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*Lens + deflector +
illumination*

1,292,326.

S. D. JACOBSON.
MEANS FOR INSPECTING THE INTERIOR OF GAS ENGINES AND THE LIKE.
APPLICATION FILED MAR. 30, 1918.

Patented Jan. 21, 1919.

Fig. 1.

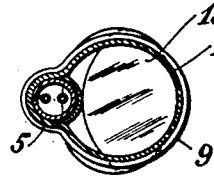
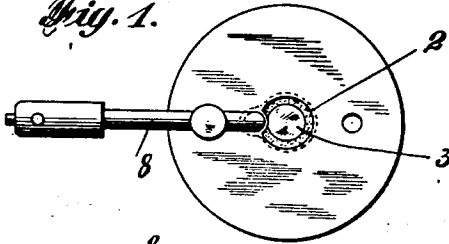


Fig. 3.

T 2270
X 2187
X 2566
X 2170

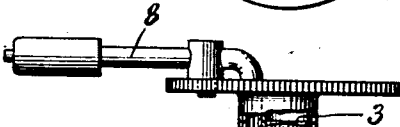


Fig. 2.

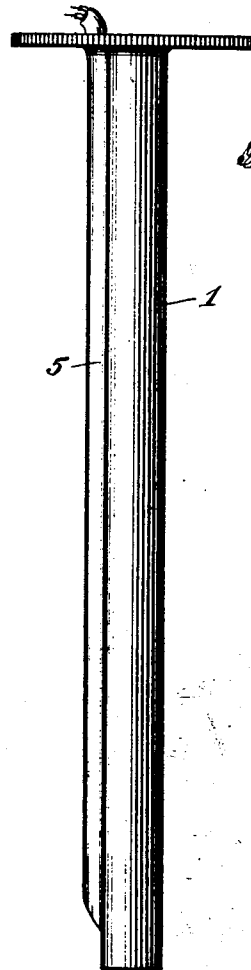
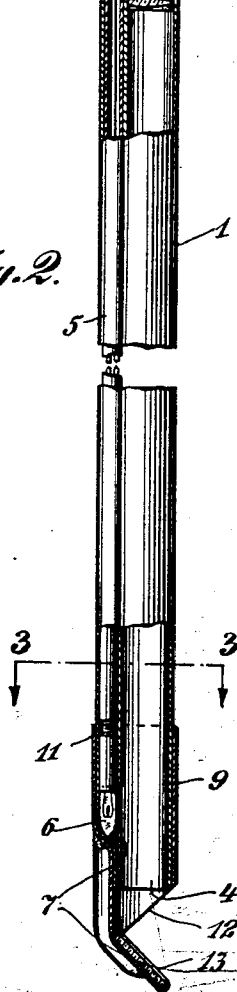
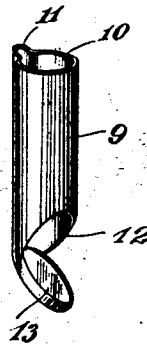


Fig. 4.

Fig. 5.



4 88
71
X 240
2118

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UNITED STATES PATENT OFFICE.

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MEANS FOR INSPECTING THE INTERIOR OF GAS-ENGINES AND THE LIKE.

1,292,326.

Specification of Letters Patent.

Patented Jan. 21, 1919.

Application filed March 30, 1918. Serial No. 225,625.

To all whom it may concern:

Be it known that I, SIDNEY DATTNER JACOBSON, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Means for Inspecting the Interior of Gas-Engines and the like, of which the following is a specification.

This invention relates to a new and improved optical device designed primarily to examine into the interior of gas engines and similar contrivances, whereby the observer can ascertain the interior condition of the engine.

The device is intended to be used with a device for removing carbonaceous deposits from gas engines shown and described in my application jointly with Joseph Strauss filed of even date herewith.

One of the objects of the invention is to provide a simple and efficient device of this character of such construction that all parts of the interior of the gas engine may be inspected.

Other objects and aims of the invention, more or less specific than those referred to above, will be in part obvious and in part pointed out in the course of the following description of the elements, combinations, arrangements of parts and applications of principles, constituting the invention; and the scope of protection contemplated will be indicated in the appended claims.

In the accompanying drawing, wherein I have illustrated a preferred embodiment of my invention:

Figure 1 is a top plan view thereof.

