

(No Model.)

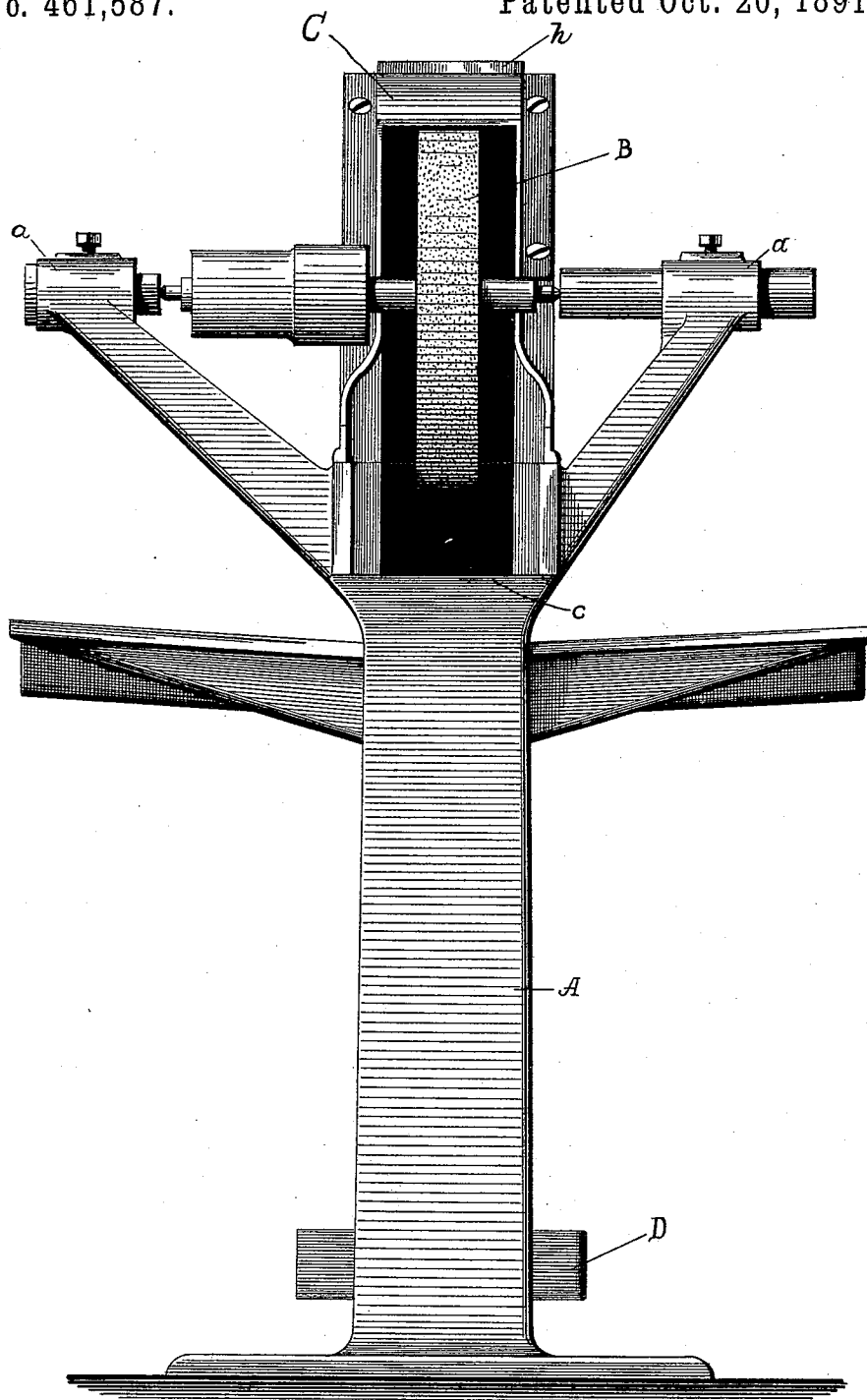
3 Sheets—Sheet 1.

C. H. NORTON.

STAND FOR GRINDING OR POLISHING WHEELS.

No. 461,587.

Patented Oct. 20, 1891.



Witnesses

S. J. Murphy.
James A. Williams

Fig. 1.

Inventor

Charles H. Norton,
by Wilmarth H. Thurston,
Attorney.

(No Model.)

