Sept. 2, 1958 M. M. GUGGENHEIM 2,849,849

GUIDES FOR BOX-WRAPPING MACHINES

Filed April 29, 1955 2 Sheets-Sheet 1

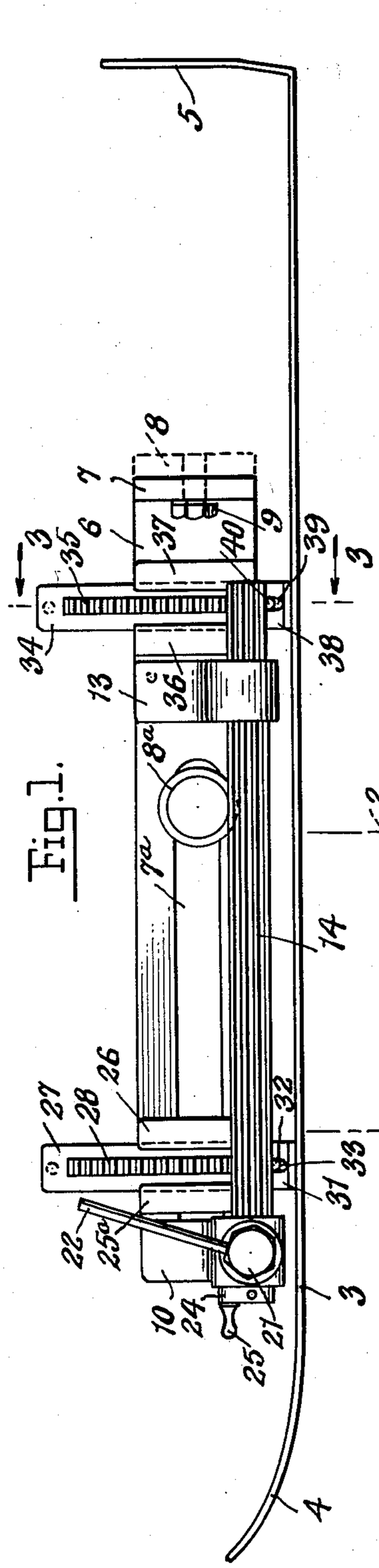


Fig. 1.

