L. W. NACE, G. W. ALEXANDER & M. H. BROWN.

CASE CLAMP.

APPLICATION FILED DEC. 1, 1915.

1,227,296.

Patented May 22, 1917.

3 SHEETS—SHEET 1.

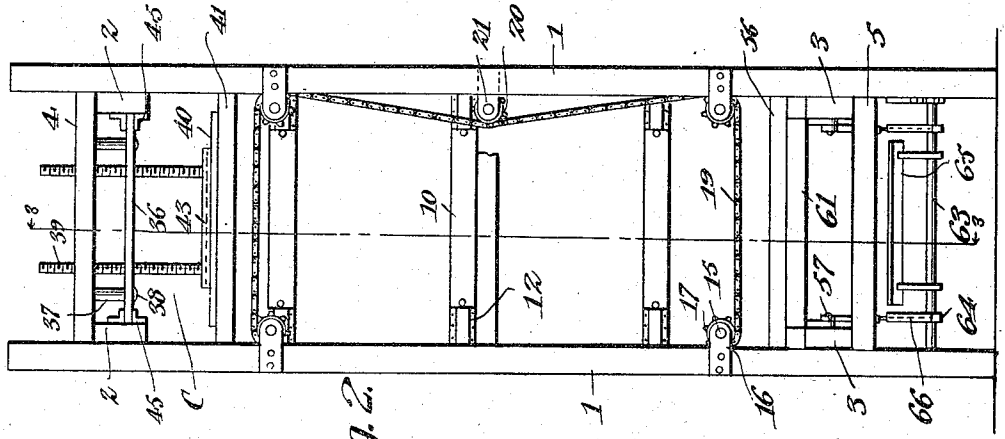


Fig. 2.

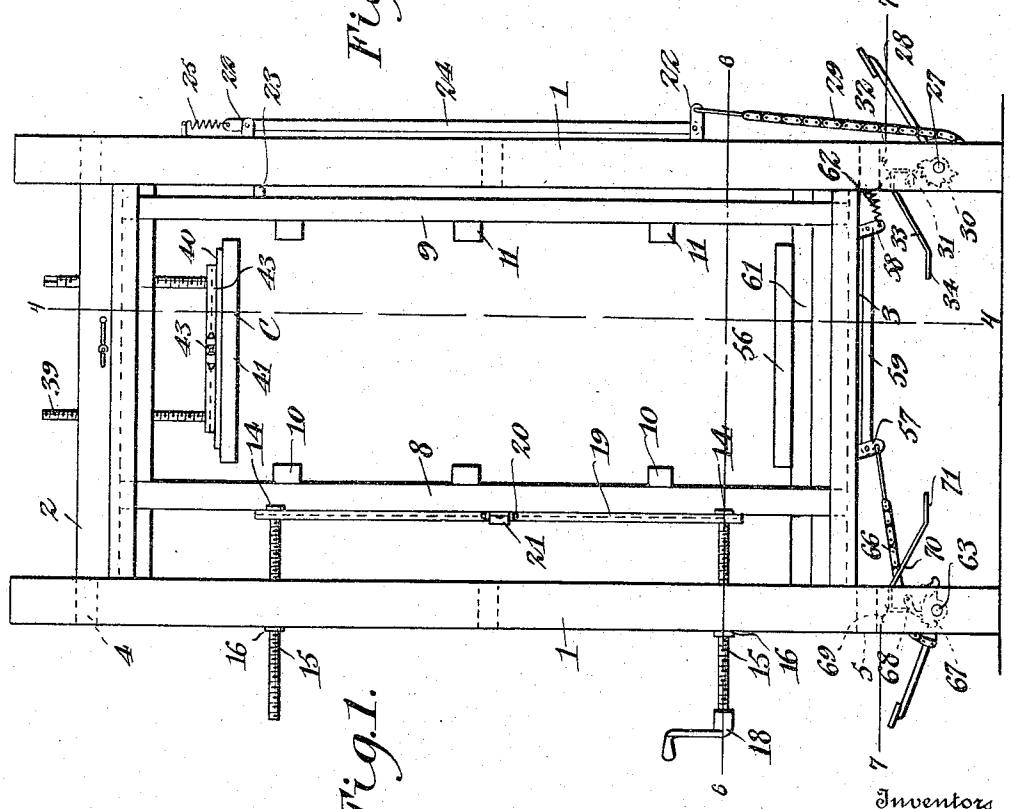


Fig. 1.

