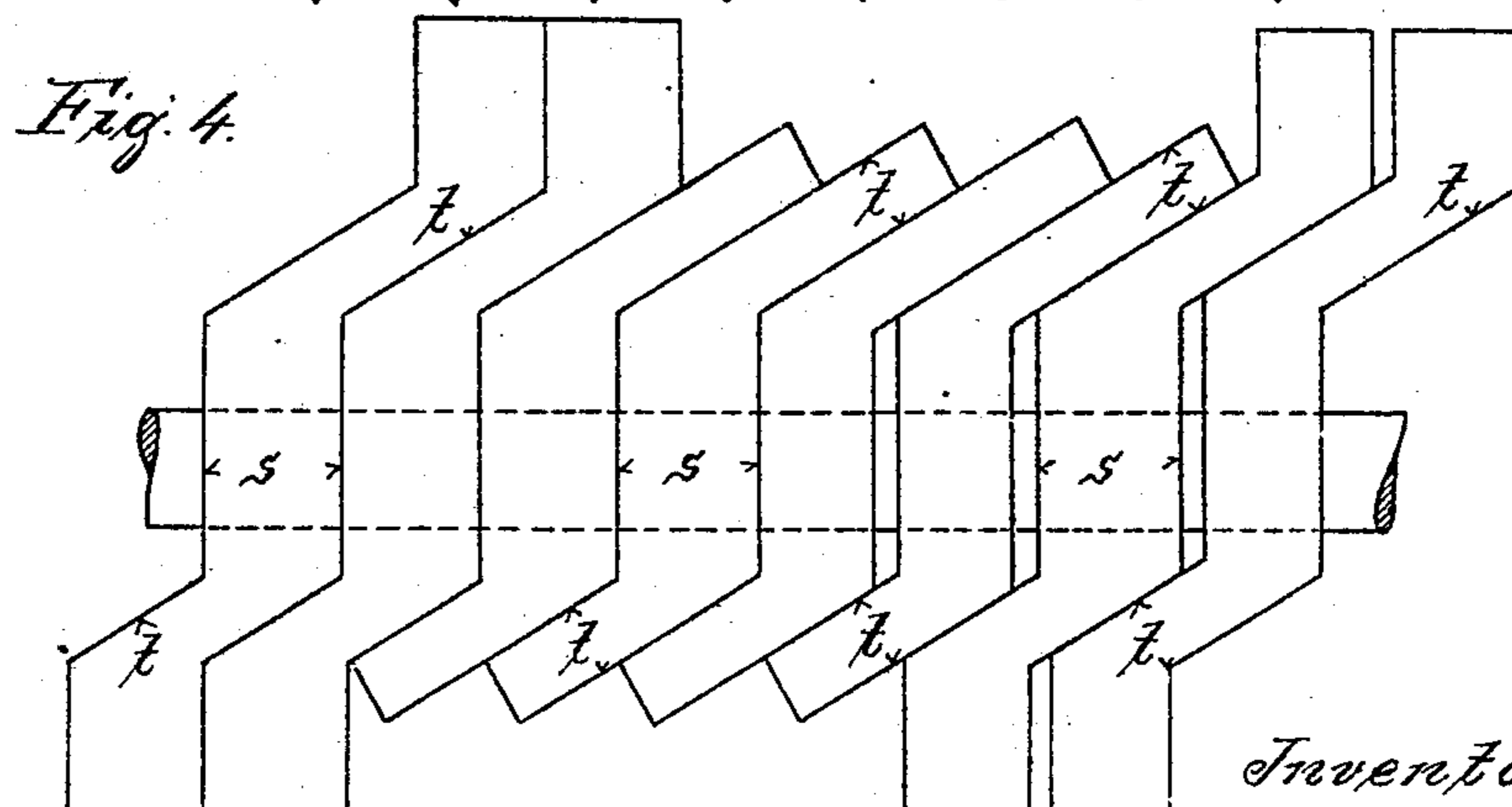