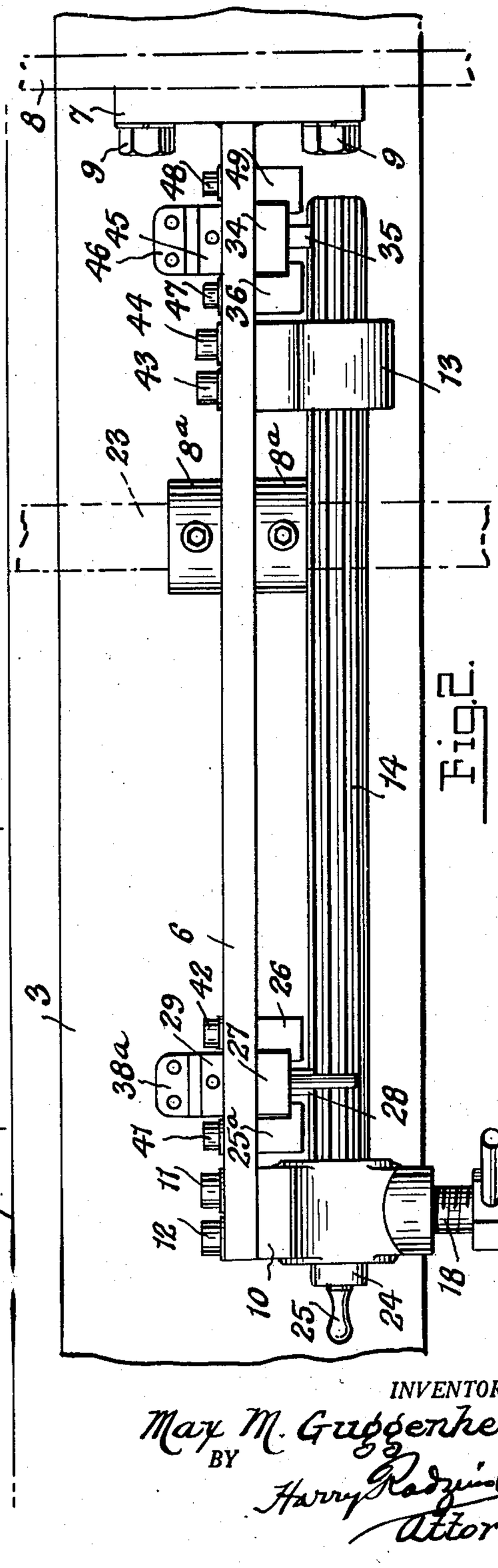


Fig. 2.

INVENTOR.
Max M. Guggenheim
BY
Harry Radzinsky
Attorney

Sept. 2, 1958 M. M. GUGGENHEIM 2,849,849

GUIDES FOR BOX-WRAPPING MACHINES

Filed April 29, 1955 2 Sheets-Sheet 2

Fig. 3.

