

UNITED STATES PATENT OFFICE

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SQUARE FOR LEVELING AND ALIGNING SHAFTING.

SPECIFICATION forming part of Letters Patent No. 467,016, dated January 12, 1892.

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To all whom it may concern:

Be it known that I, MOSES F. OLIVER, a citizen of the United States, residing at Holyoke, in the county of Hampden and State of Massachusetts, have invented new and useful improvements in Leveling and Aligning Shafting, of which the following is a specification.

This invention has for its object the provision of devices for leveling and truing or aligning shafting which after use has become untrue; and it consists in the construction and combination or arrangement of parts, substantially as will hereinafter more fully appear and be set forth in the claims.

Referring to the accompanying drawings, the construction and availability of the device for the purpose indicated is illustrated, Figure 1 being a view in perspective of an overhead shaft supported by pending bearings and illustrating the application of the leveling and aligning device. Fig. 2 is a side view of the device, Figs. 3 and 4 being cross-sections on lines 3-3 and 4-4.

The construction of the device will be described in connection with the mode of resetting the shaft, and A represents a shaft mounted in the bearings B, which are here shown as supported by the adjustable hangers C. It being assumed that this shaft after use has become untrue and it is desired to rectify the defect, a chalk line or cord (indicated by *a*) is stretched and supported in a plane parallel with the desired shaft-line and at about the same height as the shaft-line, and several cleats or strips *b* are nailed to the overhead flooring or whatever support is available with their edges coincident with the line *a*, and such edges which are toward the shaft vertical or plumbed. On one of these cleats *b* a leveling-mark, as indicated at *x*, is drawn horizontally, which if produced would intersect the desired axial line for the shaft. Then by the use of a straight-edged level (indicated at *d*, Fig. 1) marks corresponding to the one *x* are projected on the next and the others of the cleats *b*, which of course are also directly on the line of the proper shaft-axis. Employment is then made of the device D, which is indicated in duplicate in Fig. 1 and also particularly in Fig. 2. This device consists of

and of sufficient length and which has at its one end a rigid square *g*, which is swiveled thereon, the face of the square being in a plane coincident or parallel with the side of the holder *f*, and the square is adapted to be held in one of two positions, according as it is set by the clamping-screw and set-nut indicated at *h*. The square members may stand at any desired angle to each other in lieu of the right angle shown. Stops *i* are formed on the inner end or head of the holder *f*, which part is suitably enlarged, so that when the square is swung to contact by the one or the other of the right-angled members thereof against said stops the said right-angled members will both be disposed at angles of forty-five degrees to the length of the holder *f*, and a line bisecting the angle of the square may be either in a horizontal line coincident with the working straight edge *z* of the holder *f*, as indicated in full lines, Fig. 2, or it may, as indicated in the dotted lines in Fig. 2, be in a line perpendicular to said edge *z*.

The device D has thereon a sliding yoke-frame *m*, which is adapted to be confined in place by the set-screw *n*, and said yoke carries a spirit-level *o*, whereby to determine the leveling of the working edge *z*. The device D is applied, as indicated, at the lower right-hand part of Fig. 1, with the imaginary bisecting line of the square angle projected from the vertical edge of the cleat *b* at a distance corresponding to that between said edge and the center of the shaft, and such edge is gaged with precision by sliding the end *o'* of the slide-piece *m* up against the said cleat-edge. The implement D is next similarly applied with the end *o'* of the slide-piece *m* against the next and successive cleats, and if the inner edges of the right-angled square members do not exactly contact with the upper portion of the shaft-surface opposite the shaft-bearings are correspondingly laterally adjusted, and then the shaft being brought to bearing against both of the members of the square it will be known that the shaft ranges properly, having at least no lateral deflection from the desired course. In order, then, to determine that the shaft is also level, the device is employed with its square changed to the position indicated at the left of Fig. 1 and in

full lines in Fig. 2, the upper or working edge z being placed coincident with the marks x . The level-slide has been inwardly moved on the holder, so as not to interfere with the proper application of the bar f at this time against the sides of the cleats. If at the time of setting or adjusting the holder f perfectly level and to have its edge z match with the cleat-marks x , both of the members of the square contact with the side portions of the shaft opposite the respective cleats, it will be known that the axis of the shaft must be perfectly level. If opposite a given cleat, the shaft bears only on one of the square members, the bearings adjacent that part of the shaft are accordingly raised or lowered in the necessary degree.

I claim—

1. In an implement for leveling and aligning shafting, a holder bar or blade having at its extremity a square pivotally mounted thereon and so located that the vertex of the square angle lies beyond the end of the holder, and stops for the square which are located to limit the swing thereof, whereby the square may be set to have the line which bisects the square angle coincident with the length of the holder or at right angles thereto, substantially as described.
2. In an implement for leveling and align-

ing shafting, a holder bar or blade having at its extremity a square pivotally mounted thereon and so located that the vertex of the square angle lies beyond the end of the holder, and stops for the square which are located to limit the swing thereof, whereby the square may be set to have the line which bisects the square angle coincident with the length of the holder or at right angles thereto, and a level upon the said holder, substantially as described.

3. In an implement for leveling and aligning shafting, a holder-bar having at its extremity a square pivotally mounted and adapted to be set substantially as described, a slide yoke or frame fitted and movable on the said holder-bar and having thereon a level, and the set-screw n for confining the level-carrying yoke in position upon the bar, substantially as described.

4. In an implement for the purpose indicated, the combination, with a holder-bar having at its extremity a square, of a slide-piece on the holder, adapted to constitute a gage and carrying a level, substantially as described.

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Witnesses:

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