

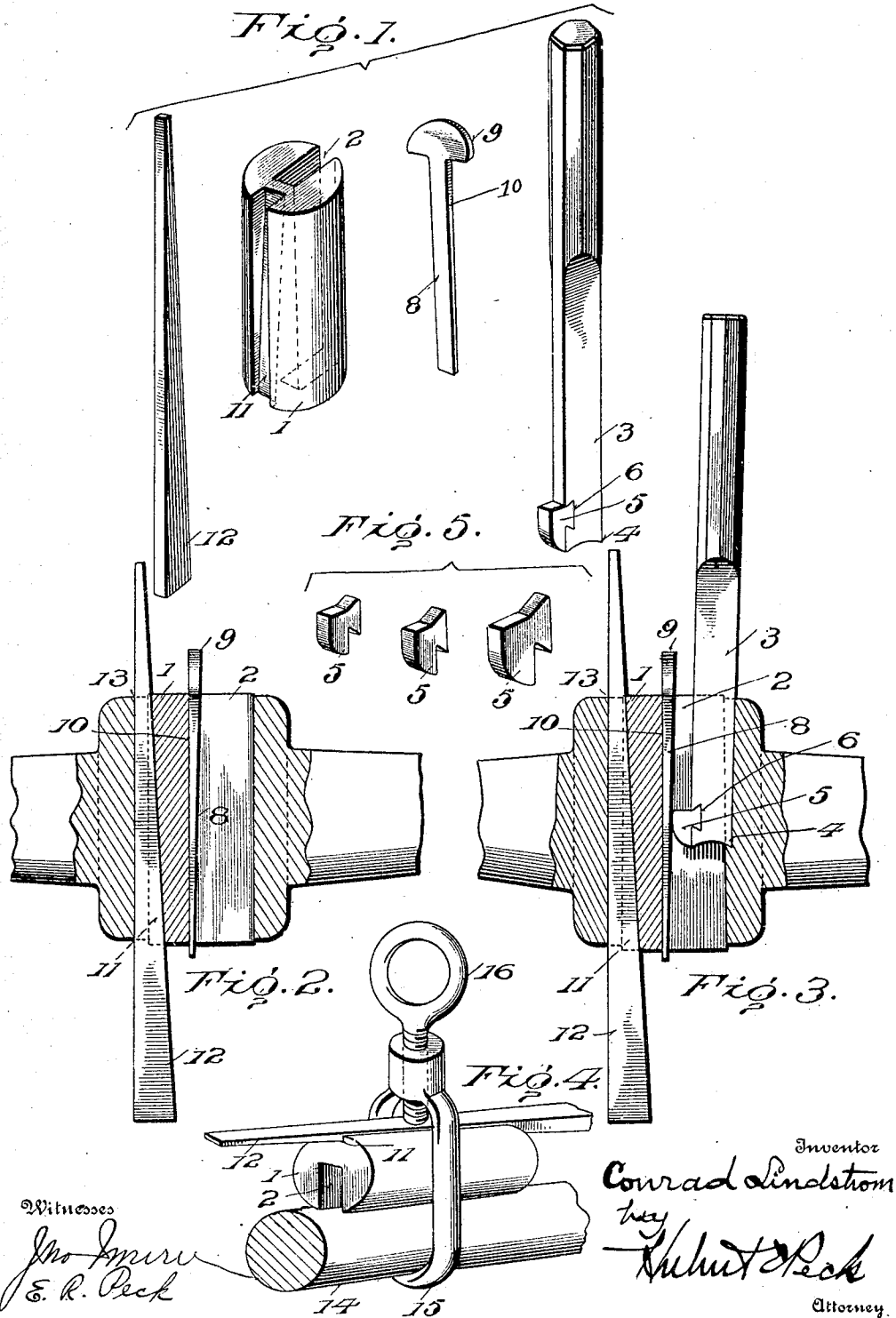
No. 870,971.

PATENTED NOV. 12, 1907.

C. LINDSTROM.

DEVICE FOR CUTTING KEY SEATS OR THE LIKE.

APPLICATION FILED NOV. 24, 1906.



UNITED STATES PATENT OFFICE.

CONRAD LINDSTROM, OF EL CAMPO, TEXAS.

DEVICE FOR CUTTING KEY-SEATS OR THE LIKE.

No. 870,971.

Specification of Letters Patent.

Patented Nov. 12, 1907.

Application filed November 24, 1906. Serial No. 344,872.

