

2 Sheets--Sheet 1.

J. DUNCAN & W. H. TALBOT.
Hub-Boring Machines.

No. 148,679.

Patented March 17, 1874.

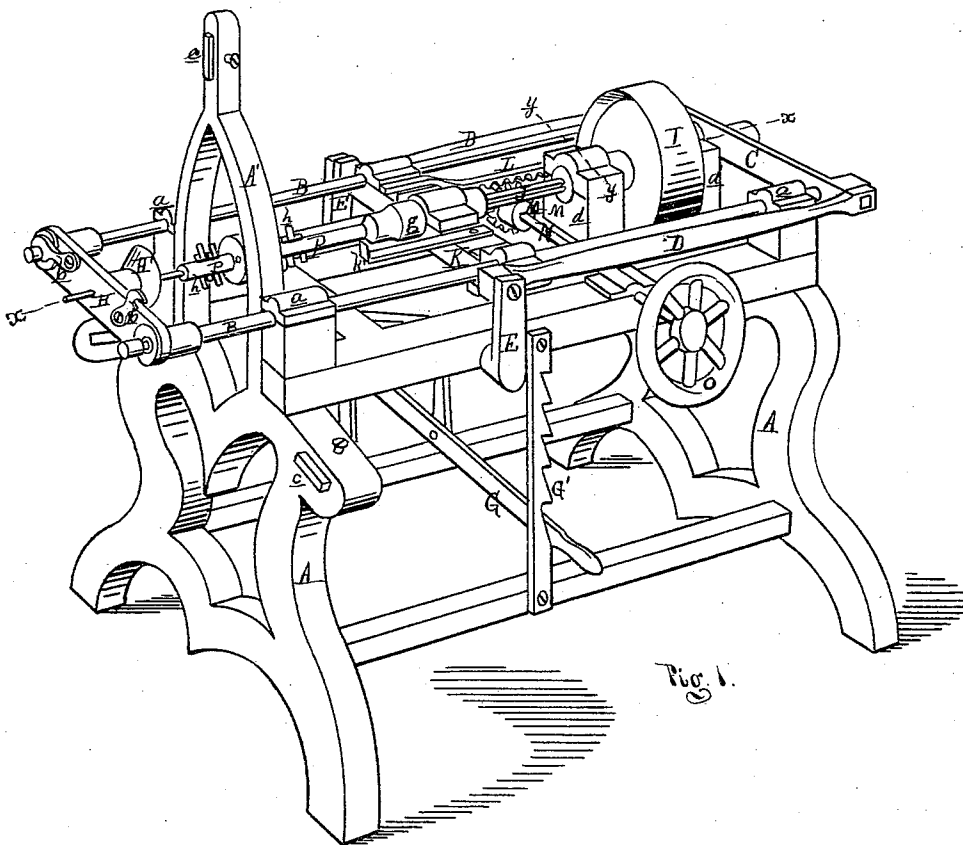


Fig. 1.

