

E. CASE.

SAND BELT ATTACHMENT FOR SPOKE LATHES.

No. 307,628.

Patented Nov. 4, 1884.

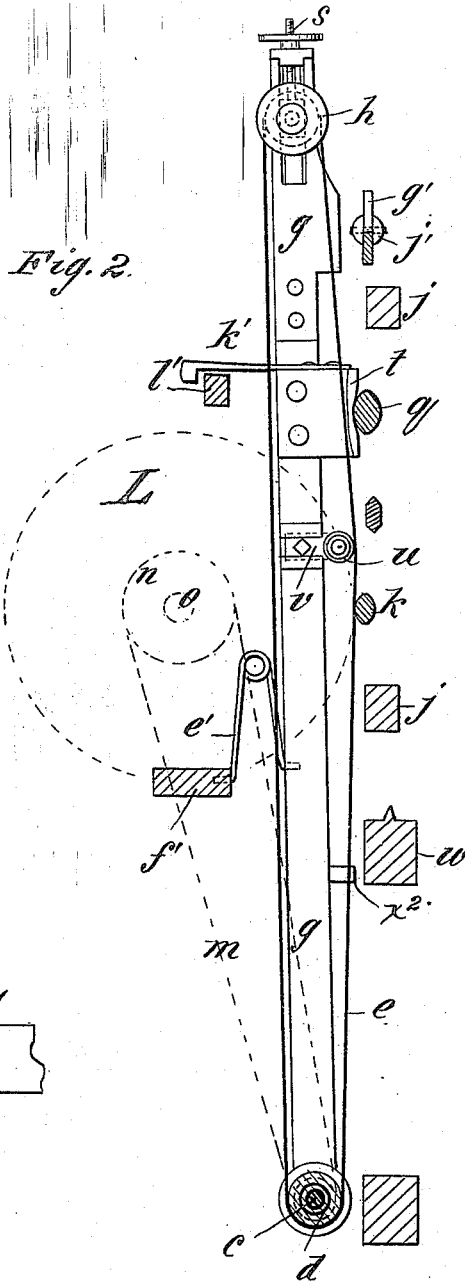


Fig. 2.

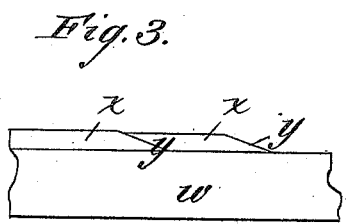


Fig. 3.

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SAND-BELT ATTACHMENT FOR SPOKE-LATHES.

SPECIFICATION forming part of Letters Patent No. 307,628, dated November 4, 1884.

Application filed November 14, 1883. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM CASE, of Owensborough, in the county of Daviess and State of Kentucky, have invented a new and Improved Sand-Belt Attachment for Spoke-Lathes, of which the following is a full, clear, and exact description.

My invention consists of sand-belts contrived with the cutter-head carriage, for following the cutter-heads along the spokes to smooth the same automatically after the cutters have done their work, and thus save the time and labor of subsequently smoothing them separately, the said sand-belt attachment being constructed and arranged as hereinafter fully described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the spoke and pattern holding frame and cutter-head carriage of a spoke-lathe with my improved sand-belt applied. Fig. 2 is a section through Fig. 1 on the line $x'x'$; and Fig. 3 is a detail representing adjustable guards to detach and press the sand-belts away from the work at any desired point.

I attach a couple of hangers, a , to the cutter-head carriage b , to project downward a suitable distance therefrom for the support of a rod, c , on which to run the driving-pulleys d , for working a couple of sand-belts, e f , and also to support the upright bars to carry the idle-pulleys h above the cutter-head carriage, and the work and pattern holding frame i j , over which to run said sand-belts, so as to run against and smooth-finish the spokes k directly behind the cutter-head L .

The pulleys d on the rod c are represented in this example as being revolved by a belt, m , from a pulley, n , on the cutter-head shaft o ; but they may be driven from the counter-shaft of the lathe, or any other source, said belt running on a suitable pulley, p , connected with pulleys d on the rod c .

The upright bars g rest on the rod c , so as to shift independently of each other toward and from the spokes k , and the pattern q and the idle-pulleys h , mounted in the bars g at their upper ends, are independently fixed to shift upward by adjusting screws s , attached to sliding pivot-studs of the pulleys, to tighten the said belts properly. These bars g each

have an adjustable bearer, t , to rest against the pattern q , to gage the belts to the spokes the belts being set by an adjusting-pulley, v behind them and a little above the spokes, so that the belts will bear against the spokes when the bearers t touch the pattern.

The pulleys u are mounted on adjustable supports v , attached to the bars g , so that they may be shifted up from time to time, according to the tension it is desired to apply to the belts. The first belt, f , is designed to be of sharper and coarser grain, and the second one of finer condition, and, if desired, the hindmost portion of the latter may be waxed, so as to smooth-polish and wax the spokes all at one operation; or a separate wax-belt may be used.

Inside of the lathe-beam w , I arrange one or more guards, x , with bevel ends y , on which the studs x' of the belt-staffs will run to detach and press back the belts from the work at any time before the work and pattern frame may swing back, and I propose to connect such guards x adjustably, so that they may be shifted along the beam to detach the belts sooner or later, according to the length and other conditions of the spokes.

