

No. 616,816.

Patented Dec. 27, 1898.

A. A. YOUNG.

AIR GOODS.

(Application filed Sept. 1, 1898.)

(No Model.)

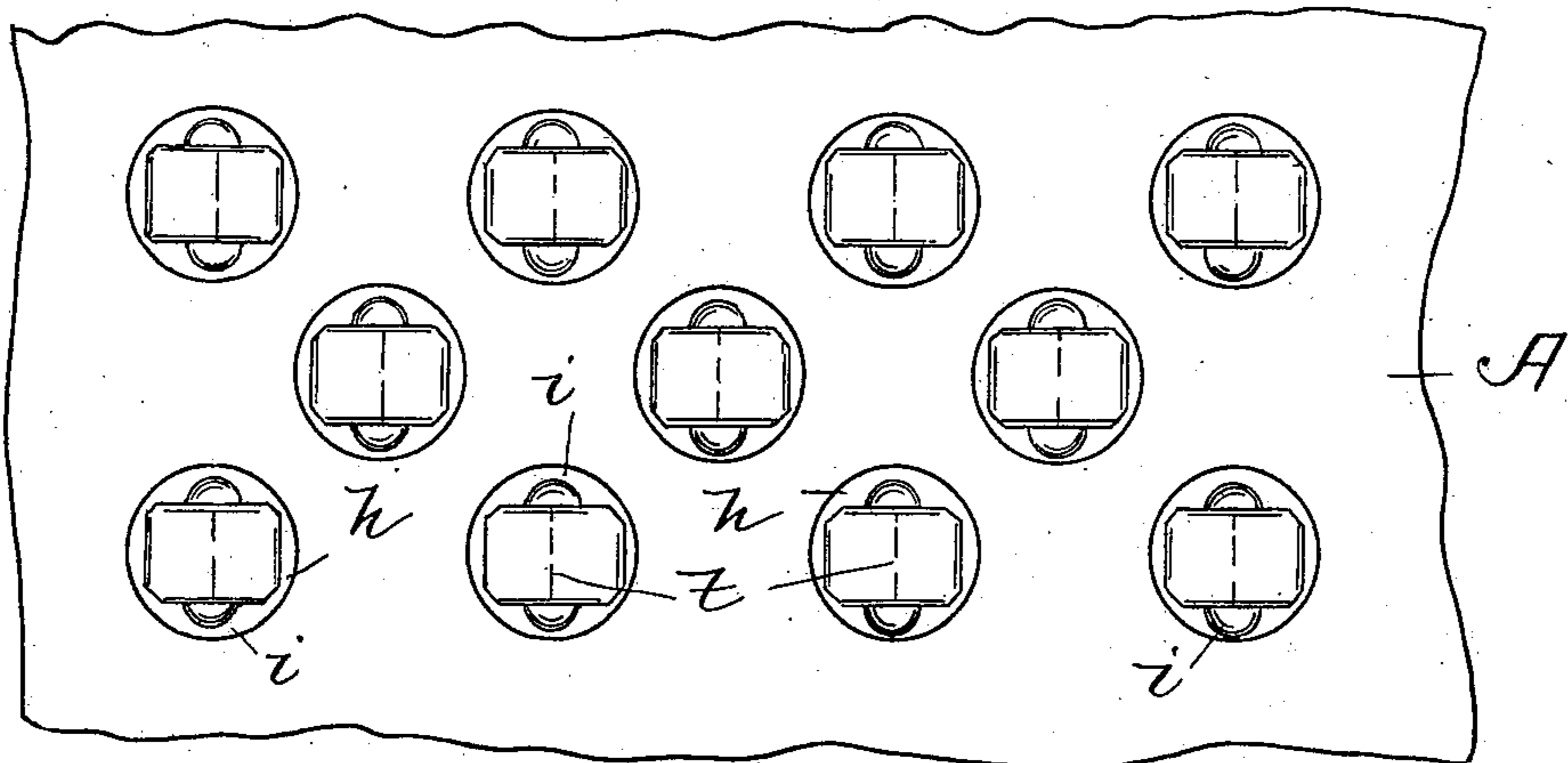


Fig. 1.