ATTEST:
C. E. Brewster
E. A. Young

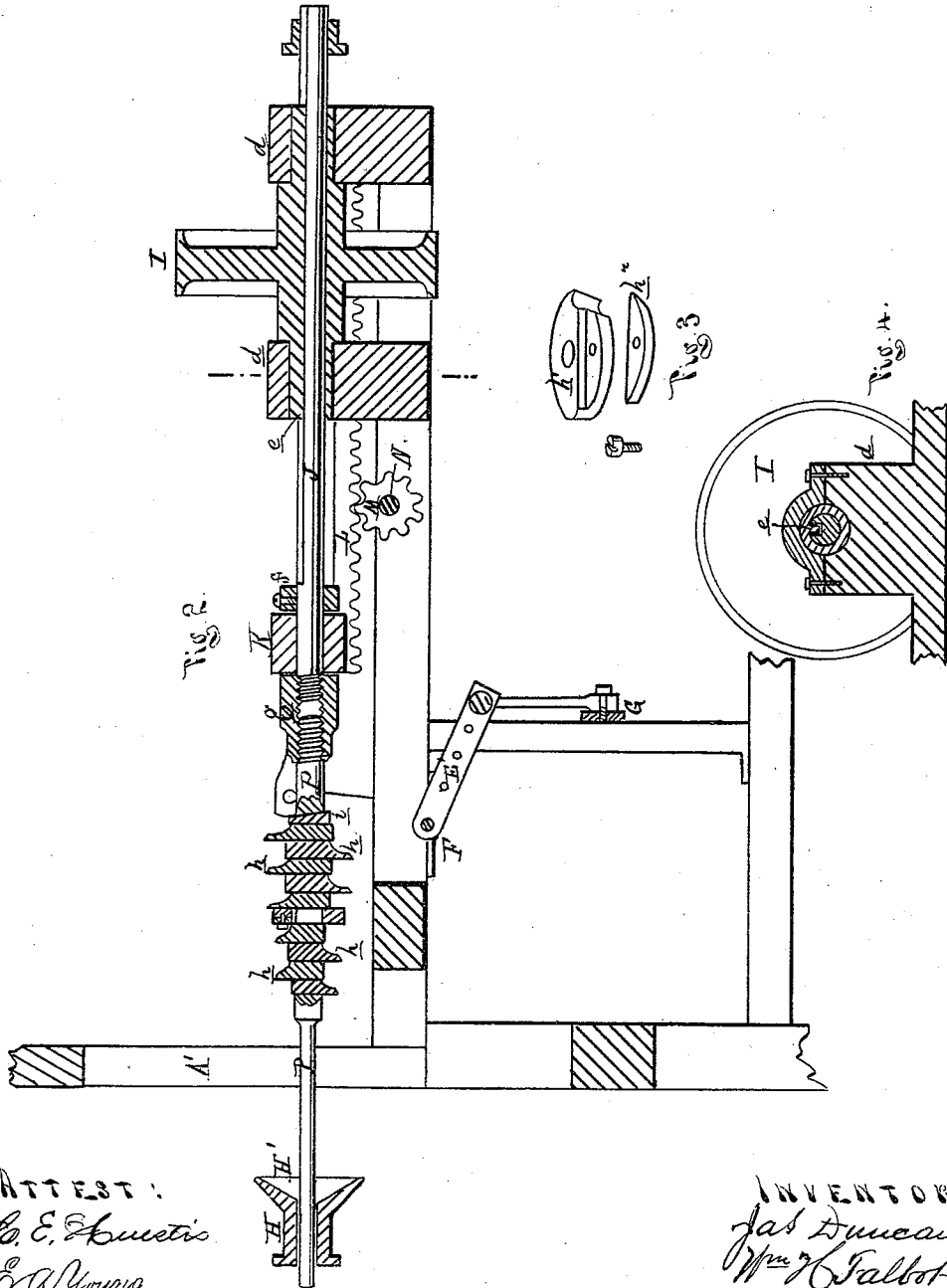
INVENTOR:
Jas. Duncan &
Wm. H. Talbot
per Attorney
Thos. J. Sprague

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ATTEST:
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C. A. Young

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Wm H Talbot
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Thos J Sprague

UNITED STATES PATENT OFFICE.

JAMES DUNCAN AND WILLIAM H. TALBOT, OF BUCHANAN, MICHIGAN.

IMPROVEMENT IN HUB-BORING MACHINES.

Specification forming part of Letters Patent No. **148,679**, dated March 17, 1874; application filed December 2, 1873.

To all whom it may concern:

Be it known that we, JAMES DUNCAN and WILLIAM H. TALBOT, of Buchanan, in the county of Berrien and State of Michigan, have invented an Improvement in Hub-Boring Machines, of which the following is a specification:

The nature of this invention relates to an improvement in machines for boring the hubs of wheeled vehicles; and has for its object to insure the accurate and expeditious centering of a hub or wheel, the facing of the latter, while being held true, and to provide an improved form of bit or combination bit-stock for boring the hub.

Figure 1, Sheet 1, is a perspective view of the machine. Fig. 2, Sheet 2, is a longitudinal vertical section at *xx* in Fig. 1, enlarged in scale. Fig. 3 is a perspective view of the circle-controlling cutter detached from its disk, and Fig. 4 is a cross-section of shaft at *yy*.

