

(No Model.)

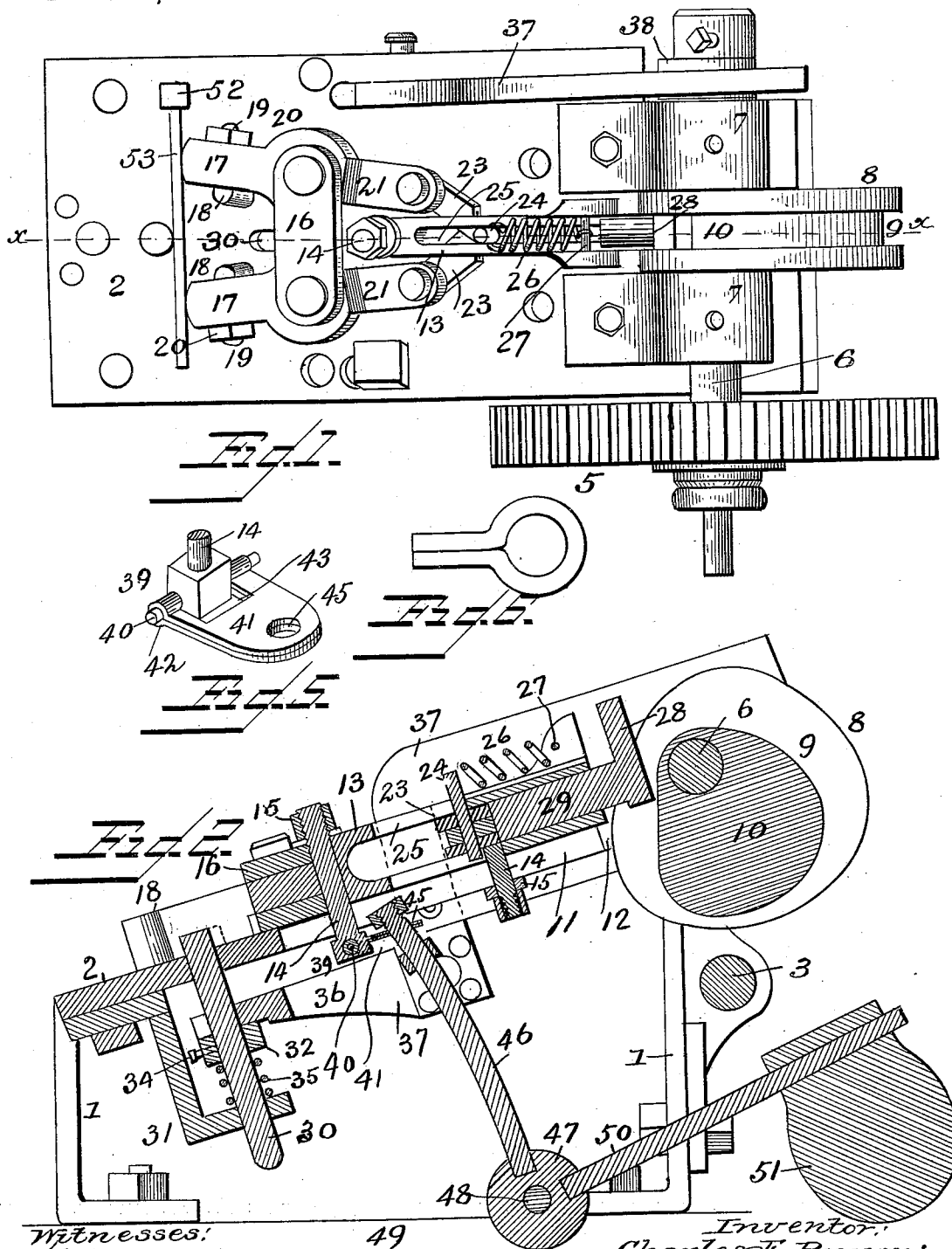
2 Sheets—Sheet 1.

C. E. BROWN.

MACHINE FOR MAKING BOILER BRACE JAWS.

No. 507,878.

Patented Oct. 31, 1893.



