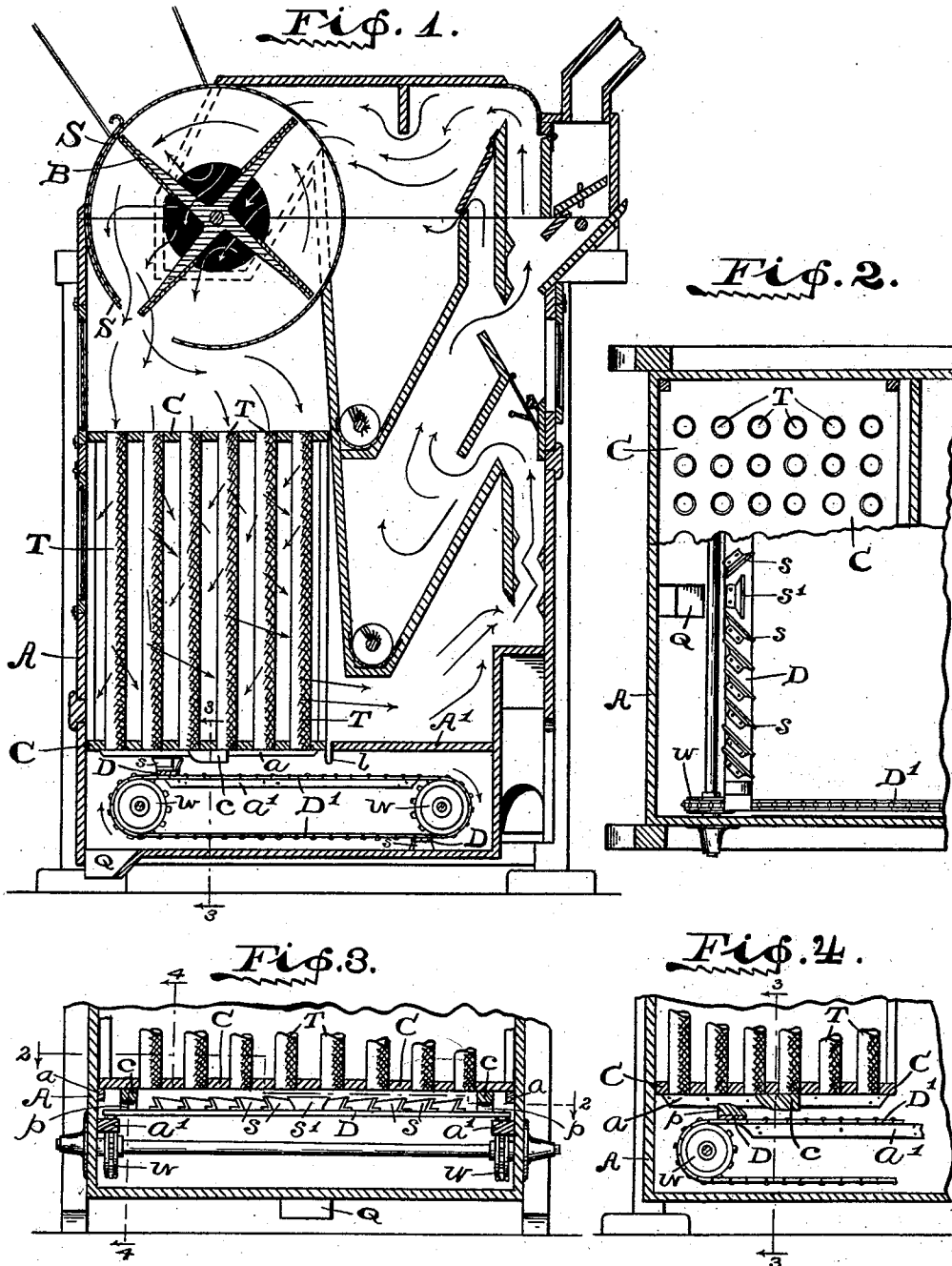


(No Model.)

D. W. MARMON.
RETURN AIR PURIFIER.

No. 513,123.

Patented Jan. 23, 1894.



WITNESSES:

F. H. Warner.
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UNITED STATES PATENT OFFICE.

DANIEL W. MARMON, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE
NORDYKE & MARMON COMPANY, OF SAME PLACE.

RETURN-AIR PURIFIER.

SPECIFICATION forming part of Letters Patent No. 513,123, dated January 23, 1894.

Application filed March 28, 1893. Serial No. 467,972. (No model.)

To all whom it may concern,

Be it known that I, DANIEL W. MARMON, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Return-Air Purifiers, of which the following is a specification.

