E. RICHTER.

MANUFACTURE OF GRINDING APPARATUS.

APPLICATION FILED APR. 8, 1913.

**1,100,845.**

Patented June 23, 1914.

2 SHEETS—SHEET 1.

Fig. 1

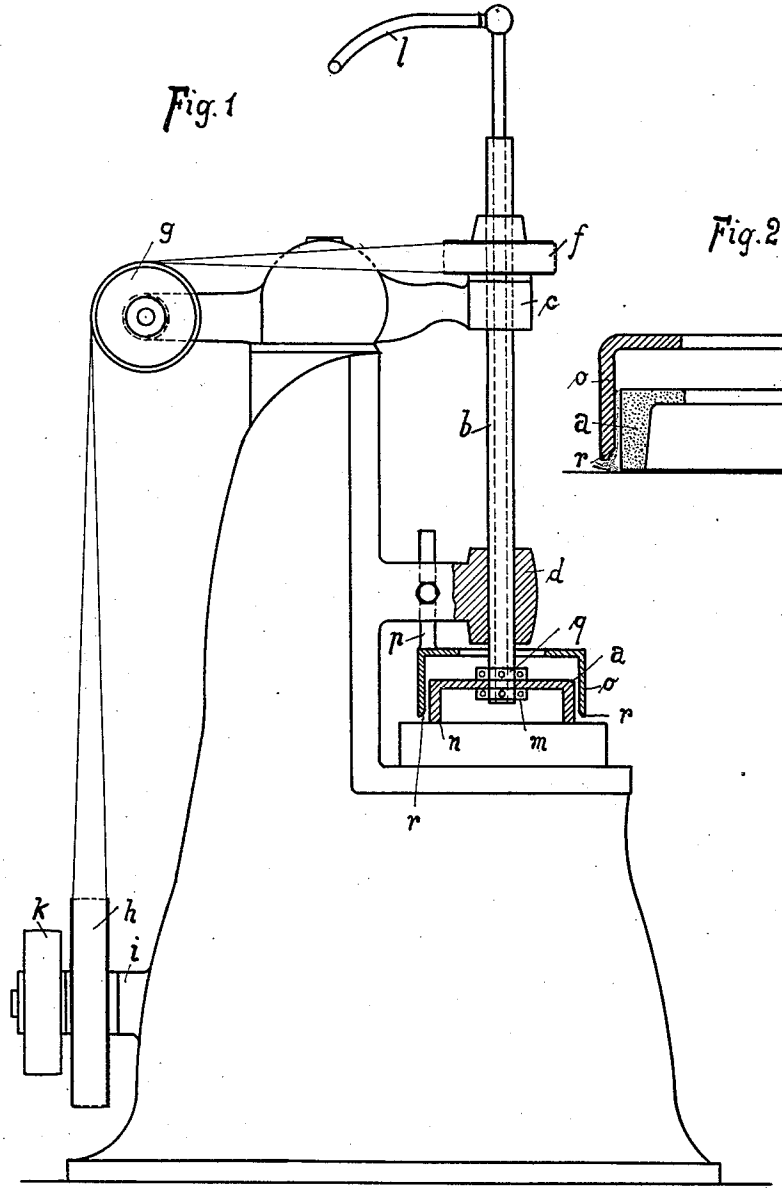


Fig. 2




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Fig. 3.

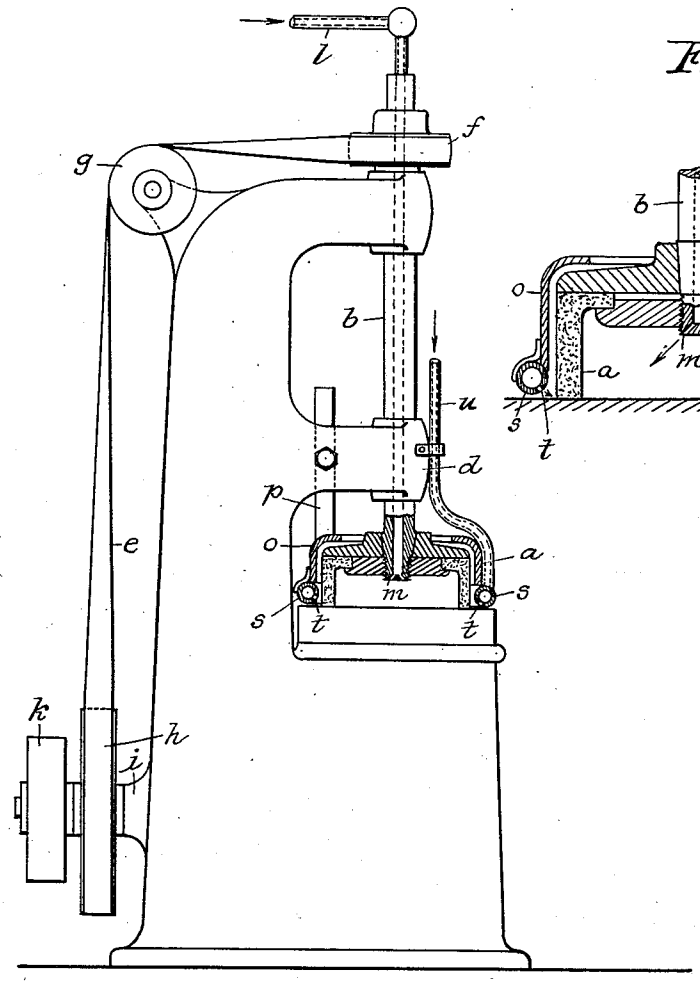
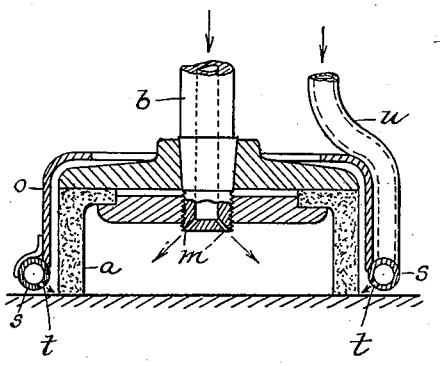



