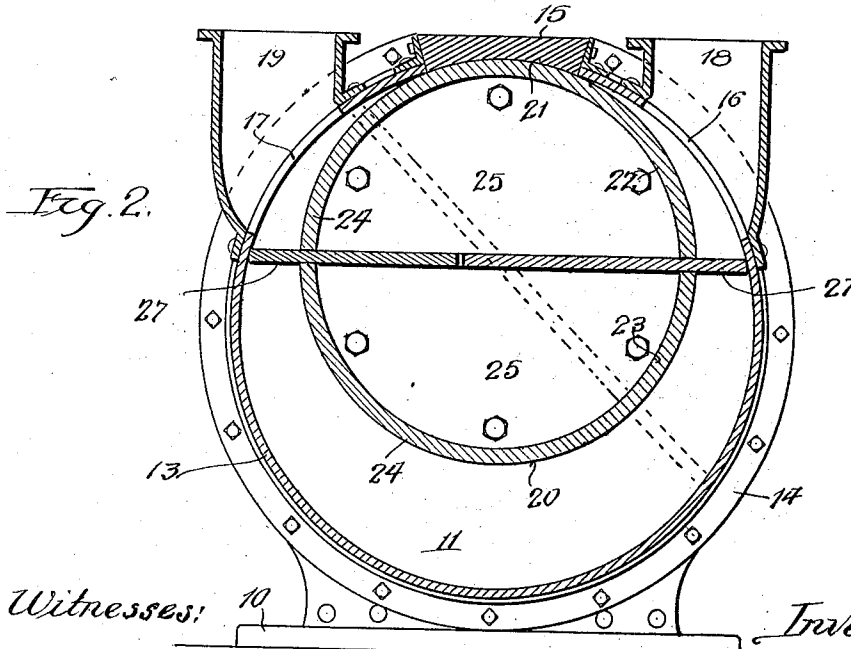
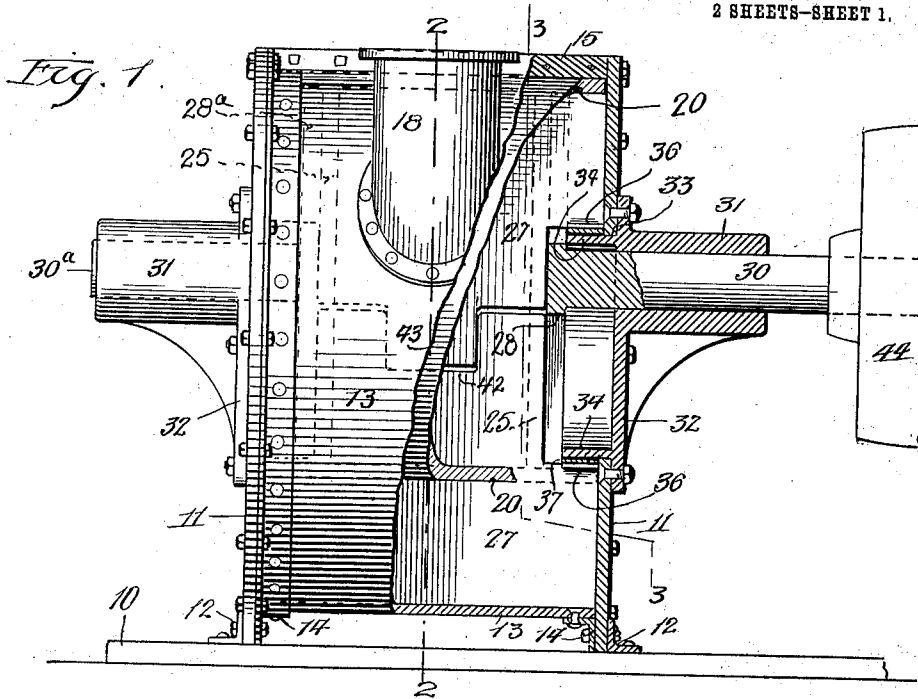


W. W. GREEN.
POSITIVE BLOWER.
APPLICATION FILED FEB. 16, 1911.

1,029,186.

Patented June 11, 1912.