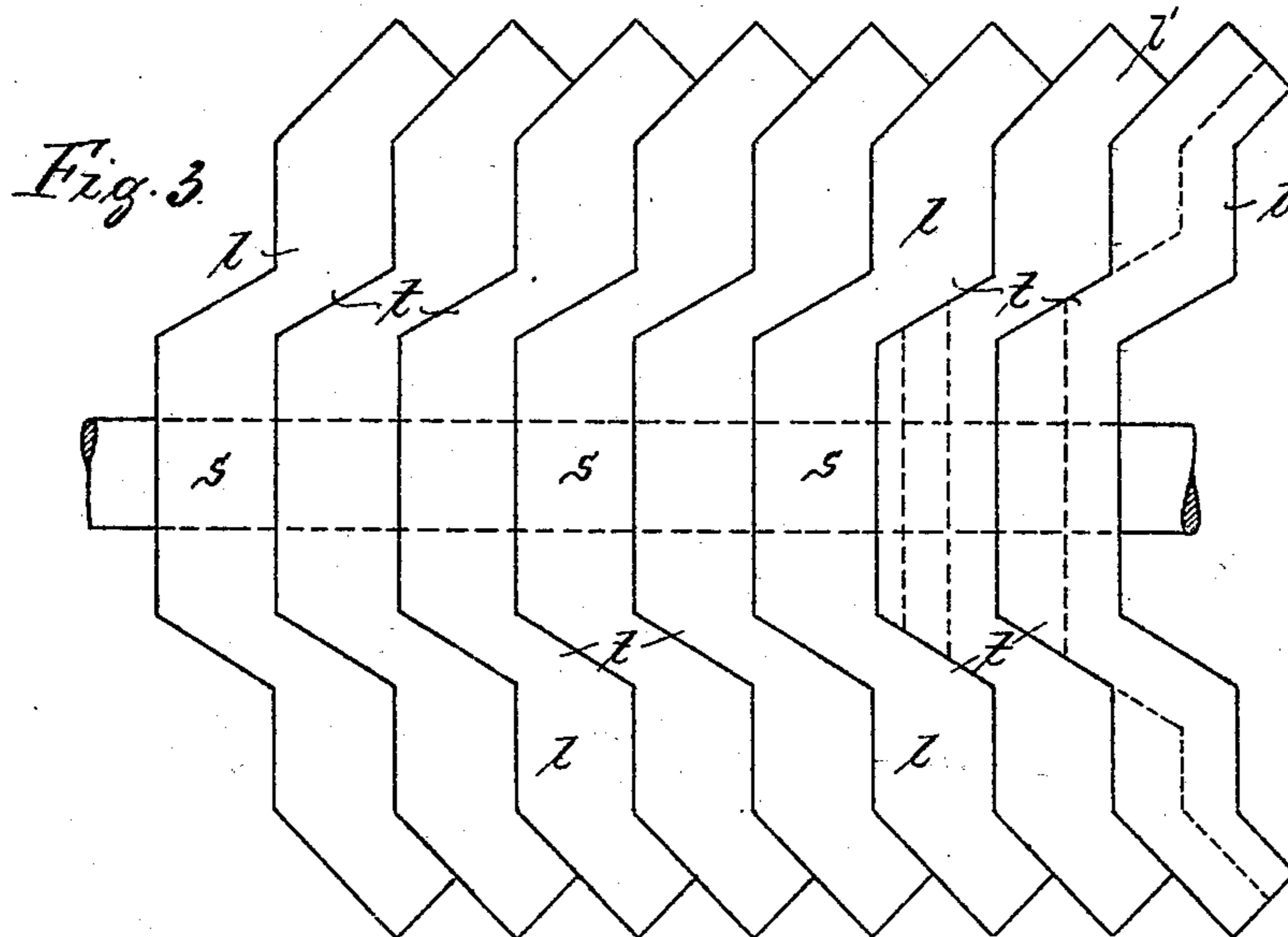
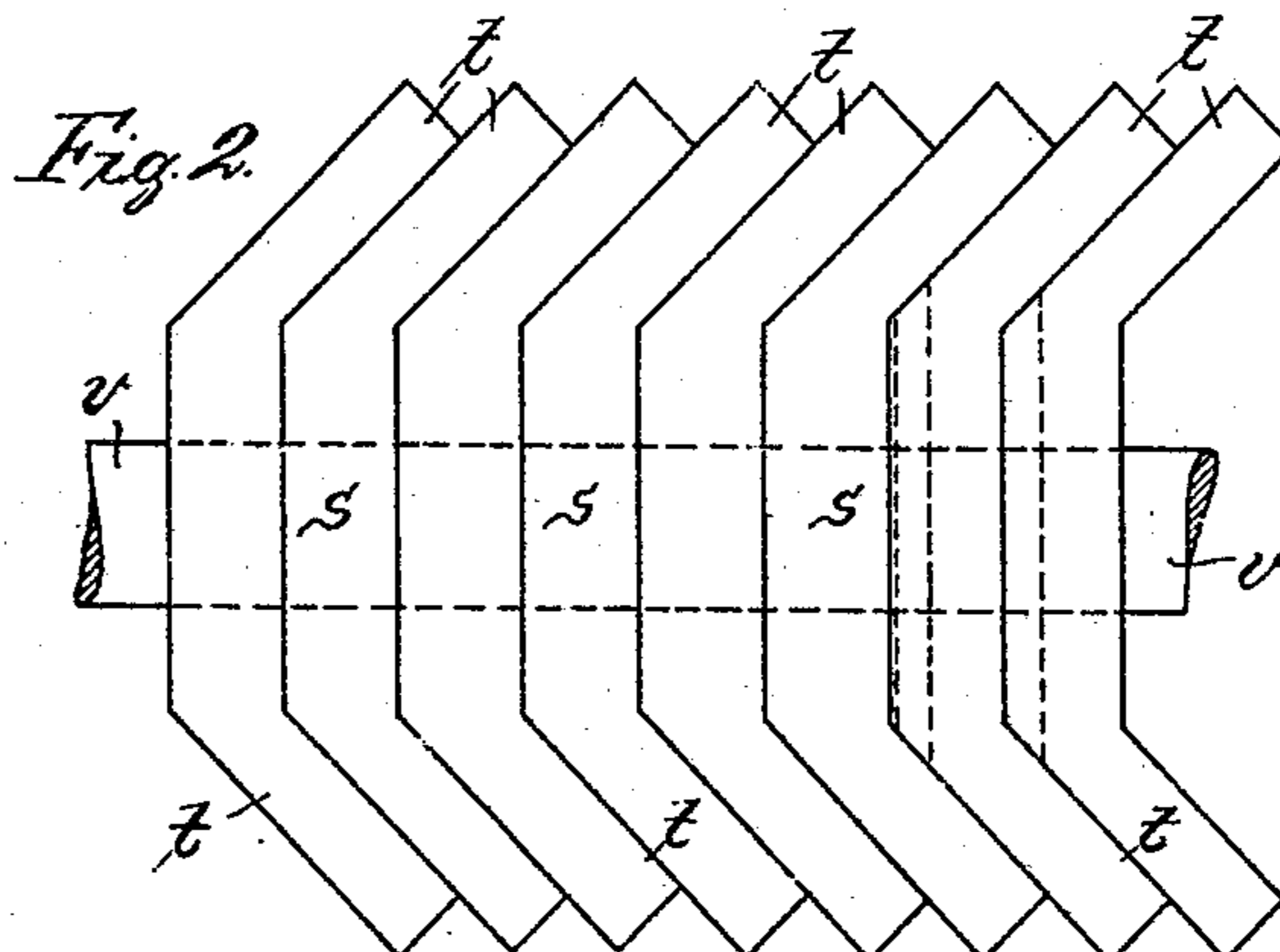
