(No Model.) 2 Sheets— Sheet 1.

J. PEASE.

SCREW PRESS FOR INSULATORS.

No. 419,875. Patented Jan. 21, 1890.

Fig. 1

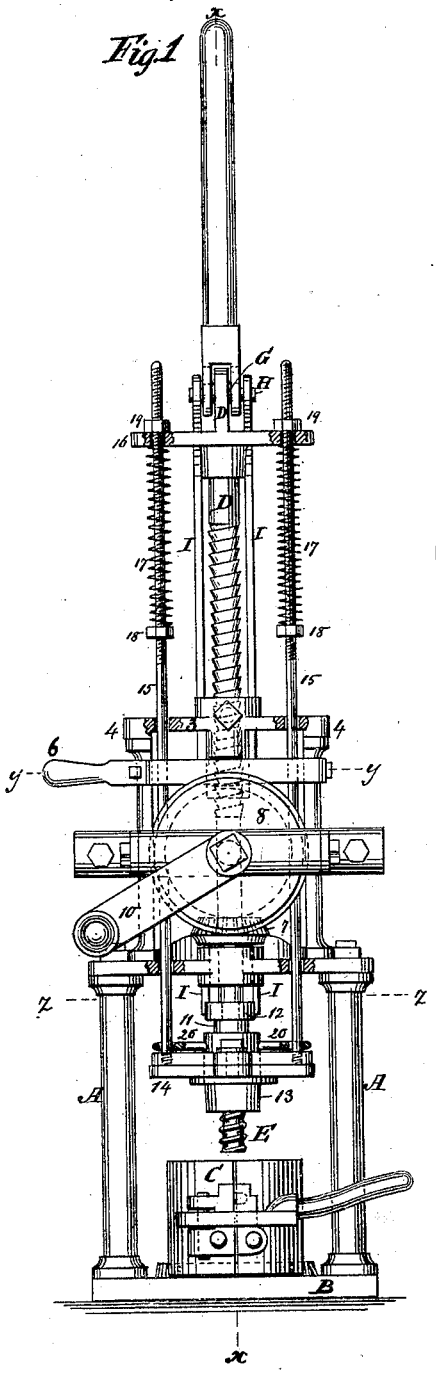
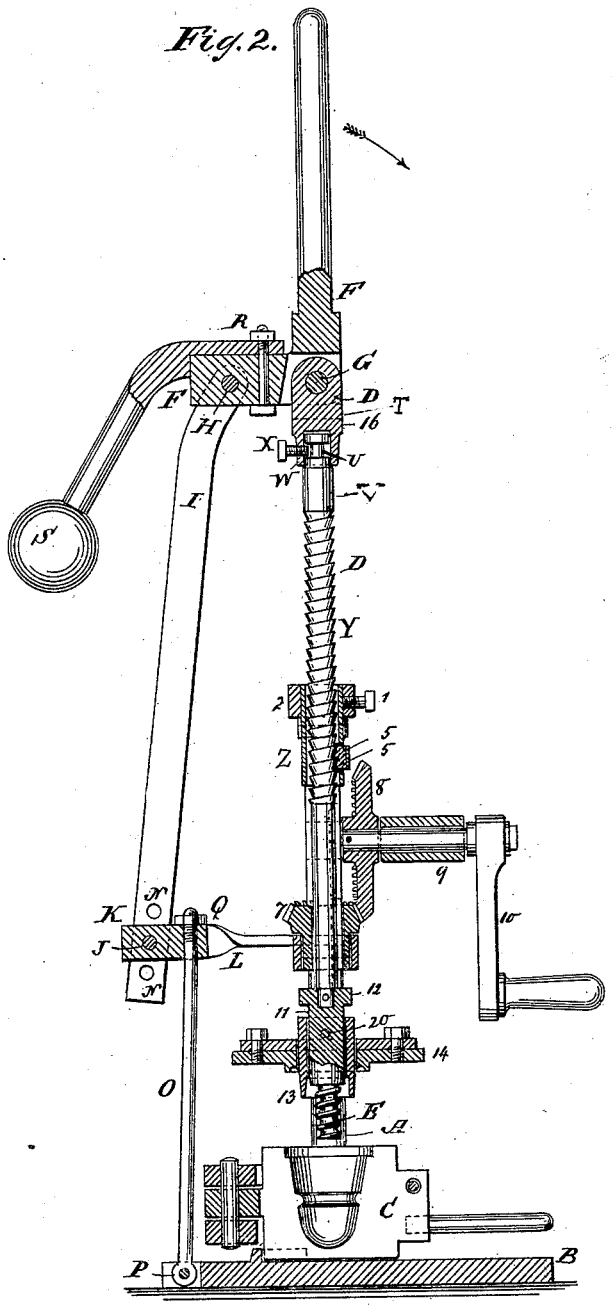


