

UNITED STATES PATENT OFFICE.

FRANK COFFIN, OF CAMBRIDGE, MASSACHUSETTS.

INDICATOR FOR LATHES OR PLANERS.

SPECIFICATION forming part of Letters Patent No. 587,930, dated August 10, 1897.

Application filed November 20, 1896. Serial No. 612,874. (No model.)

To all whom it may concern:

Be it known that I, FRANK COFFIN, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Indicators for Lathes or Planers, of which the following is a specification.

This invention has for its object to provide an indicating device adapted for use in connection with a lathe or a planer or other like machine to bear upon a piece of work in or upon said machine and indicate imperfections in the form of the work.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a top plan view showing portions of a lathe with my improved indicator attached thereto. Fig. 2 represents a top view of the indicator on a larger scale. Fig. 3 represents a section on line 3 3 of Fig. 2. Fig. 4 represents a view similar to Fig. 2, showing a different adjustment and application of the indicator. Fig. 5 represents a view similar to Fig. 2, showing the device adjusted to give the indicating-finger a different bias from that shown in Figs. 1 and 2.

The same letters and numerals of reference indicate the same parts in all the figures.

In the drawings, *a* represents the base or shank of my improved indicator, the same being formed, as here shown, to be engaged with a suitable support, such as the ordinary tool-post *b* of a lathe, the shank *a* being attachable to and detachable from the tool-post in the same manner that the shank of an ordinary lathe-tool is attached and removed.

c represents a holder which is secured to the shank *a* and supports the indicating-lever *d*, the holder *c* being preferably detachably secured to the shank *a* by means of a set-screw *e*, the threaded portion of which engages a threaded socket in the shank *a*, said set-screw having an unthreaded portion *e'* terminating in a shoulder which bears upon the upper side of the holder *c* and clamps said holder firmly against the shank *a*. The unthreaded portion *e'*, projecting above the holder *c*, serves as a pivot on which the in-

dicating-lever *d* oscillates, said lever having a slot *d''*, which receives the portion *e'* of the set-screw.

The lever *d* is unequally divided, one of its arms being considerably elongated and terminating in an indicating finger or pointer *d'*. The shorter arm of the lever *d* projects from the opposite side of the pivot *e'* from the finger *d'* and is provided with a terminal *d²*, which is adapted to engage the work to be tested. Said terminal, as here shown, comprises a circular bearing or shoulder *d³*, formed to bear on the periphery of a circular piece of work, (said shoulder being shown in Fig. 1 as bearing on the internal periphery of a hollow cylindrical piece of wood *w*, which is held and rotated by the lathe-chuck *x*,) and a spur *d⁴*, formed to enter an indentation, such as that formed by a prick-punch, in the flat surface of a piece of work *w'*. The terminal *d²* has a pivotal connection with the lever *d*, this connection being effected by means of a shank *d⁵* on the terminal *d²*, connected by a pivot-pin *d⁶* with the short arm of the lever *d* and located in a slot *d⁷* in said arm, the arrangement of the slot and pivot being such that the terminal *d²* can oscillate in a plane at right angles to the plane of oscillation of the lever *d* on its pivot or fulcrum *e'*. This oscillating motion of the terminal *d²* is permitted only when the spur *d⁴* is engaged with an indentation in a piece of work, as shown in Fig. 4, the object of such engagement being to indicate whether the said indentation is exactly on the axial line of the piece of work.

When the device is used with a cylindrical surface, as shown in Fig. 1, the terminal *d²* is rigidly secured to the lever by means of a screw *d⁹*. The work *w'* being rotated and the spur *d⁴* engaged with the supposed central indentation, any deviation of the said indentation from the axial line of the work will cause a slightly eccentric movement of the terminal *d²*. Said terminal during a part of said movement will move the lever *d* on its pivot, thus causing a deflection of the indicating-finger *d'*, another part of said movement causing the shank *d⁵* to oscillate in the shorter arm of the lever, and thus preventing injurious strain on or breakage of the terminal.

When the indicator is used in connection with the periphery of a piece of work, it is adjusted so that the bearing d^3 will rest upon said periphery, suitable means, as next described, being employed to give the lever a biasing pressure and hold the terminal d^2 yieldingly against the periphery to be tested.

