R. E. SHAW.

STONE DRESSING MACHINE.

APPLICATION FILED SEPT. 11, 1915.

1,166,860.

Patented Jan. 4, 1916.

2 SHEETS—SHEET 1.

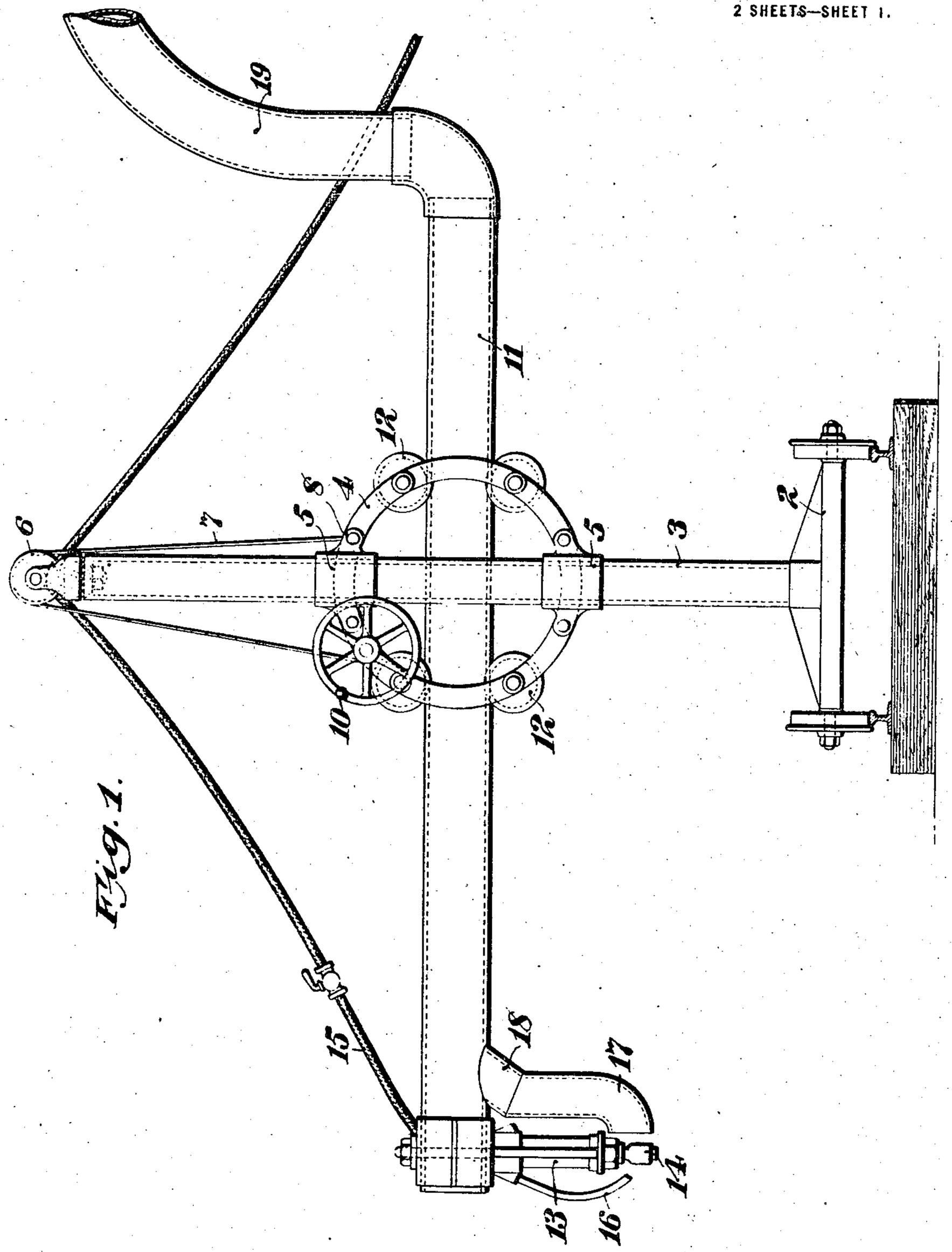

Fig. 1.

