HIGH SPEED SENSITIVE DRILLING MACHINE FOR LIGHT WORK

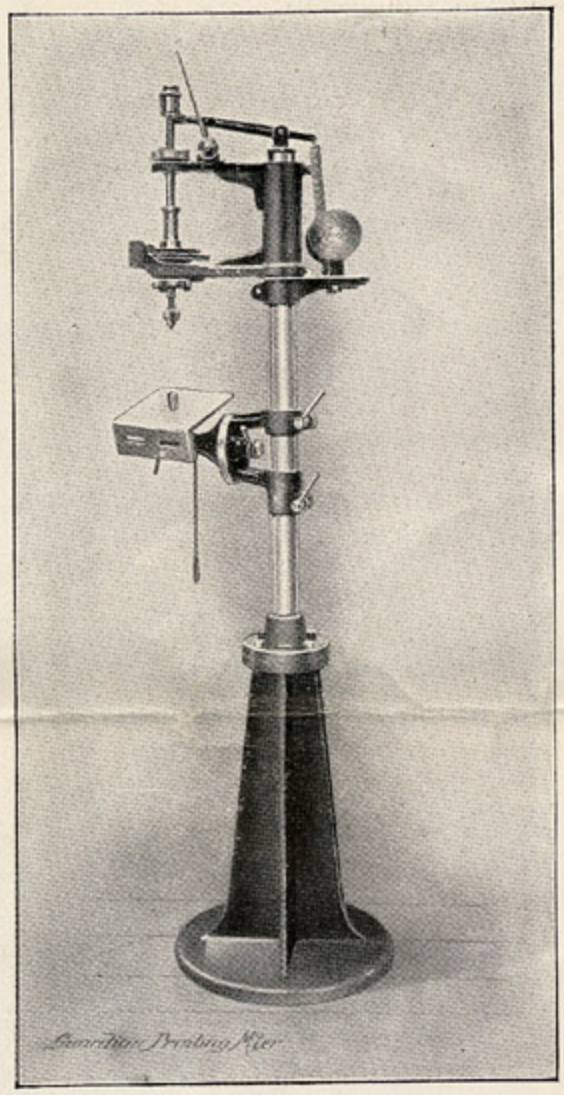

Fig. 1.

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HIGH SPEED SENSITIVE DRILLING MACHINE FOR LIGHT WORK

Finding it impossible to obtain a drilling machine suitable for a scientific instrument workshop we were compelled to design and make a drill for ourselves. This drill proved so successful that we have since added a second one to our equipment.

The following were briefly our requirements:

(1) That the drill should have an overhang of at least 6″.

(2) That the table should be capable of a vertical travel of 12″.

(3) That the drill should be capable of drilling holes from $\frac{1}{4}$ to 1/100″ in diameter in gun-metal or brass.

(4) That the drill must be accurate and convenient to use and of sound workmanship throughout.

The description which follows will show how these requirements have been met.

A general view of the drill is given in Fig. 1 showing the head, etc. mounted on the standard, while Fig. 2 gives a better view of the details.

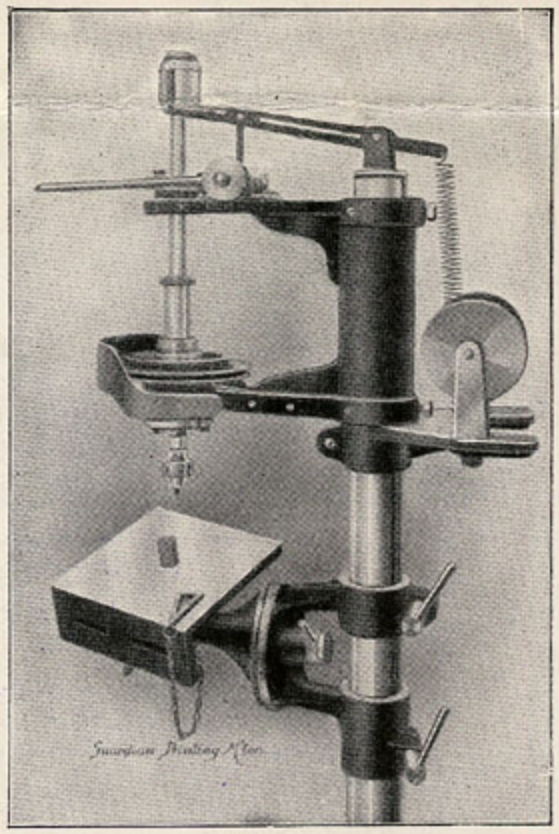

Fig. 2.

The column supporting the drill consists of a steel shaft 2 inches in diameter cast into a heavy casting provided with holes so that it can be readily screwed down to the floor of the workshop. The spindle head is rigidly fixed to the column by means of set screws arranged geometrically so that the spindle can be set square with the table. The drill spindle is of cast steel, ground and lapped, the bearings being of bronze and self-aligning. A Hoffmann ball thrust with a novel gimbal device for distributing the thrust is used. A light pulley 5 inches in diameter revolves on a fixed sleeve,

the drive being communicated to the spindle by means of a sleeve and long feather. The vertical travel of the spindle is $2\frac{1}{8}$ in. and the distance from column to spindle centre is $6\frac{3}{4}$ in. The feed is by means of a pinion and rack, the top lever being linked to the head of the drill spindle to prevent any tendency to side motion. A handy adjustable stop is fitted to the feed. The driving belt is of gut and passes over aluminium guide pulleys running on ball bearings; the position of the pulleys can be altered to take up slackness in the driving belt. The table is $6\frac{1}{2}$ in. square, a slotted plate $2\frac{1}{2}$ in. wide being formed on one side for the support of small tools, as, for example, a dividing head for use in drilling tommy-headed screws. The table can be swivelled round an axis at right angles to the axis of the drill and can also revolve on an axis parallel to it. The table rests on an independent stop collar and can thus be swung round the column without altering its height relatively to the drill. An accurately divided circle is provided so that the position round the horizontal axis can be readily determined. A hole of 12 mm. diameter passes through the centre of the table and is of use for supporting "V" or other special devices.

The parallel hardened steel triangle shown lying on the table in Fig. 2 is useful as a packing to prevent drilling into the table. The machine is of the best workmanship throughout.

The following is a brief summary of the points of the machine:

Vertical travel of the spindle, $2\frac{1}{8}$ inches.

Distance from column to centre of spindle, $6\frac{3}{4}$ inches.

Vertical travel of the table, $12\frac{1}{2}$ inches.

Size of table, $6\frac{1}{2}$ inches square.

Diameter of central hole in table 12 mm. (approx. $\frac{1}{2}$").

Self-centring chuck taking drills from $\frac{1}{4}$ inch downwards.

Maximum speed of drill 6000 revolutions per minute.

	£	*s.*	*d.*	Code Word
Price of drill with self-centring chuck and with specially light and stiff countershaft fitted with Hoffmann ball bearings to both fast and loose pulleys, with striking gear	**28**	**10**	**0**	*Unbanded*

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