H. P. THORNTON.

METAL BINDING STRIP MACHINE.

APPLICATION FILED MAY 24, 1909.

991,564.

Patented May 9, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

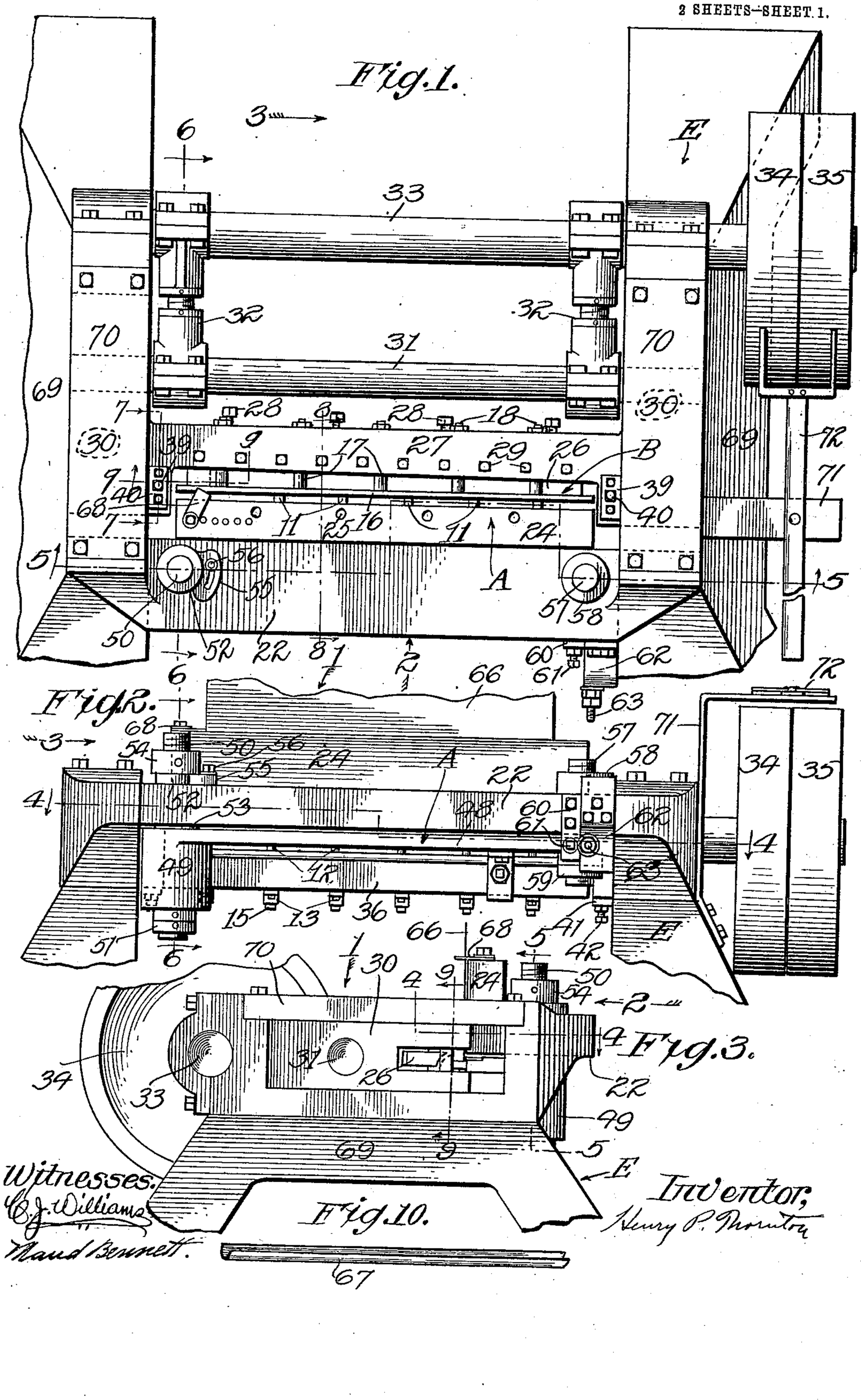

Fig. 10.