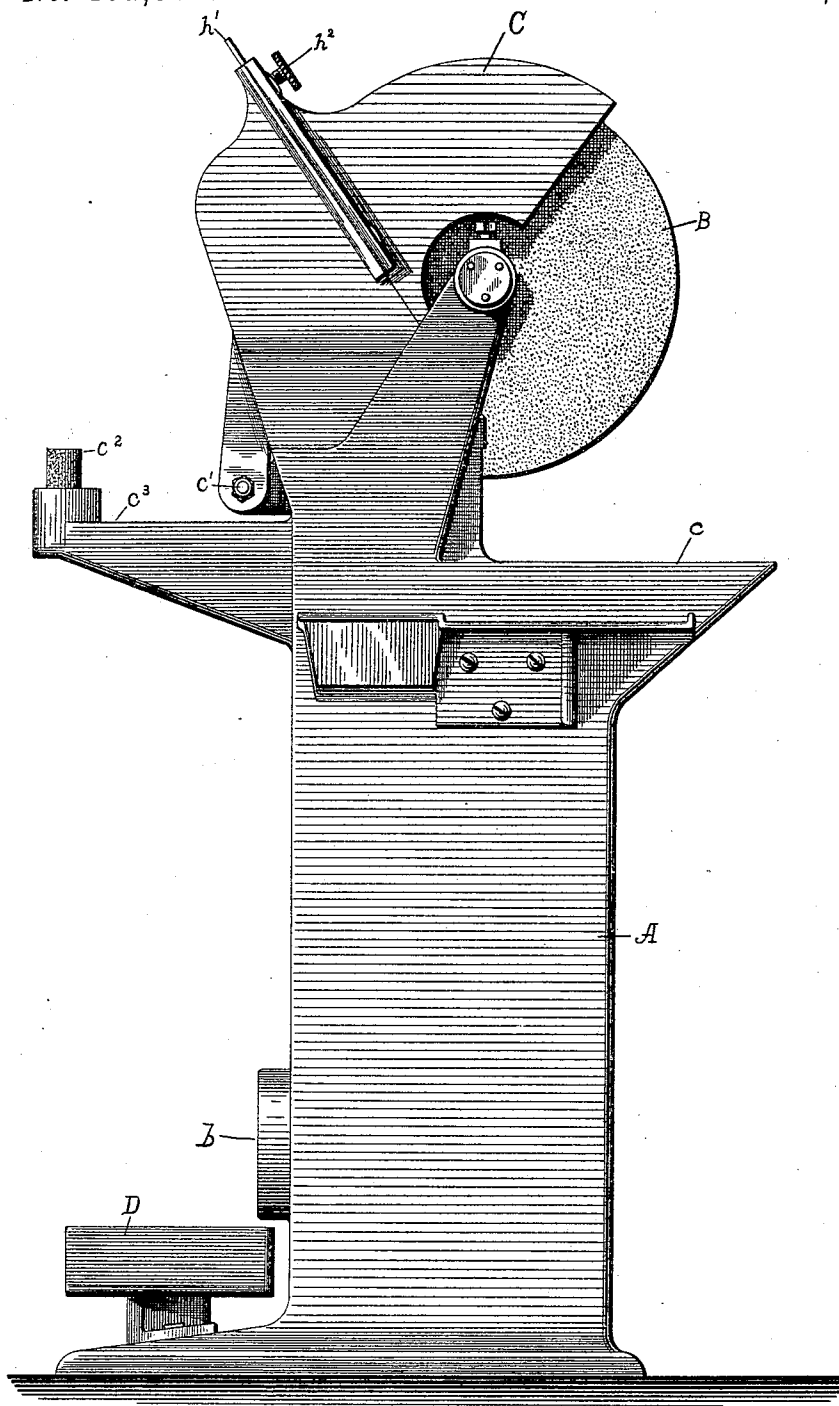
3 Sheets—Sheet 2.

C. H. NORTON.

STAND FOR GRINDING OR POLISHING WHEELS.

No. 461,587.

Patented Oct. 20, 1891.



Witnesses

S. J. Murphy.
James A. Williams

Fig. 2.

