

No. 630,825.

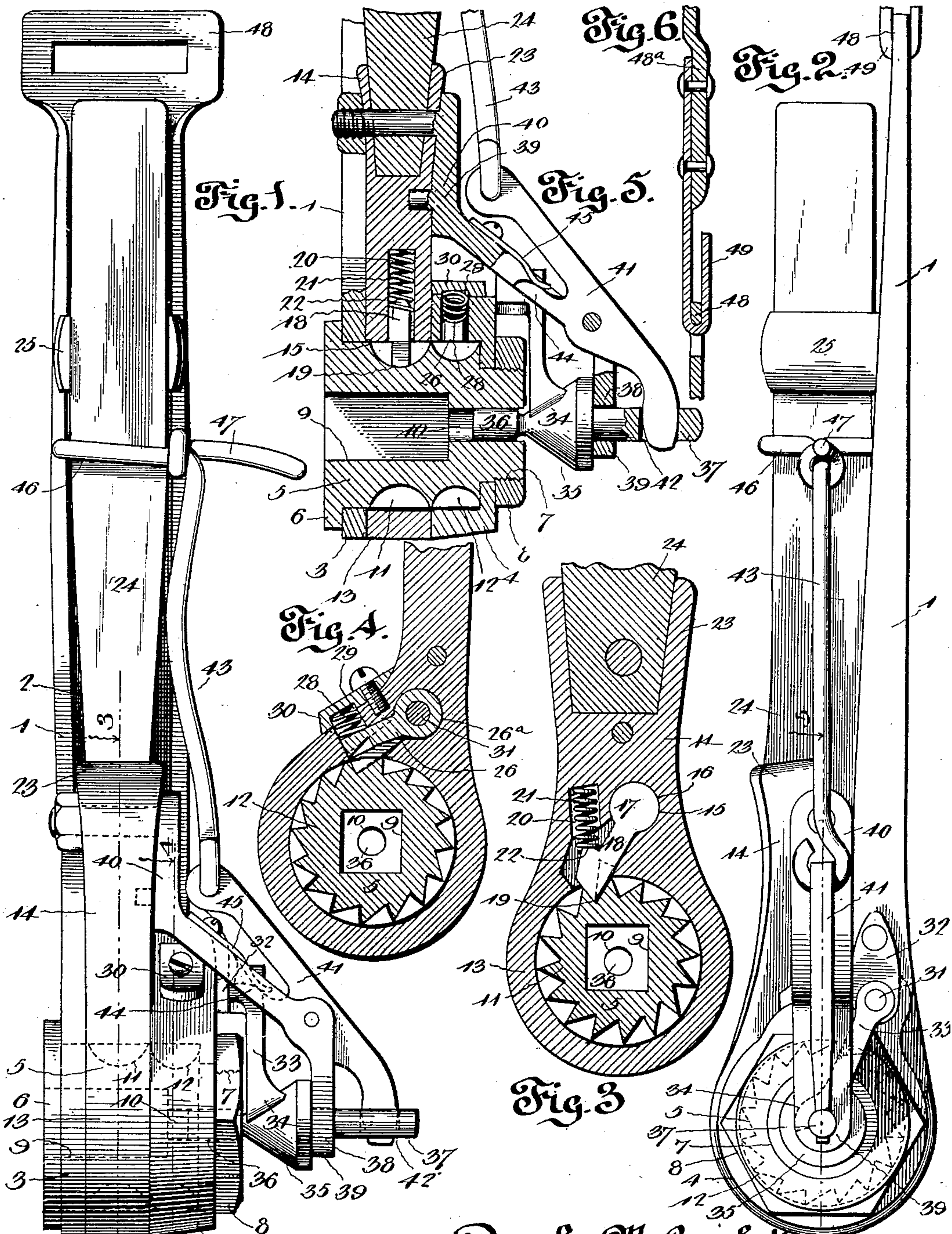
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D. M. CAMPBELL.

WINDING TOOL FOR BALE FASTENINGS.

(Application filed Sept. 19, 1898.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

DOUGLAS M. CAMPBELL, OF HOUSTON, TEXAS, ASSIGNOR OF ONE-FOURTH
TO S. TALIAFERRO, OF SAME PLACE.

WINDING-TOOL FOR BALE-FASTENINGS.

SPECIFICATION forming part of Letters Patent No. 630,825, dated August 8, 1899.

Application filed September 19, 1898. Serial No. 691,365. (No model.)

To all whom it may concern:

Be it known that I, DOUGLAS M. CAMPBELL, a citizen of the United States, residing at Houston, in the county of Harris and State of Texas, have invented a new and useful Winding-Tool for Bale-Fastenings, of which the following is a specification.

