

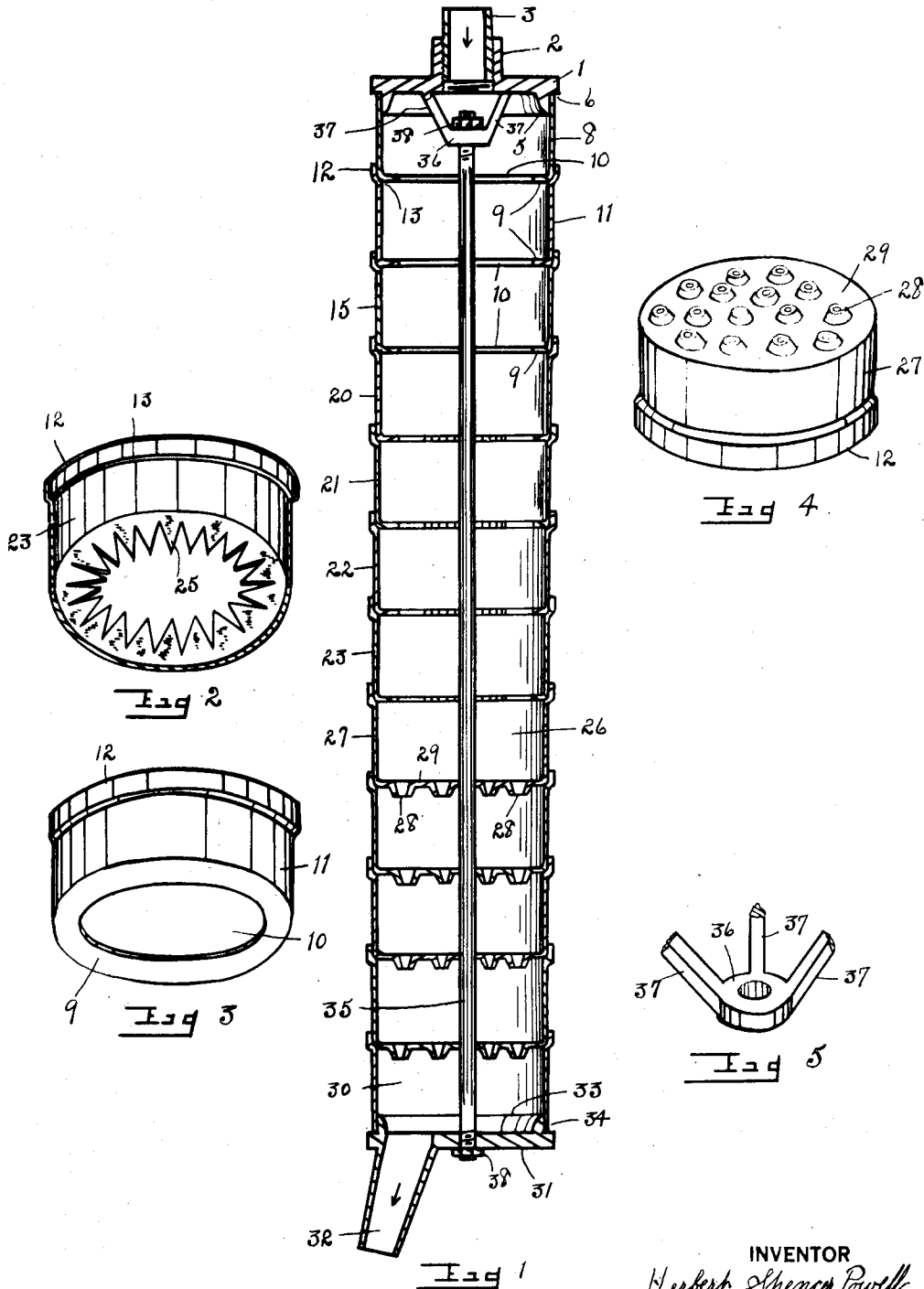
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MUFFLER

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MUFFLER.

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To all whom it may concern:

Be it known that I, HERBERT SPENCER POWELL, a citizen of the United States, residing at New Hartford, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Mufflers, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to a muffler for explosive engines, and I declare the following to be a full, clear, concise and exact description thereof sufficient to enable anyone skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings in which like reference characters refer to like parts throughout the specification.

