

C. C. P. Waterman,

Grinding Glass Shades.

N^o 33,175.

Patented Aug 27, 1861.

Fig. 1.

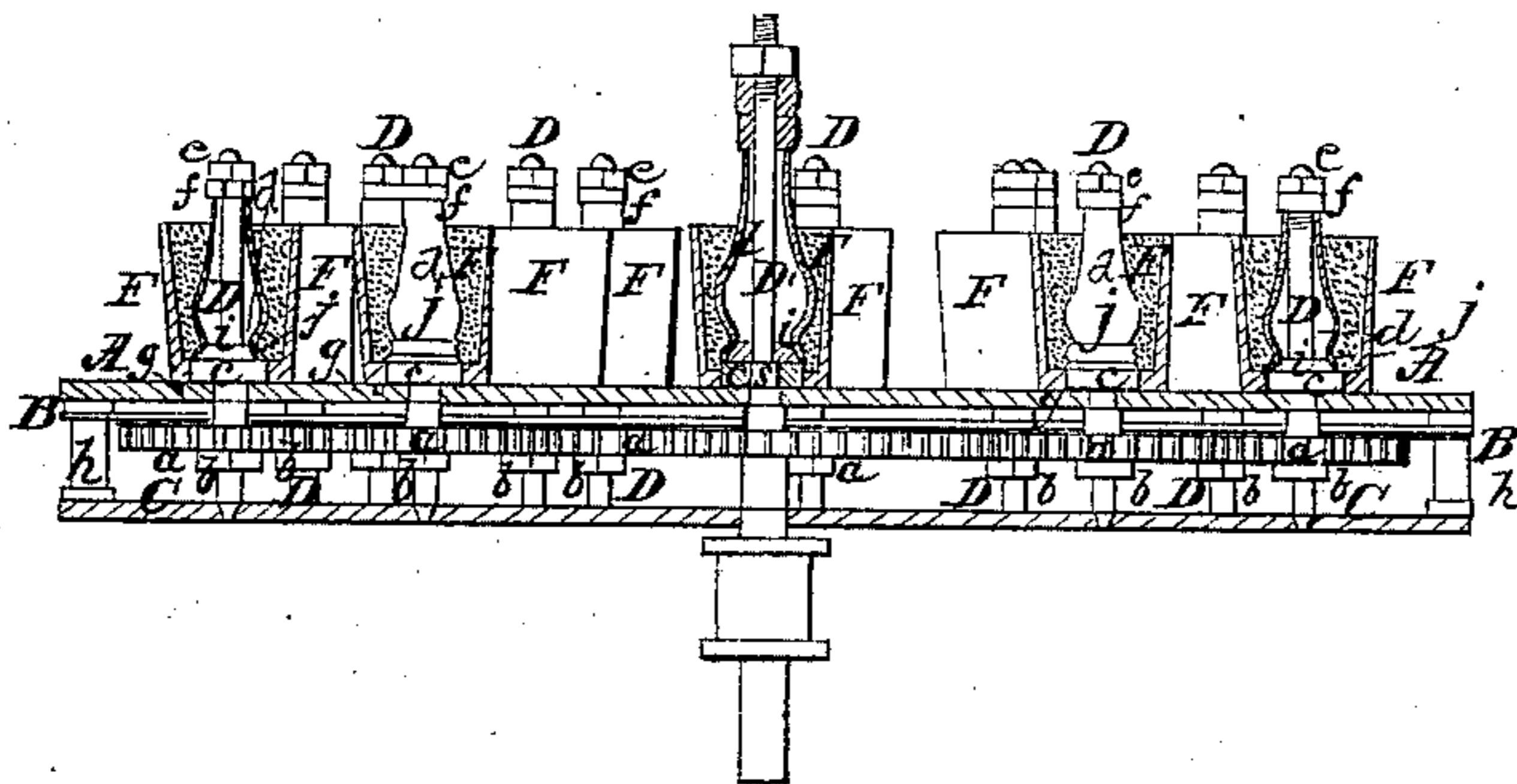
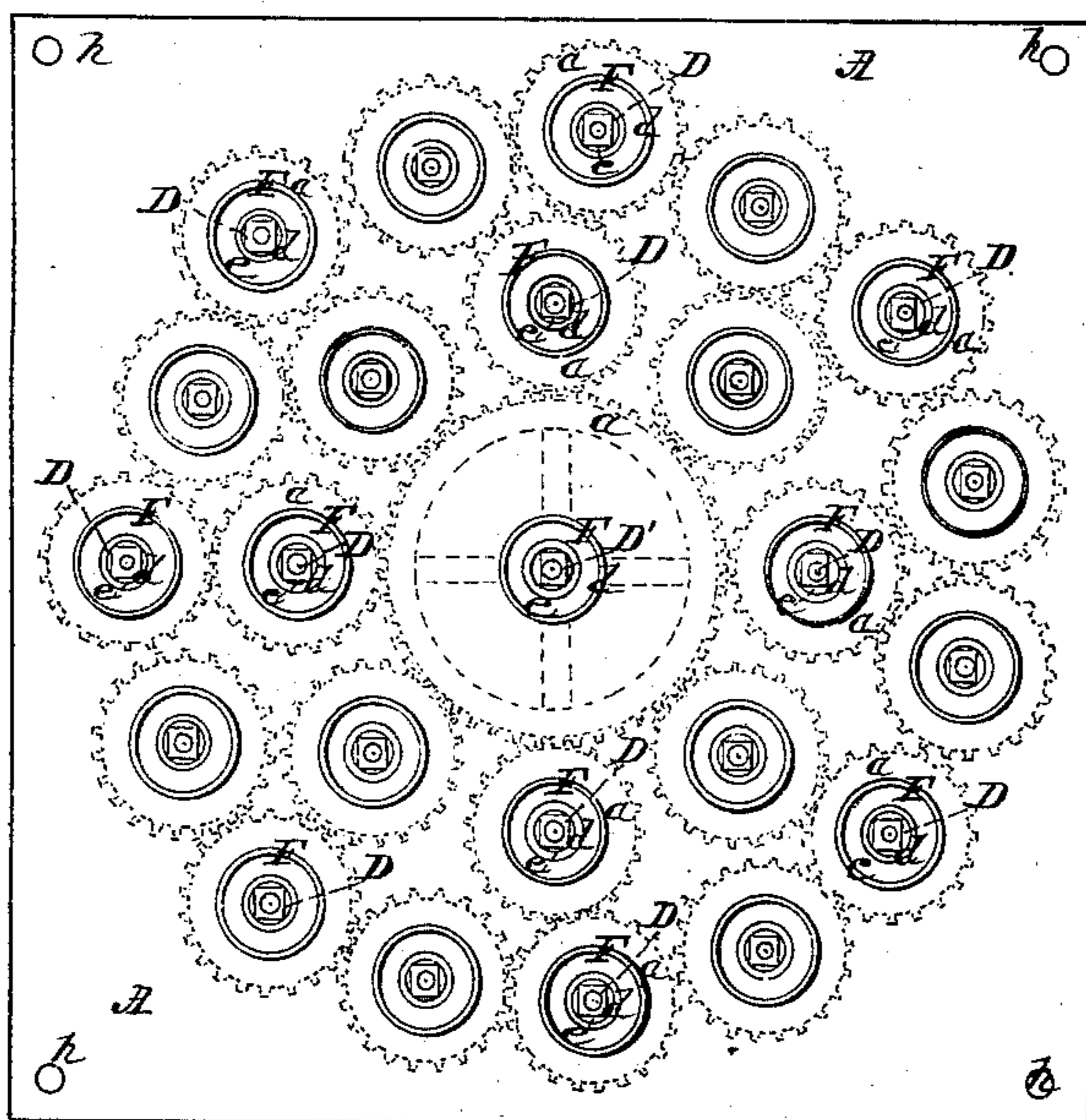