Witnesses:

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2 SHEETS—SHEET 2.

Fig. 4.

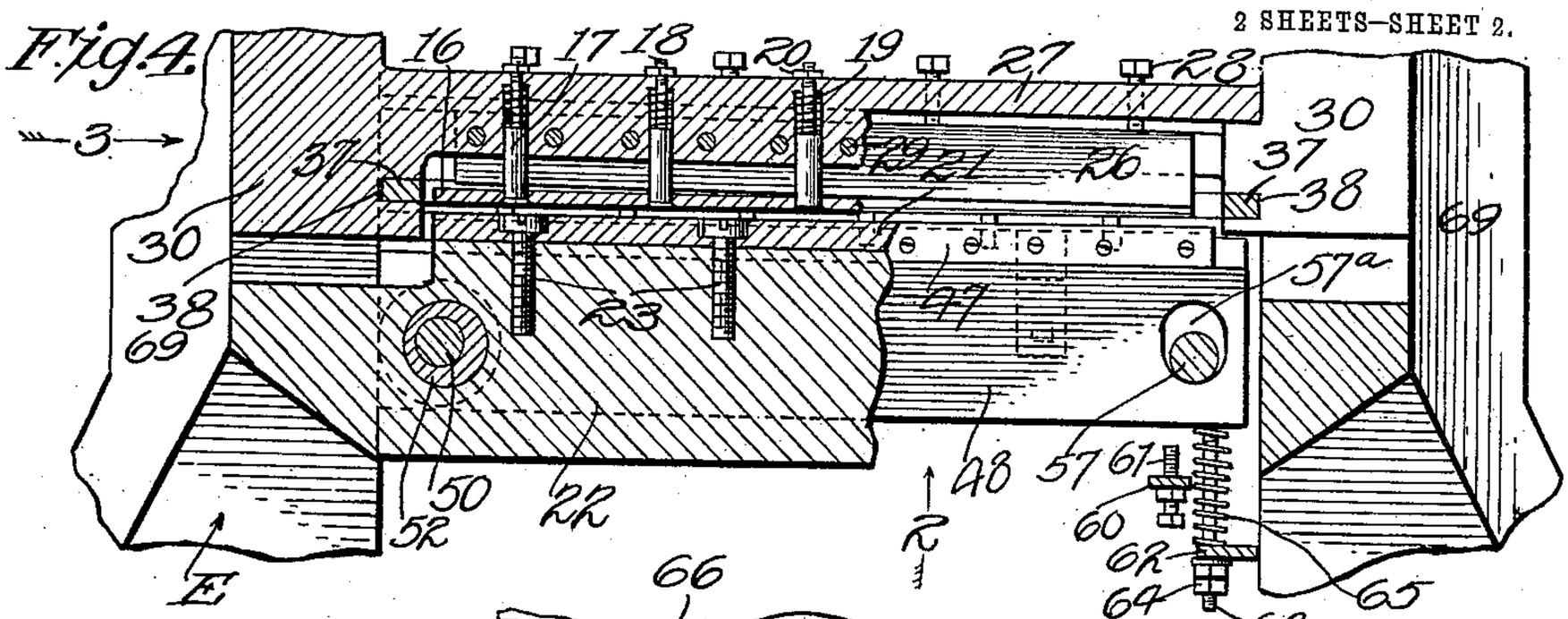


Fig. 5.