This invention relates to an improved winding-tool for bale-fastenings, and is especially designed for use in connection with the winding-key of a bale-fastening of the type disclosed in my Patent No. 609,872, issued August 30, 1898, to provide simple and efficient means for rotating the winding-key, so as to take up all slack in the bale-band and draw the same very tight.

While the present invention contemplates a tool designed particularly as a winding-tool for bale-fastenings, it also has for an object the provision of a novel and efficient tool capable of general use as a ratchet-wrench for any purpose to which it can be applied.

The invention has for a further object the provision of a winding-tool or wrench having simple and efficient means for relieving the binding strain on the tool after the key or other object has been tightened to the desired degree, so that it can be readily released or disengaged from the key or other object at any angle or position.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the drawings, Figure 1 is a side view of a winding-tool or wrench embodying the improvements contemplated by the present invention. Fig. 2 is a front view thereof. Fig. 3 is a sectional view on the line 3 3 of Fig. 1. Fig. 4 is a detail sectional view on the line 4 4 of Fig. 2. Fig. 5 is a similar view on the line 5 5 of Fig. 2. Fig. 6 is a detail sectional view showing the hanger connection with the tool-shank.

Referring to the accompanying drawings, the numeral 1 designates the main supporting shank or arm of the tool, and this shank not only provides for carrying the different working parts of the tool, but also provides

a support or hanger therefor, as will be hereinafter more particularly referred to.

The main supporting-shank 1 of the tool is preferably provided with a channeled face 2 in its front side and extending substantially the entire length thereof, and at one end the said shank is bifurcated and provided with the separate spaced parallel circular bearing-collars 3 and 4, which provide a bearing-support for the revoluble ratchet socket-head 5. The revoluble ratchet socket-head 5 loosely registers within the bearing-collars 3 and 4 of the tool-shank 1 and is provided at one end with a flange or head 6, engaging at one side of the collar 3, and at its other end with a threaded neck 7, projecting through an opening in the bearing-collar 4 and receiving thereon a securing-nut 8, arranged at one side of said bearing-collar 4 and exterior thereto to provide, in conjunction with the flange or head 6 at the opposite end of the socket-head, for holding the socket-head 5 in its bearings and preventing longitudinal displacement thereof.

The revoluble ratchet socket-head 5, mounted for rotation in the bearings at one end of the shank 1, has formed therein a squared socket 9, which is specially designed to fit over or receive the winding-key of a bale-fastening of the type disclosed in my patent herein referred to, so as to provide means for rotating the winding-key and tightening up the bale-band in the manner fully explained in the patent; but it will of course be understood that the socket 9 can be fitted on nuts or any other object should it be desired to use the tool as an ordinary wrench.

At the end fitting in the bearing-collar 4 the revoluble ratchet socket-head 5 is provided with a reduced guide opening or bore 10, the function of which will be presently referred to, and in its exterior surface the said socket-head is provided with separate concentric ratchet-rings 11 and 12, the ratchet-ring 12 lying within the circular plane of one of the bearing-collars of the shank, (designated by the numeral 4,) while the other ratchet-ring 11 of the socket-head lies within the circular plane of the pawl-carrying ring 13, formed at one end of the oscillatory lever-head 14.

The oscillatory lever-head 14 is arranged

for a swinging movement at one side of the shank 1 adjacent to its bifurcated end, and the pawl-carrying ring 13, formed at one end of said head, loosely encircles the socket-head 5 and registers in the bifurcation of the shank, between the two bearing-collars 3 and 4 thereof. The oscillatory lever-head 14 has formed therein, at one side of the ring 13 thereof, a pawl-recess 15, having a rounded bearing portion 16, in which is loosely seated the rounded pivot end 17 of a propelling-pawl 18. This propelling-pawl 18 is provided with a beveled engaging point 19, which normally projects out of the recess 15 inside of the ring 13, so as to engage with the ratchet-ring 11 of the revoluble socket-head, and leading off from the pawl-receiving recess 15 is a spring-socket 20, in which is seated one end of a spiral or coil spring 21, the other end of which engages a nose 22, projecting from one side of the pawl 18, opposite its point, and said spring provides for normally holding the point in ratchet engagement with the ratchet-ring 11, so that as the lever-head 14 is swung in one direction the socket-head 5 will be rotated therewith, while the opposite movement of the lever-head will carry the point of the pawl loosely over the ratchet-teeth forming the ratchet-ring 11. At the end opposite its pawl-carrying ring 13 the oscillatory lever-head 14 is provided with a socket portion 23, in which is secured one end of a lever-handle 24, arranged at one side of the main shank 1, and when not in use adapted to lie within the channeled face 2 thereof, and held in such position by means of an open U-shaped spring-clasp 25, secured fast at its closed end to one side of the shank 1. While the clasp 25 provides for holding the lever-handle along-side of the shank 1 when not in use, still said clasp does not interfere with the lever-handle being readily drawn downward to operate or rotate the ratchet socket-head 5.