Witnesses

Frederick W. Ely

Inventors

L. W. Nace,
M. H. Brown,
G. W. Alexander.

By Victor J. Evans

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

L. W. NACE, G. W. ALEXANDER & M. H. BROWN.

CASE CLAMP.

APPLICATION FILED DEC. 1, 1915.

1,227,296.

Patented May 22, 1917.

3 SHEETS—SHEET 2.

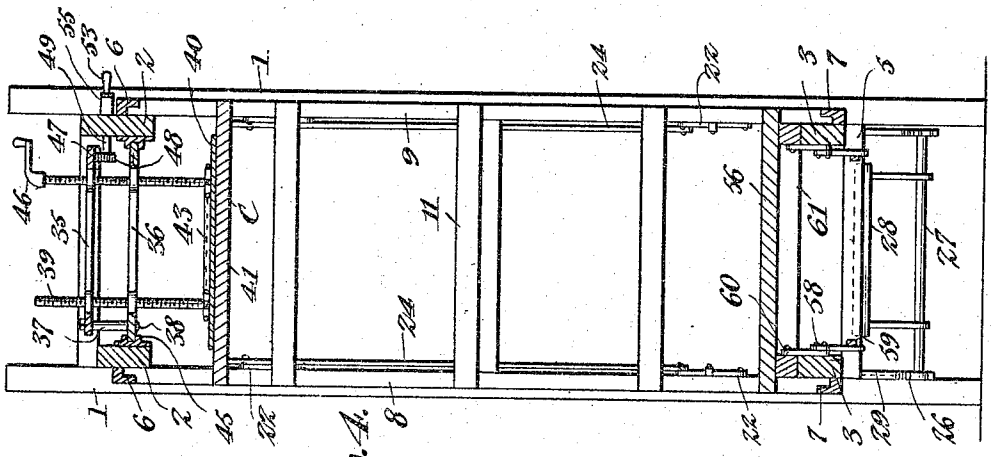


Fig. 4.

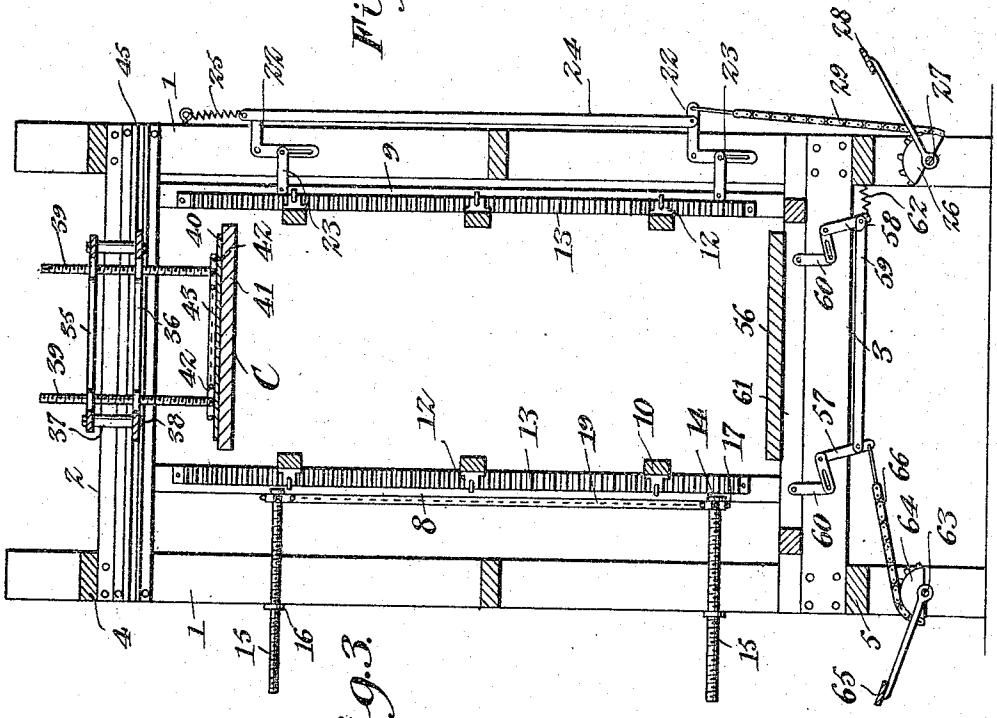


Fig. 3.

