

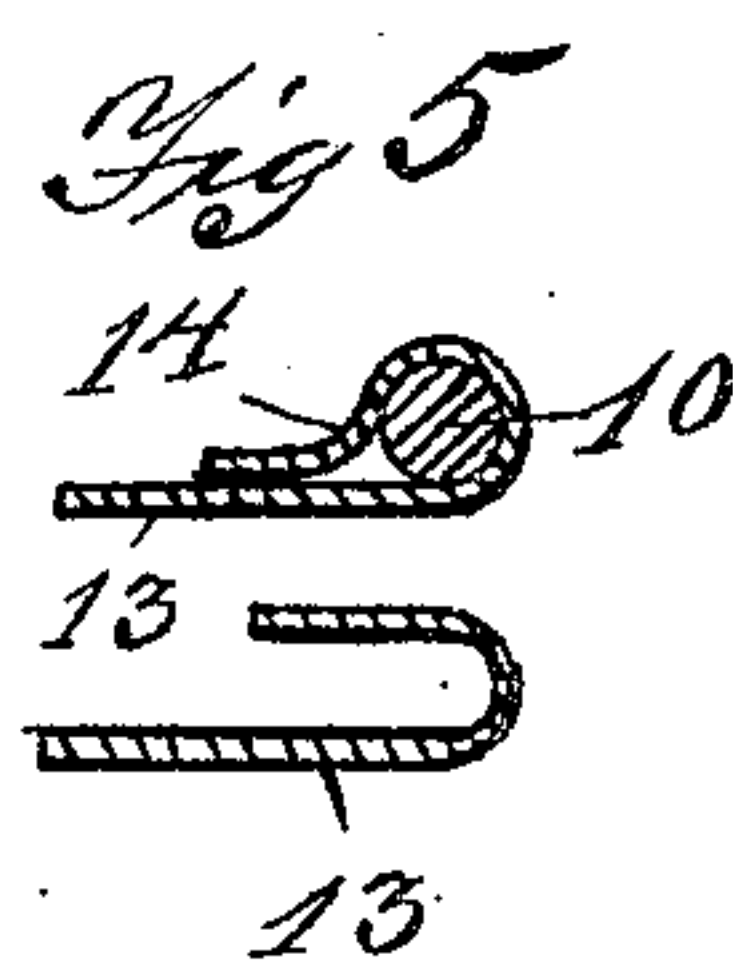
