A. J. BOWER.

Improvement in Lathes for Turning Axles.

No. 115,424. Patented May 30, 1871.

Fig. 1

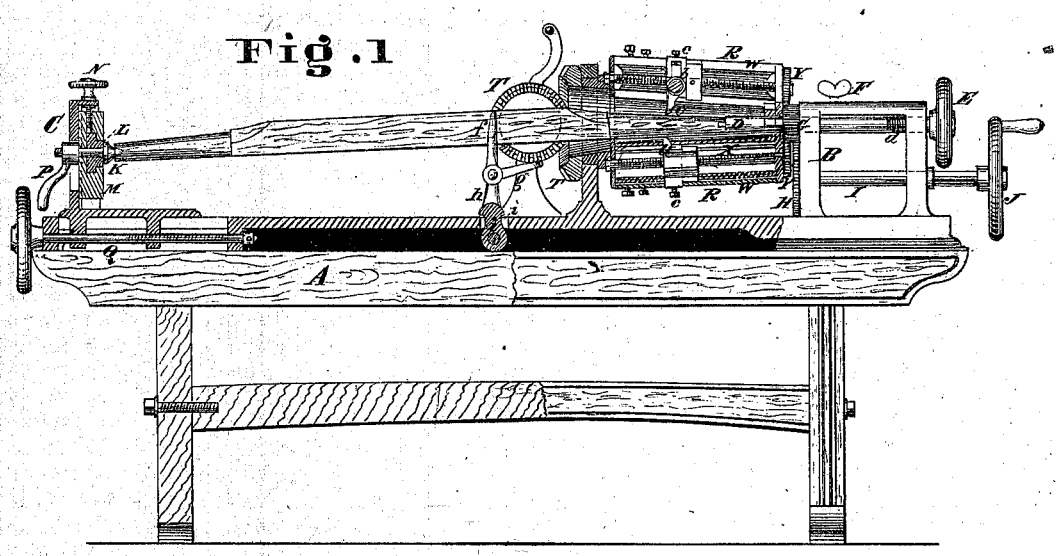


Fig. 2

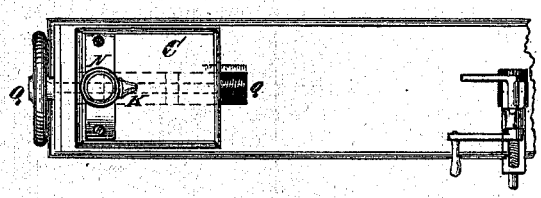


Fig. 3

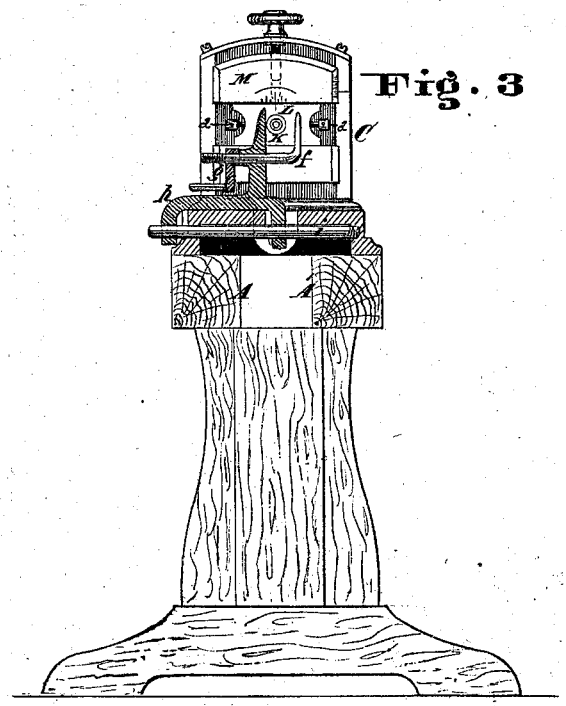


Fig. 5

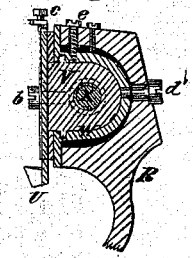
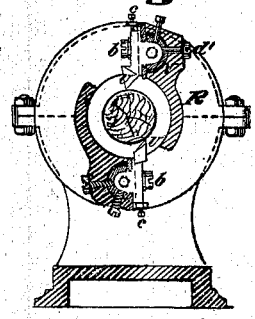


Fig. 4



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UNITED STATES PATENT OFFICE.

ADAM J. BOWER, OF ALBION, ILLINOIS.

IMPROVEMENT IN LATHES FOR TURNING AXLES.

