

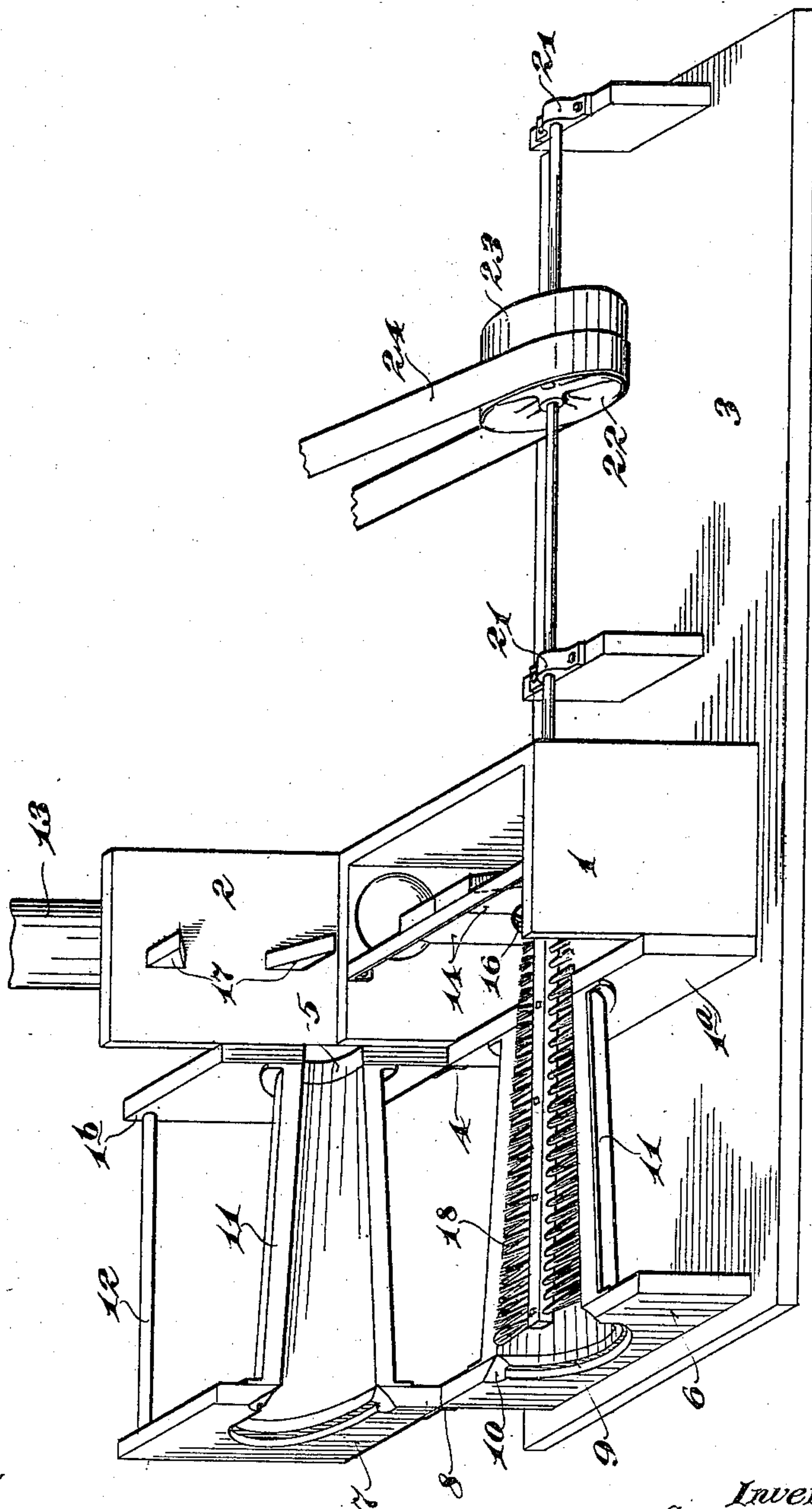
D. G. BECKER.  
MACHINE FOR CLEANING DUST COLLECTOR TUBES.  
APPLICATION FILED JAN. 27, 1910.

966,420.

Patented Aug. 9, 1910.

