

No. 687,986.

Patented Dec. 3, 1901.

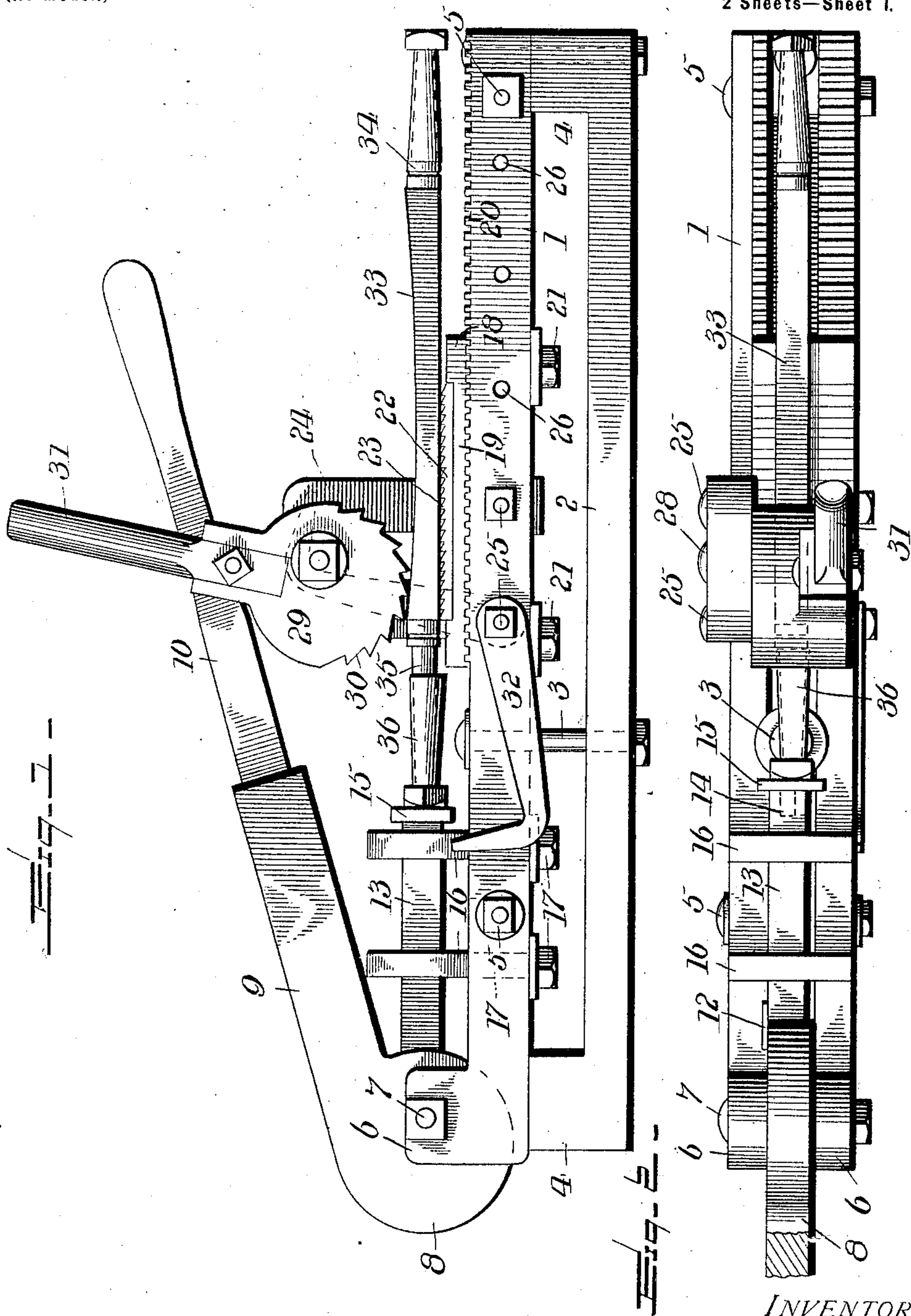
G. B. JACOB & T. J. ARTHUR.

POWER PRESS.