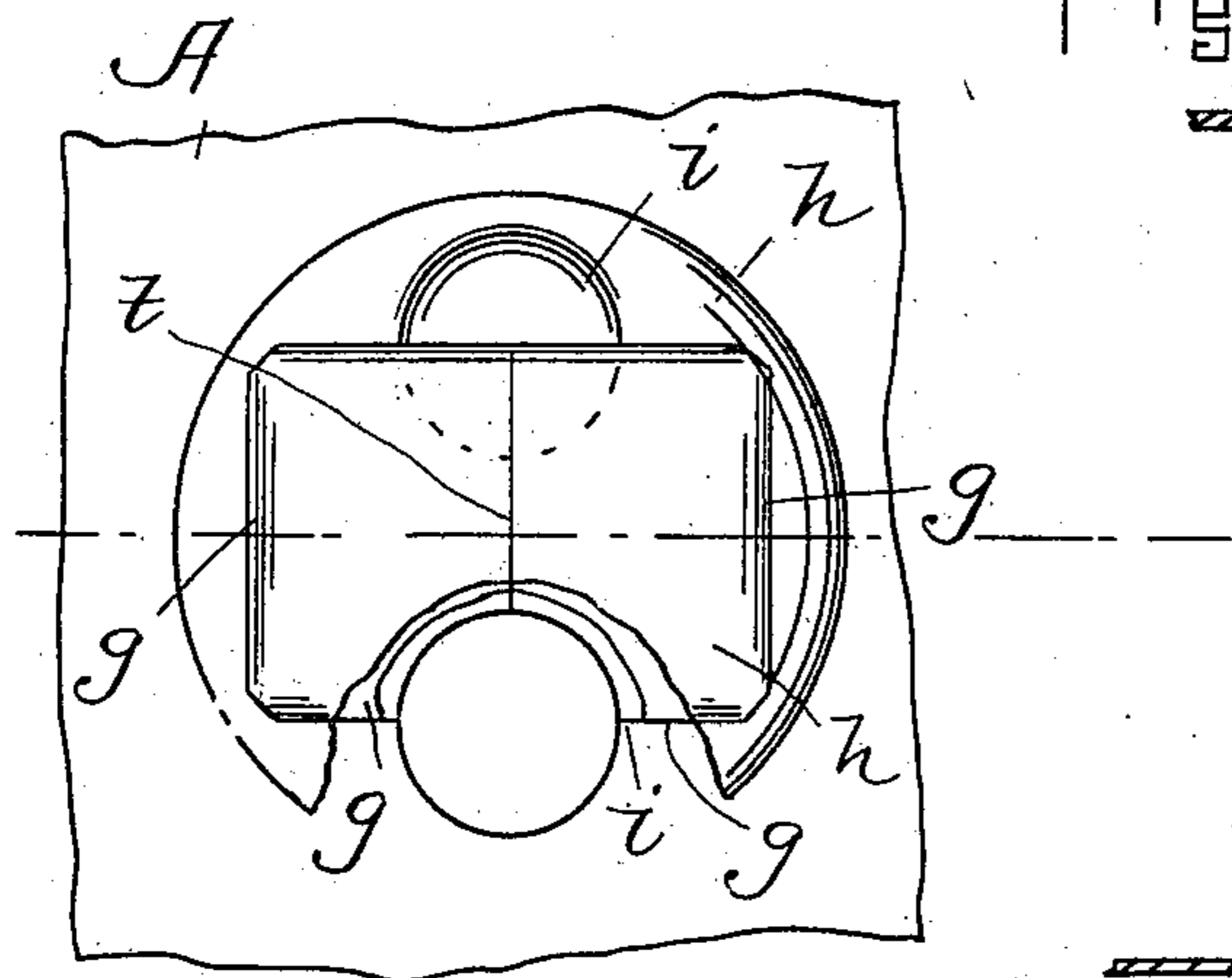


Fig. 2.

