

(No Model.)

2 Sheets—Sheet 1.

E. KING & H. GEISENHÖNER.
DUST COLLECTOR FOR GRINDING MACHINES.

No. 438,001.

Patented Oct. 7, 1890.

Fig. 2.

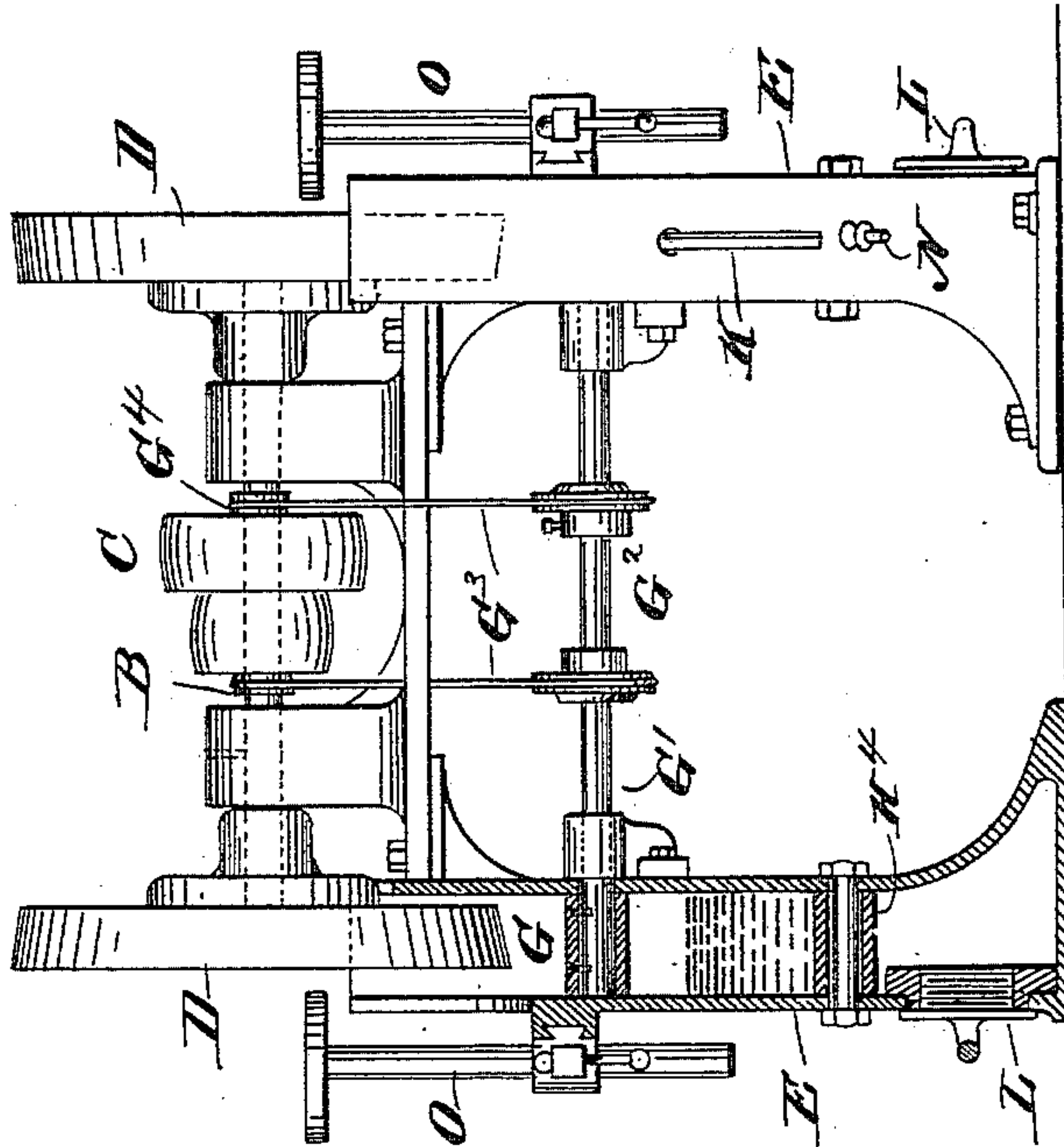


Fig. 1.

