

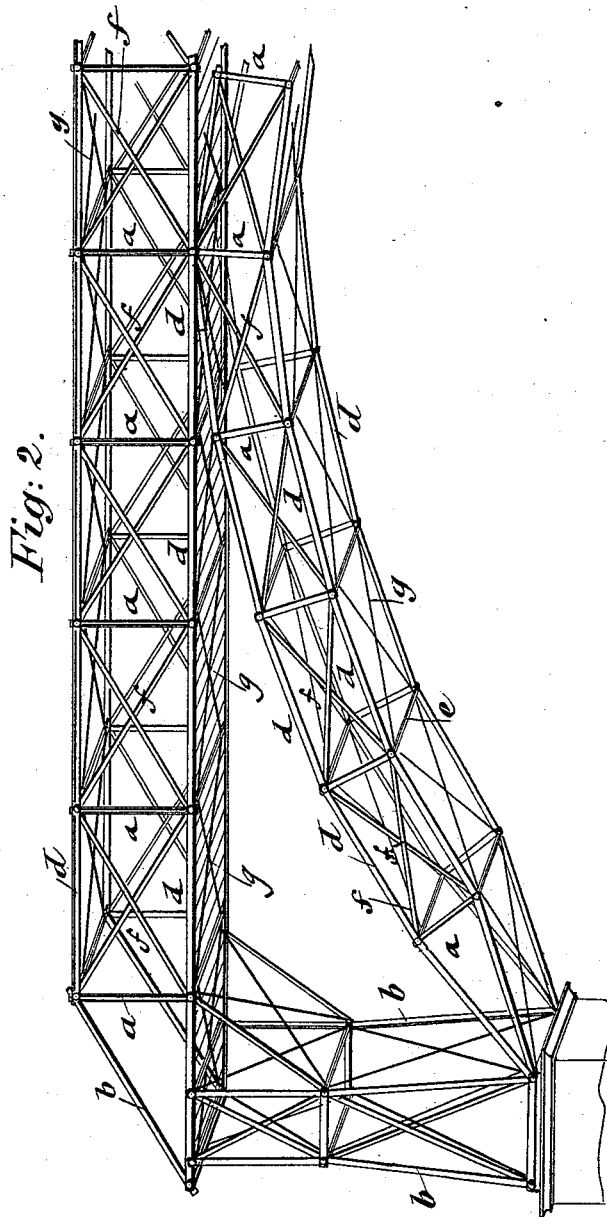
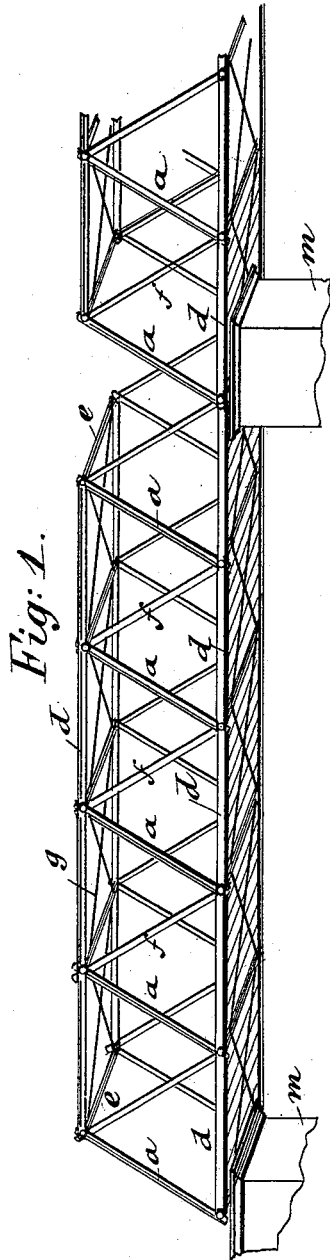
(No Model.)

4 Sheets—Sheet 1.

E. VON LEISTNER.  
TOY BUILDING BLOCK.

No. 525,221.

Patented Aug. 28, 1894.



WITNESSES:

Charles Schroeder  
Otto Reiss

INVENTOR

Edward von Leistner

BY

George J. Paquet  
ATTORNEYS.

(No Model.)

