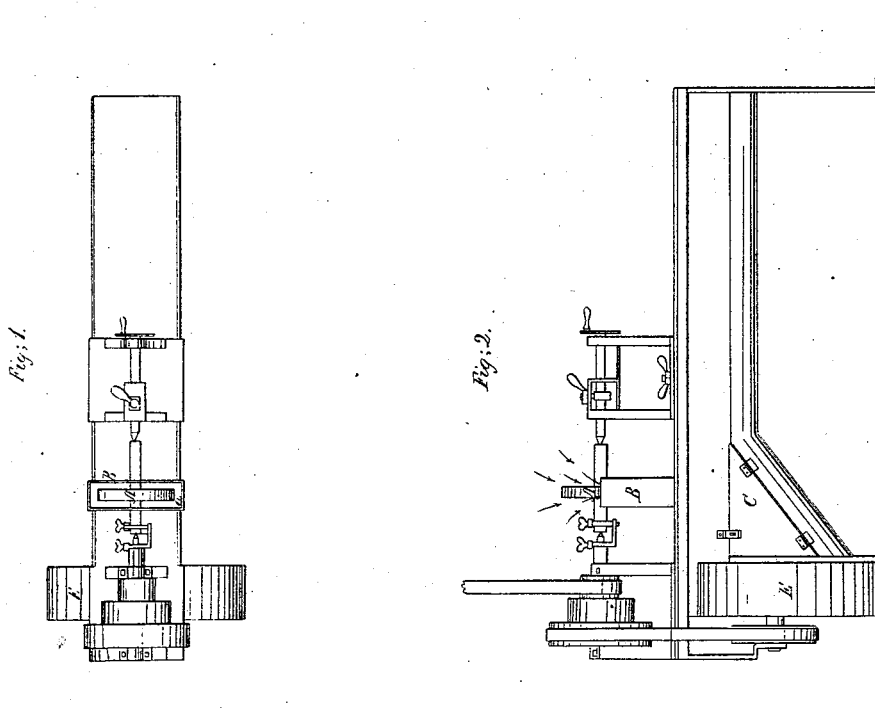
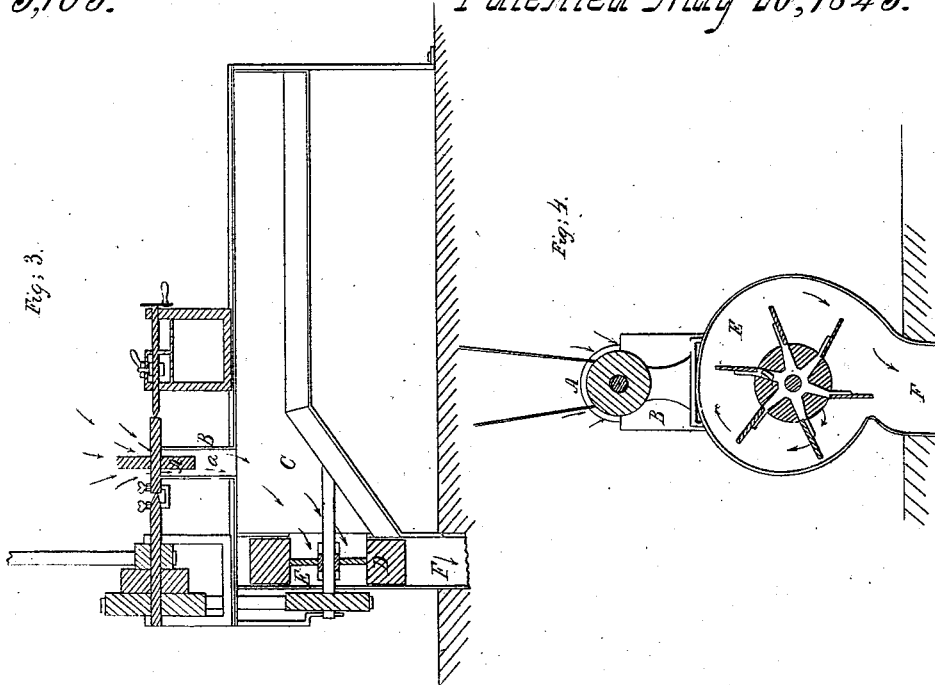


T. Fairbanks,

Discharging Dust from Grinding Wheels.

Nº 3,105.

Patented May 26, 1843.



UNITED STATES PATENT OFFICE.

THADDEUS FAIRBANKS, OF ST. JOHNSBURY, VERMONT.

METHOD OF REMOVING OR DISCHARGING THE DUST, METALLIC PARTICLES, &c.,
PRODUCED DURING THE OPERATION OF GRINDING.

