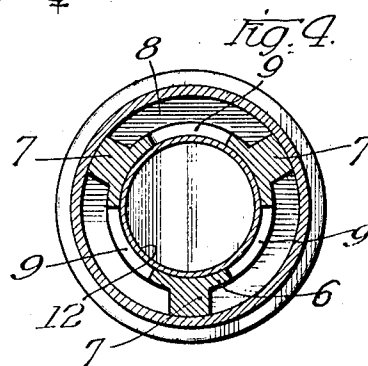
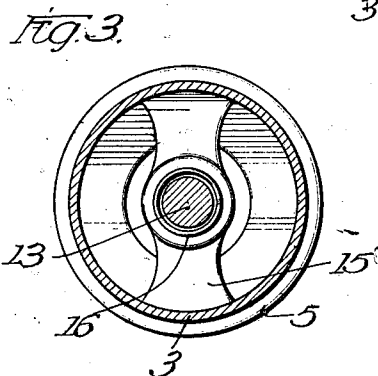
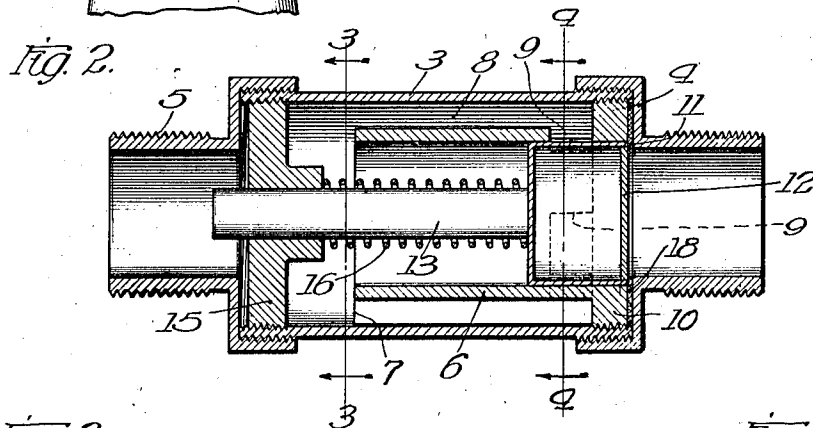


1,292,613.

A detailed technical drawing of a mechanical assembly, likely a pump or engine component. The main vertical cylinder (1) is connected to a horizontal pipe (3) via a flange (5). The horizontal pipe (3) is also connected to a curved pipe (4) via another flange (5). The curved pipe (4) leads to a valve assembly (2) which has a handle and a small vertical pipe. The entire assembly is mounted on a base.



Arthur W. Carlson
Robert H. Furrer

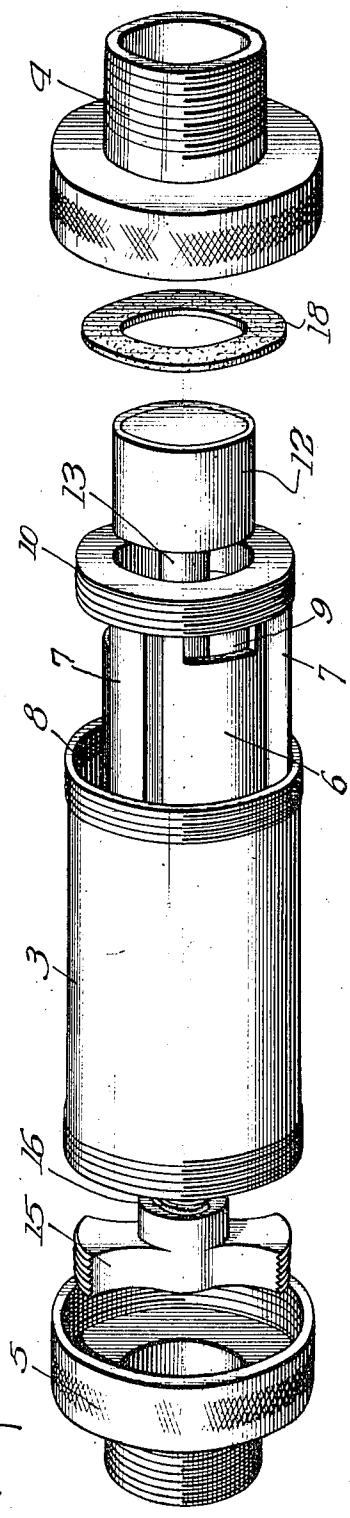
Inventor
Louis Kessler
By *Wheeler & Wheeler*, Attys

L. KESSLER.
 DEVICE FOR PREVENTING BACKFIRING.
 APPLICATION FILED JUNE 23, 1916.

1,292,613.

Patented Jan. 28, 1919.
 2 SHEETS—SHEET 2.

Fig. 5.



Witnesses:
 Arthur W. Carlson
 Robert F. Weir

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 Louis Kessler
 By *W. H. H. H.* Attys.

UNITED STATES PATENT OFFICE.

LOUIS KESSLER, OF CHICAGO, ILLINOIS, ASSIGNOR TO NON-EXPLOSIVE DEVICE CO. INC.,
OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

DEVICE FOR PREVENTING BACKFIRING.

1,292,613.

Specification of Letters Patent.

Patented Jan. 28, 1919.

Application filed June 23, 1916. Serial No. 105,393.

To all whom it may concern:

Be it known that I, LOUIS KESSLER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Devices for Preventing Backfiring, of which the following is a description.