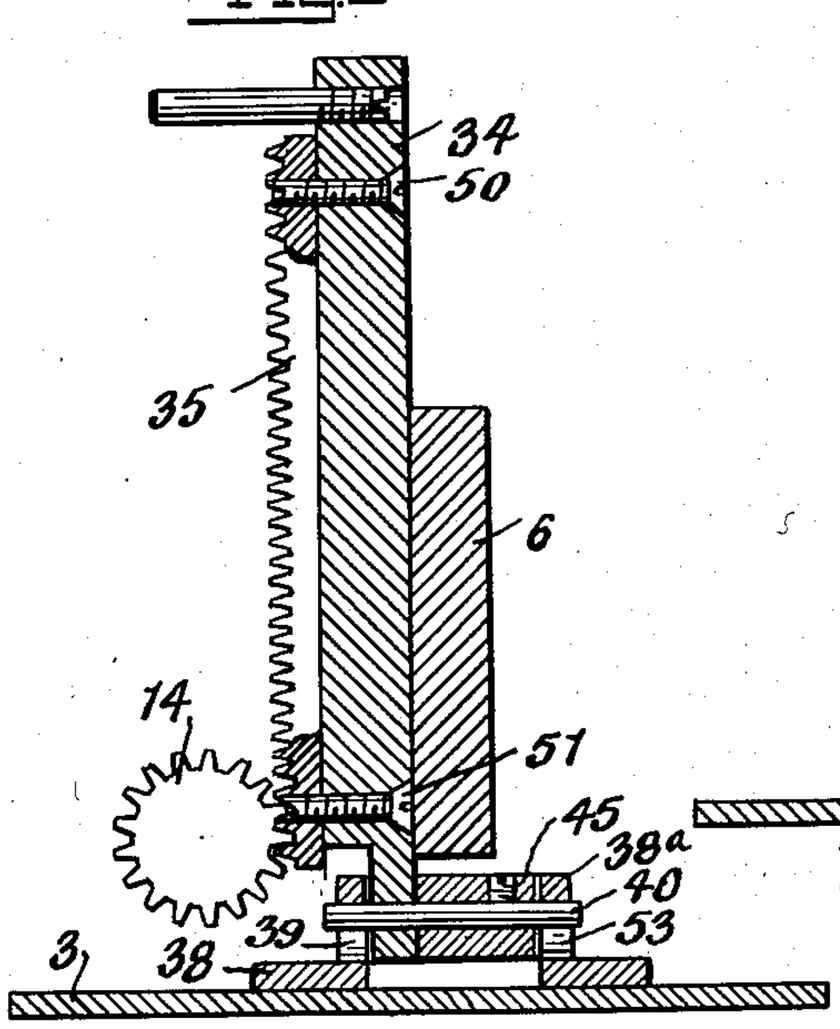


Fig. 4

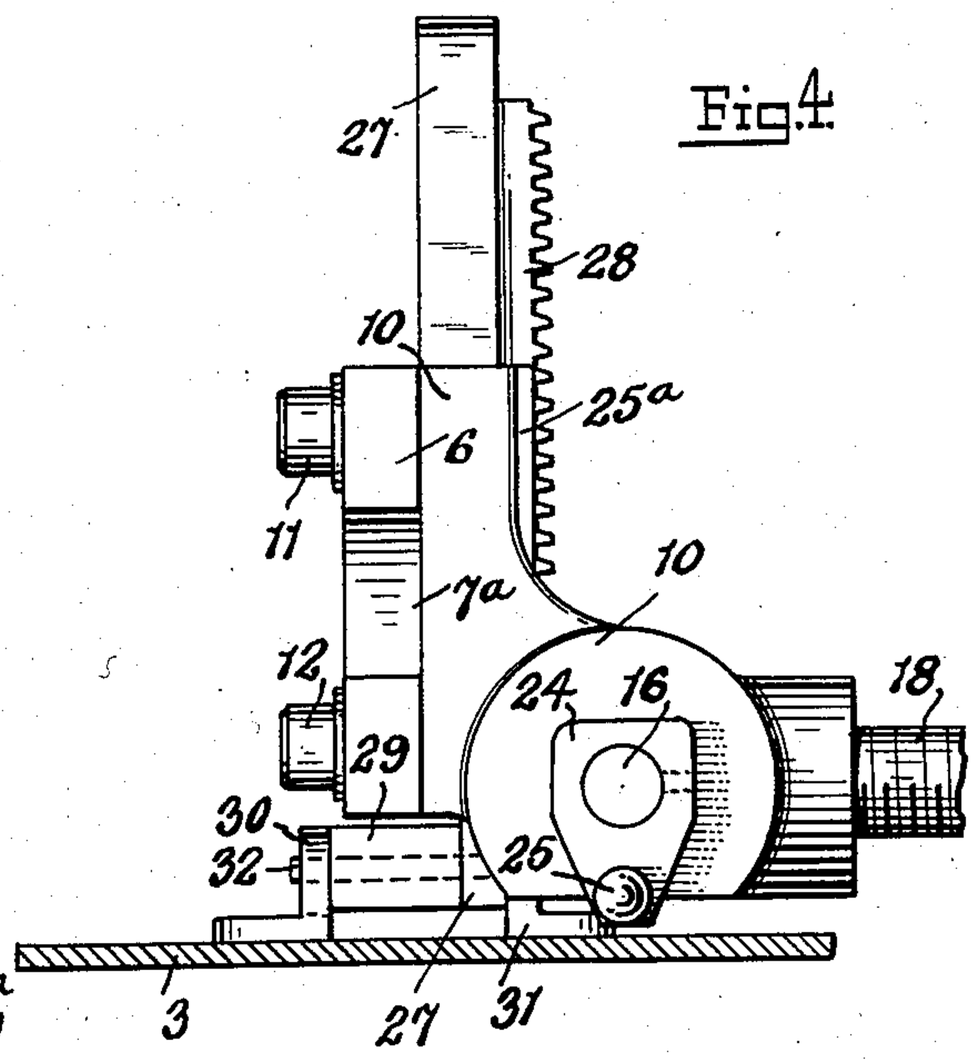


Fig. 8.

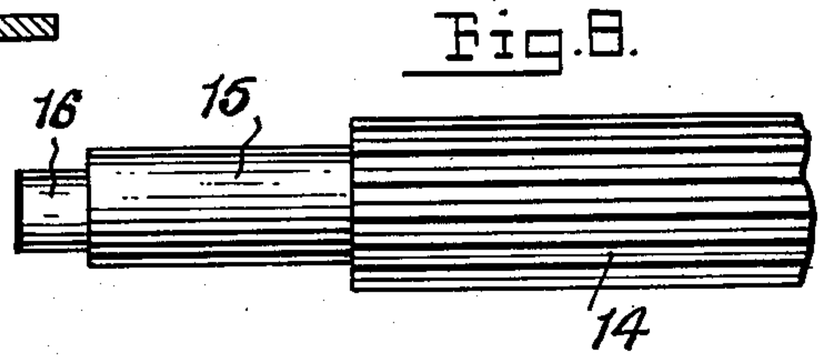


Fig. 6.

