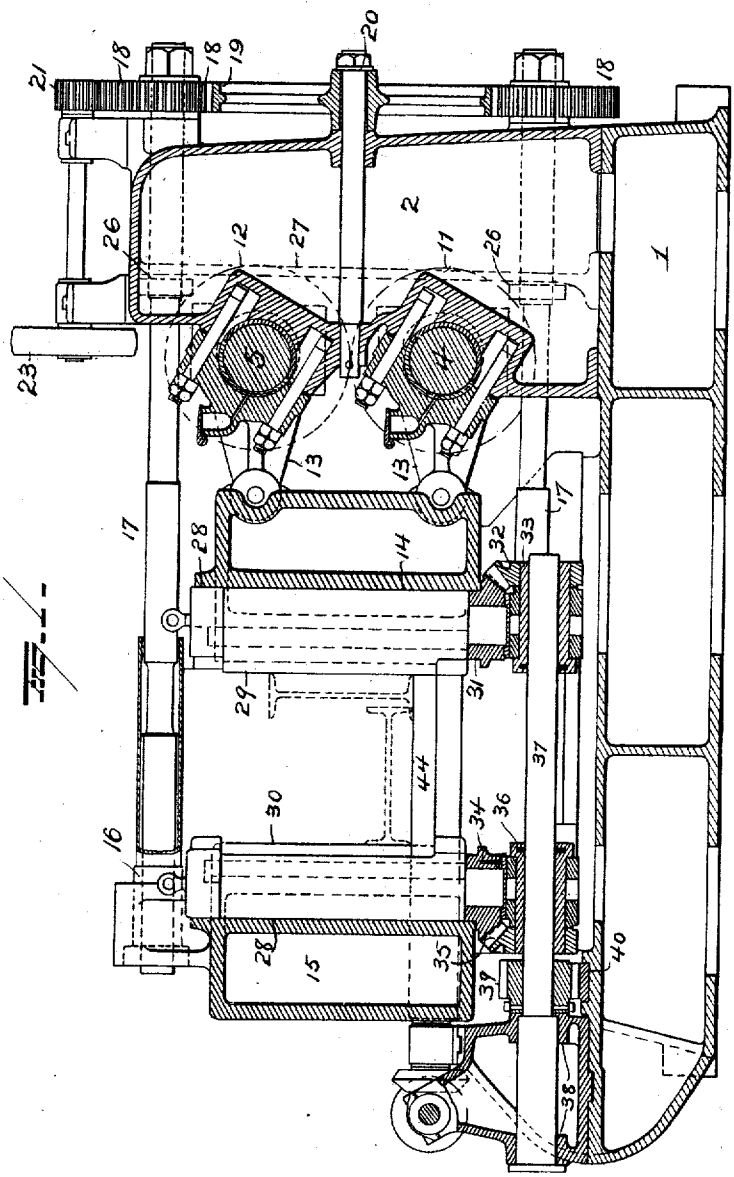
No. 844,425. PATENTED FEB. 19, 1907.

C. L. TAYLOR.

BEAM STRAIGHTENING PRESS.

APPLICATION FILED JUNE 22, 1906.

4 SHEETS—SHEET 1.



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4 SHEETS—SHEET 2.

