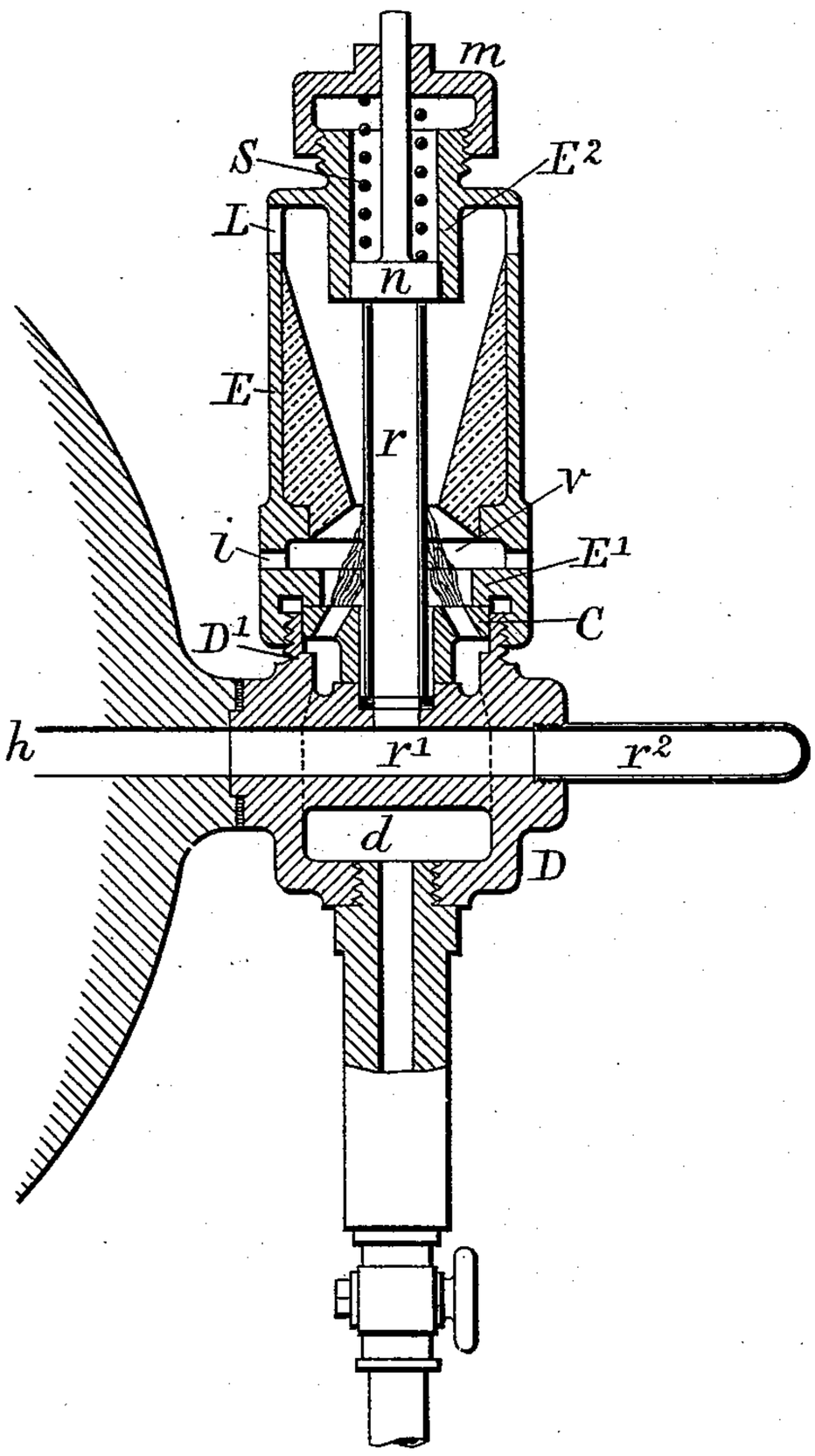
(No Model.)

H. SCHUMM.

IGNITING APPARATUS FOR GAS ENGINES.

No. 488,093. Patented Dec. 13, 1892.



Witnesses:
J. A. Rutherford.
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UNITED STATES PATENT OFFICE.

HERMANN SCHUMM, OF COLOGNE, GERMANY, ASSIGNOR TO THE GAS-MOTOREN-FABRIK-DEUTZ, OF SAME PLACE.

IGNITING APPARATUS FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 488,093, dated December 13, 1892.

