No. 863,350. PATENTED AUG. 13, 1907.

H. BORN.

GRINDING MACHINE.

APPLICATION FILED DEC. 8, 1905.

2 SHEETS—SHEET 1.

Fig I

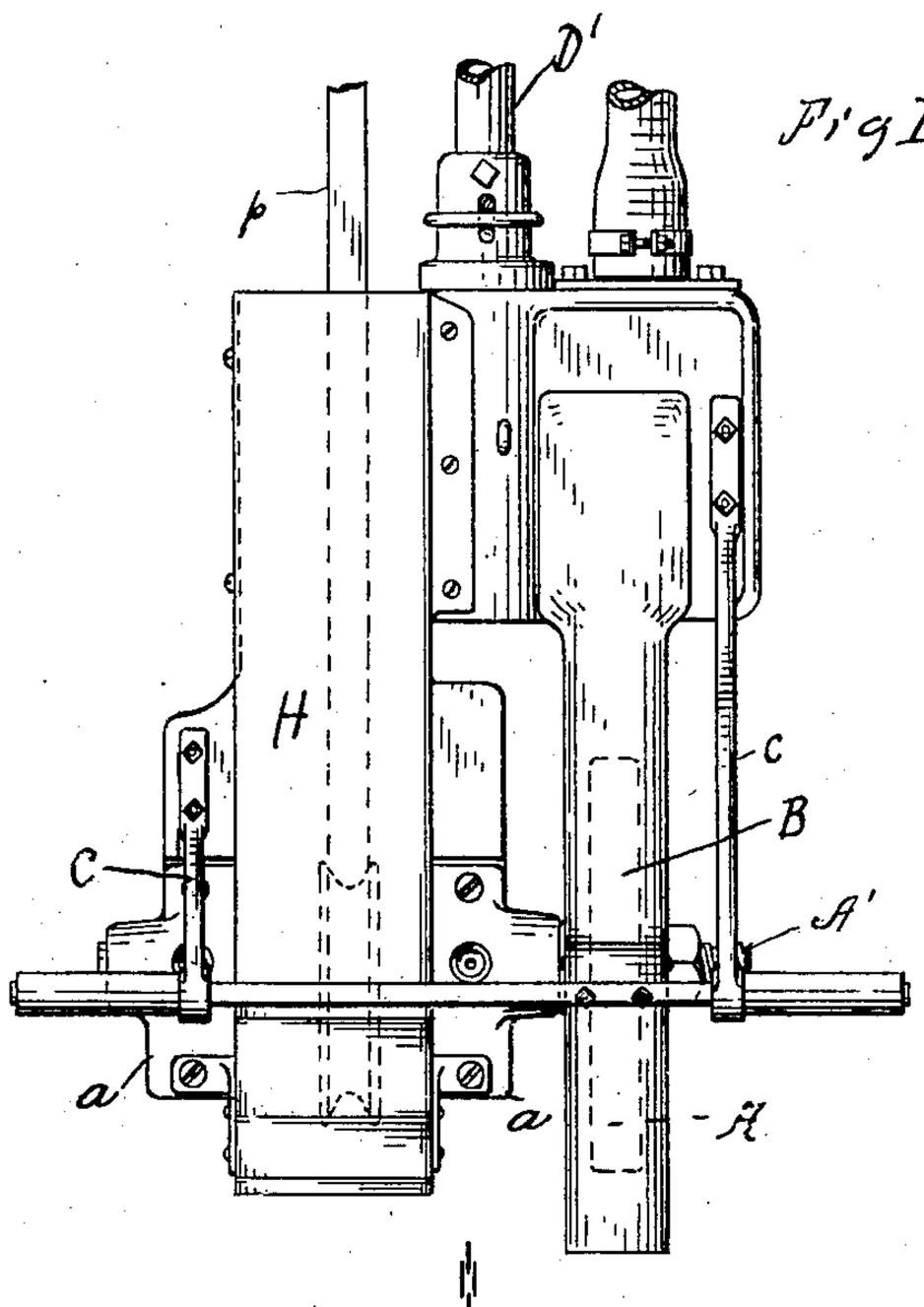

Fig II

Witnesses:-

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Inventor.

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his Attorney.

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2 SHEETS—SHEET 2.

Fig III.