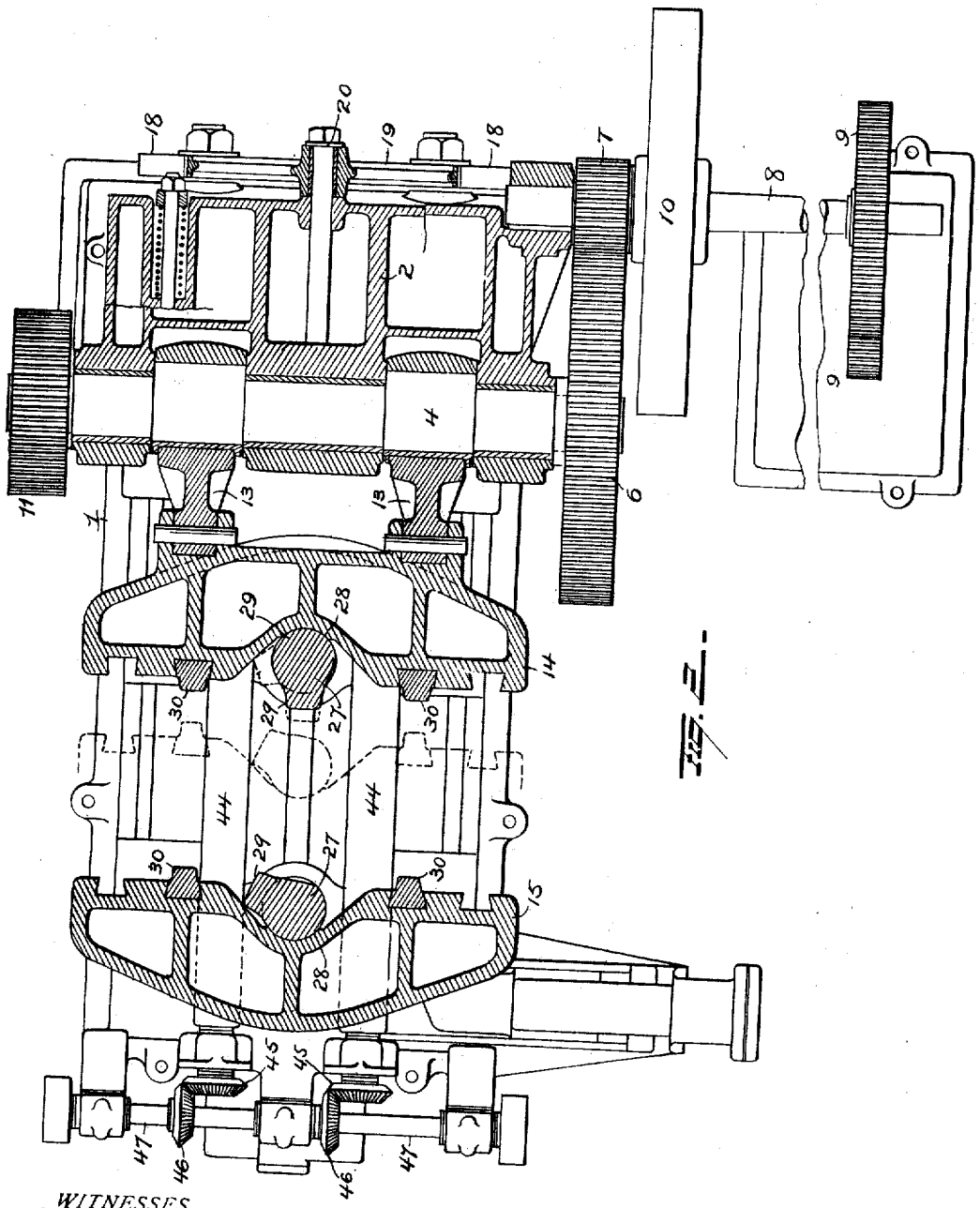


FIG. 1.

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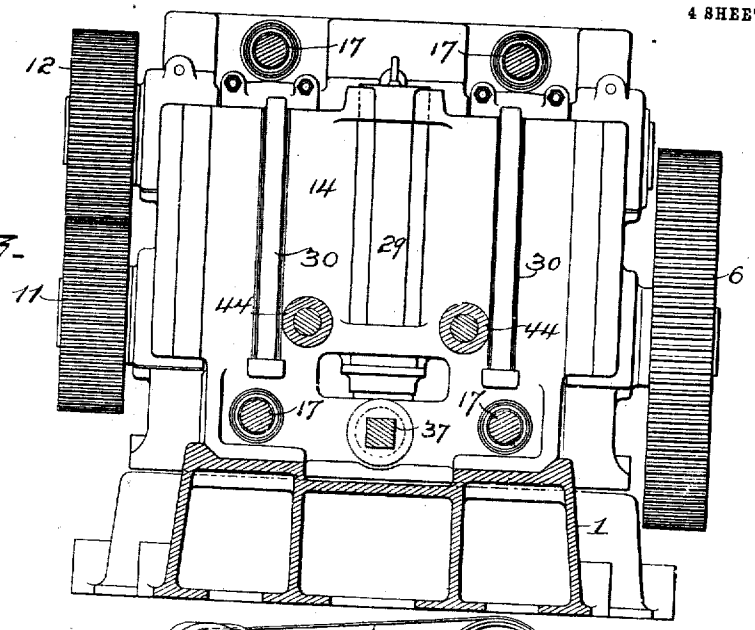
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4 SHEETS—SHEET 3.