When the cutter-head carriage b moves back after each spoke is finished preparatory to beginning another, the sand-belts shift back to the positions indicated by the dotted lines at the right hand in Fig. 1, where it is necessary to press the belts back to hold them off from the stocks z of the tail center a' , by which the spokes are held in the lathe. The arm b' is then attached adjustably to the stock c' , that holds the pattern-center d' , suitably to come in contact with the belts when the frame i j is shifted back to present the new spoke to the cutter-head, and press and hold the belts back until they arrive by the forward movement of the cutter-head carriage to the spokes, when said belts escape from the end of the arm b' and come into action on the spokes, the supporting-bars g being pressed forward by the springs c' connected to a bar, f' , of the cutter-head carriage and with the bars g , respectively.

When spokes or other objects are to be trimmed with comparatively sharp edges or angles that would be dressed off too much by the sand-belts if allowed to bear on them with equal pressure, as on the surfaces where they have broader contact, I employ an angular pattern-bar, g' , to be turned synchronously

with the spokes by a revolving center, *i'*, suitably gearing with the pattern-mandrel wheel *p'* to bear the belts back (more or less) at the moment when the angle to be protected is passing the belts. This bar *g'* is fitted to its centers *i'* and *j'* adjustably to enable it to be set for gaging the belts to spokes of different sizes.

The sand-belt supporting-bars *g* have a spring-hook, *k*, to engage with a bar, *l*, of the cutter-head carriage to hold them back against the springs *e'*, when the work and pattern holding frame *i j* is shifted away from the belts while removing the finished spokes and putting in the new pieces to be dressed. The pattern-mandrel *m'* and spoke-mandrel *n'* are geared with the pinion *o'*, to which the driving-pulley *q'* is attached by their pinions *p'*, respectively.

The spoke-center and pattern-frame is pivoted at *a'* a little higher up than the pivots of the sand-belt staffs, which has the effect of causing the sand-belts to bear hardest on the broad flat sides of the spokes and in the throat, and with less pressure on the face and along toward the tenon end of the spokes.

I propose to attach similar sand-belt devices to machines for turning other articles beside spokes, and whether of wood or metal, and to lathes of other forms. The apparatus can be applied to machines already in use as well as new ones.

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

1. The combination, with the cutter-head carriage, of the sand-belt appliance provided with one of more polishing or smoothing belts with their polishing-surfaces presented at right angles to the length of the article held and being turned by the cutter-head, and means to adapt the said belt or belts to follow the cutter-head along the said article, substantially as and for the purpose set forth.

2. The combination, with the cutter-head carriage, of a sand-belt appliance having one or more polishing or smoothing belts which follow the cutter-head along the article being turned, said appliance having beveled projections which engage with beveled detaching-guards upon the lathe-beam, whereby said appliance is automatically disengaged at intervals from the article being turned, substantially as set forth.

3. The combination, with the cutter-head carriage, of a sand-belt appliance having one or more polishing or smoothing belts which follow the cutter-head along the work, said appliance having beveled projections which engage with beveled detaching-guards upon the lathe-beam, and the spring acting upon said appliance to return it to its work after having been disengaged by said guards and projections, substantially as and for the purpose set forth.

4. The sand-belts arranged on the driving-pulleys suspended from the cutter-head carriage by hangers, and on idle-pulleys support-

ed upon bars, also suspended from the cutter-head carriage, and having bearers acting upon the pattern, said cutter-head carriage being connected to the said bars by a spring, in combination with the frame having the pattern and work centers, substantially as and for the purpose set forth.

5. The sand-belts, with their pulley-supporting bars and hangers suspended from the cutter-head carriage, said bars having bearers acting upon the pattern, and belt-adjusting pulleys, in combination with the cutter-head carriage, and the frame having the pattern and the work centers, substantially as and for the purpose set forth.

6. The angular revolving pattern-bar, in combination with the sand-belts with their pulley-supporting bars, and hangers suspended from the cutter-head carriage, said bars being connected to said carriage by springs, and the frame having the pattern and work centers gearing with the aforesaid pattern-bar, substantially as and for the purpose set forth.

7. The combination, with the cutter-head, of a sand-belt appliance having one or more smoothing or polishing belts, and the bar acting upon said belt or belts at certain intervals, whereby the work will be exposed to an unequal pressure at different times, substantially as and for the purpose set forth.

8. The pattern-frame having its pattern-center stock provided with an arm, in combination with the sand-belt appliance suspended from the cutter-head carriage, and means to shift back the sand-belt appliance, said appliance being retained after shifting back by said arm, substantially as and for the purpose set forth.

9. The pattern-frame having the beveled detaching-guards, and its pattern-center stock provided with an arm, in combination with the sand-belt appliance suspended from the cutter-head carriage, said appliance having beveled projections to engage with said guards, and means to shift back said appliance, substantially as and for the purpose set forth.

10. The sand-belt appliance suspended from the cutter-head carriage, and having a spring connecting with a bar of said carriage, in combination with the pattern-frame, with its pattern-center stock provided with an arm, and means to shift said sand-belt appliance back out of the way, said spring returning said appliance to its normal position after disengagement from said arm, substantially as and for the purpose set forth.

11. The sand-belts *e f*, arranged on the driving-pulleys *d*, suspended from the cutter-head carriage *b* by hangers *a*, and on idle-pulleys *h*, supported on bars *g*, also suspended from the cutter-head carriage, in combination with the cutter-head *l* and the work-holding centers *a'* and *n'*, said pulley *d* being geared with the cutter-head shaft *c*, substantially as described.

Witnesses: EPHRAIM CASE.

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