Fig. 2 is a side elevation thereof, partly in section.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 2, looking in the direction of the arrow.

Fig. 4 is a side elevation view thereof with a detachable part removed; and

Fig. 5 is a view of said detachable part.

Referring now to the drawings, wherein similar reference characters refer to similar parts, the reference numeral 1 denotes a tubular member, the upper end of which is provided with an aperture 2, to which the eye of the observer is to be applied, a suitable magnifying lens 3 being in position on the eye piece transversely of said tubular member. The lower end of said tubular member 1 is opened, as at 4. Extending longitudinally of said tubular member 1,

and fastened to the same, is a small tube 5, which is designed to inclose conducting wires which lead to an incandescent lamp 6, located at the lower end of the small tube 5, and opposite a lateral aperture 7 provided in the tubular member 1, the construction being such that the lamp 6 will illuminate the lower end of said tubular member 1.

The upper end of said tube 5 is offset, as at 8, to form a handle for the device. 9 denotes a detachable part comprising a tubular member formed to fit about the lower end of the tubular member 1, as well as the lower end of the tube 5, that is, it has a circular part 10 designed to have a sliding engagement with the lower end of the tubular member 1, and a semi-circular part 11 designed to fit over the tube 5. By means of this construction it will be noted that the part 9 is non-rotatably engaged with the tubular member 1. It will also be noted that the member 9 is so disposed upon the lower end of the tubular member 1 that the rays emitted from the lamp 6 are not directly projected upon the mirror 13. The member 9 at its lower end is beveled off, as at 12, and carries at its lower end a mirror 13, which is set at an angle of 45° relative to the longitudinal axis of said member.

By means of the construction just described, it will be noted that the device may be inserted in the valve aperture of a gas engine, and when the incandescent lamp is lighted the interior thereof may be readily observed in a manner which will be obvious.

When the part 9 is detached all parts of the engine beneath the device may be inspected. When, however, it is designed to inspect the lateral parts of the interior of an engine which are inaccessible to the device, the part 9 may be attached thereto, as shown in Fig. 2, whereby the light rays will be reflected in a lateral direction, and whereby the parts of the engine out of alignment with the axis of the device may be examined.

It will accordingly be seen that I have provided a device well adapted to attain, among others, all the aims and objects above pointed out in a simple yet efficient manner, a simple construction, inexpensive to manufacture, and extremely useful for the purpose it is intended.

As many changes could be made in this construction without departing from the scope of the following claims, it is intended that all matter contained in the above de-

scription or shown in the accompanying drawing shall be interpreted as illustrative only and not in a limiting sense.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A device of the class described, comprising an elongated tubular member having an eye piece, means for illuminating said tubular member, and a detachable device having a reflector mounted upon one end of said tubular member.

2. A device of the class described, comprising an elongated tubular member having an eye piece, an illuminating device located in said tubular member at a position remote from said eye piece, and a detachable device provided with a reflector mounted upon the end of said tubular member adjacent said illuminating device.

3. A device of the class described, comprising an elongated tubular member having an eye piece, an illuminating device located in said tubular member at a position remote from said eye piece, a detachable device provided with a reflector mounted upon the end of said tubular member adjacent said illuminating device, and means whereby said detachable device and tubular member are held in non-rotative relation.

4. A device of the class described, in combination,

an elongated tubular member provided with an eye piece, said tubular member having a lateral aperture near its lower end, a lamp located adjacent said aperture, a tube extending longitudinally of said tubular member adapted for carrying the conducting wires to said lamp, and a handle connected with said tubular member near its upper end through which said conducting members extend.

5. A device of the class described, comprising an elongated tubular member provided with an eye piece, a tube extending longitudinally of said tubular member, the lower end of which is provided with a lamp, said tubular member being provided with a lateral aperture adjacent said lamp, and said tube being adapted to carry the conducting wires to said lamp, a second tubular member adapted to be positioned upon said tubular member at the lower end thereof so as to register therewith, and a reflector carried upon the lower end of said second named tubular member.

In testimony whereof I affix my signature in the presence of two witnesses.

SIDNEY D. JACOBSON.

Witnesses:

EMMA WEINBERG,
IRVING A. HAME.

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