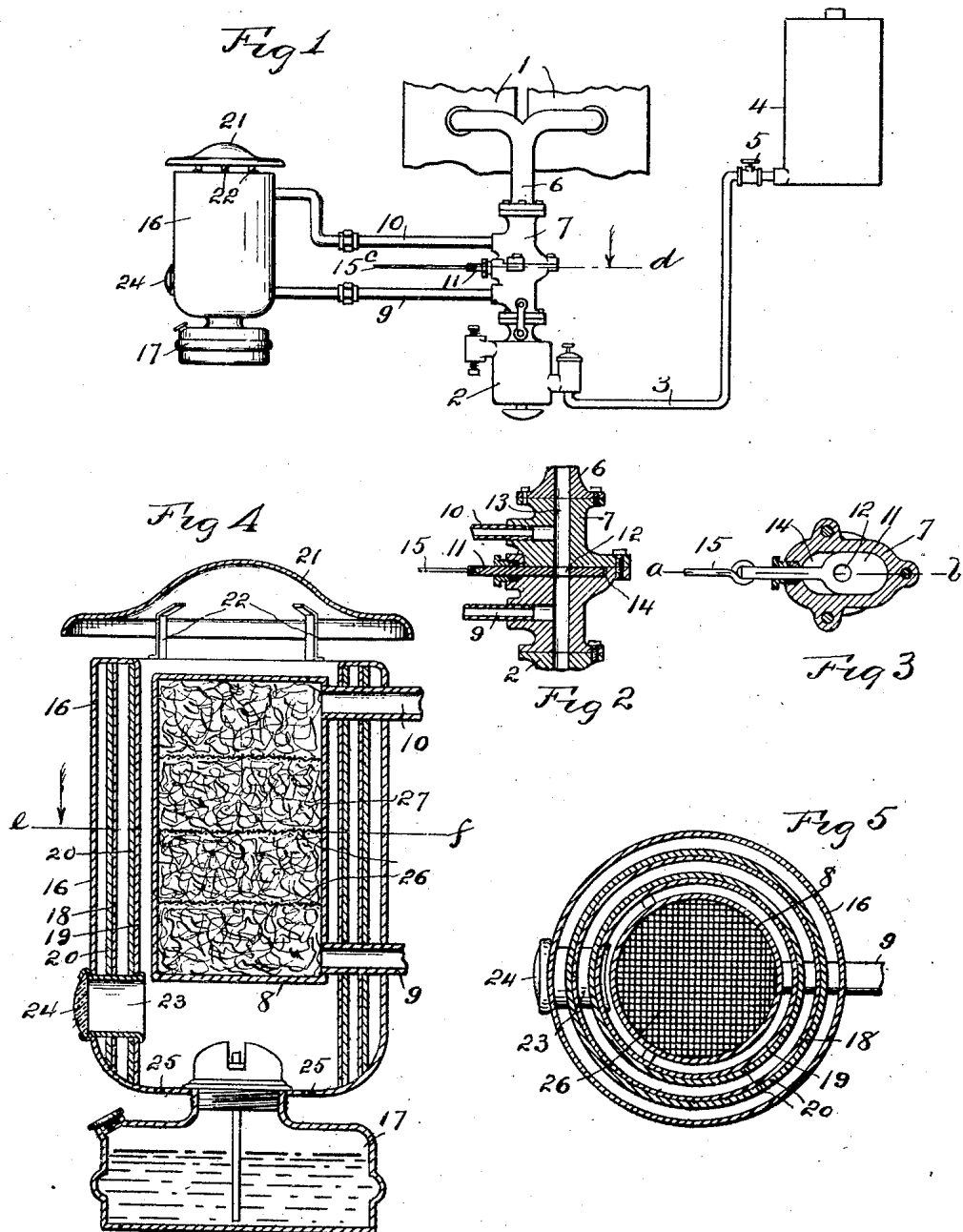


F. A. BEASLEY.
 DEVICE FOR HEATING CHARGES FOR EXPLOSIVE ENGINES.
 APPLICATION FILED FEB. 21, 1911.

1,093,756.

Patented Apr. 21, 1914.



WITNESSES:

R. Hamilton.
E. B. House

INVENTOR.

Frank A. Beasley
 BY
Warren D. House
 His ATTORNEY.

UNITED STATES PATENT OFFICE.

FRANK A. BEASLEY, OF GARNETT, KANSAS, ASSIGNOR OF ONE-HALF TO W. A. ROLLINS, OF KANSAS CITY, MISSOURI.

DEVICE FOR HEATING CHARGES FOR EXPLOSIVE-ENGINES.

1,093,756.

Specification of Letters Patent.

Patented Apr. 21, 1914.

Application filed February 21, 1911. Serial No. 609,875.

To all whom it may concern:

Be it known that I, FRANK A. BEASLEY, a citizen of the United States, residing at Garnett, in the county of Anderson and State of Kansas, have invented certain new and useful Improvements in Devices for Heating Charges for Explosive-Engines, of which the following is a specification.

