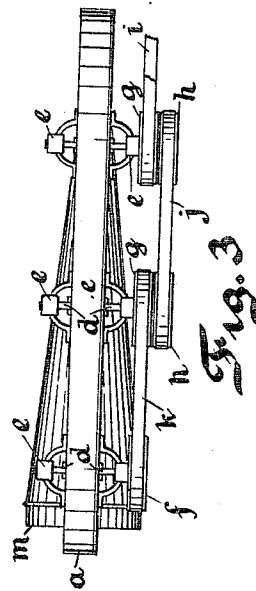
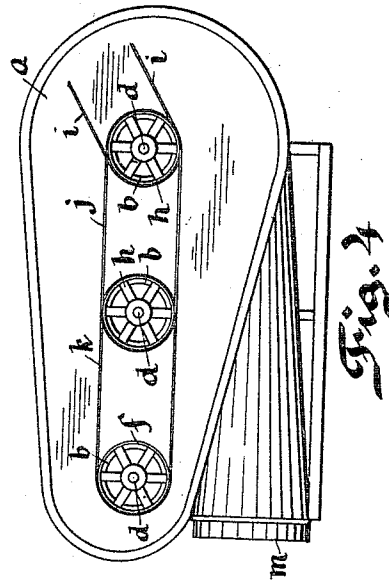
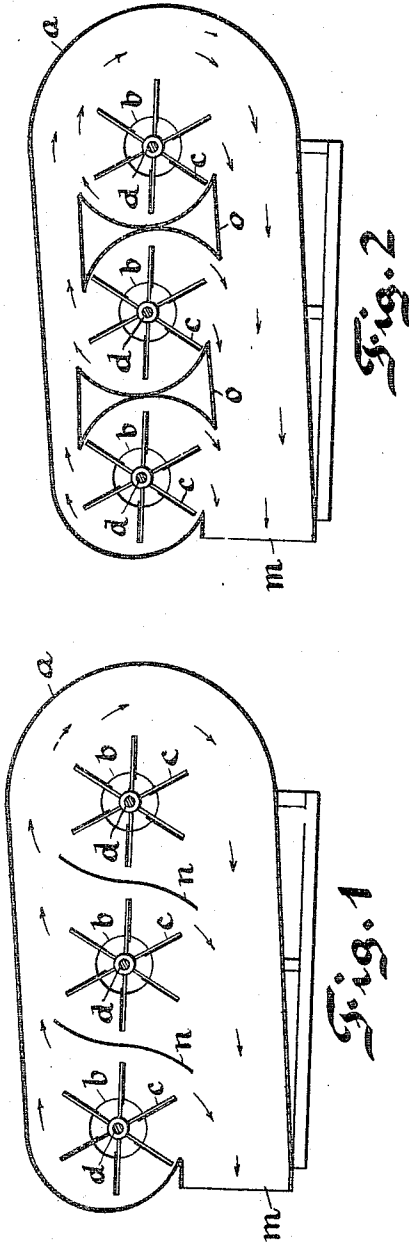


957,607.

S. HIGGINS.
FAN BLOWER.
APPLICATION FILED NOV. 1, 1909.

Patented May 10, 1910.



Witnesses

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UNITED STATES PATENT OFFICE.

SAMUEL HIGGINS, OF MILWAUKEE, WISCONSIN.

FAN-BLOWER.

957,607.

Specification of Letters Patent.

Patented May 10, 1910.

Application filed November 1, 1909. Serial No. 525,612.

To all whom it may concern:

Be it known that I, SAMUEL HIGGINS, of Milwaukee, Wisconsin, have invented a Fan-Blower, of which the following is a specification.

This invention has for its object to produce a compound centrifugal blower especially adapted for the production of a large blast at a comparatively low pressure such as is used in smithies having a number of forges supplied from the same wind-trunk and to provide an apparatus of this kind which shall be of improved efficiency and simple construction.

The invention consists, in general, of a plurality of individual rotary fans mounted in parallel in the same case and feeding into the same exhaust-nozzle; and it comprises the constructions and combinations which will be hereinafter specifically described and set forth in the claims.

The nature of my invention will best be understood by the consideration of the accompanying drawings, wherein—

Figures 1 and 2 are longitudinal vertical sections through two different forms of the invention; Fig. 3 is a plan view thereof; and Fig. 4 is a side elevation thereof.

In these drawings every reference letter and numeral refers to the same part in each figure.