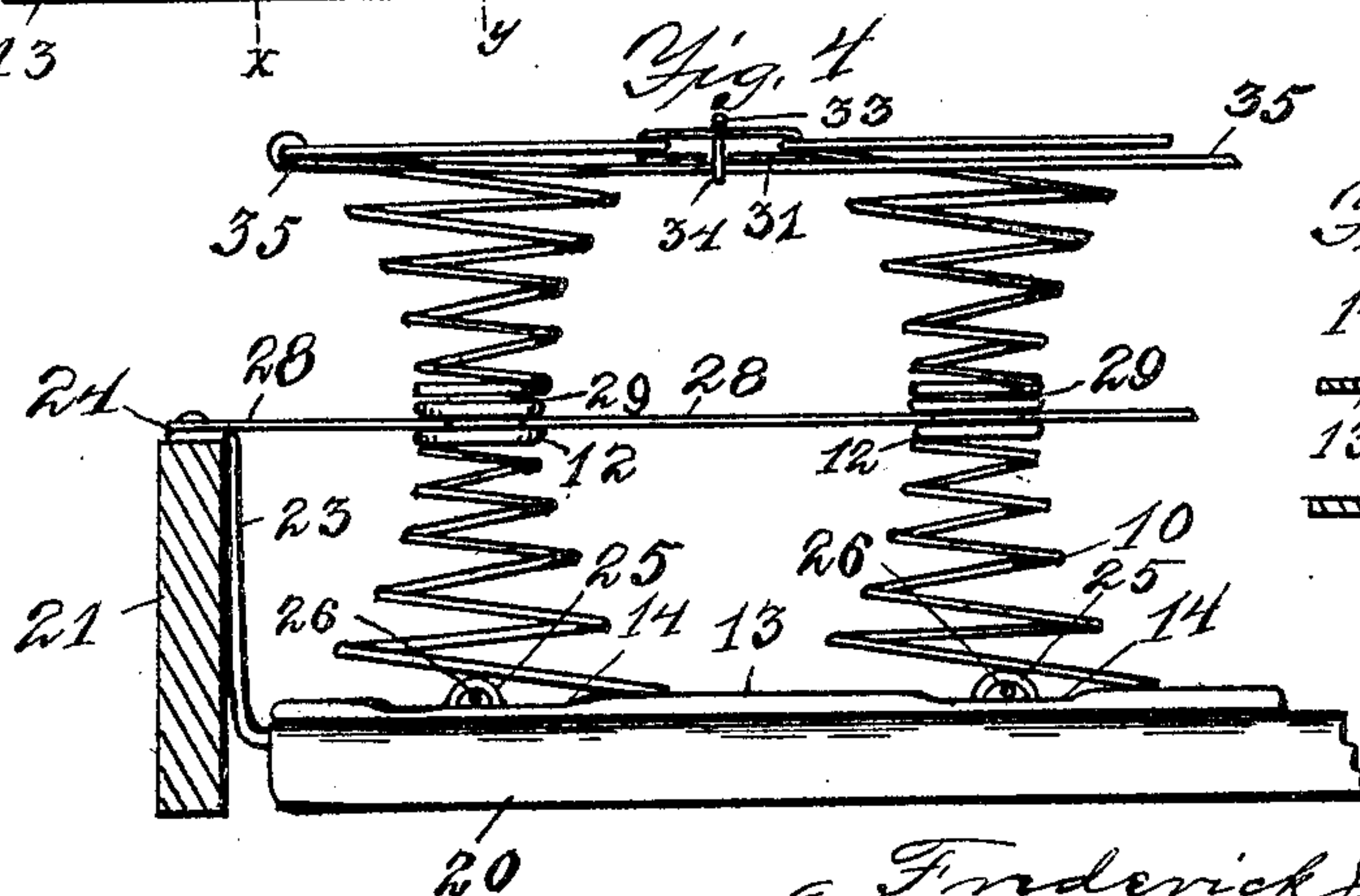
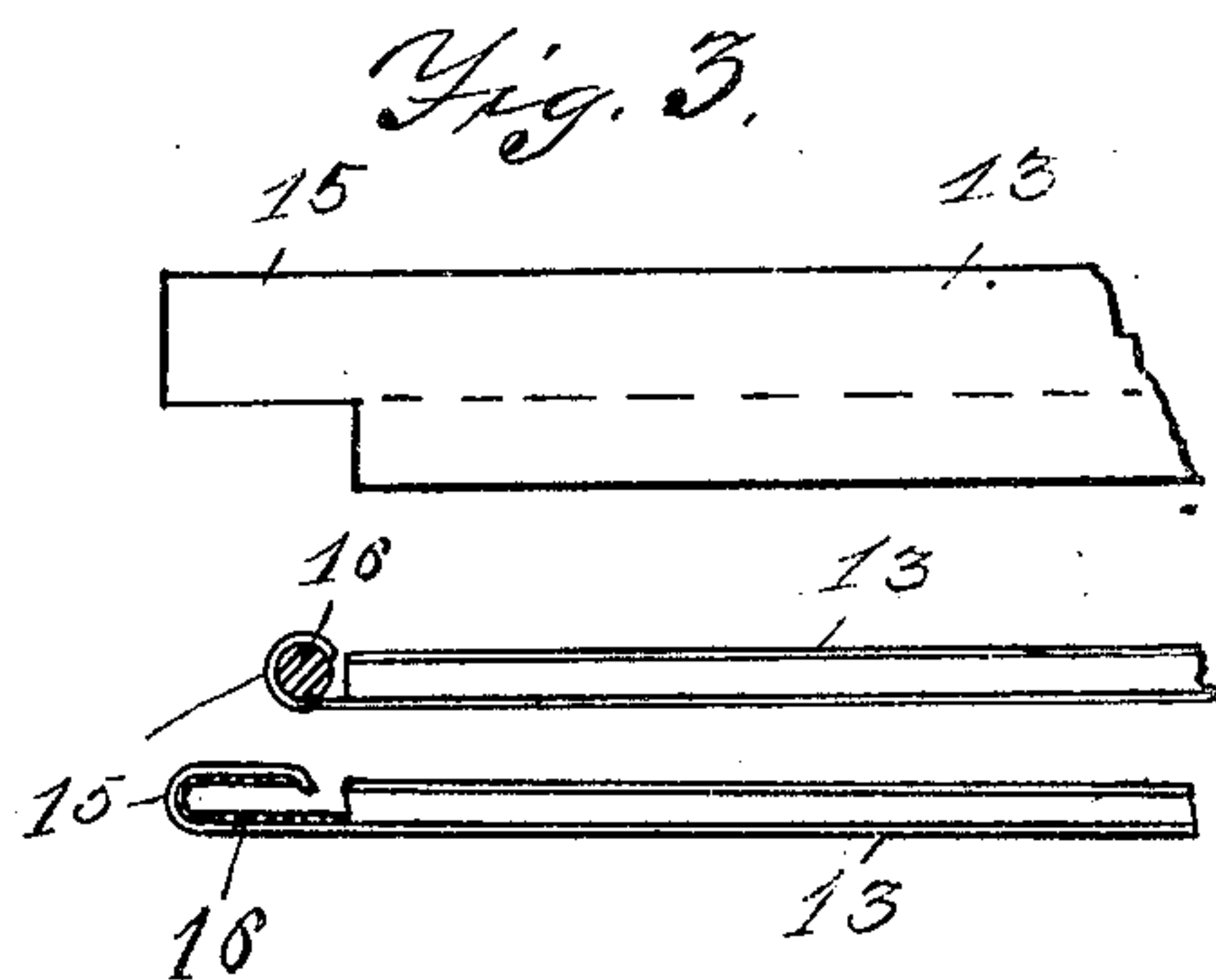