Fig. 3.



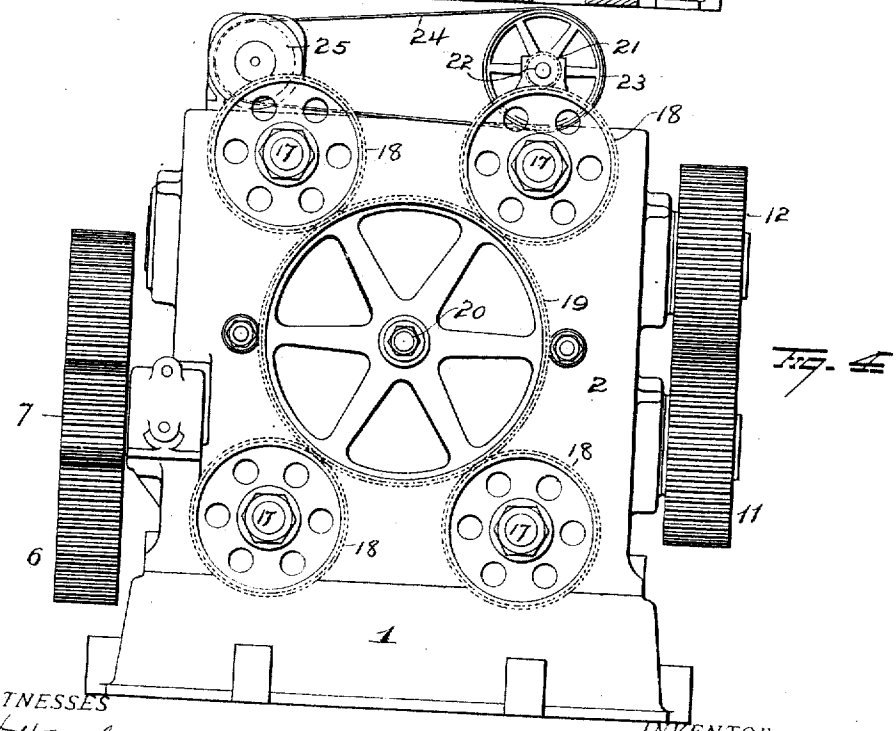


Fig. 4.

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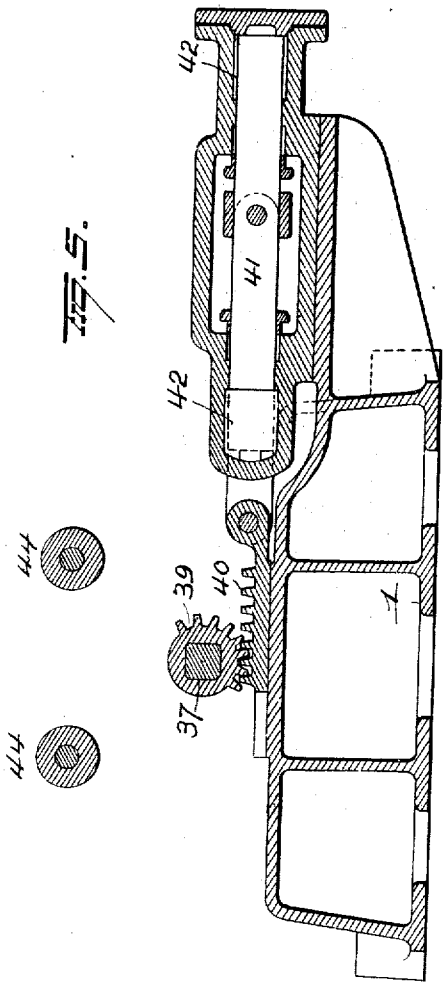
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4 SHEETS—SHEET 4.