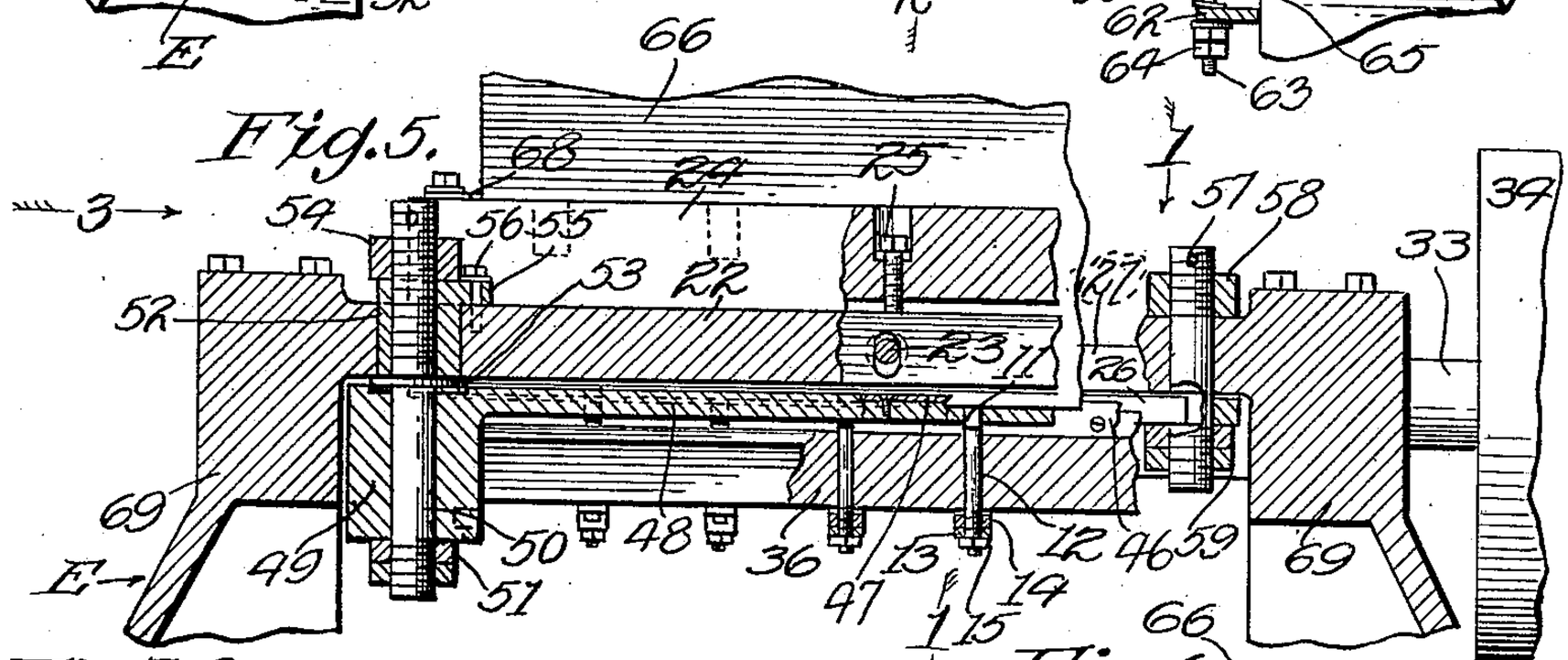


Fig. 7.

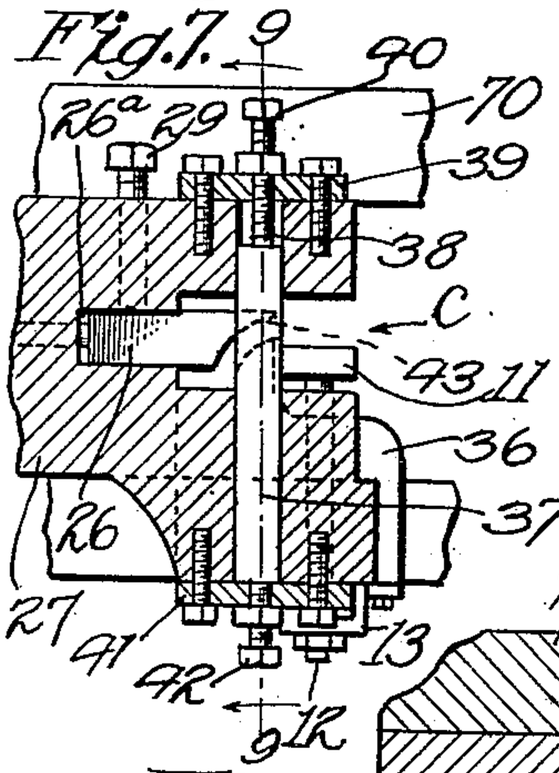


Fig. 6.

