

F. H. RICHARDS.
TURRET LOCK.

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UNITED STATES PATENT OFFICE.

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TURRET-LOCK.

SPECIFICATION forming part of Letters Patent No. 353,821, dated December 7, 1886.

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To all whom it may concern:

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Turret-Locks, of which the following is a specification.

This invention relates to improvements in mechanism for locking revolving turrets—as, for instance, those employed in screw-machines—the object being to furnish a device for that purpose which (unlike those now generally employed) shall not depend on fine workmanship for its efficiency, and which shall remain efficient even after it is considerably worn.

To this end the invention consists in the improvements hereinafter described and claimed.

In the drawings accompanying and forming a part of this specification, Figure 1 is a top view of a turret and its locking mechanism embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a top view of a part of the frame and of the locking-cams. Fig. 4 is a vertical transverse section in line *a*, Fig. 5; and Fig. 5 is a vertical transverse section in line *b*, Fig. 1.

Similar characters designate like parts in all the figures.

My improvements are shown in the drawings applied to locking the revolving turret *T*, which turret is carried by and turns on the portion *F* of the frame of a machine. Said turret has or may have some suitable stem, as *N*, (see dotted lines, Figs. 1 and 2,) fitting in a corresponding bearing in the frame, the lower end of said stem being provided with collars *C* or like device for holding the stem and turret down to their places. In most machines having a turret of this class some appliances are provided especially for revolving it; but I have not deemed it necessary to show any other means therefor than the following: The periphery of the turret has made therein a series of holes, 5, for receiving an ordinary lever, 6, whereby it may be turned by hand on the frame.

The under side of the turret is furnished with one or more pins or lugs, 8 9 10 11, all similar to each other, and corresponding in num-

ber to the several positions in which the turret is required to be locked. As shown, these pins are round and somewhat tapering; but these features are not essential. It is only required that the pins shall properly conform to the locking cams or dogs, hereinafter described, and any conformation to these is proper that furnishes a firm bearing-surface thereon.

Under the turret, at one side thereof, the frame has formed therein an opening or chamber, *D*. A rock-shaft, *S*, is supported in any suitable bearings, and lies directly, or nearly so, under pin 8. This shaft is held in place by a nut, 12, and is operated by means of the hand-lever *H*. The normal stroke of this lever is shown by the two positions of it in solid and dotted lines, respectively, in Fig. 2. A stop, 13, is usually provided to limit the downward motion when the turret is revolving.

Shaft *S*, in the part of it extending across space *D*, has a key or spline, 14, or it may there be formed of a rectangular shape answering the same purpose. To this part of said shaft the hubs of the two locking-cams 16 18 are fitted to freely slide but not to turn thereon. Those cams are respectively provided with oppositely-disposed cam-faces 20 21 engaging the pin 8, (or the other pins, 9 10 11,) one on each side thereof. These faces, when the cams are turned over toward the right hand in Fig. 3, have the effect of forcing apart the cams 16 and 18, sliding them on shaft *S* firmly against the respective abutments 22 and 23, Fig. 4. In effect, therefore, cam 16 forms a block or wedge between pin 8 and abutment 22, and cam 18 between the pin and abutment 23, and by forcibly turning the shaft as stated the said parts are brought into engagement under a great tension and hold the turret with a corresponding rigidity.

If the sides of the turret-pins 8 10 wear away, or if the said cam-faces or the abutments are any of them worn away by use, this only requires the shaft to be turned a little farther than before to secure the same results, which results are, however, none the less readily or surely attained because of such wear. It is the same as to any slight variation in the construction of the parts as to their shape or size.

Their operation is practically the same within considerable limits of variation.

For the purpose of allowing the turret-pins, as 8, when approaching the locking position to throw back the cams, these are cut away, as shown by lines 25 in Fig. 3, so that the pin in approaching from either direction strikes against said inclined part, thereby turning the shaft S and lifting handle H to its dotted position in Fig. 2. The turret-pin 8 next comes between the cams, which are then turned forward into engagement therewith either by weight of said handle or by the operator of the machine, or both, as the case may be.

It will of course be understood that my improved turret-lock is capable of modification in various ways and degrees after the manner of machines in general without departing from my invention.

Having thus described my invention, I claim—

1. The combination, with a frame and with a turret mounted thereon, of two cams or dogs,

substantially as described, abutting outwardly against said frame and engaging between them a pin or lug on the turret, and means, substantially as described, for operating said cams or dogs, substantially as set forth.

2. The combination, with a frame and with a turret mounted thereon, of a shaft shaped to receive two cams or dogs between solid abutments, and two cams or dogs fitted to slide on and to be turned by said shaft, and to engage between them a pin or lug on said turret, which pin or lug held by said cams or dogs acts to force these apart, substantially as set forth.

3. The combination of a frame, as F, a turret having a pin or lug, 8, shaft S, and cams 16 18, having cam-faces engaging said pin and having incline 25, whereby the cams are turned by said pin, substantially as set forth.

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Witnesses:

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