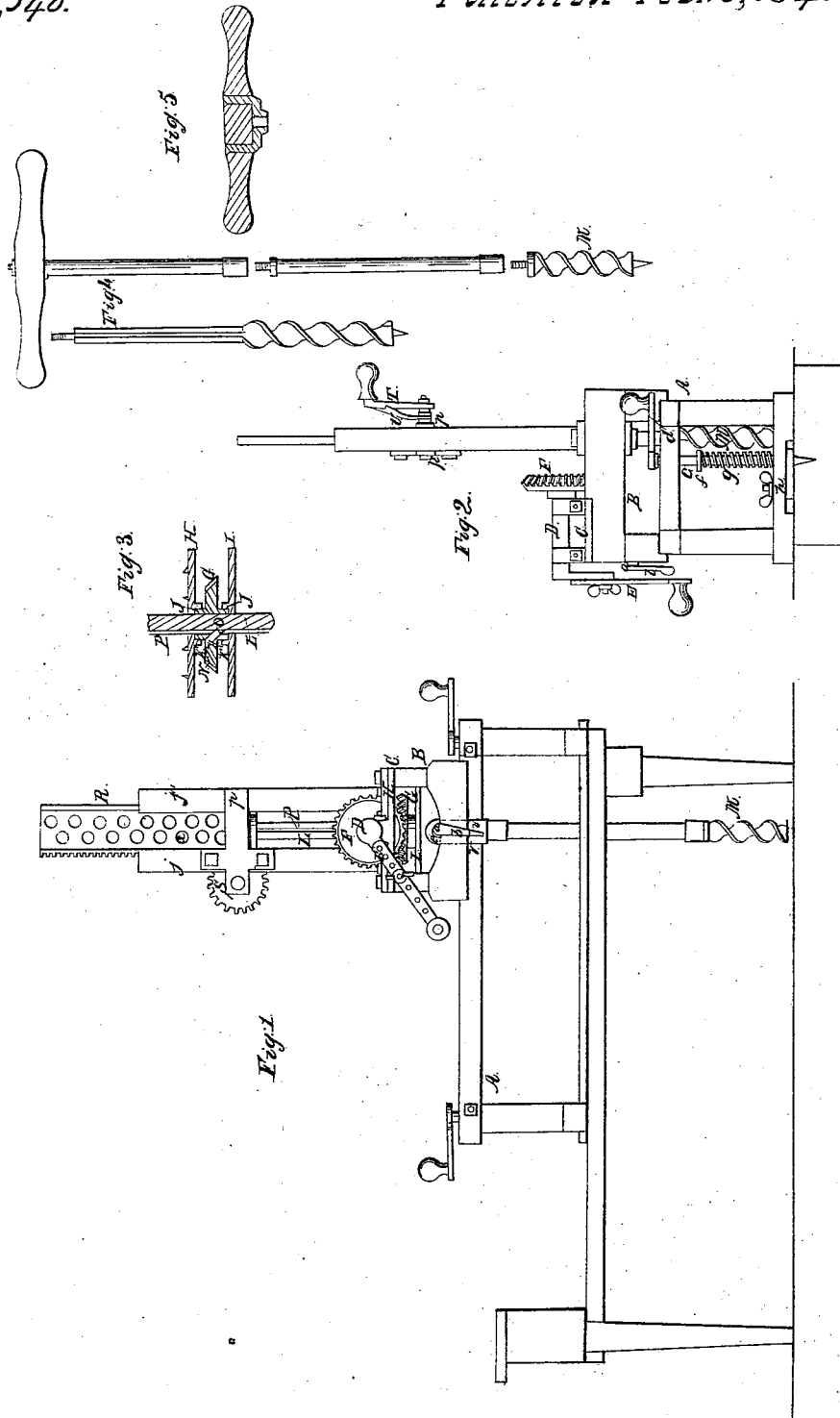


*R. Smith,*  
*Boring Timber.*

*N<sup>o</sup> 2,948.*

*Patented Feb. 10, 1843.*



# UNITED STATES PATENT OFFICE.

RILEY SMITH, OF TOWANDA, PENNSYLVANIA.

## IMPROVEMENT IN MACHINES FOR BORING TIMBER, &c.

Specification forming part of Letters Patent No. 2,948, dated February 10, 1843.

*To all whom it may concern:*

Be it known that I, RILEY SMITH, of Towanda, in the county of Bradford and State of Pennsylvania, have invented a new and useful Machine for Boring Timber for Mortises and other Purposes, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a side elevation of the machine as arranged for boring floor-timber. Fig. 2 is an end elevation of the machine as arranged for boring timber for mortises, &c. Fig. 3 is a vertical section through the vertical shaft, cog-wheel, and seat for supporting the same. Fig. 4 is a side view of the vertical shaft attached to an auger-handle, the connecting-shaft, and pod. Fig. 5 is a section of the handle.

Similar letters refer to corresponding parts.

