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W. ANEST

2,536,149

SNAP CHUCK

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Fig. 1.

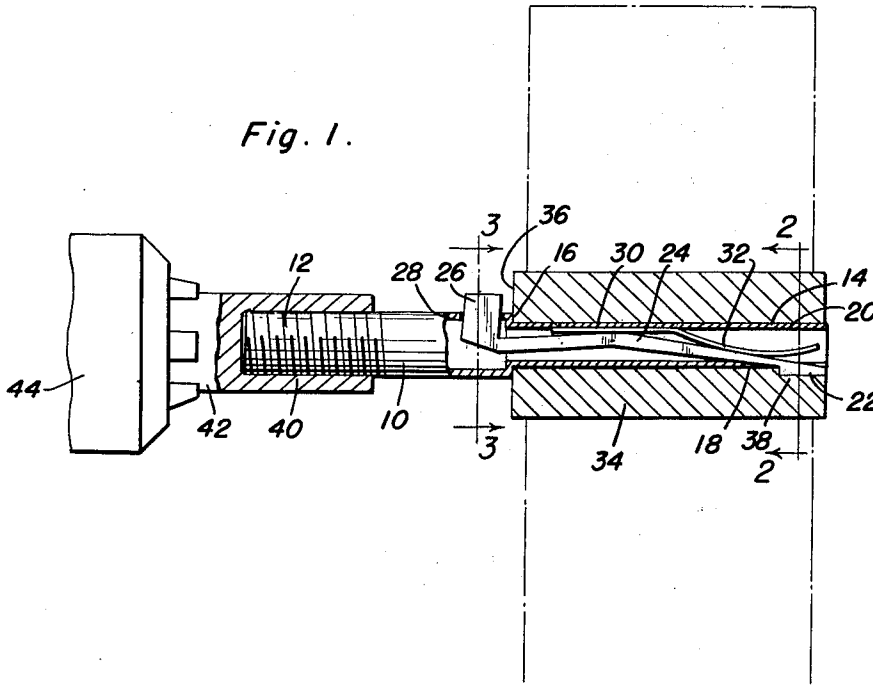


Fig. 2.

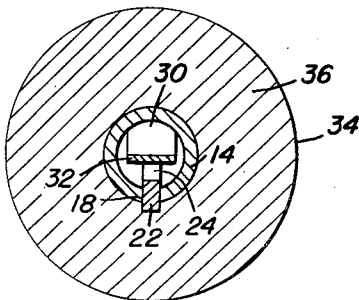
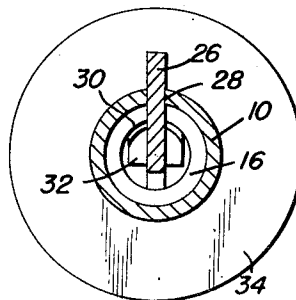


Fig. 3.



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SNAP CHUCK

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Application December 18, 1947, Serial No. 792,444

7 Claims. (Cl. 279-2)

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This invention relates to new and useful improvements in snap chucks and more particularly this invention relates to an improvement in my copending application No. 747,865, filed May 13, 1947, now Patent No. 2,472,184.

A primary object of the present invention is to provide a snap chuck including a drive shaft engaging spindle and including novel and improved means carried by said spindle for fixedly attaching the hub portion of a sanding head, bumping or polishing head, or the like, onto said spindle in a quick and precise manner.

Another important object of the present invention is to provide a spindle, and a pivoted latch including an actuating element conveniently located to facilitate the same to be readily accessible to an operator for the attachment or removal of a tool on the spindle.

A further object of the present invention is to provide a snap chuck that is extremely small and compact in structure.

A still further aim of the present invention is to provide a snap chuck that is simple and practical in construction, strong and reliable in use, relatively inexpensive to manufacture, and otherwise well-adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a fragmentary elevational view of a rotary vise supporting a drive shaft on which the present invention is applied, and showing a tool applied to the present invention, and with parts broken away and shown in section for the convenience of explanation;

Figure 2 is a transverse vertical sectional view taken substantially on the plane of section line 2-2 of Figure 1; and

Figure 3 is a transverse vertical sectional view taken substantially on the plane of section line 3-3 of Figure 1.

Referring now to the drawings in detail, wherein for the purpose of illustration, there is disclosed a preferred embodiment of the present invention, the numeral 10 represents a preferably hollow spindle or driven shaft that is provided with an externally threaded inner end portion 12 and a reduced tubular extension 14 at its outer end portion. An annular shoulder 15 is provided on said spindle 10 at the juncture of the extension 14 with the spindle, for a purpose which will later be more fully described.

