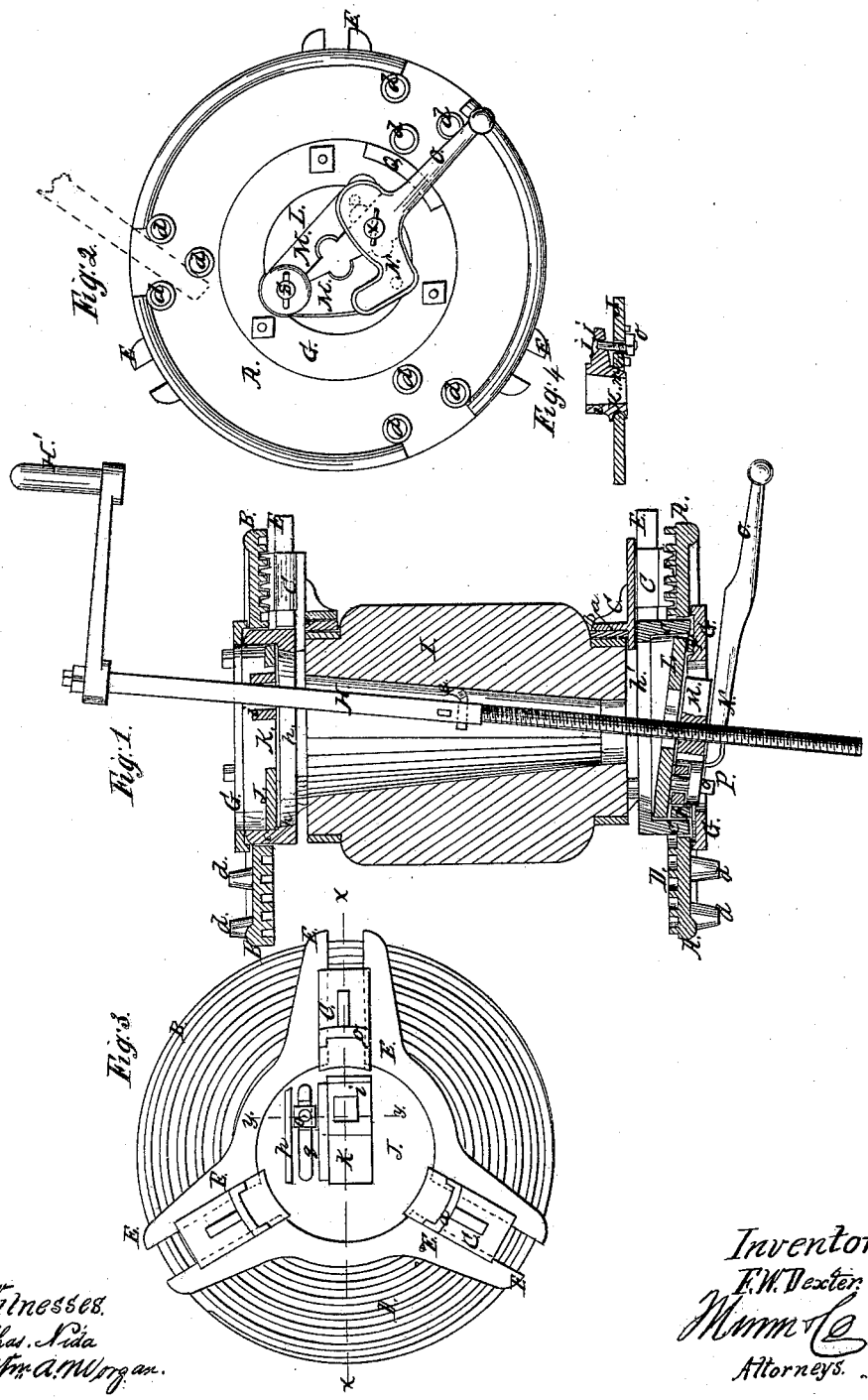
F. W. Dexter.

Hub Boring Mach.

No. 86,006. Patented Jan. 19, 1869.



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Letters Patent No. 86,006, *dated January* 19, 1869.

IMPROVEMENT IN HUB-BORING MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, F.W. DEXTER, of Randolph, in the county of Cattaraugus, and State of New York, have invented a new and improved Box-Setter for Wheel-Hubs; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a central vertical section of my improved box-setter, when applied on a hub for operation.

Figure 2 is a bottom view of the plate A.

Figure 3 is a bottom view of the upper plate B.

Figure 4 is a detail section of the box *i*, through the line *y y*, fig. 3.

Similar letters of reference indicate corresponding parts.

The nature of this invention relates to the boring out of a conical seat in wagon-hubs, in which to receive or "set" the axle-box, and combines a number of devices, which conduce to provide a more convenient and desirable apparatus for the purpose than has heretofore been known or used.

It consists of the various improved features or devices set forth in the following.

In the drawings—

A and B are circular plates of cast-metal, each being formed with a spiral scroll, D, as shown, for actuating the clamp-plates, C, to or from the centre, the said clamp-plates being formed with teeth to fit in said scrolls, in the manner of a scroll-chuck.

The clamp-plates are also formed with clamp-projections, *a*, having dovetailed recesses, as shown, for receiving and holding blocks of tough wood, *b*.

The object of this device is to enable a firmer hold to be had upon the hub when the same is banded, as shown in fig. 1, for wood against metal is less liable to slip than metal against metal.

When the hub is not banded, the wood blocks may be dispensed with, for the clamp-projections will hold on the wood with all the firmness required.