To provide for holding the revoluble socket-head 5 against rotation when the propelling-pawl 18 is traveling back over the ratchet-teeth 11 to take a new hold in such teeth, a check-dog 26 is employed. This check-dog is arranged to work within a pawl-recess 26^a, formed in the bearing-collar 4, within which is disposed the ratchet-ring 12, and has the point end normally held in engagement with the teeth of said ratchet-ring 12 through the medium of a spring 28, arranged in a spring-opening 29, leading into the recess 26^a and held in place by means of a cap-plate 30, detachably fastened to the exterior of the bearing-collar 4 over the said spring-opening 29. With the spring 28 normally holding the dog 26 in engagement with the ratchet-ring 12, it will readily be understood that said dog will positively prevent backward rotation of the socket-head, so that the bale-band being tightened cannot unwind on the key engaged by the socket-head; but when the winding operation is complete it is desirable to release the dog 26 from engagement with the

ratchet-ring 12, and the means for accomplishing this result will now be described. The check-dog 26 is mounted at its pivot end on a rock-pin 31, the inner end of which works in the bearing-collar 4, and the outer end of which projects through a bearing-plate 32, secured to the outer side of said collar, and said outer projecting end of the rock-pin 31 has secured fast thereto one end of a swinging trip-lever 33, the other end of which trip-lever is provided with a laterally-widened curved contact-shoe 34, which has a registering contact with the tapered surface of a longitudinal movable releasing-cone 35. The releasing-cone 35 is provided at its apex with a short supporting-stem 36, working in the guide opening or bore 10 in one end of the socket 5, and at its opposite end the said cone is provided with a sliding shank 37, working through a guide-opening 38, formed in one end of an angled supporting-bracket 39, the other end of which bracket is rigidly fastened, as at 40, to one side of the lever-head 14, so as to move therewith. The supporting-bracket 39 is provided with a bifurcation, pivotally receiving therein the intermediate portion of a lever 41, one end of which loosely engages an opening 42 in the shank 37 of the cone and the other end of which has loosely connected thereto one end of the operating rod or wire 43. The pivotal lever 41 is provided at one side of its pivot with a fork 44, which receives therein the free end of an adjusting-spring 45, the other end of which spring is secured fast to the supporting-bracket 39, and the purpose of said spring is to hold the cone 35 normally in such a position as not to affect the engagement of the check-dog 26 with the ratchet-ring 12.

The operating rod or wire 43 is looped around the lever-handle 24 to form a slide-loop 46, and one terminal of said rod or wire is extended laterally from the lever-handle to form a pull-arm 47, which is engaged by the finger of the operator when it is desired to release the check-dog. It will be understood that after the winding of the bale-band has been completed, by exerting a pull on the pull-arm 47 the operating rod or wire 43 is drawn in a direction causing the pivotal lever 41 to oscillate on its intermediate pivot and move the releasing-cone 35 in a direction toward the socket-head carried by the bearings 3 and 4. This movement of the releasing-cone 35 will cause the inclined surface of said cone to press against the contact-shoe 34 of the trip-lever 33, thereby imparting a rocking movement to the rock-pin 31, and consequently throwing the check-dog 26 out of engagement with the ratchet-ring 12, thereby relieving the strain upon the tool and loosening up the socket-head 5 from its engagement with the winding-key of the bale-fastening or other object, so that the tool can be readily slipped off of said key or other object irrespective of the angle or position it may occupy. This is a very important feature of

the invention in order to permit the ready disengagement of the socket 5 from the winding-key or other object.

When the tool is designed for heavy work, the same is necessarily constructed too large and heavy to be conveniently carried about by an operator, and it is therefore necessary to provide means for suspending the same within convenient reach of the operator, and to provide for this the main supporting-shank 1 of the tool is formed at its upper ends with a hanging loop 48, which is engaged in the hook 49 of a suitable hanger 48^a. This hanger forms no part of the present application, and only a sufficient portion thereof is illustrated to show the operative relation between the same and the winding-tool; but it will further be understood that any suitable type of hanging device may be employed to provide for properly suspending the tool within convenient reach of the operator, so that when it is desired to use the same it is simply necessary for the operator to engage the socket-head 5 with the winding-key and then move the lever-handle 24 alternately downward and upward to provide for rotating said head.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described winding-tool will be readily apparent to those skilled in the art without further description, and it will be understood that changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a tool of the class described, the combination with a hanger, of a supporting-shank provided at one end with a bearing, and at its other end with means for detachable engagement with said hanger, a revoluble socket-head journaled in said bearing, an oscillatory lever-head having an operative connection with said socket-head, and provided with an extended lever-handle arranged at one side of the supporting-shank, and having a swinging movement toward and away from the latter, substantially as set forth.