Witnesses:
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J. L. Bloombs

Inventor:
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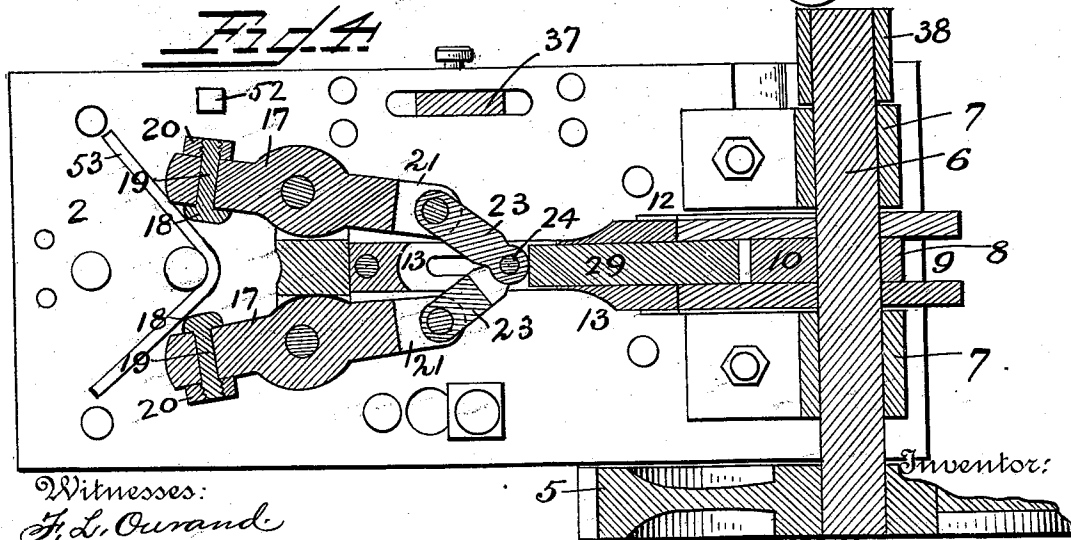
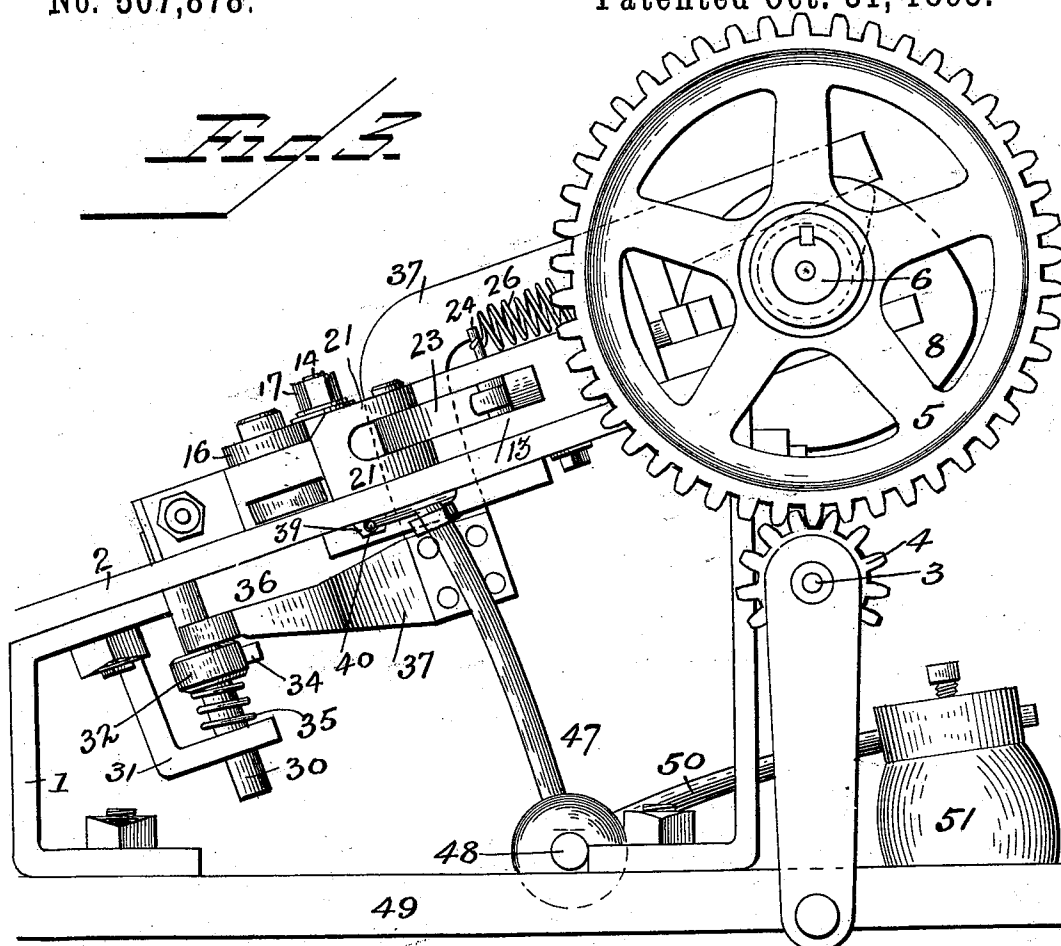
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UNITED STATES PATENT OFFICE.