Specification of Letters Patent No. 3,105, dated May 26, 1843.

To all whom it may concern:

Be it known that I, THADDEUS FAIRBANKS, of St. Johnsbury, in the county of Caledonia and State of Vermont, have invented a certain new or improved method of removing or discharging the dust or mineral or metallic particles produced during the operation of grinding cutlery or other articles, or, in other words, of preventing to a great extent if not entirely the well-known deleterious effects of said dust upon the lungs and health of the operatives who are usually employed in occupations of grinding or polishing metals, and that the following specification, taken in connection with the accompanying drawings, constitutes a full and exact description of the said invention.

Many methods have been devised for preventing the noxious effects, on workmen, of the fine dust or metallic particles produced during the process of grinding or polishing cutlery and other articles. It is well known that continued inhalation of these particles by operatives, generally produces affections of the lungs or other diseases. Masks of fine gauze or wire work, magnets and various other means have been resorted to, but all have failed to produce the ends desired. That which is most generally employed consists in forcing a blast of air through a pipe, or a series of pipes, and against the revolving stone or wheel, or into a case or box partially surrounding the wheel; the case having a pipe or air duct extending therefrom, through which the metallic particles or dust are propelled by the action of the blast of air. The description of an apparatus of this kind may be found by reference to the Dictionary of Arts, Manufactures and Mines, by Andrew Ure, M. D., second edition, pages 881 and 882. My invention, which is an improvement thereon, is represented in the drawings, making part of my specification, of which—

Figure 1, exhibits a top view of a grinding wheel and the mechanism connected therewith for effecting the object hereinbefore mentioned. Fig. 2 is a side elevation thereof. Fig. 3, is a vertical and longitudinal section of the same, and Fig. 4, is a transverse vertical section taken through the blowing apparatus.

A, Figs. 1, 2, 3, 4, denotes the grinding wheel mounted upon a horizontal arbor and revolved in the usual manner. A casing or

box B extends about the lower half of this wheel, or other convenient and proper part of the same; the sides of this casing being arranged at a suitable distance from the sides and periphery of the wheel, in order to form an air passage A, which opens at its top, directly into the atmosphere surrounding the wheel, and communicates at its lower end with the exhaust pipe or conduit C of a blowing apparatus which is represented in the drawings, by a wheel D, revolving within a case E, the said blowing apparatus being constructed in all respects like those in ordinary use. When the wheel of the blower is put in revolution it causes the atmospheric air, in contact with or around the grinding wheel, to rush or be drawn with great rapidity through the air passage A, and from thence through the conduit C, into the interior of the case E, from whence it is expelled through the exit opening F or pipe thereof. The current of air thus created in the vicinity of the grinding wheel flows freely in all directions toward the aperture of the casing B, and, rushing into the same, carries off with it whatever abraded particles or dust may be produced, and so completely is the process of removal of the same effected, that the difficulties experienced by the grinders are almost entirely if not completely obviated. When a series of jets of air are blown against a wheel, they seldom remove other than those particles with which they are brought into immediate contact, and do not prevent more or less particles from being thrown beyond their sphere of action, which, floating in the atmosphere, are more or less drawn into the lungs and air passages of the grinder. By my improvement all the air in the vicinity of the wheel is put in motion toward the same, and whatever particles of metal or dust are evolved, are completely or so perfectly drawn away by the large current thus formed, that no deleterious consequences can result from them.

I do not claim removing the dust or metallic particles (produced during the operation of grinding), by means of a current of air forced through the exit pipe of a blast apparatus and against the exterior surface of the grinding wheel, or into a casing or box partially surrounding the wheel, but

That which I do claim—

Consists in my improved arrangement of

the blast apparatus with respect to the grinding wheel, that is to say, in connecting the exhaust pipe or conduit of a blowing apparatus directly with the box or case under, 5 or which partially surrounds the revolving grinding wheel, so as to cause the external atmosphere around or in the vicinity of the wheel to be drawn in contact with the wheel or between it and the sides of the case which 10 partially encompasses it, and from thence through the exhaust pipe or conduit into the blowing apparatus, from which latter the said air, together with such metallic particles or dust accompanying it, are dis-

charged through the exit pipe of the said 15 blowing apparatus; the whole being arranged and operating substantially in the manner and for the objects herein above specified.

In testimony that the foregoing is a true 20 description of my said invention I have hereto set my signature this eleventh day of March in the year eighteen hundred and forty three.

THADDEUS FAIRBANKS.

Witnesses:

R. H. EDDY,
EZRA LINCOLN, Jr.