(No Model.) 2 Sheets—Sheet 1.

J. N. SPENCER.

MACHINE FOR TURNING AXLES.

No. 342,048. Patented May 18, 1886.

Fig. 1.

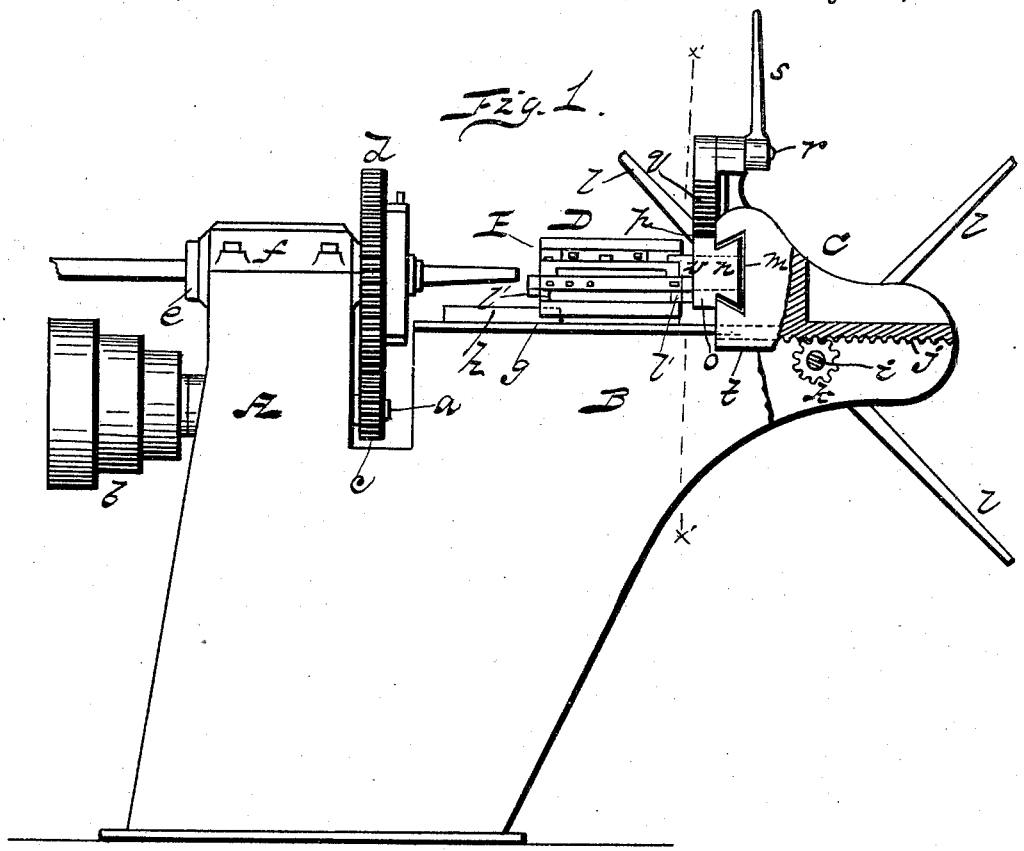
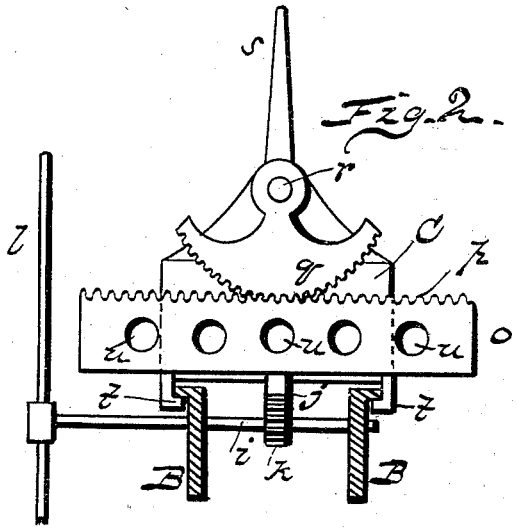


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

J. N. SPENCER.

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Fig. 3.

