J. F. SPIEGEL.

EXHAUST SILENCER.

APPLICATION FILED FEB. 9, 1914.

1,150,898. Patented Aug. 24, 1915.

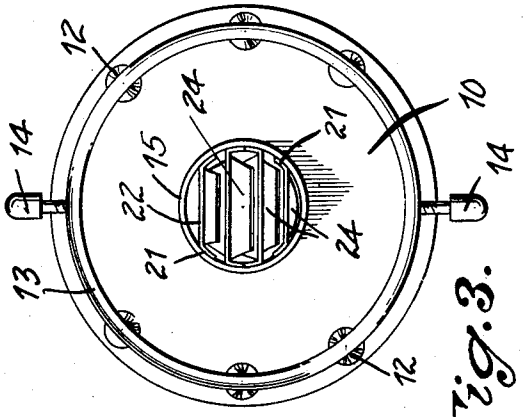


Fig. 3.

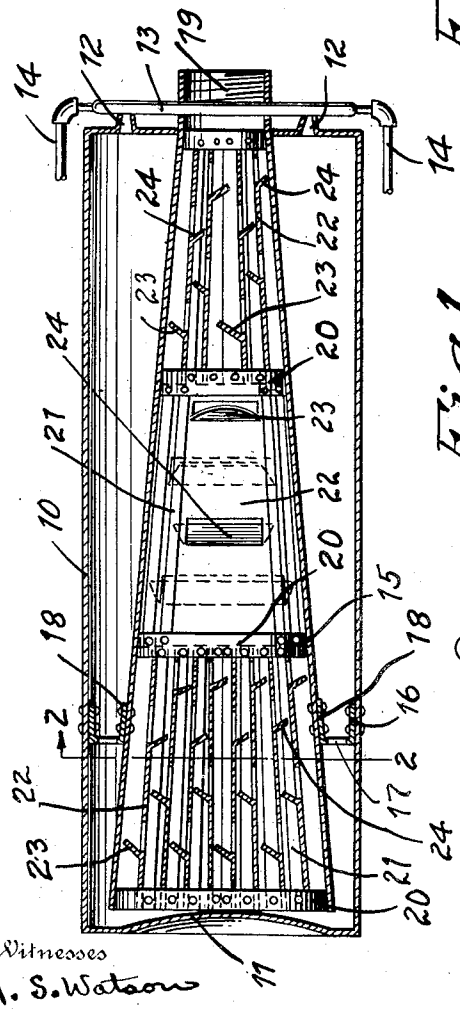


Fig. 1.

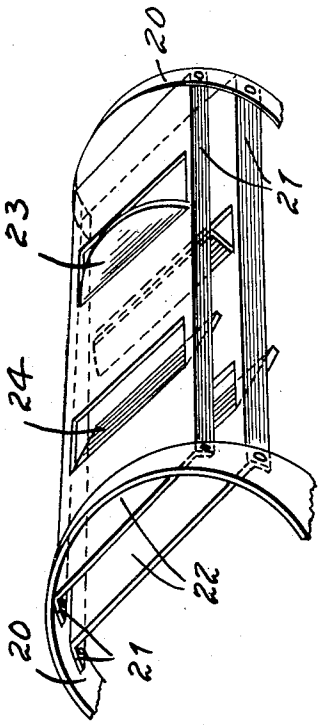


Fig. 4.

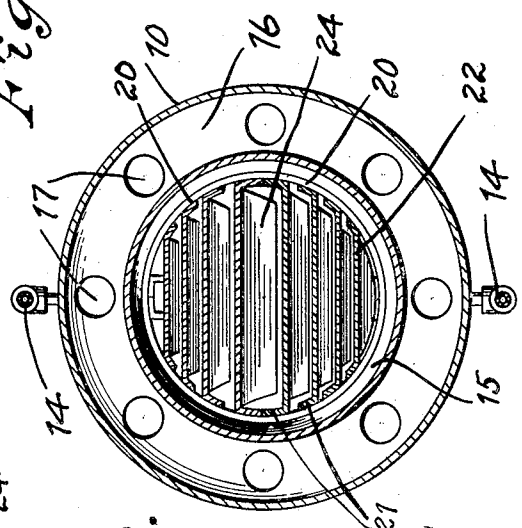


Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

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EXHAUST-SILENCER.

1,150,898. Specification of Letters Patent. Patented Aug. 24, 1915.

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To all whom it may concern:

Be it known that I, JOSEPH F. SPIEGEL, a citizen of the United States, residing at Galeton, in the county of Potter, State of Pennsylvania, have invented certain new and useful Improvements in Exhaust-Silencers; 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 silencers for explosive engines.

