

UNITED STATES PATENT OFFICE.

G. S. CORWIN, OF RIVERHEAD, NEW YORK.

IMPROVED BORING-MACHINE.

Specification forming part of Letters Patent No. 40,159, dated November 3, 1863.

To all whom it may concern:

Be it known that I, G. S. CORWIN, of Riverhead, in the county of Suffolk and State of New York, have invented a new and useful Improvement in Boring-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a longitudinal vertical section of my invention. Fig. 2 is a front elevation of the upper portion of the same. Fig. 3 is a sectional side elevation of the base and treadle.

Similar letters of reference in the three views indicate corresponding parts.

This invention relates to an improvement in that class of boring-machines in which the spindle is fitted so as to rotate and also slide longitudinally in boxes terminating the outer ends of two arms which project from one side of an upright or pillar.

The invention consists in the arrangement of an adjustable frame forming the bearings for the shaft imparting motion to the bore-spindle and attached to the arms, which form the bearings of said bore-spindle, in such a manner that by raising or lowering said frame different-sized wheels can be introduced and the speed of the bore spindle can be accommodated to the size of the drill and to the nature of the article to be drilled.

The invention consists, also, in a treadle with pawl for feeding and bent lever-click for arresting and releasing the vertical spring-rod which connects with the arms forming the bearings of the bore-spindle, in such a manner that by repeatedly depressing said treadle the drill is gradually fed to the work, and by raising the treadle the spring-rod is released and the drill carried back to its original position.

To enable those skilled in the art to make and use my invention, I will proceed to describe it.

A represents a pillar or upright, made of iron or any other suitable material, and supported by legs B, or otherwise secured in a vertical position. Two arms C project from the front side of this upright, and the outer ends of these arms form the bearings for the bore-spindle D. This spindle slides freely in a longitudinal direction in its bearings, and through a bevel-pinion, E, which gears into a bevel-wheel, F, on the end of a short arbor, G. The pinion E connects with the spindle D by means of a key or wedge sliding in a

groove, *a*, in the spindle, so that said spindle is free to slide through the pinion, being compelled, however, to rotate with the same.

The arbor G' has its bearings in a frame, H, which is secured to the edges of the arms C by screws *b* passing through flanges *c*, so that said frame can be adjusted toward or from the pinion E, and that the position of the shaft G can be accommodated to bevel-wheels of different size. If it is desired to impart a quick motion to the drill, a large bevel-wheel is secured to the end of the arbor G, and in order to reduce the speed of the drill the size of the bevel-wheel is reduced, and the frame H is adjusted accordingly. The arbor G is rotated either by hand or by other competent power. The article to be drilled is supported by a table, I, which is adjustable in a vertical direction by a hand-screw, *d*.

The upper end of the bore-spindle D is secured in the end of an arm, J, by means of a screw, *e*, which catches into a groove in the spindle in such a manner that it prevents said spindle from dropping down, leaving it free, however, to rotate in either direction. The arm J slides up and down in slots in the upright A, and it is sustained by a brace, K, which also extends through the slots in the upright. The rear ends of the arm and brace are connected to a rod, L, which slides up and down on the rear side of the upright A. A spring, *f*, which acts on the rod L, carries the same, together with the bore-spindle, up as far as the slots in the upright A will permit.

The lower end of the rod L is provided with cogs *g*, which gear into a spur-wheel, *t*, on a shaft, *m*, that has its bearings in cross-bars *n*, connecting the legs B. The shaft *m* is rotated in the direction of the arrow marked near it in Figs. 1 and 3, by the action of a treadle, *o*, which is attached loosely to the end of said shaft, and which is furnished with a pawl, *p*, gearing in the teeth of a ratchet-wheel, *q*, that is firmly secured to the shaft *m*. A bent lever-click, *r s*, prevents the ratchet-wheel and shaft from returning to its original position when the pressure on the treadle ceases, and allows the treadle to rise for a new hold or bite of the pawl *p*. The arm *s* of the click *r s* extends over the treadle, and if it is desired to release the ratchet-wheel and shaft *m*, the treadle is raised until it strikes said arms and throws the click *r* out of gear with the ratchet-wheel. The rod L is now at liberty to follow the action of the spring *f*, and the arm J, brace K, and spindle D are carried

up to their original position. By the combination of the bent lever-click *r s*, treadle *o*, pawl *p*, and ratchet-wheel *q*, the drill can be fed to the work to any desired depth without great exertion simply by repeated actions of the foot on the treadle, and the hands are perfectly free to hold the article to be drilled and to give motion to the drill, or for any other purpose.

What I claim as new and desire to secure by Letters Patent is—

1. The vertically-adjustable frame *H*, in combination with the bevel-gear *E F* and

bore-spindle *D*, constructed and operating as and for the purpose specified.

2. The combination of the treadle *o*, pawl *p*, bent lever-click *r s*, ratchet-wheel *q*, and vertically-sliding rod *L*, with the bore-spindle *D*, all constructed and operating in the manner and for the purpose, substantially as shown and described.

G. SERENO CORWIN.

Witnesses:

JAMES VAIL,
CHARLES L. CORWIN.