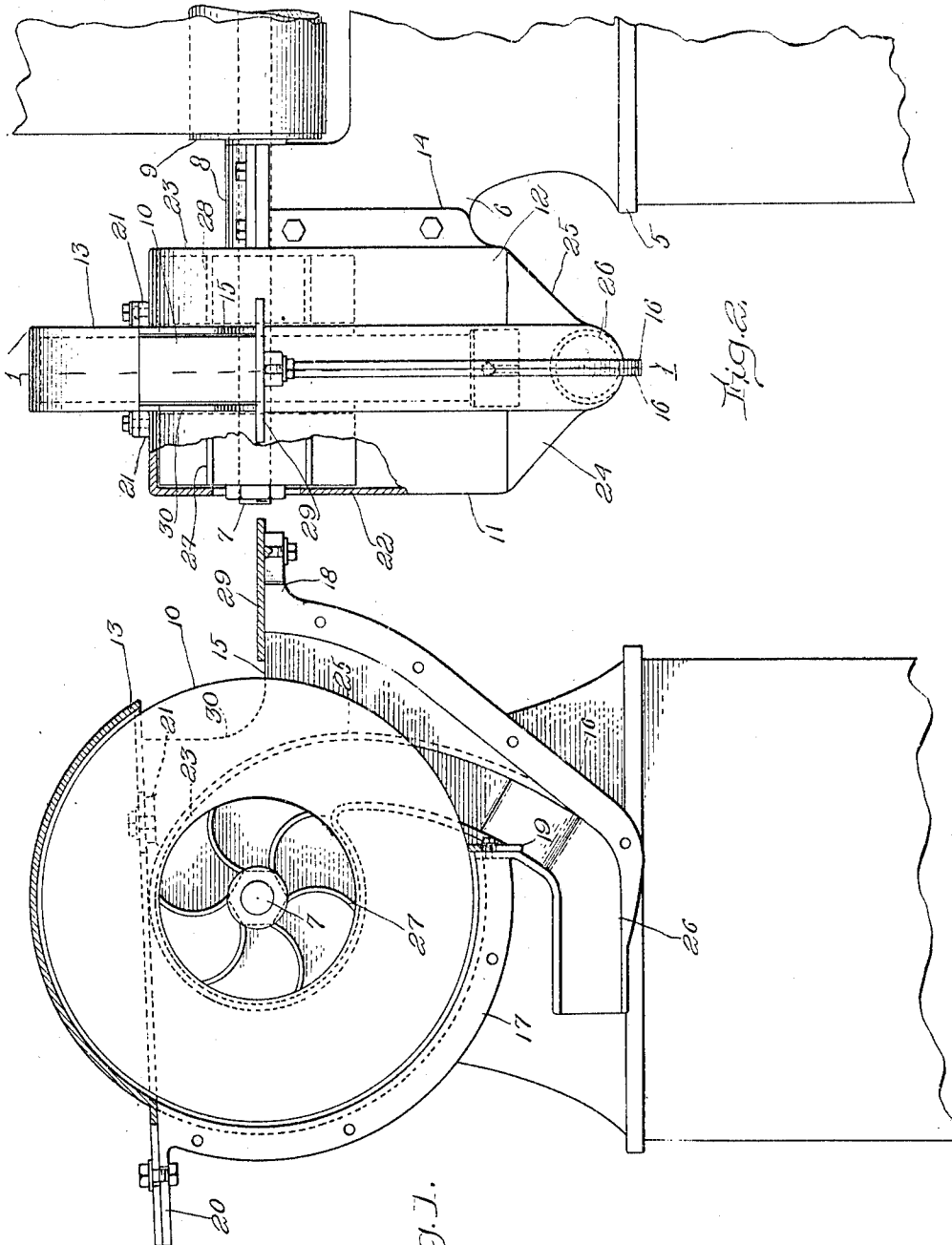


L. F. FALES.  
GRINDING MACHINE.  
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992,489.

Patented May 16, 1911.



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# UNITED STATES PATENT OFFICE.

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## GRINDING-MACHINE.

992,489.

Specification of Letters Patent.

Patented May 16, 1911.

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*To all whom it may concern:*

Be it known that I, LEWIS F. FALES, of Walpole, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Grinding-Machines, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

This invention has reference to improvements in grinding apparatus and particularly to dry grinding machines, so called.

The invention resides more particularly in the protective casing for the grinding wheel and in the novel means for inducing a current of air through a portion of said casing to carry the dust from the point of operation.

One object of the invention is to so construct a grinding machine or apparatus of this character that the grinding wheel is so covered that the operative is protected from injury by the bursting of the wheel or by the throwing outward of particles or pieces of the wheel.

Another object of the invention is to so construct a grinding machine or apparatus having a rotatable shaft for the grinding wheel that a fan or fans mounted on said shaft may induce currents of air from the point of grinding.

The invention consists in the novel casing. The invention also consists in the novel means for inducing currents of air through said casing.

The invention also consists in such other novel features of construction and combination of parts as shall hereinafter be more fully described and pointed out in the claims.

