W. GUTHRIE.
Jack-Screw.

No. 198,292. Patented Dec. 18, 1877.

Fig. 1.

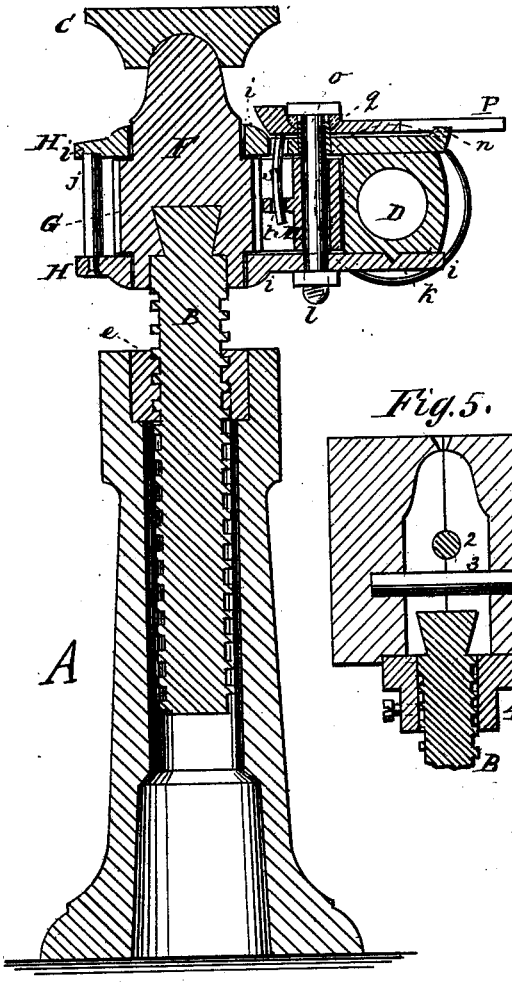


Fig. 3.

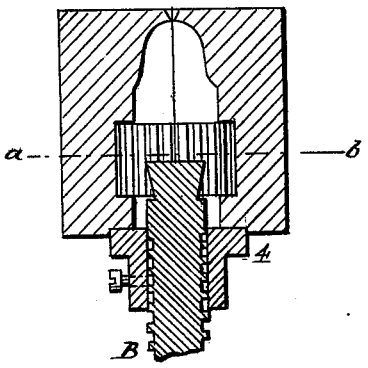


Fig. 5.

Fig. 4.

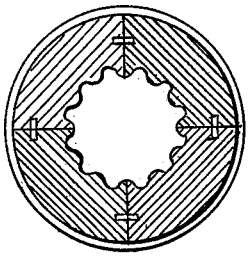


Fig. 6.

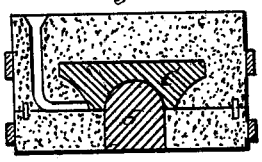


Fig. 7.

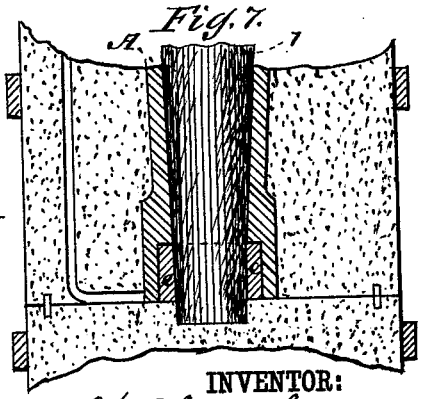
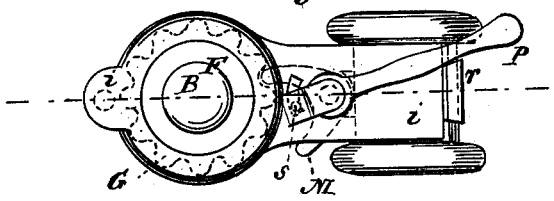


Fig. 2.



WITNESSES:

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INVENTOR:
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ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM GUTHRIE, OF GALVA, ILLINOIS.

IMPROVEMENT IN JACK-SCREWS.

Specification forming part of Letters Patent No. **198,292**, dated December 18, 1877; application filed October 12, 1877.

To all whom it may concern:

Be it known that I, WILLIAM GUTHRIE, of Galva, in the county of Henry and State of Illinois, have invented a new and Improved Screw Press and Jack, of which the following is a specification:

The object of this invention is to improve the form and general construction, increase the durability of the parts, lessen the cost, and avoid the use of the lathe in the manufacture of screw presses and jacks.

