(No Model.) 2 Sheets—Sheet 1.

P. L. WEIMER.

ROTARY BLOWER.

No. 345,751. Patented July 20, 1886.

Fig. 1.

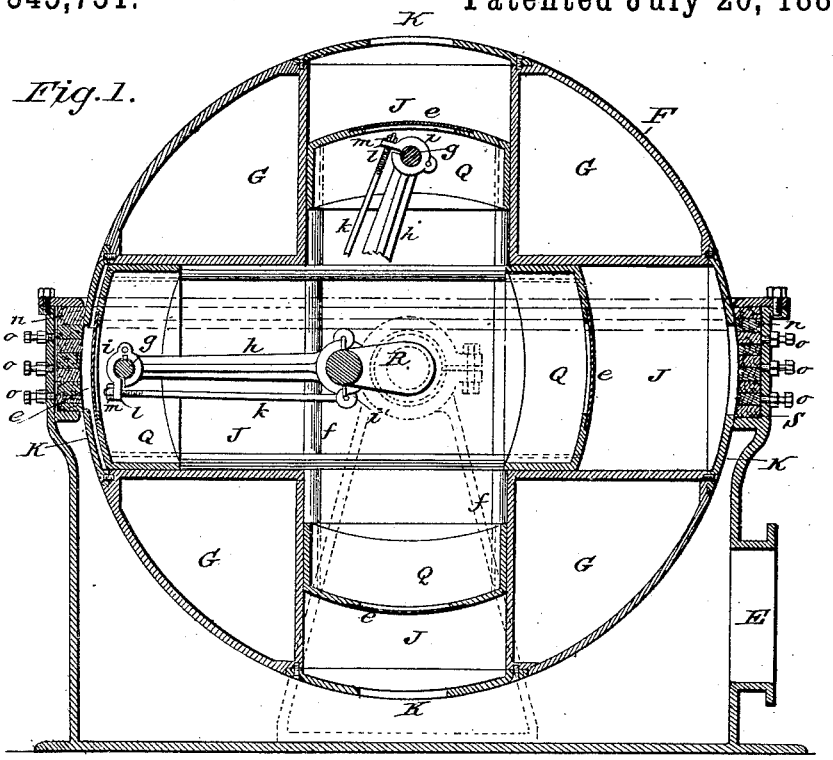
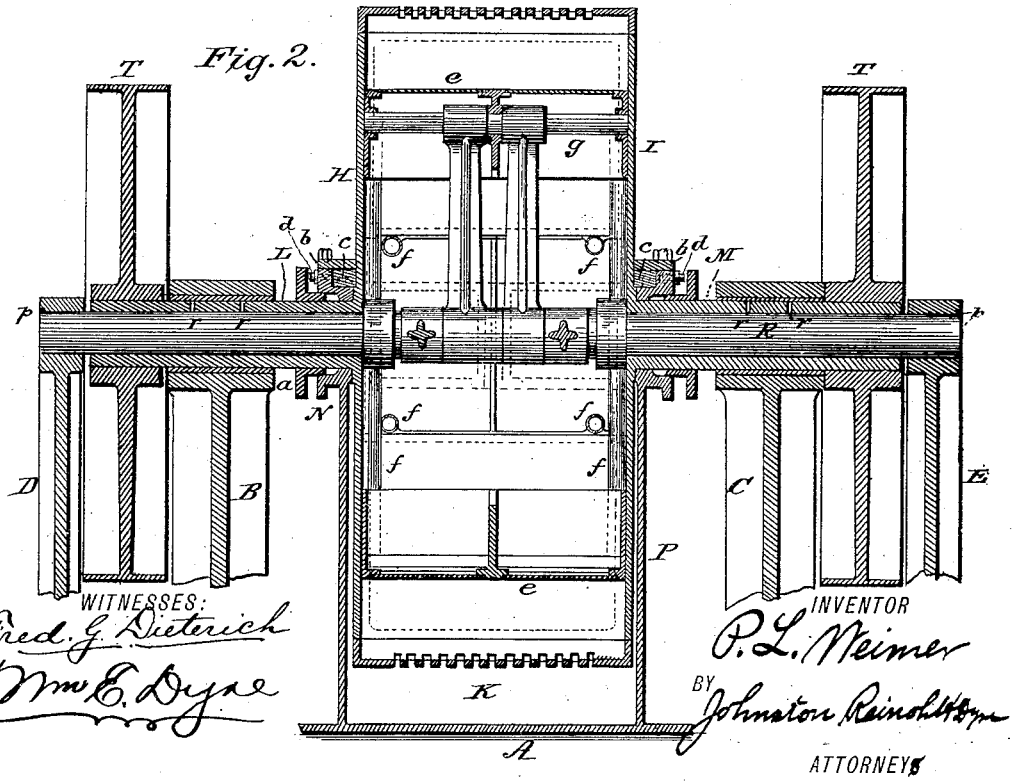


Fig. 2.



