

N° 3869



A.D. 1914

Date of Application, 14th Feb., 1914—Accepted, 16th Apr., 1914

COMPLETE SPECIFICATION.

**An Improved Bracket, Guide, or the like Device for use in Building Constructional Toys or Models.**

I, FRANK HORNBY, of 274, West Derby Road, Liverpool, Manufacturer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

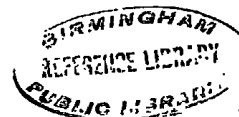
5 This invention relates to an improved device for use in the construction of toys or small engineering models adapted to be built up from interchangeable separate parts, such models being capable of being taken to pieces and the parts utilised to be re-made up into other toys as required. In such classes of constructional toys where the models have been built up from perforated strips,  
10 perforated angle girders, and perforated plates with axle rods and gear wheels, an angle bracket has been utilised consisting of an element having two parts bent at right angles to one another and each part of the angle bracket perforated. In building certain parts of toys on such a system, to obtain the required construction, it is necessary to form a compound element from two such angle  
15 brackets, by bolting the flanges of the two brackets together in order to provide a double angle bracket. It is found, however, that the bolt utilised to connect two such simple angle brackets to form a double angle bracket is very inconvenient, and the object of the present invention is to provide an element for such constructional toy building to be used in situations where hitherto it has  
20 been necessary to connect two ordinary angle brackets together.

According to the present invention, therefore, a double angle piece is provided, that is to say, a bracket element having two portions turned-up from what may be termed the sole plate or central part, each turned-up portion and the sole plate being provided with a single perforation.

25 An element constructed in accordance with this invention is shown in the accompanying drawings, in which Fig. 1, is an end view of the improved double angle bracket. Fig. 2 is a side view in section, Fig. 3 a plan of Fig. 2. The remaining views show applications of the double angle bracket in toy or model construction, Figs. 4 and 5 being a side view, in section, and a plan view,  
30 respectively, showing the double angle bracket utilised for connecting together the pulley ends of the side strips of a crane jib. Figs. 6 and 7 are elevation and plan views, respectively, showing a pair of double angle brackets reversed back to back and bolted together to form a double bearing piece for two shafts at right angles. Fig. 8 shows the double angle bracket used as a distending  
35 member for the side frames of a structure. Fig. 9 shows a double angle bracket utilised as a guide element for a sliding piece. Figs. 10, 11, and 12, are side, plan, and end views, respectively, the end view Fig. 12 being looked at from the direction of the arrow *a*, and the plan view Fig. 11 in the direction of the arrow *b*, Fig. 10, of the application of a double angle bracket in the building  
40 up of a clutch mechanism.

The double angle bracket consists of a central part or sole plate 1 having two upturned sides 2 and 3 at right angles to the sole plate, perforations 4, 5, and 6, being formed in the sole plate and each of the upturned sides.

[Price 8d.]



*Bracket, Guide, or the like Device for use in Building Constructional Toys or Models.*

The function of the double angle bracket according to this invention will be seen from a consideration of the figures of the drawings forming part of this specification. In Figs. 4 and 5, for instance, is illustrated the construction of the pulley end of a crane jib, the upturned sides 2 and 3 of the double angle bracket being bolted to the perforated strips 7 forming the jib, and in which the axle 8 of the pulley 9 is journalled. In the application illustrated in Figs. 6 and 7, two double angle brackets are reversed back to back and secured with their sole plates 1; 1, together by the bolt 10, the cross shafts 11 and 12 being journalled in the perforations of the upturned sides of the angle brackets. In building up a strut or other long element from two strips 7, as in Fig. 8, if the ends of the strips are bolted directly together at 10, and the double angle bracket inserted, as shown, between the strips 7 to distend them, with the upturned sides 2, 3, of the angle bracket secured by bolts 10<sup>a</sup> to the strips, an exceedingly strong form of construction is ensured. Where one element is required to slide upon another, say one angle girder upon another angle girder, as shown in Fig. 9, the double angle bracket is bolted by one of its upturned sides 2 to one of the angle girders 13, the extreme tip 3<sup>a</sup> of the other upturned side just overlapping and guiding the bent edge 14<sup>a</sup> of the sliding angle girder 14, while the bolt head 10<sup>b</sup>, securing the double angle bracket to the lower piece 13, acts as a guide to the lower edge 14<sup>b</sup> of the sliding girder 14.

In the arrangement shown in Figs. 10, 11, and 12, the double angle bracket is incorporated in the construction of a clutch mechanism for engaging or disengaging the spur wheel 15 and the pinion 16. The axles of both gears are journalled in a perforated plate 17, as usually adopted in the construction of such models, the axle 15<sup>a</sup> of the gear 15 being also slidable axially in the plate 17. The operating arm 18 of the clutch mechanism is pivoted at 19, being carried from the angle bracket 20, also as usual in this type of model construction. The end of the arm 18 is bolted to the sole plate 1 of a double angle bracket, the upturned sides 2, 3, of which are threaded on the extension of the axle rod 15<sup>a</sup>, a collar or the like 21 being nipped to the end of the shaft 15<sup>a</sup>, and serving to hold the double angle bracket against longitudinal movement on the shaft. By operating the lever 18 about the pivot 19, the geared wheel 15 may be engaged or disengaged with the pinion 16, the double angle bracket forming the pivotal coupling element connecting the clutch arm 18 to the spindle 15<sup>a</sup>.

