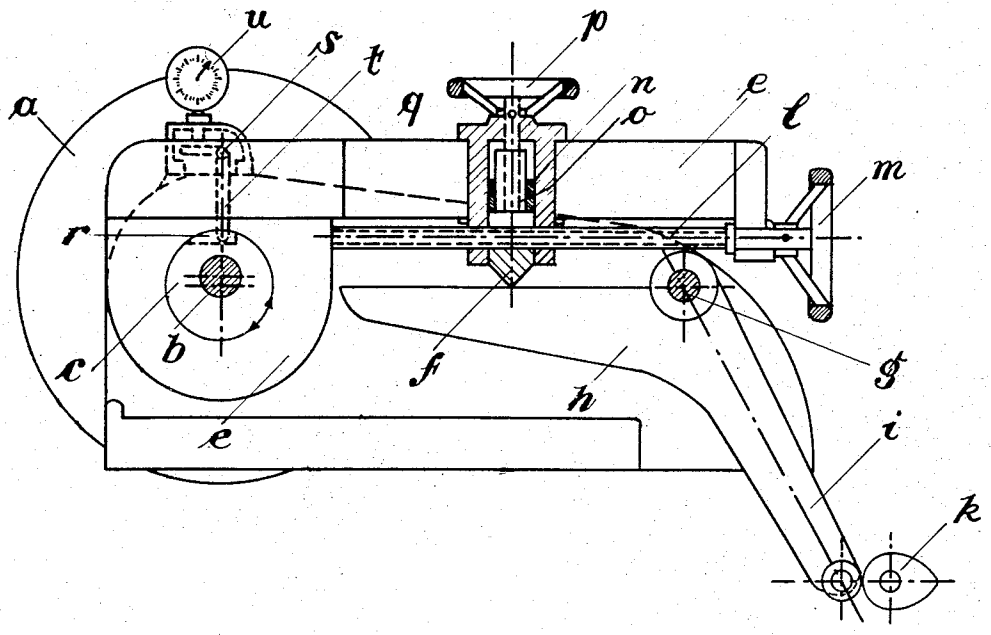
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DEVICE FOR SPHERICAL GRINDING ON CIRCULAR GRINDING MACHINES

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DEVICE FOR SPHERICAL GRINDING ON CIRCULAR GRINDING MACHINES

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The drawback of the existing devices for spherical grinding on circular grinding machines and the like, on which the grinding disk is adjusted by means of an eccentric device and a reciprocating lever, is such, that the advancing of the grinding disk towards the piece of work is done by means of direct shifting on a slide-rest. The advancement cannot be done exactly for fractions of millimeters because in the shifting gear a certain play is always unavoidable and when moving the parts of the gear, a certain tension always arises in the first place, until the friction between the single parts has been overcome, whereafter a jerking shifting of the grinding disk ensues which never allows an exact advancement of the grinding disk. By these means it is however not possible to adjust the grinding disk for fractions of millimeters which however is absolutely required for highly polished pieces of work like calender-rollers and the like.

In order to make this fine adjustment possible, according to the present invention, the edge placed on the reciprocating lever, which presses onto the cranked lever, moved by the driving curve, is arranged slidable in vertical direction to the lateral shifting gear, which moves in the direction of the reciprocating lever, which lateral shifting preferably is produced by means of a screw-spindle. With this adjustment of the edge, the reciprocating lever is moved for a certain amount and thereby, on account of the eccentric bearing of the grinding disk, advanced toward the piece of work for a correspondingly smaller amount. As by means of this arrangement a very large gear reduction is produced, it it possible to effect a shifting of the grinding disk down to 1/2000 of a millimeter, while by mere shifting of the slide-rest, carrying the grinding disk, so small a displacement is not possible.

Such an arrangement is illustrated in side view on the enclosed drawing, by way of example.

The grinding disk *a* is secured in well known manner on the shaft *b*, having its bearing in the bushing *c*. The bushing *c* is on its circumference eccentric to the shaft *b* and is placed in the reciprocatory lever *e*. The reciprocatory lever carries an edge *f*, resting on the cranked drive lever *h* which turns about the point *g*, the other arm of the lever being reciprocated by means of the cam-disk *k*. By means of the screw-spindle *l* with the hand wheel *m*, the edge *f* and the bushing *n*, carrying the edge, may be shifted longitudinally of the lever *e*, by which means the degree of spherical grinding will be adjusted in a well known manner.

In order to be able to shift the grinding disk against the piece of work for very small distances the edge *f* is adjustable in vertical direction towards the lever *e*, that is, transversely of said lever. For this purpose it is placed slidably in the bushing *n* and carries a threaded nut at *o*, into which engages the screw-spindle *q*, provided with a handwheel *p*. By means of turning the handwheel *p* in one or the other direction for a small amount the edge *f* will be shifted more or less and thereby the position of the lever *e* towards the cranked lever *h* is changed. By these means the lever *e* will be turned on the eccentric *c* and thereby the advancing to, or withdrawing from the piece of work for a very small amount is effected, which amount may be diminished to 1/2000 of a millimeter.

In order to make the changes of adjustment visible the eccentric *c* is provided with a cavity *r*, into which engages a cranked lever *t*, turning about the point *s*. This lever touches with its other end the indicating hand of a meter *u*, showing directly the displacement of the grinding disk on a large dial.

The shifting of the edge *f* may also be effected by means other than a screw-spindle.

I claim:

1. In a device for spherical grinding on circular grinding machines, a drive lever, a reciprocatory lever, a grinding disk eccentrically journalled in said reciprocatory lever, the reciprocatory lever carrying an edge resting on the drive lever, and means for adjusting said edge longitudinally and transversely relative to the reciprocatory lever.

2. In a device for spherical grinding on circular grinding machines, a drive lever, a reciprocatory lever, a grinding disk eccentrically journalled in said reciprocatory lever, a bushing carried by and adjustable longitudinally of said reciprocatory lever, said bushing being provided with a bore disposed transversely of said lever, a screw-threaded spindle in said bore, a nut in said bore engaging said spindle to be axially adjusted thereby and having an edge extending

from said bore in contact with the drive lever, whereby said reciprocatory lever is adjustable relative to the drive lever and the grinding disk is adjustable with respect to the work.

3. In a device for spherical grinding on circular grinding machines, a drive lever, a reciprocatory lever, an eccentric bushing rotatably mounted in said reciprocatory lever, a grinding disk having a shaft carried in said bushing, the reciprocatory lever carrying an edge resting on the drive lever, means for adjusting said edge vertically relative to the reciprocatory lever, said bushing having a cavity therein, a bent lever having one end engaging in said cavity, and a meter for indicating the adjustment of the grinding disk having an indicating hand connected with the bent lever.

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