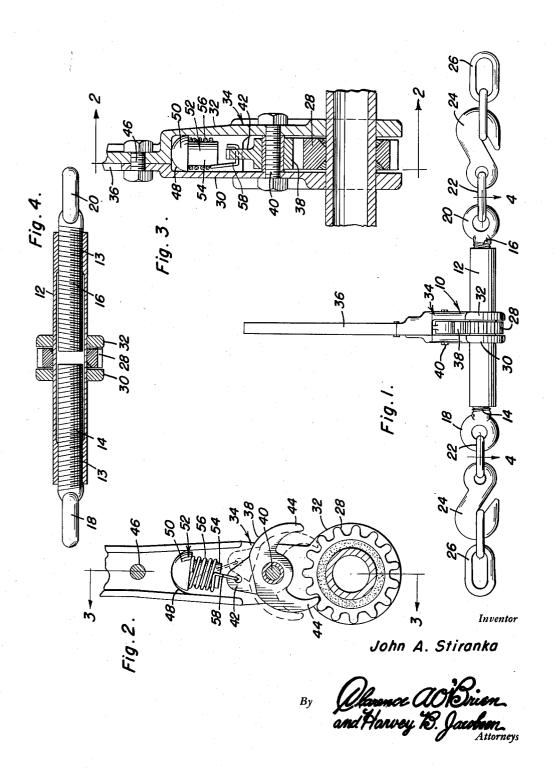
RATCHET TURNBUCKLE

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RATCHET TURNBUCKLE

John A. Stiranka, Pittsburgh, Pa., assignor to American Forge and Manufacturing Company, Pittsburgh, Pa.

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1 Claim. (Cl. 192-43.1)

This invention relates to new and useful improvements and structural refinements in ratchet turnbuckles, and the principal object of the invention is to provide a device of the character herein described, such as may be conveniently and effectively employed for drawing together the ends of a length of chain, or the like, in various shipping, loading or other material handling operations.

Some of the advantages of the invention re- $10\,$ side in its simplicity of construction, in its convenient and highly efficient operation, and in its adaptability to economical manufacture.

With the above more important objects and features in view, and such other objects and 15 features as may become apparent as this specification proceeds, the invention consists essentially of the arrangement and construction of parts as illustrated in the accompanying drawings, in which:

Figure 1 is a side elevational view of the invention:

Figure 2 is a fragmentary sectional view of the ratchet mechanism used in the invention, this view being taken substantially on the plane of 25 the line 2-2 in Figure 3;

Figure 3 is a sectional view, taken substantially on the plane of the line 3-3 in Figure 2, and Figure 4 is a longitudinal sectional view of the ratchet turnbuckle, this view being taken sub- 30 stantially on the plane of the line 4-4 in Fig-

Like characters of reference are employed to designate like parts in the specification and throughout the several views.

Referring now to the accompanying drawings in detail, the invention consists of a ratchet turnbuckle designated generally by the reference character 10, this embodying in its construction an elongated, preferably tubular member 12 hav- 40 or the other of the heels 44 of the pawl with the ing its opposite end portions "upset" by a machine process so as to thicken the wall of the tubular member in these regions as at 13, and the "upset" end portions are screw threaded in relatively opposite directions so as to accom- 45 member 12 may be reversed by simply pressing modate correspondingly screw threaded shanks 14, 16 of a pair of eyes 18, 20 respectively, so that when the member 12 is rotated in one direction, the eyes 18, 20 are drawn together, while rotation of the member in a relatively opposite 50 direction causes the eyes to spread apart, as will be clearly apparent. The eyes 20, 13, in turn, are connected by suitable links 22 to a pair of hooks 24 which are engageable with the links at the ends of a length of chain 26, so that by sim- 55 and one of the heels 44 of the pawl "rises over"

ply rotating the member 12, the chain 26 may be loosened or tightened, as desired.

Rotation of the member 12 is effected by a ratchet mechanism which involves the provision of a ratchet wheel 28 which is suitably secured intermediate the ends of the member 12 and is rotatably mounted between mutually spaced side members 30, 32 which project from a hollow head or housing 34 on one end of an oscillatory handle 36.

