

(No Model.)

2 Sheets—Sheet 2.

H. C. LUTHER.
MACHINE FOR GRINDING ARTICLES OF GLASS.

No. 540,324.

Patented June 4, 1895.

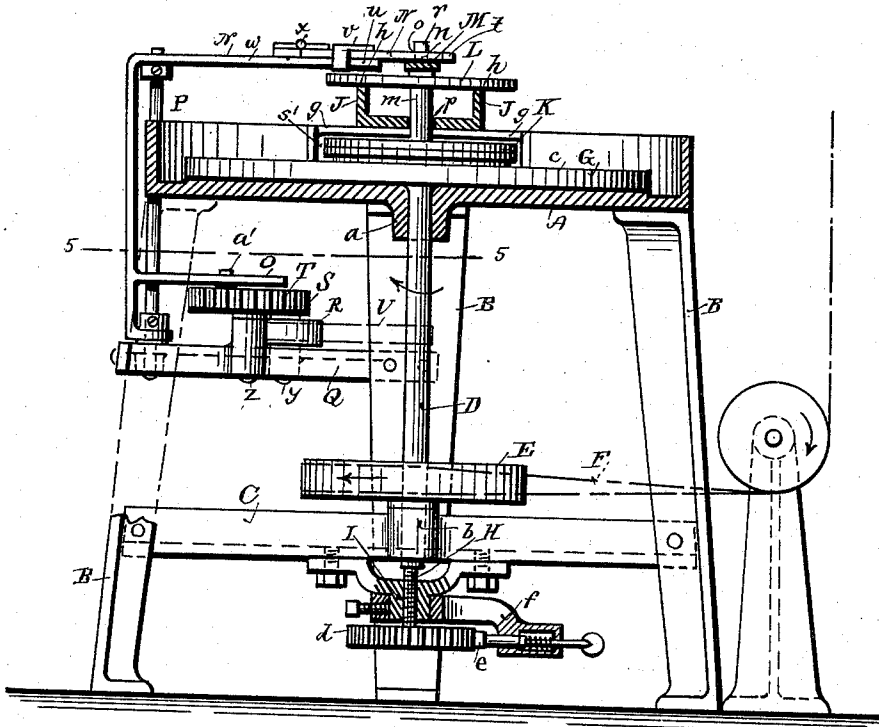
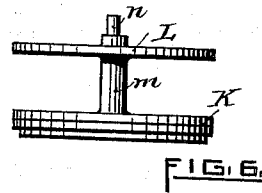
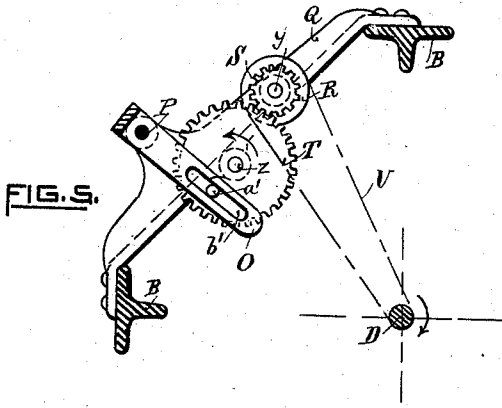


FIG. 4.

WITNESSES.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR GRINDING ARTICLES OF GLASS.

SPECIFICATION forming part of Letters Patent No. 540,324, dated June 4, 1895.

Application filed April 1, 1892. Serial No. 427,399. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. LUTHER, a citizen of the United States, residing in the town of Johnston, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Machines for Grinding Articles of Glass, Stone, or Similar Material to a Uniform Thickness, of which the following is a specification.

The nature of my invention consists in a grinding machine provided with means for automatically limiting its action upon the work, at the desired point so that great numbers of articles may be ground to the same uniform thickness.

Figure 1 represents a top view of the machine. Fig. 2 represents a side elevation of the same. Fig. 3 represents a detail view, showing the attachment of the guide-bars to the table-bed. Fig. 4 represents a vertical section taken in the line 4 4 of Fig. 1. Fig. 5 represents a detail horizontal section taken in the line 5 5 of Fig. 4. Fig. 6 represents a side elevation of the work-holding plate.