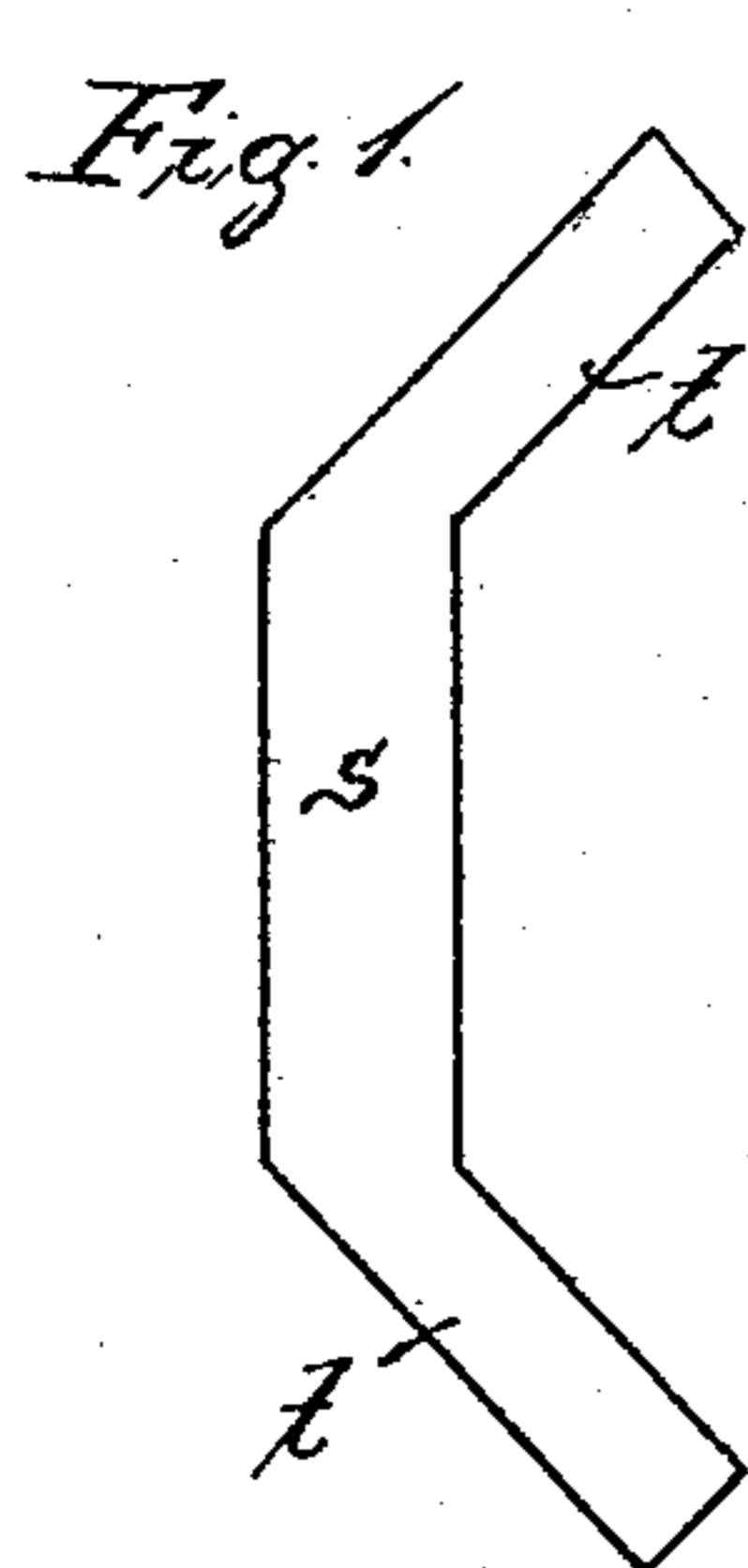


