Nov. 6, 1923. 1,473,244

W. E. MIDDLETON

BOX FORMING BLOCK

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Fig. 1.

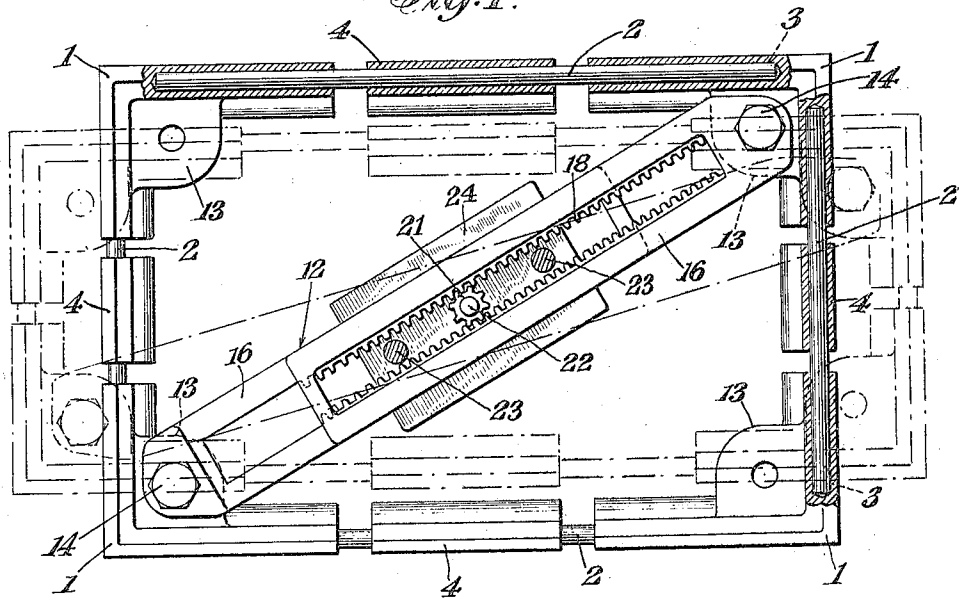
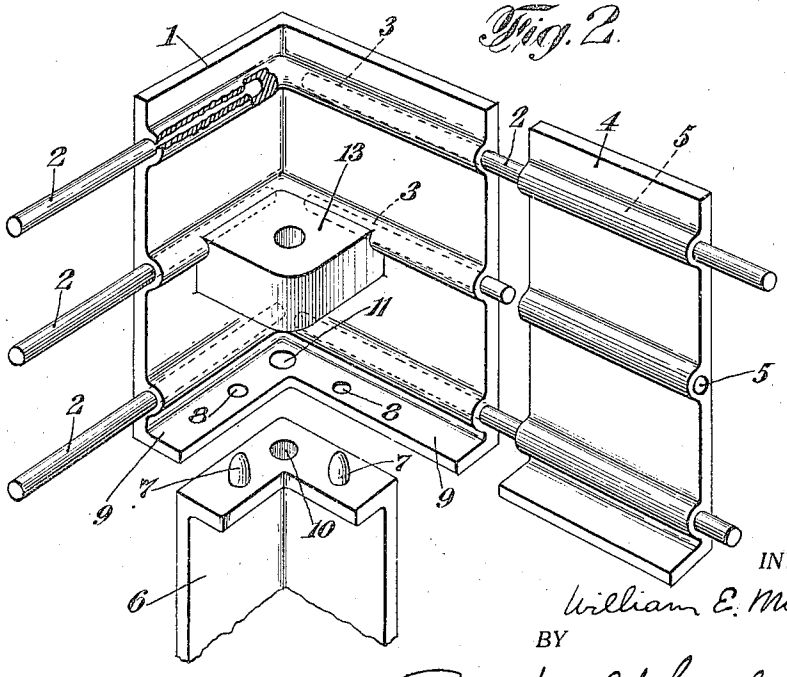


Fig. 2.



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Fig. 3.

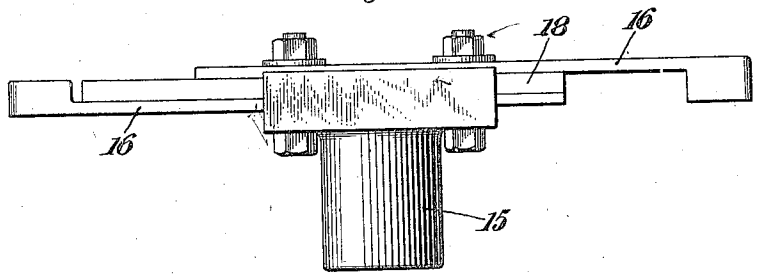


Fig. 4.