Witnesses

Frederick W. Ely,

Chas. Geyer

Inventors

L. W. Nace,

M. H. Brown,

G. W. Alexander.

By Victor J. Evans

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

L. W. NACE, G. W. ALEXANDER & M. H. BROWN.

CASE CLAMP.

APPLICATION FILED DEC. 1, 1915.

1,227,296.

Patented May 22, 1917.

3 SHEETS—SHEET 3.

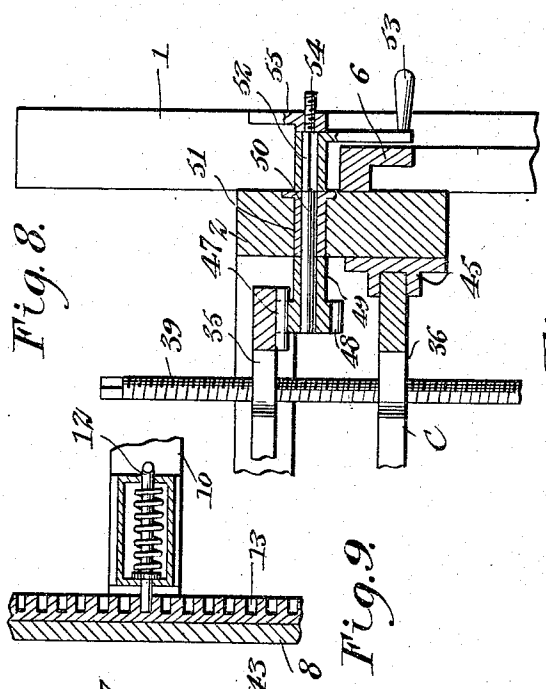


Fig. 8.

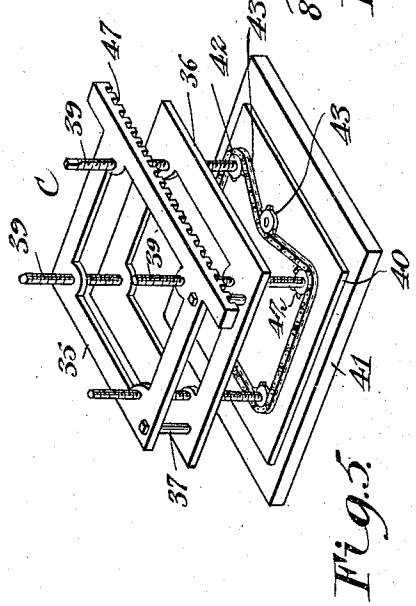


Fig. 5.

Fig. 9.

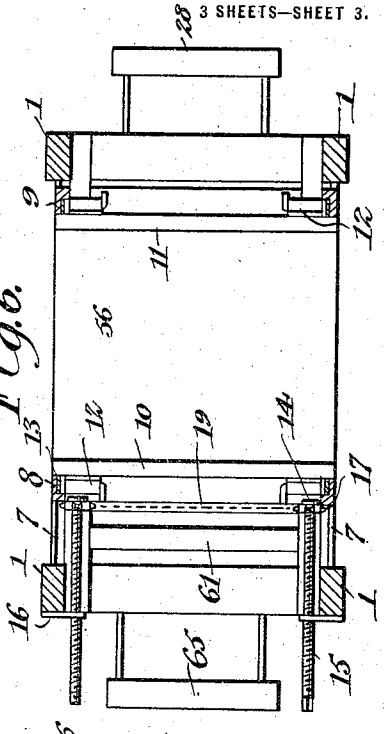


Fig. 6.

