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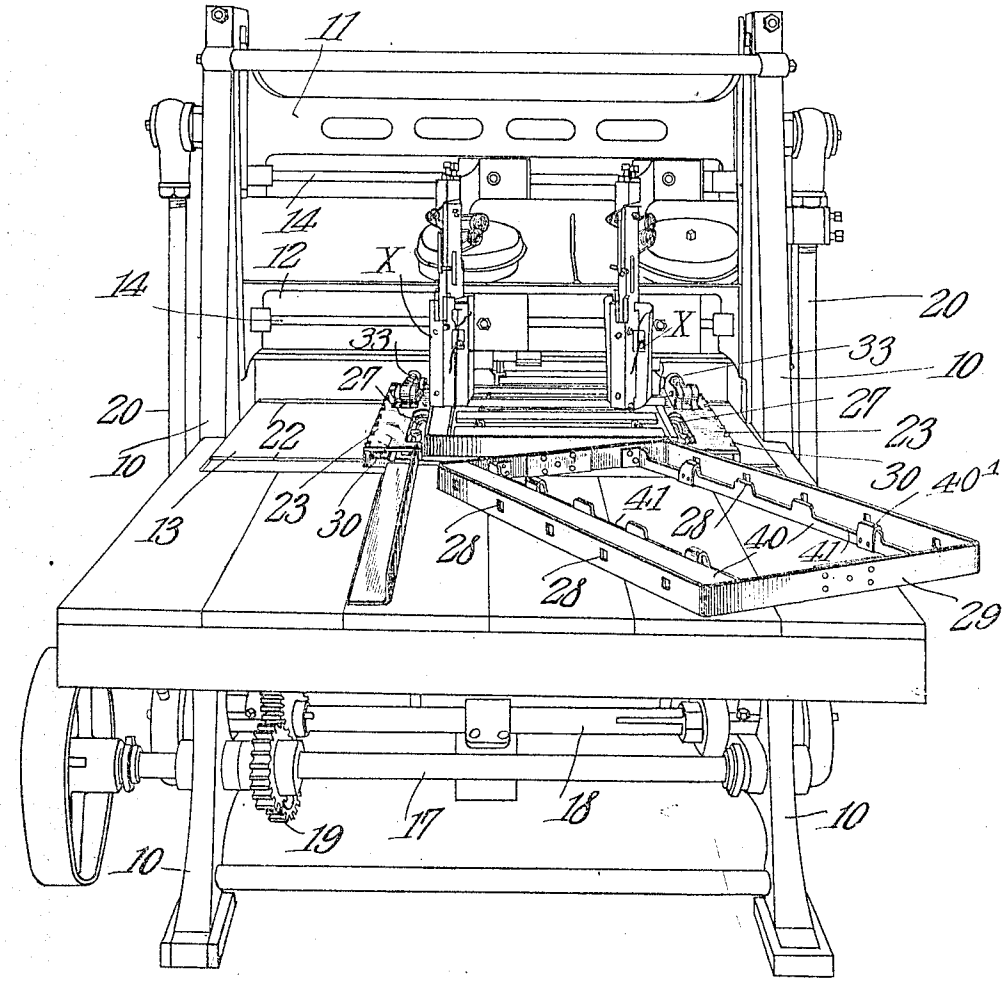
CRATE SIDE MACHINE.

APPLICATION FILED OCT. 17, 1908.

920,290. Patented May 4, 1909.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 2.