WITNESSES:
Fred. G. Dieterich
Wm. E. Dyer

INVENTOR
P. L. Weimer
BY Johnston Reinohl & Dyer
ATTORNEYS

(No Model.) 2 Sheets—Sheet 2.

P. L. WEIMER.

ROTARY BLOWER.

No. 345,751. Patented July 20, 1886.

Fig. 3.

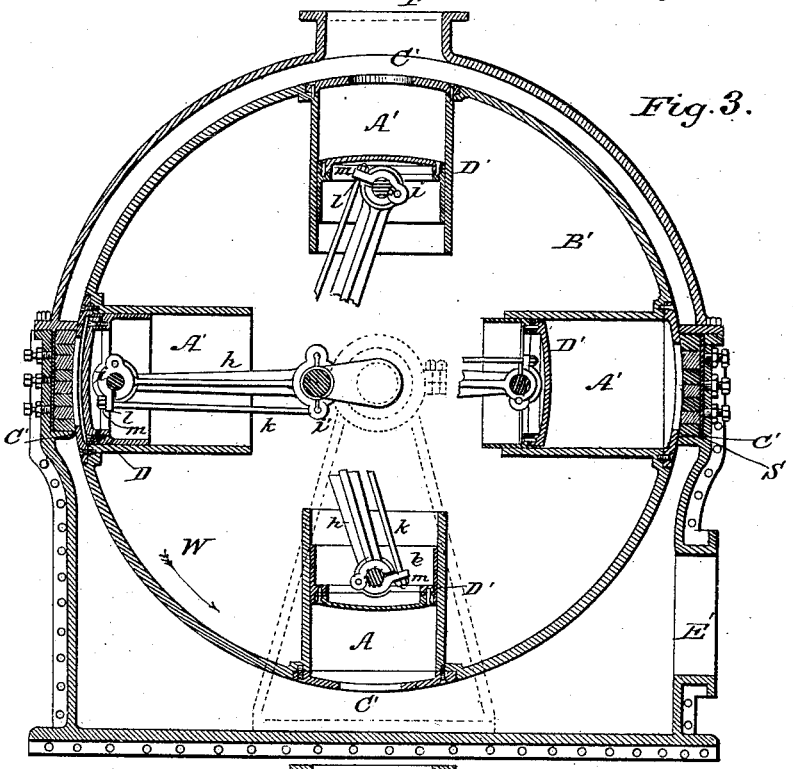
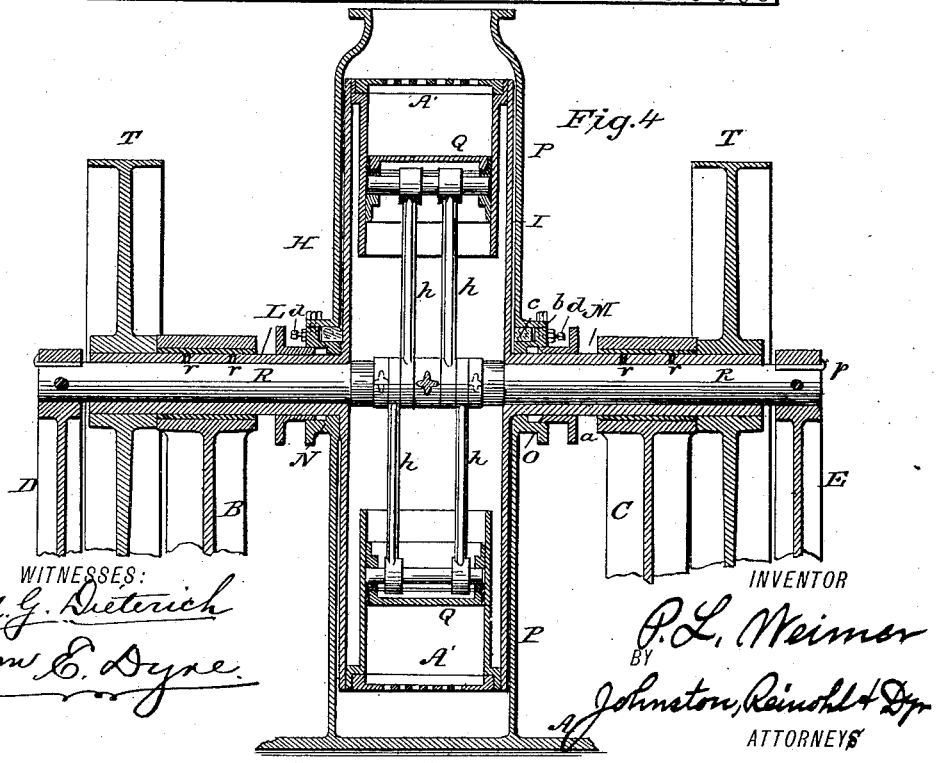