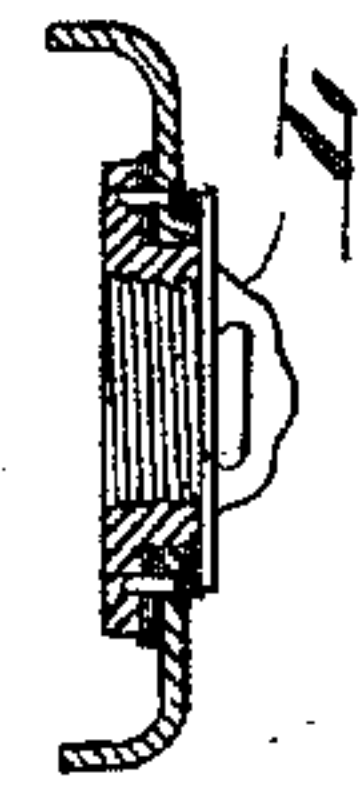
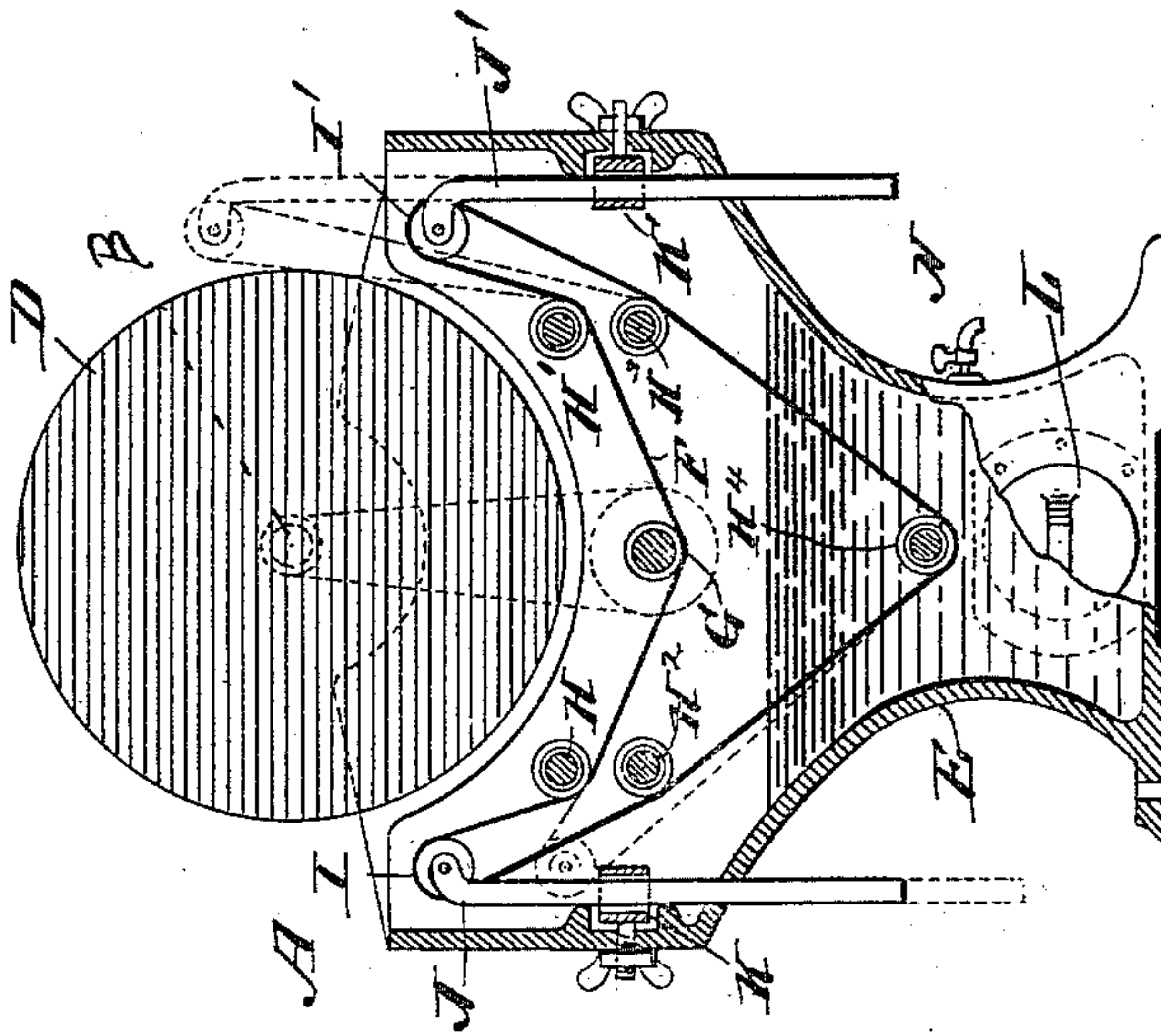


