

MICROMETER GAUGES.

Brown and Sharpe micrometer gauges form convenient and accurate tools for external measurements. They are made in various sizes and styles to measure up to 24 inches and are graduated to read to thousandths and ten-thousandths of an inch, they are also made to read to hundredths of a millimetre. The decimal equivalents stamped on the frame are convenient for the immediate expression of readings in eighths, sixteenths, thirty-seconds, and sixty-fourths of an inch.

The chief mechanical principle embodied in the construction is that of a screw free to move in a fixed nut, an opening to receive the work to be measured is afforded by the backward movement of the screw, and the size of the opening is indicated by the graduations.

Referring to Fig. 199, the pitch of the screw C is forty to the inch, the graduations on the barrel A, in a line parallel to the axis of the screw, are forty to the inch, and figured 0, 1, 2 etc., every fourth division. As these graduations conform to the pitch of the screw, each division equals the longitudinal distance traversed by the screw in one complete revolution, and shows that the gauge has been opened one-fortieth or twenty-five-thousandths of an inch. This opening (between B and C) in Fig. 198, is three divisions exactly, and is therefore $= 3 \times 1/40$ th of an inch, or seventy-five-thousandths.

The bevelled edge of the thimble D is graduated into twenty-five equal parts, figured every fifth division, 0, 5, 10, 15, 20, each division, and when coincident with the line of graduations on the barrel A, indicates that the gauge screw has made one-twenty-fifth of a revolution, and the opening of the gauge increased one-twenty-fifth of twenty-five-thousandth = one-thousandth of an inch.

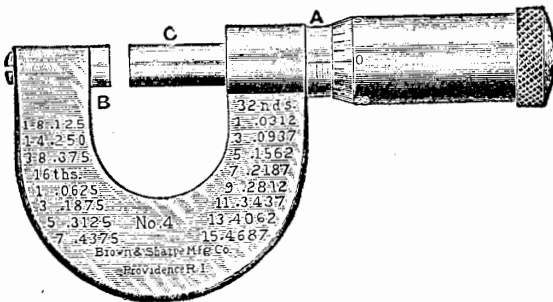


Fig. 199.

Hence to read the gauge, multiply the number of divisions visible on the scale of the barrel A by 25, and add the number of divisions on the scale of the thimble D, from zero to the line coincident with the line of graduations on the hub.

A micrometer gauge, which has recently been introduced for the use of sheet metal workers, is shown by Fig. 200, and it is well adapted for this class of work. The gauge screw is encased and protected from dirt or injury, and means of adjustment are provided to compensate for wear. The opening in the frame is about 6 inches deep, this is a very important feature,

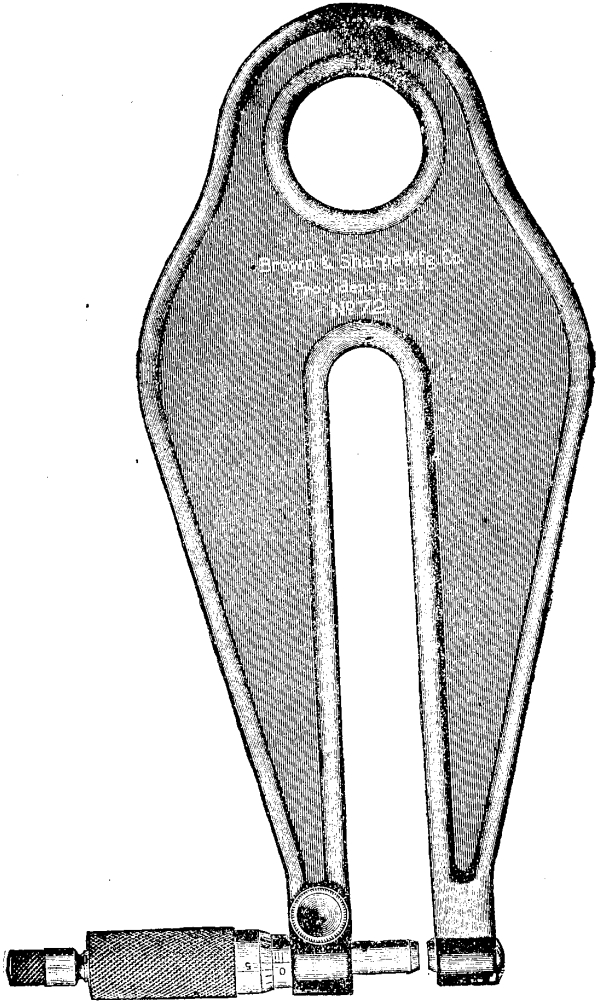


Fig. 200.

as it enables sheet metal to be more accurately measured than would be possible with an ordinary micrometer. This great depth in the frame makes it possible to measure or gauge the metal at various points in the width of the sheet, which could not be reached with the ordinary pattern of micrometer gauge.