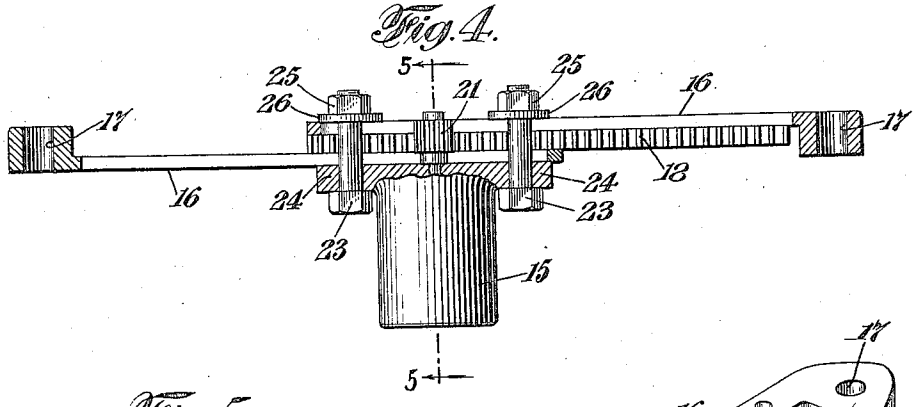


Fig. 5.

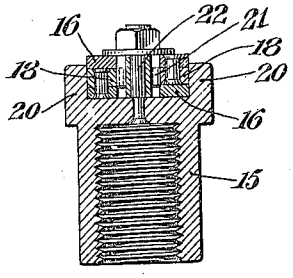
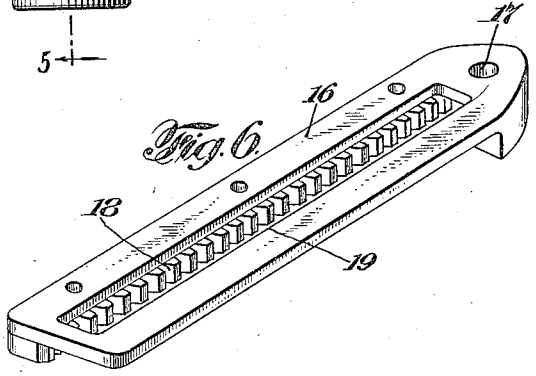


Fig. 6.



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Patented Nov. 6, 1923. 1,473,244

UNITED STATES PATENT OFFICE.

WILLIAM E. MIDDLETON, OF NEW BRITAIN, CONNECTICUT.

BOX-FORMING BLOCK.

Application filed August 18, 1922. Serial No. 582,592.

To all whom it may concern:

Be it known that I, WILLIAM E. MIDDLETON, a citizen of the United States, a resident of New Britain, in the county of Hartford and State of Connecticut, have invented a certain new and useful Box-Forming Block, of which the following is a specification.

The invention relates to a block adapted to be used in the manufacture of boxes from cardboard or similar material, as a form over which or around which the material is pressed into the desired shape and dimensions.

Among the objects of the invention are to provide a forming block of the above type which will be simple and inexpensive in structure, capable of adjustment over a wide range of dimensions, and which will be light in weight and readily adjustable to different sizes in a minimum of time and with the liability of errors in adjustment eliminated as far as possible.

Other objects and advantages of the invention will be in part obvious and in part specifically pointed out in the description hereinafter contained which, taken in connection with the accompanying drawings, discloses a preferred embodiment of the invention; such embodiment, however, is to be considered merely as illustrative of its principle. In the drawings:

Fig. 1 is a top plan view partly in section of a box forming block constructed in accordance with the invention.

Fig. 2 is a perspective view showing detached certain parts of the block illustrated in Fig. 1.

Fig. 3 is a side elevation showing detached a clamping device which forms a part of the structure shown in Fig. 1.

Fig. 4 is a central longitudinal sectional view of such clamping device.

Fig. 5 is a section on line 5—5 of Fig. 4 looking in the direction of the arrows:

Fig. 6 is a perspective view showing detached a plate which forms one of the elements of the clamping device shown in Figs. 3 to 5.

In the use of forming blocks of the character above mentioned it is ordinarily found necessary to provide for the manufacture of boxes of dimensions varying over a wide range, and consequently if a given forming block is adjustable only over a narrow range of sizes, or if the adjustable parts of the block which correspond to the different sizes are expensive, the cost of equipment which will meet the ordinary needs of an establishment may become prohibitive. For example, if the adjustment in size is obtained by telescoping parts the range between maximum and minimum adjustments is limited to somewhat less than one-half the length of such parts, or if the change involves elements sliding in slots carried by other members, the range of adjustability is necessarily somewhat less than the length of the slotted members.

In accordance with the present invention, the forming block is made up of corner pieces which may be used in connection with a box of any length or width likely to be desired, together with distance members which extend between adjacent corner pieces and abut the latter to space them the desired distance apart, a plurality of distance members of graduated lengths being supplied as a part of each equipment, whereby a large range of adjustability may be obtained without undue expense. Preferably the distance members are in the form of metal rods of standard diameter whereby the user may easily add to his assortment of sizes by cutting up sets of rods of the desired lengths. The distance members are readily interchangeable in the block preferably by a simple pin and hole engagement, a separate clamping device being provided to hold the parts of the box in proper relation to each other.