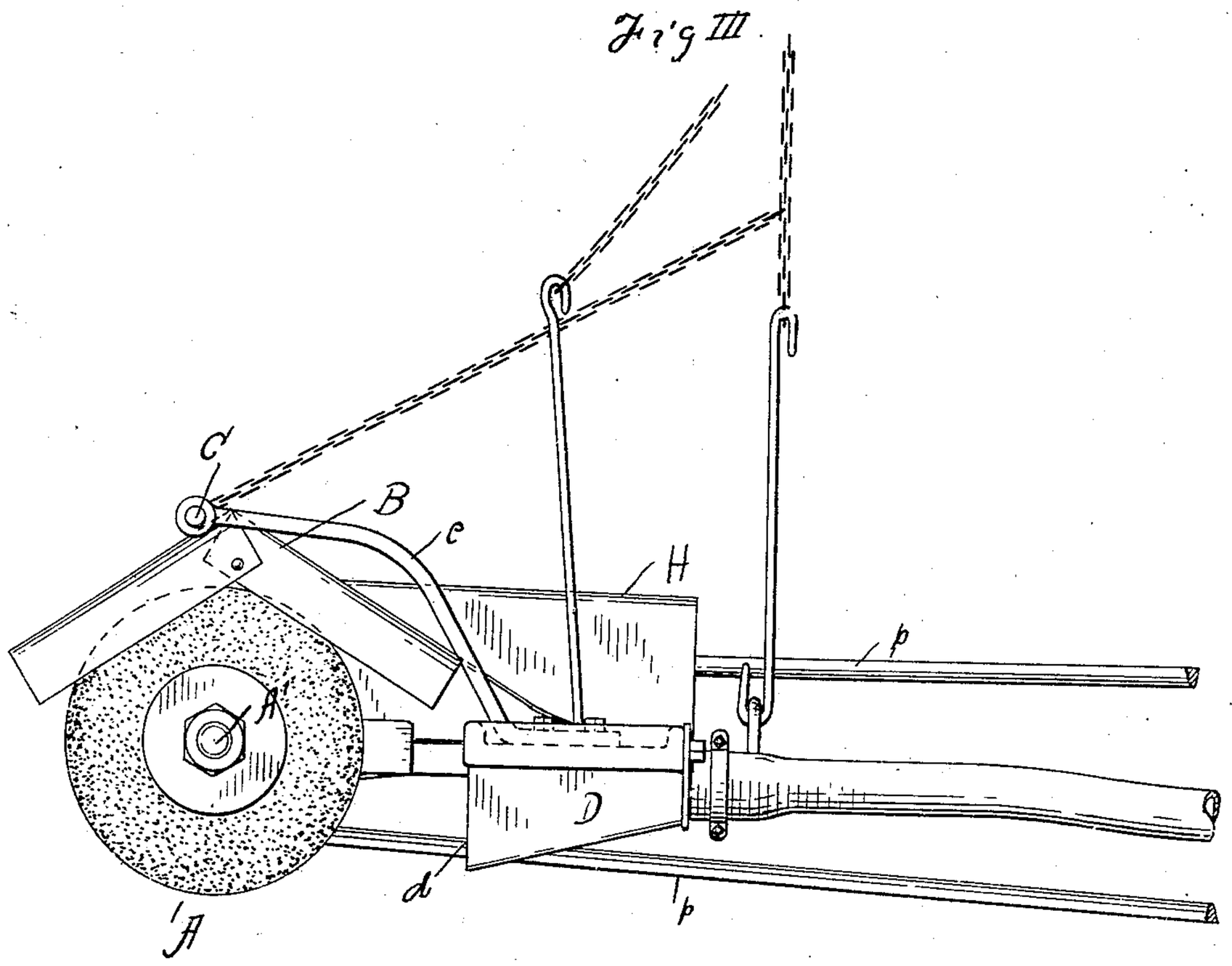
