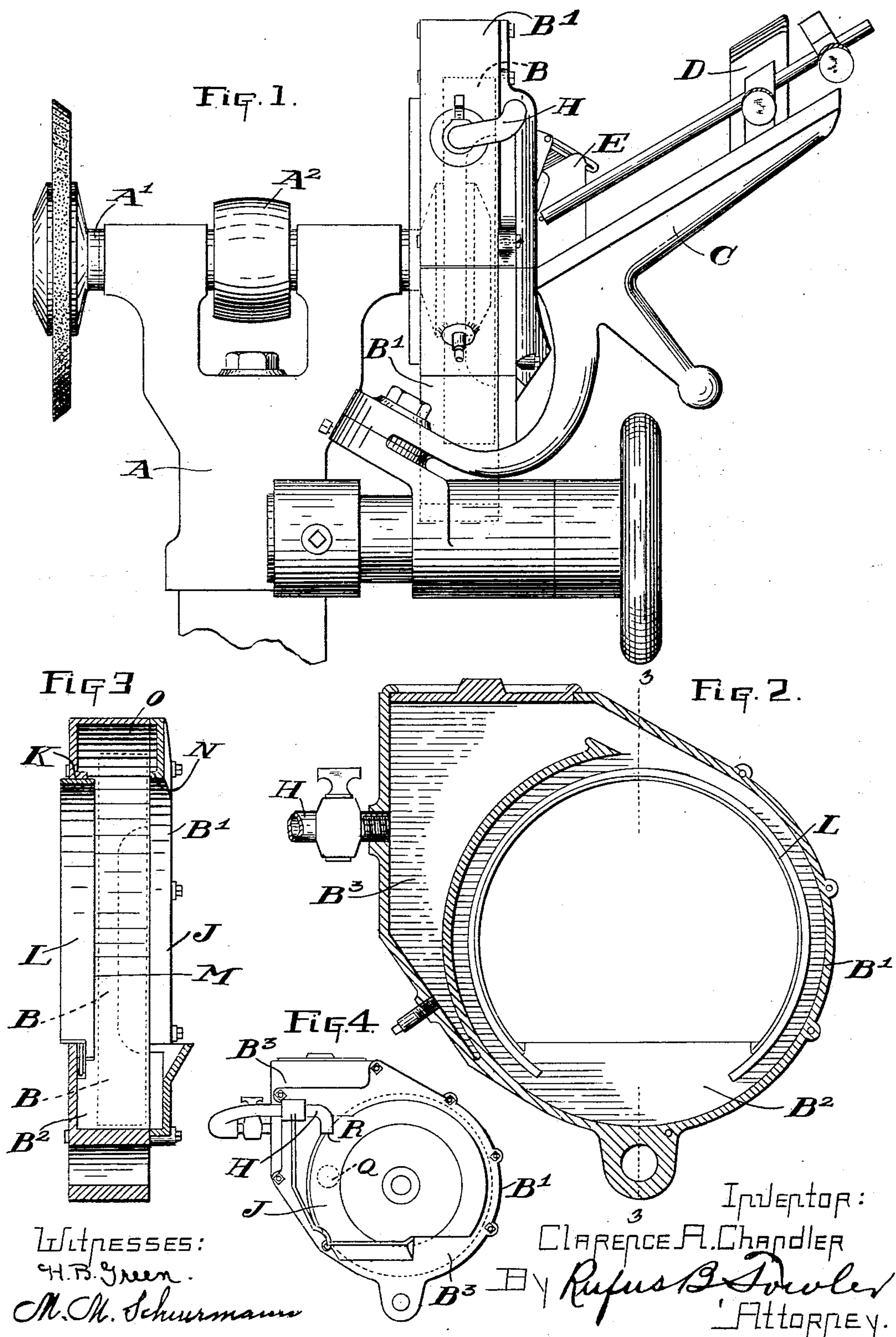


No. 750,809.

PATENTED FEB. 2, 1904.

C. A. CHANDLER.
MACHINE FOR GRINDING TWIST DRILLS.
APPLICATION FILED JULY 5, 1902.

NO MODEL.



UNITED STATES PATENT OFFICE.

CLARENCE A. CHANDLER, OF WORCESTER, MASSACHUSETTS.

MACHINE FOR GRINDING TWIST-DRILLS.

SPECIFICATION forming part of Letters Patent No. 750,809, dated February 2, 1904.

Original application filed June 3, 1901, Serial No. 62,868. Divided and this application filed July 5, 1902. Serial No. 114,400.
(No model.)

To all whom it may concern:

Be it known that I, CLARENCE A. CHANDLER, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in Machines for Grinding Twist-Drills, of which the following is a specification, accompanied by drawings forming a part of the same, constituting an application which is a division of my pending application, Serial No. 62,868, for a machine for grinding twist-drills, filed by me June 3, 1901.