In the present embodiment of the invention the corner pieces 1 are in the form of metal castings, preferably of aluminum to reduce weight, and with their outer side faces finished to lie accurately at right angles to each other. The distance members 2 are in the form of metal rods which abut against adjacent corner pieces and thus hold them the desired distances apart; as shown, each corner piece is provided with a plurality of holes 3 which slidably receive the ends of rods 2 in such manner that the rods are bottomed in the holes. Thus in adjusting the size of block there is little likelihood of making errors since it is only necessary to force the several corner pieces 1 together after a set of rods 2 of the proper dimension has been selected. Furthermore, the block may not be adjusted out of the rectangular

shape, since the engagement of rods 2 in holes 3 positions these members at the four corners of a right angled solid.

In cases where the forming block is to be used for the manufacture of boxes of large size I may interpose between adjacent corner pieces any desired number of filling members 4 which in the present instance are provided with a plurality of recesses 5 adapted to receive the rods 2 previously mentioned and thus position the filling members in proper alignment with the corner pieces. Also where the forming block is to be used for the manufacture of boxes of relatively large depth a plurality of corner extensions 6 (Fig. 2) may be suitably attached to corner pieces 1; these corner extensions 6 are provided with dowel pins 7 adapted to fit in corresponding holes 8 in bottom flanges 9 on the corner pieces, further aligned holes 10 and 11 being also provided in the corner extensions and flanges 9 to receive bolts (not illustrated) to hold the above parts together.

After the corner pieces 1 and the distance members 2 of proper length have been assembled as above described the forming block is held together by a clamping device denoted generally by numeral 12 and which in the present embodiment of the invention extends between diagonally located corner pieces and thus prevents the parts of the forming block from separating by either longitudinal or transverse motion. As shown the corner pieces 1 carry recessed lugs 13 on their inner faces and bolts 14 pass through the clamping device 12 and the lugs 13 to hold the parts together in proper relation to each other. I also prefer to arrange the clamping device 12 to carry a support for the forming block and to insure that in all adjustments of the block such support will be held in central position. Blocks of the type herein involved ordinarily are mounted on the upper end of a rotary spindle in such manner that the block may be turned to present its different faces successively to the operator when the boxes are being formed by hand, and if the support for the block is permitted to move to a position out of line with the central axis of the block, the latter thus would rotate eccentrically.

In the illustrated embodiment of the invention the forming part as a whole is supported from an internally threaded hub 15 (Figs. 3 to 5) adapted to screw onto the upper end of a rotary spindle as above mentioned. The clamping device 12 is made up of a pair of complementary plates 16 each having a hole 17 at its outer end adapted to receive a bolt 14 as previously described and each carrying a rack 18 having its teeth positioned adjacent a longitudinal slot 19. The hub member 15 is provided with a pair of flanges 20 between which the plates 16 are slidably received and a small pinion 21 rotatably mounted on a stud 22 carried by hub 15 projects into the slots 19 of plates 16 and engages with both racks 18 of such plates. Thus the plates 16 may be slid back and forth with reference to each other to position the holes 17 at the proper points to receive bolts 14 for any desired adjustment of the forming block but the engagement of pinion 21 with racks 18 will insure that hub 15 is located at all times midway between the holes and therefore concentric with the central axis of the forming block. After the plates 16 have been adjusted to proper position as above described they may be suitably clamped in such position as by means of a pair of bolts 23 extending through flanges 24 on hub 15 and through slots 19 to the upper side of the forming block where nuts 25 may be tightened up to force washers 26 against the upper faces of plates 16.

While a specific embodiment of the invention has been described it is obvious that many changes may be made therein without departing from its principle as defined in the following claims.

I claim:

1. A box forming block comprising corner pieces, distance members extending between adjacent corner pieces and abutting portions thereof to space the corner pieces the desired distances apart, said distance members being bodily detachable from said corner pieces, and a clamping device extending between corner pieces to hold the corner pieces and distance members in adjusted relation.

2. A box forming block comprising corner pieces, distance members extending between adjacent corner pieces and abutting portions thereof to space the corner pieces the desired distances apart, said distance members being bodily detachable from said corner pieces, and a clamping device extending between corner pieces to hold the corner pieces and distance members in adjusted relation, said clamping device carrying a support for the block and being provided with means to maintain said support in central position in different adjustments of the block.

3. A box forming block, comprising corner pieces having recesses in their sides, and distance members extending between adjacent corner pieces, said distance pieces comprising rods having their opposite ends engaged in said recesses and abutting the corner pieces to space the latter the desired distances apart, and means for holding said rods and corner pieces together.

4. The combination set forth in claim 3 wherein said last mentioned holding means comprises an extensible clamp secured to diagonally located corner pieces.

5. A box forming block comprising cor-

ner pieces, distance members extending between adjacent corner pieces and abutting portions thereof to space the corner pieces the desired distances apart, said distance members being bodily detachable from said corner pieces, and a clamping device extending between diagonally located corner pieces, said clamping device comprising slidable plates having racks mounted thereon and a supporting member for the block having a pinion engaging said racks, to maintain said supporting member in central position with regard to the axis of the block.

6. The combination set forth in claim 3 together with filling members interposed between said corner pieces and detachably carried by said rods.

In testimony that I claim the foregoing, I have hereunto set my hand this 10 day of Aug., 1922.

WILLIAM E. MIDDLETON.