2 SHEETS-SHEET 1.



Witnesses:

Charles A. Shewey
Fannie F. Richable

Inventor:

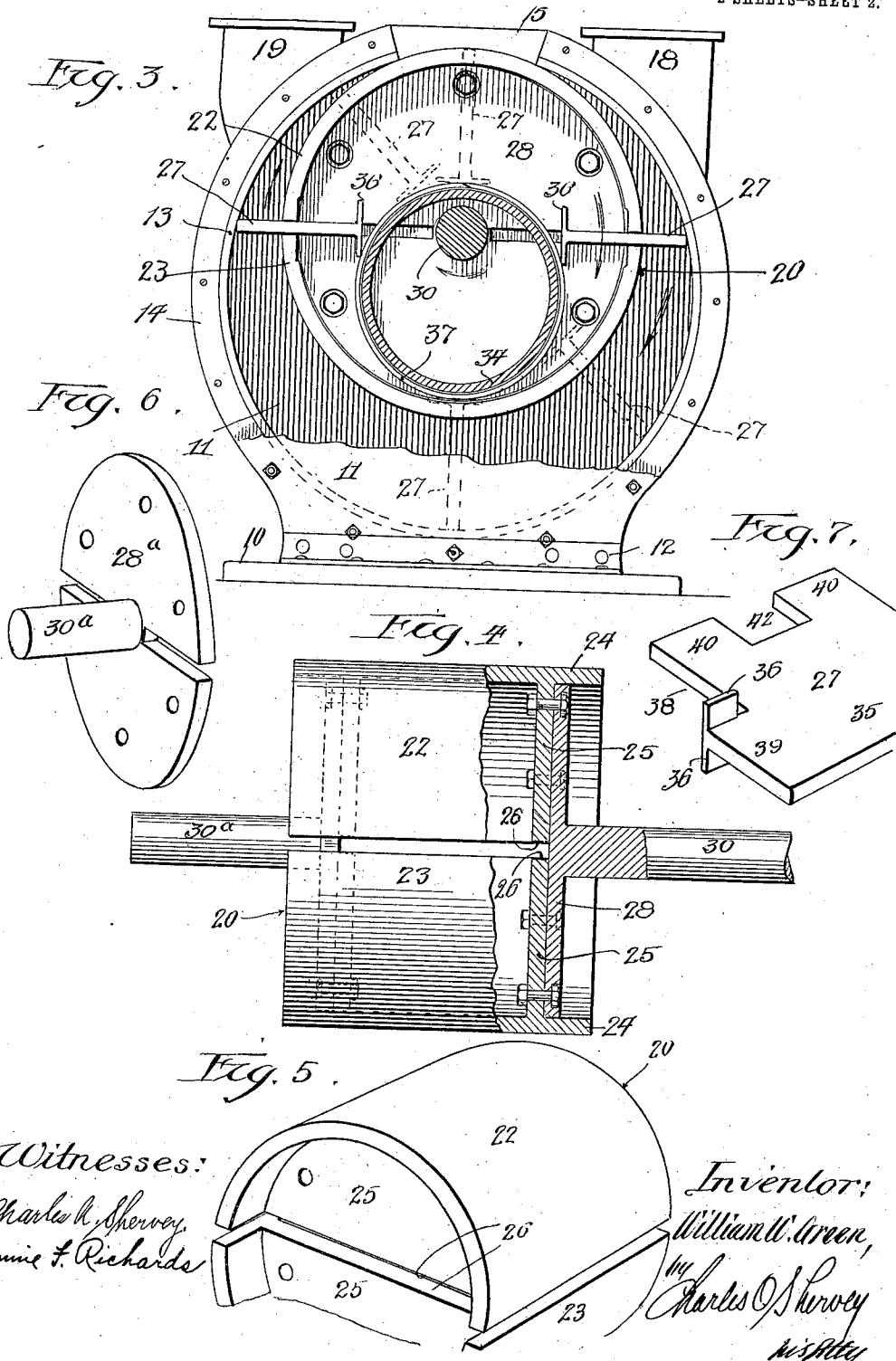
William W. Green,
by Charles O. Shewey
His Atty.

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Witnesses:
Charles H. Sherry,
Fannie F. Richards

Inventor:
William W. Green,
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UNITED STATES PATENT OFFICE.

WILLIAM W. GREEN, OF NILES, MICHIGAN, ASSIGNOR TO GARDEN CITY FAN COMPANY,
OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

POSITIVE BLOWER.

1,029,186.

Specification of Letters Patent.

Patented June 11, 1912.

Application filed February 16, 1911. Serial No. 609,049.

To all whom it may concern:

Be it known that I, WILLIAM W. GREEN, a citizen of the United States, residing at Niles, in the county of Berrien and State of Michigan, have invented new and useful Improvements in Positive Blowers, of which the following is a specification.

This invention relates to blowers and more particularly to that class of blowers known as positive blowers.

One of the objects of this invention is to provide a blower of this class, capable of being constructed of sheet metal, at least most of its component parts being capable of such construction.

Another object is to simplify the construction of blowers of this type and to otherwise improve thereon and with these and other advantages in view, the invention consists in the novel features of construction, arrangement and combination of parts described in this specification, and particularly pointed out in the claims.