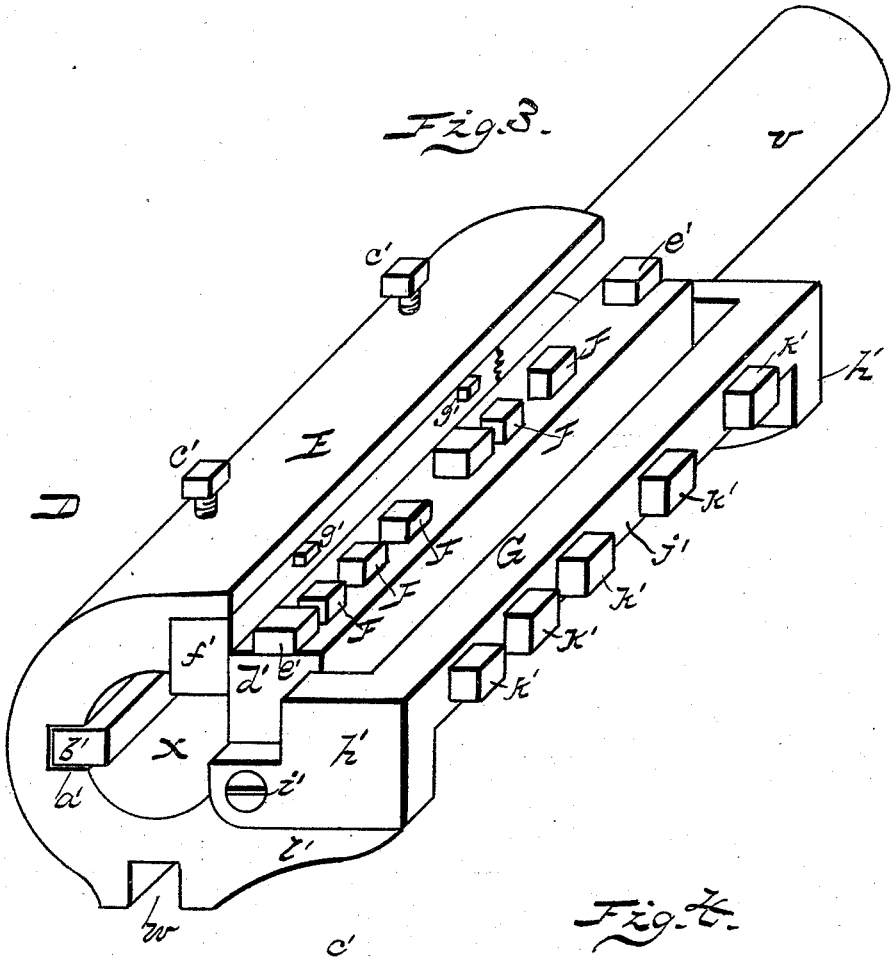
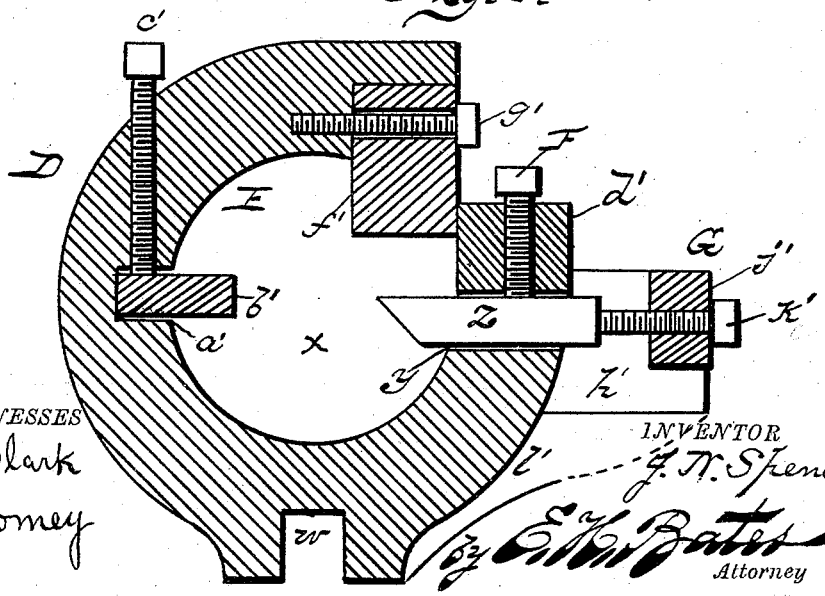


