

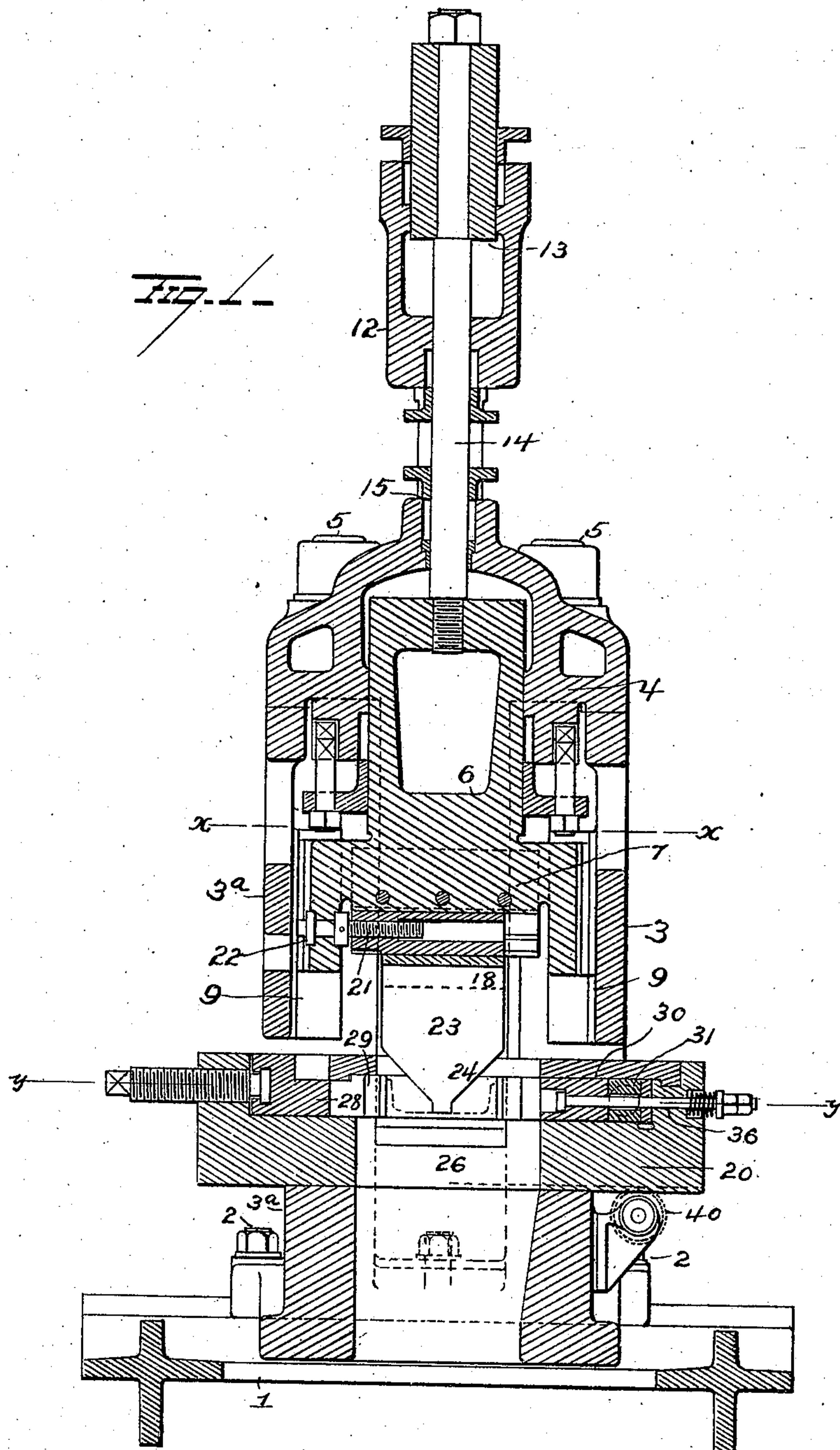
No. 847,526.

PATENTED MAR. 19, 1907.

C. L. TAYLOR.
BEAM SHEAR.

APPLICATION FILED MAR. 22, 1906.