Witness:

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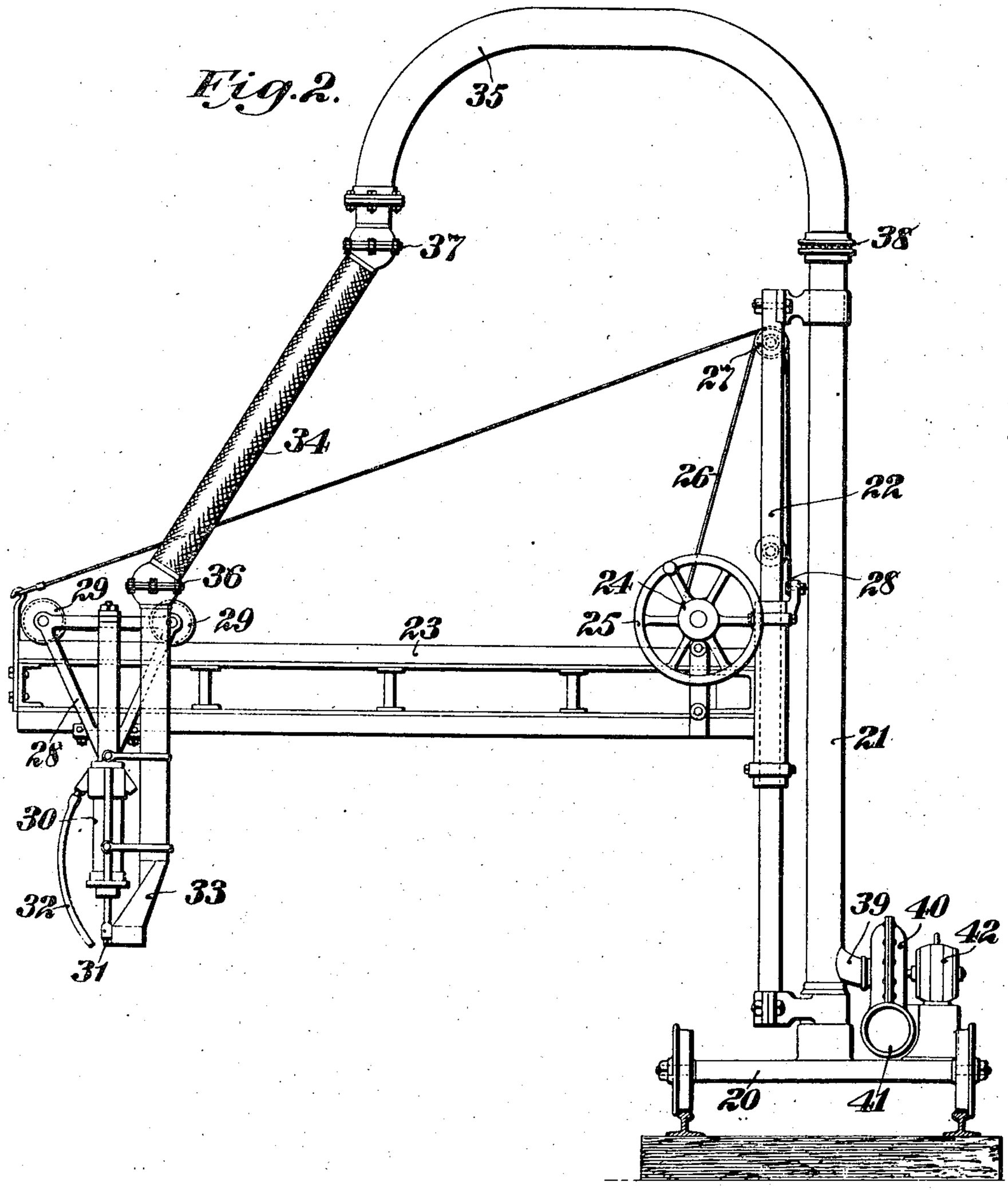
2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

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STONE-DRESSING MACHINE.