The invention is clearly illustrated in the accompanying drawings in which Figure 1 is a view of the blower partly in side elevation and partly in central vertical section, Fig. 2 is a vertical cross section taken on line 2—2 Fig. 1, Fig. 3 is a view partly in end elevation and partly in cross section, the line of section being indicated at 3—3 in Fig. 1, Fig. 4 is a side elevation, partly broken out, of a rotary drum and its shafts, Fig. 5 is a perspective view of said drum, partly broken away; Fig. 6 is a perspective view of one stud shaft for the drum and Fig. 7 is a perspective view of a fragment of one of the blades or vanes.

Referring to said drawings, a base plate 10, will be seen, upon which is mounted the blower proper. Two parallel, substantially circular end walls 11, 11, preferably constructed of sheet metal, are fastened upon said base plate 10, as for instance by angle iron bars 12, bolted or otherwise secured to the end walls and base plate. Between said end walls is a cylindrical wall 13, preferably constructed of sheet metal, which may be secured to the end walls by angle irons 14, that are bolted or riveted to the end walls and cylindrical wall. The cylindrical wall contains a gap which is filled by a block 15, secured to the cylindrical wall in any suitable manner, and said end walls, cylindrical wall and block form the casing or shell of

the blower. Inlet and outlet openings, lettered 16, 17, respectively, are provided in the wall 13, on opposite sides thereof, and fittings 18, 19, are provided at said openings for connection with the inlet and outlet pipes (not shown), said fittings being riveted or otherwise secured to the wall 13, around the inlet and outlet openings.

Within the casing is a rotary drum 20, of smaller diameter than the cylindrical wall, but extending between the inner faces of the end walls 11. Said drum is eccentrically disposed with respect to the casing, and bears against the block 15, whose inner face 21, fits against the curved outer face of the drum 20. The crescent shaped space between the drum and casing is the air space through which the air is forced from inlet to outlet in the operation of the blower.

The drum is preferably made in sections, and is here shown in the form of two similar semi-circular halves 22, 23, each section having a semi-cylindrical wall 24, and two inwardly extending radial flanges 25, that have straight edges 26, spaced apart to receive and guide the blades or vanes 27. If desired the drum may be divided into three or more sections to receive three or more blades. The flanges 25, of one drum section are arranged in alinement with the flanges of the other section and are bolted or otherwise secured to slotted flanges 28, 28^a, carried by the inner ends of shafts 30, 30^a, that project out from the drum in an axial line. The slots in the flanges 28, 28^a, register with the slots between the flanges of the drum. This construction provides a sectional drum, having its supporting shafts rigidly connected thereto, but not passing therethrough. Obviously other equivalent means may be employed for rigidly connecting stud shafts to the drum and I do not wish to confine myself to the exact construction shown.

On the outer side of the end walls 11, are secured bearing brackets 31, in which the shafts are journaled, said bearing brackets having flanges 32, bolted or otherwise fastened to the end walls. The bearings of the brackets 31, are eccentrically disposed with respect to the cylindrical casing, and concentric with the drum. Openings 33, are formed in the end walls 11, and through each opening projects a blade guiding member, preferably in the form of an

annular flange 34, which if desired may be formed integral with the bearing 31. Said annular flanges are concentrically disposed with respect to the cylindrical casing and are designed to hold the peripheral edges of the blades in contact with the inner face of the cylindrical wall of the casing.

The blades or vanes 27, are of flat, plate-like form, and extend radially with respect to the shafts 31, 31^a, passing between the sections of the drum and projecting out through the slot or gap in the cylindrical wall thereof. The working or outer portion 35, of each blade, that is, that portion of each blade between the annular flanges 34, and cylindrical wall 13, extends from one end wall 11, to the other, and is provided with shoes or transverse projections 36, at each end that bear against the annular flanges 34, or against split rings 37, surrounding said flanges. The ring 37 is of slightly larger diameter than the flange in order that it may yield slightly in case of any unevenness on the inner face of the cylindrical wall of the casing against which the blade presses. The parts are so proportioned that the shoes or projections 36, will bear against the rings continually, whereby when the drum is rotated, the blades are caused to traverse the entire crescent shaped space between the casing and drum, with their peripheral edges in contact with the inner face of the cylindrical wall 13. The ends of the blades are cut away at 38, to accommodate the annular flange 34, around which travel the projecting ends 39, and shoes 36, and the portions 40, of the blades, between the cut away portions, extend in toward the center of the drum with their ends seating and sliding upon the opposing edges 26, of the radial flanges 25, of the drum. If desired, one blade may be notched upon its inner edge, as at 42, to receive a tail piece 43, of the other blade, as shown, although this is not essential to the operation of the blower. On either or both shafts is a pulley 44, which may be belted to any suitable source of power.