The object of my said invention is to thoroughly separate the dust from the air, in a return air separating and purifying machine.

Said invention consists, generally speaking, in placing within such a machine a series of cloth tubes, into which the dust laden air must pass, and through the fabric of which the air must escape in its passage, leaving the dust within the tubes ready to be disposed of by other means.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a central sectional view of a machine embodying my said invention; Fig. 2 a fragmentary horizontal sectional view looking downwardly from the dotted line 2 2 in Fig. 3, showing a portion of the carrier in plan; Fig. 3 a detail sectional view as seen from the dotted line 3 3 in Figs. 1 and 4, and Fig. 4 a vertical sectional view on the dotted line 4 4 in Fig. 3.

In said drawings the portions marked A represent the frame-work and casing of a machine within which my invention is contained; B an exhaust fan therein; C a frame-work carrying the cloth tubes which are the feature of my present invention, and D a carrier whereby the collected dust is drawn out of the machine.

This machine, except as hereinafter described, is not of my present invention, and need not be described in detail. As will be seen by the arrows placed thereon, there is an air current continually passing through it, which is occasioned by the draft into the eye of the fan caused by the revolution thereof. The air is discharged from the fan casing through an opening in the bottom of its lower side. This opening is adapted to be increased or diminished by a slide S, which is secured to the fan casing, and adapted to be moved over said opening to a greater or less degree, as desired.

The frame-work C consists of top and bot-

tom boards, which may or may not have light stays between them, and rest upon supporting strips *a*. These boards contain perfora- 55 tions, and within them are secured the cloth tubes T, which are open both at the bottom and the top. The dust laden air from the fan entering these tubes, and escaping through their sides, necessarily leaves the dust with- 60 in, which, by a jarring device presently to be described, is then precipitated into the chamber beneath, whence it is drawn off by the carrier or conveyer.

The carrier or conveyer consists of one or 65 more cross-bars D running upon chains or belts D', which chains or belts run over the wheels W, and these bars have a series of scrapers *s* set thereon, which are so positioned as to tend to draw the dust or fine material 70 toward the center, while a single central one *s'* is set at right angles with the direction of movement, and draws it out at a little opening at Q, whence it may be carried off as desired. The bars D rest upon strips *a'* at their 75 ends, and are thus supported in a level position. Upon these cross-bars I provide, as a means of agitating the structure containing the cloth tubes, projections *p*, which engage with similar projections *c* on the under side 80 of said structure. As these projections come together, the result is to raise the structure slightly, and as the projections on the cross-bars pass, to let it drop, thus jarring and dis- 85 lodging the dust which has accumulated on the interior of the tubes. This is aided by the form of the projections, which are inclined or rounding where they come together, and square or abrupt where they part, in passing, as shown. In order that the dust- 90 laden air shall not be driven into this chamber, I make the joint between the lower board of the structure, and the adjacent floor A' itself, of loose and flexible, but substantially dust-proof material, such as canvas (shown in 95 loop *l*), or an elastic packing, which prevents any dust from drawing through between them, while at the same time the structure C is left free to be jarred or vibrated.

Having thus fully described my said inven- 100 tion, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a return air purifying and separating machine, of a hopper for

admission of material, passages leading there-
from for the passage of said material, an ex-
haust fan communicating with said passages,
said passages and said fan being so arranged
5 that the air after being used returns to the
eyes of the fan to be used over again, a struc-
ture set in the path of the blast from the fan
consisting of a close top having perforations,
a bottom, cloth tubes extending from said
10 bottom to said top and secured within said
perforations and into which the dust laden
air will pass and through the fabric whereof
it may be permitted to escape leaving the
dust therein, a chamber below said structure,
15 a conveyer within said chamber adapted to
carry off the deposited dust, projections on
the bottom of said structure, and projections
also on said conveyer adapted to come in con-
tact therewith and thus agitate or jar said
20 structure, substantially as set forth.

2. The combination, in a return air purify-

ing and separating machine, a hopper for ad-
mitting material, passages and receptacles for
said material, an exhaust fan connected with
said passages, a structure set in the path of 25
the blast from said fan consisting of a perfo-
rated bottom and top with cloth tubes se-
cured within the perforations, the bottom be-
ing on a level with and practically forming
part of the floor A' and connected to said 30
floor by a flexible or yielding but air-tight
connection, means for agitating the structure,
and means whereby the dust may be removed
when deposited, substantially as set forth.

In witness whereof I have hereunto set my 35
hand and seal, at Indianapolis, Indiana, this
25th day of March, A. D. 1893.

DANIEL W. MARMON. [L. S.]

Witnesses:

CHESTER BRADFORD,
JAMES A. WALSH.