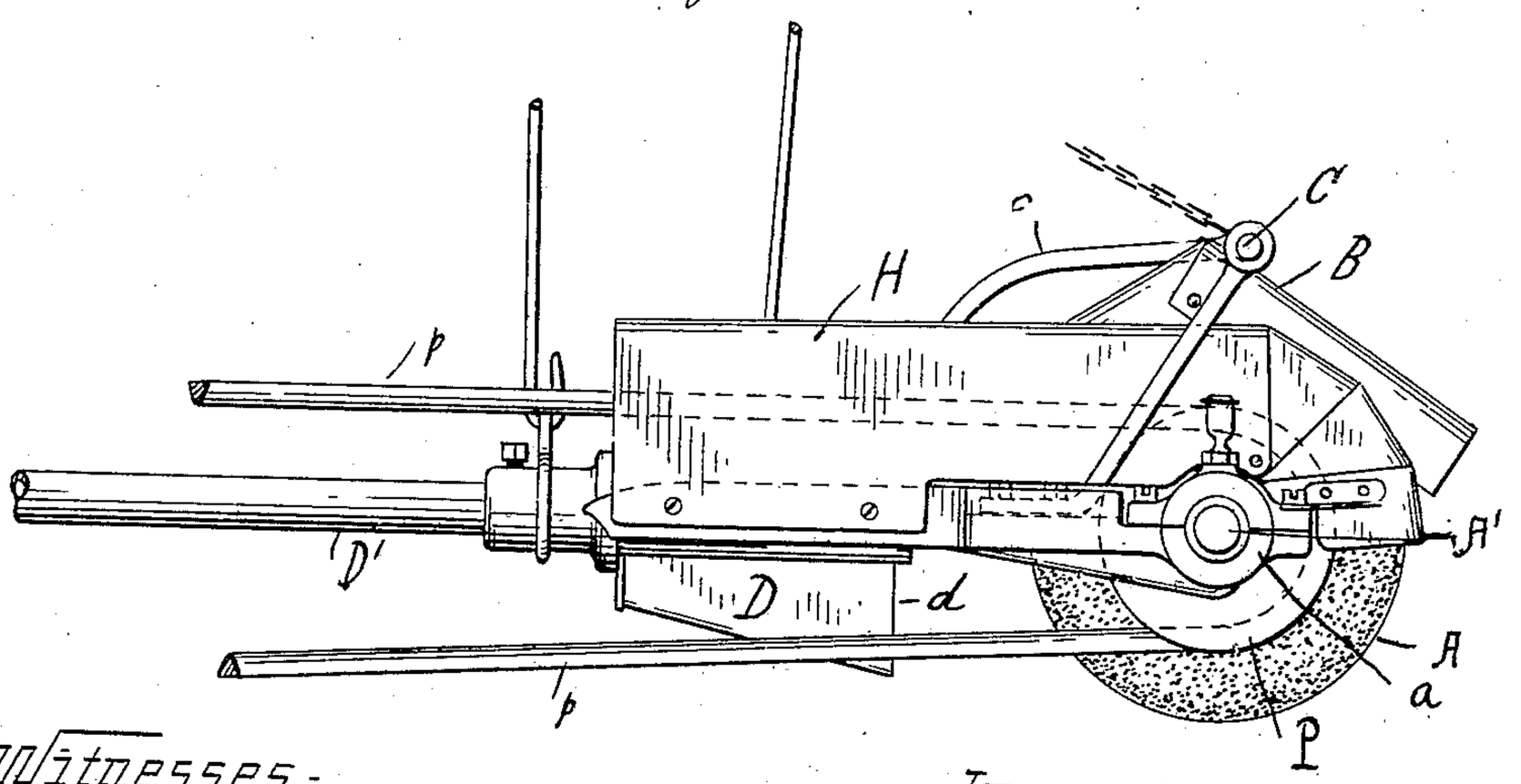


