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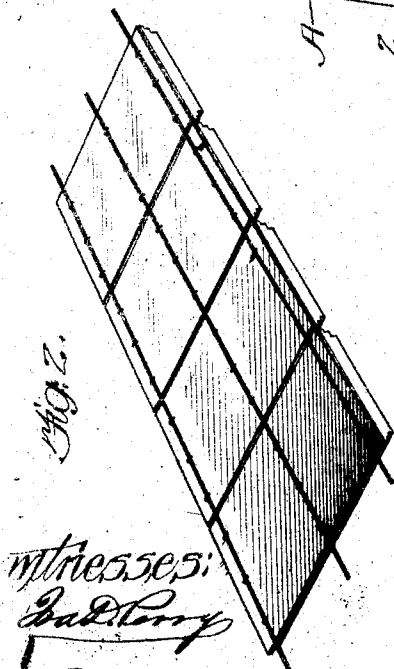
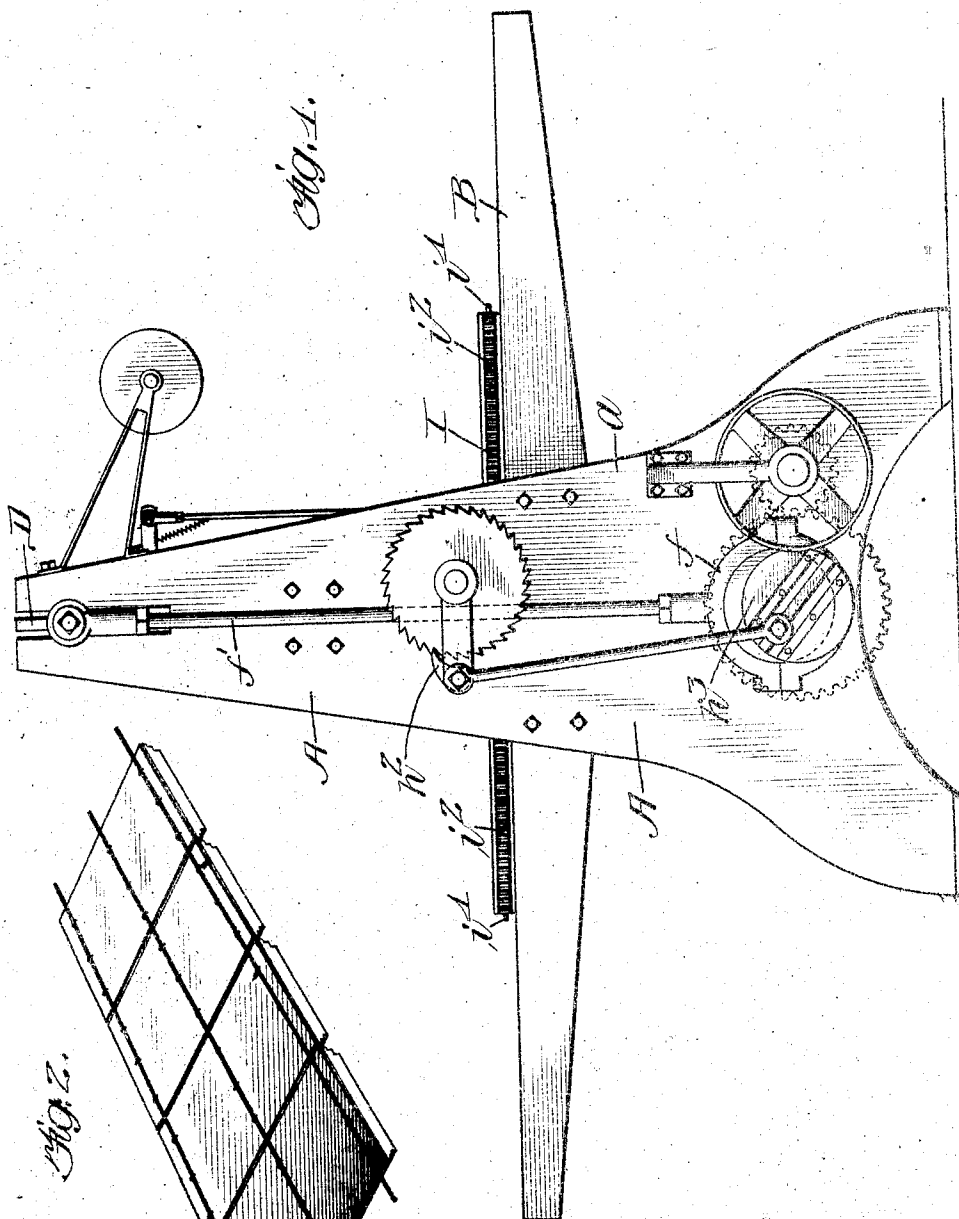
PATENTED FEB. 11, 1908.