Inventor

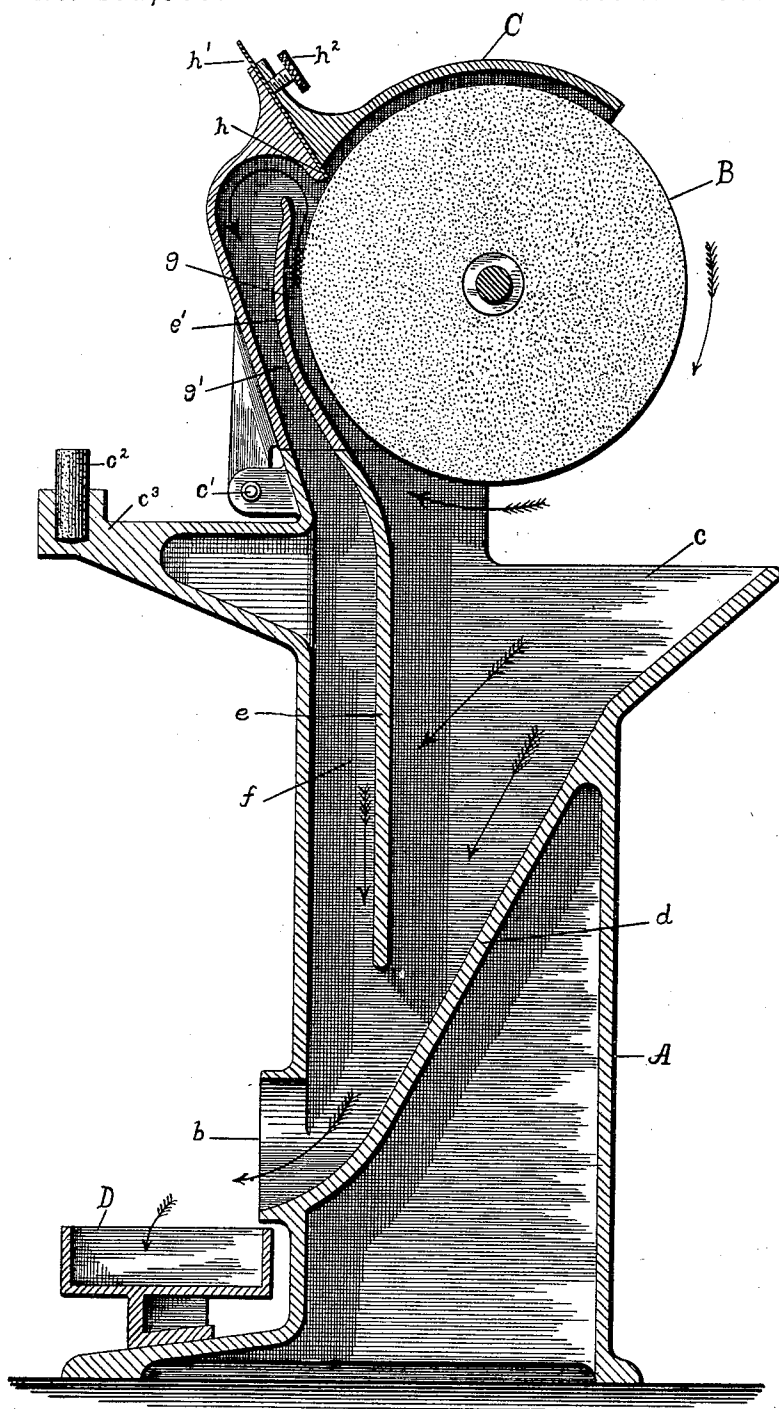
Charles H. Norton
by Wilmarth H. Thurston,
Attorney.

C. H. NORTON.

STAND FOR GRINDING OR POLISHING WHEELS.

No. 461,587.

Patented Oct. 20, 1891.



Witnesses

A. Murphy.
James A. Williams

Fig. 3.

Inventor

Charles H. Norton,
by Wilmarth H. Thurston,
Attorney.

UNITED STATES PATENT OFFICE.

CHARLES H. NORTON, OF DETROIT, MICHIGAN, ASSIGNOR TO THE BROWN & SHARPE MANUFACTURING COMPANY, OF PROVIDENCE, RHODE ISLAND.

STAND FOR GRINDING OR POLISHING WHEELS.

SPECIFICATION forming part of Letters Patent No. 461,587, dated October 20, 1891.

Application filed April 16, 1891. Serial No. 389,247. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. NORTON, formerly of the city and county of Providence, in the State of Rhode Island, but now residing at Detroit, Michigan, have invented certain new and useful Improvements in Stands for Grinding or Polishing Wheels; and I do hereby declare the following specification, taken in connection with the accompanying drawings, forming a part of the same, to be a full, clear, and exact description thereof.

My invention relates to the construction of stands or supports for grinding or polishing wheels, and the invention has for its object to collect and carry away as large a proportion as possible of the dust, grit, particles of metal, &c., thrown off during the operation of grinding or polishing and to prevent their being thrown into the face of the operator. For the accomplishment of this object the invention consists in such a construction and arrangement of the parts composing the stand or support as will enable the current or draft created by the revolution of the grinding-wheel to be utilized for collecting and directing the particles of matter and discharging them from the machine near the bottom of the stand, as will be hereinafter described.

