

GRINDING ANGULAR FACES

By GEOMETER

RUNNING a grinding wheel of either straight or cup type on a mandrel in the chuck, a considerable amount of grinding can be done on edges, faces, and ends of material, either squarely or at an angle, when the material is set up on the vertical slide or on an angleplate mounted thereon.

Together, the slide and the angle plate provide, in fact, means as convenient as any for setting up small and moderate sized pieces of material. But occasionally the restricted cross slide and vertical slide movements prove a hindrance in dealing with straightforward but lengthy material. It is then necessary to consider other means of setting up

controlled by that of the lathe bed.

Where faces rather than edges must be brought into taper relationship by a straight grinding wheel; the chuck can be turned through 90 deg. to bring the locating face to the top, checking the cross-wise setting horizontal with a uniform reading, and the lengthwise setting sloping by a varying reading on the indicator. To

the clamp loosened: then with the clamp secure, the nuts on the stud can be regulated to finish setting precisely.

Apart from lengthwise slope on the platform for faces to be ground taper or angular, tilting it enables long edges to be ground at angles; and using two grinding wheels, straight and cup type as at **E**, similar

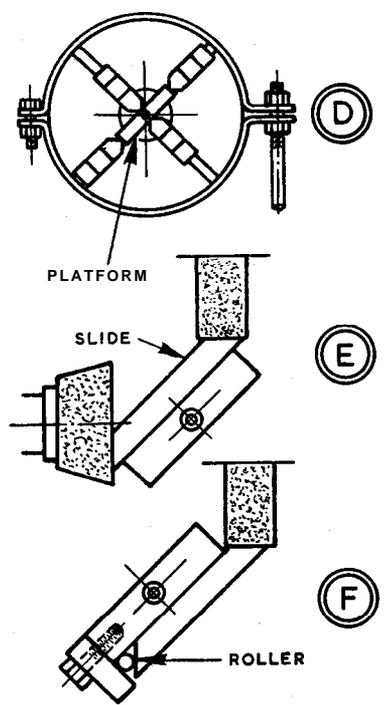
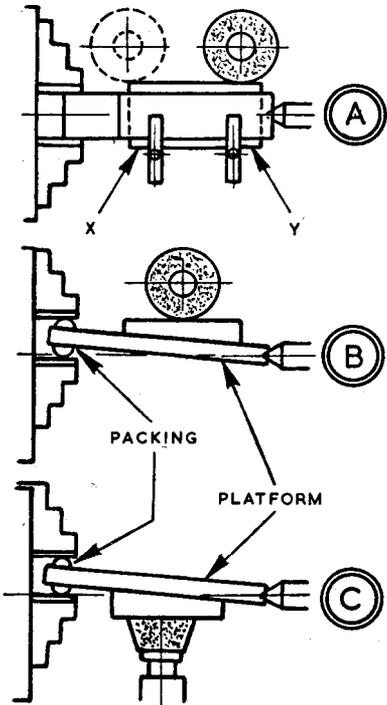
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-given that grinding wheels can be run in some way from the vertical slide, as from a motorised head.

A suitable "platform" or mounting face must then be contrived for the material. It is to be found in a piece of true rectangular bar for lengthy material, or a piece of flat plate for shorter and wider material. The basic principle is as at **A**, where the material, however, is to be ground parallel. The rectangular bar is centred one end for support by the tailstock, and held at the other end in the independent chuck. It can be trued on the face and the edge by adjusting the chuck jaws to uniform reading indicator tests in the length.

Verified setting

The face can be brought vertical by indicator from the vertical slide, and kept so by suitably clamping the chuck. Material can then be clamped or bolted to the face; and if it is thin, a piece of heavier supporting material can be placed outside. Assuming one edge to be true, its setting can be verified at the ends **X** and **Y**, which should be equal height for the edges to finish parallel, and suitably varying if they are to be taper. The length it is possible to deal with is, of course,



avoid strain on platform and chuck, half-round pieces of packing, made by filing short lengths of rod, can be used as at **B**. Then the material mounted on the locating face can be ground taper. The principle applies using a cup type grinding wheel as at **C**, when the locating face is vertical.

Without other means of fixing the chuck to keep the platform horizontal, vertical or tilted, a clamp can be made in halves from light rectangular or heavy strip metal as at **D**, and anchored on a strong stud on the lathe standard or bench-all of which should be rigid to obviate vibration and chatter. Preliminary setting can be effected by turning the chuck with

and complementary angles can be ground at one setting. For the guide part of a small slide as shown, similar angles of 45 deg. can be used on the edges, and grinding both at one setting without moving the material ensures parallelism.

Using one grinding wheel, similar angles arrive from turning the material; but then precise resetting is necessary to ensure parallelism. This can be achieved, however, by a strip screwed to one edge of the platform material as at **F**, for a roller to be used each end to locate the finished V-edge. Clamping can be at the extreme ends of the slide material, leaving a clear run for the grinding wheel.