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MACHINERY FOR USE IN MAKING WIRE BOUND BOXES.

APPLICATION FILED MAY 31, 1907.

5 SHEETS—SHEET 1.



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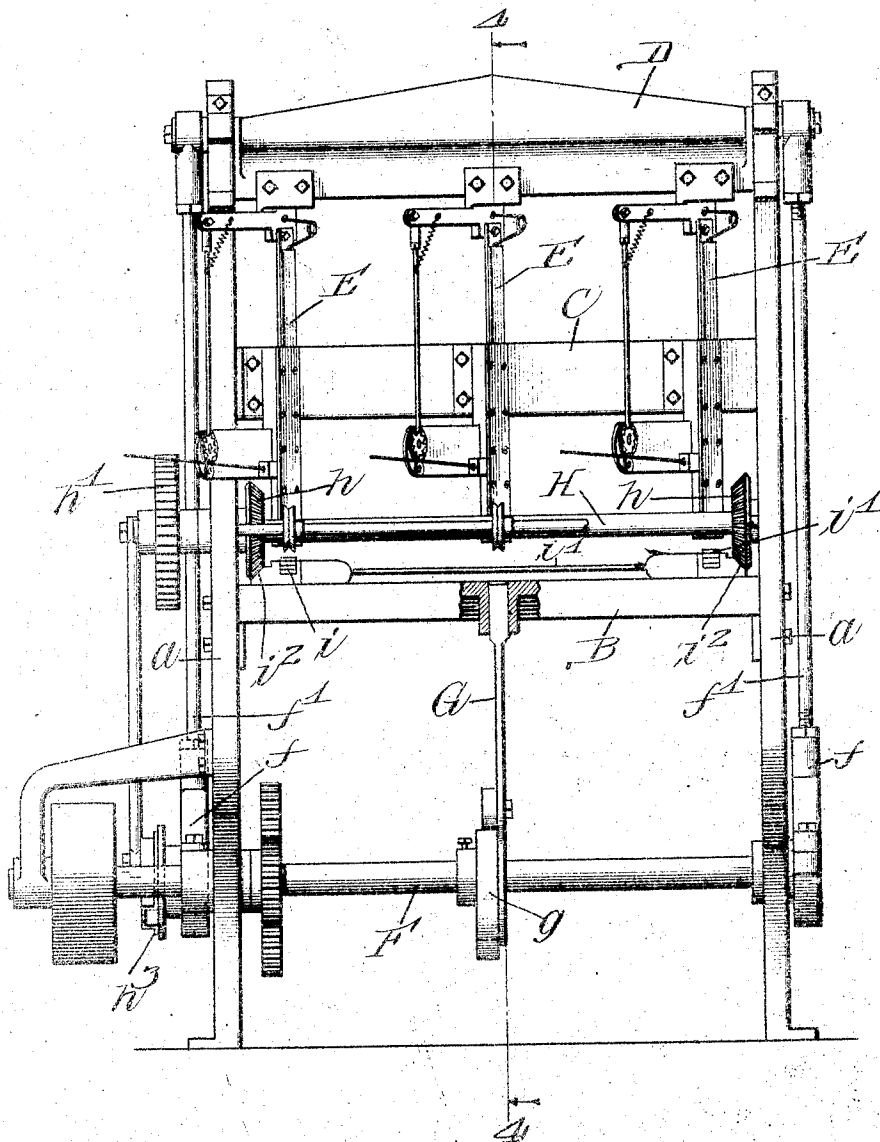
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6 SHEETS—SHEET 2.

Fig. 3.



