

(No Model.)

2 Sheets—Sheet 1.

R. L. LEVIN.
WRIST PIN TURNER.

No. 511,053.

Patented Dec. 19, 1893.

FIG. 1.

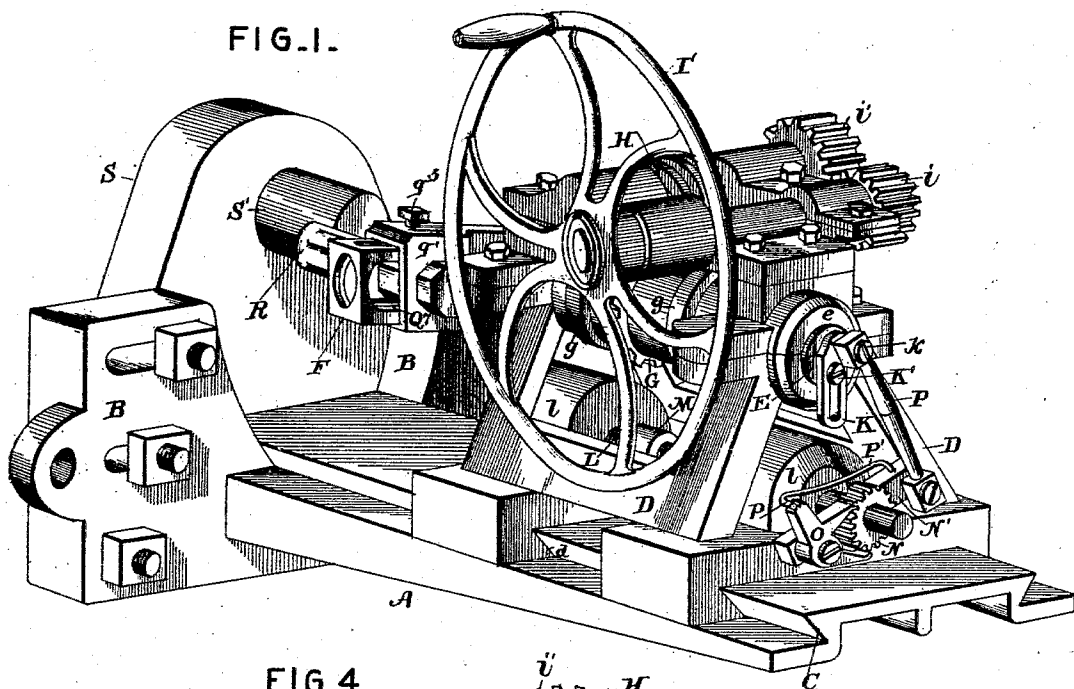


FIG. 4.