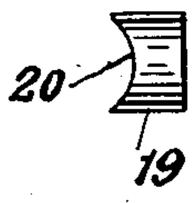
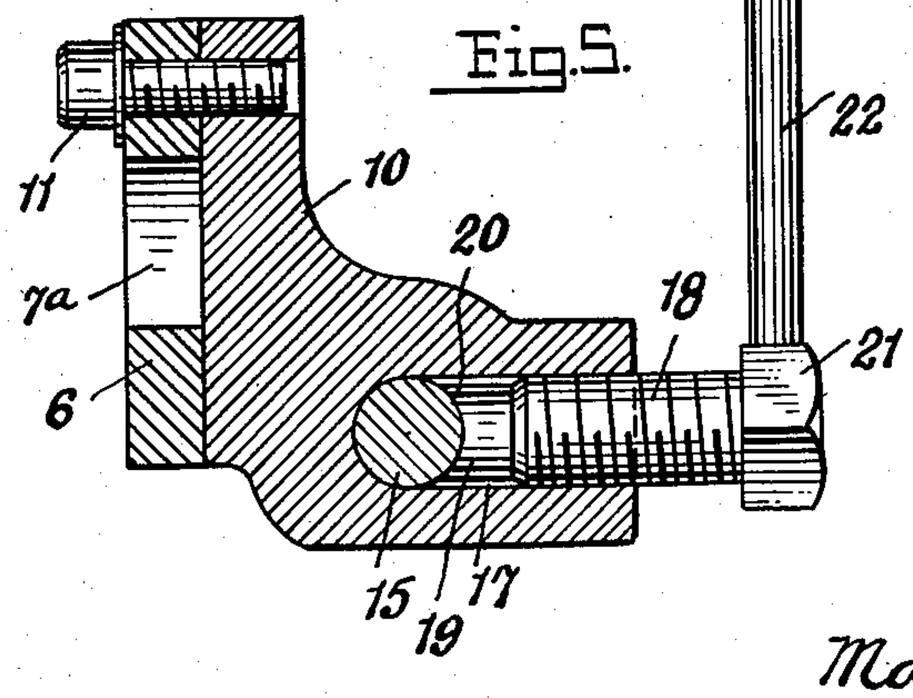


Fig. 7.

Fig. 5.



INVENTOR.
Max M. Guggenheim
BY
Harry Radzinsky
Attorney

United States Patent Office

2,849,849

Patented Sept. 2, 1958

2,849,849

GUIDES FOR BOX-WRAPPING MACHINES

Max Marc Guggenheim, New York, N. Y., assignor to National Equipment Corporation, New York, N. Y., a corporation of New York

Application April 29, 1955, Serial No. 505,014

1 Claim. (Cl. 53—387)

This invention relates to box-wrapping machines, and more particularly to means by which boxes or other articles are guided through the apparatus during the wrapper-applying operations.

In many types of box-wrapping machines, the boxes being wrapped are successively moved along a support while the steps of infolding the opposite ends of the wrappers take place. An example of this type of box-wrapping machine will be found in the patent of Philip G. Schlemmer, 2,817,199, dated December 24, 1957. While the boxes are moved along as above described, means is utilized to hold the boxes from raising movement from the support, such means usually consisting of an upper guide plate resting on top of the moving boxes. In view of the fact that boxes of various heights are often wrapped by these machines, the upper guide plate must be provided with means by which its distance from the box support is regulatable to thereby precisely control the distance from the box support to the guide plate.

It is therefore an object of the present invention to provide means by which a guide plate or upper guide member may be adjusted to and from a box support, thereby arranging for the accommodation of boxes of different heights between the box support and the pressure plate.