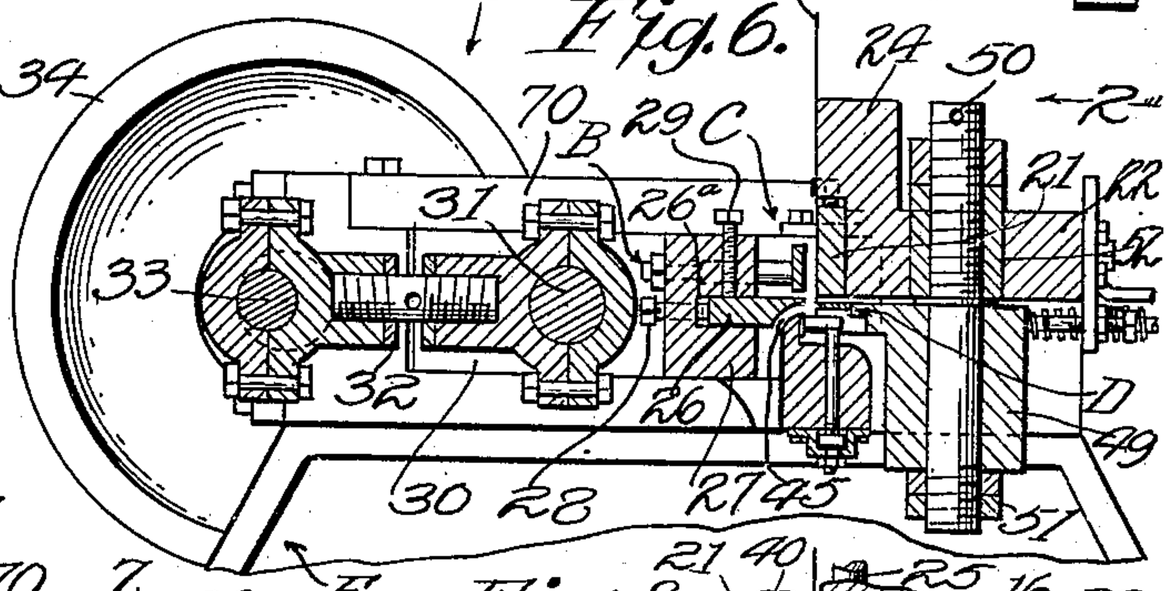


Fig. 9.

