

D. A. BUOKER.
ANNUNCIATOR.
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946,692.

Patented Jan. 18, 1910.

2 SHEETS—SHEET 1.

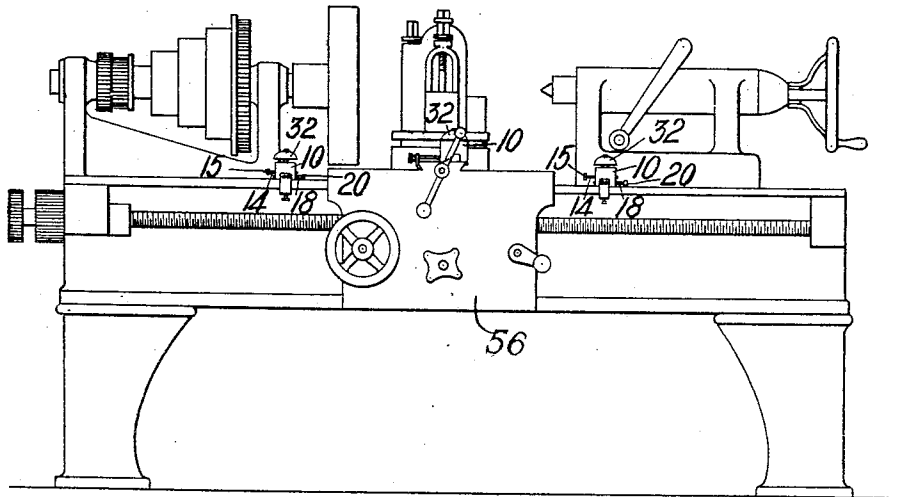


Fig. 1.

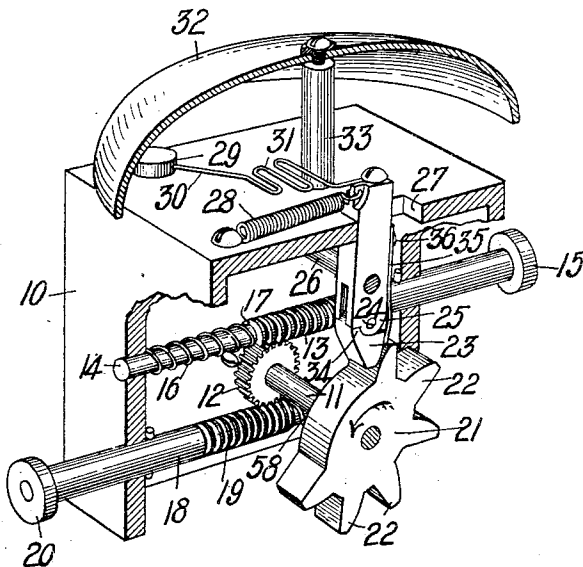


Fig. 2.

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2 SHEETS—SHEET 2.

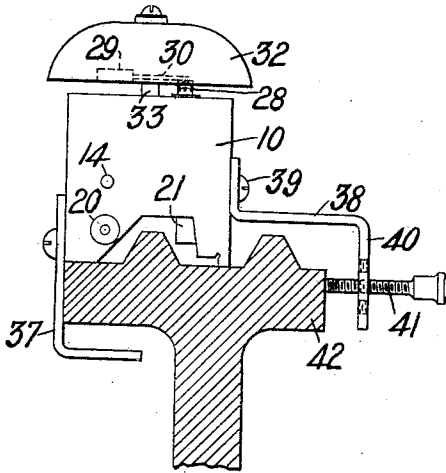


Fig. 3.

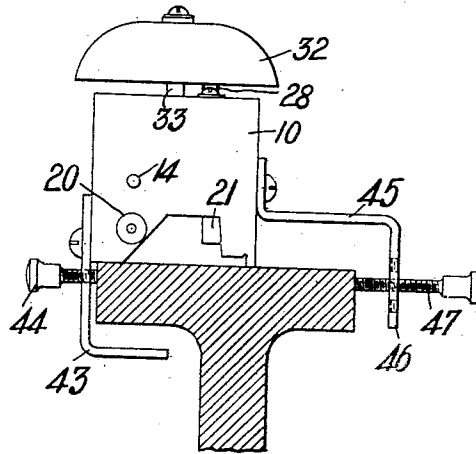


Fig. 4.

