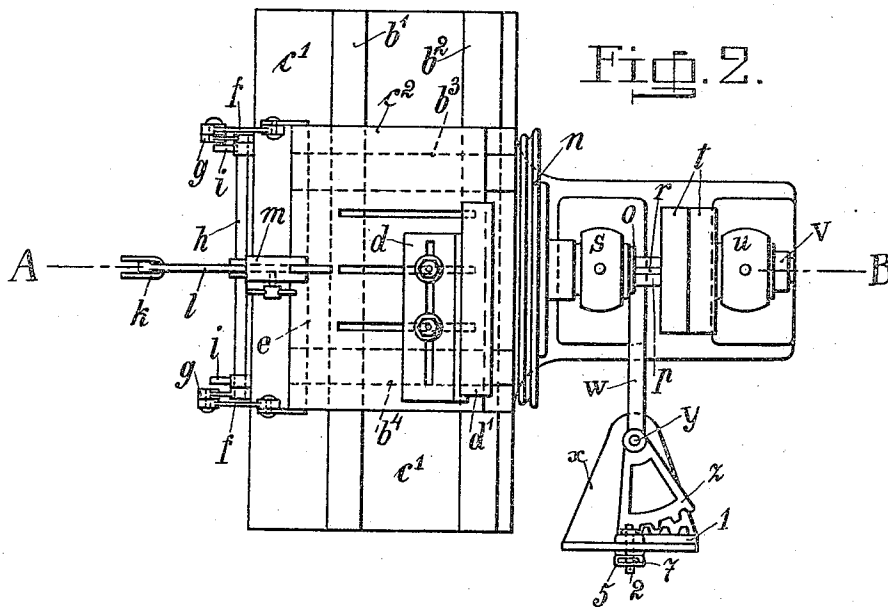
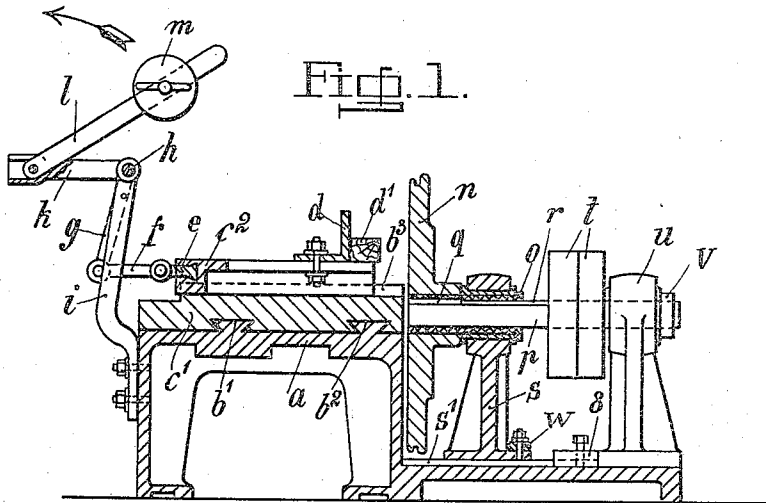


GEORG KROHN & GUSTAV KROHN.
 APPARATUS FOR GRINDING OR POLISHING ARTICLES.
 APPLICATION FILED JUNE 4, 1909.

952,910.

Patented Mar. 22, 1910.

4 SHEETS—SHEET 1.



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4 SHEETS—SHEET 2.

Fig. 3.