W. LÜBBECKE.
 COMPRESSIVE AND TENSILE BAR FOR BRIDGES, PILLARS, &c.
 APPLICATION FILED MAY 20, 1903.

908,587.

Patented Jan. 5, 1909.

2 SHEETS—SHEET 1.



Witnesses:

Paul Wullenberg
Emit Hayes.

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2 SHEETS—SHEET 2.

Fig. 5.

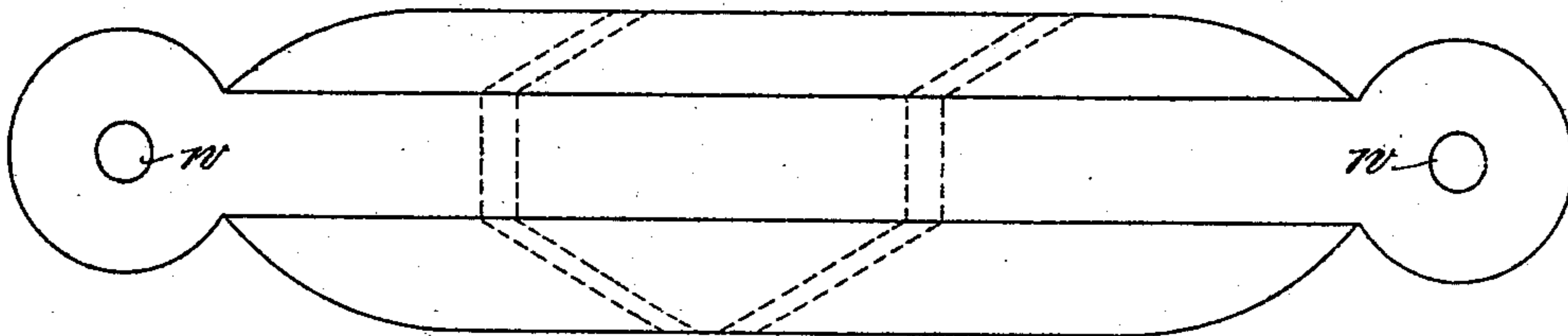


Fig. 6.