4 Sheets—Sheet 2.

E. VON LEISTNER.  
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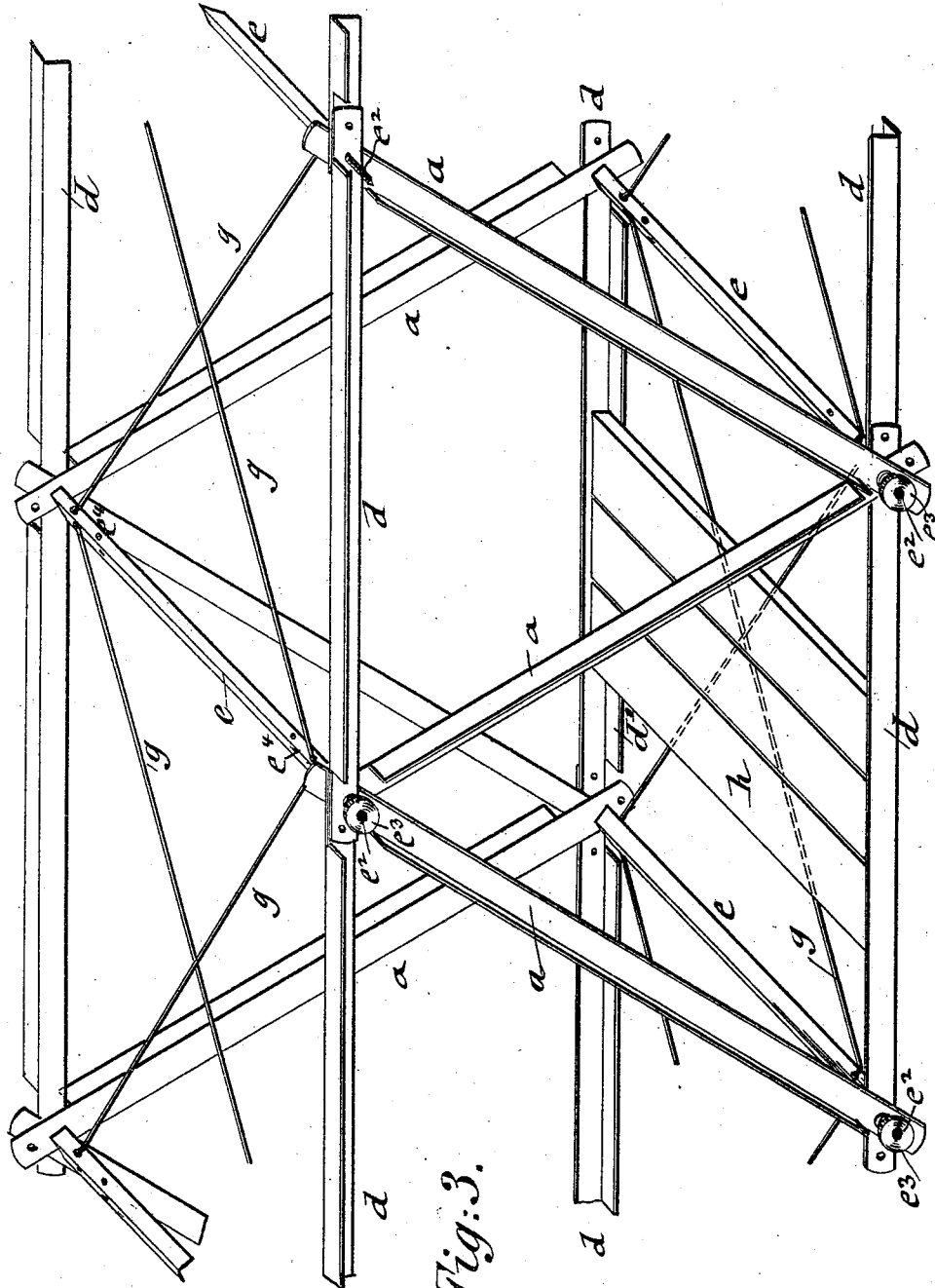


Fig. 3.

WITNESSES:

*Charles Schroeder*  
*Otto Reiss*

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BY *Stuebe & Peggeler*  
ATTORNEYS.

(No Model.)