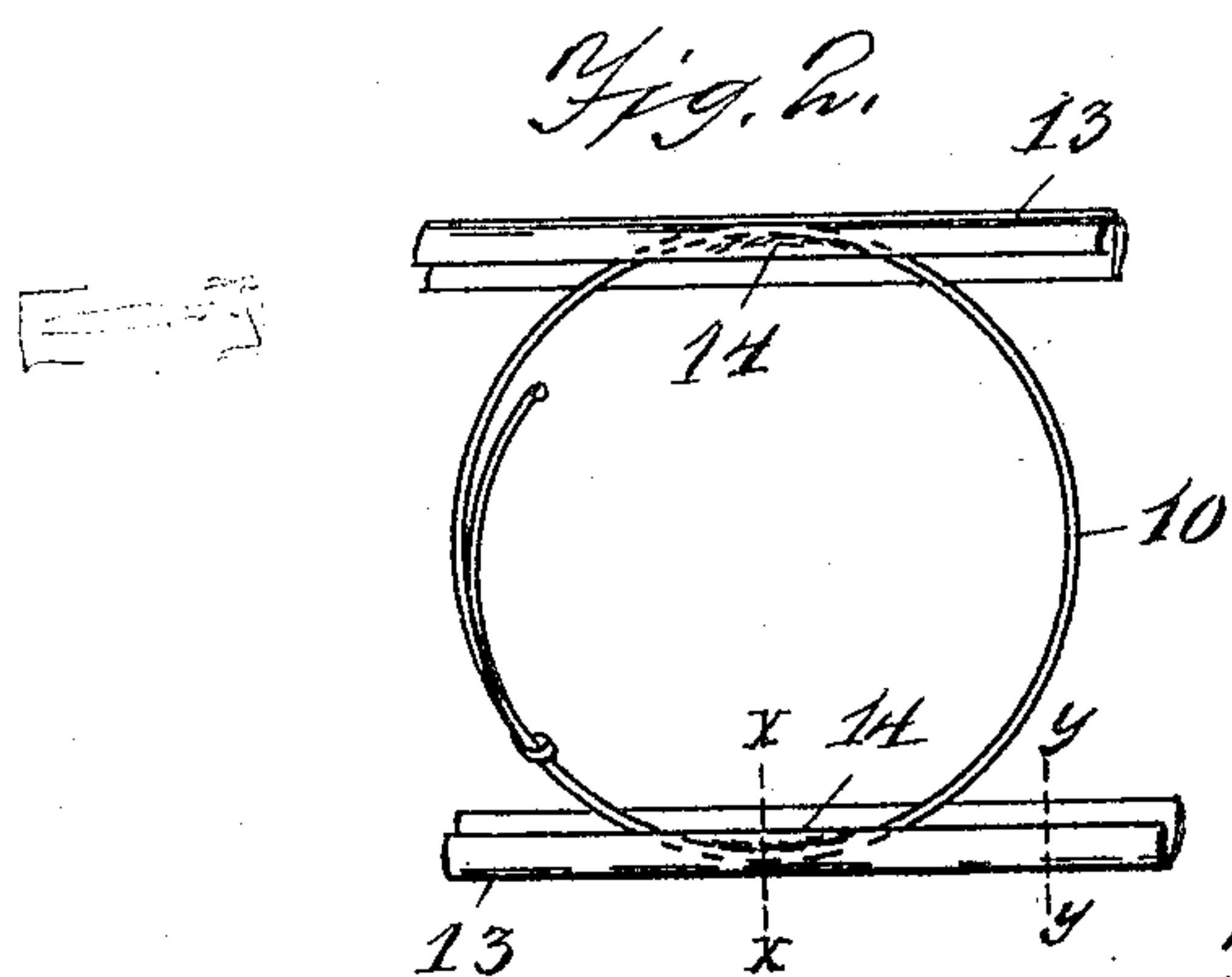