The drawings show typical examples of the application of the double angle bracket element to constructional toy building from interchangeable separate parts such as described, but there are many other analogous uses in such toy building to which the element could be put, and its application is not restricted to the examples illustrated.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A double angled element for use in the building of constructional toys or models from interchangeable parts, comprising, a central part or sole plate and two upturned sides, each side and the sole plate being perforated.
2. The improved double angled element or bracket, substantially as and for the purpose described, and as illustrated in the accompanying drawings.

Dated this 10th day of February, 1914.

For the Applicant,

A. J. DAVIES,  
Patent Agent by Examination,  
37, Moorfields, Liverpool.

Fig. 2. Fig. 1.

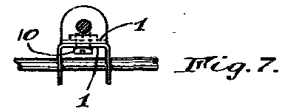
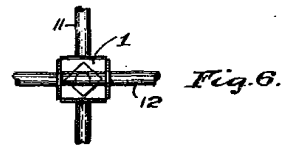
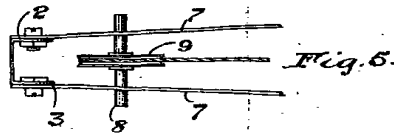
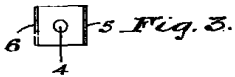
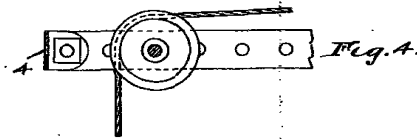
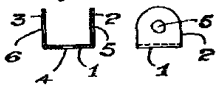
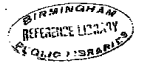
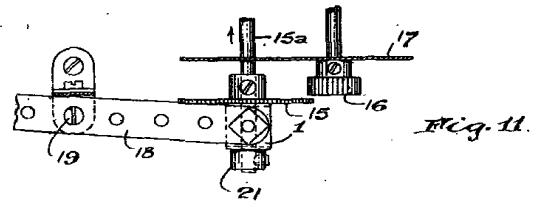
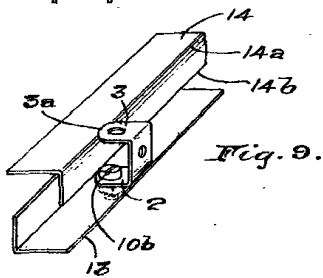
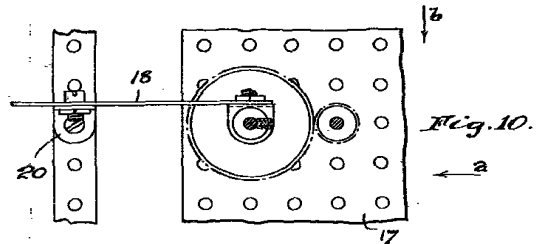
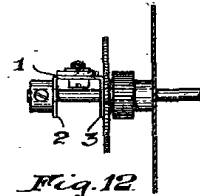
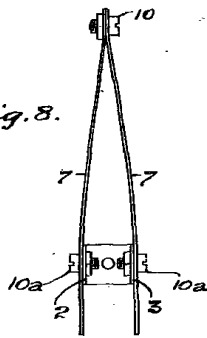
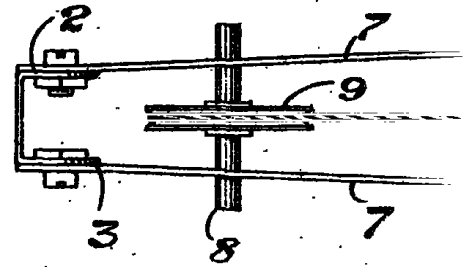
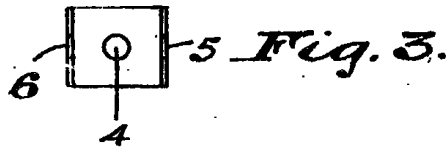
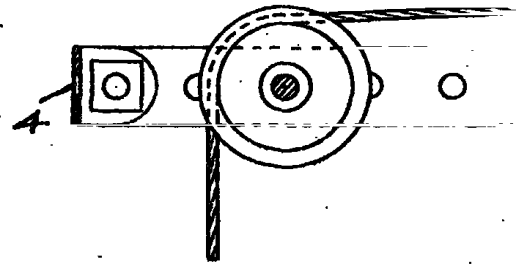
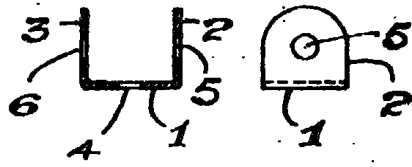


Fig. 8.