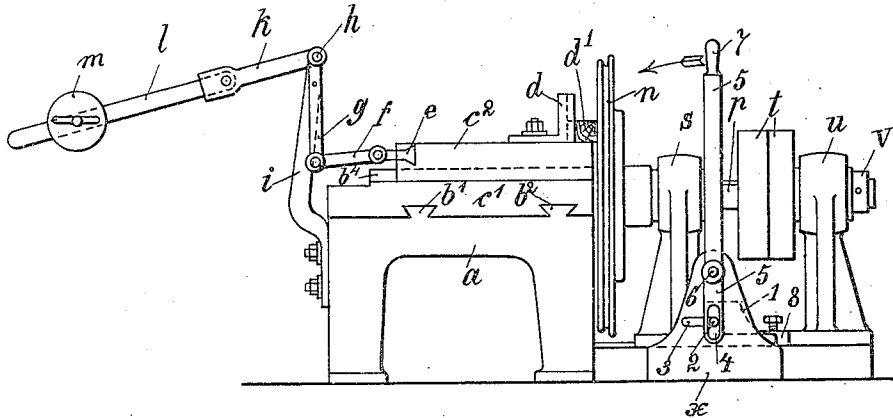
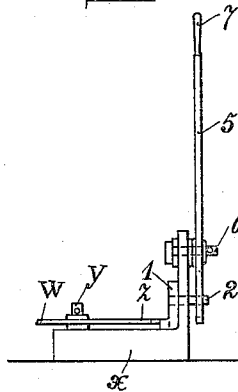


Fig. 4.



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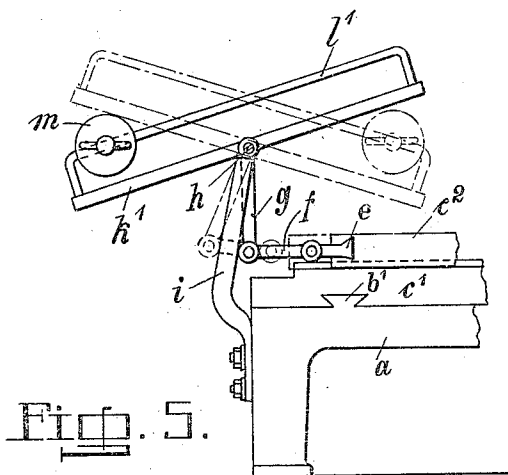


Fig. 5.

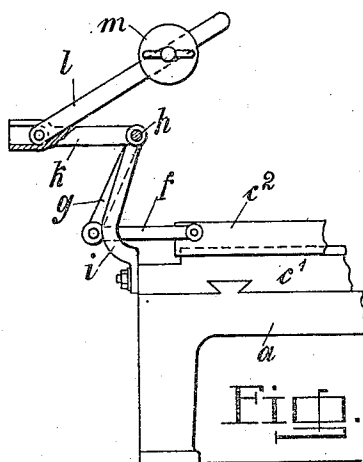


Fig. 6.

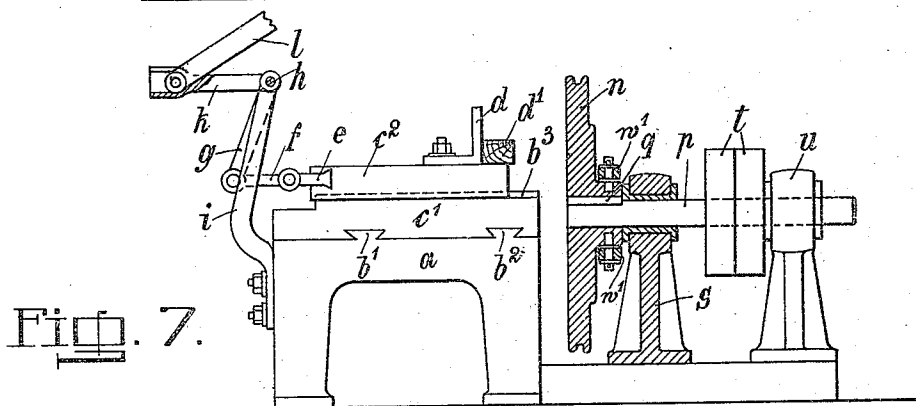


Fig. 7.

