

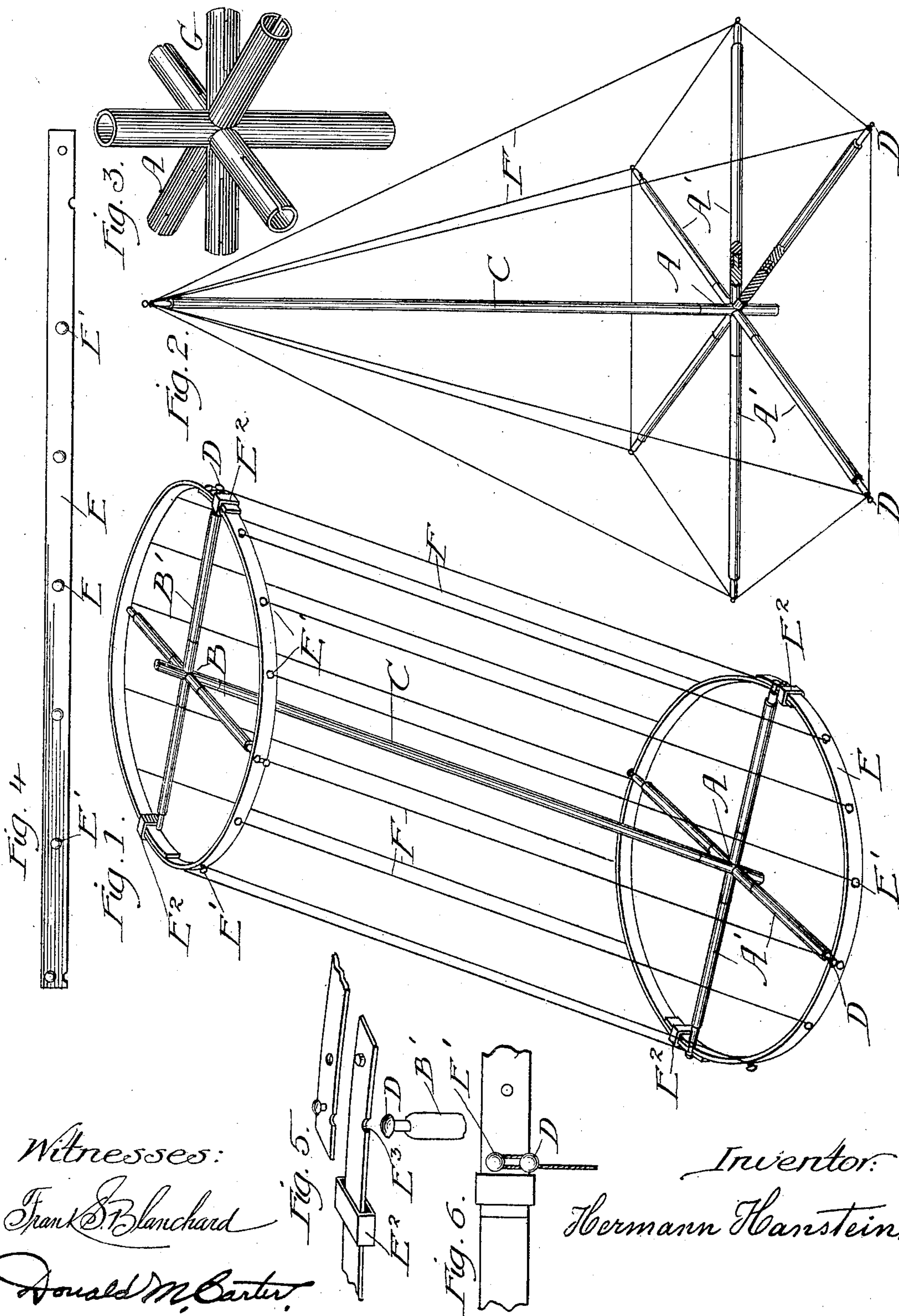
No. 630,217.

Patented Aug. 1, 1899.

H. HANSTEIN.  
FIGURE FOR EDUCATIONAL PURPOSES.

(Application filed Apr. 17, 1899.)

(No Model.)



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## FIGURE FOR EDUCATIONAL PURPOSES.

SPECIFICATION forming part of Letters Patent No. 630,217, dated August 1, 1899.

Application filed April 17, 1899. Serial No. 713,304. (No model.)

*To all whom it may concern:*

Be it known that I, HERMANN HANSTEIN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Figures for Educational Purposes, of which the following is a specification.

My invention relates to figures for educational purposes, and has for its object to provide a new and improved figure of this description.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a view of a figure embodying my invention. Fig. 2 shows a figure of a different form. Fig. 3 is an enlarged view of the axes centers. Fig. 4 shows one of the strips from which the peripheries are formed when figures of this construction are made. Fig. 5 is an enlarged detail showing the manner of connecting the ends of the strips shown in Fig. 4. Fig. 6 shows a construction by which the strips forming the circular rings are connected with the figure.

Like letters refer to like parts throughout the several figures.

My invention is particularly adapted for use in demonstrating theorems in plane and solid geometry, in projections of drawings, in perspective drawing, shadow constructions, stereometry, stereotomy, and the like. Heretofore it has been customary to use drawings for instruction in these branches. With my invention I am enabled to present the actual figure in all its modifications and at the same time to produce a convenient arrangement which makes the construction practically and commercially successful.

In building up the figure I provide one or more axes centers, to which are removably attached a series of projecting parts, the outlines of the figure being made by means of flexible cords or the like connecting these projecting parts. By means of a few axes centers and a series of projecting parts I can make up a vast number of figures of different forms and descriptions.