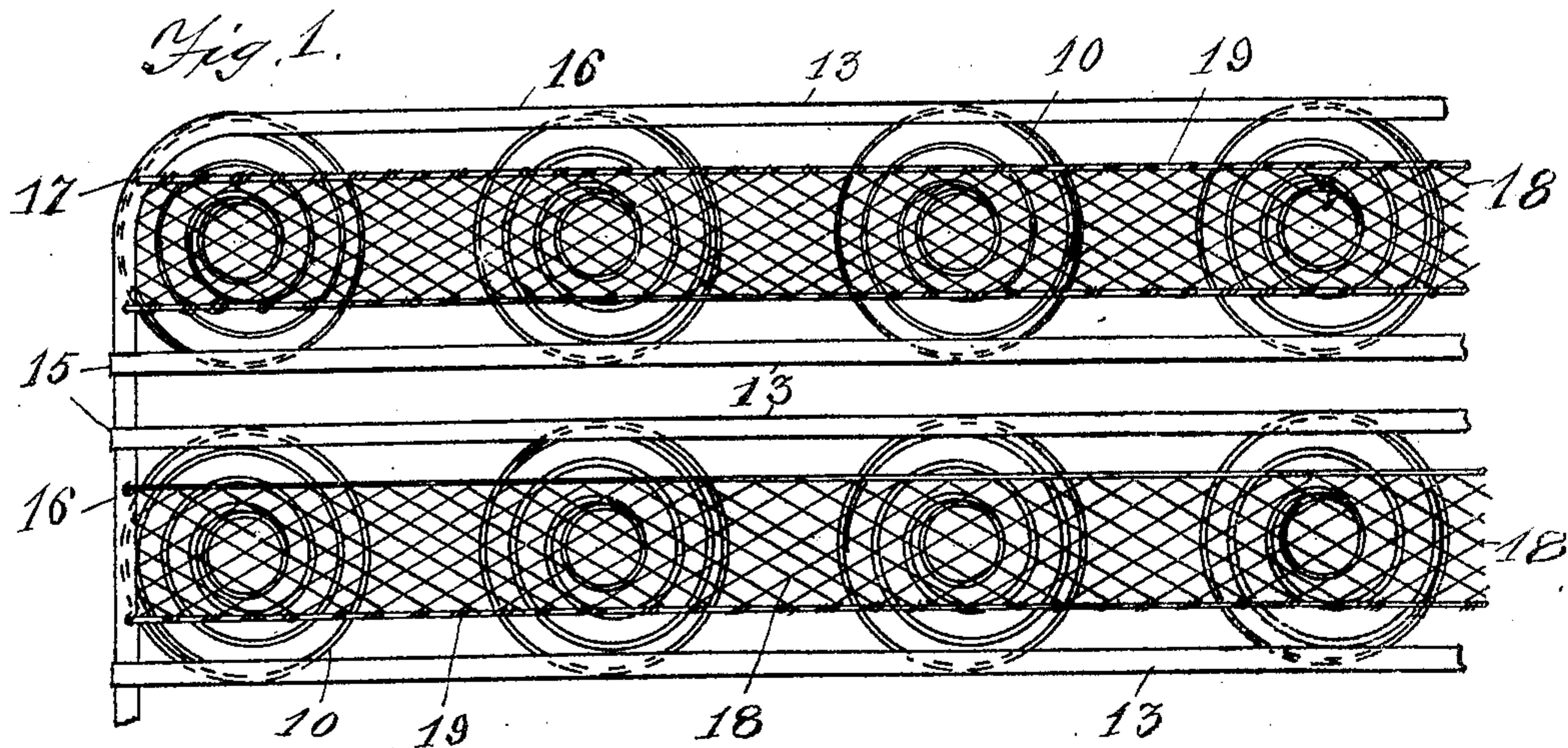
No. 804,352.