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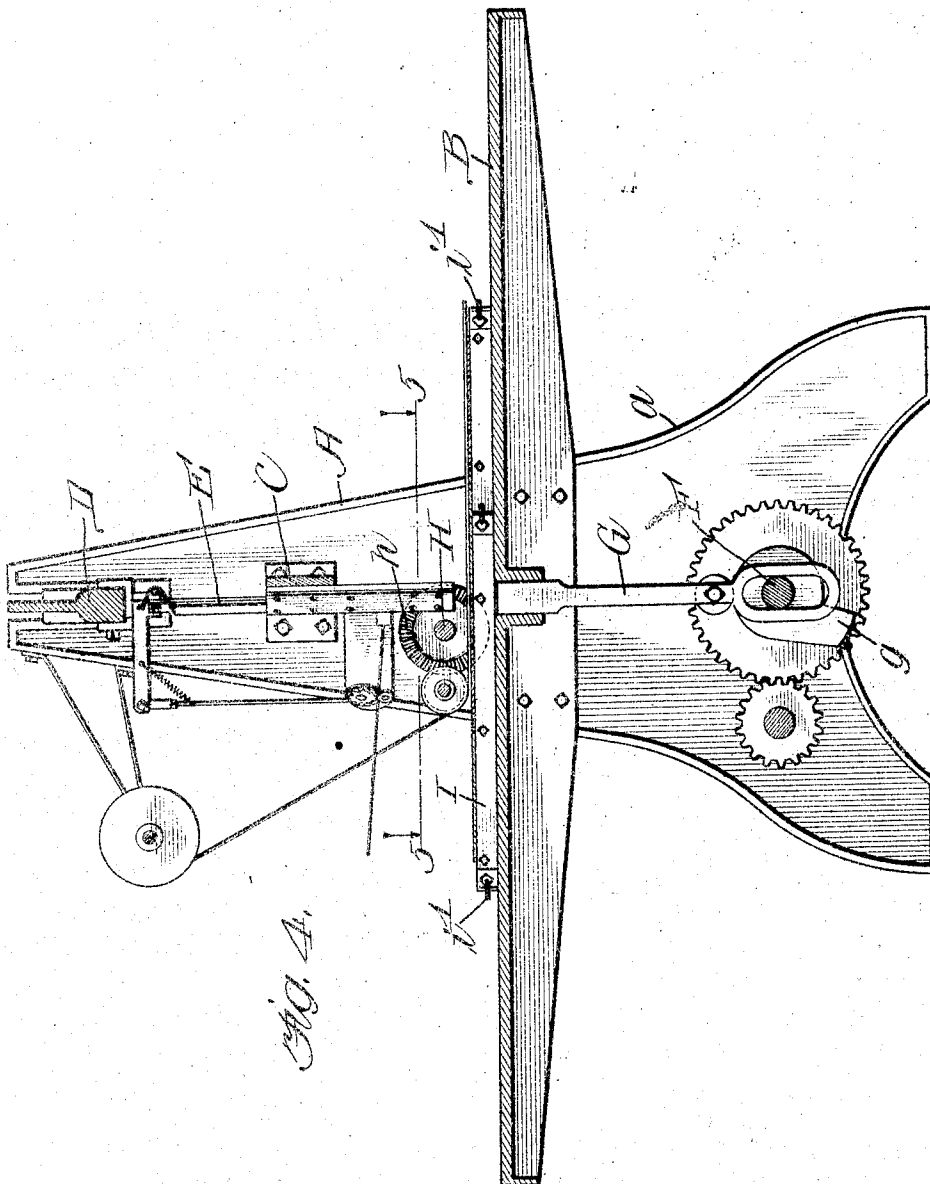
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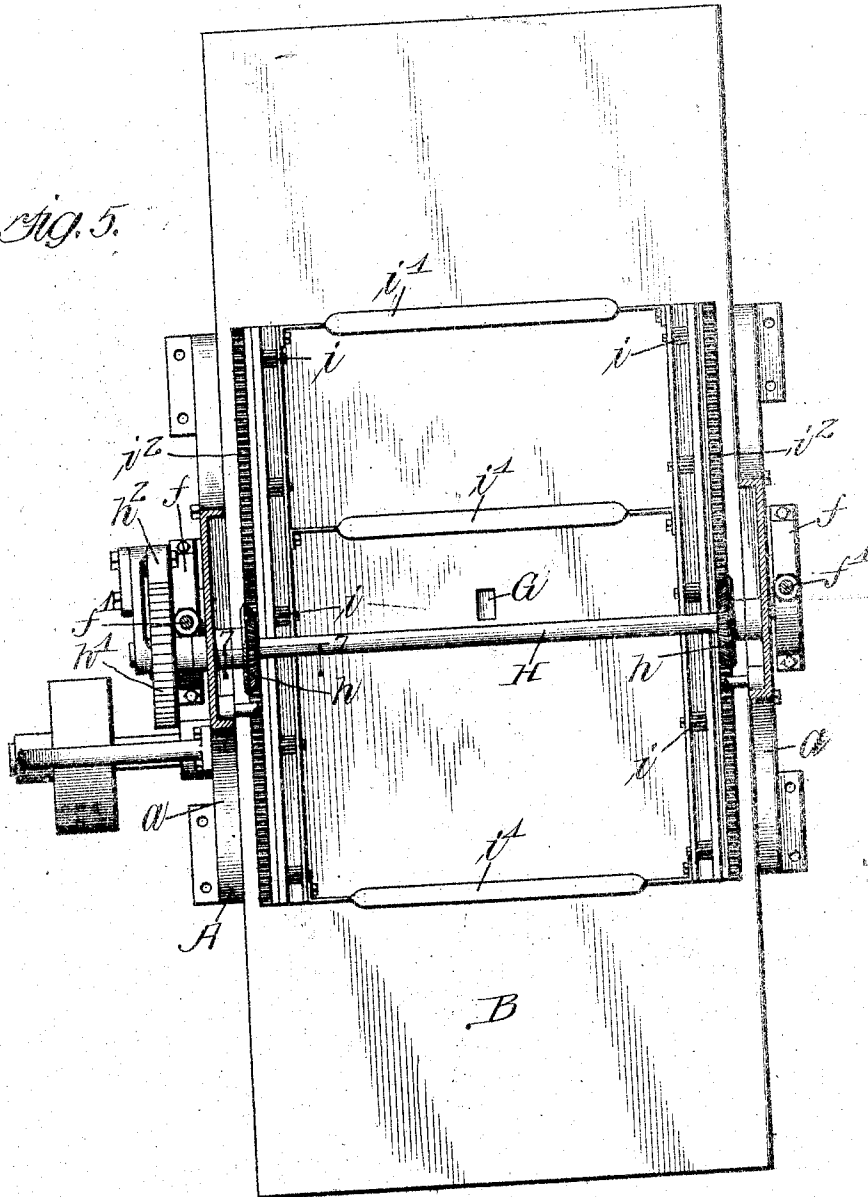
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Fig. 5.