In the accompanying drawings, A represents the table bed of the machine which is supported by the legs B. Within the central bearing *a* of the table-bed A, and the bearing *b* of the cross-bar C, is placed the upright shaft D, which is driven by means of the pulley E upon the said shaft, and the belt F which passes around the said pulley. To the upper end of the shaft D, is attached the grinding wheel G, and at the lower end of the said shaft is placed the adjusting screw H, by means of which the height of the grinding surface *c*, of the wheel G may be regulated, the said screw H being arranged to turn in the stationary nut I, and held in its set position by means of the notched or toothed wheel *d*, attached to the lower end of the said screw, and the spring actuated sliding pawl *e* which is held in the fixed arm *f*, attached to the nut I. The parallel guide bars J, J, are provided with the backwardly extending ears *g*, *g*, and the said bars are adjusted so that their upper edges *h* will lie in the same horizontal plane, which plane is parallel with the plane of the grinding surface *c* of the wheel

G, the said parallel guides being made adapted for adjustment, by means of the screws *i*, *i*, which screw into the flange or ear *j*, and the intermediate set screw *k*.

The circular holding plate K to which the articles are to be attached, is provided with an elongated hub *m*, the upper end of which is provided with the guide plate L, the flat lower surfaces of the said plates K and L, being made true and parallel with each other; and the upper end of the hub *m* is provided with the journal *n* which is adapted to enter the perforation *o* in the link M which link serves to connect two holding plates K for operation at opposite sides of the center of the grinding wheel G, the hubs *m* of the said holding plates, being made to pass through the slot opening *p* between the flanges *q* of the parallel guide bars J, J, so that the said holding plates will be supported in position for rotation by the edges of the said flanges; and the said holding plates are made capable of movement over the surface *c* of the grinding wheel G, by means of the stud *r* on the connecting link M, which stud enters the slot *s*, on the arm N the said arm being preferably made in sections, one of which is hinged to the other, and secured thereto for operation by means of the sliding band *v*, and by releasing the slotted section *t* of the arm N, from the projecting end *u* of the section *w*, the said section *t* may be turned back upon its hinge *x*, and the link M released from the journals *n* of the holding plates, and thus allowing the said plates to be removed from the machine by being passed along the slot *p*, and out of the opening *s'* in the side of the table bed A.

The arm N is vibrated back and forth to cause the to and fro movement of the holding plates K over the surface of the revolving grinding wheel G, by means of the slotted arm O, the said arms N and O, being pivoted to a stationary upright rod P. To the bar Q, attached to the adjacent legs B of the machine, is secured the upright stud *y*, upon which is placed the loosely revolving pulley R, provided with the pinion S, the said pinion engaging with the gear T, which is arranged

to revolve loosely upon the stud z , and is provided with a stud a' , adapted to enter the slot b' of the arm O to operate the same, the pulley R being driven from the upright shaft D, by means of the belt U.

The sand and water to effect the grinding, may be supplied to the surface c of the wheel G, by means of the wheel V, which is driven from the shaft D by means of a belt W.

10 The operation of the machine is as follows: The pieces to be ground to a uniform thickness are to be securely attached to the flat face of the plates K, and the said plates passed to their proper position within the slot opening
15 p to rest upon the grinding wheel; the distance between the upper edges of the guide bars J, and the surface c of the grinding wheel being such that when the grinding has been fully completed, the guide plates L will have become
20 lowered so that their under surface will come in contact with the said edges, and thus prevent the further grinding of the attached pieces, which can then be removed and others be arranged in their place, the back and forth
25 vibration of the arm N and the consequent to and fro movement of the holding plates K, serving to cause the uniform wearing of the flat surface c of the grinding wheel G. When the grinding operation is first commenced, the
30 plates K will be kept in revolution by the contact of the attached pieces with the rotating surface of the grinding wheel, but when the

grinding operation is completed such motion will entirely cease.

It is evident that a single holding plate may 35 be employed, instead of the two shown in the drawings, when it is not desired to utilize both sides of the axis of the grinding wheel.

I claim as my invention—

1. The combination with the grinding-wheel, 40 and the holding plate provided with the parallel guide-plate, of a guide-bar arranged parallel with the surface of the grinding-wheel and adapted to limit the downward movement of the holding plate, by engagement with the 45 under side of the guide plate, substantially as described.

2. The combination with the grinding wheel, and the guide-bars arranged parallel with the surface of the grinding wheel to limit the 50 downward movement of the holding plates, of the holding plates provided with the parallel guide plates, and held at opposite sides of the axis of the grinding wheel, with their hubs in the opening between the guide bars, 55 the link for connecting the holding plates, and means for imparting a vibrating movement to the linked holding plates, substantially as described.

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Witnesses:

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JAMES W. BRAMAN.