The object of the invention is to provide a muffler that will effectively silence the noise due to the exhaust of the gases coming from an internal explosive engine without producing any undesirable high back pressure. Furthermore, the muffler is made of a plurality of sections, whereby it can be added to or subtracted from to adjust the muffler to the particular make of engine to which it is desirable to attach it.

Moreover, the knock-down or sectional feature of the muffler allows a convenient manner for taking the muffler apart for cleaning out the carbon deposits that accumulate therein.

The object will be understood by referring to the drawings, in which:

Fig. 1 is a central longitudinal section of the muffler, showing parts in section;

Fig. 2 is a detail view of one of the sections employed, the wall being cut away to show the interior of the section;

Fig. 3 is a perspective detail view of another section employed;

Fig. 4 is a perspective view of still another section employed;

Fig. 5 is a detail perspective view, showing parts in section of a spider used.

Referring more particularly to the drawings, the muffler embodies a head piece 1 having an internally screw threaded hollow sleeve 2 adapted for mounting a pipe 3 that connects with the exhaust port of the engine, not shown. Head piece 1 is equipped with an annular flange 5 forming a shoulder at 6 about which fits the first cup 8. The center part of the bottom or transverse partition of cup 8 is cut out in order to leave

a solid or unbroken peripheral flange or annular edge or rim 9 adapted to absorb the heat from the gasses and to provide a central enlarged aperture 10 for the passage of said gases to the next adjacent cup 11.

Cup 11 is built similar to cup 8. However, the upper free edge of rim 12 is enlarged and bent outwardly to form an annular shoulder at 13 for seating the bottom of the next adjacent cup 8. All of the cups are nested thus, one adjacent the other in order to fit them together in a suitable compact manner.

The first three cups 8, 11 and 15 are each equipped with a large central aperture, as at 10 in cup 8, whereby the first four chambers thus formed are made to serve the purpose of an expansion chamber having a series of rims 9 adapted to absorb the heat of the gases.

Each of the next four cups 20, 21, 22 and 23 has its bottom or transverse partition cut away to provide a central aperture and to leave a flange which is severed to form horizontally projecting triangularly shaped fingers or teeth 25, thereby effecting a star shaped opening in the center of the bottom. Teeth 25 are adapted to break up and cool the exhaust gases, as said gases come into contact therewith. Moreover, fingers 25 have a tendency to absorb the heat of the gases and to conduct said heat towards the atmosphere. Under this cooling and break-up treatment, the exhaust gases will pass through these three chambers and the next one adjacent in the series until said gases come to chamber 26 formed by cup 27.

The bottom or transverse partition of cup 27 is equipped with a plurality of conical or funnel shaped apertures 28 made by punching the surface of said bottom 29 of each of these cups downwardly. The purpose of these apertures is to further break up the onward rushing exhaust gases, as they approach from chambers formed by cups 20, 21, 22 and 23 next above.

The last chamber 30 is closed by a member 31 provided with an outlet conductor 32. Member 31 is equipped with an annular flange 33 adapted to form a shoulder against which the lateral wall 34 rests.

The entire series of cups is held together by a stay rod 35 that extends through the center of the muffler. At one end, stay rod 35 projects through an aperture formed in the center part of a spider 36. The three

arms 37, 37, 37 of spider 36 are made integral with head piece 1. The other end of rod 35 projects through a suitable aperture in end member 31. Both ends of rod 35 are screw threaded for the reception of nuts 38, 38, whereby to lock the entire series of cups and end members together.

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

1. In a muffler for explosive engines built of a plurality of sections, a chamber for the expansion of the gases, said chamber being equipped with a plurality of sections having unperforated peripheral flat flanges for cooling the exhaust gases, said flanges forming central apertures for the passage of said gases, said flanges being disposed in alignment with each other, whereby the central apertures will provide a substantially un-

obstructed passage for said gases, and other sections equipped with a plurality of conical shaped apertures, whereby to break up and segregate exhaust gases.

2. In a muffler for explosive engines, built of a plurality of sections, two chambers formed in said muffler, one having solid flanges and the other star shaped openings, whereby to aid in breaking up and cooling the gases of explosion.

3. In a muffler for explosive engines built of a plurality of sections, compartments formed in said muffler, one of said compartments having solid flanges and the other star shaped openings, whereby to aid in breaking up and cooling the gases of explosion.

In testimony whereof I have affixed my signature.

HERBERT SPENCER POWELL.