(Application filed May 14, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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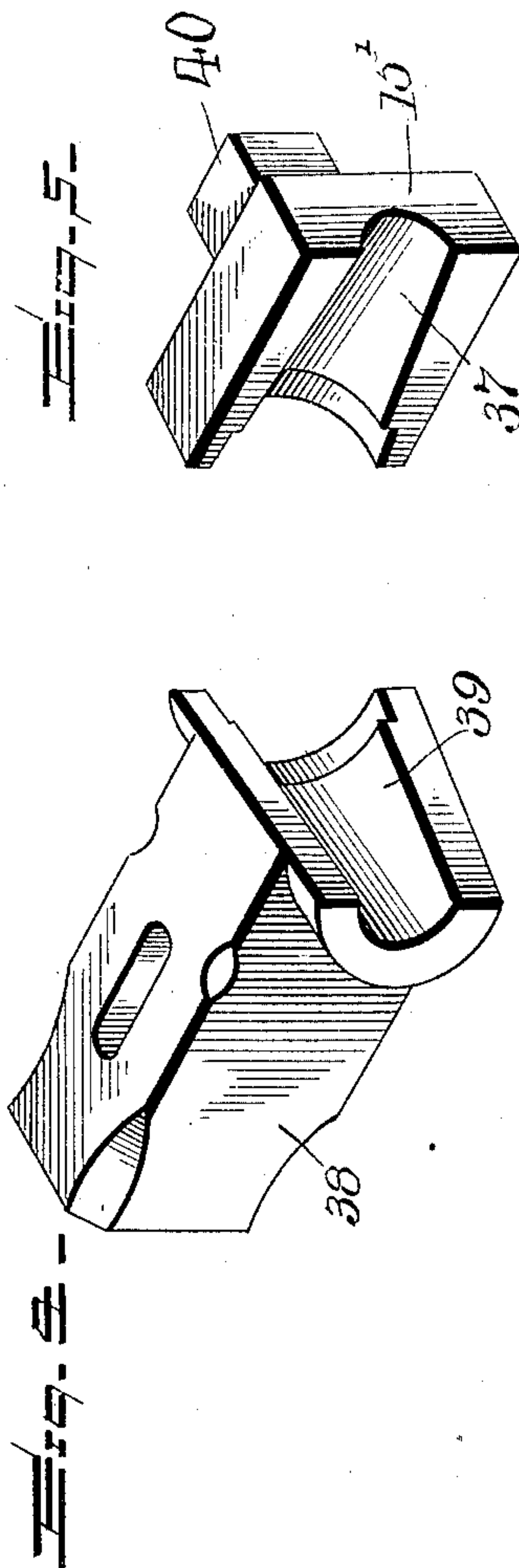
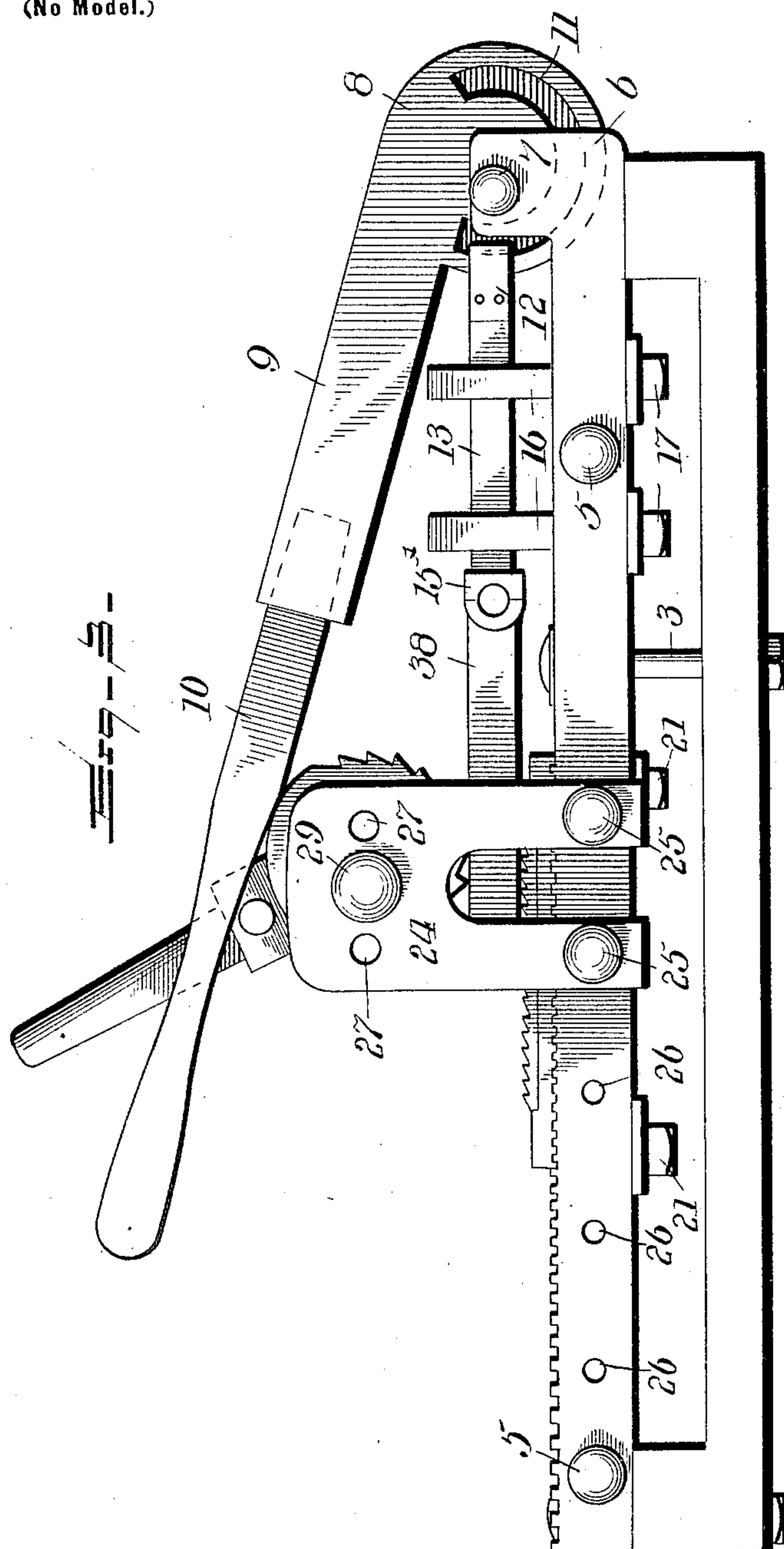
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(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