4 Sheets—Sheet 3.

E. VON LEISTNER.  
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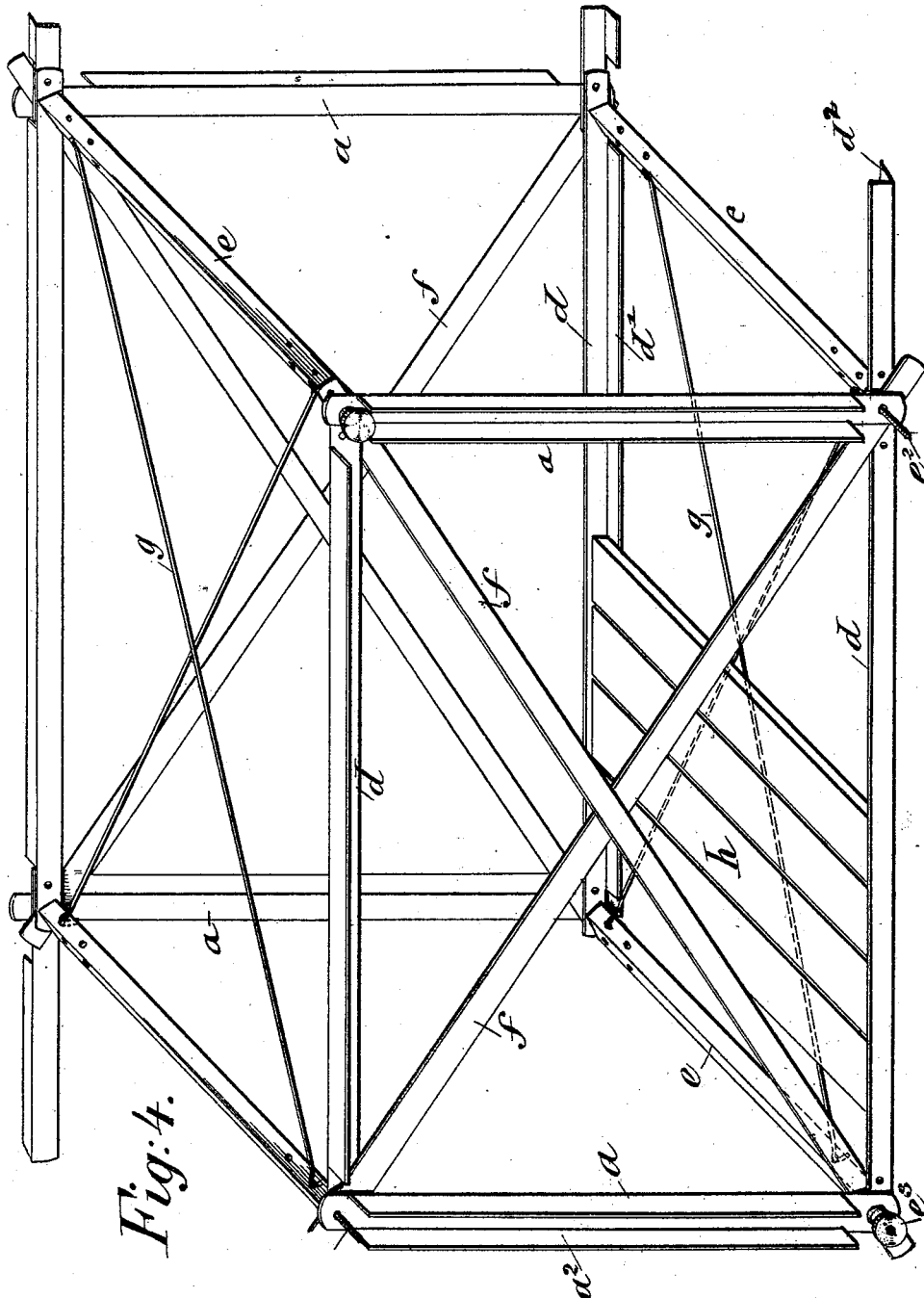


Fig. 4.