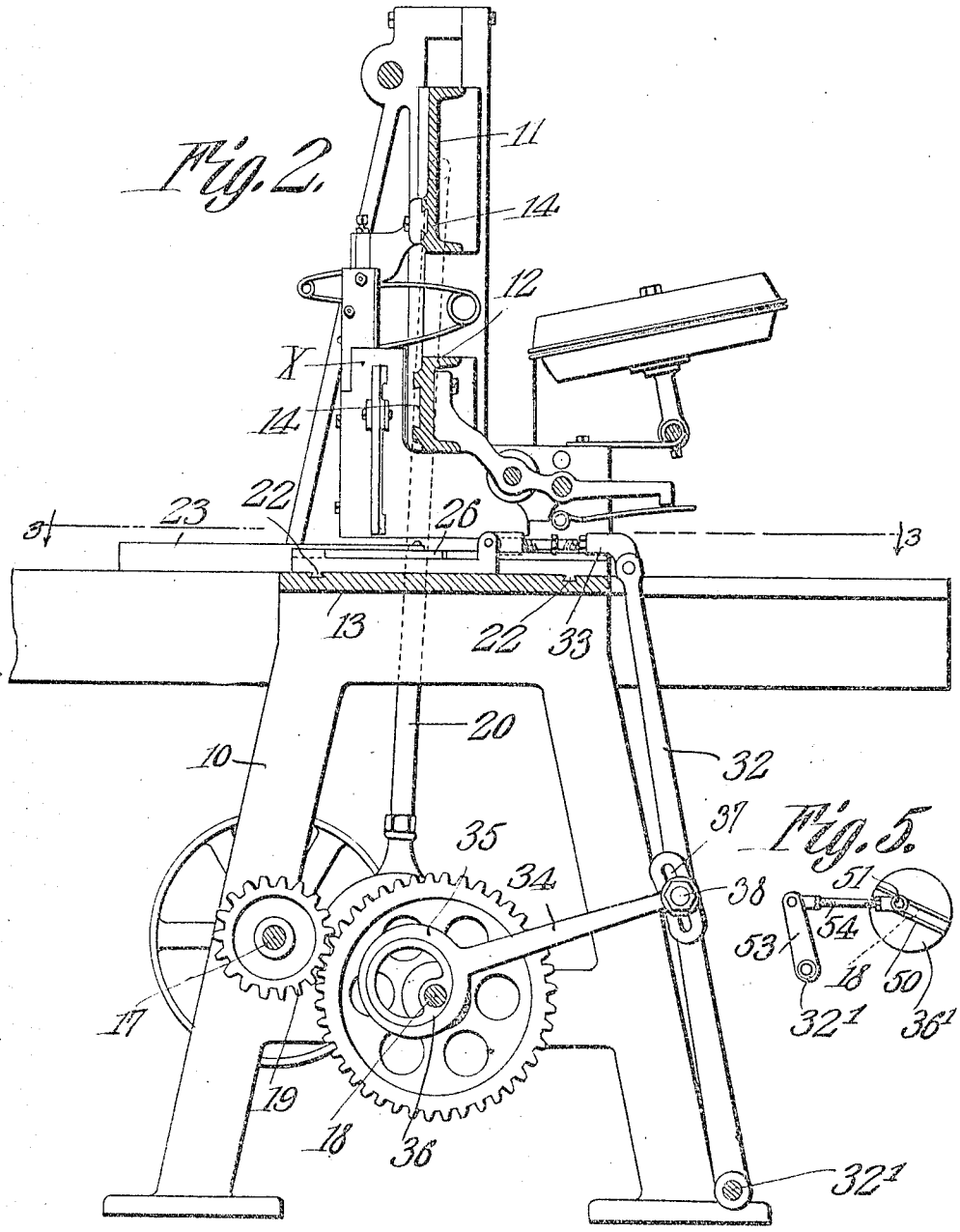


Fig. 5.

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3 SHEETS—SHEET 3.