Fig. 4



WITNESSES:
Fred. G. Dieterich
Wm. E. Dyre.

INVENTOR
P. L. Weimer
BY
Johnston, Reinhold & Dyre
ATTORNEYS

UNITED STATES PATENT OFFICE.

PETER L. WEIMER, OF LEBANON, PENNSYLVANIA.

ROTARY BLOWER.

SPECIFICATION forming part of Letters Patent No. 345,751, dated July 20, 1886.

Application filed March 17, 1886. Serial No. 195,587. (No model.)

To all whom it may concern:

Be it known that I, PETER L. WEIMER, a citizen of the United States, residing at Lebanon, in the county of Lebanon and State of Pennsylvania, have invented certain new and useful Improvements in Rotary Blowers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to rotary blowers, and has for its object the construction of a device for blowing low-pressure for ordinary purposes, such as smiths' forges and like uses where low pressure is required.

The invention will be hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, which form a part of this specification, Figure 1 represents a cross-section of a drum with a casing around its lower half; Fig. 2, a longitudinal section of the same; Fig. 3, a cross-section of a drum surrounded by a casing; Fig. 4, a longitudinal section of the same.

In the rotary blowers now commonly used for general purposes the revolving pistons are subject to a great deal of back-pressure while they are moving through the working-space of the cylinder or drum, which absorbs a large percentage of the power applied for operating the blower without imparting any beneficial result. By my construction the back-pressure is reduced to the minimum, while a constant pressure is maintained.

Reference being had to the drawings and the letters of reference marked thereon, A represents a base-plate, on which are secured stand-bearings B C, which support the drum, and D E the crank-shaft. The drum F is composed of triangular-shaped boxes G, which are inserted between the sides H I of the drum and form rectangular chambers J, the outer ends of which are closed by grated covers K. The disks forming the sides of the drum are secured together by bolts, which pass through the triangular boxes.

Upon the disks H I, which form the sides of the drum F, are hollow shafts L M, formed integral with the disks, and support the drum in the stand-bearings B C.

N O are packing-boxes for the hollow shafts L M, and are formed in the casing P, which may extend only around the lower half of the drum F, as shown in Figs. 1 and 2; or it may inclose the entire drum, as shown in Figs. 3 and 4. The boxes N O are provided with the ordinary packing-glands, *a a*.

In the sides of the casing P are formed chambers *b b*, having closing-plates *b' b'*, to receive packing-strips *c c*, of prepared wood or other suitable material, which bear against the sides of the drum F and prevent the escape of air to atmosphere or into the discharging side of the case P. The packing-strips *c c* are adjusted laterally and held against the sides of the drum by means of set-screws *d d*.

Q represents a series of pistons rectangular in form, and fitted neatly into the corresponding chambers, J. The outer end of each piston is provided with a removable cover, *e*, for affording access to the adjusting-nut of the pitmen of the pistons. The pistons are connected in pairs by rods *f*, four of which are applied to each pair, and one of each pair of pistons is provided with a wrist-pin, *g*, to which one end of the pitman *h* is secured, the opposite end being secured to the wrist-pin of the crank-shaft R. The pitmen *h* are provided with hinged half-boxes or caps *i i'*. To the latter is hinged a rod, *k*, which extends through the projection *l* on the cap *i*, and is provided with an adjusting-nut, *m*, which is seated upon said projection *l* of the cap *i*. Further description of this pitman need not here be given, as it is fully described and claimed in another application of even date of filing, Serial No. 195,588. The triangular boxes G, having been planed on their angular surfaces, are placed in proper position between the disks H I and secured by proper bolts, and the outer ends of the rectangular chambers J closed by their grated covers K. The outer surface of the drum F is then accurately turned concentric with the hollow shafts or trunnions L M, and is mounted in the casing P, which is provided on its opposite sides with chambers S, to receive a series of strips of wood, *n*, which form an abutment, against which the periphery of the drum F is kept in constant bearing contact while revolving, and thus serves to prevent the escape of air from the delivery side of the casing to the receiving side or to the atmosphere when the upper half of the casing P is not used. It will

