B. F. Sturtevant.
Imp'ts in Blowers.

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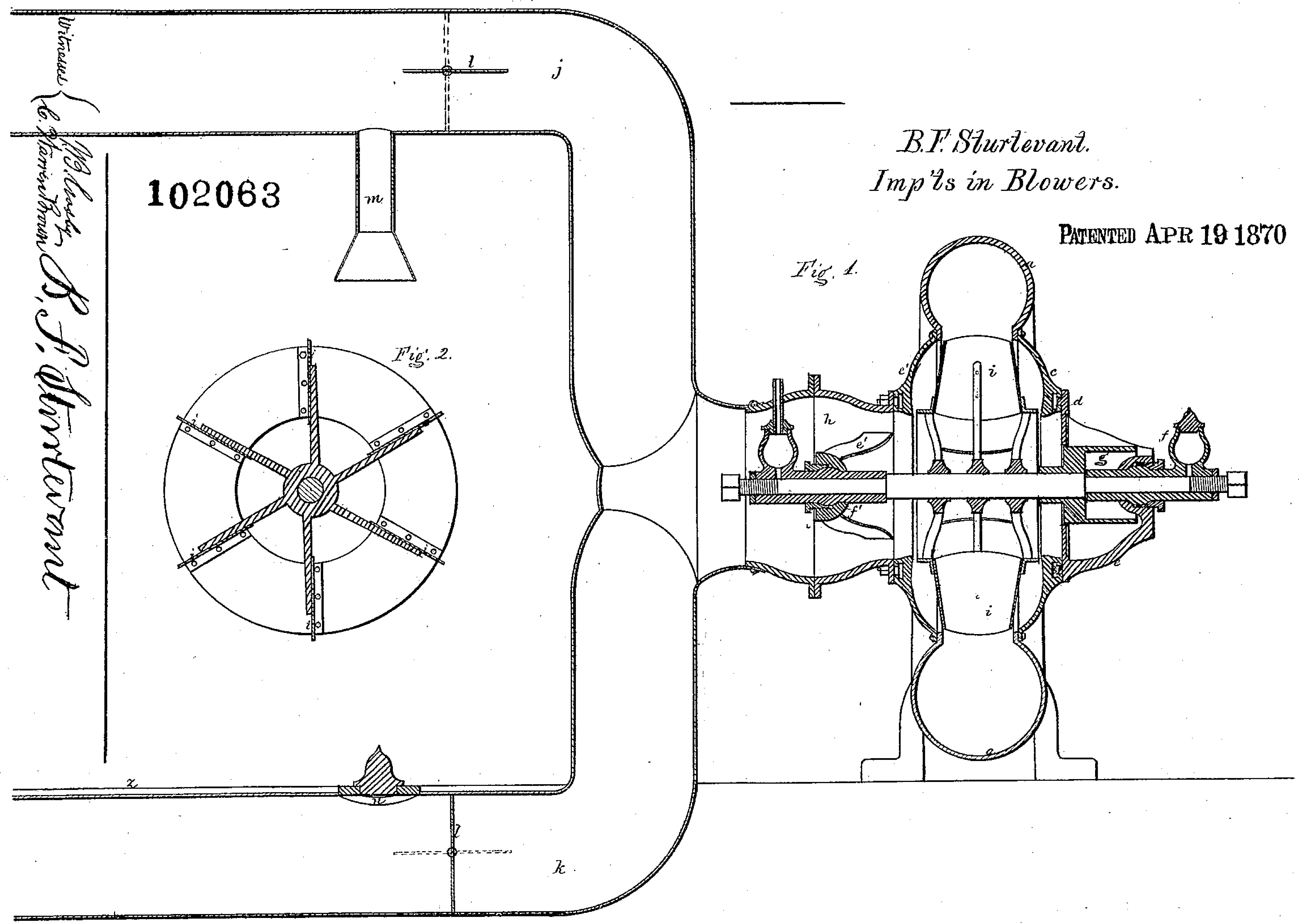

Witnesses { W. B. Crosby
C. Warren Brown

B. F. Sturtevant

United States Patent Office.

BENJAMIN F. STURTEVANT, OF WEST ROXBURY, MASSACHUSETTS.

Letters Patent No. 102,063, *dated April* 19, 1870.

IMPROVEMENT IN FAN-BLOWERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, BENJAMIN F. STURTEVANT, of West Roxbury, in the county of Norfolk and State of Massachusetts, have invented Improvements in Blowers; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

This invention relates to certain new and useful improvements in blowers, and adjuncts thereunto, by which shavings and other light materials are conveyed from one or several locations to another or others more or less remote; the invention being specially useful in planing-mills for removing the light, combustible material as it is produced, to a suitable receptacle, genally near the boiler furnaces, where it is stored for fuel.