GEORGE B. JACOB AND THOMAS J. ARTHUR, OF SALEM, OREGON.

POWER-PRESS.

SPECIFICATION forming part of Letters Patent No. 687,986, dated December 3, 1901.

Application filed May 14, 1901. Serial No. 60,217. (No model.)

To all whom it may concern:

Be it known that we, GEORGE B. JACOB and THOMAS J. ARTHUR, citizens of the United States, residing at Salem, in the county of Marion and State of Oregon, have invented certain new and useful Improvements in Power-Presses; and we 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.

This invention relates to presses, and more particularly to that form of press in which a spindle is adapted to be compressed longitudinally and expanded laterally.

The invention consists of means for holding a spindle or rod, a plunger for compressing the same longitudinally, and means for operating said plunger.

It also consists of means for holding a spindle or rod, means for compressing the same longitudinally and expanding it laterally, and means for straightening the said spindle or rod after such operation.

It further consists of certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter more fully described and claimed.

In the accompanying drawings, Figure 1 represents a view in side elevation of an improved power-press embodying the features of our invention. Fig. 2 represents a top plan view of the same. Fig. 3 represents a side elevation of the same looking from the opposite side to that shown in Fig. 1, and Figs. 4 and 5 represent enlarged detail perspective views of the spindle-swages.

When as a consequence of continued use the spindle of a vehicle becomes worn and the thimble or boxing of the wheel running on such spindle is loosened and has a great deal of play, it is desirable to increase the thickness of the spindle and decrease its length for taking up such play and making the wheel run more smoothly. To accomplish this, the present invention is provided, which will be better understood by reference to the accompanying drawings, in which the numeral 1 indicates a suitable frame mounted upon any preferred form of bed, as 2, and secured thereto by bolts or other suitable securing means, as 3. The bed 2 is preferably provided at its

ends with suitable upwardly-extending portions, as 4 4, for supporting the frame 1 suitably spaced from said bed.

The frame 1 is preferably formed of longitudinal parallel members consisting of a single solid casting or of two castings secured together by bolts or other suitable securing means 5 5, each of which members is provided at or near one end with an upward extension, as 6, the two extensions being secured together by means of a bolt, as 7. When the single casting is employed, the securing-bolts 5 are dispensed with.