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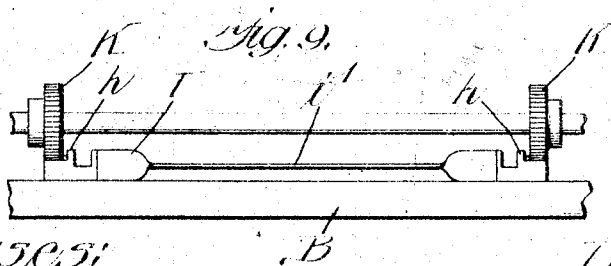
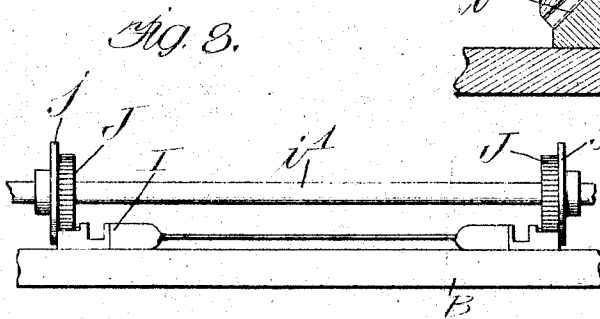
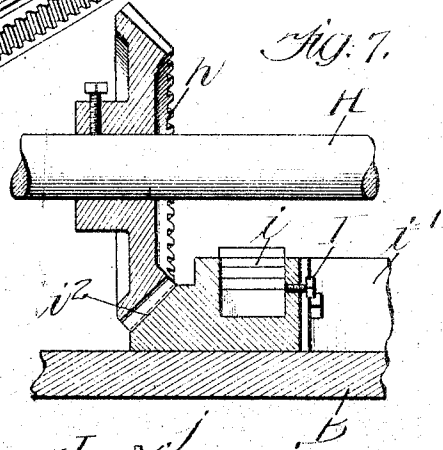
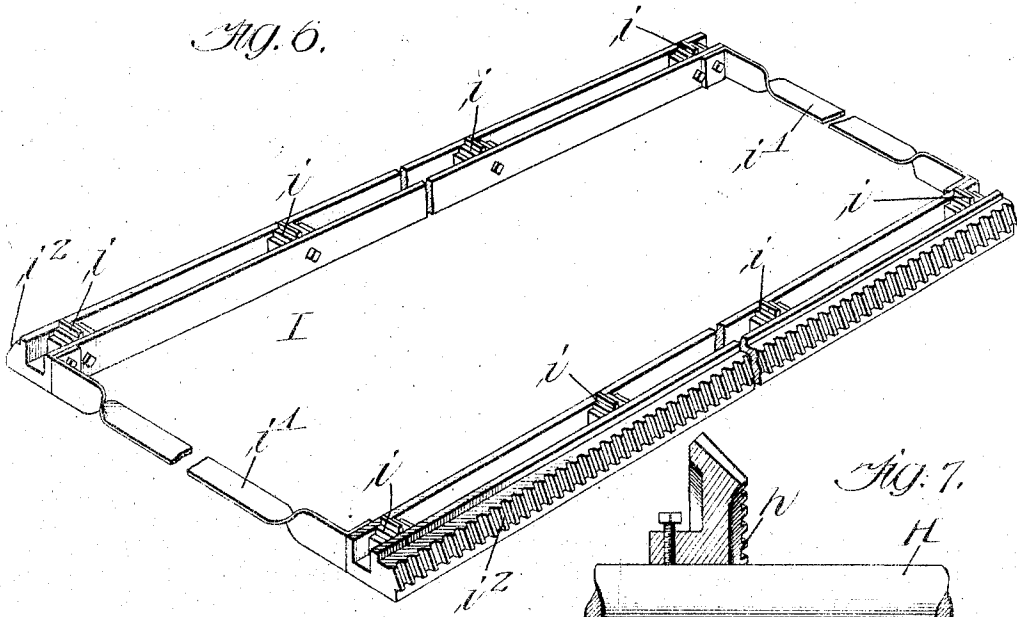
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5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