PATENTED NOV. 14, 1905.

F. J. & W. C. VAN CISE.  
SPRING BED BOTTOM.

APPLICATION FILED JAN. 6, 1905.

2 SHEETS—SHEET 1.



Witnesses

F. W. Gurney.  
F. O. Baldwin.

Inventors  
Frederick J. Van Cise  
and William C. Van Cise.  
By  
S. Arthur Baldwin,  
Attorney

F. J. & W. C. VAN CISE.

SPRING BED BOTTOM.

APPLICATION FILED JAN. 6, 1905.

2 SHEETS—SHEET 2.

Fig. 6.

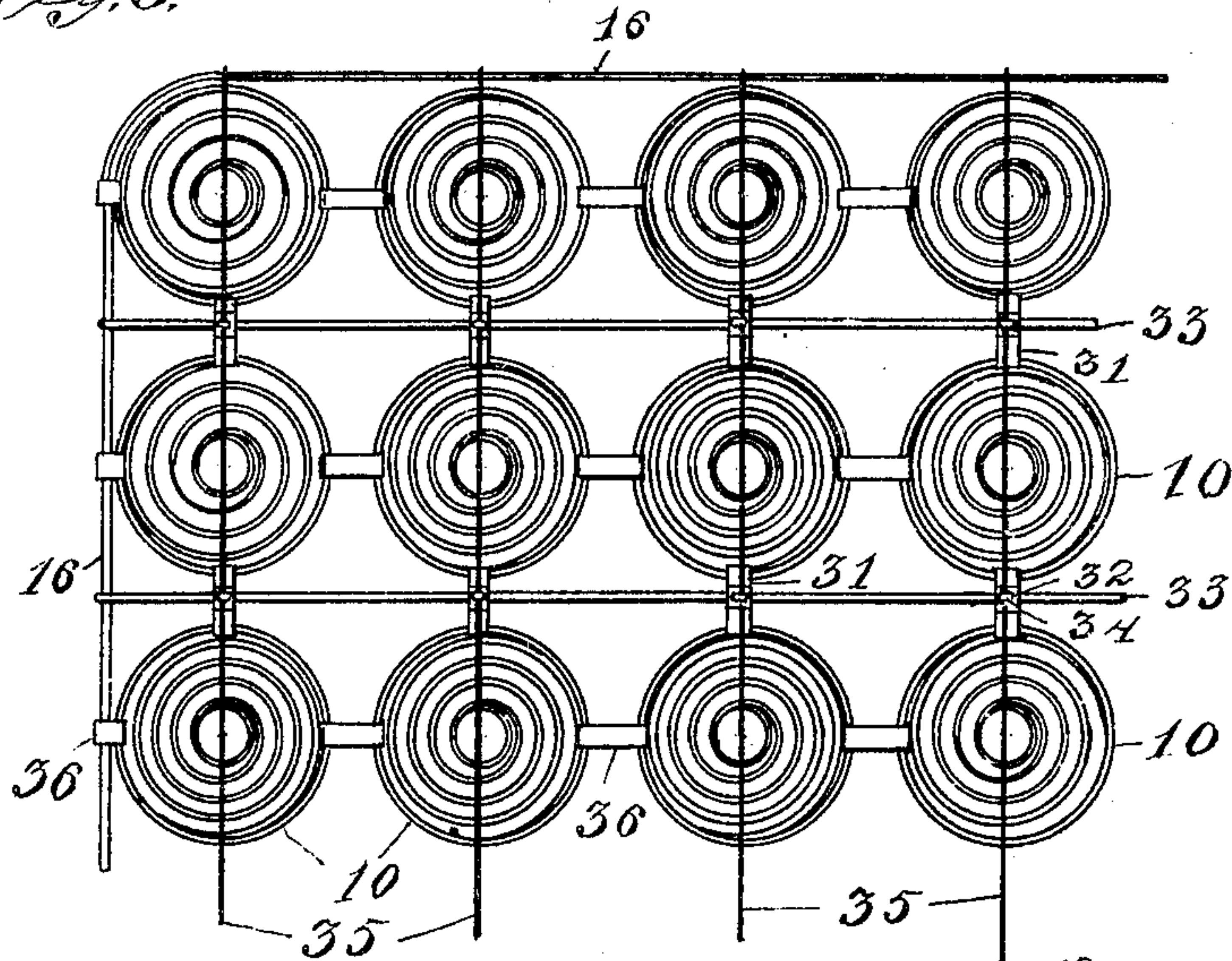


Fig. 7.