be observed that the abutments are of a width slightly in excess of the width of the ingress and egress passage of the several cylinders, and that they are arranged diametrically opposite to each other. By this construction two of the cylinders are always in contact with their respective abutments at the same time, and the air in each cylinder is confined until it has passed the first abutment while the piston is commencing its outstroke, and all of the air is discharged into the casing P before the cylinder reaches the opposite abutment. The abutments serve the further purpose of separating between the receiving and discharging of the contents of the rectangular chamber, and are made adjustable by means of set-screws *o*, to compensate for wear. The crank-shaft R passes through the hollow shafts or trunnions L M of the drum F, and is supported at each of its extremities in stand-bearings D E, to which it is secured against rotation by suitable keys, *p*.

Between the stand-bearings D B and C E there are secured to the trunnions L M driving-pulleys T, by which power is applied to rotate the drum F. In each of the trunnions are formed apertures *r r*, for lubricating the journal-boxes with oil from the interior of the drum, into which several gallons of oil is poured to lubricate the pitmen, wrist-pin, and the crank-shaft, and from the latter it passes through the apertures *r r* to the journal-boxes in the stand-bearings B C.

It is obvious that, instead of forming the rectangular chambers J and providing them with corresponding pistons, cylinders A′ may be inserted in a drum, B′, and the outer ends of the cylinders provided with grated covers C′ and cylindrical pistons D′, and that, instead of connecting the pistons in pairs by means of rods, they may be connected separately to the crank-shaft by means of pitmen *h*. It may also be desirable and advantageous at times to inclose the entire drum in a casing. This may be effected by applying a removable upper section, as shown in Figs. 3 and 4.

By applying the upper section of the casing the machine may be used for pumping liquids, in which instance E′ will be the inlet and F′ the discharge passage of the casing.

The several parts being constructed substantially as described, the operation is as follows: Power being applied to the driving-pulleys T, the drum F is revolved upon its trunnions L M around the stationary crank-shaft R, and by the eccentricity of the crank to the drum the pistons Q or D′ will be reciprocated in their chambers or cylinders, air drawn into said chambers or cylinders, and after passing the abutment on either side, according to the direction in which the drum is revolving, discharge the air into the casing P, from which it passes to the place of consumption. When the drum is revolving in the direction of the arrow W in Fig. 1, the chambers J receive air from the time they pass the left-hand abutment, and the pistons are receding until they arrive at the right-hand abutment, and the pistons commence their outstroke, when they will expel the air into the casing P between the two abutments and supply an almost uninterrupted blast of air through the discharge-opening F′.

Having thus fully described my invention, what I claim is—

1. A drum provided with a series of chambers or cylinders having solid pistons adapted to the form thereof, and unobstructed grated heads flush with the periphery of said drum, in combination with an outer casing having chambers containing packing, forming abutments of a width in excess of the width of the ingress and egress passage of the cylinders, and arranged diametrically opposite to each other, substantially as and for the purpose set forth.

2. A drum composed of a series of separate detachable triangular boxes and disks, forming rectangular chambers, in combination with rectangular pistons, substantially as described.

3. A drum provided with a series of radial chambers or cylinders, in combination with an outer casing provided with diametrically-opposite abutments of a width in excess of the width of the ingress and egress passage of the cylinders, and packing-chambers extending across both sides of the casing, substantially as described.

4. A drum having hollow trunnions supported upon suitable bearings, a shaft passing through said trunnions and apertures formed in the latter to lubricate the journals from the interior of the drum, substantially as described.

5. A drum provided with a series of radiating cylinders and solid pistons, in combination with a casing entirely surrounding the drum, and provided with packing-chambers, substantially as described, for separating between the ingress and egress side of said casing, as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

PETER L. WEIMER.

Witnesses:

Z. M. KAUFMAN,

J. WEIDMAN MURRAY.