I. & A. G. TOMPKINS.

MACHINE FOR GRINDING SHAVINGS.

No. 189,399. Patented April 10, 1877

Fig: 1.

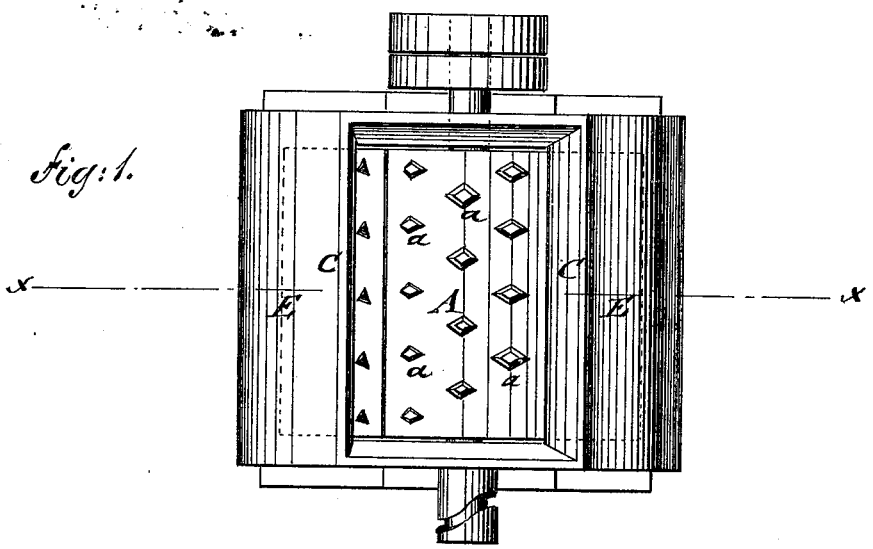


Fig: 2

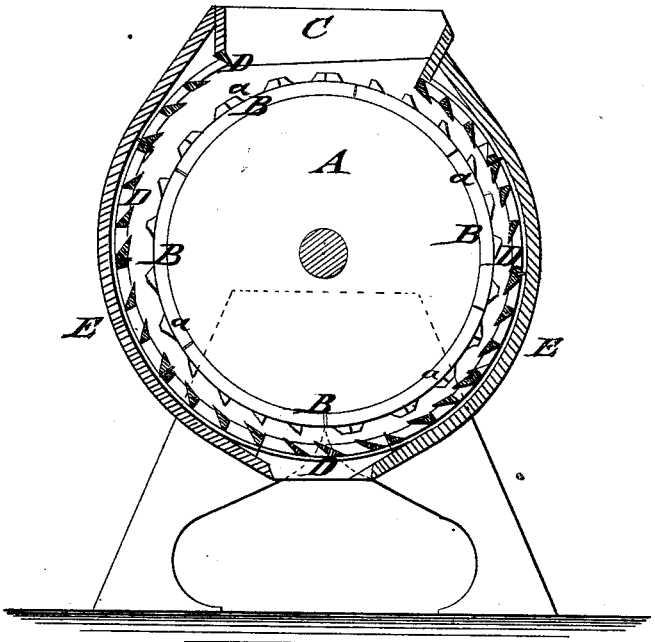


Fig: 3

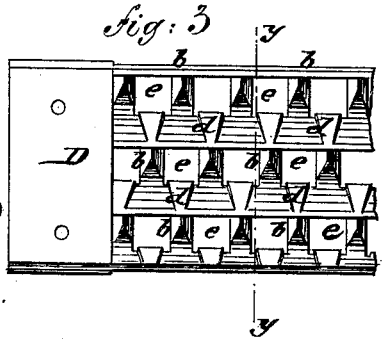
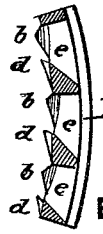


Fig: 4.



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UNITED STATES PATENT OFFICE.

ISAAC TOMPKINS AND ABRAM G. TOMPKINS, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN MACHINES FOR GRINDING SHAVINGS.

Specification forming part of Letters Patent No. **189,399**, dated April 10, 1877; application filed October 23, 1876.

To all whom it may concern:

Be it known that we, ISAAC TOMPKINS and ABRAM G. TOMPKINS, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Machine for Grinding up Shavings, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a top view, and Fig. 2 a vertical transverse section on line *x x*, Fig. 1, of our improved machine for grinding up shavings; and Figs. 3 and 4 are, respectively, a detail front view and a section on line *y y*, Fig. 4, of the inclosing cylinder or shell.

Similar letters of reference indicate corresponding parts.

The object of this invention is to provide an improved machine by which the large quantity of shavings accumulating in door and sash factories, planing-mills, &c., may be utilized by grinding them up into small particles in the size of sawdust, so as to form thereby a more salable article.

The invention consists of an interior grinding-cylinder that revolves within an inclosing-cylinder, having a cutting-surface and exit perforations, the inclosing-cylinder forming a space around the inner cylinder that diminishes gradually in width.

The small pieces into which the shavings are cut pass through the perforations of the outer cutting-cylinder to an exterior casing, from which they are conducted to a suitable receptacle.

In the drawing, A represents the interior grinding-cylinder, that is revolved at suitable speed, and constructed of circumferential sections B, with differently-shaped grinding or cutting teeth or projections *a*, as shown in Figs. 1 and 2.

The sections B may be provided with any suitable number and shape of teeth, by which a reliable and speedy cutting, grinding, or rasping action is imparted on the shavings, that are fed through a top hopper, C, extending across the entire width of the cylinder.

The interior revolving cylinder A is inclosed by a fixed cylinder or shell, D, which is provided with sectional cutting-surfaces at the inner side. The space between the inner cylinder and outer shell diminishes gradually from the entrance point at one side of the hopper to the opposite side of the same, so that a considerable quantity of shavings may be fed to the action of the grinding-surfaces, and cut up into small pieces by the gradual approach of the same, without getting choked in their passage through the space between the cylinder and shell.

The outer cylinder or shell D is, in similar manner as the revolving cylinder, made of a number of sections, which are arranged with rows of longitudinal cutting-teeth *b*, alternating with rows of lateral chipping-teeth *d*. Intermediately between the teeth are perforations *e*, which correspond in size to the pieces to which the shavings are to be reduced. If the shavings are to be ground into small pieces the size of the perforations has to be made correspondingly small. If larger pieces are desired the holes of the outer sections have to be made larger.

The shell acts thus in the nature of a screen, besides the cutting and chipping action exerted by its projecting teeth. The ground-up pieces pass gradually through the shell, and are conducted by an outer inclosing-casing, E, with bottom spout, to a suitable receptacle below the machine.

The pieces of shavings that are not ground up sufficiently to escape through the holes *e* are passed back again with the inner cylinder to the hopper, and fed with the new shavings again to the grinding-surfaces. The revolving cylinder may also be made of concave or convex shape, according as it is desired to throw the shavings toward the center or the ends, the inclosing-shell being then made to correspond in shape to the same.

The accumulating shavings of wood-working establishments may thus be worked with great rapidity into small pieces, in the nature of sawdust, so as to be sold like the same at a better price, and be stored away in a more compact shape.

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

1. The combination, in a shaving-grinder, of the case E, fixed grinding-cylinder D, and rotary grinding-cylinder A B, substantially as and for the purpose specified.

2. In a shaving-grinder, the shell provided with alternate longitudinal cutters and chipping-teeth *b d*, between which are arranged perforations *e*, as shown and described.

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