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN N. SPENCER, OF NEWARK, DELAWARE.

MACHINE FOR TURNING AXLES.

SPECIFICATION forming part of Letters Patent No. 342,048, dated May 18, 1886.

Application filed February 19, 1886. Serial No. 192,522. (No model.)

To all whom it may concern:

Be it known that I, JOHN N. SPENCER, a citizen of the United States, residing at Newark, in the county of New Castle, State of Delaware, have invented certain new and useful Improvements in Machines for Making Axles, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has relation to improvements in machines for cutting the spindles on vehicle-axles; and it consists in the construction and arrangement of devices hereinafter described, and particularly pointed out in the appended claims.

The annexed drawings, to which reference is made, fully illustrate my invention, in which Figure 1 represents a side view of my device, partly in section. Fig. 2 is a cross-sectional view taken on line x' x', Fig. 1. Fig. 3 is a perspective view of the tool-holder, and Fig. 4 is a cross-sectional view of the same.

Referring by letter to the accompanying drawings, A designates the main frame of the machine, in which is journaled power-shaft *a*, carrying the drive-pulleys *b* and the pinion *c*, which meshes with a gear-wheel, *d*, on the chuck-carrying journal *e*, which is seated in a bearing, *f*, on the top of the main frame. The extended portion B of the main frame is provided on its upper surface and on either side with longitudinal flanges *g*, between which and on the frame is a guide-bar, *h*, centrally arranged and in line with the chuck-opening which receives the axle.

To the rear end of the main frame in suitable bearings is arranged a transverse rod, *i*, on which is a pinion, *k*, and on the outer end of said rod is a hand-lever, *l*, which operates the rod, for a purpose hereinafter set forth.

C indicates a longitudinally-sliding block, which is provided on its under side with a longitudinal rack-bar, *j*, that engages the pinion on the transverse rod aforesaid. The front face of this sliding block is provided with a dovetailed groove, *m*, running transversely across the same, which is designed to receive a dovetailed projection, *n*, on the rear of a tool-carrier, *o*, which latter is provided on its upper face with a rack, *p*, which engages a toothed segment, *q*, on the end of a rod, *r*, journaled in a bearing on the top of the sliding block, and this rod has also secured to it a hand-lever, *s*, which operates the rack-bar in shifting the tool-carrier from right to left transversely.

The longitudinally-sliding block is provided with side flanges, *t*, which engage the flanges on the main frame, and the transversely-sliding carrier is provided with a longitudinal series of holes, *u*, which receive the shank *v* of the cutter-holder D, further herein explained.

The cutter-holder D consists of the body portion E, having at its rear end a shank, and on its under side a longitudinal groove, *w*, and an internal opening, *x*, on one side of which are openings *y*, through which project the cutting-tools *z*, that extend into said opening opposite to a longitudinal channel, *a'*, which receives a longitudinal bar, *b'*, that is held therein by screw-bolts *c'*, passing vertically through the body portion.

Above the cutter-openings in the tool-holder is secured a longitudinal bar, *d'*, which is secured to the body portion by bolts *e'*, and a second bar or plate, *f'*, is also secured to said body portion by bolts *g'*, thus closing the opening in the side of the holder.

F represents a series of screw-threaded bolts, which pass vertically through the longitudinal bar above the cutters, and serve to hold said cutters in place, when screwed down, by the point of said bolts pressing upon said cutters.