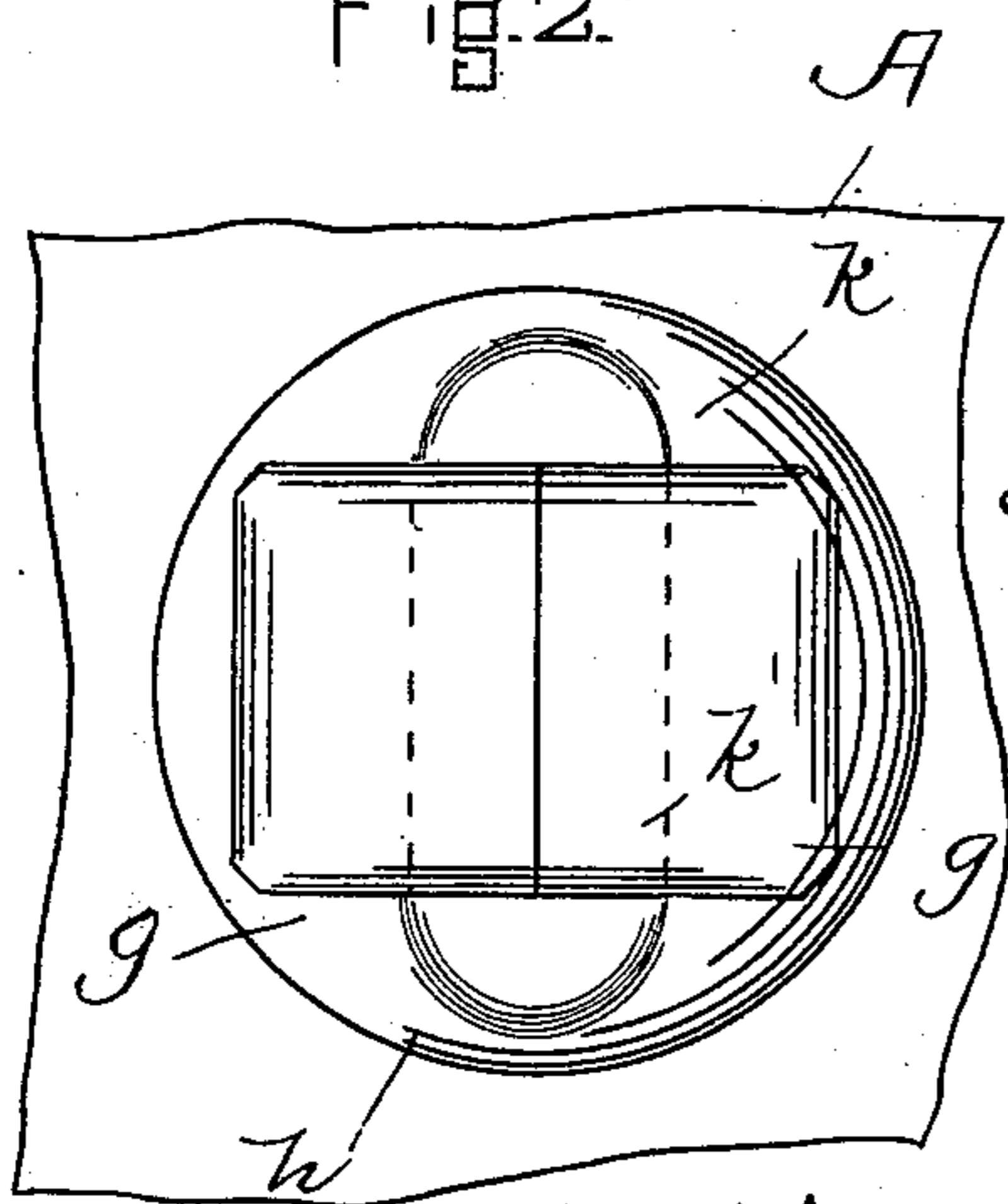


Fig. 4.