Fig. 2.



WITNESSES:

Edward Wolff.

William H. Miller

INVENTOR:

Jacob Pease.

BY Van Santvoord & Hauff

ATTORNEYS

(No Model.) 2 Sheets—Sheet 2.

J. PEASE.

SCREW PRESS FOR INSULATORS.

No. 419,875. Patented Jan. 21, 1890.

Fig. 3.

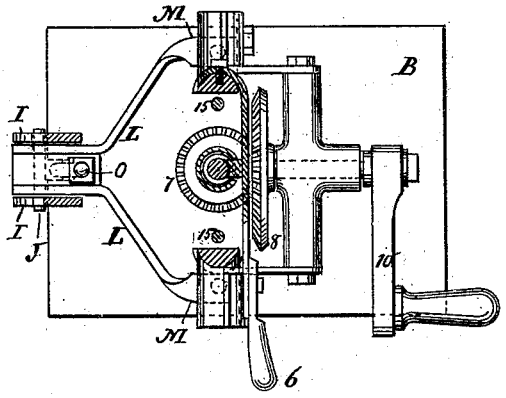


Fig. 4.

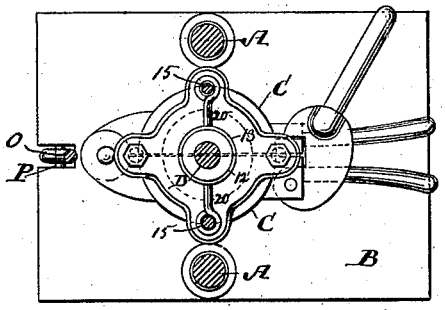
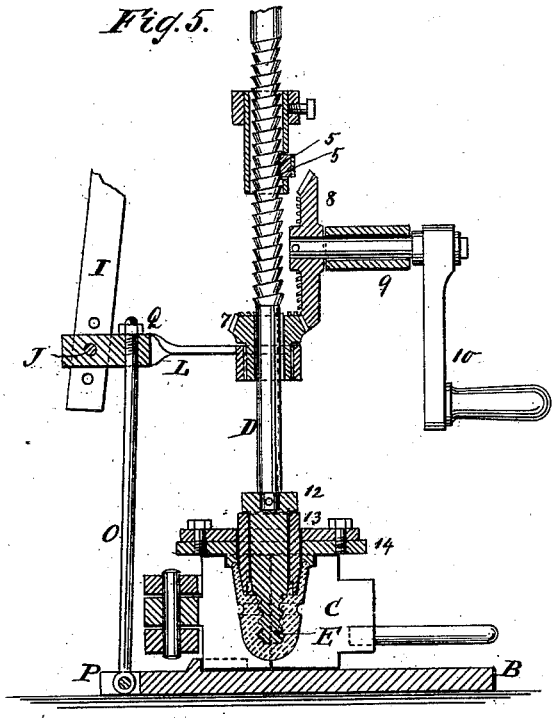


Fig. 5.



WITNESSES:

Eduard Wolff.
William Miller

INVENTOR:
Jacob Pease.

BY Van Santvoord & Hauff,

ATTORNEYS

UNITED STATES PATENT OFFICE.

