Oct. 17, 1939. N. N. SHEPHERD 2,176,726

GRINDING MACHINE

Filed May 18, 1938

Fig. 1.

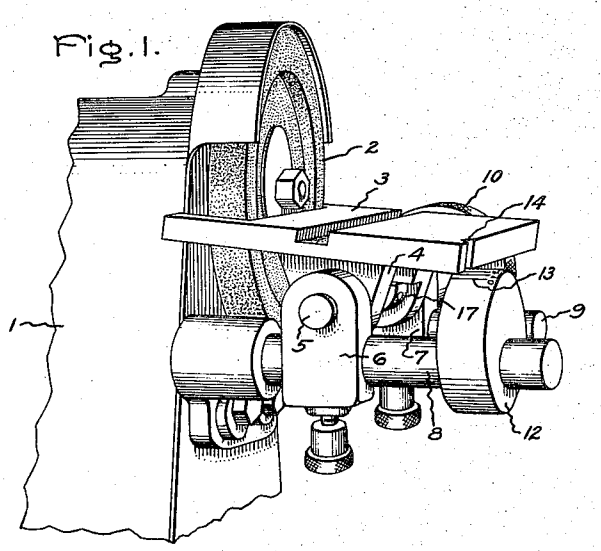


Fig. 2.

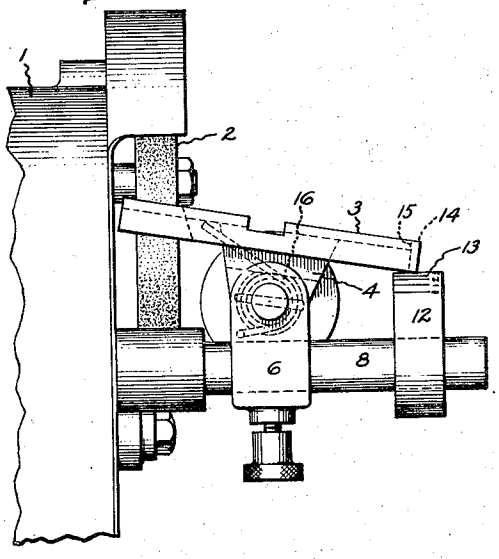
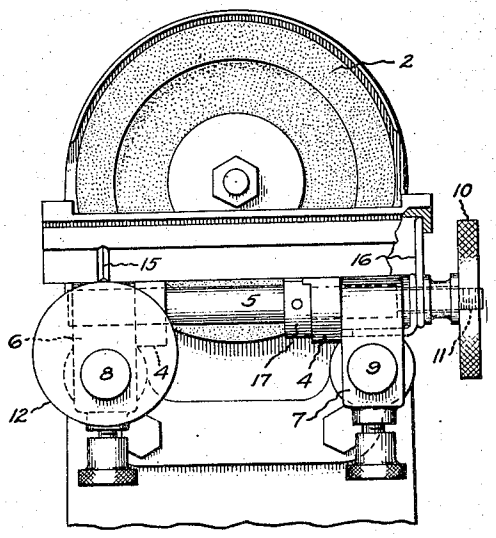


Fig. 3.



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GRINDING MACHINE

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6 Claims. (Cl. 51—239)

The present invention relates to disk grinding or abrading machines and more particularly to means for adjusting and determining the angular position of the tool rest generally employed with such machines. Heretofore, in grinding machines having an adjustable tool supporting table, a protractor scale has been provided on stationary part at one side of the machine and underneath the table. This scale cooperated with a movable pointer attached to the table. To adjust the table to any desired angle, it was necessary to first loosen the table on its stationary support and then to move the table until the pointer coincided with the desired angle indicated on the protractor scale.

Such an arrangement involves obvious difficulties since the adjustment of the table requires the operator to move to one side of the machine and to look underneath it to make the required adjustment. The removal of the operator's attention from the grinding wheel is particularly undesirable since there is always a possibility under such circumstances that when the table is loosened for adjustment it may tip into the grinding wheel and ruin it.

It is one of the objects of the present invention to provide an easily accessible means visible at all times to the operator for adjusting accurately the position of the table tool rest. It is a further object of the invention to provide means for preventing the adjustable table from tipping into the grinding wheel at any time.

The novel features which are characteristic of my invention are set forth with particularity in the appended claims. The invention itself however will best be understood from reference to the following specification when considered in connection with the accompanying drawing in which Fig. 1 is a perspective view of a part of a grinding machine embodying the features of my invention; Fig. 2 is a side elevation of the apparatus shown in Fig. 1, while Fig. 3 is a front elevation thereof.