WITNESSES:

*Charles Schneider*  
*Otto Reiss*

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*Ernest Reissner*  
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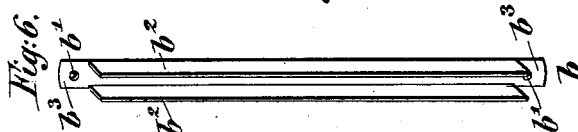
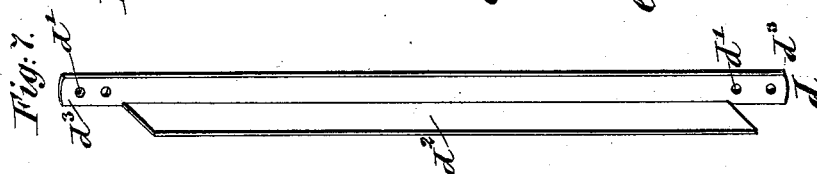
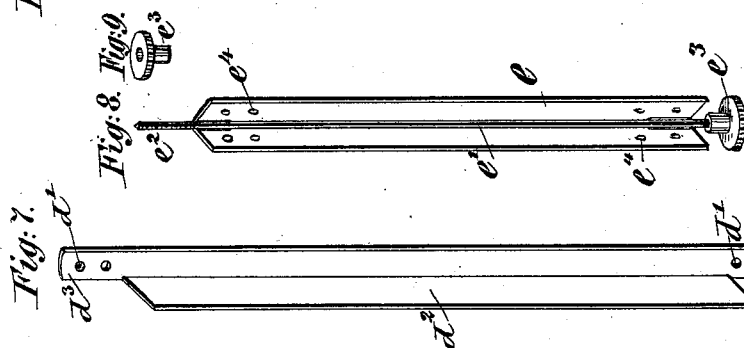
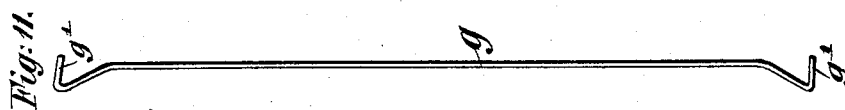
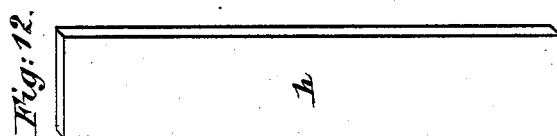
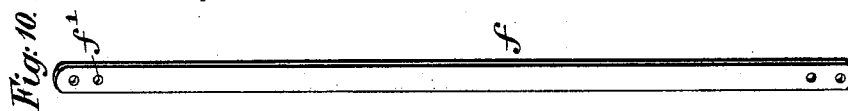
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4 Sheets—Sheet 4.

E. VON LEISTNER.  
TOY BUILDING BLOCK.

No. 525,221.

Patented Aug. 28, 1894.



WITNESSES:

Charles Schroeder  
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ATTORNEYS.

# UNITED STATES PATENT OFFICE.

EDWARD VON LEISTNER, OF STAPLETON, ASSIGNOR OF ONE-HALF TO  
MORITZ STEINMANN, OF NEW YORK, N. Y.

## TOY BUILDING-BLOCK.

**SPECIFICATION** forming part of Letters Patent No. 525,221, dated August 28, 1894.

Application filed October 9, 1893. Serial No. 487,551. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD VON LEISTNER, a subject of the Emperor of Germany, residing at Stapleton, in the county of Richmond and State of New York, have invented certain new and useful Improvements in Toy Building-Blocks, of which the following is a specification.

The object of this invention is to supply children of that age when they gradually outgrow the well-known wood or stone building-blocks, with amusing and instructive bridge or other structure building-blocks, by which truss-bridges, arch bridges, roofed trusses, towers and the like can be readily constructed, and thereby the constructive features of iron and steel structures be rendered perfectly clear and comprehensible to children of mature age.

In carrying out my invention a comparatively small number of elementary parts are employed, of which, however, according to the size of the blocks, a greater or smaller number is used. These elementary parts are all made of sheet-metal, aluminum or brass being preferred. They are supplemented by wooden strips or blocks for forming the floors of a bridge and the supporting pillars of the same. The elementary parts and their multiples can be increased in number and kind for advanced children, so as to enable them to build certain specific structures, such as the Brooklyn bridge, the Eiffel-tower, the Ferris-wheel, &c. For all these structures, however, the elementary parts are necessary, they being necessary for all structures produced. A number of progressive instruction books representing the different structures, from the simple to the more complicated ones, are supplied, so that children can readily form trusses, arches, &c., which form the main or fundamental features of iron structures.