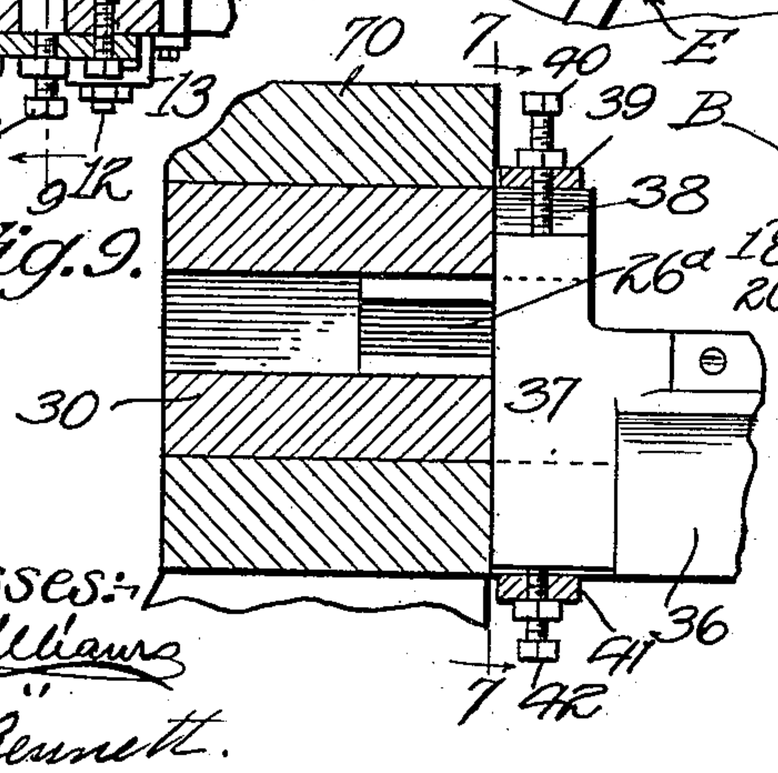
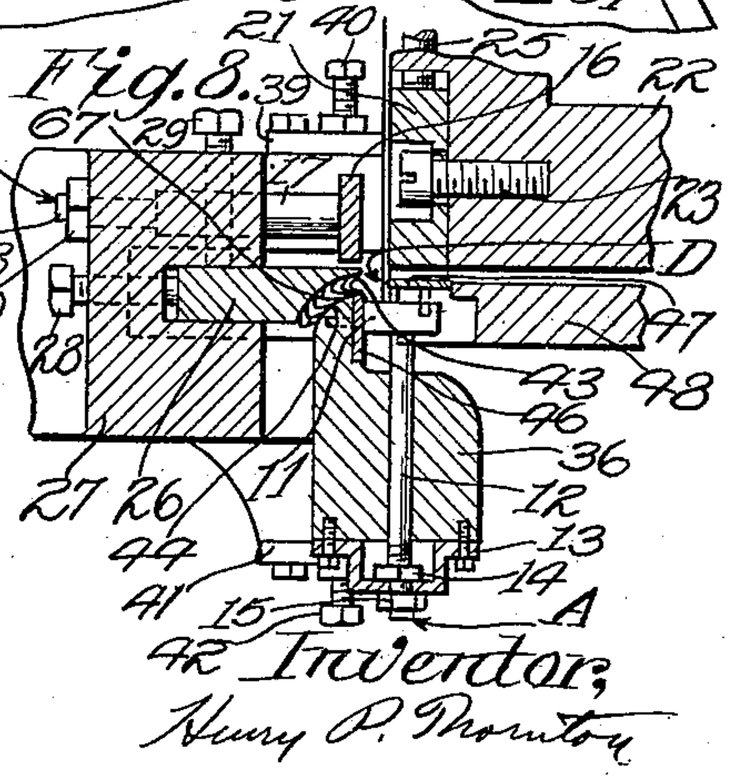


Fig. 8.



Witnesses:-
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"
Maud Bennett.

Inventor;
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UNITED STATES PATENT OFFICE.

HENRY P. THORNTON, OF TROPICO, CALIFORNIA.

METAL-BINDING-STRIP MACHINE.

991,564. Specification of Letters Patent. Patented May 9, 1911.

Application filed May 24, 1909. Serial No. 497,969.

To all whom it may concern:

Be it known that I, HENRY P. THORNTON, a citizen of the United States, residing at Tropico, California, have invented a new and useful Metal-Binding-Strip Machine, of which the following is a specification.

My invention relates to making baskets for the fruit business, my object being to make the metal binding strip with the least possible amount of labor and at a high rate of speed.

In the drawings: Figure 1 is a top plan view of a metal binding strip machine embodying the principles of my invention. Fig. 2 is a front elevation, as seen looking in the direction indicated by the arrow 2 in Figs. 1, 3, 4 and 6. Fig. 3 is an end elevation as seen looking in the direction of the arrow 3 in Figs. 1, 2, 4 and 5. Fig. 4 is a horizontal sectional detail approximately on the line 4—4 in Figs. 2 and 3. Fig. 5 is a vertical longitudinal section on the line 5—5 in Fig. 1. Fig. 6 is a vertical cross-section on the line 6—6 in Figs. 1 and 2, and on a plane parallel with Fig. 3. Fig. 7 is a fragmental cross-section on an enlarged scale on the line 7—7 in Figs. 1 and 9. Fig. 8 is a fragmental cross-section on an enlarged scale on the line 8—8 in Fig. 1. Fig. 9 is a fragmental cross-section on an enlarged scale on the line 9—9 in Figs. 1, 3 and 7. Fig. 10 is a perspective of the completed metal binding strip.

Referring to the drawings in detail, my metal binding strip machine includes: A, mechanism for gaging the width of the metal binding strip. B, mechanism for clamping the sheet of tin. C, mechanism for cutting the metal binding strip from the sheet. D, mechanism for folding the cut metal binding strip. E, frame-work for mounting the parts.