The operation of positive blowers is well understood by those skilled in the art. The drum being rotated, the air is drawn in through the intake, forced through the crescent shaped chamber by the blades and discharged through the outlet. The blades are carried bodily with the drum and are continuously held in working position by the annular flanges 34, pressing against the shoes 36, through the medium of the rings. The edges 26, of the drum flanges 25, form long bearings for the blades and hold them securely as they are impelled against the body of air.

I realize that various alterations and modifications of this device are possible without departing from the spirit of my

invention, and I do not therefore desire to limit myself to the exact form of construction shown and described.

I claim as new and desire to secure by Letters Patent:

1. A positive blower comprising a casing, comprising metal end walls, each having a central opening therein, and a sheet metal cylindrical wall secured to said end walls, bearing brackets secured to the outer faces of said end walls, and having annular flanges projecting inwardly through said openings in the end walls, an elastic ring surrounding each annular flange, a rotary drum within said casing and eccentrically disposed with respect thereto, shafts secured to said drum in axial alinement therewith and journaled in said bearing brackets, and blades slidably mounted in said drum and arranged to bear against the rings on said annular flanges, and elastic rings, said annular flanges acting to maintain said blades in position across the space between the drum and casing.

2. A positive blower, comprising a cylindrical casing, having inlet and outlet openings, a rotary drum journaled within said casing on an axis eccentric with respect to that of the cylindrical casing, blades slidably mounted in said drum, and arranged to project out therefrom, so as to traverse the space between the casing and drum, said blades having transverse projections rigid upon their ends, circular, blade-guiding members, concentric with the cylindrical casing and projecting into the interior thereof and an elastic ring surrounding each blade guiding member, said blade-guiding members and elastic rings being arranged to engage the transverse projections on the blades to continuously hold the blades in contact with the cylindrical wall of the casing.

3. In a positive blower, a drum, comprising a plurality of segmental sections spaced apart to leave a longitudinal slot in its wall and radial slots for the reception of a blade, radially slotted flanges secured to said drum sections with their slots registering with the radial slots in the drum, and stud shafts secured to and projecting out from said slotted flanges.

4. In a positive blower, a drum, comprising a plurality of segmental sections spaced apart to leave longitudinal slots in its wall, said drum section having inwardly extending radial flanges, the edges of which are spaced apart to form bearing surfaces for blades, radially slotted flanges secured to said drum sections with their slots registering with the slots between said radial flanges of the drum, and stud shafts secured to said slotted flanges and projecting out therefrom.

5. In a positive blower, a sectional drum, 130

the sections of which are spaced apart for the reception of one or more blades, and having inwardly extending radial flanges whose edges form bearing surfaces for said blade or blades, and stud shafts projecting from said drum and having slotted flanges secured thereto, and fastened to the radial flanges of the drum, said slots registering with the gap between the sections of the drum to receive side edges of the blades.

6. In a positive blower, a rotary sectional drum comprising a plurality of similar sections each having inwardly projecting radial flanges, arranged to leave slots therebetween, stud shafts having slotted flanges secured to the drum flanges with their slots registering with the slots between the drum flanges, and blades sliding between the edges of the slots, and moving bodily with the drum.

7. In a positive blower, a cylindrical casing, axially disposed blade-guiding members projecting into the interior of said casing, elastic rings surrounding said members, a rotary drum journaled within said casing on an axis eccentric with respect to the axis of the casing, and a plurality of blades guided to move radially of said drum, and moving bodily therewith, said blades having transverse shoes rigid upon their ends and bearing against said ring.

8. In a positive blower, a cylindrical cas-

ing, bearing brackets secured thereon and having eccentric bearings outside the casing and concentric annular flanges that project into the interior of the casing, a drum comprising two similar sections, each having a semi-circular wall extending to the end walls of the casing, and radial flanges located between the annular flanges of the casing, said sections being spaced apart to leave slots for the reception of blades, stud shafts each having a slotted flange secured to the drum flanges and affording a means of connection for the two drum sections, and blades extending radially through said drum between the sections thereof, and projecting into the space between the casing and drum, said blades moving bodily with the drum and having projecting ends that overlie the annular flanges and extend from end wall to end wall of the casing, said blades having transverse shoes at said projecting ends, bearing upon the annular flange.

In witness whereof, I have hereunto set my hand at Chicago, county of Cook and State of Illinois, this 9th day of February 1911.

WILLIAM W. GREEN.

Witnesses:

CHARLES O. SHERVEY,
F. J. FLANAGAN.