3 SHEETS—SHEET 1.



WITNESSES
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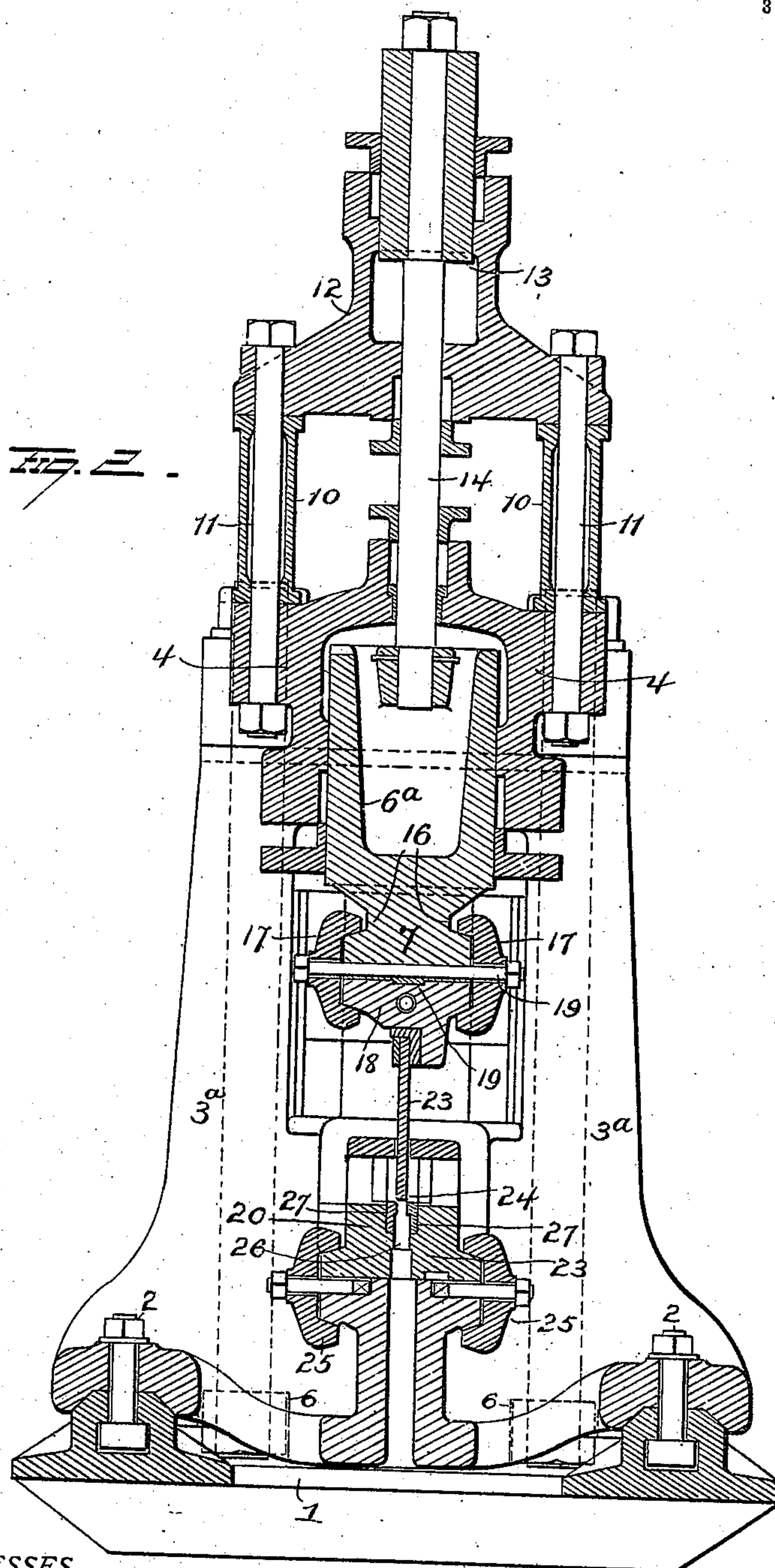
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3 SHEETS—SHEET 2.



