J. S. TOWNSEND.

HOUSING FOR VERTICAL SCREW JACKS.

APPLICATION FILED DEC. 22, 1920

1,424,952. Patented Aug. 8, 1922.

2 SHEETS—SHEET 2.

Fig. 6.

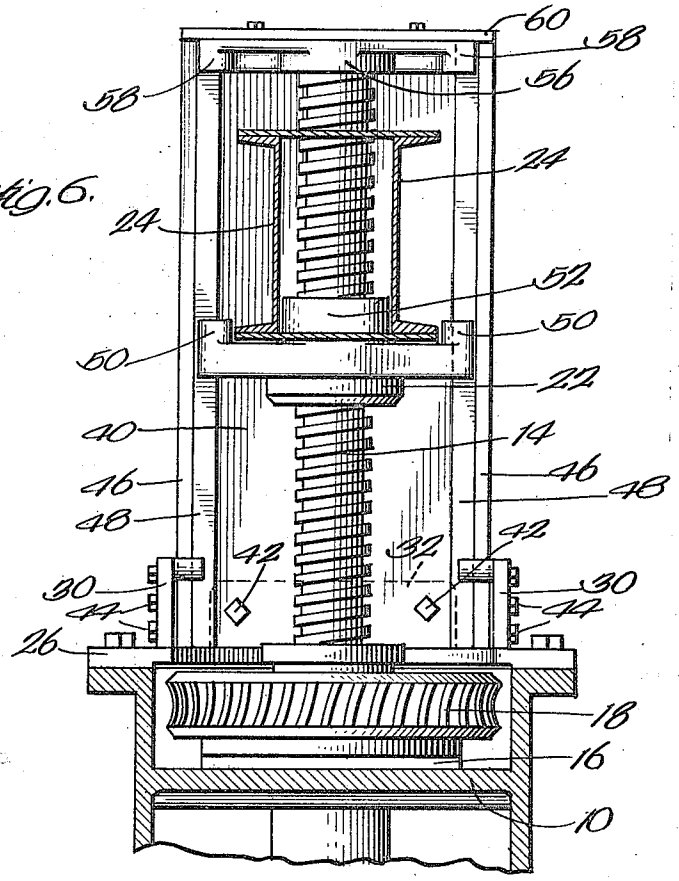
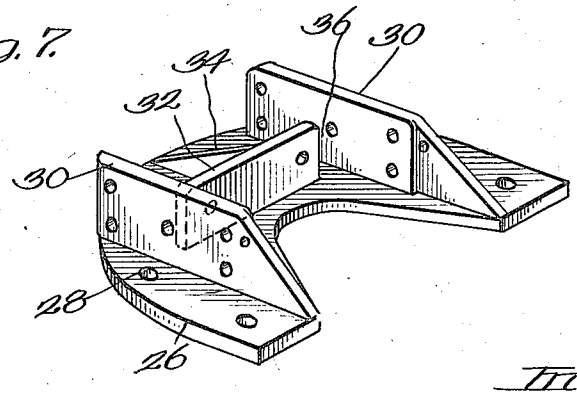


Fig. 7.



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2 SHEETS—SHEET 1.

Fig. 1.

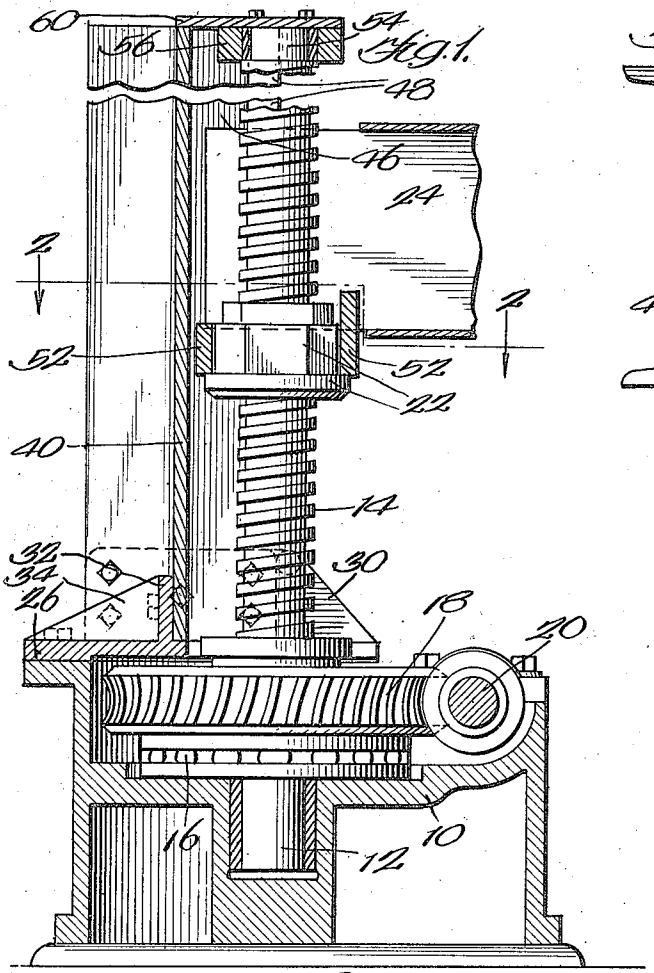


Fig. 3.