It is an object of the invention to provide an adjusting means for raising or lowering a guide plate by simple crank operation, and to provide a locking means by which the guide plate can be easily maintained in any selected position of adjustment.

With these and other objects to be hereinafter set forth in view, I have devised the arrangement of parts to be described, and more particularly pointed out in the claim appended hereto.

In the accompanying drawings, wherein an illustrative embodiment of the invention is disclosed,

Fig. 1 is a side elevational view of a box-guiding mechanism constructed in accordance with the invention;

Fig. 2 is a top plan view of the same;

Fig. 3 is a sectional view, taken substantially on the line 3—3 of Fig. 1, looking in the direction of the arrows;

Fig. 4 is an end view of the apparatus, looking from the left of Fig. 1, with the guide plate shown in section;

Fig. 5 is a vertical sectional view through one of the bearings, for the adjusting pinion, showing the locking mechanism for the same;

Fig. 6 is a side elevational view of the shoe of the clamp or lock for the adjusting pinion;

Fig. 7 is a view looking at the forward end of the shoe of Fig. 6; and

Fig. 8 is a view of one end of the pinion shaft.

Referring to the drawing, 1 diagrammatically indicates a support on which the boxes to be wrapped are moved by suitable conveying means, such as belts or chains which move the boxes along on the support and toward the right as viewed in Fig. 1. A box thus being moved is indicated in dotted lines at 2 in Fig. 1, wherein it will be noted that the top of the box so moved is maintained in

contact with an elongated upper guide plate indicated at 3. This plate, maintained in contact with the tops of the boxes as they are moved along on the support 1, holds the boxes against the support 1 and aids in maintaining them in proper alignment.

At its forward end, the guide plate 3 is inturned as indicated at 4 to facilitate the entry of the boxes under the plate. The opposite end of the plate 3 is directed upwardly as indicated at 5 and this end may be movably supported.

The main supporting member of the apparatus consists of an elongated, bifurcated bar indicated at 6, which bar is split for a substantial portion of its length as indicated at 7*a*. The bar 6 is supported on a fixed cross element such as the rod 23, indicated in dotted lines in Fig. 2, on which are fixed the collars 8*a* holding the bar 6 between them. Adjacent to the forward end of the bifurcated bar 6 a bearing bracket 10 is attached to the bar 6 by screws 11, shown most clearly in Figs. 4 and 5, while a somewhat similar bearing bracket 13 is secured by screws 43 and 44 to the bar 6 adjacent to its opposite end. Mounted for rotative movement in the bearing brackets 10 and 13 is a lengthy pinion-rod 14. One end of said pinion-rod 14 is formed as shown in Fig. 8, wherein it is to be noted that the reduced-diameter portion 15 thereof is that part which rotates in the bearing bracket 10. The further reduced part 16 of the pinion-rod 14 projects beyond the bearing bracket 10 and fixed on said projecting part 16 is a crank 24 provided with a handle 25. This arrangement is such that by manual rotation of the crank, the pinion rod 14 will be rotated to secure either raising or lowering adjustment of the pressure plate 3 in a manner to be described.

In order to lock the pinion-rod against undesired rotative movement, a locking means shown in detail in Fig. 5, is provided. It will be therein noted that the bearing bracket 10 is formed with an internally-threaded bore 17 having its axis transverse to the longitudinal axis of the pinion-rod 14. Slidably mounted in said bore 17 is a locking shoe 19 which is formed with an arcuate face 20 conforming to the curvature of the part 15 of the pinion-rod 14. Threadably mounted in the bore 17 is a locking rod 18, formed with a head 21, from which extends the rod 22 constituting a handle by which the locking rod 18 is turned to cause it to force the arcuate face of the shoe 19 into firm frictional contact with the part 14 and prevent rotative movement of the pinion rod 14.

The supporting bar 6 is provided at one end with a cross-piece 7 to which the end of the bar 6 is welded, and said cross-piece 7 is securely attached by screws 9 to a crossing 8 forming part of the machine.