My invention relates to improvements in devices for heating charges for explosive engines.

The object of my invention is to provide a simple, efficient and economical mechanism for heating the charges used in explosive engines so that an explosive engine may be easily started into operation in the coldest weather.

When the temperature is low much difficulty is often experienced in starting explosive engines, and my invention aims to overcome this difficulty.

The novel features of my invention are hereinafter fully described and claimed.

In the accompanying drawings which illustrate the preferred form of my invention, Figure 1 is an elevation of my improved apparatus shown applied to a two cylinder explosive engine, a portion of which is shown. Fig. 2 is a vertical section on the line *a-b* of Fig. 3. Fig. 3 is a horizontal section, enlarged, on the line *c-d* of Fig. 1. Fig. 4 is an enlarged, central vertical sectional view of the heating mechanism and a portion of the by pass. Fig. 5 is a horizontal section on the line *e-f* of Fig. 4.

Similar reference characters denote similar parts.

1 denotes the explosion chambers of the engine.

2 is an ordinary carbureter connected by a conductor 3 with a liquid fuel supply tank 4, the conductor 3 having a shut off cock 5.

Connecting the explosion chambers 1 with the carbureter 2 is a conductor 6 by means of which explosive charges are conveyed from the carbureter to the combustion chambers. The conductor 6 is provided with a fitting 7 to which are connected the ends of a by pass forming part of the conductor and comprising a heating chamber 8 to which are connected one set of ends of pipes 9 and 10, the other set of ends of which are connected to the fitting 7 at different distances from the carbureter 2. In the conductor 6

between the ends of the by pass, that is between the pipes 9 and 10 is provided a shut off valve 11 by which the conductor may be closed between the ends of the by pass so as to force the explosive charges through the by pass, when it is desired to heat such charges. The valve 11 is preferably a slide valve having a vertical hole 12 adapted to register with the vertical passage 13 which extends through the fitting 7. The valve 11 is mounted in a suitable horizontal slot 14 provided therefor in the fitting 7, and is operated by any suitable means, as by a rod 15. The heating chamber 8 is preferably cylindrical and disposed vertically in a vertical chimney 16 of a lamp 17, which is disposed under the heating chamber 8 in position to heat the same. Preferably the chimney 16 is cylindrical and provided with one or more vertical tubular metal partitions 18 and 19 which are respectively enveloped by sheet asbestos 20 or some other suitable non conductor of heat. A space is provided between the heating chamber 8 and the inside of the partition 19 adjacent thereto for the passage of products of combustion of the lamp 17. The lamp chimney 16 may be provided with a cover 21 supported above the chimney by brackets 22. The chimney 16 may also be provided with a horizontal tube 23 which extends through the partitions 18 and 19 and the outer wall of the chimney and contains secured therein a transparent closure 24 through which the flame of the lamp may be viewed to see if the lamp is burning properly. The chimney may also be provided with the usual air inlet openings 25.

In operating my invention, the valve 11 is first moved to the closed position. The cock 5 is then opened to permit the flow of the fuel through the conductor 3 from the tank 4 to the carbureter 2. The engine is then cranked in the manner usual for starting the engine, thereby causing a charge to be drawn from the carbureter 2 through the pipe 9, heater 8, pipe 10 and by means of conductor 6 into explosion chambers 1, where ignition will take place in the usual manner, it being understood that the lamp 17 has been burning long enough to have heated the heating chamber 8 sufficiently to raise the temperature of the explosive charges passing therethrough high enough

to make them readily ignited. After the engine has been running long enough to have the explosion chambers sufficiently heated to effect ignition when the igniting mechanism, not shown, is operated, the valve 11 is moved to the open position, shown in Fig. 2. The charges will now be drawn directly through the fitting 7 from the carbureter and will not pass through the by pass. 5 The lamp 17 may now be extinguished, if desired, or it may be permitted to burn.

In order to facilitate the heating of the explosive charges, I preferably provide in the heating chamber 8 one or more horizontal screens, which extend clear across the chamber, and material such as asbestos fibers, for diffusing the charges entering the chamber 8. The screens are denoted by 26 and the asbestos fibers by 27.

20 I do not limit my invention to the specific structure illustrated and described, as many modifications, within the scope of the ap-

ended claim, may be made without departing from the spirit of my invention.

Having thus described my invention, what 25 I claim and desire to secure by Letters Patent, is:—

The combination with the explosion chamber of an explosive engine, of a carbureter, a conductor, connecting the carbureter with 30 the explosion chamber and provided with a by pass having a heating chamber, a shut off valve in the conductor between the ends of the by pass, and a lamp for heating said heating chamber and having a chimney 35 which encircles said heating chamber.

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

FRANK A. BEASLEY.

Witnesses:

J. J. WAGNER,

RETTA ALEXANDER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."