JACOB PEASE, OF BROOKLYN, ASSIGNOR TO WILLIAM BROOKFIELD, OF NEW YORK, N. Y.

SCREW-PRESS FOR INSULATORS.

SPECIFICATION forming part of Letters Patent No. 419,875, dated January 21, 1890.

Application filed November 14, 1889. Serial No. 330,302. (No model.)

To all whom it may concern:

Be it known that I, JACOB PEASE, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Screw-Presses for Insulators, of which the following is a specification.

This invention relates to presses for making screw glass insulators for telegraph-lines and other purposes; and it consists in various novel features, hereinafter described, reference being had to the accompanying drawings, in which—

Figure 1 is a front view of the press. Fig. 2 is a vertical section on the line *x x* of Fig. 1. Fig. 3 is a horizontal section on the line *y y* of Fig. 1. Fig. 4 is a horizontal section on the line *z z* of Fig. 1. Fig. 5 is a vertical section on the line *x x* of Fig. 1, taken when the screw-plunger has been forced down in the mold.

The press is so constructed that the plunger, which has a screw-thread formed upon it, is thrust into the molten glass or metal in the mold by a direct longitudinal movement and is turned out by a rotary movement of the plunger.

In carrying out the invention I provide a frame A, which supports the various parts of the press and rises from a platform B, on which the mold C is placed.

The letter D designates a spindle, which is guided in the frame A, and which on its lower end is provided with a screw-plunger E, its upper end being provided with a bent lever F, which is pivoted at its angle by a pivot G to the top of the spindle D, while its shorter arm is pivoted by the pivot H to the upper ends of the arms I I. The arms I are connected at their lower ends by a pin J to a bracket K, which has arms L L, that are connected to the frame of the machine at M M. The lower ends of said arms I are provided with several holes N, through any of which the pin J can be passed, whereby the adjustment of the arms I with the brackets can be changed. The outer end of the bracket is supported by means of a rod O, whose lower end is pivoted by a pivot P to the platform B. The upper end of the rod O is screwed into the bracket and is secured by a nut Q. To the shorter arm of the lever F is secured by the bolt and nuts R a weighted arm S, whose weight tends to raise the spindle D after every descent. In operating the lever F the arms I and rod O are free to oscillate on their pivots and connections.

The spindle D is made in two sections, which are connected to each other as follows: In the lower end of section T of the spindle is formed a socket U, which receives the upper end of section V of the spindle, which has near the end a circumferential groove W, which is engaged by the end of a screw X, which passes through the side of the socket U and enters the groove, so that the lower section V of the spindle is free to rotate in the socket of the other section U, and is secured therein by the end of the screw X. Below this connection the section V of the spindle is provided for a portion of its length with a screw-thread Y, formed of conically-shaped teeth. The screw-thread Y is surrounded by a sleeve Z, which is secured by a set-screw 1 to a collar 2, surrounding the spindle, said collar 2 being secured to a cross-bar 3, that receives its support from the posts 4 4 of the frame of the machine.

A pair of teeth 5 5, which are counterparts of the conically-shaped teeth of the screw-thread Y, engage the teeth of said screw-thread, the same projecting from the spring-arm 6 and passing through the sleeve Z. The teeth 5 can be withdrawn from engagement with the screw-thread Y at any time by pulling the spring-arm 6 outward. A bevel gear-wheel 7 is secured upon the spindle below the screw-thread Y, and is engaged by the vertical bevel gear-wheel 8, whose axis is supported in a sleeve 9, which is part of the main frame A. The bevel gear-wheel 8 is turned by means of the crank 10, and rotary motion is thus given to the spindle. A sleeve 11 is secured to the spindle at a little distance below the gear-wheel 7, and the upper part of the sleeve is provided with a shoulder 12, that forms a stop to the former 13. The follower, which shapes the mouth of the insulator, is seen at 14. It surrounds the former 13, and is suspended from a spring-frame consisting of the vertical rods 15, which pass upward through the cross-bar 3, which is a guide for

them, and their upper ends, which are threaded, pass through a cross-bar 16, which is made of one piece with the upper socketed part of the spindle D, or is rigidly secured to it. The rods 15 are each provided with a spiral spring 17, resting on a nut 18. Nuts 19 are placed on the rods 15 above the cross-bar 16, so as to secure the rods to the cross-bar at such points as shall secure the proper pressure from the springs on the follower.