Referring to the drawings, Figure 1 is a front view of a grinding-machine provided with my improved stand or support. Fig. 2 is a side view thereof, and Fig. 3 is a central vertical section showing the interior construction and arrangement.

A represents the stand or support, and B a grinding-wheel mounted in bearings *a a* therein in the usual manner. The stand or support A is of box form, and is substantially closed on all sides, except just below the grinding-wheel and at the discharge-orifice *b* near the bottom of the stand. The stand A is provided with a funnel-shaped mouth *c* just below the front of the grinding-wheel. An angular partition *d* extends from the bottom of the funnel-shaped mouth *c* diagonally across the stand to the bottom of the discharge-orifice *b*, as shown in Fig. 3. The width of this partition *d* corresponds to the width of the stand, said partition extending from one side wall of the stand to the other and

dividing the stand into two compartments. Said partition is preferably cast in one piece with the stand proper; but if made as a separate piece it is to be so united to the walls of the stand as to form practically air-tight joints therewith. Arranged within the stand A, and likewise extending across from one side wall thereof to the other and preferably cast integral with the stand, is another partition *e*, which said partition is substantially vertical for the greater part of its length and bent or curved somewhat at its upper end, as shown in Fig. 3. Between this partition *e* and the wall of the stand a passage-way *f* is formed, as shown.

C is a hood or bonnet arranged to partially inclose or cover the grinding-wheel B, said bonnet being pivoted to the stand A, as at *c'*, so that it may be tipped back to uncover the grinding-wheel, said bonnet, when tipped back, resting against the buffer *c''* in the bracket *c'''*, projecting from the stand. Arranged within the bonnet C, and preferably cast integral therewith, is a partition *e'*, so located as to form, when the bonnet is in position over the grinding-wheel, practically a continuation of the partition *e* in the stand A, as shown in Fig. 3 of the drawings. This partition *e'* is formed for the greater portion of its length in substantially the arc of a circle and concentric with the periphery of the grinding-wheel, the upper end of said partition being preferably curved or bent back somewhat, as shown in said Fig. 3. This partition *e'* serves to form two passage-ways, one *g* between said partition and the periphery of the grinding-wheel and the other *g'* between said partition and the outer wall of the bonnet C. The bonnet C is also provided with an interior projection *h*, projecting toward the periphery of the wheel and extending as close thereto as possible, and so as to practically cut off or prevent the passage of a current of air between said projection and the periphery of the grinding-wheel, and consequently prevent the particles of matter from following around with the wheel beyond that point. In order to permit the use of grinding-wheels of different diameters, and also to provide for the wearing away of the wheel in use, the hood C is also provided with an

adjustable plate h' , substantially in line with the projection h and arranged to form when adjusted practically a continuation of said projection, as shown in Fig. 3. This plate h' may be adjusted so that its inner edge will come close to the periphery of the grinding-wheel whatever the diameter of the latter, and so as to at all times practically cut off or prevent the passage of a current of air beyond said plate, and likewise arrest the particles of matter and prevent their following around with the wheel beyond that point. The clamp-screw h^2 serves to hold the plate h' in any adjusted position.

D is a receptacle placed to receive the particles of matter as they are discharged from the orifice b .

The arrangement of the parts above described to secure the best results should be as follows: The partition e' in the bonnet C should be so arranged that the area of the passage-way g' will be greater than the area of the passage-way g , and should be arranged sufficiently near to the periphery of the grinding-wheel to somewhat confine the air in the passage-way g and to create a sufficient upward current or draft therein under the revolution of the grinding-wheel to raise the particles of matter up to the escape-opening between the upper end of said partition e' and the projection h or the plate h' , and the arrangement of these parts should also, preferably, be such that the distance between the upper end of the partition e' and the projection h or the plate h' shall be greater than the distance between the periphery of the grinding-wheel and the concentric portion of the partition e' . The projection h and the plate h' should also preferably be so located with relation to the line of escape of the particles from the passage-way g that the particles in escaping will impinge against said projection h or projection h and plate h' , and be thereby deflected and directed over the top of said partition e' , as shown by the curved arrow, Fig. 3. The partition e in the stand A should be located a sufficient distance from the wall of the stand to afford a ready escape through the passage-way f for the particles carried over the top of the partition e' , and the lower end of said partition e should extend sufficiently downward to prevent currents of air from the wheel from being thrown more or less horizontally, so as to cut off or prevent the downward discharge of the particles through the passage-way f , and preferably so that the current of air passing from the grinding-wheel down through the funnel-shaped mouth c will be directed toward the discharge-orifice b , and will serve, as it passes by the lower end of said partition e , to create a downward draft in the passage-ways f and g' .