Fig. 3.

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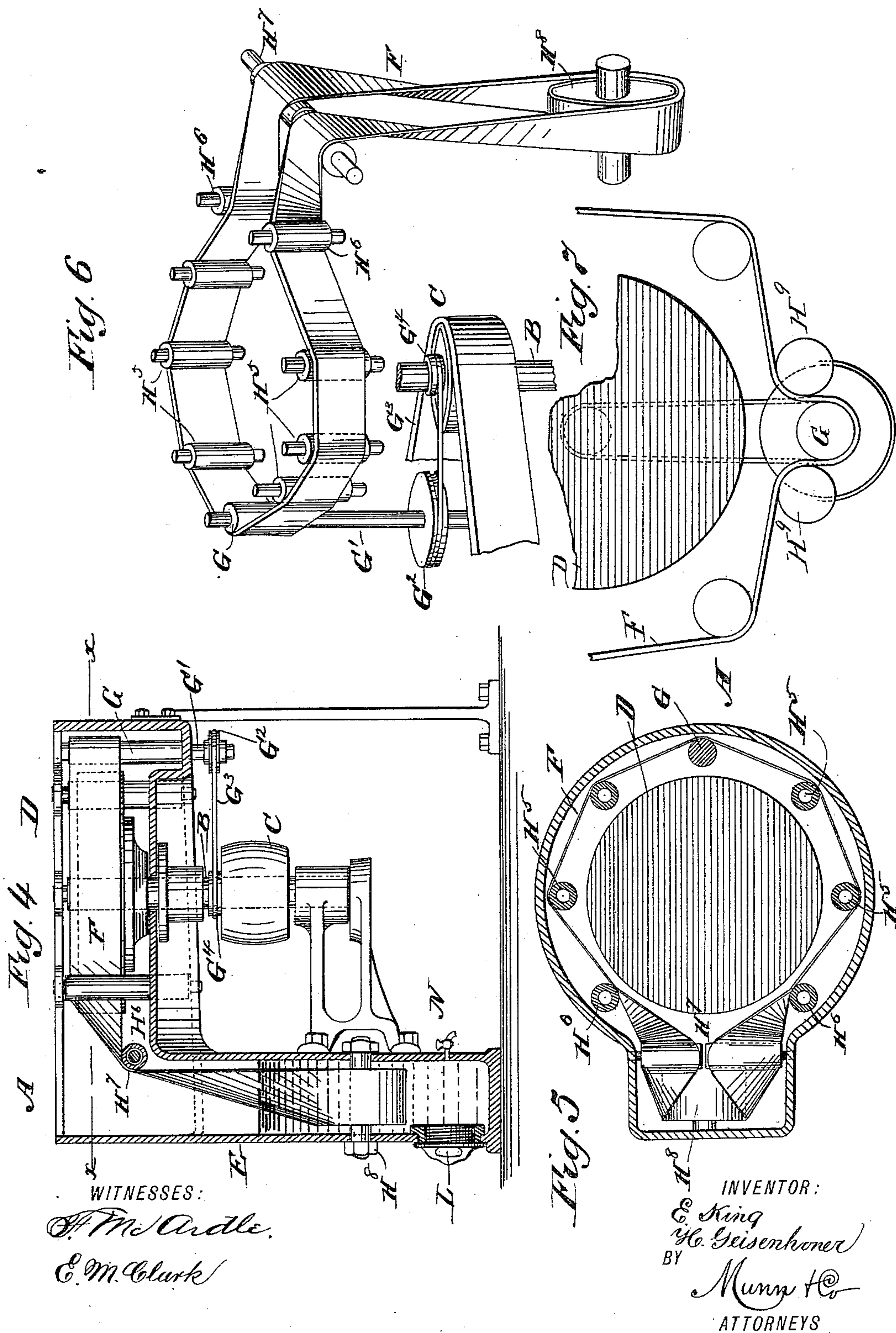
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UNITED STATES PATENT OFFICE.