The object of the invention resides in the provision of a silencer embodying an improved construction whereby the gases in their passage through the silencer to the atmosphere will constantly move into a larger space so as to permit same to expand to an extent that will eliminate the sudden impact of the gases against the atmospheric pressure whereby the silencing is rendered exceptionally effective.

A further object of the invention resides in the provision of a silencer which embodies an improved construction whereby the passage of the exhaust gases therethrough is retarded only slightly with the result that very little back pressure is created and the efficiency of the engine thereby maintained at a maximum.

With the above and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully described and particularly pointed out in the appended claims.

In describing the invention in detail reference will be had to the accompanying drawings wherein like characters of reference denote corresponding parts in the several views, and in which—

Figure 1 is a longitudinal section through a silencer constructed in accordance with the invention; Fig. 2, a section on the line 2—2 of Fig. 1; Fig. 3, a view looking at the intake end of the silencer; and Fig. 4, a fragmental perspective view of one of the baffle plate sections employed in the silencer.

Referring to the drawings the improved silencer is shown as comprising a cylindrical casing 10 one end of which is provided with an inwardly convexed portion 11 for a purpose that will presently appear. The other end of the casing 10 is provided with a series of tapering outlets 12 arranged in a circle concentric with respect to the longitudinal axis of the casing 10. These outlets 12 communicate with and support an annular pipe 13 and leading from this pipe 13 at intervals are exhaust pipes 14.

Disposed within the casing 10 is a tapering tubular member 15 the minor end of which is engaged through the end of the casing 10 provided with the outlet 12, while the major end of the member 15 is supported centrally of said casing by means of a circumscribing ring 16 having perforations 17 to permit the passage of gases therethrough and provided with securing flanges 18 for suitable connection with the casing 10 and member 15. The minor end of the member 15 is threaded as at 19 whereby the silencer may be readily connected to the exhaust pipe of an explosive engine. Mounted within the member 15 is a plurality of rings 20, said rings being secured in a suitable manner to the inner wall of the member 15. Plates 22 are secured to rings 20 by flanges 21, said plates extending transversely of the member 15 and are disposed substantially in parallel spaced relation. It will be noted that the plates 22 supported between one pair of rings 20 are disposed at right angles to the plates 22 supported by the next pair of rings so that the exhaust gases between any two plates of one series when leaving the space between said plates will distribute between all of the plates in the next series thereby distributing the pressure throughout the member 15. Each of the plates 22 has struck therefrom baffle tongues 23 and 24, disposed respectively in outward and inward inclination, the free edge of the tongue 23 carried by the limiting plates 22 following the contour of the member 15 and being slightly spaced therefrom. The action of the tongues 23 and 24 during the passage of the gases through the silencer serves as an aid for equally distributing said gases over the whole area of the major end of the member 15 before said gases are delivered to the interior of the casing 10 where they will have opportunity to expand before discharge to the atmosphere by way of the outlets 12, pipe 13 and pipes 14.

What is claimed is:—

1. A silencer for explosive engines comprising an expansion casing having a discharge opening in one end, a tapering tubu-

lar member mounted in the casing and having its inner end engaged through the discharge end of the expansion casing and provided with means for connection to an exhaust pipe, a plurality of series of transverse plates mounted in the tapering member with the plates of one series disposed transversely of the plat eof the adjacent series, and oppositely inclined baffle tongues struck from each plate.

2. A silencer for explosive engines comprising an expansion casing having an annular series of tapering outlets in one end, a circular pipe supported by said outlets and communicating therewith, a plurality of exhaust pipes leading from said circular pipe, a tapering tubular member mounted in the casing and having its inner end engaged through the discharge end of the expansion casing and provided with means for connection to an exhaust pipe, a plurality of series of transverse plates mounted in the tapering member with the plates of one series disposed transversely of the plates of the adjacent series, and oppositely inclined baffle tongues struck from each plate.

3. A silencer for explosive engines comprising an expansion casing having a discharge opening in one end, a tapering tubular member in the casing and extending from end to end thereof, the walls of said tubular member being spaced from the casing throughout, the inner end of said tubular member being engaged through the discharge end of the casing and provided with means for connection to an exhaust pipe, a plurality of series of transverse plates mounted in the tubular member with the plates of one series disposed transversely of the plates of the adjacent series, and oppositely inclined tongues struck from each plate.

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

JOSEPH F. SPIEGEL.

Witnesses:

W. H. HOEY,

W. F. RUGABER.