Fig. 2.



Witnesses:

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Inventors

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UNITED STATES PATENT OFFICE.

C. C. P. WATERMAN, OF SANDWICH, ASSIGNOR TO J. W. JARVIS & CO., OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR GRINDING GLASS SHADES.

Specification forming part of Letters Patent No. 33,175, dated August 27, 1861.

To all whom it may concern:

Be it known that I, C. C. P. WATERMAN, of Sandwich, in the county of Barnstable and State of Massachusetts, have invented a new and Improved Machine for Roughing or Grinding Lamp or Gas Shades or other Articles of Glass or other Materials; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section of the machine, and Fig. 2 is a plan of the same.

Similar letters of reference indicate corresponding parts in both figures.

My improved machine consists of one or more rotating spindles provided with suitable means of carrying the shades or other articles to be ground or roughed and working within one or more stationary cups or tubes containing sand or other material suitable for grinding or roughing the surface of the shades or other articles.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The machine represented is provided with several spindles and cups.

A B C are three parallel horizontal plates of metal arranged one above another and united by short posts *h h* to constitute the framing of the machine. The lower plate C is intended to be supported by and secured upon a suitable table.

D D D' are the spindles which carry the shades or other articles to be ground, fitted in upright positions to bearings in the three plates A B C and geared together by spur-gears *a a*, that all may be driven by the central spindle D' or by any other to which rotary motion is given by a band running on a pulley E on the said spindle or by means of gearing from a suitable prime mover. The middle plate B is not so much intended as a bearing for the spindles as for the protection of the gearing *a a* from sand and water.

The several spindles D D are to be so constructed and fitted to their bearings in the plates that by loosening their gears *a a* they may be withdrawn upward through the plates for repair or for the substitution of spindles suitable for different kinds of work, and to

enable the gears to be removed they are secured against shoulders on the spindles by nuts *b b*, fitted to screw-threads cut on the said spindles below the said shoulders. By screwing down these nuts from the screw-threads onto a smaller portion of the spindle below them the spindles can be drawn out upward, leaving the gears and nuts to be removed sidewise from between the plates. A short portion of each spindle above the upper plate A is made square, as shown at *s* on the spindle D in Fig. 1, for the reception of a circular metal collar *c*, which rests upon the plate A, and which is fitted to the square portion of the spindle and so caused to rotate with it. This collar serves as the support for the shade *d* or any other article to be ground that is of suitable shape for a spindle to pass through it; but a piece of cork, leather, or other soft material *i* is placed on the top of the said collar to form a soft bearing for the said article, which is secured upon the said bearing by means of the nut *e*, applied to a screw-thread on the upper part of the spindle, such nut having interposed between it and the said article a piece of cork or other soft material *f*, either with or without a washer-plate between the said material and the nut.

By screwing down the nut *e* the shade or other article is firmly clamped to the collar *c* and so caused to rotate with the spindle.

F F are the cups for containing the sand or other material used for grinding, of circular form, resting upon the plate A in positions concentric with their respective spindles, and each having a central hole in its bottom to fit so snugly around the collar of its respective spindle as to prevent the escape between them of the sand or other grinding material. The said cups are prevented from turning with the spindles by each one having secured to and projecting from its bottom a steady-pin *g*, which enters a suitable hole in the plate A. This mode of applying the cups allows cups of different shapes and sizes to be used in the same machine, according to the shape and size of the articles to be ground. I prefer in all cases to use a cup of inverted conical form, as represented, as the sand or other grinding or roughing material tends to pack down tightly round the shade or other article in a cup of this form, while in an upright cup it

tends to be worked up and become loose by the rotary motion of the spindle.

Other means than those I have described of securing the articles to be ground to the spindles—as, for instance, chucks of suitable construction—may be used, according to the shape of the articles to be roughed or ground.

When the shades or other articles have been secured to the spindles, or as many of them as may be desired, as hereinabove described, and the cups have been filled with sand or other roughing or grinding material, either wet or dry, to as great a depth as is necessary, according to the height to which the articles are to be ground, rotary motion is imparted to the driving-spindle *D'* by the means provided for the purpose, and from it to the other spindles *D D* by the gears *a a*. The grinding or roughing operation commences at once, and the operation is continued till the degree of roughness desired is obtained. As the operation proceeds the sand or other material packs down slightly and so prevents an abrupt line being formed at the upper edge of the ground surface.

If one or more smooth rings are desired upon the surface of the article below the high-

est point to which it is to be roughed, the parts to be left smooth may be protected from the grinding or roughing material by means of bands of india-rubber or other material stretched over them, as indicated at *j j* in Fig. 1.

It is obvious that the driving-spindle *D'* only may be used, or, in other words, that a machine may be constructed with only one spindle.

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

1. A machine for grinding or roughing glass shades or other articles, composed of one or more upright rotating spindles provided with suitable means for carrying such articles, working within one or more stationary cups containing the sand or other grinding material, substantially as herein described.

2. Fitting each of such spindles with a collar *c*, fitted to an opening in the bottom of its respective cup, substantially as and for the purpose herein specified.

C. C. P. WATERMAN.

Witnesses:

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