The lateral edges of the clamp-plates are suitably grooved, to be retained in the slots of the guide-plates, E E, which are formed with radial slots, in which the said clamp-plates move.

The guide-plates are held in working-connection with their respective scroll-plates A and B, by means of the collar-flanges G, affixed by screws or otherwise to the annular projections *c* from the guide-plates, which latter fit easily within central circular openings in the scroll-plates, as shown, and thus enable the latter to be moved freely on the guide-plates, to actuate the clamp-plates to or from the centre.

The guide-plates also have central circular openings, corresponding in size to the similar openings of the scroll-plates, for a purpose which will be obvious in the ensuing description.

The guide-plates, scroll-plates, and clamp-plates, thus constructed and combined, are applied to the ends of the hub, as shown in fig. 1, and the clamp-projections are tightened upon the hub by means of a rod, as shown in red, in fig. 2, inserted between the studs *d*, cast on the exterior side of the scroll-plates, which serve to turn the scroll-plates as desired.

H is the boring-rod, having a crank-handle, H′, and has a screw-thread cut in its lower half, as shown.

e is the cutting-tool, projecting therefrom, to cut out the conical box-seat in the hub I.

This rod is of the usual construction, nothing being claimed therefor.

In order that the box-seat shall be bored or reamed out with a conical form, suitable for receiving the axle-box, the rod must be made to incline from the central axis of the hub, and must have a gyratory revolution. This is permitted by the devices now to be described.

J is a circular plate, fitting easily within a corresponding opening in the guide-plate of the scroll-plate B.

It rests on a shoulder, *h*, cast within the circular part, *c*, of the guide-plate E.

The other guide-plate is formed with a similar shoulder, *h*′, which latter is, however, for another purpose, as will be shown.

The plate J is formed with a rectangular opening or slot, K, in which the box *i* (having a square hole somewhat larger than the cross-section of the rod H) slides.

This box is formed with a groove on one side, and a bevelled edge on the other, which bevelled edge fits against and upon one edge of the slot, which edge is bevelled, to fit the bevel on the box, as shown at fig. 4, in which figure—

k is the groove,

m is the bevelled edge of the box, and

n, the correspondingly-bevelled edge of the slot in the plate J.

l is a projection, cast on the box, through which a clamp-screw, *j*, passes, and passes through a narrow slot, *q*, in the plate, parallel to the larger slot, K.

A nut, *o*, under the plate J, fits on the said screw *j*, and is kept from turning by a feather, *p*, cast on the plate J, as shown.

By this latter device, the screw *j* can be turned without turning the nut with it.

The bevelled edges *m* and *n* serve to hold the box in its allotted place, at any point of the slot K, when the rod H, which passes through this box, is set at the desired incline.

This feature is of considerable importance, as it furnishes the means of easily adjusting the rod to the proper inclination, by loosening the screw *j*, and moving the box, and clamping the box afterward by a single turn of the said screw, which brings the aforesaid bevelled edges *m n* to impinge against each other tightly, thus jamming the box firmly in the slot.

The rod H is permitted to operate with the aforesaid gyratory revolution, by means of the circular plate L

fitting easily within the central circular opening of the guide-plate of the scroll-plate A, and a ring of rubber or other elastic packing, *r*; for the nut M, through which the rod H passes, is attached to the said plate L, and moves with it, so that, as the rod H is gyrated, the plate L will obey the same motion, and compress the packing-ring *r* at each successive point of the same.

This packing-ring is interposed between the collar G and the plate L, as shown.

The degree of compression of the packing-ring, and the relative inclination of the plate J, are somewhat exaggerated in the drawing, the better to illustrate the principle of its operation, but, in practice, a slight compression of the packing-ring would permit all the inclination that is usually required of the rod H.

The nut M may be of any suitable construction, but I have provided an open nut, for convenience, which consists in the two parts, M M, each containing half of the thread, and pivoted to a stud, P, cast on or tapped into the plate L.

The two parts of the nut are brought together by a lever, O, having an enlarged part, N, which is slotted in its proximate face, so that studs or projections from the proximate parts of the nut M M will traverse freely in the said slots.

The slots are curved, and so arranged in the part, N, that, when the lever is moved in one direction, the nut will be opened, and closed when moved in the reverse direction.

The lever is pivoted to the plate L by a stud, *t*, and the proximate faces of the parts M M are cut out at this point, to enclose the stud *t* when the nut is closed.

Q is a tapering shoulder-projection, cast on the collar, G, to hold the lever in place, after the nut is closed.

An advantageous feature of my invention obtains in the fact that it is self-centring; that is to say, the clamp-plates are so arranged on the scrolls, that they are equidistant from the centre of the plates A and B, and will maintain their relative positions, as they are moved in or out by the scrolls.

By this condition, when the plates are clamped on the hub, the axial centre of the latter will coincide with a line connecting the centres of the scroll-plates, thus obtaining the true centre of the hub, as it is bored, without particularly adjusting the machine with reference to such centring.

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

1. The combination of the plate L and packing-ring *r* with the collar-flange G, annular projections *c* of the guide-plate, and the scroll-plate A, arranged as described, for the purpose specified.

2. The combination of the revolving plate J, box *i*, flange *c*, clamping-plate C, and guide-plate E, with the scroll-plate B, arranged as described, for the purpose specified.

3. The combination of the plates J and L, constructed as described, with the cutter-rod H, all arranged as set forth, for the purpose specified.

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Witnesses:

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