Fig. 5.



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UNITED STATES PATENT OFFICE.

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BEAM-STRAIGHTENING PRESS.

No. 844,425. Specification of Letters Patent. Patented Feb. 19, 1907.

Application filed June 22, 1906. Serial No. 322,941.

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-Straightening Presses; 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-straightening presses, the object being to provide a machine of this character comprising a relatively fixed ram and a reciprocating ram, with means whereby the relatively fixed ram may be adjusted with relation to the reciprocating ram.

A further object is to provide each ram with a movable die, combined with devices whereby when one die is moved to an operative position the other will be moved to an inoperative position.

The invention 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 longitudinal section of my improved machine. Fig. 2 is a view in horizontal section. Fig. 3 is a view in transverse vertical section between the rams. Fig. 4 is a view in rear end elevation, and Fig. 5 is a view in section through the cylinder rack-bar and shaft for rotating the pivoted die.

1 represents a base-frame, and 2 an upright frame secured to the base-frame at the rear end of the latter. Mounted in the upright frame 2 are the two shafts 4 and 5, located transversely of the machine in the same vertical plane. The lower shaft 4 is provided at one end with a pinion 6, which is in mesh with smaller pinion 7 on shaft 8, driven by a motor 9, and suitable gearing. This shaft 8 also carries the fly-wheel 10.

Shaft 4 is provided on its end farthest removed from the pinion 6 with the pinion 11, which meshes with pinion 12 on shaft 5, thus causing the two shafts to rotate in unison. Each shaft is provided with two eccentrics, and a pitman 13 is mounted on each eccentric. The four pitmen thus mounted are pivotally connected to the rear face of the reciprocating ram 14, which is mounted to move back and forth on the bed-plate 1, the latter being provided with guideways in which the ram moves. The adjustable ram 15 is also mounted to move in the guideways on base 1 and is provided near its four corners with internally-threaded sleeves 16, which latter project inwardly toward the ram 14 and are engaged by the four screws 17, which latter pass rearwardly through the upright frame 2 and carry the toothed wheels 18, each of which meshes with the larger wheel journaled to the shaft 20, mounted in upright frame 2. One of the wheels 18 is engaged by a smaller wheel 21, secured on shaft 22, journaled in bearings secured to the top of frame 2. This shaft 22 carries a pulley 23, which is driven by a belt 24, actuated by the motor 25. By rotating the shaft 22 in one direction the four screws 17 will be turned in a direction to move ram 15 away from ram 14, and a reverse movement of the shaft will rotate the screws in a direction to move ram 15 toward ram 14, lengthwise movement of the shafts being prevented in one direction by the pinions 18 bearing against the rear face of frame 2 and in the other direction by the collars 26 on the screws bearing against the upright partition 27. The ram 14 is moved a predetermined distance toward and away from die 15 at each stroke of the eccentrics, and by means of the screws the ram 15 can be adjusted toward and away from ram 14 and set for any depth or thickness of beam.

Each ram is vertically concaved, as at 28, at the center of its inner or working face for the reception of the dies 29. These dies are each journaled at its ends in bearings in its respective ram, and each is constructed with a rear face curved in the arc of a circle and bearing directly against its ram and with a rib-shaped outer face, which bears against the beam being straightened. Each ram 14 and 15 is also provided on its inner or working face and on opposite sides of its die with one or a series of ribs 30.

The die of each ram is provided near its lower end with a miter-gear 31, which meshes with a similar gear 32 on sleeve 33, while the die of the adjustable ram is provided near its lower end with a miter 34, which meshes with a miter 35, fast on sleeve 36. The sleeves 33 and 36 are connected with the rams 14 and 15, so as to move therewith and are both mounted on the shaft 37, on which they are free to slide. This shaft is solidly mounted at its front end in the bear-

ing 38 and is provided with a pinion 39 fixed thereto adjacent to said bearing.