WITNESSES.  
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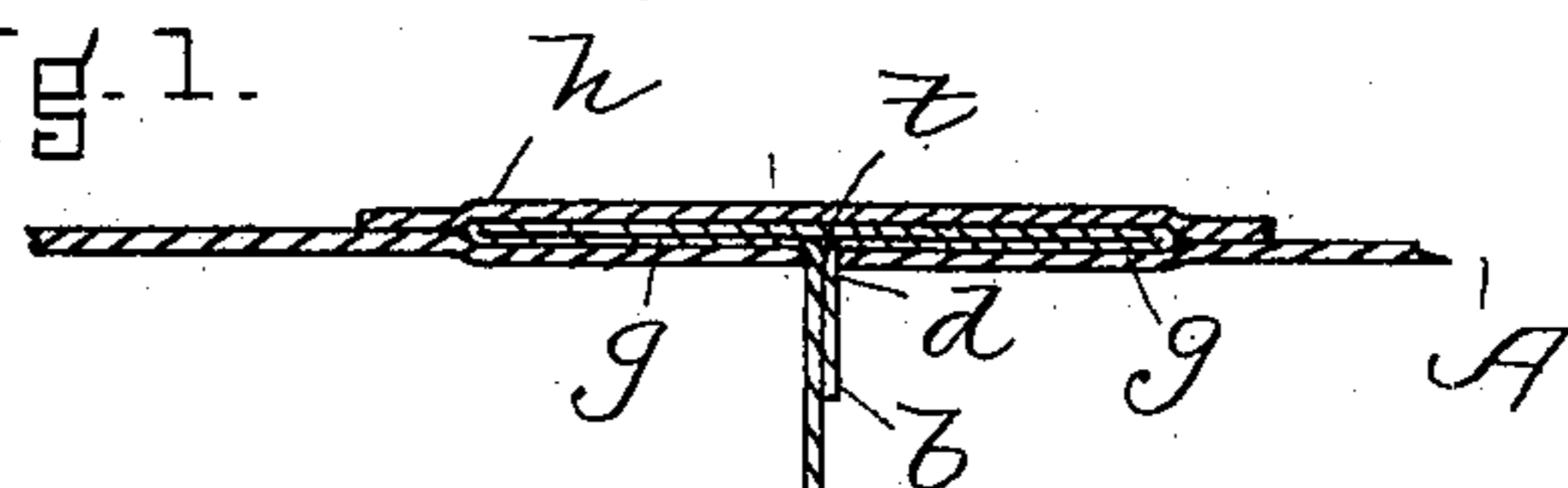


Fig. 3.

