

1,023,644.

Patented Apr. 16, 1912.

Fig. 1.

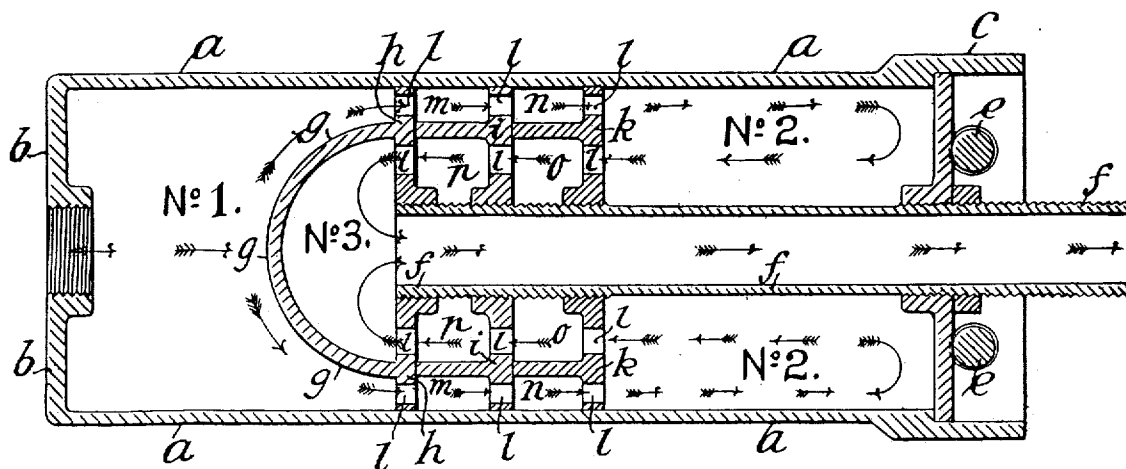
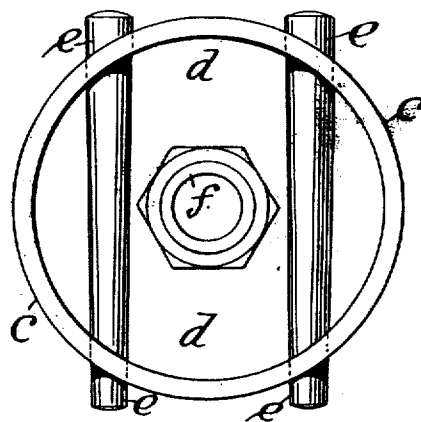


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH HALL, OF MANCHESTER, ENGLAND.

EXHAUST-MUFFLER.

1,023,644.

Specification of Letters Patent.

Patented Apr. 16, 1912.

Application filed November 22, 1910. Serial No. 593,743.

To all whom it may concern:

Be it known that I, JOSEPH HALL, a subject of Great Britain, residing at Manchester, in the county of Lancaster, England, Kingdom of Great Britain, have invented new and useful Improvements in Exhaust-Mufflers, of which the following is a specification.

My invention relates to improvements in exhaust mufflers such as are employed for silencing the noise contained in the exhaust gases when coming from oil, gas and the like motors and the object is to provide a construction of exhaust muffler which is more efficient than those hitherto in use and can be readily taken to pieces for cleansing purposes. I attain these objects by the mechanism illustrated in the accompanying drawing, in which—
Figure 1 is a longitudinal section and Fig. 2 an end view of an exhaust muffler constructed in accordance with my invention.

Similar letters refer to similar parts throughout the several views.

Referring to the drawing, I construct the exhaust muffler with a metallic body, or shell *a* in cylindrical form, with an inlet end plate *b* for coupling up to the exhaust pipe coming from oil and gas motors. At the outlet end of the body or shell *a* I construct a collar *c* on the outside of the body *a* and on the inside of the said collar, I fix an outlet end plate *d*, held in position up against the outlet end of the body, by two taper pins *e* to make a tight joint. At, or about the center of the said body, or shell, I fix internally what I call a baffle head piece *g* having three (or more) perforated baffle plates *h, i, k*, perforated with holes *l* (for the passage of the exhaust gases) and to break up the volume of the said exhaust gases when passing through the baffle plate. This baffle head piece and perforated baffle plates are fixed onto the end of the central tube *f* that projects through the aforesaid outlet end plate *d* to or about the center of the body *a*. This said end plate carries the

central tube and baffle head piece and forms four separate chambers *m, n, o, p*, two inside of the said body or shell, and two on the outside of the central tube *f*. By taking out the taper pins, the outlet end plate *d* and central tube *f* and baffle head piece *g* can be withdrawn for cleansing purposes.

The exhaust muffler described operates as follows: Fig. 1 shows by the arrows (two cycle), the line of flow of the said exhaust gases when passing through the exhaust muffler. It is in this cycle of operation that the silencing takes place. First, the exhaust gases enter the receiver No. 1. Here considerable expansion takes place, the gases striking the outside of the baffle head piece *g*. Second, then passing on to the baffle plates *h, i, k* the gases here pass through the perforations (holes *l*) in the baffle plate *h, i, k* and the two small chambers *m, n* breaking up the volume of the gases into jets and silences the noise. Third, the exhaust gases then pass into the receiver No. 2, here considerable expansion takes place again in the second instance, striking the end of the outlet end plate *d*, here the gases make the first turn. This completes the first cycle, as shown by the arrows. Fourth, the exhaust gases then enter into the second series of perforations (holes *l*) in the baffle plates *k, i, h* and then pass through the two small chambers *o, p* into the small receiver No. 3 inside the baffle head piece *g* expanded again for the third time. Here the exhaust gases make the second turn and performing the two cycle. The gases then pass along through the central tube *f* as shown by the arrows, out of the muffler.

I claim:

In an exhaust muffler, a cylindrical receptacle having an open end and a hole provided end, a lid closing the said open end, taper pins holding the said lid in position, a tube passing through the center of the said lid into the said receptacle, disks in the said receptacle secured to the said tube, two rows of holes in the said disks, an annular projection between the said

rows of holes on each of the said disks, a
hollow baffle head-piece in the said recep-
tacle and secured to the said tube, and two
rows of holes in the said baffle head-piece,
5 all substantially as and for the purpose set
forth.

In testimony whereof I have signed my

name to this specification in the presence of
two subscribing witnesses.

JOSEPH HALL.

Witnesses:

THOMAS COLLINGE,
GEORGE KNOWLES.