

(No Model.)

C. E. LIPE.
HUB BORING MACHINE.

No. 555,253.

Patented Feb. 25, 1896.

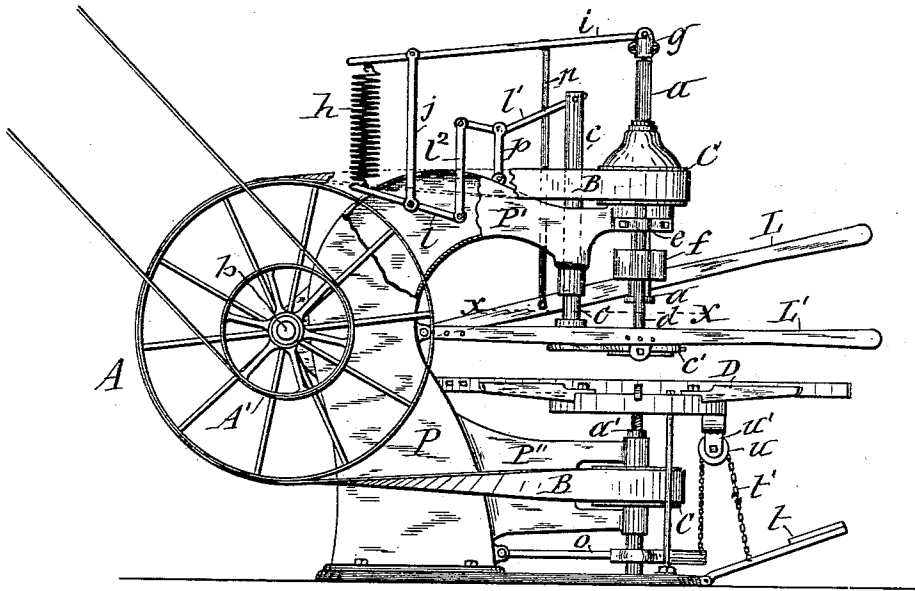


Fig. 1

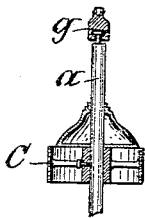


Fig. 4

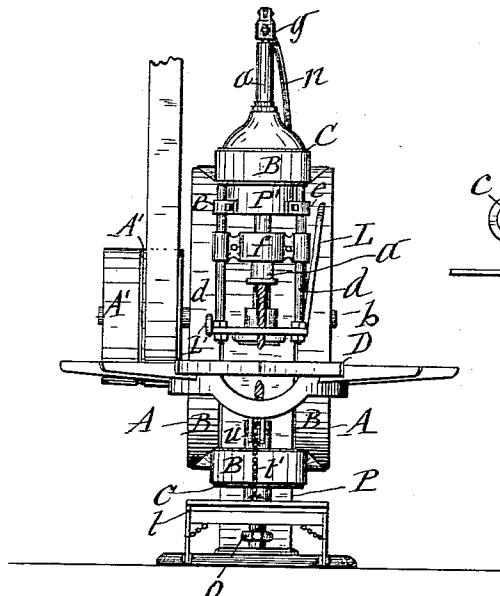


Fig. 2

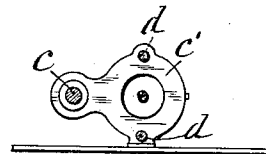


Fig. 3

WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES E. LIPE, OF SYRACUSE, NEW YORK, ASSIGNOR TO HARVEY A. MOYER, OF SAME PLACE.

HUB-BORING MACHINE.

SPECIFICATION forming part of Letters Patent No. 555,253, dated February 25, 1896.

Application filed February 7, 1894. Serial No. 499,389. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. LIPE, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Hub-Boring Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of machines which are employed for boring out wheel-hubs preparatory to inserting therein the metallic box for the axle and for forming in the outer end of the hub the necessary recess for the reception of the nut which is to be applied to the end of the axle.

My present invention consists in an improved organization of the machine, which possesses superior efficiency and accuracy in its operation, substantially as hereinafter more fully described and specifically set forth in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a hub-boring machine embodying my invention. Fig. 2 is a front elevation of the same. Fig. 3 is a horizontal transverse section on line *xx* in Fig. 1; and Fig. 4 is a vertical transverse section of the connection of the upper spindle and its driving-pulley.

Similar letters of reference indicate corresponding parts.

P represents a stout metallic pedestal which is firmly secured in its position and has arms *P' P''* extending laterally from it toward the front of the machine and disposed one above the other. The free end of each of these arms is provided with a bearing in which is journaled one of the spindles to which the boring-tools are attached in the usual and well-known manner, not necessary to be here shown. *a* and *a'* denote the said spindles, which are disposed vertically and in line with each other and receive rotary motion by one and the same driving-belt B in the following manner: Each of said spindles is equipped with a pulley C, which is sustained in a uniform plane on the arm of the pedestal.