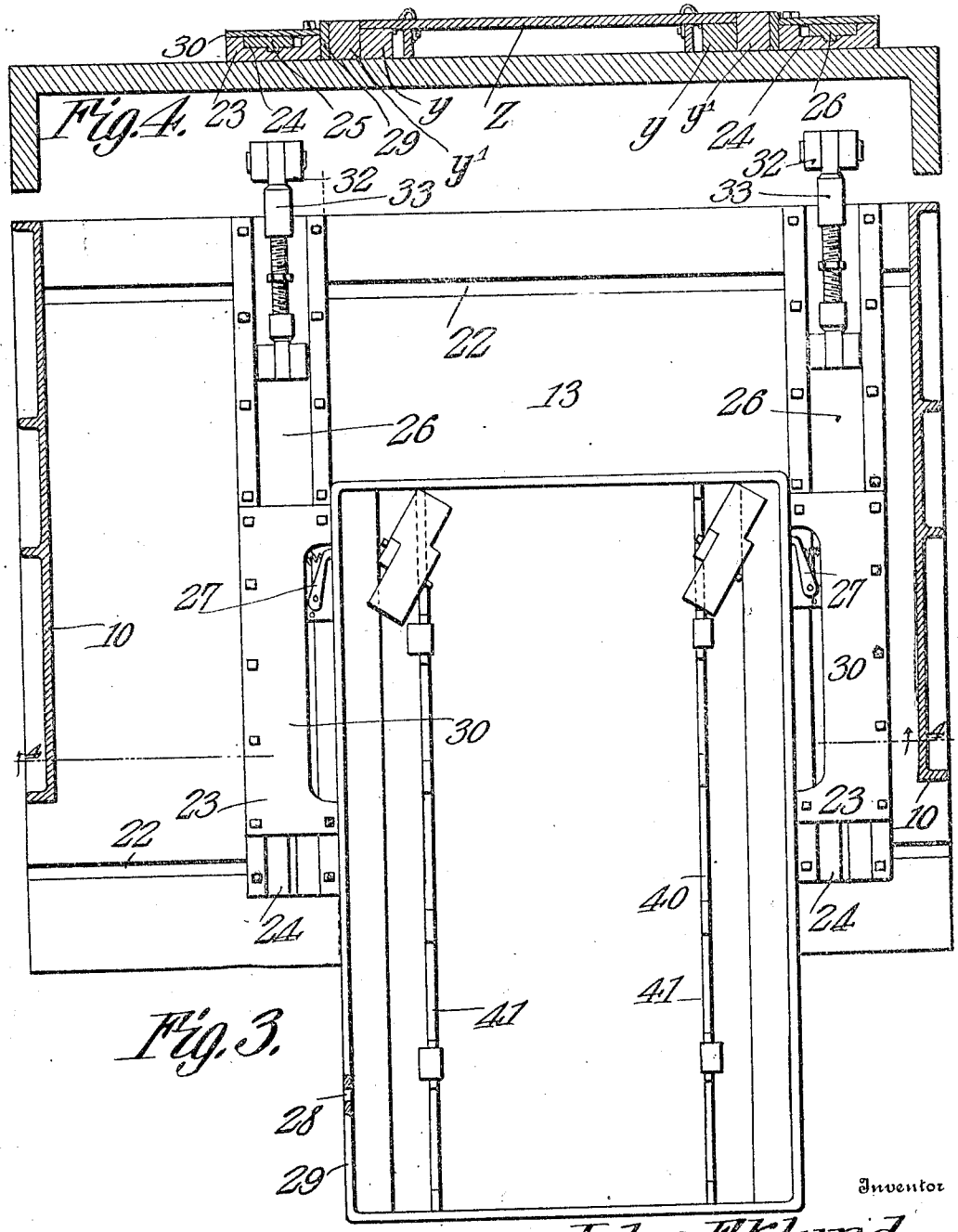


Fig. 4.

Fig. 3.

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UNITED STATES PATENT OFFICE.

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CRATE-SIDE MACHINE.

No. 920,290. Specification of Letters Patent. Patented May 4, 1909.

Application filed October 17, 1908. Serial No. 458,282.

To all whom it may concern:

Be it known that I, JOHN EKLUND, a citizen of the United States, residing at St. Joseph, in the county of Berrien and State of Michigan, have invented a new and useful Crate-Side Machine, of which the following is a specification.

This invention relates to machines of that class employed in the manufacture of crate or box sides, and has for its principal object to provide a means whereby the longitudinal and cross slats of the side may be held in properly spaced and crossed relation, and automatically fed to a stapling or other machine for fastening the slats together.