EMANUEL KING AND HENRY GEISENHÖNER, OF SCHENECTADY, NEW YORK.

DUST-COLLECTOR FOR GRINDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 438,001, dated October 7, 1890.

Application filed July 24, 1890. Serial No. 359,816. (No model.)

To all whom it may concern:

Be it known that we, EMANUEL KING and HENRY GEISENHÖNER, of Schenectady, in the county of Schenectady and State of New York, have invented a new and Improved Dust-Collector for Grinding-Machines, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved dust-collector for grinding-machines which is simple and durable in construction, very effective in operation, and easily applicable to all kinds of grinding-wheels.

The invention consists of an endless belt adapted to travel through water and passing in close proximity to the grinding-wheel.

The invention also consists of certain parts and details, and combinations of the same, as will be hereinafter fully described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement as arranged for double vertical grinding-wheels. Fig. 2 is an end elevation of the same with parts in section. Fig. 3 is a sectional plan view of the man-hole and cover. Fig. 4 is a sectional side elevation of the improvement as arranged for a single horizontal grinding-wheel. Fig. 5 is a sectional plan view of the same on the line xx of Fig. 4. Fig. 6 is a perspective view of the belt arrangement, and Fig. 7 illustrates the application of extra friction-rollers to the belt and driving-pulley.

The double grinding-machine illustrated in Figs. 1 and 2 is provided with a suitably-constructed frame A, in the upper part of which is mounted to turn in suitable bearings the transversely-extending main driving-shaft B, carrying the usual pulley C, connected by belt with other machinery for imparting a rotary motion to the said main driving-shaft B. On the ends of the latter are secured the grinding-wheels D of any approved construction, and each extending with its lower part into a hollow leg E, formed on the main frame A and filled with water, the level of which is

below the bottom of the respective grinding-wheel D. An endless belt F travels in close proximity to the lower part of each grinding-wheel D, the said belt passing under a pulley G, arranged in the hollow leg E, and fastened on a shaft G', carrying on its outside a pulley G², over which passes a belt G³, also passing over a pulley G⁴, secured on the main driving-shaft B, so that when the latter is rotated a rotary motion is imparted by the said belt and pulleys to the shaft G' so as to rotate the pulley G, thereby imparting motion to the endless belt F. The latter also passes under two idlers H and H', arranged opposite each other and above and to the sides of the pulley G, as is plainly shown in Fig. 1, the said belt also passing over two pulleys I and I', journaled in rods J and J', respectively, fitted to slide in clamping-eyes K and K', respectively, held in the hollow leg E, and adapted to be adjusted from the outside, so as to permit of raising or lowering the rods J and J' and their respective pulleys I and I', as desired, then clamping the rods in place after the desired position is reached.

The lower ends of the rods J and J' extend through the hollow leg to the outside, so that the operator can conveniently take hold of the outer end of the rods to adjust the same when the clamping-eyes are loosened. The endless belt F, after leaving the pulleys I and I', passes over two idlers H² and H³, arranged opposite each other and below the idlers H and H', previously mentioned. The endless belt F passes under a pulley H⁴, located in the lower part of the leg E and within the water contained therein, so that the endless belt F when traveling passes through the water and deposits any impurities adhering to the belt in the said water.

In each leg is arranged a man-hole, covered by a suitable cover L, which when removed permits of cleaning the leg of the accumulated impurities. Each leg is also provided with a faucet N for conveniently drawing off the water previous to opening the man-holes for taking out the dust. On each leg is also arranged the vertically-adjusted tool-rest O, extending on the front face of the respective grinding-wheel D.