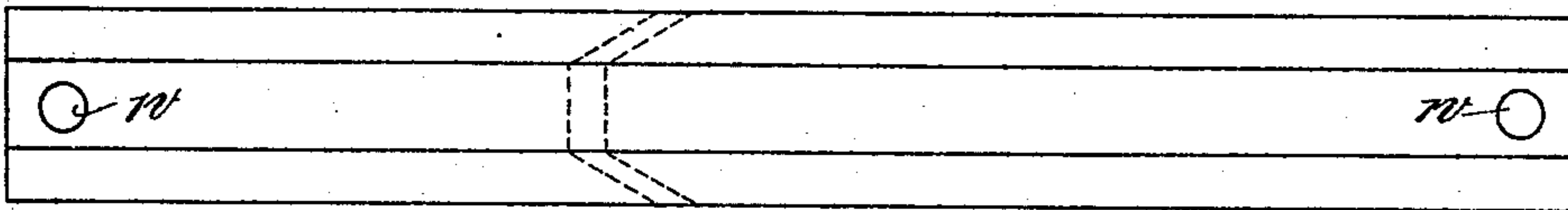
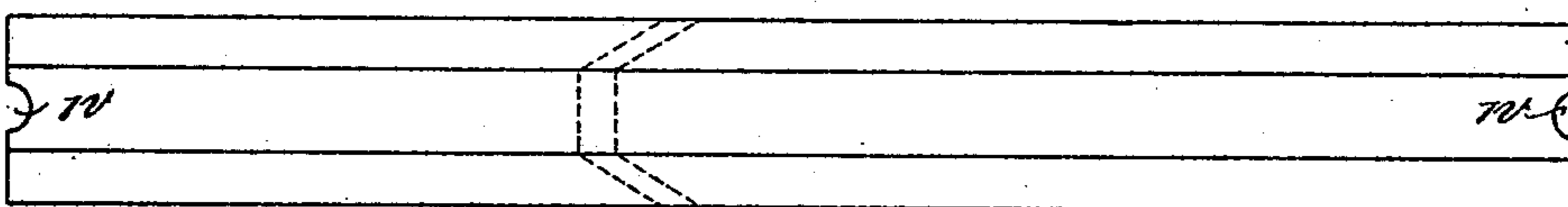


Fig. 7.



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Attorney.

UNITED STATES PATENT OFFICE.

WILHELM LÜBBECKE, OF BERLIN, GERMANY.

COMPRESSIVE AND TENSILE BAR FOR BRIDGES, PILLARS, &c.

No. 908,587.

Specification of Letters Patent.

Patented Jan. 5, 1909.

Application filed May 20, 1903. Serial No. 157,986.

To all whom it may concern:

Be it known that I, WILHELM LÜBBECKE, a subject of the King of Prussia, German Emperor, and resident of 47 Schöneberger Ufer, Berlin, Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Compressive and Tensile Bars for Bridges, Pillars, and the Like Iron Constructions, of which the following is an exact specification.

My invention relates to improvements in compressive or tensile bars or booms for bridges, pillars, scaffolds and the like iron constructions and it has for its purpose to provide figured bars, which, when packed up, occupy a very small room and have a great strength in regard to their weight.

In order to make my invention more clear, I refer to the accompanying drawing, in which:

Figure 1 is a cross section of a figured bar constructed according to my invention; Fig. 2 shows several bars laid one into the other. Fig. 3 shows a modified form of the bars, and Fig. 4 shows a further modification of the same. Figs. 5, 6 and 7 are plans of the different modifications of the whole bars.

In dismountable bridges, pillars, scaffolds and the like provisional as well as steady iron constructions it is very advantageous to use as much as possible single bars or other parts, which are equal to each other in order to attain, that the parts fit in several places, can be easily mounted and replaced and can be cheaply manufactured. It is therefore important that the construction consists of as many equal parts as possible. It is further important especially in case the construction shall be transported after dismounting, that the parts when laid together, occupy a room which is as small as possible, and that the parts are as light as possible. These two requirements are fulfilled by the object of the present invention, which consists of U or Z-formed bars, the middle or bottom part of which is reinforced, as will be seen from the drawing, in which the stronger middle part is called "s" and the weaker side flanges "t". U-iron bars of this construction can be made much lighter than the U-iron bars hitherto constructed, in which the middle part as well as the flanges are equal in thickness, without the resistance to crush-

ing by cross-breaking being diminished. In consequence hereof the whole iron construction will be much lighter if bars of the new construction are used.