In the drawings, A represents the frame of our machine, preferably of cast-iron, in the form shown in Fig. 1. At each side of the frame is a round iron rod, B, which slides in boxes *a* at the corners. These rods are connected at the back end by a cross-head, C, to the ends of which are strapped two connecting-rods, D, whose front ends are pivoted to wrists on the upper ends of the arms E E, keyed on a rock-shaft, F, journaled across the frame, and to whose center is secured an arm, E', connected by a link to a treadle-lever, G, which engages with a ratchet, G', to hold it down. By raising this lever the rods B B and their cross-head are moved forward, or to the left, in their boxes, and by depressing it the rods are moved in the opposite direction. H is a yoke, ribbed to give it strength and stiffness, with a sleeve at each end to slip over the front ends of the rods B, which have annular grooves, with which engage latches *b*, pivoted on the back of the yoke to hold it on. In the center of the yoke is an opening, surrounded on the inner face by a conical bowl, H', which receives and automatically centers the outer end of the hub. It will be noticed that the front end of the frame is provided with an arch-shaped standard, A', in which is inserted an adjustable facing-block, *c*, secured by a set-

screw tapped through the side. At the corners of the frame, at equal angles, and equidistant from the axis of the bowl, similar adjustable facing-blocks *c* are in like manner mortised therein and secured. Across the back part of the frame are two girts, on which are mounted two boxes, *d d*, in which revolve the journals of the driving-pulley I, having a long hollow hub, which serves as a sleeve for the mandrel J, longitudinally grooved to receive a feather, *e*, projecting from the bore of the hub, which rotates the said mandrel, while the latter is free to move longitudinally therein, the cross-head having an opening through its center to pass the mandrel through. The front end of the mandrel revolves in a bearing in a reciprocating cross-head or frame, K, which is sleeved at its ends upon the rods B B, with a collar, *f*, upon one side, and a chuck, *g*, upon the front of said frame K, so as to move the latter with it, or, rather, be moved by it. The frame K is moved by having a toothed rack, L, at each side engage with pinions M on a shaft, N, transversely journaled in the frame, said shaft being rotated by a hand-wheel, O, to move the frame and mandrel to and fro. P is the bit-stock, which is a steel shaft screwed into the mandrel-chuck *g*. That half next the chuck is slotted to receive the bits, while the other half, which is of a lesser diameter, projects through the hole in the yoke, and serves to steady the bits in cutting. The bits *h* are straight steel blades, beveled on their rear faces with shanks one-half inch in thickness, and one-half are reversed to project from alternate sides of the stock, and thus divide and balance the pressure. In practice there will be twice as many cutters as the box is inches in length, the boxes varying in length by half-inches. They are secured by a wedge, *i*, driven between the last one and the base of the slot. By setting the end cutters the proper distance from the axis of the mandrel, the others can readily be adjusted by a pattern or straight-edge to bore a true taper. The last cutter entering the hub will be fed into it far enough to cut the socket or recess for the collar of the box, being arrested by a gage-stop, *k*, on the frame K coming against the base of the hub.

To render this combination of cutters more certain and effective, we introduce in place of

one of them a circle-controlling cutter, which acts in two ways: First, it arrests the vibration of the bit-mandrel; and, secondly, it gages and controls the depth of cut of the straight bits, as will be seen on reference to Fig. 3 of the drawing. It consists of an iron disk, h^1 , bored to fit the bit-stock, with a recess filed flat on one side to receive a lunar cutter, h^2 , which is secured therein by a countersunk screw. The cutter-disk has a notch cut in one edge to serve as a throat to discharge the chips taken by the knife, which has a direct front cut.

To set a wheel for boring the hub, run back the mandrel and frame K by the hand-wheel, remove the yoke, and slip the wheel-rods, the spokes resting thereon until the yoke can be replaced and brought up, when the bowl will center the hub and press the wheel-rim against the setting-blocks, which project far enough to overcome the "dish," and afford a bearing at three points in its circumference, insuring the boring in its axis. The rotating mandrel is now moved forward and the hub bored, after which the wheel is removed.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The yoke H, having the centering-bowl H' , secured to the rods B by the latches b , all constructed and arranged substantially as described and shown.

2. The combination of the facing-blocks c c , the yoke H H' , and the bit-stock P, attached to the mandrel J, and bearing in the yoke H, all constructed and arranged substantially as set forth.

3. The combination of the rods B B, cross-head C, yoke H, connecting-rods D D, arms E E', rock-shaft, and treadle-lever G, substantially as and for the purpose set forth.

4. The combination, with the rods B B, arranged as described, of the frame K, toothed racks L, pinions M, shaft N, driving-pulley I, and mandrel J, as and for the purpose set forth.

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WILLIAM H. TALBOT.

Witnesses:

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J. W. FANCHER.