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MACHINERY FOR USE IN MAKING WIRE-BOUND BOXES.

No. 878,737.

Specification of Letters Patent.

Patented Feb. 11, 1908.

Application filed May 31, 1907. Serial No. 376,488.

To all whom it may concern:

Be it known that I, JULIUS J. MILLER, a citizen of the United States of America, and a resident of St. Joseph, Berrien county, Michigan, have invented a certain new and useful Improvement in Machinery for Use in Making Wire-Bound Boxes; of which the following is a specification.

My invention relates to machinery for use in making wire-bound and cleat-reinforced boxes.

It relates more particularly to the machinery for making the blanks from which the sides of the boxes are made.

The principal object of my invention is the provision of an improved construction by which the portable formers or work-holders of a box-blank machine of this kind are held to a straight line of travel through the machine without the necessity of providing guide ways on the table of the machine.

It is also an object of my invention to provide an improved box-blank machine involving certain novel features and combinations tending to increase the general efficiency of a machine of this particular character.

To the foregoing and other useful ends, my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings—Figure 1 is a side elevation of a box-blank machine embodying the principles of my invention. Fig. 2 is a perspective of the box-blank. Fig. 3 is an end elevation of the machine shown in Fig. 1. Fig. 4 is a section on line 4—4 in Fig. 3. Fig. 5 is a sectional plan view on line 5—5 in Fig. 4. Fig. 6 is an enlarged perspective of the portable former or work-holder employed in said machine. Fig. 7 is an enlarged detail section on line 7—7 in Fig. 5. Figs 8 and 9 show different forms of pinions for operating or feeding the said former or work-holder.