In the drawings is indicated a driving mechanism for operating both pulleys C by a single belt B, whereby the construction is rendered more compact and the operation of

the spindles more synchronous, said driving mechanism embracing a shaft *b* mounted in suitable bearings on the rear of the pedestal P, pulleys A A and A' A' suitably mounted thereon, and the endless driving-belt B running upon the rear faces of pulleys A A and front faces of the pulleys C C upon the two spindles *a a*, said shaft *b* deriving its motion from a suitable motor (not shown) having belt connection with the pulley A' thereof. As this driving means forms no part of my present invention a more particular description of it is not deemed necessary. Each of the spindles is connected to its pulley by a spline or feather, as illustrated in Fig. 4 of the drawings, to allow the spindles to move vertically while their pulleys are maintained in uniform planes. The upper pulley C is preferably provided with a conical dust-cap C', as shown.

D represents a horizontal frame upon which to support the wheels to be operated on. Said support is sustained stationary between the two arms *P' P''* by any suitable means. In order to readily adjust the wheel upon said support, so as to bring the center of the hub in line with the two spindles *a a'*, I employ the wheel-centering plunger *c*, the stem of which passes through a vertical channel formed in the upper arm *P'*, which channel guides the plunger in its movement. The lower end of said plunger has horizontally projecting from it a ring *c'*, the center of which is in line with the axis of the spindles *a a'*. Said ring is of such a diameter as to allow it to embrace the back portion of the hub of the wheel laid upon the support D. I also utilize the aforesaid plunger for steadying the upper spindle, *a*, by attaching to the ring *c'* or foot of the plunger the vertical guide-rods *d d*, the upper ends of which slide in sleeves *e e*, attached to the arm *P'*. On these rods is clamped the yoke *f*, which is provided with a vertical channel through which the spindle *a* passes and in which it is fitted closely sufficiently to steady the spindle without producing undue friction during the rotation of the same.

An important object of this invention is to so construct the machine that the upper spindle, *a*, and plunger *c* will both be sustained

normally in elevated position by means of a single tension-spring and may be depressed severally or together by levers. This object is accomplished by the preferred mechanism now to be described. To the upper end of said spindle *a* is swiveled a block *g*, to which is connected a lever *i*, which extends rearward therefrom and is fulcrumed near its rear end on a prop *j*, the lower end of which is attached to the arm *P'* of the pedestal, and to the upper end of the plunger *c* is connected the front arm of a lever *l'*, which lever is fulcrumed on a post *p*, secured to said arm *P'*, and has its rear arm connected by link *l''* with the front arm of a lever *l*, the rear arm of which lever is pivoted to said arm of the pedestal by the pin supporting said prop. The free end of said rear arm of lever *l* is connected with the rear end of lever *i* by a tension-spring *h*, the action of which is to lift both the spindle *a* and plunger *c* and hold them in normally elevated position. The spindle is depressed against the action of said spring by means of a manually-operated lever *L*, pivoted to the pedestal *P* and connected to lever *i* by a rod *n*, and the plunger is depressed against the action of said spring by means of a lever *L'*, which is also pivoted to the pedestal and is connected to the foot of the plunger.

From this description of levers it will be understood that if the operator presses downward upon both levers *L* and *L'* simultaneously the upper spindle, *a*, and the plunger will be lowered together and the rear ends of levers *i* and *l* will move away from each other, thus elongating spring *h*, whereby said spring in resuming its normal position when said levers *L* and *L'* are released will be caused to pull downward upon lever *i* and upward on lever *l* and thereby lift both the spindle *a* and plunger *c* and hold said spindle and plunger in elevated position until levers *L* and *L'*, or either of them, are again operated. It will also be understood that either the spindle or the plunger may be lowered alone by depressing its lever. The free ends of said levers are in front of the machine and convenient to be operated by the attendant of the machine. The lower spindle, *a'*, is normally sustained in its depressed position by gravity and is connected at its lower end to an arm

o, pivoted at one end to the pedestal *P* and connected at the opposite end to a treadle *t* by means of a chain *t'* running over a sheave *u*, pivoted to a hanger *u'* on the under side of the wheel-support.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with the pedestal and wheel-support, the vertically-movable spindle and wheel-centering plunger, a lever *l'* pivoted thereto and fulcrumed intermediate its ends, a compound lever *l* connected with said lever *l'*, a swiveled block on the upper end of the spindle, a lever pivoted thereto, a prop on the opposite ends of which levers *l* and *i* are fulcrumed, a spring connecting the free ends of said levers *l* and *i* together, and means connected with said lever *i* for depressing said spindle.

2. In combination with the pedestal and wheel-support, the vertically-movable revolving spindle and wheel-centering plunger, levers connected to said spindle and plunger, a spring operating said levers in common and sustaining the spindle and plunger in their elevated position, and manually-operated levers pivoted to the pedestal and connected to the spindle and plunger to depress the same, as set forth.

3. The combination of the pedestal provided with laterally-projecting arms disposed one above the other, a wheel-support sustained between said arms, vertically-movable revolving spindles pivoted in said arms, a wheel-centering plunger guided in the upper arm, compound levers connected to the said plunger, a single lever connected to the upper spindle, a tension-spring connected to the free ends of said levers, a prop connected at opposite ends to the levers adjacent to the spring, and manually-operated levers pivoted to the pedestal and connected to the said plunger and upper spindle to depress the same as set forth.

In testimony whereof I have hereunto signed my name this 16th day of August, 1893.

CHARLES E. LIPE. [L. s.]

Witnesses:

J. J. LAASS,

C. L. BENDIXON.