A further object of the invention is to provide a carrying frame or form formed of light metal, and of such shape as to hold the members of the side in proper relative positions, these forms or frames being then fed to the machine and operated upon automatically to present the successive cross slats beneath the stapling or other securing mechanism.

A still further object of the invention is to provide a novel construction or slat holding form or frame that is provided with edge recesses for the reception of the longitudinal bars or slats of the side, and with a series of recesses or notches to receive and hold the cross slats in properly spaced relation.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a perspective view of a crate side forming machine constructed in accordance with the invention. Fig. 2 is a transverse sectional view of the same. Fig. 3 is a sectional plan view on the line 3—3 of Fig. 2 drawn to an enlarged scale. Fig. 4 is a transverse section on the line 4—4 of Fig. 3. Fig. 5 is a detail view of a modified construction of eccentric.

Similar characters of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The working parts of the machine are supported on a suitable frame that includes a pair of cheek plates or standards 10 that are connected by transversely disposed bars 11 and 12 and a platform or table 13. The two bars 11 and 12 are provided with dove tailed slots 14 for the reception of similarly shaped ribs carried by stapling mechanisms X. As the construction of the stapling devices forms no part of the present invention, they have not been illustrated in detail. These stapling devices may be adjusted in the direction of the width of the machine for the purpose of placing them at any point and at any distance from each other within the capacity of the machine.

In the lower portion of the frame are journaled two shafts 17 and 18, the shaft 17 being driven from any suitable source of power, and communicating motion to the shaft 18 through gearing 19. This shaft 18 projects beyond the outer sides of the frame and carries eccentrics which are connected by rods 20 to the stapling devices. The general operation of machines of this type is well known and detailed description is, therefore, unnecessary.

The platform or table 13 is provided with a pair of transversely extending dove tailed grooves 22 for the reception of correspondingly shaped ribs that depend from the lower side of a pair of guide-bars 23, so that said bars may be adjusted independently of each other, and made to correspond to the positions assumed by the stapling devices.

The upper face of each bar is provided with a long groove or channel 24, that extends from end to end thereof and in this groove or channel fits a slidable bar 26, carrying a pivoted pawl 27 that is arranged to engage with openings 28 formed in the outer side of a carrying form or frame 29. The slidable bar 26 is held down in place by a suitable cover plate 30 which may be readily removed should occasion require.

The rear ends of the slidable bars 26 are connected to the upper ends of a pair of levers 32 by means of rods 33, said rods carrying or including in their construction, sections provided with right and left hand screw threads, so as to permit accurate adjustment of the length of the rods. The lower portions of the levers 32 are rigidly connected

together through a rock shaft 32′, and one of said levers is pivotally connected to the outer end of a rod 34 carrying at its inner end an eccentric strap 35 that surrounds an eccentric or cam 36 locked on the shaft 18. The lever 32 is provided with an arcuate slot 37 in which the pivot bolt 38 may be adjusted in order to vary the stroke. The two levers are feathered on the rock shaft 32′ and are held in adjusted position by suitable set screws. This arrangement permits the adjustment of the levers toward and from each other to correspond to the adjustment of the bars.

Each of the forms or frames 29 is of generally angular form, and preferably is made of comparatively light sheet metal bent to form a rectangle. Arranged adjacent the longer sides of the frame or form are metallic strips 40 that are parallel with the longer sides of the frame and are spaced at such distance therefrom as may be necessary to permit the insertion of the end strips or battens y which may be held in place by small friction springs 40′ secured to the strips 40. The space between each strip 40 and the adjacent side of the frame is of sufficient width to receive battens of the largest size and when smaller battens than usual are employed filling strips y' are introduced. The upper edges of the strips 40 are provided with recesses 41 spaced from each other, and of proper length to receive the cross slats Z which have been laid in place within the notches or recesses and fitted over the end slats or battens in readiness for the stapling or nailing operation.