The preferred device for biasing the lever d is a spring-extended telescopic dog comprising a terminal g , which is mounted to slide in a holder g' , and is normally projected from said holder by a spring g^2 therein, the holder g' being pivoted at g^3 to the holder c . The lever d is provided with an elongated aperture d^8 , which surrounds the dog, the corners 5 6 of said aperture forming side recesses to engage the terminal g , the lever having a central recess 7 located on its median line between the recesses 5 and 6. When the dog is adjusted to the position shown in Fig. 2, it engages the recess 6 and gives the lever d a bias in one direction, thus adapting the indicator for use in connection with the internal surface of a hollow cylinder, as shown in Fig. 1, the spring-extended dog holding the terminal d^2 yieldingly against said internal surface. When the dog is adjusted, as shown in Fig. 5, it engages the recess 5 and gives the lever d a bias in the opposite direction, thus adapting the indicator for use in connection with the external periphery of a cylindrical piece of work, the spring-extended dog holding the terminal d^2 yieldingly against such external periphery.

When the dog is adjusted to an intermediate position, as shown in Fig. 4, it engages the central recess 7, and as said recess is on the median line of the lever and close to the pivot or fulcrum e' the lever is practically deprived of any biasing pressure and is free to move in either direction and to remain in any position to which it may be moved.

The holder c is provided with an elongated extension c' , at the outer end of which is a graduated scale-plate c^2 , which coöperates with the finger d' in indicating the extent of the deflection of said finger caused by irregularities in the work.

I do not limit myself to the precise details of construction here shown, as the same may be modified in various particulars without departing from the spirit of my invention.

$i i$ represent stops to limit the movements of the lever d , said stops being affixed to the holder c in position to bear on the edges of the orifice d^8 .

The indicator may be used to test flat surfaces in a planer by being held so that the terminal d^2 will bear on the surface to be tested, the latter being moved in a rectilinear direction. Any departure of the surface from a true horizontal will cause a deflection of the pointer.

I claim—

1. An indicator of the character specified, comprising a holder, a lever pivotally connected with said holder and having an arm

formed to engage a piece of work to be tested, another arm formed as an indicating finger or pointer, and a spring-extended telescopic dog secured at one end to the holder and bearing yieldingly at its other end on the lever.

2. An indicator of the character specified, comprising a holder; a lever pivotally connected with said holder, and having a shorter arm formed to engage a piece of work to be tested, and a longer arm formed as an indicating finger or pointer; a spring-extended telescopic dog and a pivotal connection between one end of the dog and the holder, the other end of the dog bearing yieldingly on the lever and being separable therefrom.

3. An indicator of the character specified, comprising a holder; a lever pivotally connected with said holder, and having a shorter arm formed to engage a piece of work to be tested, and a longer arm formed as an indicating finger or pointer, said lever having a plurality of recesses; and a lever-biasing device comprising a spring-pressed dog adjustably connected to the holder and adapted to engage either of the recesses of the lever.

4. An indicator of the character specified, comprising a holder; a lever pivotally connected with said holder, and having a shorter arm formed to engage a piece of work to be tested, and a longer arm formed as an indicating finger or pointer, said lever having a central notch or recess on its median line, and two side recesses at opposite sides of said line; and a spring-pressed dog pivotally connected with the holder and adapted to engage either of the side recesses to bias the lever, and to engage the central recess to deprive the lever of bias.

5. An indicator of the character specified, comprising a holder; a lever pivotally connected with said holder, and having its shorter arm formed as an indicating finger or pointer; and a work-engaging terminal on the shorter arm of the lever, said arm and terminal having provisions for an oscillating movement of the terminal in a plane at right angles to the oscillating movement of the lever on the holder.

6. An indicator of the character specified, comprising a holder; a lever pivotally connected with said holder, and having its shorter arm formed as an indicating finger or pointer; a work-engaging terminal pivotally connected with the shorter arm of the lever, and provided with a central spur, and with a bearing bead or shoulder; and means for locking said terminal to the lever.

7. An indicator of the character specified, comprising a base or shank adapted to be engaged with a support, such as the tool-post of a lathe; a holder secured to said shank and provided with an extension terminating in a scale-plate, and with a pivoted dog-holder having a spring-pressed dog, a lever pivotally connected with said holder and having an elongated orifice surrounding said dog-

holder and dog, the corners of said orifice at
one end thereof forming dog-engaging re-
cesses, between which is a central dog-engag-
ing recess, one arm of the lever being formed
5 as an indicating-finger coöperating with the
scale-plate, while the other arm is provided
with a terminal having a bearing-shoulder
formed to engage the periphery of a piece of
work, and a spur formed to engage an in-
10 dentation in the face of a piece of work, said
terminal being pivotally connected with the

lever, and provided with means for locking
it to the lever.

In testimony whereof I have signed my
name to this specification, in the presence of 15
two subscribing witnesses, this 14th day of
November, A. D. 1896.

FRANK COFFIN.

Witnesses:

A. D. HARRISON,
P. W. PEZZUTTI.