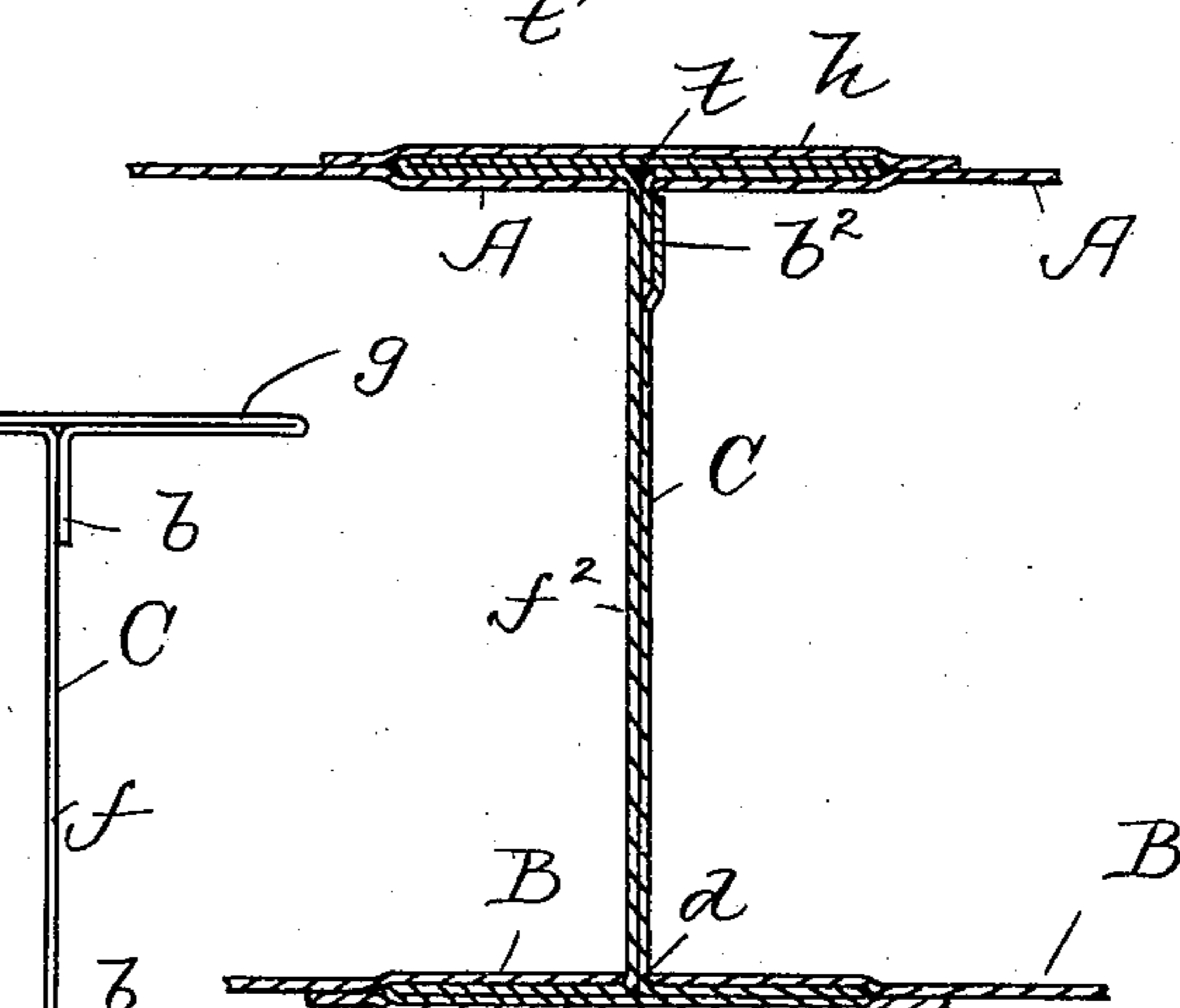


Fig. 5.