My invention consists therefore, of bridge or other structure building-blocks, which comprise a number of upright struts having perforations at the ends and bent-up parallel flanges at the sides, longitudinal angle-pieces having perforations at the ends, angular transverse pieces also provided with perfora-

tions near the ends and with screw thread extensions for the retaining-nuts, flat diagonal braces or pieces for connecting the struts and longitudinal pieces, said diagonal braces or pieces having also perforated ends, and diagonal binding-rods for the transverse pieces, formed of wire and provided with hook-shaped ends, so as to engage the perforations of said transverse pieces.

The invention consists further of a truss formed of a number of the elementary pieces described, which truss forms the foundation of all the different structures that can be made, by simply employing said elementary pieces.

In the accompanying drawings, Figure 1 represents an isometric view of a simple form of truss-bridge, built with my improved bridge building-blocks. Fig. 2 is a similar view of an arch truss-bridge, constructed with my blocks. Fig. 3 is an isometric view, on a larger scale, of one section of the truss, as built up from the elementary pieces of my blocks, representing the truss shown in Fig. 1. Fig. 4 is a like view of a section of the truss shown in Fig. 2, and Figs. 5, 6, 7, 8, 9, 10 and 11 are isometric views of the different elementary pieces, which compose my improved bridge-building toy-blocks, and Fig. 12, is an isometric view of one of the wooden plants or strips by which the floor of the bridge or other structure is formed.

Similar letters refer to like parts in all the figures.

All the elementary pieces of my bridge or other structure building toy-blocks, except the wooden pieces which are used as planks or supporting-pillars, are made from sheet-metal, so as to decrease the weight of the blocks and the structure made from the same, as much as possible. The elementary pieces are composed of at least two upright struts *a* and *b*, which are made in different lengths, a longitudinal piece *d*, an angular transverse piece *e*, a flat diagonal brace or piece *f*, screw-nuts *e*<sup>3</sup> for connecting the said pieces to the ends of the angular transverse piece *e*, and diagonal binding-rods or braces *g*. The upright struts *a* and *b* are provided with perfo-

rations  $a'$ ,  $b'$  at their ends and with bent up  
 parallel flanges  $a^2$ ,  $b^2$ , along the sides, which  
 flanges terminate near the perforated ends.  
 The ends  $a^3$ ,  $b^3$ , of the struts  $a$ ,  $b$  project be-  
 yond their flanges. The longitudinal piece  $d$   
 is provided with several perforations  $d'$  in each  
 end and with a side flange  $d^2$ , and the ends  
 $d^3$  thereof also project beyond the flange  $d^2$ .  
 The transverse piece  $e$  is bent longitudinally  
 into angular form and within its angle is sol-  
 dered or otherwise secured, a longitudinal  
 wire rod  $e'$  which is extended beyond the an-  
 gular piece  $e$  so as to form screw-threaded  
 projecting ends  $e^2$  on which may be secured  
 the nuts  $e^3$ , which are provided with milled  
 heads to permit them to be readily taken  
 hold of with the fingers. A number of per-  
 forations  $e^4$  is provided in each end of the  
 side plates of the angularly bent piece  $e$ .  
 The flat diagonal braces  $f$  are provided with  
 a number of perforations  $f'$  at each end,  
 while the wire binding-rods or braces  $g$  are  
 bent in the form of hooks  $g'$  at each end, so  
 as to be sprung into and engage the perfora-  
 tions of the angular pieces  $d$ .

Besides the elementary pieces so far de-  
 scribed, and as shown in Figs. 5 to 11, a num-  
 ber of small flat pieces of wood  $h$  which rep-  
 resent the planks of the bridge are used, as  
 shown in Fig. 12.

For special structures additional blocks in  
 imitation of pillars can be supplied, while  
 also multiples of the different elementary  
 pieces in different lengths may be added.

In putting together a single truss from the  
 elementary pieces described, the longitudinal  
 pieces  $d$  are first placed on the threaded pro-  
 jecting ends  $e^2$  of the transverse pieces  $e$ , the  
 flat diagonal pieces or braces  $f$  being then  
 placed on the same, and lastly, the upright  
 struts  $a$ ,  $b$ , the parts being then firmly con-  
 nected by screwing the nuts  $e^3$  on said  
 threaded ends of the transverse pieces  $e$ , as  
 shown in Figs. 3 and 4. The diagonal bind-  
 ing-rods or braces  $g$  are then applied to the  
 top and bottom transverse pieces  $e$ , by insert-  
 ing the hooks into the perforations  $e^4$  of said  
 pieces after which the planks  $h$  are placed on  
 the inwardly-projecting flanges  $d^2$  of the lon-  
 gitudinal pieces  $d$ , as shown in Figs. 3 and 4.  
 The next section of the truss is then built in  
 the same manner, and so on until the entire  
 bridge or other structure is completed.