Application filed October 21, 1891. Serial No. 409,422. (No model.) Patented in England August 27, 1891, No. 14,519; in France September 11, 1891, No. 187,642; in Belgium September 14, 1891, No. 96,382; in Italy October 13, 1891, LIX,436; in Spain December 10, 1891, No. 12,585; in Germany February 25, 1892, No. 62,408, and in Austria-Hungary June 9, 1892, No. 43,504 and No. 8,407.

To all whom it may concern:

Be it known that I, HERMANN SCHUMM, a citizen of Switzerland, residing at Cologne, Deutz, in the Empire of Germany, have invented new and useful Improvements in Igniting Apparatus for Gas and Oil Motor Engines, (for which I have obtained Letters Patent in Great Britain, dated August 27, 1891, No. 14,519; in Belgium, dated September 14, 1891, No. 96,382; in Austria-Hungary, dated June 9, 1892, No. 43,504 and No. 8,407; in Italy, dated October 13, 1891, Vol. LIX, 436; in Spain, dated December 10, 1891, No. 12,585; in Germany, dated February 25, 1892, No. 62,408, and in France, dated September 11, 1891, No. 187,642,) of which the following is a specification.

My invention relates to an improved construction of igniting device for gas and oil motor engines wherein a heated igniting-tube is held by elastic pressure so as to allow of the expansion and contraction of the igniting-tube due to variations of temperature.

My invention has for its object to provide improved means for elastically holding the tube and for rendering the tube, as also the perforated disk of the Bunsen burner, readily removable for inspection and renewal in case of fracture. For this purpose I construct the igniting apparatus generally similar to that described in Patent No. 386,929, but with modifications such as I will describe with reference to the accompanying drawing, which shows a vertical section of the same.

D is the burner-casing, with a mixing-chamber *d* and a horizontal passage *r'*, communicating with the igniting-passage *h*, leading to the explosion-chamber of the engine-cylinder. *r* is the igniting-tube, communicating at the bottom with the said passage and resting with its end upon a suitable elastic washer on a seat in the casing. r^2 is a continuation of the said passage for receiving the products of combustion, as explained in Patent No. 386,929.

C is a disk with inclined holes, which forms the top of the Bunsen burner that surrounds the igniting-tube *r*, so as to heat it by the annular Bunsen flame. This disk rests with a neck upon a seat in a socket D' on the casing D, and it is held in position in the socket by a projecting rim E' on the base of the chimney E, which incloses the tube *r* and which is screwed onto the threaded end of D'. The upper end of the chimney E has a tubular extension E^2, within which is a piston *n*, adapted to bear against the upper end of the tube *r*, against which it is pressed with elastic pressure by means of a helical spring S, the pressure of which is regulated by a screw-cap *m*, screwing onto the threaded end of the extension E^2.

The chimney E is lined with refractory material and is provided with escape-holes L for the gases from the Bunsen flame and air-holes *i* for the admission of air to the combustion-chamber *v* of the burner, as in the construction described in Patent No. 386,929.

It will be seen from the above description, first, that by means of the piston *n*, helical spring S, and screw-cap *m* the elastic pressure upon the tube *r* can be accurately regulated, so as, while holding it tightly upon its seat on the casing D, to allow it to expand and contract freely, owing to variations of temperature, and, secondly, that by unscrewing the chimney E from the casing D the tube *r* and burner-disk C are at once accessible for inspection and repair.

Having thus described my invention, what I claim is—

1. In igniting apparatus for gas or oil motor engines, the combination, with a casing D, having a socket D', of an igniting-tube *r*, a loose disk C, having holes surrounding the tube for the issue of the heating-flames, and a lined chimney E, inclosing the tube and screwing onto the socket of the casing, said chimney being provided with an internal rim E', which bears upon the burner-disk C, so as to hold it in position, substantially as described.

2. In igniting apparatus for gas or oil motor engines, the combination, with a casing D, of an igniting-tube *r*, a disk C, having holes surrounding the tube for the issue of the heating-flames, a lined chimney E, surround-

ing the igniting-tube and screwed to the casing, so as to hold the disk in position, a piston *n*, contained in a tubular extension of the chimney, and a helical spring S, pressing the piston *n* against the end of the igniting-tube, so as to hold it elastically in position, said spring having its tension regulated by a screw-cap *m*, screwing onto the tubular extension of the chimney, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 7th day of October, A. D. 1891.

HERMANN SCHUMM.

Witnesses:
H. A. MAXWELL,
BILLA LANG.