The head 34 also accommodates what may be referred to as a double-ended pawl 38 which is pivotally mounted on a pin or screw 40 extending between the members 30, 32, it being noted that a central portion of the pawl 38 is provided with an apertured ear, protuberance or lug 42, while the opposite side portions of the pawl assume the form of a pair of heels 44 which are selectively engageable with the ratchet wheel 28.

The members 30, 32 of the head 34 are secured together by a suitable bolt 46, and it is to be noted that a concave, substantially semispherical socket 48 is provided in the head so as to receive a convex, substantially semi-spherical head 50 of a positioning member 52 which is movable in the head 34 from one side to the other in the plane of the pawl 38.

The positioning member 52 also includes a shank or stem 54 on which is positioned a compression spring 56, one end of the latter being secured to the shank in abutting engagement with the head 50, while the remaining end portion of the spring assumes the form of a hook 58 which is anchored in the aperture of the lug 42 of the pawl 38.

The socket 48, the positioning member 52, the spring 56 and the pawl 38 are so centralized that the spring 56 tends to swing the pawl 38 laterally, to one side or the other, thus engaging one ratchet wheel 28, whereby oscillation of the handle 36 will impart rotation to the wheel 23 and to the associateed member 12 in a predetermined direction. The direction of rotation of the a heel of the pawl 38 into operative engagement with the ratchet wheel 28, and it is to be particularly observed that the positioning member 52 fulfills an important function, namely, that of properly aligning the spring 52 with the lug 42 of the pawl 33, and secondly, that of providing a guide for the compressible spring 56 when the latter is subjected to alternate compression and extension while the handle 36 is reciprocated

It is to be observed that the shank 54 of the positioning and anchoring member is relatively stout and, as a matter of fact, is of an outside 5 diameter or cross-section which corresponds approximately to the bore or passageway through the coil spring. This means that the shank thus fits with requisite nicety in said bore and also serves to stabilize or reinforce the convolu- 10 tions or coils and prevents buckling of the spring. The convex side of the semi-spherical head, of course, is the side which is fitted into the socket. The opposite flat side serves as an abutment for the adjacent endmost coil of the 15 spring. The other end of the shank projects beyond the other end of the spring but at the same time terminates in spaced relation from the path in which the ear 42 swings back and forth so as to avoid colliding with the movable ear. 20 It follows that the spring and positioning member thus constitute a novel assembly for satisfactorily locating the spring and insuring effective operational control for said spring.

It is believed that the advantages and use of ²⁵ the invention will be clearly apparent from the foregoing disclosure and accordingly, further description thereof at this point is deemed unnecessary.

While in the foregoing there has been shown 30 and described the preferred embodiment of this invention, it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope 35 of the invention as claimed.

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

For use in operating the screw-threaded sleeve of a turnbuckle wherein said sleeve is 4 provided intermediate its ends with a rigid toothed ratchet wheel, means for turning said sleeve through the medium of said ratchet comprising a handle bifurcated at one end and defining spaced parallel furcations, said furcations 4 being separably bolted at ends adjacent to said

handle, the opposite ends of said furcations having apertured terminal portions adapted to embrace said sleeve and to permit the handle and members to be oscillated, a reversible doubleended pawl having a bushing-equipped hub portion rockably mounted between said furcations, said pawl including an apertured ear at an intermediate point that portion of said furcations adjacent said handle being provided with a concave socket, a coil spring having one end connected with said ear, a spring positioning anchoring, and stabilizing member comprising a shank passing lengthwise through the bore of said spring and having an enlarged semi-spherical head whose convex side is removably and accommodatingly seated in said socket, the other side of said head providing a spring abutment and the adjacent coil of one end of the spring engaging said abutment, said shank extending beyond the other end of the spring and terminating short of the path of swing of the ear so as not to collide with the ear during the back and forth movements of the ear, and the crosssection of said shank being substantially equal to the diameter of the bore of the spring and

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thus serving to prevent the spring from buckling

JOHN A. STIRANKA.

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