2 SHEETS—SHEET 1.

Fig. 1



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Inventor:  
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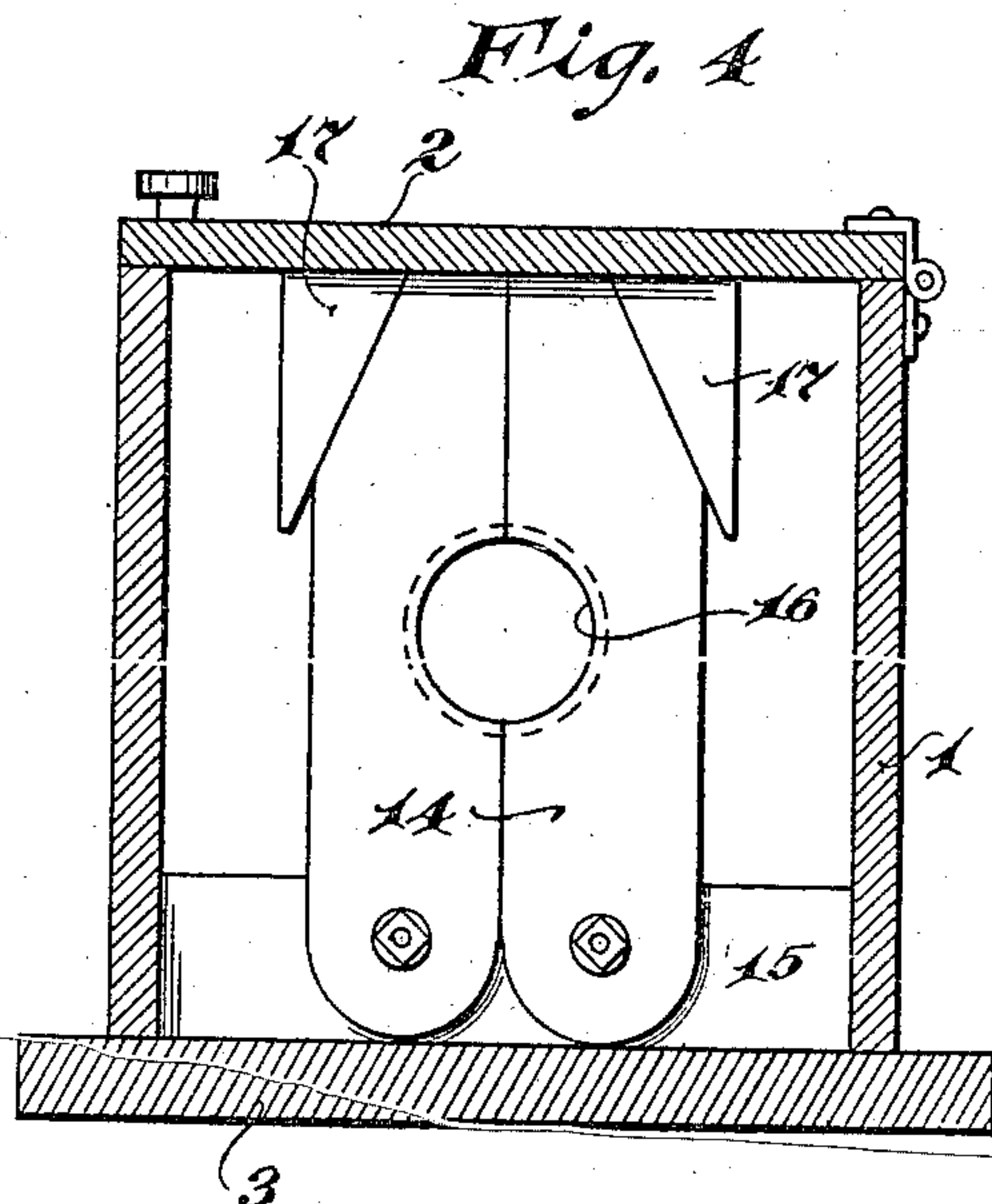
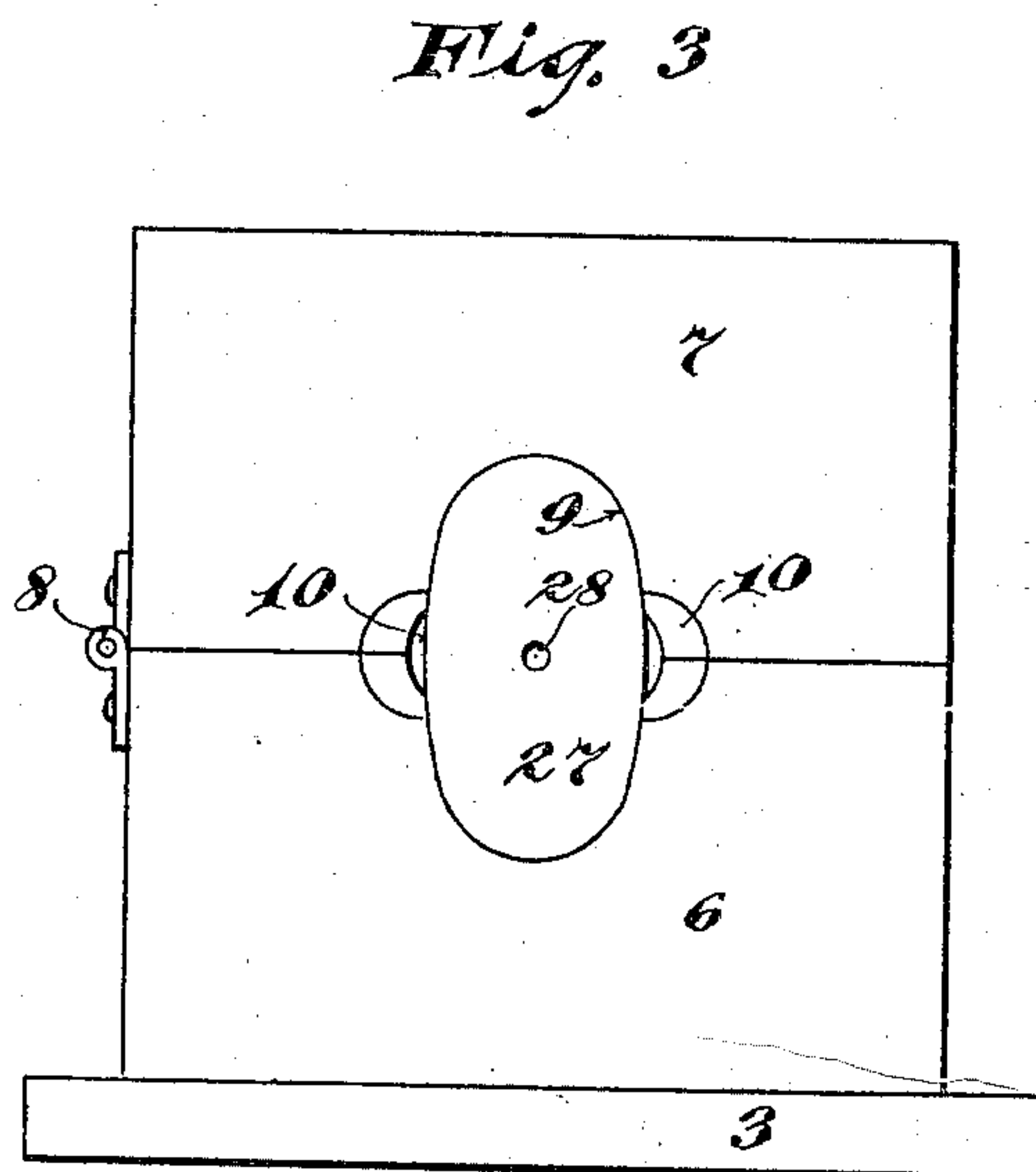
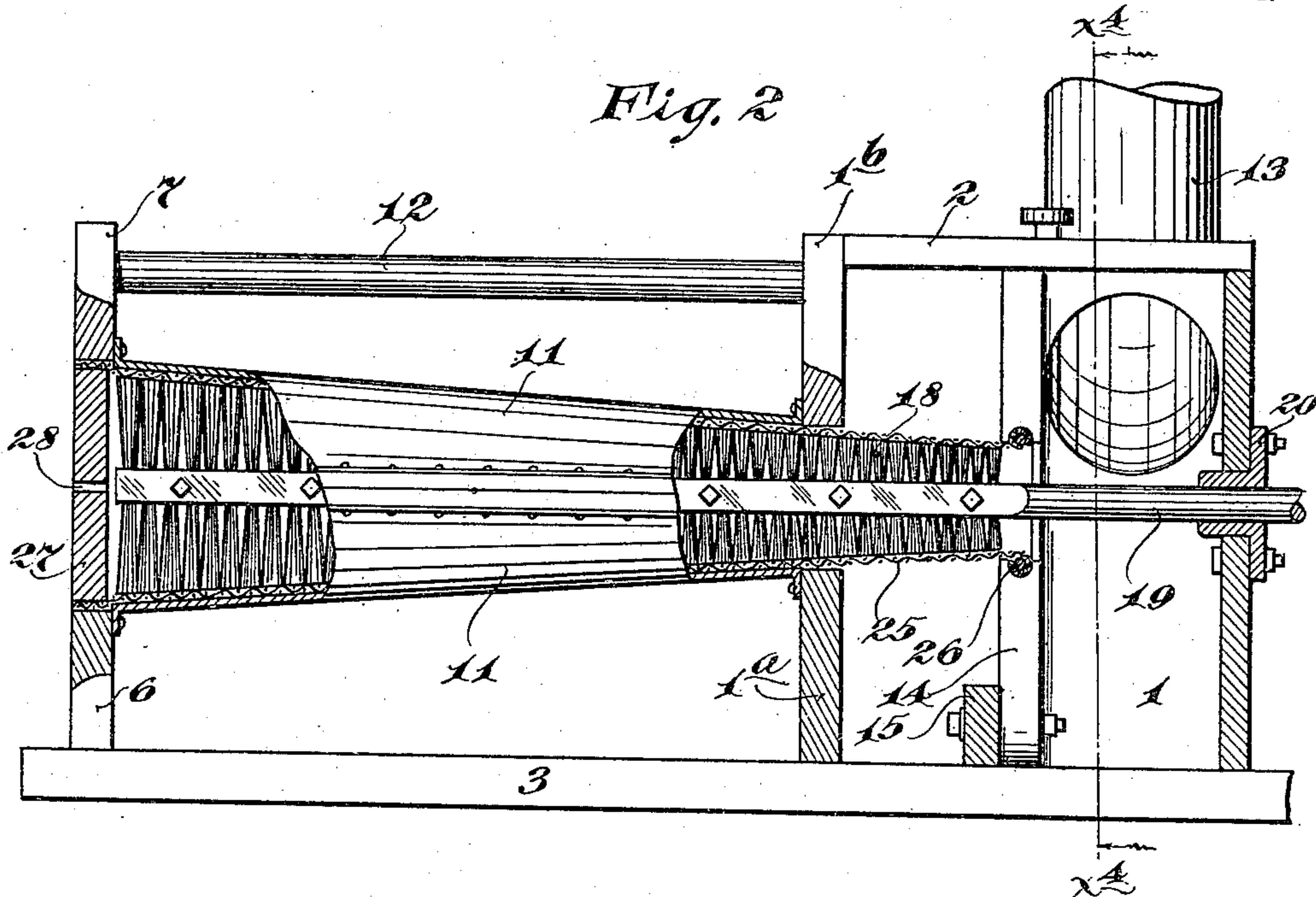
William M. Merchant