In the accompanying drawings, Figure 1 represents a front elevation of a twist-drill-grinding machine embodying my invention, a portion of the supporting-post having been removed. Fig. 2 is a sectional view of the hood inclosing the grinding-wheel and containing the water-reservoir, the section being taken on line 2, Fig. 1. Fig. 3 is a sectional view of the hood on line 3 3, Fig. 2; and Fig. 4 is a diagrammatic view showing the relative position of the grinding-wheel, the position of the end of the drill being ground, and the position of the water-pipe by which water is supplied to the drill.

Similar reference-letters refer to similar parts in the different views.

My present invention relates to a machine for grinding twist-drills and employing a wet grinding-wheel, having means for the automatic application of water to the grinding-surface of the wheel and for the continued use of the water by its return to the reservoir.

Referring to the accompanying drawings, A denotes the upper part of the supporting-post, upon which the operating parts of the machine are mounted.

A' is a spindle adjusted in the post A and carrying a belt-pulley A², by which the spindle is rotated. One end of the spindle A' carries a grinding-wheel B, (indicated by broken lines in Fig. 1,) to the side of which the point of the drill to be ground is applied. The grinding-wheel B is inclosed within a hood B', the lower part of which forms a trough B², in which the lower edge of the grinding-wheel runs. At one side of the hood is a water-

reservoir B³ for holding a supply of water, which is applied to the point of the drill and allowed to flow from the drill to the surface of the grinding-wheel, the surplus water being collected in the trough B², from which it is raised by the rotation of the wheel and carried to the reservoir B³, as hereinafter described.

C denotes the drill-holder, provided with V-shaped supports D and E, in which a twist-drill is supported in the usual manner in machines of this class, with its cutting end the lowest.

The hood B', inclosing the grinding-wheel, is provided with a chamber B³, forming a water-reservoir, from which water is conducted by a pipe H to a point directly over the end of the drill, as shown in Fig. 4. The water as it strikes the end of the drill flows off against the rapidly-revolving wheel and is carried down into the trough B² at the bottom of the hood, so that the lower edge of the grinding-wheel B runs immersed in water which collects in the trough B². The rapid revolution of the wheel B throws the water by centrifugal force in tangential lines into the reservoir B³, from which it flows, through the pipe H, upon the drill, thereby causing a constant circulation of the water from the trough B² to the reservoir G and from the reservoir G, through the pipe H, back to the trough. The hood B' is provided with a circular opening J on its front side to allow the drill to be presented to the grinding-wheel, and the hood has a similar circular opening K on its rear side, in which is fitted an elastic metal band L with its inner edge M bearing against the rear side of the grinding-wheel. As the grinding-wheel is reduced in thickness by wear it is moved forward, relatively to the hood, and the metal band L is pushed into contact with the rear side of the wheel in order to close the space between the revolving wheel and its inclosing hood and prevent water from being thrown outside the hood by the revolution of the wheel. The front side of the hood B' is provided with a flange or lip N, between which and the edge of the metal band L the grinding-wheel revolves, forming an annular cham-

ber O around the periphery of the grinding-wheel slightly wider than the thickness of the wheel and inclosing a space P upon each side of the periphery of the wheel, as shown in 5 Fig. 3, in which the water, which is thrown laterally from the periphery of the wheel, is collected and flows over the band L and lip N back into the trough B².

In the diagrammatic view, Fig. 4, the circle 10 Q represents the position of the end of the drill relatively to the grinding-wheel, and R denotes the mouth of the water-pipe H, from which water is supplied to the end of the drill, and as the end of the drill is the lowest the water 15 flows from the lips of the drill into contact with the surface of the grinding-wheels, thereby preventing the spattering of the water, which is liable to occur when the water is supplied directly to the wheel.

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

1. In a drill-grinder comprising a grinding-wheel and a drill-holder adapted to present a drill to the side of the grinding-wheel, a trough 25 inclosing the lower side of the periphery of the wheel, a water-reservoir at the edge of the wheel, means for conveying water from said reservoir to a drill in said drill-holder, a circular hood inclosing an annular space around 30 the periphery of the wheel, said space communicating with said trough and said reservoir, whereby the water raised by the wheel

from the water-trough is conducted into said reservoir, substantially as described.

2. The combination with the revolving 35 grinding-wheel of an annular hood enveloping said wheel and comprising a water-trough at the bottom of said hood, and a water-reservoir at the edge of said hood with an annular space around the periphery of the wheel communi- 40 cating with said trough and with said reservoir, said annular space being wider than the periphery of the wheel, substantially as described.

3. The combination with a revolving grind- 45 ing-wheel, of a hood inclosing the periphery of the wheel, a water-trough inclosing the lower edge of said wheel, a water-reservoir communicating with said hood and arranged to receive water therein from the wheel by 50 centrifugal force and a pipe for conducting water from the reservoir during the operation of grinding, substantially as described.

4. The combination with the revolving 55 grinding-wheel of an annular hood surrounding the periphery of the wheel, and an adjustable hand held in said hood bearing against the side of the wheel, substantially as described.

Dated this 1st day of July, 1902.

CLARENCE A. CHANDLER.

Witnesses:

RUFUS B. FOWLER,
M. M. SCHUERMANN.