The bolt 7 forms a pivot for a suitable cam, as 8, which cam is provided with a suitable operating-arm, as 9, being provided at its outer end with means for receiving a removable arm 10, the application of which tends to greatly increase the leverage and the force with which the cam 8 may be operated. One face of cam 8 is provided near its periphery with a suitable segmental slot, as 11, adapted to engage and cause to travel therein an inwardly-extending lug carried on one end of plate 12, the opposite end of which plate is secured to a suitable plunger, as 13. The plunger 13 is preferably provided with a central aperture, as 14, at the opposite end to plate 12 or other suitable means for receiving a plunger-head, as 15. Suitable supports, as 16, are provided intermediate the length of plunger 13 and are secured by means of suitable bolts, as 17, which bolts are preferably passed between the parallel members of frame 1 and their lower ends secured by nuts and suitable washers, whereby said supports may be adjusted longitudinally of frame 1. If desired, the bolts 17 may be formed integral with the supports 16.

A suitable plate, as 18, is secured to the upper edges of the longitudinal members of frame 1 and is of any preferred size and shape and provided with ratchet-teeth, as 19, on its under face adapted to engage corresponding teeth on the upper edges of said members, as at 20, whereby longitudinal movement of said plate is positively prevented. Suitable bolts, as 21 21, are formed integral with said plate 18 or removably secured thereto and passed through the longitudinal space between the members of frame 1 and secured beneath the same by suitable nuts and washers, whereby

the said plate 18 may be disconnected from said frame, moved longitudinally thereof, and again secured thereto at any desired point. The plate 18 is adapted to form a bedding for
 5 a suitable plate 22, which is formed with forwardly-slanting ratchet-teeth, as at 23, and is embedded in plate 18 and secured thereto by any preferred and suitable means.

A yoke, as 24, is secured to one side of
 10 frame 1 in any suitable manner and is preferably held rigidly in place by bolts, as 25 25, passed through apertures, as 26 26, in the said frame, which apertures may be in any suitable number, thereby permitting of the said
 15 yoke being adjusted longitudinally of the frame. The yoke 24 near its upper end is preferably provided with a plurality of apertures, as 27 27, through any one of which may be passed a bolt, as 28, which is adapted
 20 to form a pivot for a clamping-cam, as 29. The underface of cam 29 is preferably roughened or provided with ratchet-teeth, as at 30, and is provided at any preferred point with a suitable removable handle, as 31, for oper-
 25 ating the said cam, whereby a partial revolution of said cam will cause its roughened surface to clamp and firmly hold an article passed between the same and plate 22.

Of course it will be apparent that two yokes
 30 may be employed—one on either side of cam 29; but such a structure would necessitate the insertion of the article to be operated upon from the rear and longitudinally of the frame, which would be rendered impossible
 35 should the article be provided with a head greater than the greatest distance between cam-lever 29 and plate 23. To obviate this difficulty, a hook, as 32, is pivoted on one of
 40 the bolts 25 and is adapted when excessive strain is about to be applied to cam 29 to be swung to the position shown in dotted lines in Fig. 1, whereby it engages the free end of
 45 bolt 28 and receives a portion of the strain, the strain always being in an upward direction. This hook may be swung out of the way in placing or removing an article for operation; but the said hook need not be employed, if found undesirable, as the yoke 24
 50 is capable of receiving all ordinary strains.

It will be readily seen that any form of rod or spindle may be expanded laterally and compressed longitudinally by being clamped
 55 between cam 29 and plate 22 for holding the same while plunger 13 is forced against the end of the same through the medium of cam 8 and lever-arm 9; but as the present invention contemplates a press for operating upon a vehicle-spindle such specific operation will be described, it being understood that similar
 60 operations upon other articles are within the spirit and scope of the present invention. In Fig. 1 is illustrated the application of a vehicle-spindle, as 33, which is of course of metal, and the axle at the outer end, as at 34,
 65 is represented as having been operated upon, and the opposite axle, as 35, is in position for operation. The spindle 35, having first been

heated, is placed in the position illustrated, with the axle clamped between cam 29 and plate 22. The boxing, as 36, having been
 70 knocked out of the hub and left unheated is then placed upon the heated spindle in order the more perfectly to shape the said spindle in the process of expanding the same, and the
 75 arm 9 is operated, throwing the plunger 13, and thereby producing the desired result. The nut is preferably left unheated and placed upon the spindle before this operation
 80 order to give a greater surface upon which in plunger-head 15 may operate and also that the threads of the spindle may be retained intact.