My invention belongs to that general class of devices for use in connection with internal combustion engines, and more particularly is a device for preventing back firing of the engine into the carbureter. The invention has among its objects the production of a device of the kind described that is simple, safe, efficient, compact, and satisfactory, that may be used wherever found applicable. As before mentioned, it is especially designed, and has particularly as an object preventing the engine from back firing into the carbureter, but which will not interfere with the passage of the mixture from the carbureter to the engine, nor affect the efficiency of the charge. Many other objects and advantages of the device herein illustrated will be obvious to those skilled in the art from the disclosure herein made.

To this end my invention consists in the novel construction, arrangement and combination of parts herein shown and described, and more particularly pointed out in the claims.

In the drawings, wherein like reference characters indicate like or corresponding parts,

Figure 1 is a view in elevation of an engine carbureter with one of my devices applied thereto;

Fig. 2 is a sectional view through my preferred form of device;

Fig. 3 is a sectional view taken substantially on line 3, 3 of Fig. 2;

Fig. 4 is a sectional view taken substantially on line 4, 4 of Fig. 2, and

Fig. 5 is a perspective view of the device partially disassembled.

Referring to the drawings, in which the preferred form of my device is shown, 1 represents any type or style of internal combustion engine, and 2 any type of carbureter, it being understood that the particular type engine and carbureter shown are merely for illustration. My improved device is arranged between the engine and carbureter,

so that the charge may be drawn freely from the carbureter into the engine, but the engine prevented from back firing at any time into the carbureter. The device shown consists of a tubular shell 3 provided with the ends 4 and 5 arranged for attachment in the system between the carbureter and engine. Arranged within the shell or casing 3 is a tubular part or inner shell 6, the same being formed with supporting or spacing ribs 7, so that spaces 8 are formed between the two parts, the shell 3 and part 6. The part 6 is formed with openings 9 connecting the spaces 8 with the tubular opening in the end 4, and with a flanged portion 10, by means of which the tubular part 6 may be secured in place. As most clearly shown in Fig. 2, part 6, which is tubular, has a bore slightly greater than the intake opening in part 4, so that a shoulder 11 is formed. A washer 18 of fiber or equivalent is preferably arranged as shown, forming a valve seat. Slidably arranged within part 6 is a suitably formed valve 12, which is provided with a stem 13, the free end of which is carried by the member 15. On the stem 13 and abutting against the valve, and against the part 15, is arranged a spring 16, the same tending to normally maintain the valve in the closed position shown in Fig. 2.

In operation the end 4 is connected with the carbureter, and end 5 with the engine, it being immaterial whether the device is installed as shown or vertically, and as the engine draws in a fresh charge, the same enters the part 4, the valve 12 being drawn back so as to open the ports 9, and the charge passes through the ports 9, through the spaces 8, past the part 15, and out through the end 5, into the intake manifold, to the engine. The valve is so arranged that it works freely under the suction of the engine, so that the efficiency of the engine is not in any way impaired. In case the engine back fires, the same fires into the shell 3, but owing to the spring 16 and the pressure of the gases, valve 12 is shut and any flame prevented from reaching the carbureter. The setting fire to the combustible in the carbureter or feed pipe, or causing an explosion thereat, or causing a disarrangement of the adjustment of the carbureter is entirely eliminated. Frequently back firing into the carbureter starts a fire, especially in the case of automobiles, particularly where

the engine is covered with oil or there is oil in the vicinity of the flame. With the device herein described back firing into the carbureter or pipe line is entirely eliminated and prevented.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein shown and described, or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:—

1. A device of the kind described, comprising an outer shell provided with an inlet and an outlet, an inner shell open at both ends and supported in spaced relation to the outer shell and alined with the inlet, in combination with a valve within the inner shell cooperating with the inlet, arranged to prevent reverse movement therethrough, and resilient means for normally holding said valve in position to close the inlet.

2. A device of the kind described, comprising an outer shell provided with an inlet and an outlet, and an inner shell open at both ends supported in spaced relation to the outer shell and having formed therein port openings near the inlet, in combination with a valve cooperating with the inlet and said port openings to regulate the passage through the inlet to the ports, means on the outer shell for guiding the valve in its movement, and resilient means positioned between the valve and the guiding means for normally holding the valve in position to close said port openings.

3. A device of the kind described, com-

prising an outer shell, one end having an inlet opening therethrough and the other end having an outlet opening therethrough, an open-ended inner tubular shell supported in spaced relation to the outer shell and having port openings formed therein near the inlet, in combination with a sliding valve arranged within the inner shell formed to control the ports, a valve stem connected with the valve and extending through one open end of said inner shell, guiding means on the outer shell for the valve stem, and resilient means positioned between the valve and the guiding means for normally maintaining the valve in position to close the ports.

4. A device for preventing backfiring from combustion engines into charge mixing devices, comprising a tubular shell having its inlet connected with the charge mixing device and its outlet connected with the combustion engine, an open-ended inner shell supported in spaced relation to the outer shell and provided with port openings near the inlet, in combination with a valve member, the front and rear faces of which are exposed to the action of the charges passing to or from the engine, said valve being slidably arranged within the open-ended inner shell, resilient means for normally maintaining said valve in position to close the ports, and guiding means for said valve, substantially as described.

In testimony whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

LOUIS KESSLER.

Witnesses:

ROY W. HILL,
CHARLES I. COBB.