Feb. 11, 1936. R. OTT 2,030,391

SILENCER

Filed Sept. 8, 1933

Fig. 1.

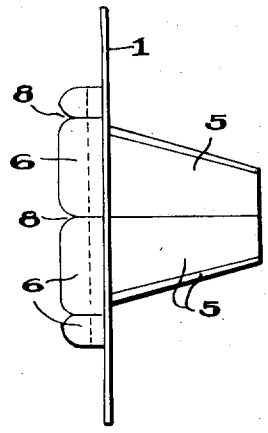


Fig. 2.

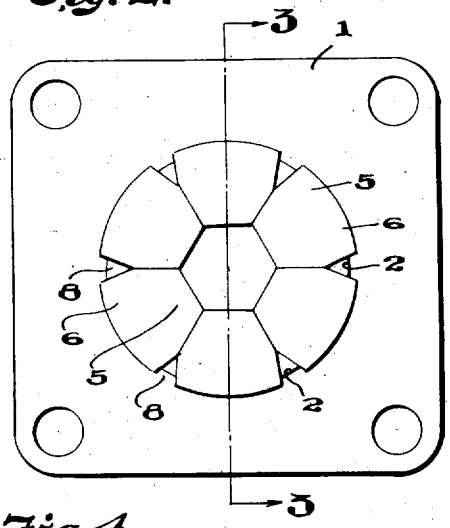


Fig. 3.

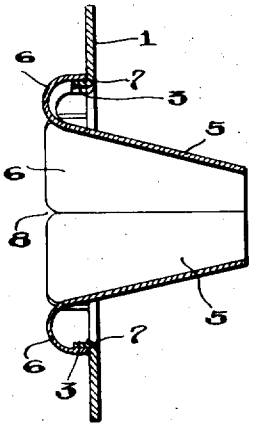


Fig. 4.

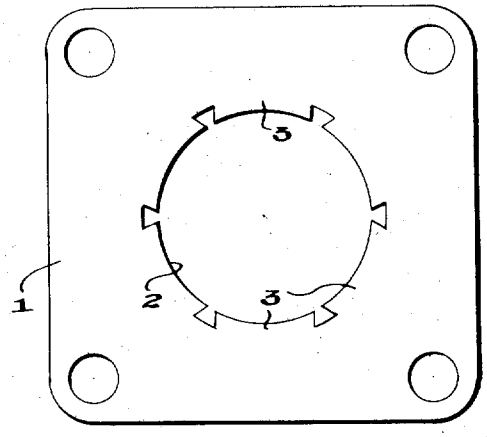


Fig. 5.

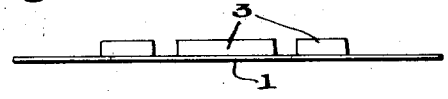
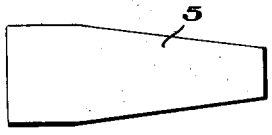


Fig. 6.



REUBEN OTT.
INVENTOR

BY

ATTORNEY

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UNITED STATES PATENT OFFICE

2,030,391

SILENCER

Reuben Ott, Buffalo, N. Y., assignor to Worthington Pump and Machinery Corporation, New York, N. Y., a corporation of Virginia

Application September 8, 1933, Serial No. 688,561

1 Claim. (Cl. 137—160)

This invention relates to silencers and more particularly to a silencer for reducing objectionable noises in the suction lines of air compressors. An object of the present invention is to provide a silencer which is simple in construction, inexpensive to manufacture, and one which includes a plurality of yieldably mounted members or strips, arranged to normally constrict the suction passage and yield under pressure to provide a fluttering action for variation of the effective size of the suction passage to accommodate the air passing therethru in such manner as to materially reduce objectionable suction noises in an air compressor.

These, and other objects in view, as may appear from the accompanying specification, the invention consists of various features of construction and combination of parts, which will be first described in connection with the accompanying drawing, showing a silencer of the preferred form embodying the invention, and the features forming the invention will be specifically pointed out in the claim.

In the drawing

Fig. 1 is a side elevation of the improved silencer. Fig. 2 is an end view of the inlet end of the silencer. Fig. 3 is a cross section thru the silencer taken on the line 3—3 of Fig. 2. Fig. 4 is a plan view of the carrying plate of the silencer.

Fig. 5 is a side elevation of the carrying plate of the silencer.

Fig. 6 is a detail view of the blank from which the flexible strips of the silencer are made.

Referring more particularly to the drawing, the improved silencer comprises a carrying plate (1) which may be of any suitable shape in plan and is adapted to facilitate connection of the silencer to the suction of an air compressor.

The plate (1), which is formed of flat sheet metal or other suitable material, has a substantially centrally disposed circular opening to form therein. A plurality of tongues (3) are punched or otherwise cut from the carrying plate (1) about the opening (2) and these tongues (3) are bent at right angle to the surface of the plate (1) so as to serve as means of attachment of the various strips (5) to the carrying plate (1).

The air passage of the silencer is composed of the plurality of the strips (5). The strips (5) are cut from flat sheets of metal embodying a certain degree of flexibility, and they have their sides parallel for a short distance inwardly from one end, after which the sides incline inwardly toward each other as clearly shown in Fig. 6 of the drawing. The end portions of the strips (5) which have parallel sides are curved strips to form substantially U's (6), the free edges of which are soldered or otherwise suitably attached to the tongues (3) as clearly shown at (7) in Fig. 3 of the drawing. The strips (5) curve from the curved U portion (6) thru the opening (2) of the carrying plate (1) and when free from stress or strain, the yieldability or resiliency of the strips will cause them to rest in edgewise engagement as clearly shown in Figs. 2 and 3 of the drawing, forming a suction passage for the air which gradually decreases in cross sectional area from its inlet to its outlet end.

As shown in Fig. 2 of the drawing, the substantially U portion (6) having straight edges, and mounted about the opening (2) provides peripheral openings (8) at circumferentially spaced points about the opening (2).

In operation, as the compressor (not shown) on which the silencer is mounted sucks or draws in air or the like thru its suction opening, the pressure of the air rushing thru the silencer structure will cause a fluttering or flexing of the strips (5), causing their innermost end to move outwardly, and gradually decrease the tapering proportion of the size of the cross sectional area of the active air inlet, thereby permitting the inlet to accommodate itself in area to the quantity of air flowing therethru, while at the same time setting up eddies in the air flow which counteracts and very materially reduces the objectionable suction noises.

It will be understood that the invention is not to be limited to the specific construction or arrangement of parts shown, but that they may be widely modified within the invention as defined by the claim.

What is claimed is:

A silencer comprising a carrying plate provided with an opening therein, a plurality of tongues spaced about said opening, flexible strips having their side edges inclining inwardly toward each other, said strips having their larger ends attached to said tongues and being free to flex thruout the major portion of their length, said strips being shaped to normally urge the inclined edge portions of one strip to engage the inclined edge portions of the strip next thereto to form a normally complete passage thru the silencer of gradually decreasing cross sectional area from its inlet to its outlet, said flexible strips being yieldable outwardly to form openings in the passage wall with the greatest range of movement at the outlet end.

REUBEN OTT.