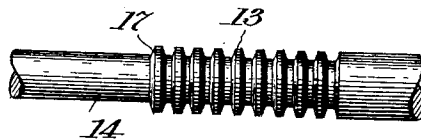


Fig. 7.

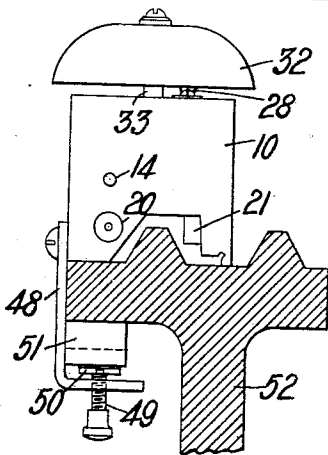


Fig. 5.

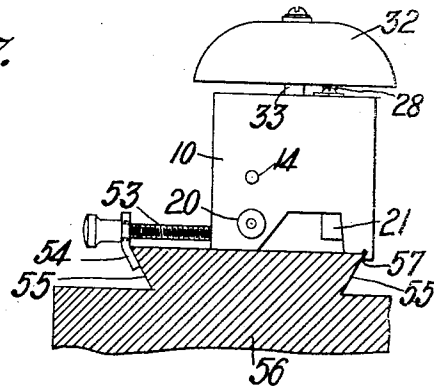


Fig. 6.

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UNITED STATES PATENT OFFICE.

DANIEL A. BUOKER, OF PEABODY, MASSACHUSETTS.

ANNUNCIATOR.

946,692.

Specification of Letters Patent.

Patented Jan. 18, 1910.

Application filed November 25, 1907. Serial No. 403,692.

To all whom it may concern:

Be it known that I, DANIEL A. BUOKER, a citizen of the United States, residing at Peabody, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Annunciators, of which the following is a specification.

The object of this invention is to provide an annunciator or alarm device which is adapted to be fastened to the bed or shears of a lathe and also to the ways of the carriage, where a cross feed is used, and which is actuated by the carriage when said device is attached to the lathe bed and by the slide rest when the device is attached to the cross ways upon the carriage.

The invention is particularly adapted to be used in connection with lathes and to announce to the workman when the carriage has traveled as far as desired.

The device is particularly useful in such cases as the boring out of cylinders which takes a long time, say from one to two, and possibly, three hours, to take a single chip from the work and while this work is being done the workman can be employed with other machines and not be obliged to watch the lathe to see when the tool has taken one complete chip from the interior of the cylinder.

The device is also adapted to be used for the same purpose in doing cross feed work, all as more fully hereinafter set forth.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings: Figure 1 is a front elevation of a lathe with my improved annunciator shown in connection therewith in different positions. Fig. 2 is a perspective view of the annunciator, the same being partly broken away and shown in section, said view being taken from the rear of the annunciator. Fig. 3 is a sectional elevation illustrating my improved annunciator clamped to the bed of a lathe. Fig. 4 is a view similar to Fig. 3 illustrating the annunciator clamped to a different form of lathe bed. Fig. 5 is a sectional elevation showing my annunciator clamped to still another form of lathe bed. Fig. 6 is a front elevation of a lathe carriage with my improved annunciator clamped to the cross ways thereof. Fig. 7 is a detail elevation of one of the rods having a cylindrical rack