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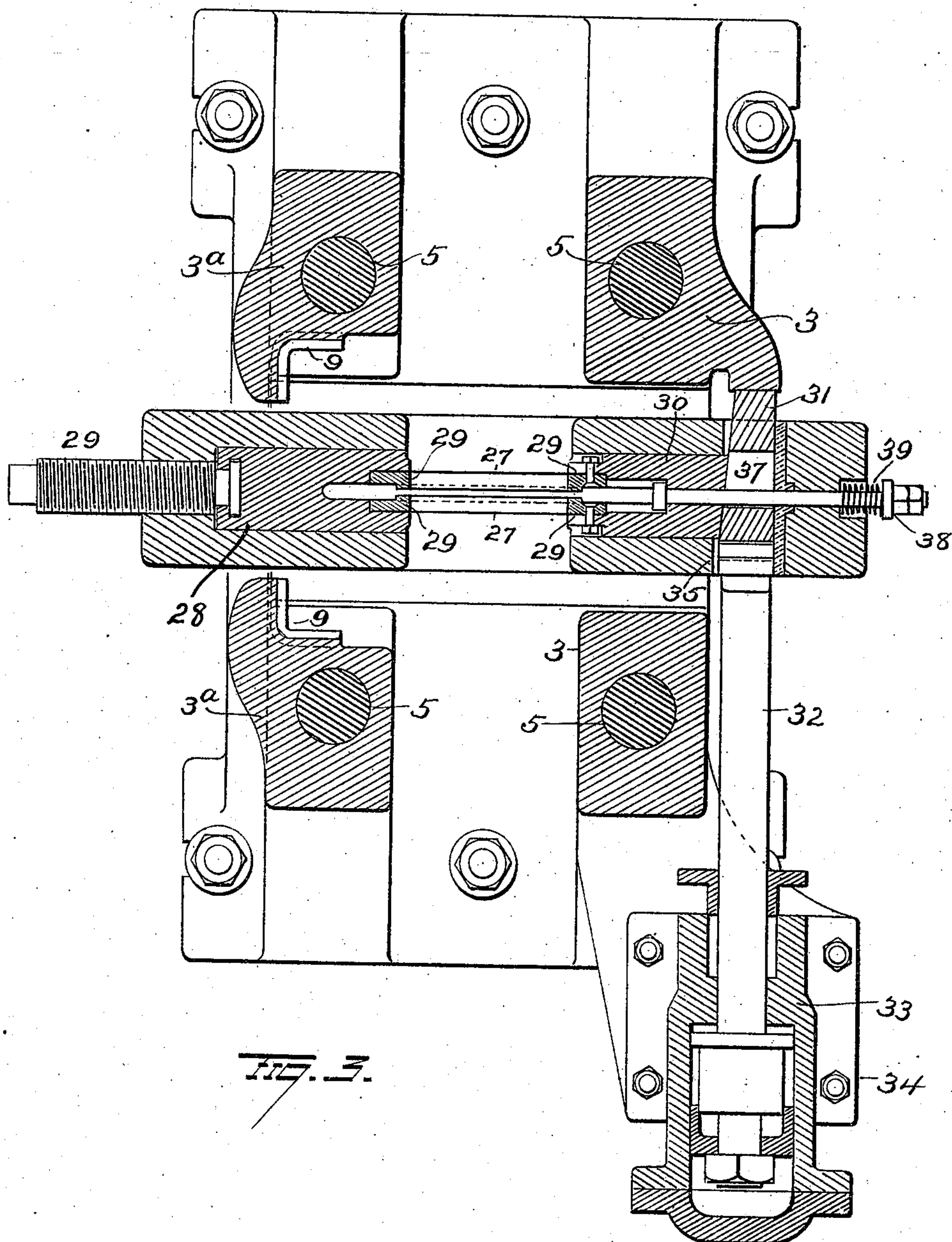
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

CLARENCE L. TAYLOR, OF ALLIANCE, OHIO, ASSIGNOR TO THE MORGAN ENGINEERING COMPANY, OF ALLIANCE, OHIO.

BEAM-SHEAR.

No. 847,526.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed March 22, 1906. Serial No. 307,439.

To all whom it may concern:

Be it known that I, CLARENCE L. TAYLOR, of Alliance, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Beam-Shears; 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 an improvement in beam-shears; the object being to provide a machine designed to cut beams of various widths; and it consists, broadly, of a laterally-adjustable cutter and laterally-adjustable side clamps for clamping the beam centrally below the cutter.

The invention further consists in the parts and combinations of parts, as will be more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in vertical section of the machine. Fig. 2 is a similar view taken at right angles to Fig. 1; and Fig. 3 is a view in horizontal section taken on the line *x x* of Fig. 1, the section of the housing at the left being taken on the line *y y* of Fig. 1.