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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

DEDRICK G. BECKER, OF MINNEAPOLIS, MINNESOTA.

MACHINE FOR CLEANING DUST-COLLECTOR TUBES.

966,420.

Specification of Letters Patent.

Patented Aug. 9, 1910.

Application filed January 27, 1910. Serial No. 540,347.

*To all whom it may concern:*

Be it known that I, DEDRICK G. BECKER, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Machines for Cleaning Dust-Collector Tubes; 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.

My invention has for its object to provide a simple and efficient machine for rapidly cleaning dust collector tubes such, for instance, as employed in flour mills, wheat elevators and like places, for collecting flour dust or wheat dust.

To the above ends, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

These dust collector tubes, as is well known, are made from cloth and, when the interstices of the cloth become clogged by dust, it is necessary to remove the tubes from the dust collector and hitherto it has been customary to clean these tubes by hand, the cleaning being quite a slow process. Furthermore, the work of cleaning the tubes by hand has been, not only very disagreeable, but the dust necessarily breathed in the cleaning process has been very injurious to the health of the persons doing this work.

My improved tube cleaning machine performs the work of cleaning the tubes very rapidly and efficiently and carries the dust to a suitable point where it may be distributed without objection.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a perspective view showing the complete machine opened up; Fig. 2 is a view, partly in side elevation and partly in vertical section, showing the machine closed and the dust collector tube held thereby in position for cleaning; Fig. 3 is a front elevation of the machine; and Fig. 4 is a detail in vertical section taken approximately on the line  $x^4 x^4$  of Fig. 2.

In the machine illustrated, a dust box 1, having a hinged cover 2, is secured to a baseboard 3. The front plate of the dust box 1 is centrally divided or, in other words,

is made up of a relatively fixed lower section  $1^a$  and a relatively movable upper section  $1^b$ , which sections are connected by a hinge 4. The two plate sections  $1^a$  and  $1^b$  are formed with a central perforation or tube passage 5, formed one half in each of the said plate sections. Spaced from the sectional plate  $1^a-1^b$ , is a quite similar sectional clamping plate, made up of sections 6 and 7 connected by a hinge 8, which hinge is alined axially with the hinge 4. The lower plate section 6 is rigidly secured to the baseboard 3, and the said clamping plate 6-7 is provided with a centrally located tube clamping seat 9, formed one half in each of the said plate sections and, as shown, vertically elongated. At their joining line, the plate sections 6-7 are also formed with air inlet ports 10, the purpose of which will presently appear.