To all whom it may concern:

Be it known that I, CONRAD LINDSTROM, a citizen of the United States, residing at El Campo, county of Wharton, State of Texas, have invented certain new and useful Improvements in Devices for Cutting Key-Seats or the Like; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain improvements in metal working tools, and more particularly relates to key seat cutters; and the objects and nature of the invention will be readily understood by those skilled in the art in the light of the following explanation of the embodiment shown in the accompanying drawings of what I now consider the preferred form from among other arrangements and structures within the spirit and scope of my invention.

An object of the invention is to provide certain improvements in parts and details, and in combinations and arrangements, whereby efficient means will be produced, including a hand actuated chisel, for accurately cutting key seats.

The invention consists in certain novel features in construction, arrangement or combination of parts as more fully and particularly pointed out hereinafter.

Referring to the accompanying drawings:—Figure 1, is a perspective view of the device showing the several parts thereof separated. Fig. 2, is a cross sectional view through a pulley hub, and the chisel guide block clamped therein, the chisel not being shown. Fig. 3, is a longitudinal section through the pulley hub showing the chisel in operative position in the block. Fig. 4, is a perspective view showing the chisel guide block clamped to a shaft so that the chisel can accurately cut a key seat in the shaft. Fig. 5, is a detail perspective view showing several shoes of different sizes.

The key seat cutting device comprises a guide block or body, means for clamping or securing the same to the shaft, gear, hub, or other article in which a key seat or the like is to be cut.

In the specific example illustrated, I show a generally elongated guide block or body 1, usually composed of suitable metal and preferably, although not necessarily, cylindrical in form.

I form a deep open end guide groove 2, longitudinally throughout the length of the block and usually of the same depth throughout its length. This groove forms a gage or guideway, and preferably has parallel flat side walls. The groove is formed to longitudinally receive and accurately guide the chisel 3, in its movement through the guide block and to maintain the chisel parallel with the axis of the block and also parallel with the axis of the article in which the seat

is being cut by the chisel. I show a hand chisel, that is one adapted to be impelled by the strokes of a hammer or mallet when performing its cutting operation. The chisel is formed to fit the guideway 2, so as to be guided thereby in a straight line, and yet so that the guideway will not retard the chisel in its working strokes. In the specific example illustrated, I show the chisel throughout the portion of its length adapted to work in said guideway, formed rectangular in cross section, that is with flat parallel side faces corresponding with the side walls of the guideway.

The chisel is formed with the transverse cutting edge 4, at the upper corner of its front end, and this cutting edge can be slightly elevated and the front end edge of the chisel can be hollowed or beveled upwardly and forwardly to said cutting edge, although I do not wish to limit my invention to these details.

In use, the guide block is tightly secured by suitable clamping means, to the article in which the seat is to be cut with the longitudinal opening of the guideway coinciding with the portion of the article to be cut-away to form the key seat. The working end of the chisel is then inserted in one of the open ends of the guideway, with the cutting edge against the metal to be removed, and the chisel, by the impacts of the hammer, is then forced through the guideway, the chisel cutting edge cutting a groove along the line of the key seat to be formed. This operation is repeated until the groove is cut of the required depth to form the key seat desired.

The depth cut at each complete stroke of the chisel, depends on the projection of the chisel cutting edge beyond the guide block or guideway thereof, and hence as the depth of the cut increases, the projection of the chisel cutting edge beyond the guide block must be increased. The floor of the guide block receives the thrust of the chisel while at work, and directly or indirectly holds the chisel to its work and gages or determines the cutting depth thereof. The cutting depth of the chisel can hence be increased by raising the floor of the guide way or by increasing the width of the cutting end of the chisel. Various means can be employed for this purpose. For instance, I show the working end of the chisel at its lower edge or lower front corner, provided, or formed with a depending shoe 5, to slide on the floor of the guideway and uphold the working end of the chisel. This shoe preferably has a curved or rounded bottom and front edge, whereby the chisel can rock thereon to elevate and depress the cutting edge. I usually employ removable shoes 5, and employ several shoes of different widths to be successively applied to the chisel according to the depth of groove or seat to be cut or to gradually elevate the cutting edge of the chisel during the process of cutting the seat. When starting to cut the seat, the small or nar-

rowest shoe is employed, then as the groove is formed to a certain depth, a wider or larger shoe is applied, and so on until the cut is completed to the depth required to form the seat.

- 5 Suitable means can be employed to detachably secure the shoes to the chisel. For instance, I show the chisel formed with a transverse dovetailed socket 6 across the front end portion of its bottom edge, and each shoe formed on the rear portion of its top edge with a transverse elevated rib 7, to fit said socket and slide
10 into and from the same, and said rib can have one or both edges undercut or dovetailed.