1,166,860. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed September 11, 1915. Serial No. 50,146.

To all whom it may concern:

Be it known that I, RAYMOND E. SHAW, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Stone-Dressing Machines; 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 present invention relates to stone dressing or surfacing machines in which a power-driven tool is moved by the operator by hand over the work.

In the process of dressing or surfacing stone, such, for example as granite, a considerable quantity of fine chips or dust is produced which is dangerous to the health of the operator, interferes with his vision, and reduces the speed of the cutting.

One of the objects of the present invention is to provide a stone surfacing machine of the above type in which the chips and dust are quickly and effectively removed, and which shall be of simple and compact construction and easy and convenient to operate.

With these objects in view, the present invention comprises a stone surfacing machine of the above type in which the structural elements are designed as a part of a dust exhaust system and permit the substantially universal adjustment of the tool and a dust collector relatively to the work.

In the accompanying drawings Figure 1 is a side elevation of what is now considered to be the preferred form of the invention, in which an exhaust tube is arranged horizontally and supports, at one end, the operating tool and the suction mouth-piece of the exhaust system. Fig. 2 is a side elevation of a modified form of the invention, in which the exhaust tube is arranged vertically and supports the horizontal arm upon which the operating tool and the suction mouth-piece are slidably mounted.

In the preferred form of the invention, as in the type of machines illustrated in Fig. 1, a wheeled truck 2 is employed to facilitate movement of the machine from one piece of work to another. Upon the truck is mounted the standard 3 on which is supported a flat ring or circular frame 4. The frame has bearing sleeves 5—5 rotatably and slidably fitting the standard 3, so that the frame is free to turn and to slide vertically thereupon. At the top of the standard is the swiveled pulley 6 which guides a rope 7 attached at one end 8 to the upper part of the frame. The other end of the rope is attached to a drum adapted to be rotated by the handle 10, to raise or lower the frame 4 as may be desired.

Slidably mounted on the frame 4 is the tubular arm 11, pivoted rollers 12 on the frame engaging the member 11 and permitting the latter to be easily adjusted back and forth. At one end of the slidable arm 11 is supported a suitable pneumatic or other power driven tool 13 with a cutter 14 at its lower end. The tool is supplied with compressed air by a flexible hose 15 connected to a suitable source. The exhaust from the tool is directed toward the cutter 14 by a hose or pipe 16 to blow away the chips and dust. On the opposite side of the cutter is located the suction mouth-piece or hood 17 in close proximity to the cutter and suitably connected by a section 18 to the hollow, tubular, supporting arm 11. In operation the cuttings are drawn into the mouth-piece 17 and through the arm 11 and pipe 19 to some convenient exhausting device. This form of the machine is very compact and provides for a large range of movement of the cutter and adjacent mouth-piece over the work, the cuttings being drawn directly into the tool carrying arm 11 which forms a part of the exhaust system.

In Fig. 2 which shows the present invention in a modified form, the wheeled truck 20 supports a hollow column 21. Rotatably mounted on the column is the vertical guide along which is vertically adjustable a horizontal beam or arm 23. The beam 23 is adjusted vertically by means of drum 24 journaled thereon and actuated by a hand wheel 25 to wind or unwind a rope 26 over suitably disposed guide pulleys 27 and 28. One end of the rope is attached to the drum and the other end to the outer end of the arm 23.

Adjustable along the arm 23 is a carriage 28 in the form of a V-shaped frame with rollers 29 at the upper ends traveling on the top of the arm 23. Suitably secured to and projecting downwardly from the carriage 28 is a pneumatic or other tool 30 having a cutter 31. The tool is supplied with com-

pressed air from a suitable source and the exhaust therefrom is directed toward the cutter by a pipe 32.