When the several parts are in the position

as illustrated in Figs. 1 and 2 and a rotary motion is imparted to the main driving-shaft B, then the shaft G is also rotated, so that the endless belt F is forced to travel. Dust and other particles passing over the grinding-wheel D collect on the endless belt F, which on account of passing through the water is sufficiently wet for the said particles to readily adhere to the belt to be finally washed off on the belt passing through the water to be deposited in the leg. When it is desired to bring the endless belt very close to the grinding-wheel, then one of the rods J or J' is moved into an uppermost position, while the other rod is in a lowermost position, as is illustrated in dotted lines in Fig. 1.

In the device shown in Figs. 4, 5, and 6, the grinding-wheel D is arranged horizontally on the vertical shaft B, rotated by suitable machinery and imparting a rotary motion to the shaft G', which in this case is arranged vertical and carries the vertical roller G, over which passes the belt F. The latter also passes over a series of rollers H⁵, arranged in a circle around the grinding-wheel D, as is plainly illustrated in Fig. 5. The endless belt also passes over the inside of two rollers H⁶, also located in the said circle, in which the other rollers H⁵ and G are arranged, and then the endless belt passes over horizontally-arranged rollers H⁷, so that the belt makes a quarter-turn to extend down vertically into the leg E of the main frame A. A large pulley H⁸ is arranged in the said leg E, and under it passes the endless belt, so that the latter is brought in contact with the water contained in the leg. The operation is the same as above described with reference to Figs. 1 and 2, the only difference being that the belt F is arranged partly vertical and travels around the grinding-wheel, and then into the water in the leg E.

If necessary, on large grinding-wheels the friction on the driving-pulley of the endless belt is increased by two additional guide-rollers H⁹, which secures a sufficient grip of the belt, and which are arranged as shown in Fig. 7.

The dust which is ground and collected in the water may be drawn off and re-used.

By the use of this device the workmen are saved from the deleterious effects of breathing the dust as with grinding-wheels as now arranged.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. In a dust-collector for grinding-machines, an endless belt adapted to travel through water and passing in close proximity to the grinding-wheel, substantially as shown and described.

2. In a dust-collector for grinding-machines,

the combination, with a main frame having a hollow leg adapted to contain water, of an endless belt adapted to travel through the water in the said leg and passing in close proximity to the grinding-wheel, substantially as shown and described.

3. In a dust-collector for grinding-machines, the combination, with a main frame having a hollow leg adapted to contain water, of an endless belt adapted to travel through the water in the said leg and passing in close proximity to the grinding-wheel, and means, substantially as described, for imparting a traveling motion to the said endless belt, substantially as shown and described.

4. In a dust-collector for grinding-machines, the combination, with a frame provided with a leg adapted to contain water, of a main shaft mounted to turn in the said frame and carrying the grinding-wheel, an endless belt adapted to travel through the water contained in the said leg and passing in close proximity to the grinding-wheel, and means, substantially as described, for imparting traveling motion to the said endless belt from the said main driving-shaft, substantially as shown and described.

5. In a dust-collector for grinding-machines, the combination, with a frame provided with a leg adapted to contain water, of a main shaft mounted to turn on the said frame and carrying the grinding-wheel, an endless belt adapted to travel through the water contained in the said leg and passing in close proximity to the grinding-wheel, and means, substantially as described, for imparting traveling motion to the said endless belt from the said main driving-shaft, and means for adjusting the said endless belt relative to the said grinding-wheel, as set forth.

6. In a dust-collector for grinding-machines, the combination, with a hollow leg adapted to contain water, of a series of rollers arranged in the said leg, one of the rollers being surrounded by the water contained in the leg, and an endless belt adapted to pass over and under the said rollers, substantially as shown and described.

7. In a dust-collector for grinding-machines, the combination, with a hollow leg adapted to contain water, of a series of rollers arranged in the said leg, one of the rollers being surrounded by the water contained in the leg, an endless belt adapted to pass over and under the said rollers, and means, substantially as shown and described, for adjusting two oppositely-arranged rollers, substantially as set forth.

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