G designates a longitudinal bar having right-angular end extensions, *h'*, which are perforated to receive a screw, *i'*, that enters female threads in the front and rear ends of the holder, thus affording a hinged bar in which are provided female screw-threads in its longitudinal portion *j'*, in which are screwed bolts *k'*, arranged directly in rear of each cutter, thus affording means whereby the cutters are prevented from outward movement or displacement. This bar, being hinged, also serves to permit the attendent to have ready access to the cutters by simply raising the same to a vertical position.

To each end of the holder is an arm, *l'*, or a support, on which the hinged bar rests when in its normal position.

Having thus given a description of the various parts of the machine, I will now describe the operation. The axle having been inserted in the chuck, which may be of any well-known kind, and given a revolving motion through the medium of the gear-wheel, pinion, and pulleys, the operator then turns the lever on the transverse rod, and by means of the pinion on said rod, acting on the rack-bar, forces the block or carriage forward. The flanges on said block and those on the main frame serve to guide said block and prevent a lateral movement. At the same time the groove in the under side of the cutter-holder rides over the fixed bar on the top of the main frame, and guides said holder to the axle, which latter enters the chamber in said holder, and is held steady by the longitudinal bar in the groove on the inside of the chamber, and by the bar or plate aforesaid. The axle comes in contact with the cutters, which may be of the well-known construction, and are arranged to cut the collar, shoulder, and in rear of the collar, as well as tapering the spindle and cutting the small end on which are to be threads for the axle-nut, and in producing the spindle complete for threading I employ three holders provided with cutters, which are each (the holders) inserted by their shanks in the holes in the transversely-sliding rack-bar. The first tool with its cutter removes the rough metal from the axle, and the same is withdrawn, after accomplishing this, by moving rearwardly the sliding block, when the hand-lever of the segment is moved laterally, thus carrying the dovetailed bar to one side and bringing a second tool into play, which latter is forced forward, the spindle entering its chamber, and the cutters therein act upon said spindle and produce a smoothness, and finishing the spindle proper, after which the same movement of the sliding block and the transverse rack-bar is gone through with and brings the third tool into play, which latter simply cuts the metal from the rear of the collar in an inclined manner rearwardly. It will thus be seen that the transversely-sliding rack-bar receives at one time the roughening-tool, the finishing-tool, and the tool for trimming the rear portion of the collar of the axle, which is quickly accomplished by simply moving the sliding block and bringing the desired tool in play by operating the handle on the segment, which acts upon the rack-bar carrying said tools, thus avoiding the necessity of changing the cutters in any one holder, and the tools or holders, as herein shown, will produce three different-sized spindles, and the hinged bar affords easy access to the cutters for withdrawing them or inserting the same, and the screw-bolts in the longitudinal portion thereof prevent said cutters from moving backward from the spindle when the latter is being cut. At the same time said screws serve to adjust the cutters in giving the desired taper to the spindle.

As I use in connection with my device the well-known chisel-pointed cutters, it will be plainly seen that any one skilled in the use of such machines can readily insert them.

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

1. The transversely-sliding tool-carrier provided with the rack-bar on its upper face, and a longitudinal row of holes adapted to receive the shank of the tools, and dovetailed projection on its rear face, in combination with the longitudinally-sliding block provided with the rack on its under side and dovetailed groove, the segment and hand-lever, pinion, and operating-lever therefor, substantially as described, and for the purposes specified.

2. In a machine for axles, the tool-holder provided with the hinged bar having the adjusting-bolts, adapted to operate as and for the purpose set forth.

3. In a machine for axles, the combination, with the main frame provided with the chuck, gear-wheel, pinion, pulleys, and transverse axle, carrying the pinion of the flanged sliding block, transversely-sliding tool or cutter holder, the segment, and holder having the hinged bar, the whole constructed, combined, and arranged to operate as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN N. SPENCER.

Witnesses:
ROBERT J. COLBERT,
ALFRED T. CROSS.