The dust exhausting system of the type of machine in Fig. 2 includes a suction mouth-piece or hood 33 attached either to the carriage 28 or to the tool 30 or both according to the convenience of the structure. In this type of machine the vertical column 21 is made tubular and serves not only as the support for the tool mechanism but also forms a part of the exhaust system. To that end the suction hood 33 is connected to the column 21 by means of a flexible hose 34 and swiveled, curved suction pipe 35. The flexible hose is connected at its lower end to the suction hood 33 and at its upper end to the suction pipe 35 by means of the universal joints 36 and 37 respectively. The pipe 37 is joined by a ball-bearing swivel joint 38 to the head of the column 21.

A further feature of the invention which is conducive of the practicability, compactness and unit-structure of the combined cutting and exhausting system, comprehends connecting to the tubular exhaust members an exhaust mechanism preferably disposed on the truck. In the type of machine shown in Fig. 2 this is done by leading from the bottom of the column 21 a section 39 to which is connected the intake side of a suitable fan or exhauster 40 with a discharge 41. The fan is driven by a direct connected motor 42.

In operation the cutter 31 is shifted into cutting position on the work and the cuttings are drawn quickly into the hood 33 and thence conveyed through the flexible hose 35, the pipe 37 and column 21 to the suction fan 40. The flexible hose and the swiveled pipe 37 yield and swing to follow the movements of the arm 23 and the carriage 28 thereon, as the tool is moved variously over the work. The suction hood 23 and tool move together and the suction of air through the tubes of the system operates to effectually remove the dust.

From the foregoing it will be seen that the present invention provides a simple and compact structure which is easy to handle and maintain, and which is not liable to derangement or damage in use. This is an important advantage in this type of stone cutting machinery which is designed to be carried or shifted to different positions in a stone yard, quarry or on stone structures.

It is understood that the invention is not limited to details of construction, nor to the combination of parts, except as specified in the claims, and that they may be variously modified within the skill of the artisan as may be required for adaptation to desired forms of apparatus without departing from the scope of the invention and within the limitation of the claims.

Having thus described the invention what is claimed is:

1. A stone dressing machine, having, in combination, an operating tool, means for supporting the tool including a tubular member and adapted for connection to suction means, a suction mouth-piece arranged in proximity to the tool and connected with said tubular member, the latter forming a flue for conveying away the dust drawn into the mouth-piece, substantially as described.

2. A stone dressing machine, having, in combination, a stone dressing tool, a support for said tool including a vertical column and an arm extending therefrom, one of the members being tubular to act as a dust conveyer, and a mouth piece located in operative relation to the tool and connected with the tubular member, substantially as described.

3. A stone dressing machine, having, in combination, a vertical column, a frame rotatably mounted on the column and vertically adjustable thereon, a hollow horizontal member mounted on the frame and adjustable transversely of the column, an operating tool mounted on the horizontal member, and a suction mouth-piece arranged adjacent the tool and carried by and connected with the hollow horizontal member, said member forming a flue for carrying away the dust produced by the tool, substantially as described.

4. A stone dressing machine, having, in combination, a vertical column, a hollow horizontal member movably mounted on the column and adapted to be connected to a suction device, a pneumatically operated tool mounted on said member, a suction mouth-piece arranged adjacent the tool and connected with the horizontal member, and an exhaust pipe for the tool having its exhaust opening adjacent the tool and opposite the suction mouth-piece, substantially as described.

RAYMOND E. SHAW.

Correction In Letters Patent No. 1,166,860.

Cl. 125–6

It is hereby certified that in Letters Patent No. 1,166,860, granted January 4, 1916, upon the application of Raymond E. Shaw, of Boston, Massachusetts, for an improvement in "Stone-Dressing Machines," an error appears in the printed specification requiring correction as follows: Page 2, line 71, claim 1, strike out the word "and;" and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 1st day of February, A. D., 1916.

[SEAL.]

J. T. NEWTON,

Acting Commissioner of Patents.