Meshing with pinion 39 is the rack 40, which latter is actuated positively in both directions by the double plunger 41 in cylinders 42, the rack 40 being pivotally connected to the pitman 43, which latter is connected to the plunger intermediate the cylinder 42. The dies being thus coupled up to the shaft 37 are turned or partly rotated in unison and are so arranged that when one die is turned to present its rib outwardly beyond the fixed ribs on its ram, as shown in Fig. 2, the other die will be turned out of action. If straightening is required on the other side of beam, the direction of movement of the rack is reversed, thus turning both dies and bringing into action the one that was formerly inactive. The sleeves 33 and 36 are free to slide on shaft 37, thus permitting the latter to actuate the dies irrespective of the position of either or both rams.

44 are rollers extending longitudinally of the machine and through the rams and form supports on which the beams rest while in the machine. These rolls are actuated through the gears 45 and 46 and the shaft 47, which latter is actuated in unison with a roller-table (not shown) placed on each side of the beam-straightener.

In the operation of this machine the adjustable ram 15 should be first adjusted toward or away from ram 14. This adjustment may be made after or before the beam has been run into position between the rams. After the rams have thus been adjusted power applied to the movable ram, through the eccentric shafts 4 and 5 forces the movable ram toward the adjustable ram and the die bearing at one side against the beam in a plane between the fixed ribs of the other ram operates to straighten out the beam.

It is evident that many slight changes might be resorted to in the relative arrangement of parts 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 of parts shown and described; but,

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

1. In a beam-straightening machine, the combination with two rams, and a die carried by each ram, each die being mounted on vertical trunnions so as to turn laterally, of means for throwing one die into position for action and the other out of position for action with respect to their supporting-rams, and means for forcing one ram toward the other.

2. In a beam-straightening machine, the combination with two rams, a die pivotally mounted in each and means for turning the two dies simultaneously, one into operative position and the other into inoperative position, of means for reciprocating one ram.

3. In a beam-straightening machine, the combination with two rams each having a vertical recess on its working face, a die pivotally mounted in each recess and means for turning the two dies simultaneously, one into operative position and the other into inoperative position, of means for reciprocating one ram.

4. In a beam-straightening machine, the combination with two rams each having a vertical recess in its working face and a vertical rib on each side of said recess, a die pivotally mounted in each recess and means for turning the two dies simultaneously, one into operative position and the other into inoperative position, of means for reciprocating one ram.

5. In a beam-straightening machine, the combination with two rams one of which is adjustably secured in place and means for reciprocating the other, of a die journaled within a recess in the working face of each ram, and means for simultaneously shifting both dies with respect to their supporting-rams, one into operative position and the other into inoperative position.

6. In a beam-straightening machine, the combination with two rams and means for reciprocating one of them, of a die journaled in a recess in the working face of each ram, a miter-wheel secured to each die, a shaft, means for imparting rotary motion to said shaft, and miter-wheels mounted on said shaft and meshing with the miters on the dies.

7. In a beam-straightening machine the combination with two rams and means for adjusting one and reciprocating the other, of a die journaled in a recess in the working face of each ram, a miter-wheel secured to each die, a shaft and miter-wheels having sliding connection with said shaft and meshing with the miters on the dies.

8. In a beam-straightening machine, the combination with two rams, a die carried by and pivotally connected to each ram and means for simultaneously turning one die into operative position and the other into inoperative position, of screw mechanism connected to one ram whereby the latter may be adjusted with relation to the other ram and retained in such adjusted position and means for reciprocating the other ram.

9. In a beam-straightening machine, the combination with two rams a die journaled to each, and means for simultaneously turning one die to an operative position and the other to an inoperative position, of a plurality of screws connected to one ram, means for simultaneously rotating said screws, for moving said ram toward or away from the other, and means for reciprocating said other ram.

10. The combination with two rams, a die pivoted to and carried by each ram, means for reciprocating one ram and means for adjusting the other, of beam-rollers passing through one ram, and means for simultaneously turning one die to its operative position and the other die to its inoperative position.

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

CLARENCE L. TAYLOR.

Witnesses:
N. C. FETTERS,
A. L. ROBERTS.