CHARLES E. BROWN, OF ROME, NEW YORK.

MACHINE FOR MAKING BOILER BRACE-JAWS.

SPECIFICATION forming part of Letters Patent No. 507,878, dated October 31, 1893.

Application filed March 8, 1893. Serial No. 465,124. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. BROWN, a citizen of the United States, and a resident of Rome, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Machines for Making Boiler Brace-Jaws; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in machines for making what are technically known as boiler brace jaws, which jaws consist of a bar of metal bent over at its center forming a loop or eye and resembling in appearance a cotter pin or eye-bolt.

The object of the invention is to provide an improved construction of such machine, whereby I obtain superior advantages with respect to efficiency in operation.

The invention consists in the novel construction and combination of parts, hereinafter fully described and claimed.

In the accompanying drawings: Figure 1 is a plan view of a machine constructed in accordance with my invention. Fig. 2 is a central longitudinal section of the same. Fig. 3 is a side elevation. Fig. 4 is a horizontal section on the line $x-x$, Fig. 1. Fig. 5 is a detail view of the spring plate carried by the pin of the reciprocating block. Fig. 6 is a view of one of the completed brace-jaws.

In the said drawings, the reference numeral 1 designates four supporting legs, to the upper ends of which is bolted a table 2, which carries the working parts of the machine. Journaled in bearings secured to the rear legs is a driving shaft 3, provided with a pinion 4 at one end, which meshes with a cog-wheel 5, fixed to a shaft 6, journaled in bearings 7, at the rear of the table 2. Also fixed to said shaft is a cam-wheel 8, having a peripheral cam-groove 9, forming an intermediate cam 10. The table 2 at or near its center, is formed with a longitudinal slot 11, which extends to near the rear end, where it intersects with a cut-away portion 12.

Mounted upon the table 2 is a laterally movable block 13 provided with pins 14, which

pass through the slot 11 in the table. These pins are provided with nuts 15, and serve to guide the block as it reciprocates up and down on the table, and also to hold it in place thereon. At its front end the block is provided with a cross-head 16, which carries the bending dies 17, each consisting of a lever pivoted at or near its center to said cross-head and provided at its front end with lugs 18, which engage with the metal bar when the levers are forced inward, as hereinafter described. These lugs are provided with shanks 19, which pass through holes in said levers and are screw-threaded to receive nuts 20.

The rear ends of levers 17 are bifurcated forming lugs 21, in which are pivoted toggle links 23, which pass through a recess formed in block 13, where their ends are pivotally connected by means of a pin 24, which passes through a slot 25 in the upper side of said block. Connected with this pin 24 is a coiled spring 26, the other end of which is secured to a transverse rod 27 carried by the block. The rear or upper end of the block 13 is bifurcated to receive a movable head, 28, which fits in the groove in the cam-wheel and is acted upon by the cam 10. The bifurcated end of the block is acted upon by the cam-wheel 8. Secured to or forming part of the head 28, is a shank 29, which passes through an aperture in the block and its front or lower ends engage with the pivoted ends of the toggle links 23.