A further advantage of the bars consists in the same occupying a smaller room when laid together, than the bars hitherto constructed. If U-iron bars, in which the middle part and the flanges are equal in thickness, are put one into the other, a free space will always be left between the bottom parts, as indicated by the dotted line on the right-hand part of Fig. 2. By the middle part of the U-formed iron being thicker than the side flanges, this free space will be diminished or perfectly avoided as shown in the drawing. In consequence hereof the space occupied by the bars of my new construction, will be much smaller than the space occupied by the same number of bars of the old construction, if bars with the same resistance to crushing by cross-breaking are used, and therefore the bolts *v* put through the holes *w* for holding the several bars together can be much shorter and consequently the bending strain of the same will be smaller.

It will be clear that the form of the figured bars may be modified without changing the idea of the invention, so for instance the flanges of the U-iron may be step-formed, as shown in Fig. 3.

In the modification shown in Fig. 4 it is shown, that the same inventive idea may be applied to Z-formed iron-bars.

If desired as shown in Fig. 3, the flanges may be step-formed along their breadth, that is to say the parts *l* may be provided with further projections *l'*. These projections may be arranged parallel or substantially parallel to the inclined webs *t*, or they may be arranged as shown at the left and right-hand sides of Fig. 4 parallel to the central part *s* of the shaped bars.

I claim:—

1. A shaped iron-bar comprising a web and flanges, the web thickened throughout its whole breadth and provided with recesses on both ends for taking up a connecting bolt, substantially as described and for the purpose as set forth.

2. A shaped iron-bar comprising a web and flanges, the web thickened throughout its whole breadth and provided with closed

recesses on both ends for taking up a connecting bolt, substantially as described and for the purpose as set forth.

3. A shaped iron-bar comprising a web and flanges, the web thickened throughout its whole breadth and provided with recesses, the flanges being cut away on both ends and the web projecting over the flanges at each end, substantially as described and for the purpose as set forth.

4. A shaped iron-bar comprising a web and flanges, the web thickened throughout its whole breadth and provided with flat eyes at both ends, substantially as described and for the purpose as set forth.

5. A shaped iron-bar comprising a web and flanges, the web thickened throughout its whole breadth and provided with recesses on both ends for taking up a connecting bolt, the flanges being step-formed along their breadth, substantially as described and for the purpose as set forth.

6. A shaped iron-bar comprising a web and flanges, the web thickened throughout its whole breadth and provided with closed recesses on both ends for taking up a connecting bolt, the flanges being step formed along their breadth, substantially as described and for the purpose as set forth.

7. A nested bar series, consisting of shaped iron-bars, each comprising a web and flanges, the web thickened throughout its whole breadth and provided with recesses on both ends for taking up connecting bolts substantially as described and for the purpose as set forth.

8. A nested bar series, consisting of shaped iron-bars, each comprising a web and flanges, the web thickened throughout its whole breadth and provided with closed recesses on

both ends for taking up connecting bolts substantially as described and for the purpose as set forth.

9. A nested bar series, consisting of shaped iron-bars, each comprising a web and flanges, the web thickened throughout its whole breadth and provided with recesses, the flanges being cut away on both ends and the web projecting beyond the flanges at each end, substantially as described and for the purpose as set forth.

10. A nested bar series consisting of shaped iron-bars, each comprising a web and flanges, the web thickened throughout its whole breadth and provided with flat eyes on both sides, substantially as described and for the purpose as set forth.

11. A nested bar series, consisting of shaped iron-bars, each comprising a web and flanges, the web thickened throughout its whole breadth and provided with recesses on both ends for taking up connecting bolts the flanges being step formed in their breadth, substantially as described and for the purpose as set forth.

12. A nested bar series, consisting of shaped iron-bars, each comprising a web and flanges, the web thickened throughout its whole breadth and provided with closed recesses on both ends for taking up connecting bolts, the flanges being step formed in their breadth, substantially as described and for the purpose as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILHELM LÜBBECKE.

Witnesses:

WOLDEMAR HAUPT,
HENRY HASPER.