Fig IV



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UNITED STATES PATENT OFFICE.

HENRY BORN, OF LAKEWOOD TOWNSHIP, CUYAHOGA COUNTY, OHIO.

GRINDING-MACHINE.

No. 863,350. Specification of Letters Patent. Patented Aug. 13, 1907.

Application filed December 8, 1905. Serial No. 290,923.

To all whom it may concern:

Be it known that I, HENRY BORN, a citizen of the United States, residing at Lakewood township, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Grinding-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 pertains to make and use the same.

My invention relates to grinding, burnishing, and polishing machines, and has for its object, the simplicity of construction, whereby the wheel may be easily removed and replaced, one for the other, and for the purpose of truing the wheel.

Another object of my invention is the inclosing of the upper portion of the wheel, with a hood which is also removable and replaceable.

A still further object of my invention is to provide a dust remover, so located in relation to the wheel as to receive dust particles from the wheel and remove them to a suitable receptacle.

A still further object of this invention is to provide a belt shield which incloses the belt at or near the wheel, for the purpose of avoiding accidents due to the parting of the belt, this shield prevents the belt from injuring the operator in case the belt should part.

My invention refers more especially to that type of machine whereby the operator manipulates the machine in a backward and forward direction, and for this purpose I mount the wheel upon a swinging spindle, so constructed and connected in its relation to the hangers, (not shown,) that it may have any of the above motions and still retain the tension of the belt from the driving to the receiving wheel.

My invention consists in the arrangement and combination of the parts, all of which will be hereinafter fully set forth and claimed.

In the drawings Figure I is a view in top plan of a device embodying my invention, only showing so much of the apparatus as is contiguous to the grinding machine, and its belt. Fig. II is a plan view in front elevation, of a machine illustrating the supporting chains or cables for counterbalancing the front end of the machine. Fig. III is a view, in side elevation, illustrating the side of the machine upon which the polishing, grinding, or burnishing wheel is mounted, and showing it in connection with the counterbalancing chains, and dust collector on the opposite side of the belt-guard, and a portion of the belt. Fig. IV is a view, in side elevation, of the forepart of the machine, illustrating the side upon which the pulley of the wheel is mounted, also showing the belt guard and a portion of the belt; this figure also illustrates the suction device and the counterbalancing mechanism.

In the drawing A represents a wheel which may be an emery wheel, a polishing wheel, or a burnishing wheel. This wheel A is mounted upon a shaft A′, said shaft A′ being in turn mounted in bearings *a*, *a*, and the wheel A being mounted outside the bearings on the end of the shaft A′.

Located above the wheel A is a hood B formed so as to inclose and embody the upper portion of the wheel A. This hood B is mounted on the annular bar C which in turn is mounted on two arms *c*, *c*, the opposite ends of which are secured to the lugs, or flanges forming part of the framing which comprises the supporting means for the hood, and the suction dust remover, and at the rear end of the hood B, is an inlet *d* of the suction funnel D, which directs the dust or particles emanating through the grinding or polishing process, toward the mouth of the said suction device. This suction funnel D is connected to a conduit which conveys the dust and particles to a special place assigned to it.

The manner of mounting the suction funnel is illustrated more clearly in Fig. I and III, where it is shown as secured to the brace arms of the spindle D′, in any suitable manner, so as to move and revolve backward and forward on the spindle D′.

In order to transmit motion to the wheel A, the pulley P is employed which is preferably a grooved pulley, and adapted to receive a half round or V-shaped belt *p*. This pulley P is mounted on the same shaft A′ as is the wheel A, and thus transmits motion to the said wheel. But inasmuch as the speed at which the wheel must run is necessarily high, the strain upon the belt is great and hence this belt is apt to break at any time and in parting may be thrown with great force in the direction of the operator, and injure him severely, and in order to prevent this accident, we provide at this point, over the wheel P, a hood H, which entirely envelops the upper portion of the receiving wheel P and inclosing the belt *p* quite a distance to the rear of said wheel, thus if the belt should part, it would necessarily run into the hood and over the pulley P and drop to the ground without injury to the operator.

By providing the machine with the appliances as above set forth, the operator can pay more attention to his work, while at the same time he is enabled to accomplish more work owing to his confidence in the machine, through the elimination of the danger of the breakage of the belt.

I have shown and described certain features of construction as I consider them best adapted for the purpose, but I do not wish therefore to be limited to these features, as they may be modified without departing from my invention.

What I claim is.

1. The combination of a grinding wheel mounted upon a shaft, with means for imparting motion to the said wheel mounted upon said shaft; a hood inclosing the upper por-

tion of the grinding wheel, and a hood inclosing the driving wheel, both of said hoods extending respectively to the rear of the wheel and driving pulley, both of said hoods being mounted so as to move in unison with said wheel and driving pulley.

2. In, a grinding machine of the type set forth, the combination of a grinding wheel and its shaft, and a pulley mounted upon said shaft; a hood located above said driving pulley, and a hood located above said grinding wheel, both of said hoods being connected so as to move in unison with said grinding wheel with means connected to both hoods for counterbalancing them substantially as set forth.

Signed at Cleveland in the county of Cuyahoga and State of Ohio, this 26 day of May 1905.

HENRY BORN.

Witnesses:
E. B. DONNELLY,
W. E. DONNELLY.