



FIG. 1.

THE UNIVERSAL HAND LATHE.

There is scarcely a more prominent example of progress in machine tools than that of the Bench Lathe, a tool that, although a long time on the market, has only, comparatively speaking, recently found favour with machinists. This is due to the marked improvements in their construction, embodying great handiness in the way of control, etc., and complete adaptability to a large variety of work. The bench lathe is rapidly becoming a popular tool.

The following matter and illustrations are descriptive of the Universal Hand Lathe, manufactured by the Brown & Sharpe Manufacturing Co. :—

Fig. 1 is a general view of the Lathe. As there shown it rests upon a table, but is frequently used as a bench lathe, and is furnished without the table.

To prevent the bed from being sprung or twisted when the lathe is set, there is a pin in the top of one of the legs, which allows it to swivel sufficiently to compensate for any slight unevenness of the floor or bench. The other leg is firmly secured to the bed.

The top of the bed is scraped flat and affords a bearing over its entire width of the foot stock, and slide, or other rests, whose bearing surfaces are also scraped.

The foot stock is fastened to the bed by a clamp screw, and can be easily shifted, or taken from the bed; its spindle moves in a steel bushing, and is operated by a hand lever

which has its fulcrum on an adjustable stud, back of the spindle. This spindle may be clamped in any position, and has a movable stop *r*, Fig. 1, which serves to limit the forward motion, when brought against the adjustable stop screws.

The spindle and boxes of the head stock are steel, hardened and fitted by grinding. The hole through the spindle is one-half inch in diameter, the greater part of its length, and tapers at the front to three-fourths of an inch in diameter. The tapering portion of the hole is ground. A thread to receive a face plate or lathe chuck is cut on the front end of the spindle, and when not in use is protected by a guard nut. The end motion is taken up by a step screw and collar.

The spindle boxes are fitted into taper holes in the head stock, and held in place by nuts. On one side they are cut open and when adjusted, are drawn forward by nuts, and practically closed from all sides. The alignment of the spindle is thus preserved.

When the adjustment is made, the spindle is run loosely in the boxes until the bearings become warmed to their ordinary running temperature, then the boxes are closed sufficiently to take out all 'play', but not tight enough to grip the spindle. If they were closed when the bearings were cold, the spindle might stick when the bearings became warm.

As the fits are carefully made before the lathes leave the works, the boxes will not require attention until they have been long in use.