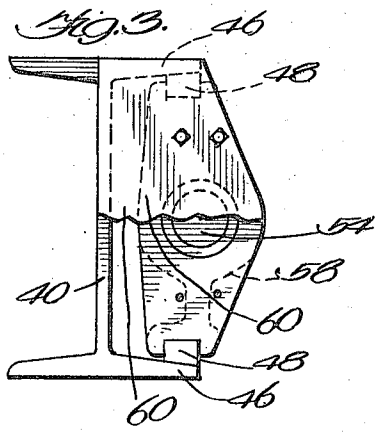


Fig. 4.

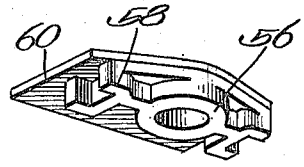


Fig. 2.

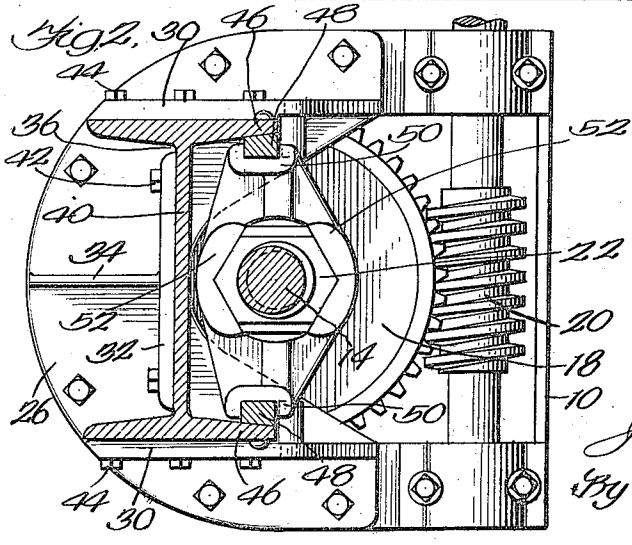
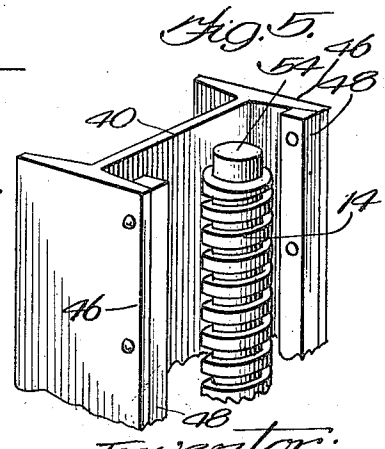


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN S. TOWNSEND, OF HARVEY, ILLINOIS, ASSIGNOR TO WHITING CORPORATION, OF HARVEY, ILLINOIS, A CORPORATION OF ILLINOIS.

HOUSING FOR VERTICAL SCREW JACKS.

1,424,952. Specification of Letters Patent. Patented Aug. 8, 1922.

Application filed December 22, 1920. Serial No. 432,572.

To all whom it may concern:

Be it known that I, JOHN S. TOWNSEND, a citizen of the United States, residing at Harvey, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Housings for Vertical Screw Jacks, of which the following is a specification.

In constructing heavy duty screw jacks, such as those illustrated for instance in Hardy Patent 1,085,734, issued February 3, 1914 it is necessary to enclose each power driven vertical screw in a suitable housing, which not only incidentally protects the screw from contact by persons passing near it, but essentially supports and braces the screw and carries the sideways thrust of the load sustained by the screw. The object of this invention is to provide a housing for use in this class of devices which is unusually economical in that a comparatively light weight of metal is required, and is very strong and capable of efficiently and satisfactorily carrying out its mechanical function. The invention consists in means for accomplishing the foregoing objects and in special features and details of construction which will be hereafter more fully set forth in the specification and claims.

Referring to the drawings in which like numerals designate the same parts throughout the several views,

Figure 1 is a side elevation, partially in section, illustrating this invention in its preferred form.

Figure 2 is a plan sectional view taken at approximately the line 2—2 of Figure 1.

Figure 3 is a plan view of the top of the housing of Figure 1.

Figure 4 is a perspective view taken from below the cap at the top of the screw showing the details of that cap removed from other parts, which are shown in Figure 5.