In practice, the forms or frames are preferably laid on a table immediately in advance of the table 13, and the longitudinal and cross slats are then placed in proper position within the form or frame, after which the frame is forced ahead until it enters between the two guide-bars 23. The operator pushes the frame forward a distance sufficient to permit the feeding pawls to engage with the first set of openings 28 and as the pawls are actuated they move the frame forward the required distance in order to present the first cross slat under the stapling or riveting devices. These fastening devices then operate to drive staples, nails or like fastening devices through the first cross slat and the longitudinal slats or battens. The pawl automatically disengages from the first set of openings and is then moved to engage the second set of openings, the operation continuing until the frame is entirely through the machine, and there being as many feeding operations as there are cross slats.

It will be noted that after the operator has once engaged the frame with the pawls, the subsequent operation requires no care or attention on his part, and he is thus free to feed in the slats or battens in another frame in readiness for a second operation of the machine, so that the latter may be kept continuously at work.

In some cases it may be desired to vary the feed to a considerable extent and to accomplish this a crank disk 36′ may be placed on the end of the shaft 18 at a point outside the frame. This disk is provided with a diametrically extending groove 50, the walls of which are undercut to receive the head of a crank pin 51; the crank pin is thus rendered adjustable.

On the end of the rock shaft 32′ is secured an arm 53 which is connected by a rod 54 to crank pin 51 so that the throw of the lever 32 may be readily allowed to secure the desired feed.

What is claimed is:—

1. A crate side holding and carrying frame comprising side and end members and open at top and bottom, longitudinal strips parallel with and spaced from the side members for the reception of the longitudinal bars or battens, said strips being provided with means for holding the cross slats in properly spaced relation.

2. A work carrying frame for use in connection with crate side forming machines, said frame being open at top and bottom and comprising side and end members, longitudinal strips parallel with and spaced from the side members, said strips being provided with notches for the reception of the cross slats of the frame, and means on the side walls of the frame for coöperation with the feeding device of the machine.

3. In a machine of the class described, a bed or table having a pair of spaced guide bars adjustable transversely of the table, fastening inserting means, a loose removable work carrying frame having means for holding the members of the crate side in properly spaced and crossed relation, and means for imparting a step by step movement to the frame and directing the same between the guides.

4. In a machine of the class described, the combination with fastening inserting means, of a loose frame arranged for the reception of the longitudinal and cross slats, and feed pawls arranged to engage and impart a step by step feeding movement to the frame.

5. In a machine of the class described, the combination with fastening inserting means, of loose frames arranged for the reception of the longitudinal and cross slats, the opposite sides of said frames being provided with openings, and feed pawls arranged to engage in said openings and impart a step by step feeding movement to the frame.

6. In a machine of the class described, the combination with a fastening inserting means, of a loose frame of general rectangular form and provided with notched bars arranged adjacent to and parallel with its longer side, said frame being arranged to re-

ceive the longitudinal and cross slats of a crate side, and means for automatically imparting a step by step feeding movement to said frame to present the slats under the fastening inserting means.

7. In a machine of the class described, the combination with a fastening inserting means, of a holding frame or form of generally rectangular form and provided with longitudinal bars adjacent to and parallel with its longer edges, said bars being notched for the reception of the cross slats of the crate side, and the opposite edge members of the frame being provided with spaced openings, a pair of reciprocatory pawls arranged to successively engage the openings, and means for operating said pawls.

8. In a machine of the class described, the combination with a frame including a table provided with transversely extending dove tailed grooves, stapling devices adjustably mounted upon the frame, a pair of bars having ribs fitting within said grooves and adjustable transversely of the table, said bars having longitudinally grooved upper faces, pawl carrying bars slidable in the grooves, paws mounted on said bars, a shaft journaled in the lower portion of the frame, a cam on said shaft, a pair of levers operated from the eccentric, adjustable connecting rods between the levers and the pawl carrying bars, the levers being adjustable from and toward each other to correspond with the adjustment of the bars, and a crate side carrying frame arranged to be engaged and fed by said pawls.

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

JOHN EKLUND.

Witnesses:
LAWRENCE C. FYFE,
E. N. HATCH.