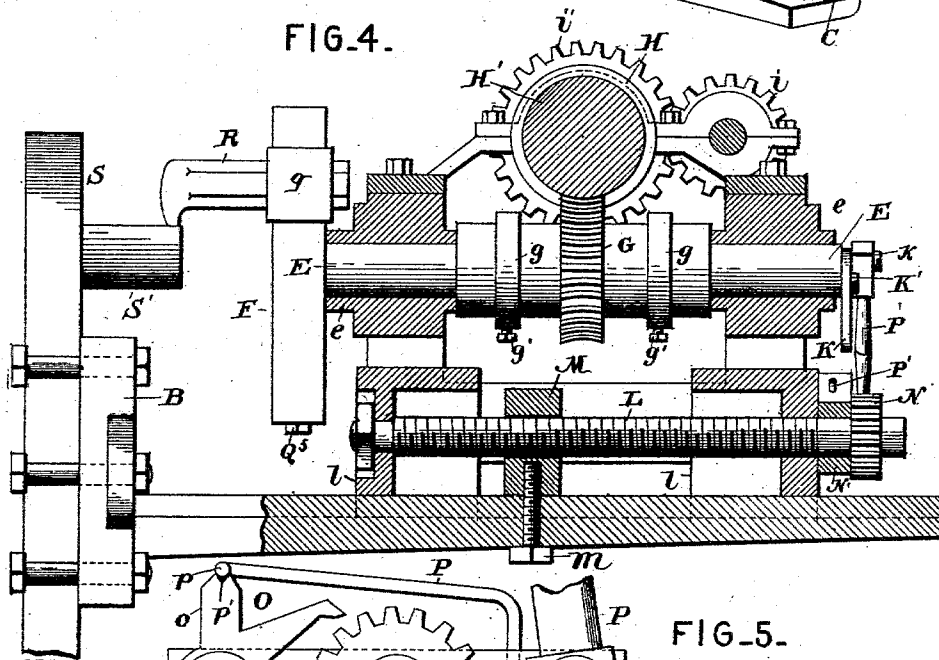


FIG. 5.

Witnesses

Jas. K. McArthur

[Signature]

Inventor

Rudolph L. Levin

By his Attorneys,

[Signature]

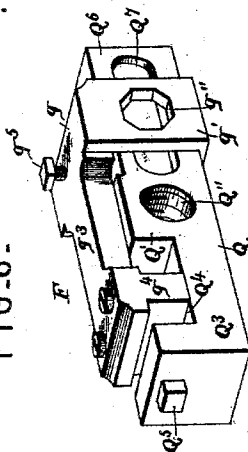
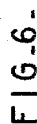
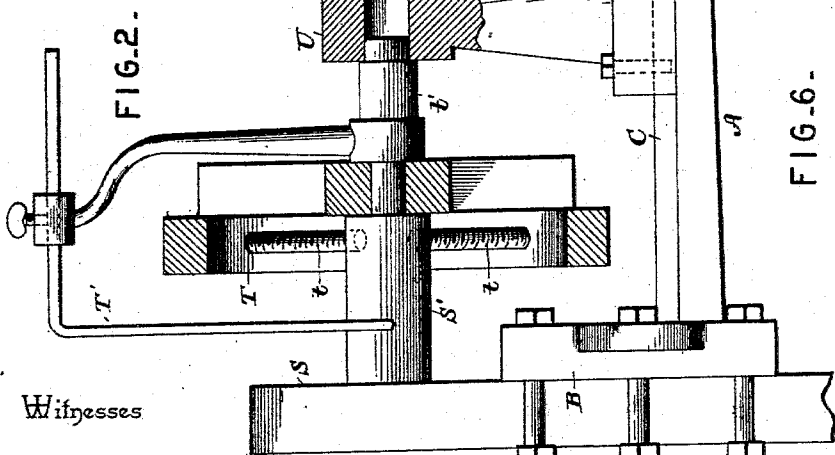
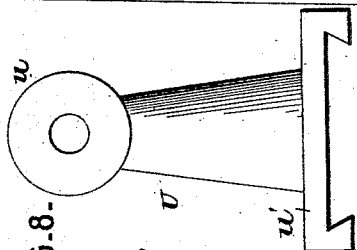
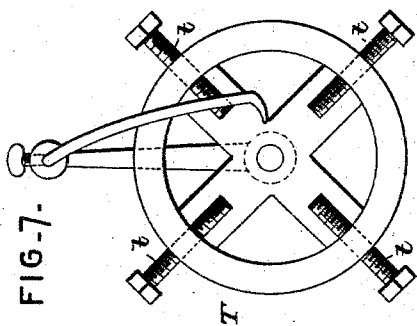
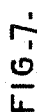
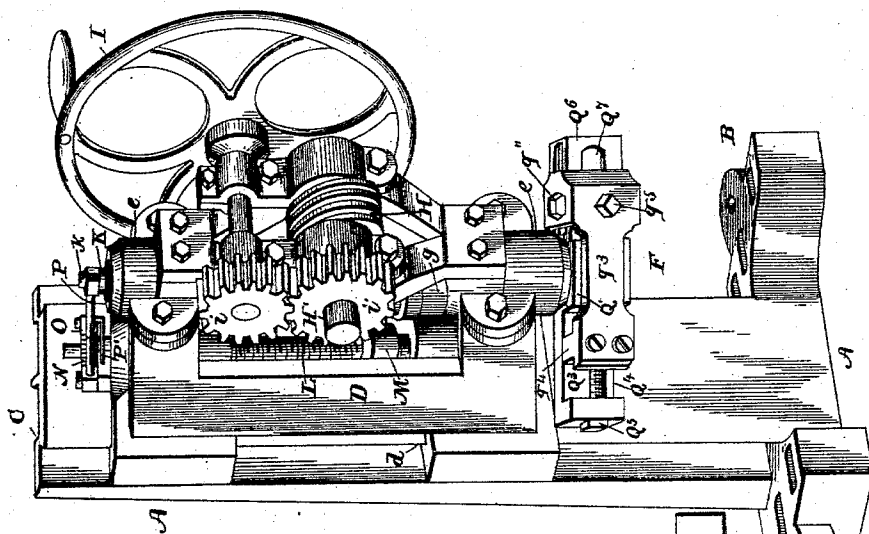
(No Model.)