The frame A of this machine is of a rectangular form, and is composed of two longitudinal timbers connected together at their ends by a cross-tie, and connected to two transverse sills by four vertical posts. On top of this frame is arranged a sliding frame or carriage, B, which is made in the following manner: On top of each of the longitudinal timbers of the frame A, and parallel with the same, is placed a rabbeted timber of about one-third their length. These timbers are fastened together at their ends by a cross-timber extending from one to the other. On top of these cross-timbers, and at the ends thereof, is fastened an iron plate or frame, C, with boxes or bearings secured on the top thereof for receiving the horizontal shaft D, which turns in said boxes and extends crosswise to the center of the frame, the other end of said shaft projecting outside said frame, to which end is fastened a crank, E, of such a form that it can be increased or diminished in length at pleasure.

To the inner end of the shaft D is secured a vertical bevel cog-wheel, F, which gears into a horizontal bevel-wheel, G, arranged below the level of the top of the upper frame, B, between two horizontal plates of iron, H I, fastened to the cross-timbers, and is supported and held in its place by a hub, J, formed on its upper and lower face, moving in circular flanges K' K'', projecting from the faces of the said plates and resting on the lower plates. The horizontal bevel-wheel G and

plates H I are perforated in the center with a circular opening, to allow the vertical shaft L, to which the pod M of the auger is attached, to move freely therein. In the upper face of this wheel is drilled an inclined opening, which extends to the opening in the center of the wheel, into which is driven a steel pin, N, which projects into said opening and forms a cog, O, which passes into a groove, P, made in the auger-shaft L, thus gearing them together, so that when the wheel is turned it causes the shaft to turn with it, and at the same time allows said shaft to have a vertical movement. The pod M of the auger is attached to the lower end of the auger-shaft by means of a screw formed on its upper end fitting into a female screw formed on the lower end of the shaft. The top of said shaft is secured to a perforated iron plate, R, which is fitted to and moves in grooves made on the inner sides of two vertical posts or guides, S' S'', secured to the upper flange-plate, H, and connected together by two iron plates, P' P''. This perforated plate R has cogs formed on one of its edges, into which a small pinion, S, works, whose shaft turns in ears projecting from each side of the vertical posts, which pinion is for the purpose of raising or depressing the auger, a crank, T, being attached to the axle to allow the operator to turn it. A small notched spring bar or catch, U, is fastened to the vertical post or guide S'' in an inclined position, which may be made to engage with the crank on the axle of the pinion and hold the auger in a suspended state while adjusting the carriage or frame.

A clamp for holding the sliding frame or carriage B firmly in its place while operating the machine is attached to each of the rabbeted timbers. This clamp consists of a thin plate of iron, V, placed in a vertical mortise made in said rabbeted timber, and bent at its lower end under the longitudinal timber of the frame A at right angles, and perforated near the top with a round opening, to admit an eccentric, e, attached to a shaft, a, turning in openings in the rabbeted timber, which shaft is turned, when desired, by means of a handle, b.

A vertical crank-rod, c, is arranged at each end of the frame A of the machine, for the purpose of holding the machine firmly on the timber to be bored. This rod extends through the cross-tie and sill of the frame A, and has a

screw formed on its lower end, which is screwed into the timber to be bored by means of a crank, *d*, attached to the upper end of said rod. A shoulder, *f*, is formed on said crank-rod, near the top thereof, between which and the lower sill is wound a spiral spring, *g*, for keeping the crank-rod up while not in use.

When it is intended to bore floor-timber with this machine, it is placed on a bench or platform, *W*, supported by three inclined legs, at one end of which is raised a seat, *X*, for the operator to sit on while operating the machine.

Operation: Adjust the gage-bar *h*, and secure it by its thumb-screw *i*, bring the frame *A* over the timber to be bored, make fast the frame by the screw-clamps, move the carriage *B* with the auger upon the frame until the auger is perpendicularly over the place where the hole is to be bored, secure the carriage to the frame by the eccentric-clamp, disengage the spring-catch *U* from the crank *T* of the pinion *S*, let down the auger upon the timber, turn the bevel-gear by means of the alterable crank *E*. This will cause the auger to turn, which, as it descends into the timber, will move over the cog *o* of the horizontal bevel-wheel *G*, which will remain in the same horizontal position, the auger having descended into the timber as far as the intended depth of the hole to be bored. The pin of the perforated plate *R* strikes upon the connecting-plate of the vertical guides *s' s''*, and arrests the downward movement of the auger. The pinion *T*

is then turned, which lifts the auger from the timber, and is secured by the spring-catch *U*. The carriage *B* is then moved, the spring-catch disengaged, and another hole bored, as before, and in this manner the operation is continued until all the holes are bored. The screw-clamps are then disengaged and thrown up from the timber, and the frame applied to another timber in like manner.

What I claim as my invention, and which I desire to secure by Letters Patent, is—

1. The combination of the perforated and cogged plate *R* with the grooved auger stem or shaft *L*, and the pin *x*, inserted into one of the perforations of the plate, for the purpose of arresting the downward motion of the auger after the hole has been bored to a sufficient depth by striking upon the horizontal connecting-plate *p'* of the vertical guides *s' s''* for suspending the auger, and thus disengaging the screw from the wood, preparatory to its being raised by the rack and pinion *S*, as described.

2. The arrangement of the gage-bar *h*, for adjusting the machine to the line of boring, as described, in combination with the upper sliding frame, *B*, in which the auger has its bearing.

RILEY SMITH.

Witnesses:

EDMUND MAHER,  
A. E. JOHNSON.