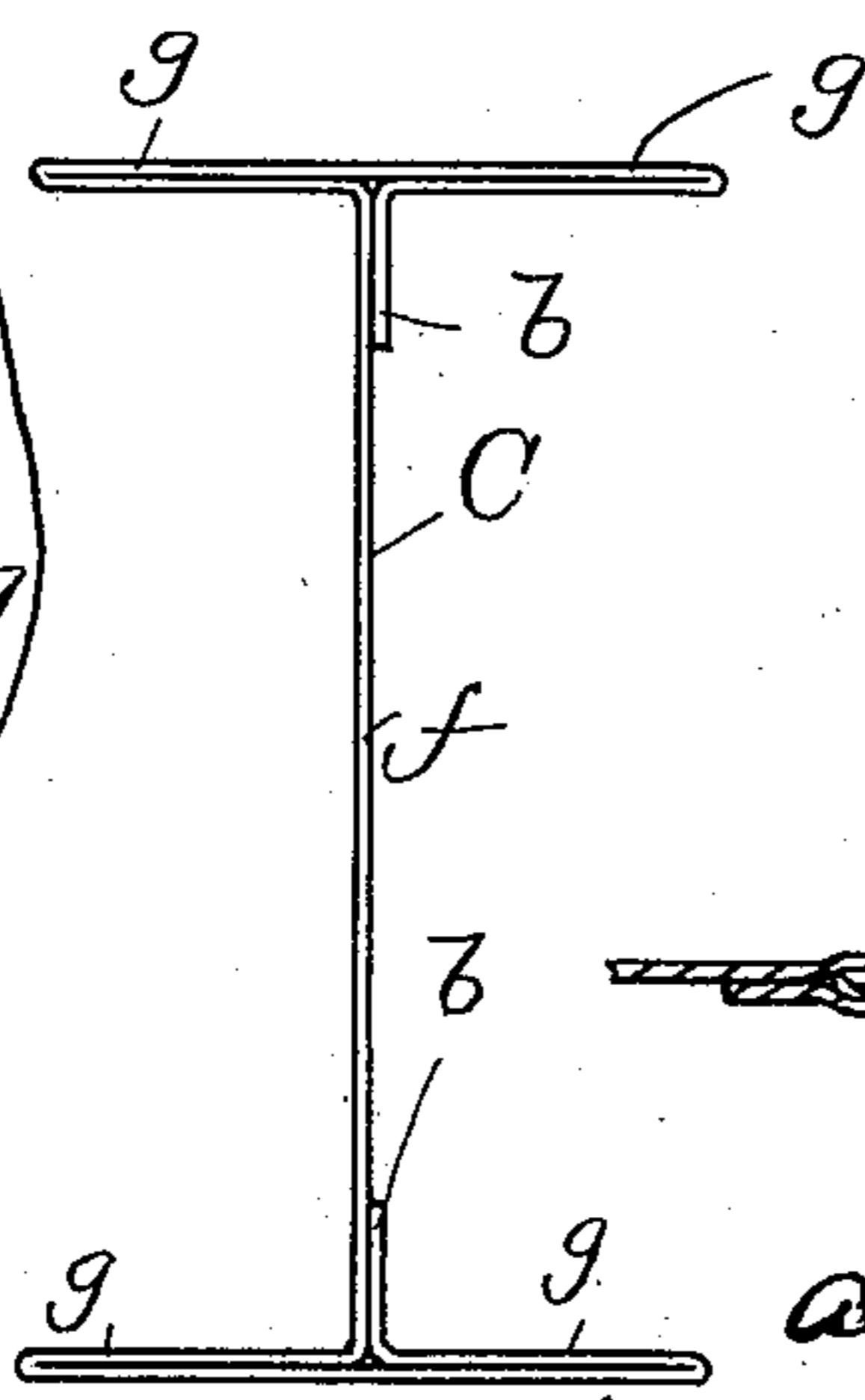


Fig. 6.

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## AIR GOODS.

SPECIFICATION forming part of Letters Patent No. 616,816, dated December 27, 1898.

Application filed September 1, 1898. Serial No. 690,025. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT A. YOUNG, of Wakefield, in the county of Middlesex and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Air Goods, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top plan view of a portion of a rubber or air mattress provided with my improvement; Fig. 2, a plan view showing one of the cap-pieces broken away to illustrate means for securing a stay; Fig. 3, a central vertical transverse section of the same; Fig. 4, a view similar to that of Fig. 2, showing a modification; Fig. 5, a view like that in Fig. 3, showing an alternate method of forming the stay; and Fig. 6, a side view of the stay detached.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My invention relates especially to that class of air goods which comprises air mattresses, cushions, and the like, wherein it is necessary to connect opposite rubber cloth walls by flexible stays in order to maintain their relative position, the object being particularly to supply means for preventing the tearing of the walls at the slot through which it is necessary to pass the stay, and thereby avoid leakage.

The nature and operation of the device will be understood by those conversant with such matters from the following explanation.

In the drawings, A B represent the walls of an air-mattress, which are formed in the usual manner from rubber-faced cloth. These walls, as is essential, are connected by a flexible non-elastic stay, so that when one portion of the inflated mattress is depressed or indented by the weight of the user other portions will not be distorted or expanded. As such movement imparts great strain on the stays, much difficulty is experienced in preventing them from tearing the fabric of the walls and causing a leakage, which is difficult and frequently expensive to repair. These

difficulties I endeavored to overcome in the devices shown in my prior Letters Patent, No. 573,122, of December 15, 1896, and No. 496,030, of April 25, 1893; but both of these devices failed to accomplish thoroughly the result I have now attained. In one case the ends of the stay were split. This when pressure was applied started a torsional action, with the effect of elongating said split or tearing the corners of the slots in the mattress-walls. In the second patent I endeavored to overcome this by wings attached to the inner face of the bag-walls and to the stay. This failed also of the full effect. To make the "pull" even on both sides the wall-slots no matter what the distortion of the air-bag and to protect the ends of the slots through which the stay passes I found could be accomplished by peculiarities of construction of the stay and the method of attaching to said bag-walls. This must be done in such manner that the strain will be resisted equally at opposite sides of the stay-slots in the bag-walls, at the same time having the ends of said slot covered or connected directly by the stay.