The invention comprises a casing *a* provided on its opposite sides with circular apertures *b* which are the intake openings for the air. These are herein shown as three in number corresponding to the three fans *c*, which are mounted upon shafts *d* journaled in bearings *e* mounted on opposite sides of the casing. One of the end-shafts *e* carries a single pulley *f* and the other two carry two pulleys *g* and *h* each. The three shafts are driven by a single main belt *i*, which is driven from some source of power (not here shown), and said belt passes around the pulley *g* carried by the righthand shaft *d*, while a second belt *j*, passing over the two pulleys *h*, drives the second shaft *d*, and a third belt *k* passes over the two pulleys *f* and *g*, thus driving all three shafts in the same direction. In like manner any number of shafts can be driven.

The exhaust nozzle of the casing is located at *m*, and it will be observed that the upper part of the casing is so shaped as to give increased area above the fans in going from left to right, thus providing for the in-

creased current of air which arises from the three fans successively, and in like manner the lower part of the casing is flared from right to left to provide for the increased current which arises from the three fans successively on the lower side. To prevent interference from the air currents and to cause them to coalesce into a single current, besides giving proper direction to those parts of the currents of the two fans which lie between them, partition plates are inserted between the fans, their simplest form being shown at *n* in Fig. 1, while Fig. 2 shows a more complex form at *o*. The simplest form will suffice and is preferable in many cases on account of its greater simplicity, while the hour-glass form *o* filling the spandrels between the fans is preferred where a more exact direction of the currents and corresponding higher efficiency is desired. Other forms will also suggest themselves to those skilled in the art, and various details may be altered in form or differently constructed without departing from the spirit of my invention.

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

1. A compound centrifugal fan-blower comprising, in combination, a plurality of centrifugal fans, means for rotating said fans in the same direction, a casing inclosing all of said fans and having a plurality of intake-openings and a single exhaust-opening, and partitions between the fans which separate the currents of the several fans from each other, said partitions leaving continuous passage-ways at each end whereby the currents of the several fans are caused to combine on both sides of the casing and to be projected from one end thereof to the other and back again to said exhaust opening.

2. A compound centrifugal fan-blower comprising, in combination, a series of not less than three rotary fans mounted in line with each other, means for rotating all of said fans in the same direction, an elongated casing inclosing all of said fans and having a plurality of lateral intake openings concentric with the axes of rotation of the several fans and a single exhaust opening at one end, and partitions across said casing between each pair of adjacent fans, each partition leaving open spaces at both ends.

3. A compound centrifugal fan-blower

comprising, in combination, a series of not less than three rotary fans mounted in line with each other, means for rotating all of said fans in the same direction, an elongated casing inclosing all of said fans and having a plurality of lateral intake-openings concentric with the axes of rotation of the several fans and a single exhaust-opening at one end, and partitions across said casing between each pair of adjacent fans, said partitions acting to prevent interference between the currents of adjacent fans and leaving openings between their ends and the walls of the casing whereby the currents of the several fans are caused to combine on both sides of the casing, the combined current increasing from the exhaust-end of the casing and passing to the opposite end on the opposite side of the casing from said exhaust-nozzle and thence around the end of the casing, still increasing as it passes back to the exhaust-nozzle on the same side of the casing as said exhaust-nozzle.

4. A compound centrifugal fan-blower comprising, in combination, a plurality of rotary centrifugal fans mounted on parallel shafts, a single casing inclosing all of said fans, a pulley mounted on one of the shafts, two pulleys mounted on each of the other shafts, a belt passing around the first pulley and one of the pulleys on the next adjacent shaft driving the former from the latter, a second belt passing around the second pulley on said last-named shaft and one of the pulleys on the next adjacent shaft and driving the former from the latter, and a third belt passing around the other pulley on said last-named shaft and driving it.

5. A compound centrifugal fan-blower comprising, in combination, a plurality of rotary fans mounted on parallel shafts, means for driving said shafts, an individual casing inclosing all of said fans and having a plurality of lateral intake-openings corresponding to the several fans and a single exhaust-nozzle at one end thereof, and partition-plates disposed across said casing between each pair of adjacent fans and leaving an open passage-way at each end of each partition-plate between it and the casing-wall whereby the air-currents of the several fans are caused to combine on both sides of the casing.

6. A compound centrifugal fan-blower comprising, in combination, a plurality of rotary fans mounted on parallel shafts, means for driving said fans all in the same direction, a single casing inclosing all of said fans and having lateral intake-openings concentric with the respective fans and a single exhaust-opening at one end, and an hour-glass shaped partition between each pair of adjacent fans which fills the spandrels between them leaving passage-ways between the ends of said partition and the wall of the casing on both sides of the latter, whereby the air-currents from the several fans are caused to combine on both sides of the casing.

In witness whereof I have hereunto set my hand this thirtieth day of October, 1909.

SAMUEL HIGGINS.

In presence of—

GEORGE W. COLLES,
FLORENCE A. REINHOLD.