Aligned with the block 13, and located near the front or lower end of the table 2, is a vertically movable pin 30, which passes up through a hole in said table. The lower end of this pin passes through a bracket 31, secured to the under side of the table and intermediate of its ends is provided with an adjustable collar 32, held in place by means of a set screw 34. Embracing the pin and confined between the collar and bracket is a coiled spring 35. Engaging with the upper side of collar 32, is one arm 36, of a bent lever 37, which passes through a slot in table 2, to which it is pivoted. This lever 37, at its rear or upper end is engaged by a cam 38, on the shaft 6.

It will be noted that the front or lower pin 14, of block 13, extends entirely through the latter, and at its lower end is provided with a shoe 39, provided with a pin 40 passing

transversely therethrough. This pin carries a spring plate 41, which consists of a strip of metal bent over upon itself at the center forming a loop 42, cut-away at 43, so that pin 40
 5 can be passed therethrough. The free ends of this spring plate are formed with a hole or aperture 45, to receive the headed end of a rod 46. The lower end of this rod is secured to a hub 47 pivoted to a shaft 48, secured to
 10 the base 49, to which the supporting legs 1 are bolted. The hub is also provided with a rod or arm 50 at approximately a right angle to rod 46, which carries at its outer end, a weight 51.

The numeral 52 designates a stud secured
 15 to table 2.

The operation is as follows: The parts being in the position shown in Fig. 1, with a bar or rod 53, of metal of which the brace-jaw is to be formed in place with one end abutting against
 20 stud 52, which serves as a regulating stop, and its lower edge at or about the center resting against the pin 30, the driving-shaft is rotated from any suitable source of power, which through the medium of its pinion and the cog-
 25 wheel 5, rotates the shaft 6, and the cam-wheel 8, the periphery of which acting upon the block 13 forces it forward or downward, the bending dies engaging with the bar 53 and bending it into U-form, the lower end of
 30 the block 13 also engaging with the said bar and tightly clamping or holding it against the pin 30, thereby preventing any slipping of the bar. Just as this movement of the block and bending dies is finished, the cam 10 will
 35 act upon the head 28, moving it and its shank forward, which shank presses against the toggle links 23, which in turn force the rear ends of the bending dies outward and their front ends inward, so that the lugs 18, will
 40 engage with the ends of the bar 53, pressing them inwardly, and forming the eye of the jaw. At the conclusion of these movements, the weight 51 will cause the block to recede, and the spring 26 will return the head 28 and
 45 the bending dies to normal position, when the cam 38, will depress lever 37 elevating its end or arm 36, and depressing pin 30, so as

to withdraw it from engagement with the eye formed in the completed article, and allow it to fall off of the table.

The object of the spring plate 41, is to prevent injury to the machine, which might be caused by the shock of the weight in its movement.

Having thus described my invention, what I claim is—

1. In a machine for making boiler brace-jaws, the combination with the inclined table having a horizontal slot therein, the reciprocating block having guide-pins passing
 60 through said slot, and a cross-head at its front end, the bending dies pivoted in said cross-head, the toggle links, the pivot pins connecting said links passing through a slot in the block, the coiled spring and the movable
 65 head and its shank, of the cam-wheel having a peripheral cam-groove, the spring plate secured to one of the pins passing through the slot in the table, the headed rod, the hub and the weighted arm connected therewith, sub-
 70 stantially as described.

2. In a machine for making boiler brace-jaws, the combination with the inclined table having a horizontal slot therein, the reciprocating blocks having guide pins passing there-
 75 through, and a cross-head at its front end, the bending dies pivoted in said cross-head, the toggle links, the pivot pins connecting said links passing through a slot in the block, the coiled spring, the movable head and its
 80 shank, the cam-wheel having a peripheral cam-groove, the arm connected with one of said guide pins, the hub and the weighted rod, of the vertically movable pin, having a collar and a spring, the bent lever engaging
 85 with said collar, and the cam for operating the lever, substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

CHARLES E. BROWN.

Witnesses:

JOHN S. BAKER,
 JOS. H. HELMER.