Figure 5 is a perspective view looking down towards the top of the screw after the cap of Figure 4 is removed.

Figure 6 is a side view taken from the right of Figure 1.

Figure 7 is a perspective view of a base casting entering quite essentially into this invention.

Figure 1 shows a conventional form of base casting 10 in which is journalled the lower end 12 of the vertical power screw 14 sustained by the roller bearing 16 and the worm wheel 18 driven by the worm shaft 20. Screw 14 carries the lifting nut mechanism 22 carrying the lifting bar 24 of conventional form on which the load rests.

The problem to be solved is to satisfactorily attach to the base 10 a housing which will enclose, brace and support the screw 14 for the purposes heretofore referred to. In securing this desired result a special casting shown clearly in Figure 7 is provided, having a base portion 26 adapted to be secured to the base 10 by suitable securing devices placed through the holes 28. Rising from opposite sides of this base 26 at points which in assembled position are on opposite sides of the screw 14 are parallel vertical flanges 30. Rising from the base 26 between these flanges 30, but not connected to the flanges, is a transverse vertical lug 32 braced on one side by an angular member 34. The casting shown in Figure 7 is carefully machined adjacent to the unbraced face of the lug 32 and in the spaces 36 between the member 32 and the respective members 30 so that when the vertically disposed I-beam 40 extending upward the length of the screw is placed in the position shown in Figures 1 and 2 it will closely fit all of the members 26, 30 and 32 and may be easily secured in definite place by the sets of screws 42 and 44.

This beam 40 is so designed and positioned that two of its flanges 46 partially enclose the screw 14 as clearly appears in Figure 2. On the inside edges of these particular flanges 46 are riveted vertical guide bars or track members 48 adapted to be engaged by jaws 50 of the nut guide casting 52. The fit of these parts is such that as the screw 14 is rotated thereby causing the nut 22 to travel along it, each jaw 50 travels along and is guided by its adjacent track member 48. In the particular form of the invention here shown the center of the screw 14 is off side of a line drawn through the centers of the track members 48. This, so as to allow the member 52 to be made of sufficient strength to completely enclose the screw and yet move up and down vertically clear of the I-beam 40.

The screw 14 has its upper end cut away in the cylindrical knob 54 over which drops an upper end supporting casting 56 shown in perspective in Figure 4, provided at its opposite sides with jaws 58 adapted to engage the opposite upper ends of the track

members 48. Suitably attached to this member 56 is a cover plate 60 adapted when installed in the position of Figures 1, 3 and 6 to engage the upper ends of the I-beams 40 and hold member 56 in position with reference to the length of the I-beam. The plate 60 also acts as a dust plate to keep dirt from getting into the surfaces of engagement between the screw 14 and the member 56. This plate 60 rests loosely on the I-beam so that in the event of the mechanism being so operated as to lift the beam 24 higher than normal to strike the member 56, this member 56 is lifted off from the screw 14 and the I-beam 40 without damage which would occur were this member 56 rigid on the beam.

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

1. In mechanism of the class described, a main base member, a vertical screw having its lower end journalled therein, means for operating the screw carried in the base, a cover plate casting for the base, partially enclosing the screw, lugs rising from the cover member, a single vertical I-beam interfitting with said lugs and enclosing three sides of the screw, means securing the I-beams to said lugs and means supporting the upper end of the screw in the upper end of the I-beam.

2. In mechanism of the class described, a main base member, a vertical screw having its lower end journalled therein, means for operating the screw carried in the base, a cover plate casting for the base, partially enclosing the screw, lugs rising from the cover member, a vertical I-beam interfitting with said lugs resting on the cover and enclosing one side of the screw, means securing the I-beam to said lugs and means supporting the upper end of the screw in the upper end of the I-beam, said last means being removable from the end of the beam when engaged by an object moved up to it by the screw.

3. In mechanism of the class described, a base, a vertical screw rising from the base, lifting mechanism operatively associated with the screw, means for rotating the screw to impart movements to the lifting mechanism, a cover for the base, flanges formed on and rising from said cover, and an I-beam disposed in parallelism to and providing a protective housing for said screw, said I-beam having its web portion rigidly secured to one of the cover flanges and its flange portions rigidly secured to other of said cover flanges.

4. In mechanism of the class described, a base, a vertical screw rising from the base, lifting mechanism operatively associated with the screw, means for rotating the screw to impart movements to the lifting mechanism, a cover for the base, relatively right-angularly disposed lugs rising from the base, and a flanged beam disposed in parallelism to the screw and providing a protective housing therefor, the web portion of said beam being secured to one of said lugs and the flanges thereof being respectively secured to the remaining lugs.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

JOHN S. TOWNSEND.

Witnesses:
HARRY W. BAKER,
PAUL W. BIELFELDT.