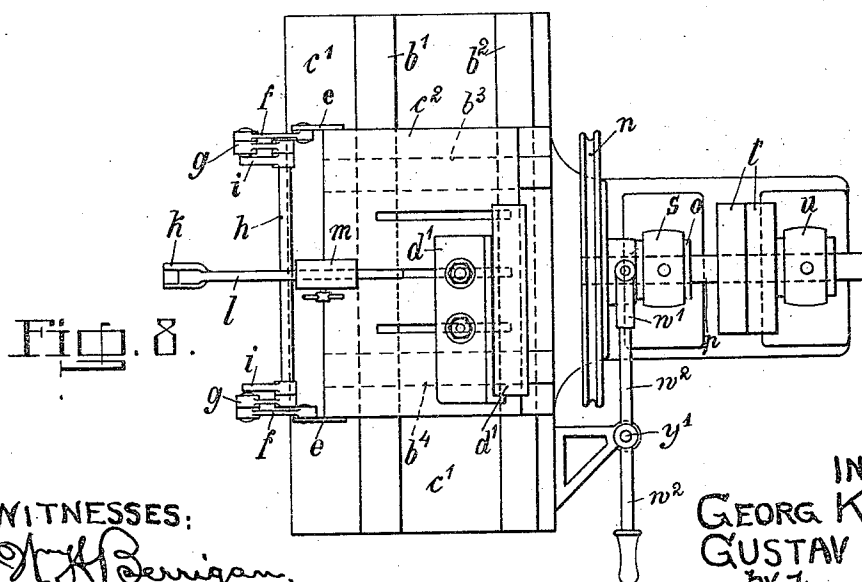


Fig. 8.

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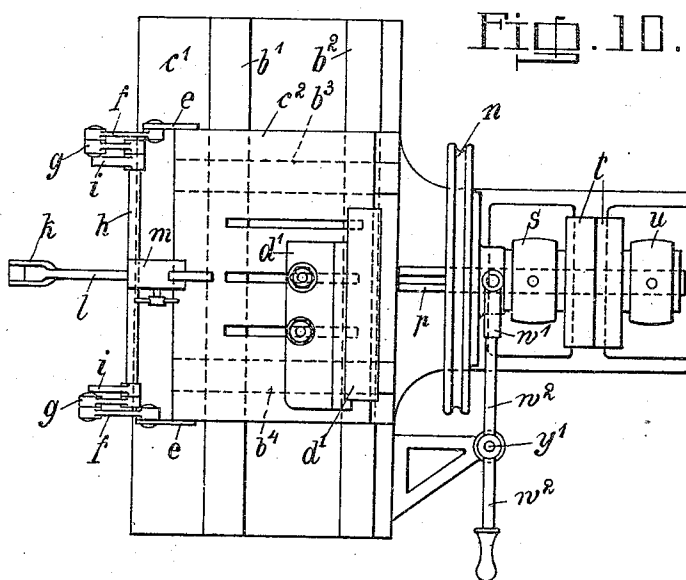
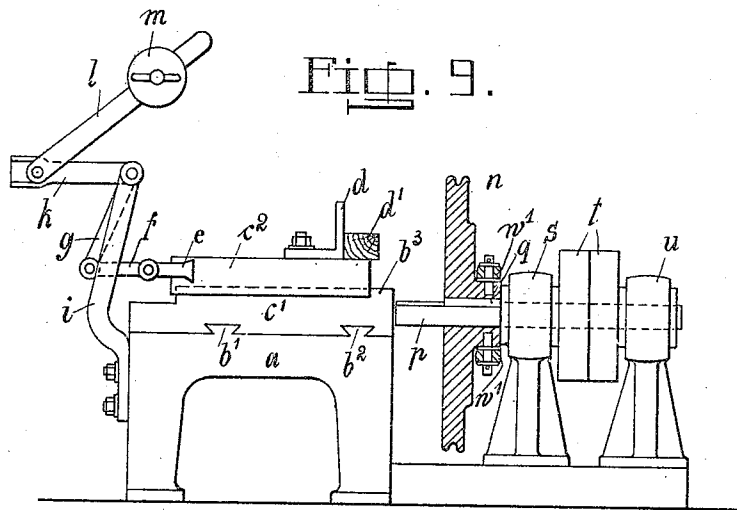
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR GRINDING OR POLISHING ARTICLES.