In making arched trusses, the smaller struts  
 $a$  are preferably used, in which case also the  
 outer perforations  $f'$  at the upper ends of the  
 diagonal pieces  $f$  are employed, and also the  
 inner perforations at the lower ends, whereby  
 the shortening of the lower longitudinal  
 pieces  $d$  of the truss is obtained, so that an  
 arched truss is obtained from these different  
 sections, as shown in the lower part of Fig. 2.

In place of the angular transverse pieces  
 and the screw-nuts screwed on the same, any  
 other equivalent locking device, such as  
 spring-keys and like evident devices may be

used, as I do not desire to confine myself to  
 the use of screw-nuts. So far I have found  
 the screw-nuts to be the best mode of con-  
 necting the parts, as they can thereby be more  
 firmly united, the spring-keys or similar de-  
 vices producing a less rigid or slightly wab-  
 bling connection of the parts.

In using the term "bridge," I desire to in-  
 clude any steel or iron structure, as this term  
 is merely selected for the sake of convenience  
 and brevity, it being obvious that any other  
 structure, as for instance the Eiffel-tower,  
 Ferris-wheel, and similar structures, may be  
 built by a number of my elementary pieces,  
 in addition to some elementary pieces such  
 as are required for the foundation or spider-  
 frames of the structure.

It is obvious that a large variety of struc-  
 tures in imitation of metallic bridges and other  
 iron structures can be made, whereby boys of  
 more advanced age can be instructively oc-  
 cupied.

All the parts after use can be disconnected  
 and stored within a box of comparatively  
 small size, as a large number of parts can be  
 placed within a small compass. A number  
 of boxes containing a smaller or larger mul-  
 tiple of the elementary pieces can be placed  
 on the market, so that boys can progress from  
 simple structures to more complicated struc-  
 tures, or specific boxes can be made for pro-  
 ducing a specific iron structure of special re-  
 pute.

What I claim is—

1. A set of bridge building-blocks, compris-  
 ing a number of elementary pieces of sheet-  
 metal, representing struts, longitudinals,  
 transverse-pieces, braces and binding-rods,  
 said struts having side flanges and perforated  
 ends projecting beyond the flanges, said lon-  
 gitudinals having side-flanges and perforated  
 ends, and said braces having perforated ends,  
 and means for connecting the struts, longi-  
 tudinals and braces to the ends of said trans-  
 verse-pieces, substantially as set forth.

2. A set of bridge-building-blocks, compris-  
 ing a number of elementary pieces of sheet-  
 metal, representing struts, longitudinals,  
 transverse-pieces, braces and binding-rods,  
 said transverse-pieces being angular in cross-  
 section and provided with perforations in  
 both of its side-plates, and said binding-rods  
 having end-hooks adapted to be received in  
 the perforations of the transverse-pieces, and  
 means for connecting the struts, longitudinals  
 and braces to the ends of said transverse-  
 pieces, substantially as set forth.

3. A toy-truss, composed of upright struts  
 having perforations at their ends and side  
 flanges, longitudinals having perforated ends  
 and side flanges, flat diagonal-braces having  
 perforated ends, angular transverse pieces  
 having perforations near the ends, diagonal  
 binding-rods having hook-shaped ends for en-  
 gaging the perforations of the angular trans-  
 verse pieces, and means for connecting the

struts, longitudinals and flat diagonal-braces to the ends of said transverse pieces, substantially as set forth.

5 4. A longitudinal piece for toy-bridges or other toy structures, composed of a flat main piece having a single side flange bent up at right angles therefrom and two perforations in each end of the main piece, said ends extending beyond the said flange, substantially as set forth.

10 5. A transverse piece for toy-bridges or other toy structures, composed of an angular

piece of sheet metal provided with perforations near the ends in each plate of the same and with threaded ends extending beyond the apex thereof, substantially as set forth. 15

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

EDWARD VON LEISTNER.

Witnesses:

PAUL GOEPEL,

CHARLES SCHROEDER.