Specification forming part of Letters Patent No. 115,424, dated May 30, 1871.

I, ADAM J. BOWER, of Albion, county of Edwards, State of Illinois, have invented certain new and useful Improvements in Lathes for Turning Wooden Wagon-Axles, of which the following is a specification:

Nature and Objects of Invention.

My invention consists, first, in a certain combination of rotating and sliding cutters and adjustable "tail-center" for the axle, by which the axle is not only turned of the tapering form desired, but receives in the operation the "dish" and "gather" necessary for an ordinary taper-ended wagon-axle; second, in certain peculiar devices for adjusting and securing the tail-center of the lathe; third, in a peculiar device for "chucking" the axle, which adapts itself automatically to the axle after the latter has been adjusted between the centers; fourth, in a combination and arrangement of gearing for operating the cutters.

Description of the Accompanying Drawing.

Figure 1 is a sectional elevation of the lathe complete. Fig. 2 is a plan of the tail end of the lathe. Fig. 3 is a cross-section through the axle-chuck. Fig. 4 is a cross-section through the cutters. Fig. 5 is an enlarged cross-section through one cutter and slide.

General Description.

My improved axle-lathe is designed to completely prepare a wooden axle for the reception of the ordinary metallic "skein," giving it in the operation of centering and turning the requisite dish and gather.

A A′ are the shears of the lathe; B, the "head-block;" and C, the "tail-block." D is the "center" of the head-block. It is adjustable by means of screw *d* and wheel E, and is secured in any position by set-screw F. A spur-wheel, G, is fitted to the center D in such a way that it may either revolve upon the center or be fast upon it at will. A spur-wheel, H, driven by spindle I and wheel J, gears into wheel G. The tail-center K is fitted to a block, L, which slides laterally, so as to adapt it for adjustment to give the gather to the axle. The block L slides within a block, M, which, in its turn, slides vertically in the tail-block C to adjust the axle for the dish. The block M is secured in any position by the screw N, which adjusts it. The block L, which needs more rapid adjustment, is secured by the crank-nut P. This block, or the cone in which it slides, is graduated, to facilitate accurate adjustment, and fitted with adjustable stops *a*, in order that any number of axles may be turned with the same gather without needing nice adjustment to the scale, the stops resting on each side against the tail-block when the center is pushed over from one side to the other to finish both ends of the axle. The block M is also graduated on the side, and a line is provided on the tail-block to permit nice adjustment of block M. The tail-block C is adjustable longitudinally to suit various lengths of axles by means of set-screw Q. The revolving cutter-head R is journaled at one end in bearing S, and at the opposite end in the center D. It is shown in the drawing operated by bevel-gearing T, but it may be operated in any other preferred way. The cutters U are adjustable in their blocks radially to give the required size to the axle by means of screws *b c*. The blocks V, to which the cutters are secured, slide angularly in the slides W, which are pivoted at one end in the head R, and adjustable by screws *d′ e* at the other, to vary the taper of the axle. The cutters are fed to the work in turning by screws X, whose gear-wheels Y connect with the wheel G. When the cutters are turning the axle the wheel G is fixed by set-screw, spring-catch, or otherwise.

When the end is completed the full length of the taper the wheel G is allowed to run loose, when, by turning the hand-wheel J, the cutters may be run back. After one end of the axle is turned, and it is reversed or turned end for end in the lathe, it is necessary to move the block L to the opposite side of the tail-block to that occupied by it when the first end was turned. The chuck, which prevents the axle from revolving while the cutters are turning it, is composed of dog *f*, crank-nut *g*, swinging and sliding dog *h*, and round bar *i*. The bar *i* is secured to the bed of the lathe, and the dog *h* swings and slides upon it, so that it (the dog) may adjust itself on the bar *i* automatically to suit any axle without de-

flecting the axle. The axle is secured between the dogs *f h* by nut *g*.

Claims.

1. In combination with a tail-block, C, constructed with a center, K, which is adjustable both laterally and vertically, the rotary cutter-head R U, connecting and operating as described, and for the purpose specified.

2. The combination of the tail-block C, adjustable blocks L and M, screws *d* and N, and nut P, as described, and for the purpose set forth.

3. The chuck, composed of the parts *f g h i*, as described, and for the purpose specified.

4. In combination with the cutters U, the adjustable slides W, screws X, gear-wheels Y, G, and H, and counter-spindle I, connected and operating substantially in the manner and for the purpose set forth.

In testimony of which invention I hereunto set my hand.

ADAM J. BOWER.

Witnesses:

FRANK MILLWARD,

J. L. WARTMANN.