Figure 1, represents a sectional view of the improved grinding machine taken on line 1—1 Fig. 2, one of the fans being shown in full lines. Fig. 2, represents a front elevation of the machine and parts of its pedestal or support, portions of the casing being broken away.

Similar numerals of reference designate corresponding parts throughout.

As shown herein, in its preferred form 5 indicates a portion of any suitable pedestal or supporting frame having at its upper side portion the member 6 and a horizontal bearing for the shaft 7 of which bearing the cap 8 forms a part. Shaft 7 has at one end the pulley 9, adapted to be driven, and said shaft carries the grinding or cutting wheel 10.

The casing preferably comprises three parts or members 11, 12 and 13 of which members 11 and 12 are of similar shape except that member 12 has the flange 14 which is securely bolted to the frame member 6. These members 11 and 12 conjointly form the wheel chamber having the walls 15, 15 closely embracing the grinding wheel 10 and have the flanges or lips 16, 16 and 17, 17 which strengthen the walls of said wheel chamber peripherally, the upper end of flanges 16, 16 extending outward to form the support 18 while the lower ends of flanges 17, 17 form an abutment for the follower plate 19, adjustably secured to one of said flanges, and the upper end of said flanges 17, 17 are extended outward to form the members as 20 which are preferably in alinement with the ears 21, 21 at the upper portion of said members 11 and 12. At the outer sides of the walls 15, 15 are formed fan chambers 22 and 23 from which curve downward the respective tubular extensions 24, 25 to a point adjacent the lower end of the flanges 17, 17 where said tubular extensions communicate with the lower portion of the wheel chamber which, at this point is given a tubular shape, by the conformation of the members 11 and 12 to provide the outlet 26 adapted to be connected with any suitable receptacle or chute to receive the dust from the grinding operation. On these portions of the shaft 7 extending through the fan chambers 22 and 23 are mounted the rotary fans 27 and 28 which are operated by the rotation of said shaft 7 to force air through the tubular extensions 24 and 25.

The cover member 13 is adjustably secured by bolts *a* and *b* to the extensions 20 and the ears 21 of the members 11 and 12 so that said cover 13 may be moved backward to follow the gradually diminishing diameter of the grinding wheel as it wears away from use.

On the extensions 18, 18 of the flanges 16, 16 is adjustably mounted the table 29 adapted to receive the article to be ground and to support said article in position to be pressed against that portion of the grinding or cutting wheel which is exposed in the opening 30 between the edge of said table 29 and the cover member 13.

It is to be noticed that the walls of the wheel casing are greatly strengthened by the peripherally located flanges 16 and 17 as well as by the walls of the fan chambers.

In the operation of this machine the grinding wheel is rapidly rotated by driving its shaft 7 whereby the fans are likewise driven and air from the fan chambers is forced along the tubular extensions 24, 25 of said fan chambers to the points where said tubular extensions communicate with the wheel chamber or case at which point a suction of the air will be effected and the air is forced through the outlet 26 while the exterior air will rush into the opening 30 and will carry downward the dust or particles ground by the wheel from an article placed on the table 29 and pressed against the wheel 10, which wheel in its rotation also tends to induce air to flow inward through the opening 30.

The application of the fans directly to the grinding wheel shaft economizes space, power and lubricant and locates the fans close to the points at which circulation of air is to be effected.

Air enters the fan chambers 22, 23 through the openings in the outer walls of said chambers and the draft of air created by the fans 27, 28 is such that dust is drawn away from the shaft bearings.

Having thus described my invention, I claim as new and desire to secure by Letters Patent.

1. A grinding machine comprising a casing having side members furnished with peripherally disposed flanges partially embracing said casing, means for securing said flanges together, and a top member secured to said side members.

2. A grinding machine comprising a casing having side members furnished with peripherally disposed flanges partially embracing said casing extended at one point to provide a bracket support for the work to be operated upon.

3. A grinding machine comprising a casing having a pair of side members furnished

with peripherally disposed flanges extended at the line of the top of said members to form a support for one end of a cover, a cover member slidably mounted on the top of said side members and said extension, and means for securing said cover member in place.

4. A grinding machine comprising a wheel casing having complemental side members each of which has a fan chamber furnished with a tubular extension communicating with an outlet formed between said side members, one of said side members having a securing flange, a shaft extending through said wheel casing and fan chambers, a grinding wheel on a shaft within said wheel casing, and fans on said shaft within said fan chambers.

5. A grinding machine comprising a wheel casing having side members furnished with exterior fan chambers having tubular extensions communicating with the interior of said wheel casing, a rotatable shaft extending through all of said chambers, a grinding wheel on said shaft within said wheel casing, and fans on said shaft within said fan casing.

6. A grinding machine comprising a wheel casing having side members and a top member whereby an opening is left for access to the grinding wheel, said side members having axially disposed fan chambers, communicating with the interior of the wheel chamber, and a tubular outlet, a rotatable shaft extending through all of said chambers, a grinding wheel on said shaft within said wheel chamber, and fans on said shaft within said fan chambers, substantially as described.

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