Referring more particularly to the drawing, I have indicated at 1 a portion of a grinding machine provided with a disk grinding wheel 2. An adjustable table 3 is secured to or is integral with trunnions 4 mounted on a shaft 5 having bearings 6 and 7. The latter are detchably mounted on stationary rails 8 and 9 respectively each of which is secured to a stationary part of the grinding machine 1. A knurled wheel 10 at one side of the grinding table 3 is provided with a screw threaded portion 11 and is adapted to engage a portion of the shaft 5 and to lock the table 3 in any position to which it may be adjusted. A cam 12, against which the table 3 may rest, is rotatably mounted on the front end of the stationary rail 8. Cam 12 rotates in a plane substantially parallel to the plane of the grinding wheel 2 and is provided with a series of parallel lines 13 thereon which indicates the angles to which the table 3 may be adjusted. Table 3 is provided at its front end with a triangular shaped groove 14. The line 15 forming the apex of the triangular groove cooperates with the scale 13 on cam 12 to indicate the various angular positions of the table 3. A coil spring 16 is attached at one end to the stationary support 7. The other end of the spring bears against the table 3 as indicated clearly in Fig. 2 to thereby bias it into contact with the cam 12 and away from the grinding wheel 2. The spring 16 prevents table 3 from tipping into the grinding wheel 2 at any time. A collar 17 secured to shaft 5 by a cotter pin is provided with a flat portion which engages a corresponding flat portion on a trunnion 4 to thereby prevent shaft 5 from turning while table 3 is being clamped or locked in position. To adjust table 3 to any desired position, the knurled wheel 10 is first loosened and the cam 12 adjusted until the line thereon corresponding to the desired angle is directly under the line 15 on the table 3. The weight of the table 3 and the action of the spring 16 cause the table to bear against the cam 12 during any adjustment of the table. After the table has been adjusted to the desired position the knurled wheel 10 is tightened to thereby lock the table in its adjusted position. The entire adjustment of the table may be made from the front end of the machine without any change in the normal position of the operator and without requiring the operator at any time to take his attention away from the work.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In a grinding machine having a grinding wheel and a table adapted to be adjusted to different angular positions with respect to said wheel and to support the work to be ground, a cam rotatable in a plane substantially parallel with the plane of said grinding wheel and engaging said table to effect said adjustment, said cam having parallel horizontal indicating lines thereon extending beyond said table and cooperating with an indicating line thereon to thereby indicate the angular position of said table.

2. In a grinding machine having a grinding wheel and a table adapted to be adjusted to

different angular positions with respect to said wheel and to support the work to be ground, a cam engaging said table to effect said adjustment said cam having parallel graduations thereon indicating the angular position of said table, said graduations extending beyond the front end of said table, and spring means adapted to bias said table against said cam.

3. In a grinding machine having a grinding wheel, a table adapted to be adjusted to different angular positions with respect to said wheel, a pair of stationary rails mounted on said machine and means mounted on said rails for supporting said table, a cam rotatably mounted on one of said rails and adapted to effect angular adjustment of said table, a series of graduations on said cam and a line on said table cooperating with said graduations to thereby indicate various angular positions of said table.

4. In a grinding machine having a grinding wheel, a table adapted to be adjusted to different angular positions with respect to said wheel, a pair of stationary rails mounted on said machine and means for supporting said table on said rails, a cam rotatably mounted on one of said rails and adapted to effect angular adjustment of said table, a series of graduations on said cam and a line on said table cooperating with said graduations to thereby indicate various angular positions of said table, and resilient means for holding said table in contact with said cam.

5. In a grinding machine having a grinding wheel, a table adapted to be adjusted to different angular positions with respect to said wheel and a pair of stationary rails for supporting said table, a cam mounted on one of said rails and adapted to effect the angular adjustment of said table, said cam having indicating lines thereon extending beyond said table, a groove on the front end of said table, and a line in said groove cooperating with the scale on said cam to indicate the angular position of said table.

6. In a grinding machine provided with a grinding wheel, an adjustable work table adapted to support the work to be ground and means for locking the table in any adjusted position, a cam engaging said table and rotatable in a plane substantially parallel to the plane of said grinding wheel, said cam having parallel graduated lines thereon extending beyond said table and a line on said table cooperating with said same cam to indicate the angular position of said table.

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