- If it is desired to decrease the depth of the guideway, one or more liners 8, can be slipped longitudinally
15 therein to rest on the floor thereof. The liner is usually at one end provided with a head 9, to engage the end edge of the block to prevent movement of the liner with the chisel during the working stroke thereof.

- As it is sometimes desirable to cut tapered seats or
20 grooves, that is, grooves longitudinally decreasing in depth, I can cause the chisel to cut such grooves by employing a liner 8, longitudinally inclined on its upper or outer side face 10, that is longitudinally decreasing in thickness and thereby forming what might be a
25 tapered or wedge shaped pattern plate or liner, as the chisel shoe riding or sliding on such liner will so vary the cutting depth of the chisel cutting edge as to cut a correspondingly tapered groove.

- Various means can be employed to clamp the guide
30 block within the bore of a gear, wheel, pulley or the like wherein a key seat groove or the like, is to be cut. As a convenient and effective means for this purpose, I show the guide block formed with a longitudinally tapered slideway 11, extending throughout the length
35 of the block diametrically opposite the chisel guideway. This slideway 11, longitudinally tapers in depth and is adapted to longitudinally receive an elongated clamping key or wedge 12, having a straight longitudinal outer edge and an inclined inner longitudinal edge
40 to engage the inclined floor of slideway 11. The guide block is inserted in the bore 13, with said wedge seated in the slideway. The guide block is properly positioned in the bore so that the chisel will cut where the seat is desired, and the block is most firmly locked in
45 position by driving in the wedge as will be readily understood by those skilled in the art.

- If a key seat, groove or other cut is to be made in an outer surface, as longitudinally in a shaft 14, the guide block is clamped longitudinally on and against the
50 shaft with the outer open side of the groove closed by the portion of the shaft where the cut is to be made. The chisel will then be operated as before described. The guide block can be firmly clamped to the shaft by a spanner, loop or yoke 15, embracing the shaft and
55 block and locked by the wedge 12, and if desired it can be further locked and clamped by a set screw 16, adjustable through one end of the yoke against the wedge, or if desired against the shaft. Either the wedge or the

screw alone, might be depended on to lock the yoke, but I prefer to employ both.

The key seats can be cut the desired length within bores or at the outer surfaces of articles by moving the guide block as one portion of the seat is completed, in the event that the seat is to be longer than the guide block.

By the use of my device, it is not necessary to first mark off a pattern on the work, as the chisel will be accurately guided and thereby produce a properly aligned seat.

Any person capable of handling a hammer and chisel
70 can, with my invention cut key seats, grooves or the like, quickly and accurately, and after being cut the grooves or seats do not require the filing or finishing, generally necessary where seats are cut by the expensive milling or other machines for such purpose.

It is evident that various changes and modifications might be resorted to, or that parts might be added or omitted, without departing from the spirit and scope of my invention, hence I do not wish to limit myself to the exact construction shown.

What I claim is:—

1. A portable device for cutting key seats comprising a block formed with a longitudinal chisel guide slot, means for locking the block to the work, and a blow actuated hand chisel having a transverse front end cutting edge and a removable projecting shoe whereby the depth of the cut can be gaged by employing shoes of different depth, substantially as described.

2. A portable device for cutting key seats comprising a block having a longitudinal chisel guiding slot, means to lock the block to the work, and a blow operated hand chisel having a transverse cutting edge at one corner of its working end and a projecting rounded shoe on the opposite side of the chisel from said edge and arranged rearwardly of a plane transverse of the chisel and including said edge, substantially as described.

3. A portable device for cutting key seats in hubs, shafts, or the like, comprising an elongated block throughout its length having a longitudinal chisel guiding slot and an opposite inclined longitudinal wedge receiving slot, a clamping or chucking wedge to enter said slot, and a hand chisel adapted to work in said guiding slot and having a transverse cutting edge, said block being of uniform size throughout its length, whereby the block can be chucked within hub bores of different diameters or can be clamped and chucked longitudinally on and parallel with shafts of different diameters by a yoke having a clamping screw engaging said wedge.

4. A portable device for cutting key seats in hubs, shafts, or the like, comprising an elongated cylindrical block of uniform dimensions throughout its length, whereby the block can be clamped and chucked longitudinally on and parallel with shafts of different sizes, or within hub bores of different diameters, clamping or chucking means for said block, said block formed with a longitudinal chisel guiding slot, and a hand chisel adapted to work in said slot.

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

CONRAD LINDSTROM.

Witnesses:

C. H. RUDDELL,
E. F. EARL, Sr.