No. 611,832. Patented Oct. 4, 1898.

T. COUGHLAN.

JACK SCREW.

(Application filed Mar. 7, 1898.)

(No Model.)

Fig. 2.

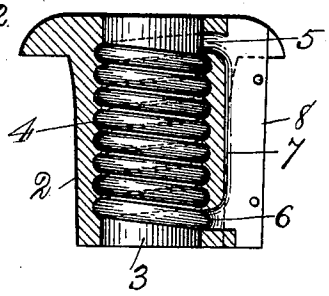


Fig. 3.

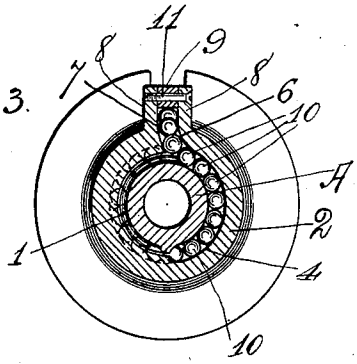


Fig. 4.

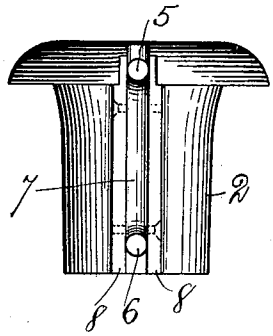
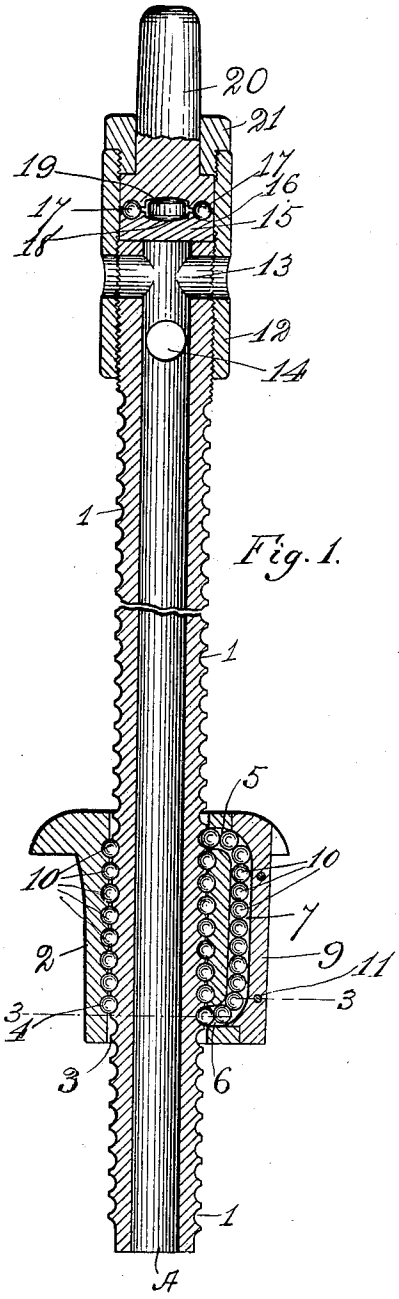


Fig. 1.



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UNITED STATES PATENT OFFICE.

THOMAS COUGHLAN, OF CHICAGO, ILLINOIS.

JACK-SCREW.

SPECIFICATION forming part of Letters Patent No. 611,832, dated October 4, 1898.

Application filed March 7, 1898. Serial No. 672,938. (No model.)

To all whom it may concern:

Be it known that I, THOMAS COUGHLAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Jack-Screws; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a novel construction in a jack-screw, the object being to provide a device of this description in which friction is largely overcome; and it consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a vertical longitudinal section of a jack-screw constructed in accordance with my invention. Fig. 2 is a longitudinal section of the sleeve similar to that shown in Fig. 1 with the key covering the passage for inserting balls removed. Fig. 3 is a horizontal section on the line 3 3 of Fig. 1. Fig. 4 is a side elevation of the sleeve with the key removed.

Referring now to said drawings, A indicates a screw provided with a thread 1, consisting of a special groove of a little less than semicircular form. A sleeve 2, having a central opening 3 of a size sufficient to enable said screw A to pass freely through the same, is mounted on said screw A and is provided with a similar internal thread 4, which does not extend from top to bottom of said opening 3 but from a point adjacent the upper end thereof to a point adjacent its lower end and in vertical alinement with said upper point, said points being marked by the openings 5 and 6, which establish communication between said opening 3 and a passage 7 between two outwardly-extending longitudinal flanges 8 on said sleeve 2. A key 9 is fitted between said flanges and is adapted to form a cover for said passage 7, which acts as a guide for balls 10, forming a continuous movable thread projecting into and connecting said threads 1 and 4. Said key 9 is held in place by means of screws 11, passing through said key and through said flanges 9. Obviously by turning said screw A and sleeve 2 relatively the balls 10 would be set in motion in the direction traveled by the moving part, but at one-half the speed, so that each ball would successively travel from the upper to the lower end of the thread in the sleeve 2, or vice versa. As each ball reaches the end of the thread it passes into the passage 7, traverses the latter, and reënters the opening 3, when it again takes its spiral course.

A sleeve 12 is mounted upon the upper end of the screw A, through which traverse-openings 13 and 14 extend, which are adapted to receive crow-bars, by means of which said screw A is turned. Mounted upon the upper end of said screw A and within said sleeve 12 is a plate 15, having an annular groove 16, adapted to receive balls 17, and a central depression 18, adapted to receive a button 19. Said balls 17 and button 19 are adapted to support a revoluble head 20, held in place in said sleeve 12 by a collar 21.

The sleeve 2 is fitted into an opening in a log and held rigid against revolution by means of the flanges 8. The head 20 is adapted to abut against the object to be raised or moved. By turning the screw A the object is either raised or lowered. Owing to the ease with which said screw A can be turned the pitch of the thread must be very slight in order to prevent the load from forcing it back.

I claim as my invention—

In a jack-screw, the combination with a shank externally threaded and a sleeve to receive said shank and internally threaded, of balls adapted to project partially into said threads of said sleeve and shank to form a connecting-thread between the same, and means for removing and reëntering said balls between said threads during relative movement of said shank and sleeve, comprising a passage communicating with the central opening in said sleeve at the points of termination of the thread therein, flanges on each side of said passage, and a removable key adapted to be secured between said flanges to cover said passage, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS COUGHLAN.

Witnesses:

RUDOLPH WM. LOTZ,

WM. B. SNOWHOOK.