The invention will first be described in connection with the drawing, and then pointed out in the claim.

In the manufacture of screw-presses for compressing cheese, hay, grapes, or for other purposes, and of screw-jacks for lifting weights, the male screw has been heretofore cut in a lathe and the head turned at great expense. In a similar manner the female screw and stand, as in a screw-jack, have heretofore been cut, turned, and fitted up at a similar great expense with lathe-work.

By my invention both the male and female screws are cut in ordinary bolt and nut cutting machines, and both the head of the male screw and the case or stand of the female screw are cast with perfect accuracy upon the screws after the said screws are so cut.

The nature of the said ordinary method of manufacture implies the impracticability of employing chilled iron therewith.

By my invention, which I shall now proceed to describe, I employ chilled castings, and thereby very greatly increase the strength and durability of the above-mentioned machines.

In the drawings, Figure 1 is a longitudinal vertical section of a jack embodying my improvements. Fig. 2 is a plan of same with cap removed; Fig. 3, the iron mold or chill in which the screw-head is cast, being a vertical longitudinal section of same; Fig. 4, horizontal section of Fig. 3 on the line *a b;* Fig. 5, iron mold or chill for casting head of screw when no ratchet is used; Fig. 6, transverse vertical section of flask in which the cap is cast, showing cap and chill also in section; Fig. 7, transverse vertical section of flask for casting stand.

Similar letters of reference indicate corresponding parts.

In a machine-cut female-screw stand, A, works a chilled-headed machine-cut male screw, B, against a chilled-faced cap, C.

Power is applied to the said screw B by means of a suitable lever working in a lever-socket, D.

The female-screw stand A is cast in a flask. (Shown in Fig. 7.) A steel or wrought-iron nut, *e*, in which the thread of the screw is cut, is shown in section at the bottom of the flask, at which point the hot metal enters, and, fusing the surface of the nut, makes a good union therewith. The core 1 keeps the nut *e* from moving, and protects the threads from injury by the hot metal.

The head F of screw B may be cast without a ratchet in the chill, (shown in Fig. 5,) and the socket D formed therein by cores or iron pins 2 and 3; or the said head of screw B may be provided with ratchet-teeth G, and cast in the chill, (shown in Fig. 3,) as in the present example of my improved screw-jack. (Shown in the drawings.) The collar 4 in Fig. 5 is accurately bored to fit over, and is secured, by a set-screw, to screw B, and is turned and fitted accurately into a recess in the chill in such a manner as to keep the said screw exactly in position while the head F is being cast. The upper or wearing surface of the head F, as well as the ratchet-teeth G, by being cast and chilled in this manner, are made very hard and durable, as well as perfectly true, without the subsequent use of the lathe.

The cap C is cast in the flask represented in Fig. 6 on the chill 5.

In this present example the socket D forms a part of a swinging socket and pawl frame, H. The said frame H is composed of two parallel plates, *i*, having circular openings that encircle the head F of screw B above and below the ratchet-teeth G. The said plates, being separated by a stud, *j*, and by the socket D, may be cast on one and doweled into the other by dowels *k*, or doweled into both. The said parallel plates *i*, socket D, and stud *j* are firmly secured together by a bolt, *l*, which forms the axle of a double reversible pawl, M, and is the axis of a reversing spring-lever, P, in such a manner that the said frame H swings freely about the screw-head F, not being impeded by the pawl.

On the upper side of the upper plate *i* is a sleeve or annular projection, *o*, through which the bolt *l* passes, and which forms the fulcrum of the said lever P. The broad head of bolt *l* rests upon and projects beyond the sleeve *o*, and an india-rubber ring or spring, *q*, is placed between the projecting part of the bolt-head and the top side of lever P, allowing the said lever P to work back and forth on the stop *r*.

Projecting downward from the short arm of lever P through a suitable opening in the upper plate *i* is a spring, *s*, which passes through a suitable hole or slot, *t*, in the double reversible pawl M, reversing the action of said pawl, when the lever P is changed from one side to the other of the stop *r* in such a manner that the pawl will drive the ratchet in either direction, according to the position of the reversing spring-lever P.

The parts should be so fitted that when a strain comes on the pawl it will bear against the casting back of it as well as on the bolt *l*.

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

The swinging frame H, when combined with the lever and head of a screw-press, for the purpose specified.

WILLIAM GUTHRIE.

Witnesses:
J. P. ROOT,
J. L. FINLEY.