thereon which meshes into a gear fast to the shaft which carries the notched disk of the striking mechanism.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, referring particularly to Fig. 2, 10 is a casing which supports the different working parts of the annunciator, said casing being adapted to be fastened to the lathe bed, as hereinafter described, or to the ways of the carriage of the lathe. A shaft 11 is journaled to rotate in opposite sides of the casing 10 and has fastened there-to a gear 12 which meshes into a cylindrical rack 13 formed upon a rod 14 extending transversely of the shaft 11 and above the gear 12. Said rod 14 has suitable bearings in the opposite ends of the casing 10 in which it is adapted to slide and has fastened at one end thereof a head 15. A spring 16 encircles the rod 14, one end of said spring bearing against the inside of the casing, the other end of said spring bearing against a shoulder 17 formed upon the rod 14. Another rod 18 extends longitudinally of the casing 10 beneath the shaft 11 and gear 12 and has formed thereon a cylindrical rack 19 which meshes into the gear 12. The rod 18 is adapted to slide in suitable bearings formed in the opposite ends of the casing 10 and is provided with a head 20 fast thereto outside the opposite end of the casing from that at which the head 15 upon the rod 14 is located. A spring 58 encircles the slide rod 18, one end of said spring bearing against the inside of the casing 10 and the other against a shoulder on said rod, as hereinbefore described, in relation to the spring which encircles the slide rod 14. A disk 21 is fastened to the shaft 11, said disk having upon its periphery teeth 22 which, when the shaft 11 is rotated, are adapted to engage a latch 23 pivoted at 24 to a lever 25, said lever being pivoted to a rod 26 which is supported at its opposite ends in the front and rear side of the casing 10. The upper end of the lever 25 projects through a slot 27 in the top of the casing 10 and has fastened thereto a spiral spring 28, the other end of which is fastened to the top of the casing. A hammer 29 is yieldingly supported by a wire 30 upon the upper end of the lever 25. The wire 30 is preferably bent in a series of convolutions, as at 31, to give the same resiliency when the lever 25 is rocked, as hereinafter described. A bell 32 is support-

ed by a standard 33 upon the top of the casing 10. It will be noted that the latch 23 is free to rock toward the right (Fig. 2) upon its pivot 24 without rocking the lever 25, but is locked against movement in the opposite direction or toward the left (Fig. 2) from the position therein shown by reason of the lug 34 thereon which abuts against the lower end of the lever 25 when the parts are in their normal position or in the position illustrated in Fig. 2. A spring 35 keeps the latch 23 normally in the position illustrated in Fig. 2, that is, with the lug 34 bearing against the under side of the lever 25. Said spring 35 is fastened at its upper end, by a screw 36, to the lever 25, the free lower end of said spring bearing against the edge of the latch 23. The lever 25, hammer 29 and wire 30 form, as a whole, a striker.

In Fig. 1 my improved annunciator is shown as attached to the lathe bed at the left of the carriage, also at the right of the carriage and also to the cross ways of the carriage as illustrative of the different positions in which said annunciator may be used in connection with the lathe and its carriage. As there are many different styles and designs of lathes and lathe beds and carriages, it is necessary in a device of this kind, in order that the same shall be conveniently attached to these different styles of lathe beds, that the casing be provided with brackets having a screw or screws which are adapted to engage the lathe bed and clamp the casing thereto by means of said screw and bracket.

In Fig. 3 I have illustrated my improved annunciator as clamped to the shears or bed of a lathe, a right angle bracket 37 being fastened to the front of the casing and projecting beneath the front flange of the lathe bed, while another bracket 38 is fastened by screws 39 to the rear of the casing and has a downwardly projecting arm 40 which has a clamp-screw 41 in engagement therewith, the inner end of which clamp-screw bears against the inner flange of the lathe bed 42, thus firmly clamping the casing to the bed.

In Fig. 4 another adaptation of my device is illustrated in which a bracket 43 is fastened to the front of the casing and has a clamp screw 44 in engagement therewith and bearing at its inner end against the front flange of the lathe bed, while a bracket 45 is fastened to the back of the casing and has a downwardly projecting arm 46 which engages a screw 47, the inner end of which bears against the inner flange of the lathe bed.

In some styles of lathe beds a rack is provided beneath the front flange of said bed and in such cases I have adapted my device to be clamped thereto by means of a right angle bracket 48 (Fig. 5) which is fastened to the front of the annunciator casing, the

horizontal arm of the bracket being supplied with an adjusting screw 49. The upper end of said adjusting screw bears against a flat spring 50 which, in turn, bears against the under side of the rack 51 upon the front flange of the lathe bed 52.

When it is desired to adapt my device to use with a cross feed of the lathe, the same is provided, as illustrated in Fig. 6, with a clamp-screw 53 which has screw-threaded engagement with the casing 10 and passes through an angle clamp 54, but does not have screw-threaded engagement with said angle clamp. The angle clamp 54 bears against one side of the ways 55 upon the carriage 56 and the casing is slightly recessed at 57 to receive the opposite side of the way 55, so that by tightening the screw 53 the clamp 54 is clamped against the left hand side of the way 55 and thus draws the casing toward the right hand side of said ways, thus firmly clamping the annunciator, as a whole, to the ways upon the carriage 56.