The operation of the parts when so arranged during the process of grinding or polishing is as follows: A portion of the particles of grit, metal, &c., will be thrown from the wheel at a tangent into the funnel-shaped mouth c ,

and forced by the current of air created by the revolution of the wheel in the general direction of the inclined partition d and toward and out of the discharge-orifice b . The particles not so thrown off will be carried around into and through the passage-way g , the air being confined, and the current consequently increased in this narrow passage-way until such current and the particles contained therein come in contact with the projection h on the hood, or with said projection h and the plate h' when said plate is used, when they will be thereby arrested and prevented from following the wheel beyond said projection or plate and be deflected and directed over the top of the partition e' , where, coming into a space of greater area, they will be acted upon by the force of gravity and will tend to fall down through the passage-ways g' and f , their passage through said channel being assisted and facilitated by the downward draft created in said passage-ways by the currents of air passing across the lower end of the passage-way f , as above explained. The particles of matter coming down the passage-ways g' and f will thus be likewise carried down to and discharged through the orifice b . The particles discharged from the orifice b may be deposited in a suitable receptacle, as D , placed to receive them, said receptacle having a suitable escape for the current of air, or they may be deposited directly upon the floor. The draft created by the revolution of the grinding-wheel will be sufficient, with the parts constructed and arranged as shown and described, to carry the particles of matter, both those which are carried directly down in the direction of the inclined partition d to the discharge-orifice and those which are carried around and up over the top of the partition e' , out through the discharge-orifice and deposit them outside of the machine. Thus the current or draft created by the revolution of the wheel is utilized not only to collect the particles, but to discharge them out of the machine. If desired, a blower or suction-fan may be connected with the discharge-orifice b , to carry the particles of matter discharged from the machine to any desired distance away from the machine.

I do not wish to limit myself to the precise construction or arrangement of parts shown and described and by which the best results may be secured, as it is evident that these may be varied without departing from the gist of my invention, which consists in utilizing the current or draft created by the revolution of the grinding-wheel to collect and discharge the particles of matter and prevent their being thrown into the face of the operator.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A grinding-machine stand having enclosed sides and having an opening into the interior of said stand just below the grinding-wheel, and a discharge-orifice at the opposite

side and near the bottom of said stand and provided with interior partitions, substantially as described, for directing the currents of air created by the revolution of the grinding-wheel, whereby the particles of matter
5 thrown off during the operation of grinding will be by means of said currents of air collected and discharged from the machine, substantially as set forth.

10 2. A grinding-machine stand having inclosed sides and having an opening just below the grinding-wheel, and a discharge-orifice near the bottom of said stand and provided with an inclined partition extending from
15 said opening to said discharge-orifice, substantially as described.

3. A grinding-machine stand having inclosed sides and having an opening just below the grinding-wheel, and a discharge-orifice
20 near the bottom of said stand and provided with an inclined partition extending from said opening to said discharge-orifice, and a second partition arranged substantially vertical and at a suitable distance from the rear
25 wall of said stand, said last-named partition terminating at or above said discharge-orifice, substantially as described.

4. A grinding-machine stand having inclosed sides and provided with a bonnet or
30 hood partially inclosing the grinding-wheel,

said stand having an opening just below the grinding-wheel, and a discharge-orifice near the bottom of said stand and provided with an inclined partition extending from said opening to said discharge-orifice, and a second
35 partition arranged substantially vertical, and said bonnet or hood being provided with a projection extending close to the periphery of the grinding-wheel, and also with a partition arranged substantially concentric with the
40 periphery of the grinding-wheel, said partition forming when the hood is in position practically a continuation of the vertical partition in the stand proper, substantially as described.

5. The combination, with a grinding-machine stand having inclosed sides and having
45 an opening just below the grinding-wheel, and a discharge-orifice near the bottom of said stand and provided with interior partitions, substantially as described, of a bonnet or hood
50 provided with a partition arranged substantially concentric with the periphery of the grinding-wheel and an adjustable plate mounted in said hood and capable of adjustment toward and from the periphery of the
55 grinding-wheel, substantially as described.

CHARLES H. NORTON.

Witnesses:

HENRY B. LOTHROP,
GERTRUDE H. ANDERSON.