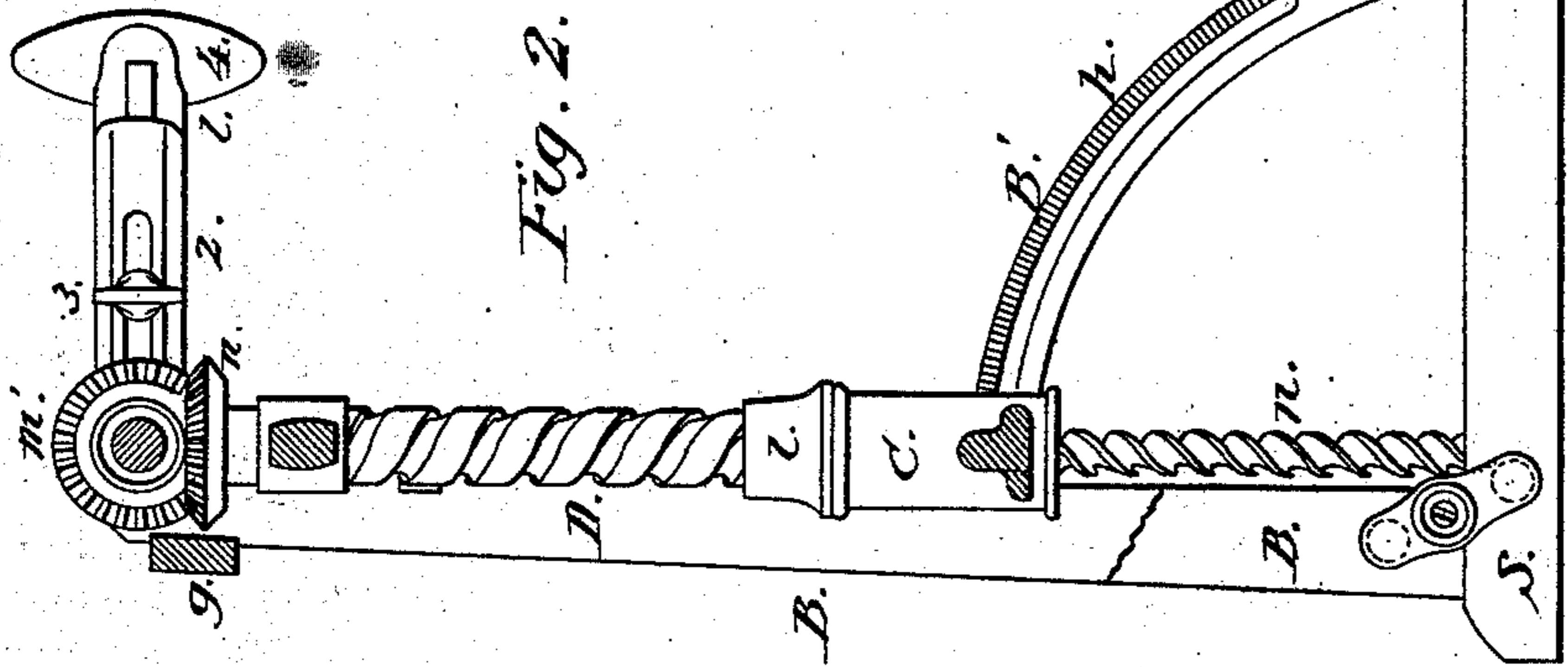
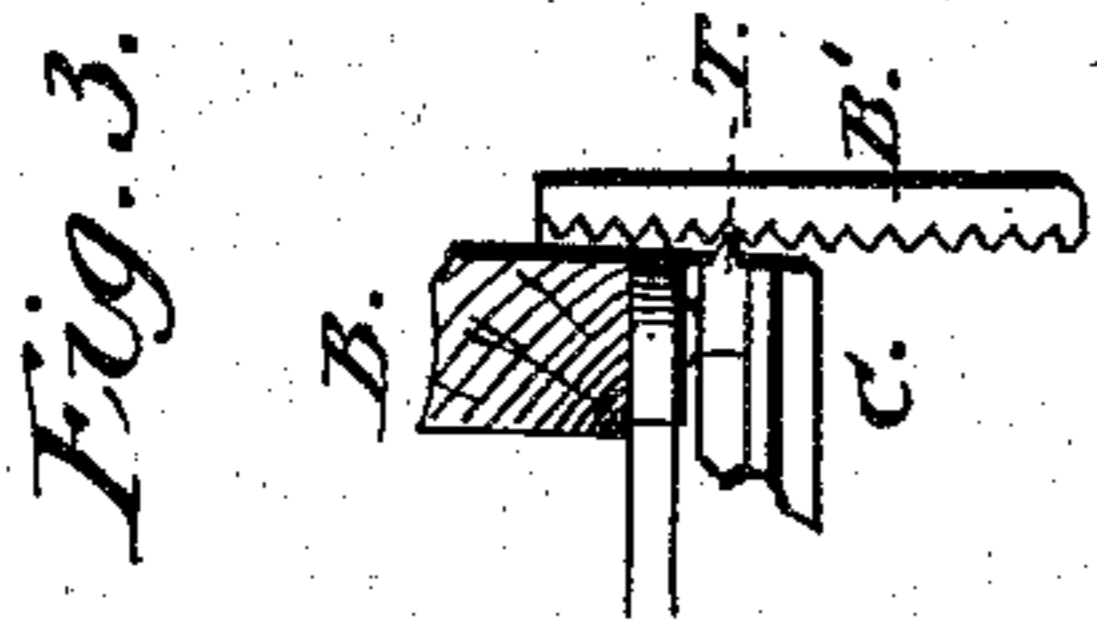