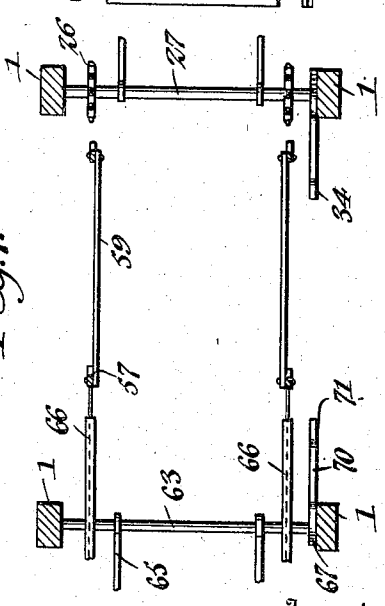


Fig. 7.

Witnesses

Frederick W. Ely,

Edw. Goodyear

Inventors

L. W. Nace,

M. H. Brown,

G. W. Alexander.

By Victor J. Evans

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LEVI W. NACE, GEORGE W. ALEXANDER, AND MILTON H. BROWN, OF HANOVER, PENNSYLVANIA.

CASE-CLAMP.

1,227,296. Specification of Letters Patent. Patented May 22, 1917.

Application filed December 1, 1915. Serial No. 64,553.

To all whom it may concern:

Be it known that we, LEVI W. NACE, GEORGE W. ALEXANDER, and MILTON H. BROWN, citizens of the United States, residing at Hanover, in the county of York and State of Pennsylvania, have invented new and useful Improvements in Case-Clamps, of which the following is a specification.

This invention relates to box or case clamping machines and the object of the invention is to provide simple and efficient mechanism for clamping up cases which have been previously glued and assembled.

Another object of the invention is the provision of a machine of this character wherein the parts are so constructed as to be readily adjustable for different size boxes or cases and wherein one of the pressure heads may be readily adjusted to center on the case.

Another object of the invention is the provision of means for adjustably and rapidly clamping the previously glued portions of the case or box together, which means may be conveniently released so that the case may be withdrawn from the machine.

Further objects of the invention will appear as the following description is read in connection with the accompanying drawings which form a part of this specification, and in which:—

Figure 1 is a front elevation.

Fig. 2 is a side elevation.

Fig. 3 is a vertical section on line 3—3 of Fig. 2.

Fig. 4 is a vertical section taken on line 4—4 of Fig. 1.

Fig. 5 is a detail perspective view showing the manner of adjusting the upper pressure head.

Fig. 6 is a horizontal sectional view taken on line 6—6 of Fig. 1.

Fig. 7 is a similar view taken on line 7—7 of Fig. 1.

Fig. 8 is a detail sectional view showing the manner of adjusting the top pressure head.

Fig. 9 is a detail vertical sectional view showing the manner of adjusting the cross bars.

Referring more particularly to the drawings, 1 represents the uprights or supports of which there are four connected together to form a rectangular frame by means of the cross pieces 2, 3, 4 and 5. The cross pieces 2 and 3 are provided with tracks 6 and 7 in which the vertical pressure members 8 and 9 are adapted to travel.

As shown in Fig. 6, the pressure members 8 and 9 each preferably consist of a pair of spaced bars, the bars of the member 8 being connected together by means of cross bars 10, while the bars of the member 9 are connected together by similar cross bars 11. These cross bars each carry a spring operated catch bolt 12 at each end adapted to engage the racks 13 carried upon the pressure members 8 and 9 so as to permit of the vertical adjustment of the said cross bars with respect to the pressure members for different size cases.

In order to move the pressure member 8 and the cross bars 10 as a unit in the tracks 6 and 7 there is journaled in suitable bearings 14 carried by the spaced bars of the member 8, four screws 15 each of which is threaded into a suitable bearing 16 carried upon the uprights 1, and has secured thereto a sprocket wheel 17. One of the screws is squared on its end so as to receive an operating crank 18, and all of the screws are connected together for simultaneous operation by means of a sprocket chain 19 which travels over the sprockets 17 and has its tension adjusted by means of an idler sprocket 20 carried in an adjustably mounted bearing 21 secured to one bar of the pressure member 8. By operating the crank 18 all of the screws may be rotated simultaneously and the pressure member moved laterally or horizontally across the frame in the proper direction.