2 Sheets—Sheet 2.

R. L. LEVIN.
WRIST PIN TURNER.

No. 511,053.

Patented Dec. 19, 1893.



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UNITED STATES PATENT OFFICE.

RUDOLPH LEANDER LEVIN, OF MENOMINEE, MICHIGAN.

WRIST-PIN TURNER.

SPECIFICATION forming part of Letters Patent No. 511,053, dated December 19, 1893.

Application filed October 31, 1892. Serial No. 450,523. (No model.)

To all whom it may concern:

Be it known that I, RUDOLPH LEANDER LEVIN, a citizen of the United States, residing at Menominee, in the county of Menominee and State of Michigan, have invented a new and useful Wrist-Pin Turner, of which the following is a specification.

My invention relates to improvements in lathes or machines for turning metal, and refers particularly to that class of devices which are employed to turn wrist-pins and crank-pins without removing the latter from the engine.

The object of my invention is to simplify the construction and operation and increase the efficiency and accuracy of machines employed for this purpose, and at the same time to provide such a construction that the device may be used for boring or turning other articles than above mentioned.

Further objects and advantages of my invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

In the drawings: Figure 1 is a perspective view of a machine embodying my improvements, applied in the operative position to a wrist-pin. Fig. 2 is a sectional view of the base and attachments, with the carriage removed, to show the manner of adjusting the base so that the spindle will center with the crank-pin. Fig. 3 is a perspective view of the machine arranged in a vertical position to be employed in boring or turning other work than wrist-pins. Fig. 4 is a longitudinal central section of the machine in its horizontal position, as shown in Fig. 1. Fig. 5 is an end view showing the feed-mechanism. Fig. 6 is a detail view of the tool-head. Figs. 7 and 8 are detail views of the parts of the centering devices, detached.

A represents the base of my turning machine, provided at one end with the perpendicular, perforated ears, B B, the object and functions of which will be explained hereinafter, and also provided with a longitudinal, dovetailed way, C.

D represents the carriage, provided with dovetailed guides, *d d*, which are adapted to engage the way, C, and are adapted to be applied thereto from the end remote from the ears, B.

Mounted in suitable bearings *e e* upon the carriage, is the spindle, E, and that end of this spindle which I will term, throughout this specification, the lower or inner end, (the lower when the machine is in its vertical position and the inner when in its horizontal position) is threaded to receive the tool-head, F, to be hereinafter more definitely described.

Arranged upon the spindle between its above-mentioned bearings, is a worm-gear, G, provided with extended hubs, *g g*, having set-screws, *g' g'*, to engage the spindle, and the operating worm, H, carried by the transversely-disposed worm-shaft H', meshes with the worm-gear to communicate motion from the driving-shaft, thereto. The driving-shaft, I, which is geared by intermeshing pinions or gears, *i i'*, to the worm-shaft, is provided with a hand-wheel, I'.

To the upper or outer end of the spindle is adjustably attached a slotted link, K, held in place by a set-screw, *k*, and carrying a pivot-pin, K', which pivot-pin may be adjusted toward or from the center of the spindle by means of the slotted-link.