At 28 is shown a vertical toothed rack which is maintained in mesh with the pinion-rod 14 and said rack is fastened by screws 50 and 51 to a vertical sliding bar indicated at 27. At its lower end, the sliding bar 27 is secured to a block 29 through which a pin 32 extends. The end portions of the pin 32 are located in elongated slots 33 provided respectively in angle brackets 30 and 31 fastened to the top of the pressure plate 3. The block 29 and the lower end of the bar 27 are positioned between these brackets as indicated in Fig. 4. The elongated form of the slots 33 is such as to permit a limited vertical movement of the plate 3 relative to the bar 27 so that the plate can raise slightly if necessary should an obstruction beneath it require such elevating movement. This also imposes only the weight of the plate 3 on the boxes which pass beneath it.

The bar 27 is vertically guided by guide members 25*a* and 26, the guide member 25*a* being fastened to the supporting bar 6 by screws, one of which is indicated at 41 in Fig. 2. Similarly the guide member 26 is fastened to

the supporting bar **6** by screws, one of which is shown at **42** in Fig. 2.

Near the rear end of the bar **6** is provided a vertical rack **35**, fastened by screws **50** and **51** to a vertical slide bar **34** guided between the guide members **36** and **49**. Guide member **36** is attached to the supporting bar **6** by screws, one of which is seen at **47**, and the guide member **49** is attached to the bar **6** by screws, one of which is seen at **48** in Fig. 2. Rack **35** is in constant mesh with the pinion-rod **14**. At its lower end, the bar **34** is attached to a block **45** (Fig. 3) through which a pin **40** extends, and said pin projects through the elongated slots **39** and **53** which are respectively provided in the angle brackets **38** and **38***a* attached to the pressure plate **3**.

From the foregoing, the operation of the described structure will be readily understood. The pressure plate **3** can be adjusted to be positioned at any required distance from the support **1** by freeing of the locking means **18**, **19** by swing of the handle **22** to thereby relieve the pressure of the shoe **19** against the part **15** of the pinion-rod, and then turning the crank **24** to raise or lower the plate **3** for the required distance through the action of the pinion-rod **14** on the racks **28** and **35**. When the desired spacing between plate **3** and support **1** has been secured, the shoe **19** is applied against the part **15** to lock the pinion-rod **14** against rotative movement and thus hold the attained adjustment. The pin-and-slot connection between the plate **3** and the bars **27** and **34** permits a restricted movement of the plate, when required.

Having described a single embodiment of the invention, it is obvious that the same is not to be restricted thereto, but is broad enough to cover all structures coming within the scope of the annexed claim.

What I claim is:

In an apparatus of the character described, a support, a pair of spaced racks vertically guided on the support, a lengthy pinion rotatively carried by the support and in direct meshed engagement with both of the racks, a crank secured on one end of the pinion by which the pinion is manually rotated to vertically and simultaneously raise or lower both of the racks, bearings in which the pinion is rotatively mounted, one of the bearings being provided with a passage at right angles to the axis of the pinion, the pinion having a smooth-surfaced end portion rotative in the said bearing, a shoe freely movable through the passage and having an arcuate end frictionally operative against the smooth-surfaced end portion of the pinion to thereby hold the pinion against rotative movement, a manually-rotative screw-threaded member operative in the passage and against the shoe to urge said shoe into frictional contact with the end portion of the pinion, and a guide plate to which the racks are attached with a lost-motion connection to permit free limited vertical movement of the plate in respect to the racks.

References Cited in the file of this patent

UNITED STATES PATENTS

568,054	Tucker	Sept. 22, 1896
1,056,645	Donning	Mar. 18, 1913
1,548,847	Metcalf	Aug. 11, 1925
1,608,217	Kimball	Nov. 23, 1926
1,866,885	Ferguson	July 12, 1932
2,135,806	Fermann	Nov. 8, 1938
2,174,426	Talbot	Sept. 26, 1939