My said invention consists: first, in combining with the shroudings of a blower-wheel blades or fans of thin plates of steel, said material being light, which causes the wheel to run easily; elastic, which prevents them from taking a permanent set when they strike against matters of considerable size and weight, such as blocks, &c., on which, by reason of the elasticity of the steel, such blades act with an increased efficiency; and hard, so that they wear a long time in frictional contact with matter containing considerable grit and abrasive dust.

It further consists in making an inlet-pipe, through which the shavings, or other material, and air enter the blower, with an attached bearing or box for one journal of the fan-wheel shaft, adjustable on either side of the blower, and capable of attachment alike on either side of the blower, by which means the blower is most readily connected with the inlet-pipe.

It further consists in making the inlet-pipe combined with the blower, in branches leading to any locality from which solid matter is to be removed, when each branch is made substantially with the same area of passage that the blower-case has on its inlet side, and when each branch is provided with a valve by which all communication with the blower can be cut of, except through one branch.

And it further consists in constructing the bearing-support used on that side of the blower opposite the inlet-pipe, with an internally-projecting ring reaching to the periphery of the driving-pulley.

The invention is illustrated in the drawings, of which—

Figure 1 is a vertical longitudinal sectional elevation showing my improvements; and

Figure 2 is a section taken through the fan-wheel in a plane at right angles with the axis of the blower-shaft.

a is the blower-case, which may be made whole as shown, or in pieces if the blower is to be of large size. On each side of the case is is a large circular side-piece, removably attached, each side having a large central opening, around which is made a T-shaped groove, seen at *b*.

To the side *c* is fixed by bolts, having their heads in its T-shaped groove, a support for a box or bearing for the blower-shaft, said support being made up of a wide ring, *d*, having on it a slight flange entering the T-shaped groove, arms *e*, and a central hub, *f*, said ring, arms, and hub being all made in one casting, and the inner edge of the ring fitting the periphery of the pulley *g*.

To the side *c'* is secured a pipe, *h*, in the same way that the ring *d* is secured to the side *c*, this pipe forming a support for a bearing of the blower-shaft, by having arms, *e'*, and a hub, *f'*, cast integral with it.

Solid material entering the blower with the air, drawn into it through this pipe *h*, will, to a considerable extent, move along the bottom of the pipe, and hence it will be preferable in practice to support the hub *f'* as much as possible from the upper part of the pipe, so that long matter, like long shavings from joiner's planes, threads, and long fibrous matters shall not find arms *e'*, at the lower part of the pipe *h*, to catch upon. The blades *i* of the fan-wheel, which are secured to the shroudings and braces of the wheel, are made of thin sheet steel, for the reasons and uses before named.

The pipe *h* has a flange at its outer end, to which a continuation of the inlet-pipe may be attached conveniently, and the pipe *h* may be turned or set around any number of degrees to facilitate the connection therewith of the extension of the inlet-pipe, or the pipe *h*, and the ring *d* may be shifted as to position, so that the blower may be conveniently arranged with reference to the pipes to which it is to be connected.

The inlet-pipes shown in fig. 1 are represented as arranged to take shavings from a planing-mill, the pipe *j* being shown as passing upward from the blower and horizontally at a height above the floor-line, *z z*, sufficient to clear the heads of the workmen, or at a greater height.

The pipe *k* proceeds downward from the blower and horizontally beneath the floor. Each pipe, *j* and *k*, has an area substantially equal to the inlet area through the side *c'* of the blower, so that to get a current effective to move shavings or other solid matter through either pipe, the other must, for the time, be shut off, so that the pipes are never operative together as conveyers of solid matter, but only singly and interchangeably.

To shut off either pipe so as to make the other effective, dampers or valves of any suitable kind are introduced, as seen at *l l*.

From the pipe *j* depend pipes *m*, provided with hoods, which are located over revolving cutters, or other

waste-producing machines, so as to draw from the machines the shavings, or other waste, as fast as, and when, made.

When the floor of the mill is to be cleared, the pipe *j* is closed and the pipe *k* opened, and the shavings are brought near the openings *n*, when they will be seized by the inrushing current of air and conveyed to the blower, and expelled therefrom through a pipe attached to the blower outlet, and leading to a suitable receptacle.

By removal of side *c* the fan-wheel may be taken out of the blower case, and any obstruction in the inlet may be removed without disturbing the pipe connections.

I claim—

A fan-wheel for a centrifugal blower, in which the fans *i* are made of sheet steel, and are combined with the wheel-shroudings, as and for the purpose specified.

Also, the pipe *h* arranged to the inlet passage so as to be adjustable thereon, and so as to fit either side of the blower, and so as to support a bearing for the fan-shaft, substantially as described.

Also, the ring *d* which serves as a base to which the bearing-support arms are united, when said ring is extended inward, and closes with the driving pulley the opening in one side of the blower.

Also, in combination with a centrifugal blower, two or more inlet pipes, each of cross area, substantially equal to the area of the inlet-opening in the side of the blower, when said pipes are each provided with valves, by which they may be shut off from the blower, as and for the purpose specified.

B. F. STURTEVANT.

Witnesses:
J. B. CROSBY,
J. J. HALSTED.