The operation of the press is as follows: The proper quantity of molten glass having been gathered in the mold and the mold placed in proper position under the plunger, the lever F is moved upon its fulcrum H in the direction of the arrow, and thereby the spindle D is moved downward and the screw-plunger is pressed into the glass in the mold. In this movement the screw-threads on the spindle slip past the teeth 5 5, which, being mounted on the spring-arm 6, yield outwardly sufficiently for that purpose. The cross-bar 16, which, as above mentioned, is of one piece with the top of spindle D, is carried downward with the spindle, and by its pressure on the springs 17 17 on the rods 15 15 the follower is pressed downward until it rests on the top of the mold, the springs 17 being arranged on the rods so as to effect that result. The follower therefore rests upon the mold with a yielding pressure, and should there be an excess of metal in the mold such excess can escape from the top of the mold, and thus injury to the press be avoided. The movements of the spindle and follower are so timed that the follower reaches the top of the mold before the shoulder 12 of the plunger reaches the former 13, and consequently the completion of the descent of the spindle and plunger takes place after the full downward movement of the follower. The spindle, therefore, after the follower completes its descent, continues its downward movement and forces the shoulder 12 down upon the top of the former 13, and presses the screw-plunger into the glass the required distance to form the screw glass insulator, the extent to which the screw-plunger is pressed into the glass or mold being limited and controlled by stops 20 20, consisting of arms which extend from opposite sides of the former near its top over the top of the follower, so that when the stops rest upon the follower the former, and consequently the shoulder 12 and the plunger, cannot be forced downward any farther. When the screw glass insulator has been pressed, the lever F is released and the crank 10 is operated so as to turn the screw-plunger out of the mold, in doing which the weight S assists by tending to restore the lever F, spindle D, and the follower to their normal positions, the springs 17 operating to raise the follower to its position shown in Fig. 1.

The screw-thread Y on the spindle operates as a lock on the spindle and prevents the spindle and plunger from accidental movements or displacements and from backward movements, which would cause imperfections in the insulators. As the pitch of the screw-threads of the plunger and spindle are the same, their screw-threads work in unison, and no hinderance occurs in turning the plunger out of the glass and at the same time raising the spindle. The construction and arrangement, moreover, are such that the screw-thread on the spindle and the spring-teeth 5 5, which work thereon, do not prevent the direct longitudinal movement downward of the spindle and plunger.

In making screw glass insulators it has been the usual practice to first press the glass in the mold with a plain plunger, producing a plain hole in the glass, and then to remove the mold to a press by whose operation a screw-thread would be formed in the plain hole previously formed, thus using two presses and two operations. My improved press enables one to make screw glass insulators successfully in one operation and by the use of only one press, effecting a saving in time, labor, and machinery and producing insulators of satisfactory character.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a press for making screw glass insulators, of a spindle carrying a screw-plunger, a screw-thread on the spindle having conically-shaped teeth, yielding teeth 5 5, engaging the screw-thread on the spindle, and means for imparting both direct longitudinal and rotary motions to the spindle and plunger, substantially as described.

2. In a press for making screw glass insulators, the combination of a spindle and screw-plunger adapted for both direct longitudinal and rotary motions, with the bent lever F, the arms I, rod O, and weighted arm S, substantially as shown and described.

3. In a press for making screw glass insulators, the combination of the spindle D and plunger E, adapted to have direct longitudinal and rotary motion, the mold C, the follower 14, the former 13, provided with laterally-projecting stops 20, extending over the top of the follower to limit the downward motion of the former and plunger, and the sleeve 11, secured to the spindle and provided with a shoulder 12, that projects above said sleeve, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JACOB PEASE.

Witnesses:
J. VAN SANTVOORD,
E. F. KASTENHUBER.