Extending from the seat 9 to the tube passage 5 is a longitudinally split or two-part sheet metal tube casing 11, which, in most instances, will be tapered to correspond to the taper of the dust collector tubes to be cleaned while placed therein. The lower half section of this casing 11 is rigidly secured to the lower clamping plate sections  $1^a$  and 6, while the upper half section of the said casing is connected, at its ends, to the movable plate sections  $1^b$  and 7. The said plate sections  $1^b$  and 7 are also preferably connected by tie bars 12.

A draft or suction pipe 13 leads from the dust box 1, preferably, to a fan or blower not shown with connections for carrying off the dust. Within the dust box is a pair of lever-like tube clamps 14, which, as shown, are pivoted at their lower ends to a transverse bar 15 on the bottom of said dust box. These tube clamps 14 are provided with an internally grooved ring seat 16 formed one half in each of the said clamps, and the upper ends of said clamping levers are beveled and are normally engaged by cam blocks 17 on the cover 2 of the dust box.

The brush 18, which is used for cleaning the dust collector tubes, is tapered to correspond approximately to the taper of the casing 11, but is longer so that it projects through the tube passage 5 and extends to the clamping levers 14. The shaft 19 of the said brush is journaled in a suitable bearing 20 on the rear plate of the dust box and, as shown, in another bearing 21 on the rear portion of the baseboard 3. On the outer



end portion of the brush shaft 19 is a fixed pulley 22 and a loose pulley 23, over which a power-driven belt 24 is arranged to run.

The cloth body portion of the dust collector tube is indicated by the numeral 25, and this tube at its small end is secured to a ring 26 and at its large end to an oval disk 27, which, as shown, has the customary central screw passage 28 through which a screw is passed to secure the tube in the dust collector in the usual way.

The dust collector tube should be applied in position for cleaning or removed therefrom while the parts of the machine are opened up, as shown in Fig. 1. The said tube is placed in working position by drawing the ring-equipped end thereof over the brush 18 until the tube is properly stretched, as shown in Fig. 2, and then the ring 26 is placed in the seat 16 with the clamping levers 14, and the disk 27 is placed in the seat 9 of the divided clamping plate 6—7. The machine is then closed, as shown in Fig. 2. When the brush 18 is then rotated and the air is drawn from the dust box through the stack 13, the air will be drawn into the dust box through the dust collector tube 25. The air drawn into the dust box through the dust collector tube is admitted chiefly through the ports 10 and the passage 28, but air will also leak into the said tube at other points. By simultaneously loosening up the dust from the interior of the tube and drawing the same from the tube into the dust box, the tube may be very thoroughly and quickly cleaned. In actual usage of the machine above described, the inventor himself has cleaned as many as seventy-five dust collector tubes in one hour. This work done by the machine in one hour amounts approximately to fifteen hours of hand work. From these statements, the utility of the device is thought to be obvious.

What I claim is:

1. A machine for cleaning dust collector tubes, comprising a casing, means for detachably holding a dust collector tube in said casing, a brush movable therein, and a connection for drawing air through said casing, substantially as described.

2. A machine for cleaning dust collector tubes, comprising a casing made up of separable sections, and having means for detachably holding a dust collector tube in said casing, a brush rotatively mounted therein, and a connection for drawing air through said casing, substantially as described.

3. A machine for cleaning dust collector tubes, comprising a dust box, a casing connected to said dust box at one end, and having means for detachably holding a dust collector tube in said casing, a brush rotatively mounted in said casing and extending into said dust box, means for holding the tube to be cleaned within said casing and around said brush, and a connection for drawing air from said dust box, substantially as described.

4. A machine for cleaning dust collector tubes, comprising a dust box provided with in with a two-part bag clamping device, a divided casing connected at one end to said dust box and provided with means to hold one end of a bag and adapted to be opened by lateral movement of one of the sections thereof, a brush rotatively mounted in said casing and extending into said dust box, means for rotating said brush, and a connection for drawing air from said dust box, substantially as described.

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

DEDRICK G. BECKER.

Witnesses:

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FRANK D. MERCHANT.