Fig. 4.

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# UNITED STATES PATENT OFFICE.

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## MANUFACTURE OF GRINDING APPARATUS.

1,100,845. Specification of Letters Patent. Patented June 23, 1914.

Application filed April 8, 1913. Serial No. 759,642.

*To all whom it may concern:*

Be it known that I, EMIL RICHTER, diploma engineer, a citizen of the German Empire, and resident of Frankfort-on-the Main, Germany, with the post-office address Eckenheimerlandstrasse 137, have invented new and useful Improvements in the Manufacture of Grinding Apparatus, of which the following is a specification.

At the grinding of faces by grinding wheels the disadvantage happens that the cooling water supplied through the interior of the grinding wheel escapes in the grinding plane forming a thick fog, by which the attendance of the machine is rendered more difficult and more disagreeable. To prevent this forming of a fog I have made an arrangement, by which the water escaping at the grinding faces, is caught.

The arrangement has been shown in the drawing, of which—

Figure 1 shows the grinding machine; Fig. 2 shows the special arrangement of the invention and Figs. 3 and 4 are similar views of a different form of my invention.

The grinding cylinder *a* is held in the usual manner by a shaft *b*, which is supported in two bearings *c* and *d*, and is driven by a belt *e* running over the pulleys *f*, *g*, *h*. The pulley *h* is arranged on a shaft *i*, which is driven by the transmission pulley *k*. The shaft *b* is hollow, so that the cooling water supplied from a pump through the pipe *l* can escape at *m* into the interior of the grinding wheel *a*. Driven by the centrifugal power the cooling water flows against the interior wall of the grinding wheel and escapes at the grinding plane at *n* as a thick fog. For preventing this fog I arrange over the grinding wheel a cap *o* held fixedly by a bolt *p*. Into the interior of this cap also water or another liquid enters through openings *q* of the shaft *b*, so that this water sprays against the inner wall of the cap *o* and leaves this cap at its under edge *r* as a veil.

The finely distributed particles of cooling liquid escaping from the grinding wheel *a* at *n* strike against the veil of liquid escaping at *r* from the cap *o* and they are taken along with it. Because the water escaping from the cap at *r* is not distributed so finely as the cooling water escaping from the grinding wheel, as the water parts form a cohering veil, the cooling water fog escaping from the grinding wheel will be condensed by the veil of the water and all the water flows away, whereby the fog hindering the observation of the grinded work is prevented. The cap *o* can also have a turning movement around the shaft *b*. Besides this additional water has also a cooling effect on the work, so that by the arrangement of the veil the grinding process is bettered.

As shown in Figs. 3 and 4 a pipe *s* slotted at *t* surrounds the grinding cylinder *a* near its lower edge and as shown is supported by a cap which may be similar to the cap *o*. The pipe *s* is connected with a source of water supply by means of a pipe *u* as shown. Otherwise this form of my improvement may be substantially the same as the first form and may operate in the same way, it being understood that if desired the pipe *s* may be supported otherwise than as shown. The water escaping from the pipe *s* through the slot *t* forms a liquid veil which takes up the finely distributed particles of cooling liquid escaping from the grinding cylinder *a* and carries it along in the same manner as in the form first described. The fog which is usually formed and which ordinarily prevents proper observation of the grinding operation is thus also done away with.

It will be obvious that the present idea of catching and carrying off the escaping cooling liquid by means of a veil of additional liquid may be applied to grinding apparatus other than that shown and described.

Now what I claim and desire to secure by Letters Patent is the following:

1. In grinding apparatus the combination of a grinding wheel and means for producing a veil of water or the like adjacent to said grinding wheel, substantially as and for the purpose described.

2. In grinding apparatus the combination of a grinding wheel and a cap surrounding the same and connected with a source of liquid supply, said cap being arranged to form a veil of liquid around said grinding wheel, substantially as and for the purpose described.

3. In grinding apparatus the combination of a hollow grinding wheel, means for conducting liquid to the interior of said wheel and means for forming a liquid veil exteriorly about said grinding wheel, whereby the fog formed by the escaping first named liquid is dissipated and carried off.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this 27th day of March 1913.

EMIL RICHTER.

Witnesses:
JEAN GRUND,
CARL GRUND.

**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."**