952,910.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed June 4, 1909. Serial No. 500,171.

To all whom it may concern:

Be it known that we, GEORG KROHN and GUSTAV KROHN, subjects of the Emperor of Germany, and residents of Altona, Germany, have invented a certain new and useful Improvement in Machines for Abrading or Polishing Articles, of which the following is a specification.

This invention relates to a machine for abrading or polishing articles of any material, *e. g.* of wood.

In machines of known construction for abrading or polishing wood, the materials to be treated are guided by the operator past an abrading disk or over a roller. This mode of operation is not only tedious and highly dangerous but is productive of poor work as the article must be pressed with uniform pressure against the disk or roller.

In accordance with the present invention the article to be treated is mounted on a support movable in directions at right angles to each other and is pressed toward or away from the face of the rotating, polishing or abrading disk, by the pressure of a weight acting through levers on the support, the disk being pressed toward or away from the article by sliding with or upon its shaft.

In Figures 1 to 4 of the accompanying drawings is shown one embodiment of the invention; Fig. 1 is a section on the line A—B of Fig. 2; Fig. 2 is a plan; Fig. 3 is an end view and Fig. 4 is an end view of a detail. Figs. 5 to 10 show modifications.

On the machine frame *a* is mounted in dove-tailed guides *b*¹, *b*², *b*³, *b*⁴ a support *c*¹, *c*² which is movable in all four directions. On the upper supporting plate *c*² is arranged a work holder *d* also movable in guides and adapted to be secured by means of bolts. On the back edge of the supporting plate *c*² is arranged a bar *e* of dove-tailed cross section, to the ends of which are pivoted levers *f* which in turn are pivotally connected with the levers *g* which are keyed to a common shaft *h*. The latter is rotatably mounted in arms *i* on the machine frame. On the shaft *h* is carried a lever *k* which at its forked end carries a lever *l* which is provided with an adjustable weight *m*. On the opposite side of the supporting plates *c*¹, *c*² is arranged a disk *n* which is keyed to a sleeve *o*. The sleeve is slidably guided on a shaft *p* by means of a feather *q* and groove *r*. The sleeve *o* is provided at one end with flanges projecting over the

brasses of the bearing bracket *s*. The shaft *p* also carries the belt pulleys *t* and rests at its other end in the bearing *u* being held against axial movement by the belt pulleys *t* and by a collar *v*. The bracket *s* is slidably mounted on rails *s*¹ on the bed plate of the machine and is pivotally connected with a lever *w* which is fulcrumed at *y* on a separate frame *x* and the other arm of which is formed as a toothed sector *z*. The latter engages rack teeth 1 arranged perpendicular to the frame *x*. Through a slot 3 in the part perpendicular to the frame *x* is passed a pin 2 secured to the rack 1 which pin enters a slot 4 in the lever 5 which is pivoted to the frame *x* at 6 and is provided with a handle 7.

In order to abrade or polish the article *d*¹, the disk *n* is used, the profile of which disk corresponds to the work to be operated and on which disk the polishing or abrading material is carried. The article *d*¹ is laid on the supporting plate *c*² and is prevented from sliding back by the holder *d*. Hereupon the lever *l* with the weight *m* is moved from the position shown in Fig. 1 to that shown in Fig. 3 whereby the shaft *h* is rocked and the lever *g* is swung out in such manner that the supporting plate *c*² connected by rods *f* is moved forward with the work until the latter rests against the face of the disk *n* (Fig. 3). In order to prevent the latter from being moved with the bracket *s* in the direction of the belt pulleys *t*, on account of the pressure of the weight *m*, the lever 5, 7 must be moved toward the machine frame *a* to hold the work and the rotating disk *n* in contact with one another, the abrading or polishing being effected by means of the polishing or abrading material carried on the disk *n*. On the completion of the operation the lever 5 is moved back into position in a direction opposite to that shown by the arrow, and the toothed sector *z* on the lever *w* moves the bracket *s* toward the belt pulleys *t* by means of the rack 1. By means of the projecting flanges of the sleeve *o* the bracket *s* carries positively with it the polishing or abrading disk *n* so that the work is released. The work can now be removed from the supporting plate *c*² in order to allow a new piece to be operated on. Then the lever 5, 7 is again moved back toward the machine frame *a*, whereby the bracket *s* with the disk *n* is moved toward the work and the latter again comes in con-