The general operation of the device hereinbefore specifically described is as follows: Assuming the annunciator to be clamped to the lathe bed at the left of the carriage 56, as illustrated in Fig. 1, when the carriage arrives toward the end of its movement to the left in said figure it will abut against the head 20 upon the slide rod 18 and moving said slide rod to the left will rotate the gear 12, shaft 11 and toothed disk 21 in the direction of the arrow upon said disk. This will bring one of the teeth 22 into contact with the right hand side of the latch 23 (Fig. 2), tipping said latch and with it the lever 25, so that the upper end of the lever 25 will move toward the right (Fig. 2) in the slot 27. As soon as the outer end of the tooth 22, which is in engagement with said latch, clears the same, the spring 28 will suddenly draw the lever 25 back to the left hand end of the slot 27 (Fig. 2) and cause the hammer 29 to strike the bell 32. This striking of the bell by the hammer will be repeated each time that one of the teeth 22 engages and passes by the latch 23, so that a series of strokes will be made upon the bell 32 as the slide 18 is pushed toward the left, Fig. 1, by the carriage of the lathe.

If it is desired to announce the time when the carriage of the lathe arrives at the extreme right of its movement then the annunciator is clamped to the bed of the lathe at the right of the carriage, as illustrated in Fig. 1, and in this case, when the carriage arrives near the end of its movement toward the right, it will abut against the head 15, moving the slide rod 14 toward the right and through the rack 17 thereon cause the gear 12, shaft 11 and toothed disk 21 to be rotated in the direction of the arrow on said disk, with the result hereinbefore described as to the striking of the bell when the car-

riage moved the rod 18 toward the left (Fig. 1), it being understood that the movement of the rod 18 toward the right, Fig. 2, will rotate the gear 12, shaft 11 and toothed disk 21 in the same direction as the movement of the rod 14 toward the left (Fig. 2).

When it is desired to use the annunciator to announce the completion of the movement in one direction of the slide rest upon the cross ways of the carriage, said annunciator is clamped to the ways, as illustrated in Fig. 1 and particularly in detail in Fig. 6, and as the slide rest arrives near the end of its movement it will strike against one of the heads 15 or 20, according to which end of the ways the annunciator is attached and will then actuate the mechanism hereinbefore described to ring the bell.

In each of the cases hereinbefore described, after the bell has been rung, the operator stops the lathe and reverses the carriage or slide rest, so that the slide rods 14 or 18 are released and returned by the springs 17 and 58, respectively, to the positions illustrated in Fig. 2.

While I have described my improved annunciator as particularly adapted to be attached to the shears of a lathe and to the ways of the carriage of the lathe, it is evident that without departing from the spirit of my invention the same may be used in connection with other tools for machine work and machines in which it is desired to announce to the operator the completion of a certain motion of one of the parts of said machines in order to notify him of such completion that he may stop the machine and reverse the same.

Having thus described my invention, what I claim and desire by Letters Patent to secure is:

1. An annunciator for lathes comprising in its construction a casing adapted to be fastened to a lathe bed, a striker pivotally supported on said casing, a bell, two slides

movable simultaneously in opposite directions on said casing, and mechanism operated by said slides to move said striker to strike said bell.

2. An annunciator for lathes comprising in its construction a casing adapted to be fastened to a lathe bed, a striker pivotally supported on said casing, a bell, a slide movable on said casing, a rack on said slide, a shaft rotatably mounted on said casing and extending transversely of said slide, a gear fast to said shaft and meshing into said rack, and a toothed disk on said shaft adapted, when rotated in one direction, to operate said striker to strike said bell and when rotated in the opposite direction to leave said striker stationary.

3. An annunciator for lathes comprising in its construction a casing adapted to be fastened to a lathe bed, a striker comprising a lever and a hammer yieldingly supported on said lever, a latch pivoted on said lever and free to rock thereon in one direction and normally locked thereon against movement in the opposite direction, a bell, a slide movable on said casing, a rack on said slide, a shaft rotatably mounted on said casing and extending transversely of said slide, a gear fast to said shaft and meshing into said rack and a toothed disk on said shaft adapted, when rotated in one direction to engage said latch and rock said lever to cause said hammer to strike said bell and when rotated in the opposite direction to engage said latch and rock the same on said lever while said lever and hammer remain stationary.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

DANIEL A. BUOKER.

Witnesses:

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CHARLES S. GOODING.