbureter 4 is provided, between which and the cylinders a tubular connection 5 is arranged. The portion 5^a of the tubular connection constitutes a reservoir, in which already formed gas may be stored, while the automobile is standing for considerable length of time in the cold, so that, when the chauffeur returns to his machine and desires to crank his engine, it will not be in vain, for the engine will be supplied with fuel, such as already formed gas from the reservoir between the carbureter and the cylinders. After the engine has been started the suction therein is considerably greater, which will cause the carbureter to finally respond, so as to introduce the carbureter fuel. After the carbureter has responded, the supply of already formed gas is cut off. This connection (which constitutes a reservoir for such already formed gas) is one of the principal features of the invention.

An acetylene gas generator 6 is provided, which is only one method of providing already formed gas, for it is to be remembered that such gas may be obtained from any suitable source of supply whatsoever.

Extending from the connection 5 in a lateral direction is a tube or pipe 7. Extending telescopically into the tube or pipe 7 is one arm 8 of the angular pipe or tube 9, which arm 8 is held in position by the set screws 10. The angular pipe or tube 9 is provided with cutoff valve 11, so as to control the supply of already formed gas from the supply or generator 6. Extending into the arm 12 of the angular pipe or tube 9 is one portion 13 of the angular tube 14, into the portion 15 of which the pipe 16 extends. The portion 13 of the pipe or tube 14, and the pipe 16 are held in position by the set screws 17 and 18. The pipe 16 connects to the supply or generator 6.

The pipes 7, 7^a and 20 are joined by a valve 24, at the junction 19. By manipulating this valve already formed gas may pass through the pipe 7, or through the pipes 20 and 21, through the carbureter, then to the cylinders in the usual way. The pipes 20 and 21 are telescopically joined, and held in the desired positions by the screw 22.

In starting the cut off valve 11 is opened,

permitting the already formed gas, from any suitable source, such as the generator, to pass into 5, and subsequently into the reservoir 5^a, either by way of the pipe 7 or the
5 pipes 20 and 21, until the reservoir 5^a is filled. Then the crank shaft (not shown) is turned in the usual way to start the engine, and in so doing, the gas from the reservoir 5^a is drawn into the cylinders, which causes
10 the explosion, which in turn starts the engine. If it is desired to direct the already formed gas through the pipes 20 and 21, the valve 24 is manipulated so as to assume the position shown in dotted lines in Fig. 4,
15 which will prevent it from passing through the pipe 7. Then by cranking the engine shaft (not shown), the already formed gas including some air is drawn directly through the carbureter, as in the usual way,
20 to the reservoir 5^a. If the valve 24 is arranged as shown in full lines in Fig. 4, the already formed gas will pass through the pipe 7 and not through the pipes 20 and 21. In this manner the already formed gas
25 enters the reservoir 5^a independently of the carbureter. After the engine has become thoroughly started, and the carbureter is responding on every stroke of the pistons of the cylinders, the supply of already formed
30 gas or fuel is cut off by closing the valve 11. In the drawings there is disclosed only one form of the invention, but in practical

fields this form may require alterations, to which the applicant is entitled, provided the alterations are comprehended within the 35 scope of what is claimed.

The invention having been set forth, what is claimed as new and useful is:

In a starting device, a multiple of engine cylinders, a carbureter, a connection be- 40 tween the carbureter and the cylinders, that portion of the connection which connects the cylinders being enlarged and constituting a reservoir for temporary storage of already formed gas, the reservoir having 45 lateral extension pipe through which the already formed gas from any source is adapted to be fed, a pipe connection between the lateral extension and the carbureter, and a valve located at the junction 50 of this last named pipe and the lateral extension whereby the gas may be directed into the reservoir by way of the lateral extension and independently of the carbureter, or through the carbureter by way of the last 55 named pipe.

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

ALVIN F. HARRISON.

Witnesses:

JOHN A. SAGE,
M. McCLURE.