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A longitudinal slot 18 is provided in the outer free end 20 of the extension 14, and slidably engages a locking lug or lip 22 at one end of a latch 24 or substantially V-shaped, elongated lever 24.

The opposite end of this lever 24 is provided with a finger receiving lug or member 26, disposed on the opposite side of the lever from lug 22, that slidably engages a guide slot or opening 28 provided in the spindle 10 adjacent shoulder 16. It should be noted, that the opening 28 is disposed on the diametrically opposite side of the spindle 10 than is slot 18.

Fixed within the extension 14, is a spring arm or leaf spring 30 having a free arcuate end portion 32 that yieldingly engages one end of the lever 24, for normally urging the locking lug 22 outwardly from slot 18.

In practical use of the device, the finger receiving portion 26 of the lever 24 is depressed into the opening 28, so that the locking lug 22 will extend into the extension 14 and slot 18. The hub or sleeve portion 34 of a sanding, buffing or polishing head, or any other suitable tool, may be slipped onto the extension 14 so that one end 36 of the hub portion 34 will frictionally engage shoulder 16 to prevent longitudinal movement of the hub portion 34 inwardly relative to said spindle 10. By then releasing the finger receiving portion 26, the end portion 32 of spring 30 will urge lug 32 outwardly through slot 18 to engage a lug receiving recess 38 provided in the inner periphery or wall of the hub portion 34, to prevent outward sliding movement of the hub relative to the extension 14. The threaded end portion 12 of the spindle is then receivably engaged in an internally threaded socket 40 of a drive shaft 42 that is fixed in a rotary vise or the like 44. Obviously, any suitable means may be employed for attaching the spindle to a rotary shaft without deviating from the scope of the present invention.

In view of the foregoing description taken in conjunction with the accompanying drawings it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A tool locking device comprising a spindle

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having a longitudinal slot at one end, means carried by the other end of said spindle for detachably engaging a rotary shaft, a tool receiving portion provided on said spindle adjacent said slot, means for preventing inward movement of a tool on said receiving portion relative to the shaft engaging end of said spindle, an elongated substantially V-shaped locking latch provided in said spindle for pivotal movement on its apex, a locking lug at one end of said latch movable into and out of position in said slot, means normally retaining said lug positioned out of said slot, and finger receiving means at the free end of said latch and disposed intermediate the ends of said spindle for actuating said latch to position said lug into said slot.

2. The combination of claim 1 wherein said means for preventing inward movement of a tool on said spindle adjacent said slot includes an annular stop shoulder disposed adjacent said finger receiving means adapted to bear against the hub portion of a tool mounted on said tool receiving portion and space the hub portion of a tool from said finger receiving means.

3. The combination of claim 1 wherein said means normally retaining said lug positioned outwardly of said slot includes a spring arm fixed at one end within said spindle, the free end of said spring arm bearing against said latch.

4. The combination of claim 1 wherein said means for actuating said latch includes a finger receiving element fixed on said lever, said spindle having a slot slidably receiving said finger receiving element.

5. A tool locking device comprising a tubular spindle threaded at one end to engage the internally threaded socket of a rotary shaft, a reduced hollow cylindrical extension at the other end of said spindle for receiving the hub portion of a tool, an annular shoulder at the jun-

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ture of said spindle with said extension for engaging one end of the hub portion of a tool, a longitudinal slot at the free end of said extension, an elongated substantially V-shaped rock lever positioned in said extension and rockable on its apex, a locking lug at one end of said lever for movement into and out of said slot and adapted to engage a notch in the inner wall of the hub portion of a tool, a spring normally urging said lug out of said slot, a guide opening in said spindle adjacent said extension, and a fixed finger receiving portion at the free end of said lever slidably received in said guide opening.

6. The combination of claim 5 wherein said slot and said guide opening are disposed on diametrically opposite sides of said spindle and said extension.

7. A tool locking device comprising a tubular spindle having inner and outer end portions, a pair of diametrically opposed slots provided in said spindle adjacent the ends thereof, an elongated substantially V-shaped rock bar mounted in said spindle and having oppositely extending lateral projections at the ends thereof slidably received in said slots, said bar having its apex within the spindle and constituting the fulcrum point for the bar, and spring means acting on said bar and normally urging said projections outwardly of said slots.

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REFERENCES CITED

The following references are of record in the file of this patent:

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