I have not attempted to show the various forms of figures which can be constructed by means of this invention, but have shown two varieties of common constructions.

Referring to Fig. 1, I have shown an oblique cylinder embodying my invention. In constructing this cylinder I take two axes centers A B. To each of these are removably connected the projecting parts A' B'. The two centers are then connected together by the piece C, which forms the axis of the cylinder. The pieces A' are formed at their ends so that a flexible cord may be attached thereto. Any desired formation for this purpose may be utilized. As herein shown, I provide the ends with attaching devices, which consist of the pins D. If a figure with plane faces is to be made, a greater number of projecting parts A' will be used and their ends will be connected together with cords. When a cylinder is to be made, I provide the flat strips E, preferably of metal, each being provided with a series of engaging devices or projections E'. The circular piece is formed by uniting these two strips, as shown in Fig. 1. Any suitable means for uniting the ends may be used. As illustrated in Fig. 5, I have shown one strip as provided with the sliding piece E<sup>2</sup>, which engages the end of the other piece and holds the parts in the proper relation. The strips are preferably provided with means by which they may be connected with the ends of the projecting parts A'. Any suitable construction for this purpose may be utilized. As herein shown, the strips are provided with notches E<sup>3</sup>, which rest upon the pins D of the projecting parts. The strips E are held in position in any desired manner—as, for example, by wrapping the cord around one of the projections E' and the pins D, as illustrated in Fig. 6. The outlines of the cylinder are then formed by taking the flexible cords F and connecting the projections E' on the rings, as shown.

In Fig. 2 I have shown a pyramid made in accordance with my invention. In this figure one axis center A is used, to which are connected a series of projecting parts A'. An axis C is connected with the axes center, and the outlines of the figure are formed by connecting the ends of the projecting parts A' with the end of the axis C by the flexible cords F.

The axes centers may be formed in any desired manner and are each provided with a series of receiving parts G, adapted to re-



ceive the projecting parts A' B'. The relation of the receiving parts and their disposition and number will of course depend upon the figure to be made, and I have thought it  
 5 only necessary to show two or three of these forms in order to make my invention clear. These receiving parts may be openings into which the ends of the projecting parts are received, or they may be projections which  
 10 fit into the ends of the projecting parts made hollow for this purpose, as shown in Fig. 2. It will be seen that by providing a series of projecting parts of different lengths and a series of axes centers, all of which may be con-  
 15 fined within a small space when not in use, I may construct a vast number of figures of different varieties. It will also be seen that these figures may be easily constructed and taken apart and that the students themselves  
 20 may be made to do this work and thus have the construction more clearly in mind. I have found that I may store enough parts in a box three feet by three feet by thirty inches to permit the construction of more than five  
 25 hundred figures. The great advantage of this construction will therefore readily be seen by teachers, instructors, and those versed in the art to which the invention relates.

I have shown particular constructions in  
 30 order to make my invention clear; but in view of what I have said I do not in any manner limit myself to the constructions shown.

The use and operation of my invention are as follows: When it is desired to form a given  
 35 figure, the figure is first decided upon. The proper axes centers are then taken and the projecting parts are attached thereto, so as to build the figure up from the center. The outlines of the figure are then made by con-  
 40 necting the ends of the projecting parts by suitable flexible cords or the like. When this is done, the figure is ready for use and the problems in drawing and the various other studies to which this invention is related can  
 45 be clearly and easily demonstrated. After the figure has served its use the parts may be disconnected and placed in a proper receptacle or used to form other figures.

The innumerable uses of this invention will  
 50 readily be taken advantage of by teachers and instructors who use it.

I claim—

1. A figure for educational purposes, comprising an axes center, a series of projecting  
 55 parts extending therefrom and removably connected thereto, flexible cords extending between the ends of said projecting parts to form the outlines of a solid figure.

2. A figure for educational purposes, com-

prising an axes center provided with a series  
 60 of receiving parts, a series of projecting parts engaging said receiving parts, said projecting parts provided with attaching devices, said attaching devices being connected with flexible  
 65 cords, which form the outlines of a solid figure.

3. A figure for educational purposes, comprising two or more axes centers removably  
 70 connected to the axis of the figure, said axes centers provided with a series of receiving parts, a series of projecting parts removably attached to each axes center by means of said  
 75 receiving parts, a series of flexible cords connecting the ends of said projecting parts so as to form the outlines of the figure.

4. A figure for educational purposes, comprising an axes center, a series of projecting  
 80 parts removably connected thereto, a curved peripheral part of sufficient rigidity to retain its shape connected with the ends of said projecting parts and provided with a series of  
 85 projections, a series of flexible cords connected with said projections and with some other part of the figure, so as to form the outlines thereof.

5. A figure for educational purposes, comprising two axes centers, each provided with  
 90 a series of receiving parts and each connected with the axis of the figure, a series of projecting parts removably connected with said axes centers, a curved peripheral part attached to the ends of the projecting parts associated  
 95 with each of the axes centers, said peripheral parts formed of two flat strips bent into shape and having their ends connected together, a series of projections on said peripheral parts, and a series of flexible cords connecting said  
 100 projections so as to form the outlines of the figure.

6. A figure for educational purposes, comprising an axes center provided with a series  
 105 of receiving parts, a series of projecting parts engaging said receiving parts, and flexible cords connecting said projecting parts so as to form the outlines of a solid figure.

7. A figure for educational purposes, comprising one or more axes centers, a series of  
 110 projecting parts connected thereto, one or more curved pieces connected with said projecting parts, a series of bounding lines for the figure, consisting of flexible cords attached to the frame formed by the projecting parts and the curved part or parts.

HERMANN HANSTEIN.

Witnesses:

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