JOHN SIMPSON.

Improvement in Boring Machines.

No. 124,091. Patented Feb. 27, 1872.

Fig. 1.

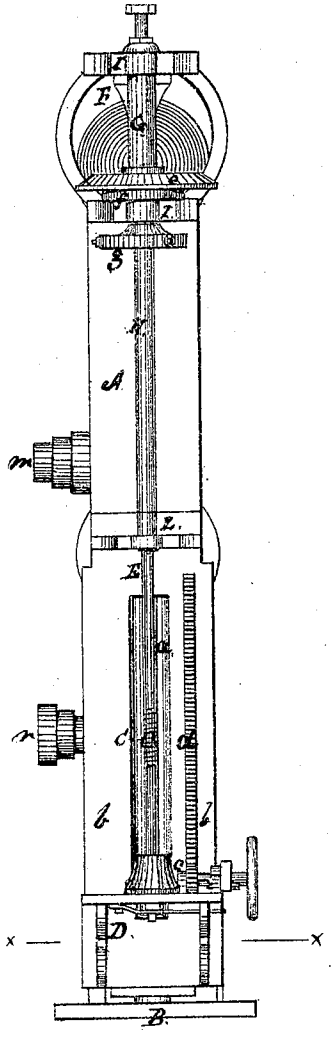


Fig. 2.

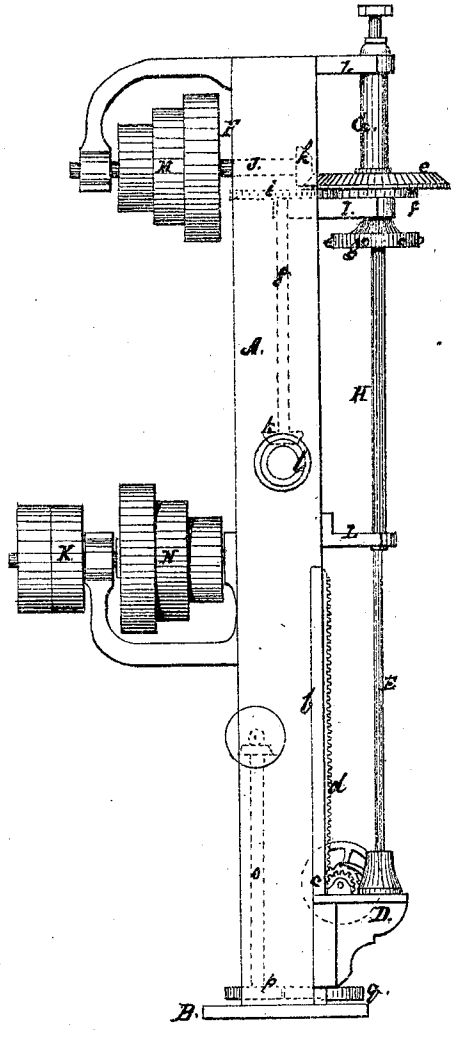
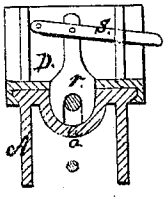


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN SIMPSON, OF MEADVILLE, PENNSYLVANIA.

IMPROVEMENT IN BORING-MACHINES.

Specification forming part of Letters Patent No. 124,091, dated February 27, 1872.

SPECIFICATION.

To all whom it may concern:

Be it known that I, JOHN SIMPSON, of Meadville, in the county of Crawford and State of Pennsylvania, have invented certain new and useful Improvement in Vertical Boring-Machines for making working-cylinders or barrels for pumps, oil-wells, steam-engines, &c.; and the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 represents a front view of the machine, showing the mandrel and screw-chuck for holding the tubes or barrel to be bored out; also, the drill and sliding mechanism for holding and feeding the same for operating. Fig. 2 is a side view of the same, showing the same parts; also, the arrangement of the gang of belt-pulleys, and the automatic-feeding mechanism in dotted lines. Fig. 3 shows a cross-section at *x x*.

The object of my invention is improvements in machinery to facilitate the manufacture of pumps and working barrels for oil-wells, and other purposes, requiring to be bored perfectly true and smooth, for pistons to work in; and it consists in the arrangement and combination of the feeding mechanism, which is hereinafter more fully described.

The vertical frame A, which supports all of the working parts of the machine, is made of metal, cast from one pattern, in such form and proportion as to be very light, yet sufficiently strong and durable, with a long sunken groove, *a*, in the lower central portion from the base B, extending up about one half of the heighth of the frame, for the vertical feeding-screw C to be placed in, back of the plane of the face *b b*, on which the sliding head or bracket D is secured, with its pinion *c*, to operate in the rack *d* on the face of the frame A, for feeding or withdrawing the boring-tool E by hand. The top of the frame A is cast with a large opening, F, through it, and projecting heads I I for the bearings of the journals of the vertical mandrel G, to which a screw-chuck *g* is fitted for holding the cylinder or barrel H for boring. On the mandrel G are fitted a bevel-gear wheel, *e*, and a spur-gear wheel, *f*, the former being driven by the pinion *h* on the gang of pulley countershaft, J, and the latter spur-wheel *f* connecting with another spur-wheel, *i*, on the vertical shaft *j*, which is provided with bevel-gear *k* and *l*, and a gang of belt-pulleys, *m*, corresponding with a reversed set of pulleys, *n*, arranged below, with a horizontal and vertical shaft, *o*, on the lower end of which is a gear-wheel, *p*, fitting into another, *q*, on the lower end of the vertical screw, C, by which means the feeding mechanism is operated automatically by the clutch-nut *r* and lever *s*, and operates to complete the boring, and finishing the inside of the barrel H, which is held centrally in the guide L at its lower end. The machine is driven by the pulley K, and the motion or speed of revolving the barrel is adjusted by the belt on the gang of pulleys M and N in the usual manner. The drill or boring-tool E is also fed up faster or slower, as may be required, by the gang of pulleys *m* and *n*, by shifting the belt thereon.

The advantages of the arrangement and combination of the mechanism for boring, as above described, are very great over those which work horizontally, as they keep perfectly clear of the borings, operate much faster, and do perfect work.

What I claim is—

The automatic-feeding mechanism for boring-machines, consisting of the spur-gear *f i*, vertical shaft *j*, bevel-gear *k l*, with gang of belt-pulleys *m*, as connected with and driven by the mandrel G, when arranged and combined with a corresponding gang of pulleys, *n*, bevel-gear shaft *o*, and spur-gear *p q*, the vertical screw C, and sliding head or bracket D, operating in the manner as and for the purposes herein set forth.

In testimony whereof I hereunto subscribe my name.

JOHN SIMPSON.

In presence of—

WILLIAM RODDY,

THOMAS RODDY.