L represents the feed-screw, mounted at its opposite ends in bearings, *l l*, in the opposite ends of the carriage, and extending at an intermediate point through a stationary feed-nut, M, which is removably secured to the base of the machine by means of the retaining-screw, *m*, extending through said base. By removing the retaining-screw the carriage, with the feed-screw and feed-nut, may be removed from the base by sliding its guides off the end of the way, above described.

To the upper or outer end of the feed-screw is secured a ratchet, N, and upon the feed-screw adjacent to the ratchet is fulcrumed, at an intermediate point, the feed-arm, N', carrying a double or reversible pawl, O. This pawl is mounted upon one end of the feed-arm, and the opposite end of said arm is connected by means of the rod, P, to the pivot-screw of the slotted link carried by the spindle. This pawl is provided with a lateral arm, *o*, provided with a tapered or wedge-shaped extremity, and P' represents an actuating spring carried by the feed-arm and provided with a finger, *p*, to engage either side of said tapered or wedge-shaped arm, to hold either

member of the pawl in engagement with the ratchet. The arm, *o*, is provided at its center, between the convergent sides or surfaces, with a notch, *p'*, whereby when the finger 5 upon the actuating spring is engaged therein both members of the pawl are held out of engagement with the ratchet. As the spindle rotates the rotary motion is converted into a reciprocatory motion by the connecting rod, 10 and the feed-arm is oscillated, thus causing the member of the pawl which is in engagement with the ratchet to alternately turn the same and slip idly over its teeth. When one of the members of the pawl engages the 15 ratchet the carriage is moved forward or downward, and when the other member is engaged therewith the carriage is moved upward or backward.

The tool-head, *F*, above mentioned, comprises a body-portion, *Q*, having a central block, *Q'*, in which is formed the threaded opening, *Q''*, to fit the threaded end of the spindle, and the adjustable slide, *q*, having a yoke, *q'*, provided with a tool opening, *q''*. 25 Extending in opposite directions from the central block are integral arms; the arm *Q³* being recessed, as shown at *Q⁴*, and carrying the adjusting-screw, *Q⁵*, and the arm, *Q⁶*, being longitudinally slotted, as shown at *Q⁷*, and having the yoke, *q'*, of the slide fitted to slide thereon. To the yoke, *q'*, is connected an arm, *q³*, which carries a nut, *q⁴*, engaged by the adjusting-screw, *Q⁵*. A clamping-screw, designated by the letter, *q⁵*, is mounted 35 in the yoke, *q'*, to engage and secure the tool, *R*, in place. It will be understood that by turning the adjusting-screw, *Q⁵*, the tool may be moved toward or from the spindle as required by the size of the wrist-pin or other 40 article to be dressed.

S represents the crank-arm, and *S'* the wrist-pin to be turned, and the ears, *B*, are bolted to the crank-arm so as to hold the base perpendicular thereto, or horizontal, as indicated in Figs. 1, 2, and 4, and to enable the 45 base to be adjusted so as to cause the spindle to center with the wrist-pin, I remove the carriage, before applying the base to the crank-arm, apply the annular clamp, *T*, to the pin, 50 as shown in Fig. 2, locking it in place by the radial set-screws, *t t*, fit the arm of the rotary scriber, *T'*, upon the stem, *t'*, of said clamp and then adjust the gage, *U*, the center of whose sleeve, *u*, is the same distance from its 55 guide, *u'*, as the center of the spindle is from the guides, *d d*, of the carriage, by engaging said guide, *u'*, with the way, *C*, and sliding it forward until the sleeve, *u*, receives the end of the stem, *t'*. Thus, after adjusting the 60 clamp, *T*, by means of the scriber, and the manipulation of the set-screws, *t t*, so that its stem centers with the crank pin, the base must be arranged so that the sleeve of the gage will receive the end of said stem, when 65 the bolts by which the base is fastened to the crank-arm may be tightened. The clamping-ring, gage, and scriber are now removed, and

the carriage is fitted to its place, the retaining screw, *m*, being engaged with the feed-nut, and the machine is ready for operation. 70

It will be understood that the centering mechanism shown and described forms no part of my present invention and is included merely to illustrate the manner in which a centering device may be employed in this 75 connection to bring the turning mechanism into operative relation to the wrist pin, and hence I lay no claim in this application to this feature of the construction set forth.