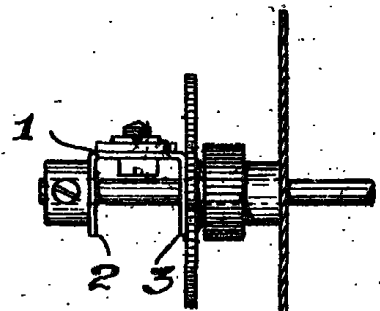
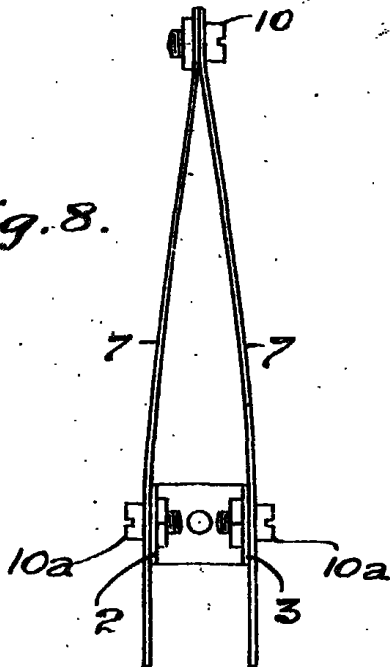


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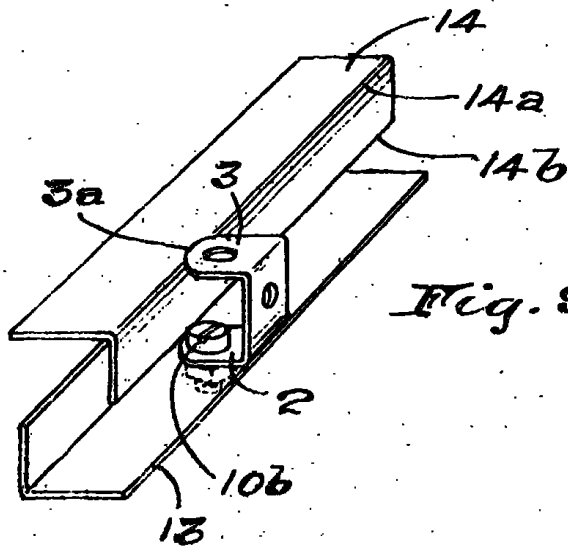
*Fig. 2. Fig. 1.*



*Fig. 8.*



*Fig. 12.*



*Fig. 9.*

[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 4.

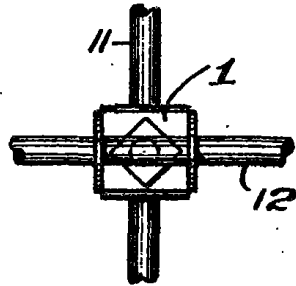


Fig. 6.

Fig. 5.

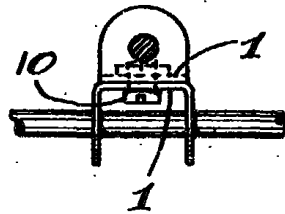


Fig. 7.

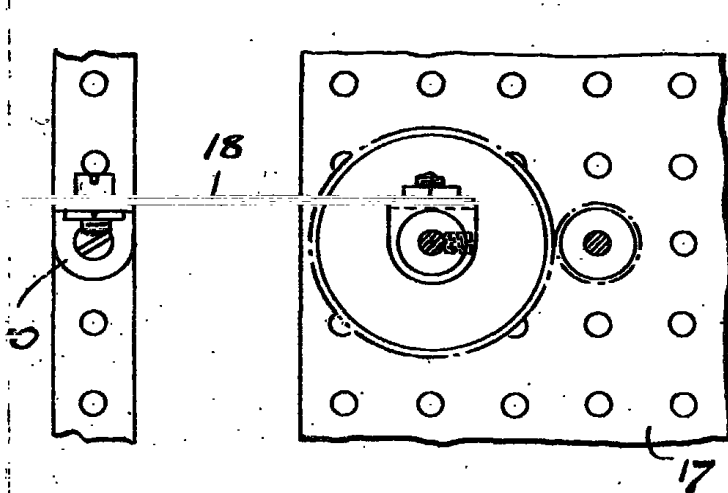


Fig. 10.

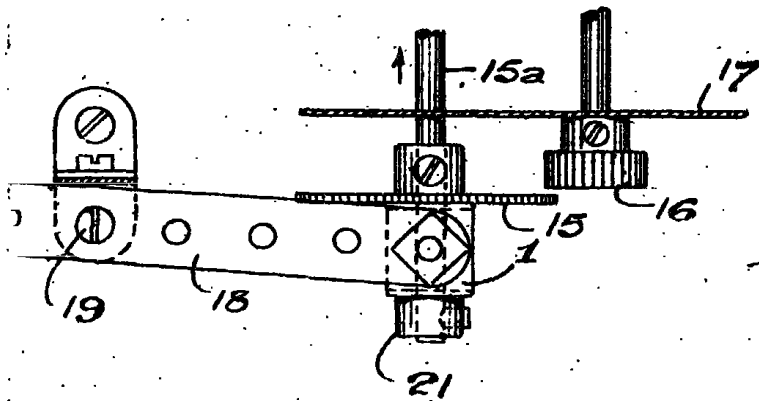


Fig. 11.