The mechanism A for gaging the width of the metal binding strip is best shown in Fig. 8. A gage-bar 11 is fixed upon the upper end of an adjusting-bar 12, said adjusting-bar being slidingly mounted in the frame and extending through an adjusting-bracket 13 fixed to the frame, and there being adjusting-nuts 14 and 15 upon the adjusting-bar one upon each side of the adjusting-bracket, so that by manipulating the adjusting-nuts the gage-bars may be accurately located relative to the cutting-mechanism. A series of the gage-bars may be used, as shown in Figs. 1 and 4.

The mechanism B for clamping the sheet of tin is shown in Figs. 1, 4, 6 and 8. The clamping-bar 16 is fixed upon the ends of sliding-guide-bars 17 carried by the reciprocating-knife-head. Adjusting-stop-bolts 18 extend from the ends of the sliding-guide-bars through smaller bearings in the reciprocating-knife-head, and springs 19 operate around the adjusting-stop-bolts against the ends of the sliding-guide-bars, so that by manipulating the stop-nuts 20 upon the adjusting-stop-bolts the normal position of the clamping-bar may be determined and so that the clamping-bar may yield backwardly under pressure.

The mechanism C for cutting the metal binding strip from the sheet is shown in different aspects throughout the drawings. The fixed-knife 21 is adjustably secured to the fixed-knife-head 22 by screws 23 extending through slotted openings in the fixed-knife and screw-seated in the fixed-knife-head. A guide-plate 24 extends upwardly from the fixed-knife-head, the face of the guide-plate being flush with the face of the fixed-knife, and adjusting-screws 25 are screw-seated through the guide-plate and engage the upper side of the fixed-knife to adjust and hold the fixed-knife against the reciprocating-knife. The reciprocating-knife 26 is adjustably mounted in a groove 26^a in the reciprocating-knife-head 27, there being adjusting-screws 28 to locate the reciprocating-knife and clamping-screws 29 to hold the reciprocating-knife, and the reciprocating-knife is set shearing relative to the fixed-knife. Sliding-guide-blocks 30 are formed integral with the ends of the reciprocating-knife-head 27 and suitably mounted in bearings in the frame, a pivot-shaft 31 is mounted in the sliding-guide-blocks 30, and adjustingly connected by pitmen 32 to the cranks of the operating crank-shaft 33, carrying the fast-pulley 34 and the loose pulley 35.

The mechanism D for folding the cut metal binding strip is shown in Figs. 2, 4, 5, 6, 8 and 9. The lower-forming-die-head 36 has vertical-guides 37 at its ends, said guides being adjustably mounted in the guide-slots 38 in the sliding-guide blocks 30. Upper adjusting-plates 39 span the upper ends of the guide-slots 38 and carry adjusting-screws 40 engaging the vertical-guides 37, and lower adjusting-plates 41 span the lower ends of the guide-slots 38 and carry