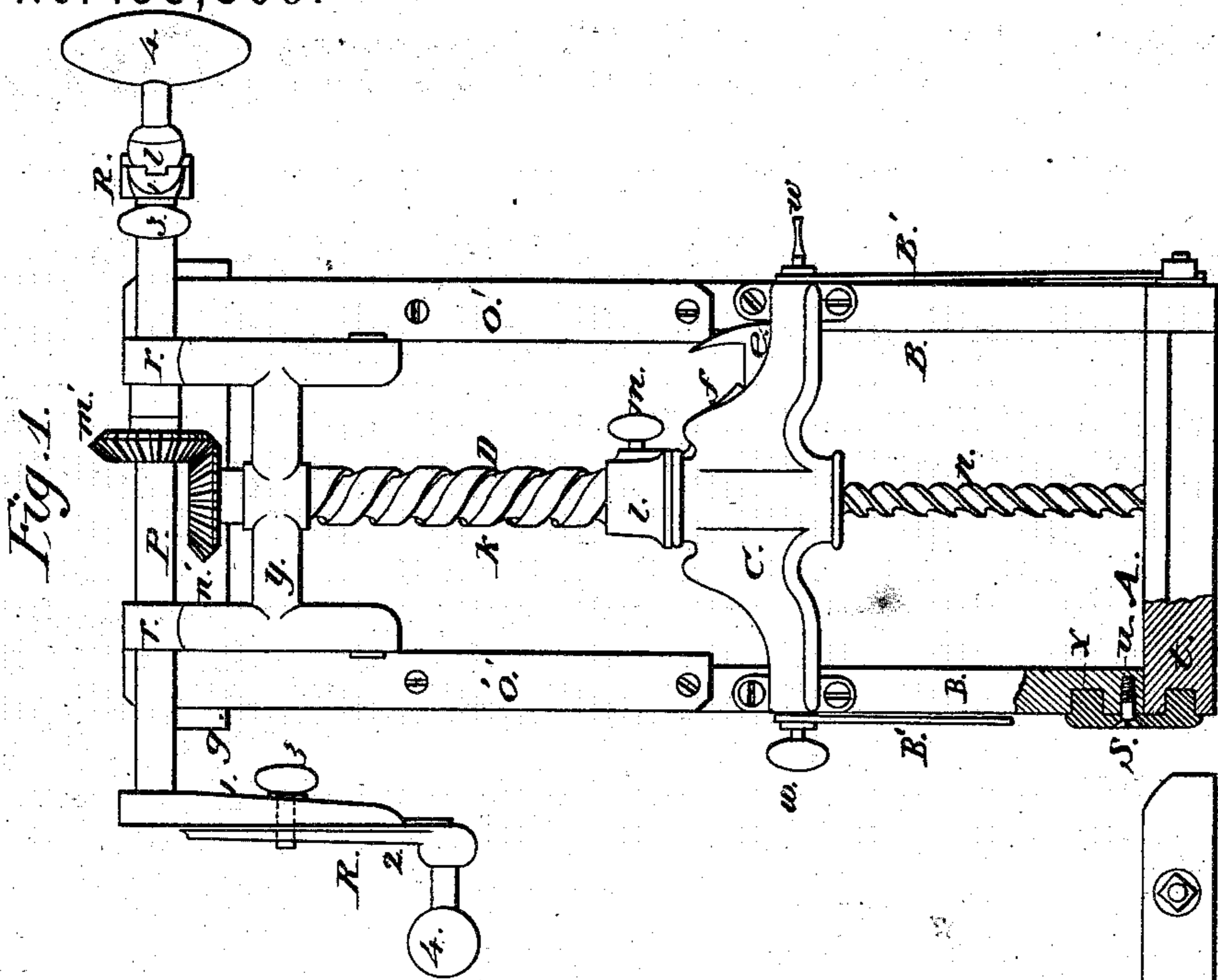