Pivoted upon the uprights 1 on the side of the frame directly opposite the pressure member 8, are bell crank levers 22, which have adjustably connected to one leg thereof the links 23 which are connected to the pressure member 9. The opposite legs of the bell crank levers 22 are connected together by links 24, and connecting these links with the uprights are contractile springs 25 which normally hold the pressure member 9 with its associated cross bars 11 close to the uprights 1. The lower bell crank levers are connected to sprocket segments 26 which are secured upon the transverse shaft 27 which is journaled in the uprights 1 and operated by the foot pedal 28 secured to the shaft 27 in any suitable manner. The sprocket chains 29 which connect the bell crank levers 22

with the sprocket segments, are preferably of the roller or bicycle type and are connected to the far corner of each segment so that most of the teeth of the segment will engage the chain as the segments are rotated by the foot pedals. The shaft 27 is provided with a toothed segment 30 which is engaged by a pawl 31 held in operative engagement with the toothed segment by a spring 32. This spring 32 bears upon the inner end of a trip lever 33 which is pivoted upon the inner side of the adjacent upright and has its inner end pivotally connected to the pawl and its outer free end provided with an operating treadle 34. When this treadle is operated the pawl 31 will be released from the toothed segment and the springs 25 will act to return the pressure member 9 to normal position. It will of course be understood that two locking pawls and toothed segments may be applied to the shaft 27 and can be operated in the manner hereinabove described, this double arrangement obviously preventing strain upon the shaft. By reason of the construction and operation of the parts hereinabove described it will be manifest that both of the pressure members 8 and 9 respectively can be easily and quickly adjusted horizontally to accommodate themselves to any particular size case.

To adjust the machine for the proper length of case we provide a carriage C which consists of separate frames 35 and 36 which are held in spaced relation by the sleeves 37 on the connecting bolts 38. These frames have threaded therein four screws 39 each of which has its lower end swiveled in an attaching plate 40 which supports and carries the pressure head 41. Each screw is also provided with a sprocket wheel 42 upon which travels a sprocket chain 43 extending around and connecting all of the screws and having its tension adjusted by an adjustable idler sprocket 44.

The frame 36 travels in a suitable track 45 carried by the cross pieces 2 and is adjusted back and forth laterally of the frame by mechanism to be hereinafter described, the pressure head being adjusted vertically out of the machine by means of the screws 39, one of which is squared to receive the operating crank 46. One side of the frame 35 is provided with a rack 47 on its under side adapted to be engaged by a pinion 48 carried upon a sleeve 49 which is secured to the operating shaft 50 journaled in a bearing 51 in the cross piece 2. The shaft is squared upon its outer end, as shown at 52, and has slidably mounted thereon an operating crank 53. Beyond the squared portion the shaft is threaded as at 54 to receive a clamping lever 55. The rotation of the operating crank 53 causes the adjustment of the carriage C, while operation of the lever 55 will cause the parts to be locked in adjusted position, the shaft 50 being drawn through the bearing and the crank 53 and sleeve 49 being clamped against said bearing.

The pressure members 8 and 9 with their associated cross bars 10 and 11 respectively, and the pressure head 41 constitute side and end abutments which are adjustable for different size cases, the pressure head 41 being arranged, as will be readily understood from the foregoing description, to be conveniently centered on the head of the case.

The case which has not been shown is arranged to be clamped between the pressure head 41 and a vertically movable pressure member 56 which is actuated by the bell crank levers 57 and 58 each pair being connected together by a link 59. The opposite legs of the bell crank levers are slotted as shown, and adjustably connected thereto are links 60 which are pivotally connected to the supporting frame 61 of the pressure member 56. This pressure member is normally retracted and held in its lowermost position against the cross pieces 3 to which the bell crank levers 58 are pivoted, by means of contractile springs 62 connected to the bell crank levers 58 and to one of the cross pieces 3.