tact with the disk *n* so that the polishing or abrading operation can proceed anew.

If the operation requires a long time, it becomes very tedious to the operator to hold the lever *5*, *7* during the whole of the operation in order that the work and the disk *n* may be continuously in contact. In order to avoid this, adjacent the foot of the bracket *s* is arranged a slidable block *8* which is moved directly against the foot of the bearing and is held in this position by means of a bolt or other suitable means so that the bearing *s* and disk *n* are prevented from sliding back. In order to remove the work after completion of the operation and to insert another article on the supporting plate *c*², the lever *l* with the weight *m* must be shifted from the position shown in Fig. 3 to that shown in Fig. 1 so that in consequence of the pressure or weight acting through the intermediary of the levers *f*, *g*, *h*, *k* the supporting plate *c*² is moved with the work *d*¹ away from the disk *n*. When a new article is laid on the supporting plate *c*², the lever *l* is again moved in the direction of the arrow (Fig. 1), the work being thereby brought into contact with the disk *n* so that the operation may proceed.

From what has been stated above it is evident that an article can be readily and rapidly treated without danger to the operator.

The construction of the machine described above may be varied to a considerable extent. For example, the lever *l* and the weight *m* may be arranged as shown in Fig. 5, a double armed lever *k*¹ being firmly connected with the shaft *h*. To the lever *k*¹ is secured a rail *l*¹ on which the weight *m* is movably arranged. By movement of the weight *m* toward the one or other end of the lever *k*¹ the shaft *h* is rocked and the support *c*² thereby moved with the work toward or away from the disk *n*. The full lines in Fig. 5 show the positions of the levers and of the support *c*² when the work is in contact with the disk; the chain-dotted lines show the position when the work is retracted from the disk.

In Fig. 6 of the drawing the bracket arms *i* are shown as being secured to the lower supporting plate *c*¹ so that on movement of the latter the arms *i* with the lever system *h*, *g*, *f*, *k*, *l*, *x* are shifted. In this construction the bar *e* can be dispensed with and the levers *f* may be secured directly to the support *c*².

Figs. 7 and 8 show a modified form of the machine in which the bracket *s* is not moved with the disk *n* by the lever *5* as in Figs. 1-4 but the bracket *s* is fixed in the same manner as the bracket *u*, while the shaft *p* is slidable in said brackets. The disk *n* is then firmly keyed to the shaft *p* by means of the key *q* and the shaft *p* is slid axially by means of a double armed lever *w*² pivotally mounted at *y*¹ and engaging the hub of the disk *n* by means of a fork *w*¹.

Figs. 9 and 10 show a modified form in which the disk *n* can be slid along in a groove *g*¹ in the shaft *u* by means of the feather *g*, the shaft *p* rotating in fixed bearings *s*, *u* but not being free to slide axially. As in the construction shown in Figs. 7 and 8 the disk is moved by means of the lever *w*².

Having described our invention what we claim and desire to secure by Letters Patent of the United States is:—

Apparatus for abrading or polishing articles comprising in combination with a bed plate, a support for the article, said support adapted to be moved in longitudinal and transverse direction on said bed-plate, a rotary disk adapted to rotate in contact with the article said disk being longitudinally movable in relation to the support, and means including a weighted lever for moving said support longitudinally in relation to said disk.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

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GUSTAV KROHN.

Witnesses:

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