adjusting-screws 42 engaging the vertical-guides 37, so that the lower-forming-die-head may be adjusted up and down. The adjusting-bars 12 are mounted in the lower-forming-die-head 36 and the adjusting-brackets 13 are secured thereto. The corner of the reciprocating-knife 26 is cut away to make the upper-forming-die 43 and the lower-forming-die 44 extend upwardly from the lower-forming-die-head 36 in opposition to the upper-forming-die 43 so as to form adjustable-die-opening 45, there being a sheet of hardened steel 46 upon the front face of the lower-forming-die 44, and the gage-bars 11 operate beside this steel. The die-opening 45 is a segment of a circle in cross-section and discharges downwardly, while the knives operate horizontally. The forming-punch 47 is a thin bar of hardened steel secured to the forming-punch-head 48, there being notches in the forming-punch-head to receive the gage-bars 11 and the forming-punch extending beyond the edge of the forming-punch-head. A bearing-block 49 is formed integral with the forming-punch-head, and a pivot 50 extends through this bearing-block, there being jam-nuts 51 upon the lower end of the pivot. An eccentric-bushing 52 is mounted through the fixed-knife-head 22 and the pivot 50 is screw-threaded through this eccentric-bushing, there being a shoulder 53 upon the pivot below the eccentric-bushing and a jam-nut 54 above, so as to adjust and clamp the pivot. A slotted-arm 55 extends from the upper end of the eccentric-bushing and is adjustably secured to the fixed-knife-head by a cap-screw 56, so that the eccentric-bushing may be rotated slightly to adjust the forming-punch 47 back and forth. A slot 57ª is formed in the forming-punch-head at the opposite end from the pivot 50 and a bolt 57 extends through this slot and is seated through the fixed-knife-head 22, there being nuts 58 and 59 upon the bolt for adjustment. A bracket 60 extends downwardly from the fixed-knife-head in front of the swinging-end of the forming-punch-head and an adjustable-stop-screw 61 is mounted in the bracket 60 to adjustably limit the forward swing of the forming-punch. A second bracket 62 extends downwardly from the fixed-knife-head 22, a bolt 63 is fixed in the forming-punch-head 48 and slides through the second bracket 62, nuts 64 upon the bolt 63 adjustably limit the backward swing of the forming-punch, and a spring 65 upon the bolt between the bracket and the forming-punch-head holds the forming-punch yieldingly in its normal position, which is parallel with the rigid-knife. The forming-punch should be adjusted to operate at the center of the receiving end of the die-opening 45. As the reciprocating-knife 26 moves to cut the metal binding strip from the sheet the forming-punch presses the cut tin yieldingly against the forming-dies until the tin is completely severed, then the forming-punch-head strikes the stop-screw 61 and presses the tin into the die-opening 45 thereby folding the tin and the folded tins pass through the die-openings 45 and drop. The sheet of tin 66 is inserted downwardly against the guide-plate 24 and rests upon the gage-bars 11, the clamping-bar 16 presses the sheet against the fixed-knife 21 while the cutting is being done, and as the metal binding strip 67 is formed the sheet drops for a new tin. The metal binding strip may be of any desired size, and in shape any form of channel-bar usually ranging from a semi-circle to a sharp V in cross-section. A feed-gage 68 is adjustably secured to the guide-plate 24.

The frame-work E for mounting the parts is shown broken or fragmentary throughout the views. The end pieces 69 have suitable legs, carrying bearings for operating-crank-shaft 33, and are recessed to form slide-ways for the sliding-guide-blocks 30, which are held in place by caps 70, and the ends are connected by the fixed-knife-head 22. A bracket 71 is secured to one of the end-pieces and the belt-shifter 72 is mounted upon the bracket.

I claim:

1. In a metal binding strip machine, a frame, a shearing member, fixedly attached on said frame, a movable shearing member mounted on said frame and coöperating with said fixed member to cut a strip from a sheet of material, a bar adjustably mounted on said movable member and forming a die opening therewith, a punch adjustably mounted on said fixed member and coöperating with said movable member and bar to crimp the strip, and means for adjusting the punch transversely of the die opening.

2. In a metal binding strip machine, a frame, a shearing member movably mounted upon the frame said shearing member consisting of a part having a cutting edge and a bar adjustably mounted on said part and forming a die opening therewith, said die opening passing from the front face through the shearing member to a side face; a second shearing member fixedly attached to said frame and adjustable relative to the first shearing member; a punch pivotally connected at one end to the second shearing members and yieldingly connected at the other end, said punch being adjustable transversely of the die opening.

3. In a metal binding strip machine, a frame, a shearing member movably mounted in a frame there being an adjustable die opening passing through the shear member, a second shear member fixedly mounted in the frame and adjustable relative to the first shear member, a punch pivoted at one end to

the second shear member and yieldingly connected at the other end and adjustable transversely of the die opening.

4. In a metal binding strip machine, a frame, a shear fixedly mounted in the frame, a second shear movably mounted in the frame, there being a die opening through the second shear, and a punch co-acting with said die opening, said punch being pivotally mounted at one end and yieldingly mounted at the other end so that in severing a strip of tin the punch presses yieldingly against the strip before and at the time and progressively as it is severed from the stock.

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Witnesses:
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