Z. C. PHILLIPS.
Boring-Machines.

No. 158,809.

Patented Jan. 19, 1875.



Attest;
Edw. M. Down
Jno. D. Patten

Inventor;
Zachariah C. Phillips
By Johnston & Grindlay
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UNITED STATES PATENT OFFICE.

ZACHARIAH C. PHILLIPS, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN BORING-MACHINES.

Specification forming part of Letters Patent No. 158,809, dated January 19, 1875; application filed June 2, 1873.

To all whom it may concern:

Be it known that I, ZACHARIAH C. PHILLIPS, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Boring-Machines, the same being an improvement upon the machine for which Letters Patent were granted me bearing date January 2, 1872, and numbered 122,402; and I do hereby declare that the following is a full, clear, and exact description of my present improvement, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in a driving-shaft provided with adjustable cranks and a gear-wheel, in combination with a hollow mandrel furnished with a gear-wheel, screw-threads, and adjustable gage, said hollow mandrel being pivoted in a fixed bearing and sliding cross-head, furnished with bearing for said driving-shaft, the whole being mounted in uprights hinged to a base, and held in the desired position through the medium of two curved and slotted arms and two set-screws.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawings, which form part of my specification, Figure 1 is an end elevation of my improved boring-machine. Fig. 2 is a vertical section of the same. Fig. 3 is a section of the lower bearing for the hollow mandrel, and represents the form of the projections on the ends of it, which projections fit into the notches of the slotted and curved arms.

A represents the base of the machine, to which is hinged a frame consisting of two uprights, B, and a cross-bar, g. To the uprights B are attached slides o' for the sliding head y, on the upper end of which are bearings r for the driving-shaft P, on which is secured a gear-wheel, m', which meshes into a wheel, n', secured on the upper end of the hollow mandrel D, pivoted in the sliding head y and bearing C, secured to the uprights B. The bearing C and its trigger, consisting of the parts e f and a spring, together with the hollow mandrel D, with its screw-threads k,

adjustable gage l, and its set-screw m, are all constructed and operated, with relation to each other, exactly as in the boring-machine for which Letters Patent were granted and issued to me as aforesaid.

The uprights B are hinged to the base A through the medium of hinges S, which hinges consist of a plate provided with two pins, x and t, and an opening for a wood-screw, u.

The pin x and wood-screw u are used for the purpose of securing the hinges S to the uprights B, and the pin t, being fitted into a recess in the base A, serves as the pintle of the hinge.

The form, construction, and arrangement of the hinges, and the relation of the same to the base A and uprights B, are clearly shown in Figs. 1 and 2.

To the base A are secured two curved slotted arms, B', which are held in position, with relation to the ends of the bearing C, by means of set-screws w and projections T on the ends of said bearing, the projections T fitting into notches on the inside of said arms. (Indicated at h in Fig. 2.)

By this arrangement of the slotted arms B', their notches h, projections T, and set-screws w, the hinged uprights may be set at any desired angle, whereby the mandrel D and its auger n can be arranged in position for boring a hole at any desired angle.

On each end of the driving-shaft P are secured adjustable cranks R, consisting of parts 1 and 2, set-screws 3, and pivoted handle 4. By this construction of the cranks R, their length and leverage may be increased or diminished at the pleasure of the operator.

The operation of my improved boring-machine is as follows: The driving-shaft P is revolved through the medium of the cranks R, which will revolve the wheel m', and thereby revolve the wheel n' and hollow mandrel D, and the screw-threads of the auger-point will give the downward movement of the auger-mandrel and driving-gear. The sliding head y moves down on the slides o' until the adjustable gage l comes in contact with the trigger, when the mandrel causes the sliding head to travel upward and withdraw the auger from the hole it has bored.

I am aware that driving-wheels and a sliding gate, substantially as hereinbefore described, are common in wood-boring machines, and therefore do not claim them, broadly.

Having thus described my improvement, what I claim as my invention is—

The bearing C, provided with projections T and thumb-screw *w*, in combination with the

curved arms B', furnished with notches *h* on their inner faces, and uprights B, hinged to the base A, substantially as herein described, and for the purpose set forth.

Z. C. PHILLIPS.

Witnesses:

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JAMES J. JOHNSTON.