Journaled in suitable bearings in the uprights 1 adjacent the bell crank lever 57 is a shaft 63 which carries sprocket segments 64 which are rotated by the foot pedal 65 connected to the shaft in any suitable manner. These sprocket segments have connected thereto one end of sprocket chains 66, the opposite ends of which are connected to the lower leg of the bell crank levers 67 at the opposite sides of the frame. Secured to the shaft 63 is a toothed segment 67 which is adapted to be engaged by a locking pawl 68 held in engagement with the two segments by a spring 69. This spring bears against the inner end of a tripping lever 70 which is pivoted to the upright and is provided with a foot pedal 71 by which it may be operated, the inner end of the lever being pivoted to the pawl so that when the foot pedal is depressed the pawl will be raised out of engagement with the toothed segment and thus automatically release the pressure member from the end of the box.

The bars 10 and 11 on the pressure members 8 and 9 respectively are provided to extend entirely across the sides of the case and are made adjustable for different size cases. The adjustable connection between the bell crank levers and the links which connect them with the pressure heads are provided for the purpose of squaring the parts should the necessity arrive.

While we have shown and described what we now consider the preferred embodiment of the invention, we desire to have it understood that we do not limit ourselves to the

precise construction and arrangement illustrated, and that various changes may be resorted to when desired as fall within the scope of the appended claims.

What is claimed is:

1. In a case clamp, a rectangular frame including corner posts, upper and lower cross pieces connecting said posts, tracks carried by said cross pieces, horizontally adjustable pressure members slidably mounted between said tracks, vertically adjustable pressure members arranged at the opposite ends of the frame, means for adjusting the latter, means for adjusting one of said horizontally movable members and holding the latter in a fixed position, and means for adjusting the other of said members, said means including a yieldable element operating to automatically return this member to normal position upon release of its adjusting means.

2. In a case clamp, a rectangular frame including corner posts, upper and lower cross pieces connecting said posts, tracks carried by said cross pieces, horizontally adjustable pressure members slidably mounted between the tracks, vertically adjustable pressure members arranged at the opposite ends of the frame, means for adjusting one of the horizontally movable members and holding the latter in a fixed position, bell crank levers pivoted upon the corner posts at one side of the frame, a connection between the remaining horizontally movable pressure member and one branch of said levers, a rod connecting the remaining branches of said levers, and means for operating said levers whereby the last mentioned member is adjusted toward its cooperating member, said means including a yieldable element for automatically returning its associated pressure member to normal position upon release of said means.

3. In a case clamp, a frame-like structure, including upper and lower transverse elements, tracks carried by said elements, horizontally adjustable pressure members slidable between said tracks, each member comprising spaced vertical standards, and transverse sections connecting said standards, said transverse sections being associated with said standards for vertical adjustment, means for adjusting one of said horizontally disposed members and holding the latter in a fixed position, means for adjusting the other of said members, and including a yieldable element for automatically returning this member to normal position upon release of said means, vertically adjustable pressure members arranged at the opposite ends of the frame, and means for adjusting the latter toward and away from each other.

4. In a case clamp, a frame-like structure including transverse elements, tracks carried by said elements, horizontally adjustable pressure members slidable between said tracks, a plurality of threaded elements operatively connected with one of said members and threaded through bearings on said frame, sprockets on each of said threaded elements, a chain trained over said sprockets whereby all of said elements are rotated in unison upon manual rotation of one of said elements to adjust said movable member, means for adjusting the other of said members, and including a yieldable element for automatically returning said member to normal position upon release of said means, vertically adjustable members arranged at the opposite ends of the frame, and means for adjusting the latter.

5. In a case clamp, a frame, horizontally adjustable pressure members supported thereby, means for adjusting said members independently toward and away from each other, vertically adjustable members arranged at the opposite ends of the frame, means for adjusting one of said members and holding the latter in a given position, and means for adjusting the other of said members and including a yieldable element automatically returning said member to normal position upon release of said means.

6. In a case clamp, a frame, horizontally adjustable members mounted on said frame, vertical adjustable members movable toward and away from each other, a means for operating each member independently, the means for operating one of the vertically adjustable members and one of the horizontally adjustable members, holding the latter fixed in a given position, and said means for operating the remaining adjustable members, each including a yieldable element for automatically returning said members to normal position when released.

In testimony whereof we affix our signatures in presence of two witnesses.

LEVI W. NACE.
GEORGE W. ALEXANDER.
MILTON H. BROWN.

Witnesses:
PAUL E. LAW,
OSCAR R. BOWMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."