1 represents a base of any suitable construction and design, to which the housing of the shear is secured by bolts 2. This housing is preferably composed of two sides or uprights 3 and 3^a, cast integral at their lower ends, and secured by bolts to the base 1. Seated on the upper ends of housing 3 of the frame is the inverted cylinder 4, the latter being secured in place by the bolts 5, which pass vertically through the uprights 3 and 3^a near the side edges of the latter and are secured at their lower ends near the lower ends of the housing by nuts 6, seated in sockets in said uprights. The bolts, as above stated, pass through openings formed in projections from the cylinder 4 and firmly secures the latter to the top of the housing, the inverted open center of the cylinder resting in the vertical center of the space between the side frames or sections of said housing.

Mounted in the cylinder 4 is the plunger 6^a, the latter being provided at its lower end with a cross-head 7, enlarged, as at 8, at its ends to form bearings, the said bearings resting and moving in the grooved ways 9, formed in the sides of the housing 3 and 3^a.

Mounted on the columns 10, resting on the

cylinder 4 and secured to the latter by the bolts 11, is the cylinder 12, in which is mounted the plunger or piston 13, the latter being connected to the piston 6 by the rod 14, which latter passes through a gland 15 in the top of the cylinder 6 and is secured to the piston or plunger 6 therein by any approved means. The function of this upper cylinder 12 and its plunger or piston 13 is to elevate the main plunger 6 and its attached shear or cutter after each cutting stroke.

The lower end of the plunger 6, or, rather, the cross-head 7, formed integral with said plunger, is provided on its front and rear faces with the grooves 16 to receive the upper ends of the clamps 17, which latter clamp the shear-head 18 to the cross-head 7 of the plunger 6. These clamps are shaped as shown in Fig. 2 and are secured to the cross-head of the plunger by the bolts 19 and engage the lower inclined surfaces of the shear-head 18, the inclined faces of the clamps and shear-head tending to hold the latter up solidly against the lower face of the cross-head 7, as clearly shown in Fig. 2. The lower face of the cross-head is provided centrally with a longitudinal rib 19, which rests within a corresponding groove in the shear-head for preventing the latter from being moved by the clamps out of the plane of the slot in the die-bed 20.

Journaled in one bearing 8, depending from the cross-head 7, is the adjusting-screw 21. This screw is prevented from moving longitudinally by the collars 22 and engages a screw-threaded opening formed in the shear-head near the top thereof. By means of this screw the shear can be adjusted so as to bring its center directly over the center of the beam or girder to be cut. Each cutter or shear 23 may be provided with its own head, or the cutters or shears may be detachably secured to the head, so that one head may answer for several sizes of shears or cutters designed to be used with the machine. These cutters or shears are, as shown in Fig. 1, provided with a centrally-located point 24, with the sides or cutting edges beveled from the point up.

The die-bed 20 is carried by the housing and is clamped thereto, as shown in Fig. 2, by the clamps 25. This die-bed is provided with a slot 26 of sufficient length to receive the largest size shears or cutters used on the

machine and is provided with the bottom dies 27 (shown in Fig. 2) separated just sufficient for the passage of the shear or cutter.

Mounted in the die-bed at one end is the
 5 movable clamp 28. This clamp is slidingly mounted in a grooved slot in the die-bed 20 and is provided with a swiveled adjusting-screw 29, which passes through a threaded opening in the die-bed. The inner end of
 10 this clamp 28 is provided with a vertical slot, as shown in Fig. 3, in which are secured the end dies 29, (see Fig. 3,) the end dies in this clamp and also the dies 29 in the clamp 30 at the opposite side being located in the vertical
 15 plane of the bottom dies. The clamp 30 is also slidingly mounted in the die-bed 20 and bears against the wedge-shaped end 31 of the plunger 32. The plunger 32 is mounted in the cylinder 33, carried on a shelf 34, inte-
 20 gral with or secured to the housing, and its wedge-shaped end 31 passes through a transverse opening 35, formed in the die-bed 20. The clamp 30 is secured to a bolt 36, which passes through an elongated slot 37 in the
 25 wedge-shaped end of the plunger 32 and through the die-bed 20 and is provided on its outer end with a nut 38, against which the spring 39 bears, the said spring tending to always hold the clamp 30 against the wedge-
 30 block 31, so that as the wedge is withdrawn the clamp 30 will be moved away from the girder.