As thus illustrated, my invention comprises a frame or body A adapted to support the operative parts in suitably elevated positions. A table B is positioned and supported between the upright side members a—a, to support the work. A stationary cross head C is positioned and supported between the said side members, and a movable cross head D slides up and down to operate the staplers E, the movable cross head being

above the stationary cross head. The cross head D is operated by a shaft F through the medium of an eccentric f—f and pitman f¹—f¹, which latter have their upper ends pivoted upon the opposite ends of said cross head. A vertically reciprocating clench block G is positioned below the middle stapler and operated by the cam g on the shaft F, as shown. The feed shaft H is disposed above the table in advance of the staplers, and provided with feed pinions h, and a ratchet wheel h¹. Referring to Fig. 1, it will be seen that the said ratchet wheel is actuated by a dog h² operated from a crank plate h³ on the shaft F. Any suitable arrangement can be employed for driving the shaft F to operate the staplers and the feed shaft. It will be understood that the feed is timed relatively to the reciprocation of the staplers, which latter can be of any suitable character.

Referring to Fig. 6, it will be seen that the portable former or work-holder I is composed of two parallel channel members i—i, each provided with miter blocks i¹ for spacing the cleats of the blank apart endwise. The said channel members are connected by cross bars i²—i², and each provided with a rack i³, the latter being beveled to engage the bevel pinions h—h. The said former or work-holder is flat on the bottom and adapted to slide in a step-by-step manner across the table of the machine, carrying the cleats below the two outside staplers. During the movement of the former or work-holder through the machine the former or work-holder I is held down and against lateral displacement by the pinions h, thus making guide ways unnecessary.

In Fig. 8 the feed pinions J have flanges j which prevent lateral displacement of the former or work-holder.

In Fig. 9 the pinions K are ordinary pinions, and hold the former or work-holder against lateral displacement by simply engaging the ribs or flanges k—k on the said work-holder. Each of the three forms of rack and pinion make it unnecessary to employ guides on the table for the former or work-holder. The binding wires L are carried on the reels M and guided to the blank by the wheels N, as the work is moved along. The staplers drive staples which straddle the binding wires, and the staples for the outside

wires serve also to secure the cleats to the under surface of the veneering or other sheet material.

In all of the different forms of my invention disclosed herein, it will be seen that the former or work-holder is provided with means for engaging the pinions to prevent lateral displacement of the said former or work-holder. It will also be seen, as previously explained, that in each case suitable provision is made by which the feed mechanism comprising the feed pinion or pinions is operated to both feed the former or work-holder forward and hold the same to a straight line of travel.

As shown, the work-holder is held by the pinions against displacement upwardly as well as sidewise or laterally.

What I claim as my invention is:

1. A box-blank machine comprising a flat table, a portable former or work - holder adapted to slide across said table, feed pinions adapted to operate and hold the said former or work-holder to a straight line of travel, and means for operating said pinions.

2. A box-blank machine comprising a table, a portable former or work-holder adapted to slide across said table, a pair of pinions disposed above the table and bearing down on the former or work-holder to feed the latter forward, and means for operating said pinions.

3. A box - blank machine comprising a traveling former or work - holder, pinions bearing down on said former or work-holder to feed the same forward, and means for operating said pinions.

4. A box - blank machine comprising a former or work-holder provided with means for spacing the cleats apart endwise, pinions engaging the former or work-holder to feed the same and prevent upward and sidewise displacement thereof, and means for operating said pinions, said work-holder being pro-

vided with means for engaging the pinions to prevent upward and lateral displacement of the work-holder.

5. A machine for making wire-bound and cleat reinforced box blanks, comprising a portable former or work-holder, instrumentalities for supplying the binding wires and securing the same to the cleats and veneering of each blank, and a feed mechanism constructed and adapted to both operate and hold the said former or work-holder to a straight line of travel.

6. A machine for making wire-bound and cleat reinforced box blanks, comprising a feed pinion means for operating said pinion, a portable former or work-holder operated by said pinion and provided with means for engaging the latter to hold itself against sidewise and upward displacement, and instrumentalities for supplying the binding wires and securing the same to the cleats and veneering of each blank.

7. In a box blank machine constructed to operate without guides for the former or work-holder, a suitable feed mechanism, a former or work - holder operated thereby, suitable provision by which the feed mechanism serves also for holding the former or work-holder to a straight line of travel, and instrumentalities for supplying the binding wires and securing the same to the cleats and veneering of each blank.

8. In a machine of the class specified, a table, a traveling work-holder movable across said table, wheels disposed above and bearing down on said work-holder to engage and move the same forward, and means for operating said wheels.

Signed by me at St. Joseph, Mich. this 25th day of May 1907.

JULIUS J. MILLER.

Witnesses:

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