The stay C in my improvement consists of a strip of strong canvas tape, as shown in Fig. 6. The ends of this strip are looped laterally at one side and carried across and looped at the opposite side, the extreme ends *b* being bent downward against the body *f* of the stays. This forms laterally-projecting wings *g* at each end of the stay, formed from a continuous piece of tape, the stay being substantially I-shaped in edge elevation, as shown best in Fig. 6. The loop walls and ends *b* are treated with rubber and vulcanized together. The walls A B are rubber-faced on the outer sides in the usual manner. The stay ends are passed through slots *d*, cut in said walls, of a length just sufficient to admit the breadth of said stay. The horizontal wings *g* are thus disposed against said rubber outer faces, and being treated with rubber in the manner of friction-cloth will adhere thereto when vulcanized. It will be understood clearly that these wings *g* are integral at the respective ends of the stay—that is, the whole being of a single strip of tape the companion wings *g* are connected inseparably across the outer face of the I-head, as best shown in Fig. 6. This is of radical importance in my present

device, as it renders the pull even and simultaneous at both sides of the wall-slot, and, furthermore, absolutely prevents companion wings from being torn apart or separated during the straining. These wings are covered by a rubber-faced cap-piece, and all are vulcanized together. By this means the pull of the stay is equal on both sides of the slot, the strain of body *f* being central thereof. This tends to draw the slot-walls inward and prevents its ends splitting or tearing further. I incorporate small circular pieces of friction-cloth *i* (see Fig. 2) between the walls of the loops forming the wings *g*, across the junction *t* of ends *b* with body *f* and projecting laterally therefrom, as shown. These are fast in the heads of the stay and vulcanized also onto the rubber face of the mattress-wall across the ends of the slot *d* and serve as a reinforcement and afford added security against leakage at these points.

Instead of the circular pieces *i* described I may employ a continuous strip *k* in the stay-heads, disposed at *t* across the jointure under the outer wall of the stay-head of the end *b* with body *f*, as shown in Fig. 4. The ends of this strip overlap the edges of the head and while effecting the purpose described for the circular pieces *i* also reinforces the jointure *t*. Both these, however, may be omitted.

The form shown in Fig. 5 is a modification in that the ends *b* of the stay are elongated until they meet at *b*<sup>2</sup>, thus forming a double stay or body *f*<sup>2</sup>.

The salient feature of my present invention comprises forming the stay and its attaching-wings, for the purposes described, in one continuous integral piece. By this means not only is greater efficiency attained than by many of the ordinary methods, of some of which I am the patentee, as specified in the preamble, but a very material saving of cost in vulcanizing and labor especially is saved. The number of parts is materially decreased,

enabling it to be more quickly prepared and applied, and the stay in its connections with the mattress is decidedly strengthened, thereby overcoming the disadvantages of the "split" stay, wherein attaching-wings are formed by splitting the ends of the tape centrally. Torsional action affects such construction and elongates the split. This cannot occur in the form herein shown.

By the peculiar construction I now adopt I avoid the use of the "friction-cap" claimed in my former patents cited, and I further avoid the split stay which I formerly considered essential and which really proved inoperative.

A feature of my present invention lies in constructing the stay-wings and all of a single strip of flexible material, said stay being in side elevation approximately I-shaped, a continuous head-piece connecting companion wings, and the whole being vulcanized together.

Having thus explained my invention, what I claim is—

1. As a new article of manufacture the flexible stay, *C*, for connecting the walls of air goods, and comprising the tape, *f*, having its ends looped to form lateral wings, *g*, the walls of the wings thus formed being vulcanized together, said wings and the stay-body being integral.

2. As an improved article of manufacture the herein-described flexible stay for connecting the walls of air goods comprising a tape bent or folded upon itself to form the double-walled, laterally-projecting, connected wings *g* integral with the body of the stay; and the friction-cloth projections *i* incorporated between the walls of said wings and projecting laterally therefrom, all being vulcanized.

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Witnesses:

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