2. In a tool of the class described, a supporting-shank carrying at one side thereof an open spring-clasp and provided at one end with a bearing, a revoluble ratchet socket-head journaled in said bearing, and an oscillatory lever-head working on the socket-head and carrying a propelling-pawl engaging therewith, said lever-head also carrying a lever-handle adapted to engage with said spring-clasp, substantially as set forth.

3. In a tool of the class described, the supporting-shank provided with a bifurcated end having spaced bearing-collars, a revoluble ratchet socket-head journaled in said bearing-collars and provided at one end with a flange engaging at one side of one of the collars and

at its other end with a threaded neck projecting through the other collar, a securing-nut fitted on the threaded neck of the socket-head, and an oscillatory lever-head carrying a lever arranged at one side of the shank-handle and provided with a pawl-carrying ring loosely encircling the socket-head and registering in the bifurcation of the shank between the two bearing-collars, substantially as set forth.

4. In a tool of the class described, the shank having a bearing, a revoluble ratchet socket-head journaled in said bearing, a lever carrying a propelling-pawl engaging with the socket-head, a separate check-dog supported independently of the propelling-pawl and engaging with the socket-head, and means for releasing said dog from its engagement with the head to relieve the latter from its binding strain or engagement with the object being turned, before withdrawal from the latter, substantially as set forth.

5. In a tool of the class described, the shank having a bearing, a revoluble ratchet socket-head journaled in said bearing, a lever carrying a propelling-pawl for the socket-head, a separate check-dog supported independently of the propelling-pawl and engaging with the socket-head, and releasing mechanism, carried by the lever, for disengaging the dog from the socket-head to relieve the latter from its binding strain or engagement with the object being turned, before withdrawal from the latter, substantially as set forth.

6. In a tool of the class described, a supporting-shank having a bearing, a revoluble socket-head journaled in said bearing, means for rotating said head in one direction, a check device, independent of the propelling mechanism, for preventing rotation of the head in an opposite direction, and releasing mechanism for disengaging said check device from the socket-head to relieve the latter from its binding strain or engagement with the object being turned, before withdrawal from the latter, substantially as set forth.

7. In a tool of the class described, the shank provided with a bifurcated end having spaced bearing-collars, a revoluble socket-head journaled in said collars and provided with separate concentric ratchet-rings, an oscillatory lever-head having a ring loosely encircling the socket-head and carrying a propelling-pawl engaging the teeth of one of said ratchet-rings, a spring-actuated check-dog mounted in one of the bearing-collars and normally engaging with the teeth of the other ratchet-ring, and releasing mechanism having operative connection with said check-dog to provide for throwing the same out of engagement with the socket-head, substantially as set forth.

8. In a tool of the class described, the shank having a bearing, a revoluble ratchet socket-head journaled in said bearing, a lever carrying a propelling-pawl for the socket-head, a separate check-dog supported by the shank and normally engaging with the socket-head,

a swinging trip-lever having rigid connection with the pivot of the check-dog so as to move in unison therewith, and releasing mechanism having a cone operating against the free end of said trip-lever, substantially as set forth.

9. In a tool of the class described, the shank having a bearing, a revoluble ratchet socket-head journaled in said bearing, an oscillatory lever-head carrying a lever-handle, and a propelling-pawl for the socket-head, a rock-pin journaled in the shank adjacent to the bearing, a spring-actuated check-dog fitted to one end of said pin and normally engaging the socket-head, a swinging trip-lever secured fast at one end to the other end of said pin and provided at its free end with a contact-shoe, a supporting-bracket fitted to the lever-head, a longitudinally-movable releasing-cone supported by said bracket and arranged contiguous to the shoe of the trip-lever, a lever pivotally supported intermediate of its ends on the supporting-bracket and having

an operative connection at one end with the cone, and an operating rod or wire connected at one end to one end of the pivotal lever and having at its other end a loop slidably embracing the lever-handle and a laterally-disposed pull-arm, substantially as set forth.

10. In a tool of the class described, a shank having a bearing, a revoluble socket-head journaled in said bearing, means for rotating the head in one direction, and separate means for relieving the head from its binding strain or engagement with the object being turned, before withdrawal from the latter, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

DOUGLAS M. CAMPBELL.

Witnesses:

W. D. SHERWOOD,

W. S. HUNT.