The perpendicular perforated ears with 80 which the base is provided enable the machine to be arranged in an upright position, as shown in Fig. 3, to perform the ordinary work of a drill or turner.

The removability of the carriage from the 85 base enables the latter to be more accurately adjusted to the wrist-pin and with less exertion to the operator.

Any other suitable form of chuck, socket or spider may be fitted upon the end of the 90 spindle to adapt the machine for various kinds of work.

I reserve the right to alter and modify the construction and arrangement of the details of my machine within the scope of my inven- 95 tion, as may be found necessary in adapting it to the various kinds of work which it is designed to perform.

Having thus described my invention, what I claim, and desire to secure by Letters Pat- 100 ent, is—

1. The combination with a base provided with suitable supporting devices, a carriage slidably mounted upon the base, and turning mechanism mounted upon said carriage, of 105 feeding devices comprising a rotatable feed-screw engaging a stationary feed-nut upon the base, a rocking lever swiveled upon the feed-screw and operatively connected to the turning mechanism, and a spring actuated 110 pawl carried by said lever to engage a ratchet upon the feed screw, substantially as specified.

2. The combination with a base provided with suitable supporting devices, a carriage slidably mounted upon the base, and turning 115 mechanism having a rotatable spindle, of feeding devices comprising a rotatable feed-screw engaging a stationary nut upon the base, a rocking lever fulcrumed upon the feed-screw, connections between said lever and the 120 spindle of the turning mechanism whereby the throw of said lever may be regulated, and a spring actuated pawl carried by the rocking lever in operative relation to a ratchet fixed to said feed-screw, substantially as 125 specified.

3. In a machine of the class described, the combination with the base and the sliding carriage, of the spindle mounted upon the car- 130 riage, means for operating the spindle, a feed-screw mounted upon the carriage and extending at an intermediate point through a stationary feed-nut attached to the base, a feed-arm fulcrumed upon the feed-screw, a con-

necting-rod between the spindle and the feed arm, and a pawl and ratchet connection between the feed-arm and the feed-screw, substantially as specified.

- 5 4. In a machine of the class described, the combination with the base and the carriage mounted thereupon, of the spindle mounted upon the carriage, means for operating the spindle, a slotted link carried by the spindle, a feed-screw carried by the carriage and en-
10 gaging a stationary feed nut upon the base, a feed-arm fulcrumed upon the feed-screw, and connected at one end to said slotted link, and pawl and ratchet connection between the feed-
15 arm and feed-screw, substantially as specified.

- 5 5. In a machine of the class described, the combination with a base and a carriage mounted to slide thereupon, of a feed-screw mounted upon the carriage and engaging a stationary
20 nut upon the base, the turning-spindle, means to operate the same, a ratchet fixed upon the feed-screw, a feed-arm fulcrumed upon the feed-screw and connected at one end to the spindle, and a double or reversible pawl car-
25 ried by the feed-arm to engage said pawl, and provided with an actuating spring, substantially as specified.

6. The combination with a spindle and supporting devices to hold the same in alignment, axially, with the wrist-pin, of a transversely disposed tool-head, having a body-portion Q, a sliding member *q* provided with a tool-socket, and adjusting devices connecting the parts of the head whereby the distance of the tool from the center of rotation may be varied, substantially as specified. 35

7. The combination with a spindle and supporting devices to hold the same in axial alignment with a wrist-pin, of a tool-head having a transversely-disposed body portion Q fixed to the spindle and provided with a longitudinal slot, an adjustable member *q* slidably mounted upon the body-portion and provided with a tool socket aligned with the slot in the body-portion, and adjusting and locking devices connecting the body portion and
40 slidable member, substantially as specified. 45

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

RUDOLPH LEANDER LEVIN.

Witnesses:

W. O. CARLSON,
C. A. HILLBORN.