Despite the presence of the boxing 36 the axle is sometimes bent slightly out of shape in this operation, and to straighten the same
 85 a plunger-head, as 15', is substituted for plunger-head 15 by removing head 15 from engagement with plunger 13 and placing the rearwardly-extending arm 40 of head 15'
 90 into aperture 14 of plunger 13, the said head 15' being provided with a suitably-concaved or other desired shaped face, as at 37, and a contact or swage block, as 38, provided with a correspondingly-concaved face, as 39, is
 95 secured between clamping-plate 22 and cam 29 and firmly held thereby with the said concaved face 39 registering with face 37 of head 15', and the bent axle is placed between the
 100 concaved faces of parts 15' and 38, whereby when the plunger 13 is operated to bring head 15' into contact with block 38 the said axle will be forced into proper shape and all
 105 bends removed, it being of course understood that the said concaved faces of head 15' and block 38 are such that when the parts are brought together by said operation of plun-
 110 ger 13 the aperture between said parts formed by said concaves will exactly correspond with the proper contour of the axle being operated upon. However, we do not specifically claim
 115 this feature of our invention in this application, as the same will be made the subject of a separate application for Letters Patent.

Although we have described in detail one specific embodiment of our invention, it will
 115 be understood that we shall feel at liberty to deviate from the exact form specified and make slight changes in the size, shape, and minor details of the parts within the spirit and scope of the present invention.
 120

It will of course be apparent that we may apply any power desired, although we have illustrated only the application of hand-
 125 power, any of the common and well-known forms of gearing being employed for the application of steam or other power.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A press, comprising in its construction
 130 a frame, a cam pivoted above the same for gripping a rod or spindle between it and said frame, a cam pivotally secured to said frame, a plunger secured at one end to said last-men-

tioned cam, adjustable supports intermediate the length of said plunger, and means for operating said last-mentioned cam whereby the plunger may be reciprocated, thereby compressing the said rod or spindle longitudinally and expanding the same laterally, substantially as described.

2. A press, comprising in its construction a frame, a cam pivotally mounted above the same adapted to retain a rod or spindle in a given position, a plunger for compressing said spindle longitudinally and expanding it laterally, and a cam-lever adapted to operate said plunger, substantially as described.

3. A press, comprising in its construction a frame, means for clamping an article, and means for compressing said article longitudinally and expanding it laterally, the said clamping means comprising a yoke secured to said frame, a cam pivoted to said yoke, an operating-arm secured to said cam, and a plate secured to said frame beneath said cam, whereby by rotation of the said cam, an article placed between the same and said plate may be firmly clamped, substantially as described.

4. A press, comprising in its construction a frame, a cam-operated plunger mounted thereon, and means for clamping an article and retaining the same against the action of said plunger, comprising a yoke secured to said frame, a cam pivoted to said yoke, an operating-arm secured to said cam, means for adjusting said yoke longitudinally of said frame, a plate secured to said frame beneath said cam, and means for adjusting said plate longitudinally of said frame, whereby different-length articles may be accommodated which when placed between said cam and plate may be held against the operation of said plunger, substantially as described.

5. A press, comprising in its construction a frame, a plunger mounted thereon, and means for clamping an article to be operated upon by said plunger, comprising a yoke secured to one side of said frame, a cam pivoted to said yoke, means for adjusting the said cam transversely of the yoke, and means for

operating said cam, whereby an article passed between said cam and said frame may be firmly clamped and retained against the action of said plunger, substantially as described.

6. A press, comprising in its construction a frame, a plunger mounted thereon, and means for clamping an article to be operated upon by said plunger, comprising a yoke secured to one side of said frame, a cam pivoted thereto, means for operating said cam, and a hook pivoted to the side of said frame opposite the said yoke, adapted in operation to engage the pivotal axis of said cam, and thereby assist in sustaining the strain of clamping an article passed between said cam and said frame, substantially as described.

7. A press, comprising in its construction a frame, means for compressing an article, and means for clamping said article during the operation of compression, comprising a yoke secured to said frame, means for adjusting the same longitudinally of said frame, a cam pivoted to said yoke and having its under face formed with ratchet-teeth, a bed-plate secured to said frame beneath said cam, means for adjusting said plate longitudinally of said frame, ratchet-teeth upon the under face of said plate, ratchet-teeth on the upper surface of said frame adapted to engage the teeth of said plate and thereby prevent accidental longitudinal movement of the same, and a clamping-plate embedded in said bed-plate and provided with ratchet-teeth on its upper surface, whereby, by rotation of said cam, an article may be clamped between the same and said clamping-plate and thereby held against the action of said plunger, substantially as described.

In testimony whereof we hereunto affix our signatures in presence of two witnesses.

GEORGE B. JACOB.
THOMAS J. ARTHUR.

Witnesses:

JOHN BAYNE,
JORDAN PURVINE.