In the operation of the machine the clamps 28 and 30 are adjusted to receive the beams
 35 to be cut, and, if necessary, the blade or shear should also be adjusted and the die-bed moved longitudinally, if necessary, so as to bring the center of the clamped girder directly under the center of the shear or cutter
 40 23. As shown in Fig. 1, the die-block has a rack cast in its bottom surface, the teeth of which do not project below this bottom surface. A gear 40 engages with this rack and is operated through the shaft shown by a
 45 hand-crank, which can be placed on the square end of shaft. By this means the block can be moved out from between the housings to a position convenient for lifting it with a crane. After the parts have been
 50 properly set for a certain size beam the clamp 30 is withdrawn by the withdrawal of the wedge-shaped end 31 of the plunger. This movement of clamp 30 leaves a space sufficiently large for the ready introduction
 55 of the beam. After the beam has been inserted and clamped the water or other fluid in cylinder 13 is exhausted and fluid under pressure is admitted into cylinder 4, which forces down the plunger 6^a and causes the
 60 shear or cutter 23, assisted by the dies 27 and 29, to sever the beam. After the latter has been severed the fluid in cylinder 4 is exhausted and fluid under pressure admitted to cylinder 12. This elevates the plunger 6 and
 65 its attached shear or cutter, after which the

several parts of the beam are released by the withdrawal of the clamp 30.

It is evident that many numerous slight changes might be made in the relative arrangement of the parts herein shown and described without departing from the spirit and scope of my invention. Hence I would have it understood that I do not wish to confine myself to the exact construction and arrangement of parts shown and described; 75 but,

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

1. In a beam-shear the combination with 80 a shear or cutter, of a die-block having a slot therein for the entrance of the shear or cutter, dies carried by said block on opposite side of said slot, means for moving said die-block laterally, means for locking the die- 85 block in position and adjustable clamping-blocks on said die-block for engaging the opposite flanges of the beam.

2. In a beam-shear the combination with a shear or cutter, of a support having a slot, 90 dies within and on opposite sides of said slot, adjustable clamps for engaging the opposite flanges of the beam, each clamp having dies coincident with the dies in the support, a screw for adjusting one clamp, a wedge for 95 moving the other clamp toward the beam, and means for moving said latter clamp outwardly as the wedge is withdrawn.

3. In a beam-shear the combination with a shear or cutter, of a support for the beam, 100 two movable clamps, a screw for moving or adjusting one clamp and a reciprocating wedge-block for forcing the other clamp against the beam.

4. In a beam-shear the combination with 105 a shear or cutter of a support on which the beam rests, two clamps adapted to engage the opposite flanges of said beam, a screw for adjusting one clamp, a wedge for moving the other clamp toward the beam and means for 110 moving said latter clamp away from the beam.

5. In a beam-shear the combination with a shear or cutter, of a detachable die-block having a slot for the entrance of the shear or 115 cutter, movable clamping-blocks mounted in said die-block, a screw for adjusting one clamping-block and means for moving the other clamping-block toward and away from the beam. 120

6. In a beam-shear the combination with a shear or cutter, of a slotted block on which the beam rests, two clamps movable toward and from the cutter and having slots coinci- 125 dent with the slot in the block, a screw for adjusting one clamp and means for moving the other clamp toward and away from the beam.

7. The combination with a housing, a cylinder carried thereby a plunger in the cylinder and a shear or cutter carried by said 130

plunger, of a slotted die-block carried by the housing, movable clamps on said die-block, a screw for adjusting one clamp and a wedge for moving the other clamp toward the beam, and a spring and rod acting normally tending to move the clamp away from the beam.

8. The combination with a housing, a cylinder thereon, a plunger in said cylinder, a cross-head on the lower end of said plunger, a shear or cutter carried by said cross-head, and means for adjusting said shear or cutter laterally on said head, of a die-block coacting with the shear or cutter, and clamps carried by said die-block.

9. The combination with a housing, a cylinder thereon, a plunger in said cylinder, and a cross-head on the lower end of said plunger, of a shearing blade or cutter, clamps locking the latter to the cross-head and means for adjusting said blade laterally on the cross-head.

10. The combination with a housing, a cylinder thereon, a plunger within the cylinder and a shearing-blade adjustable laterally and detachably secured to the lower end of said plunger, of a die-block for supporting the beam, clamps carried by the die-block and adapted to engage the opposite edges of the beam to be cut, a screw for adjusting one clamp, and a wedge and spring for moving the other clamp toward and away from the beam.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CLARENCE L. TAYLOR.

Witnesses:

E. E. BROSIUS,
N. C. FETTERS.