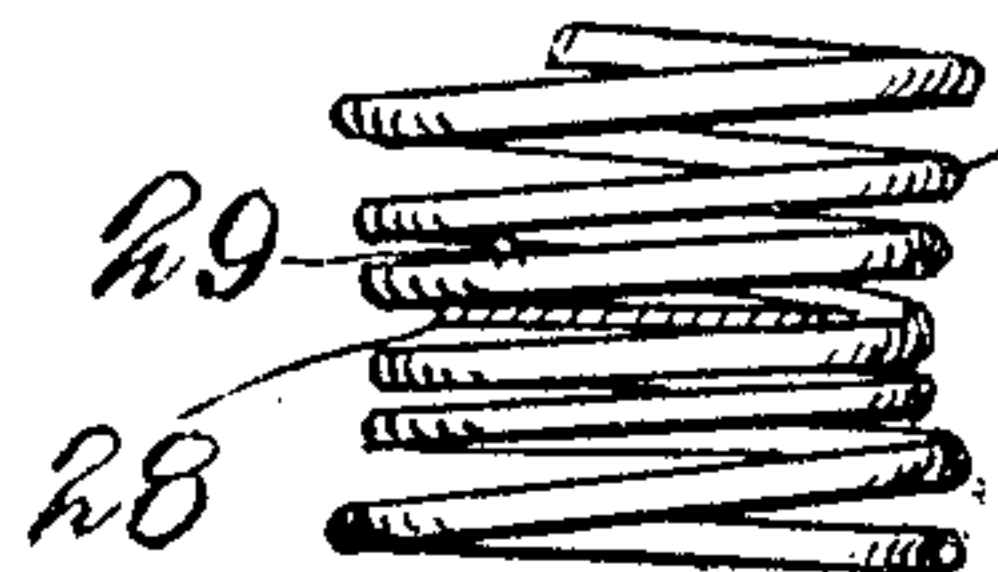


Fig. 8.

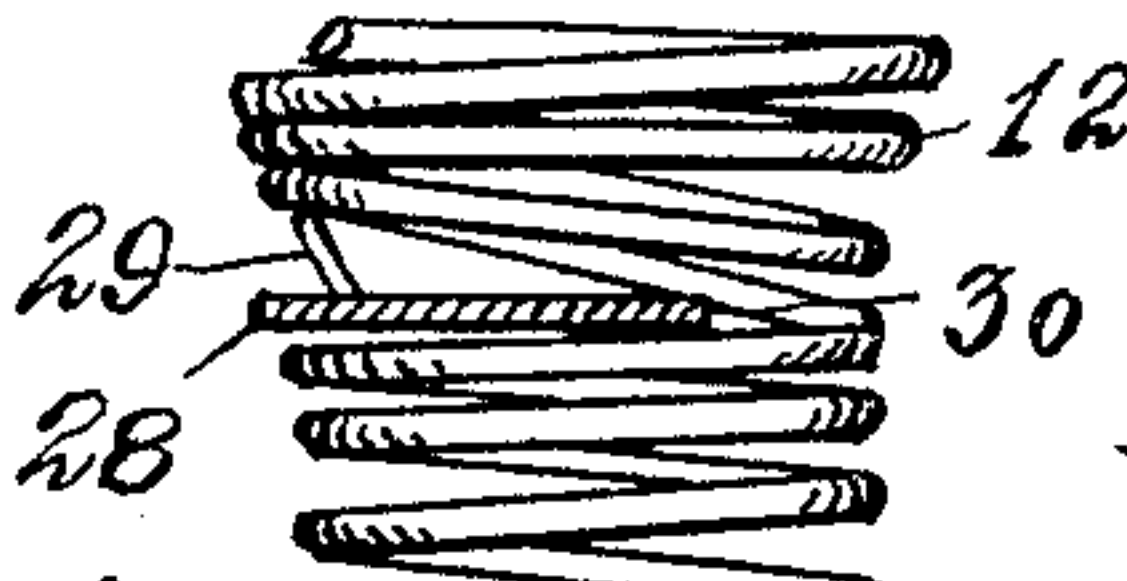


Fig. 9.

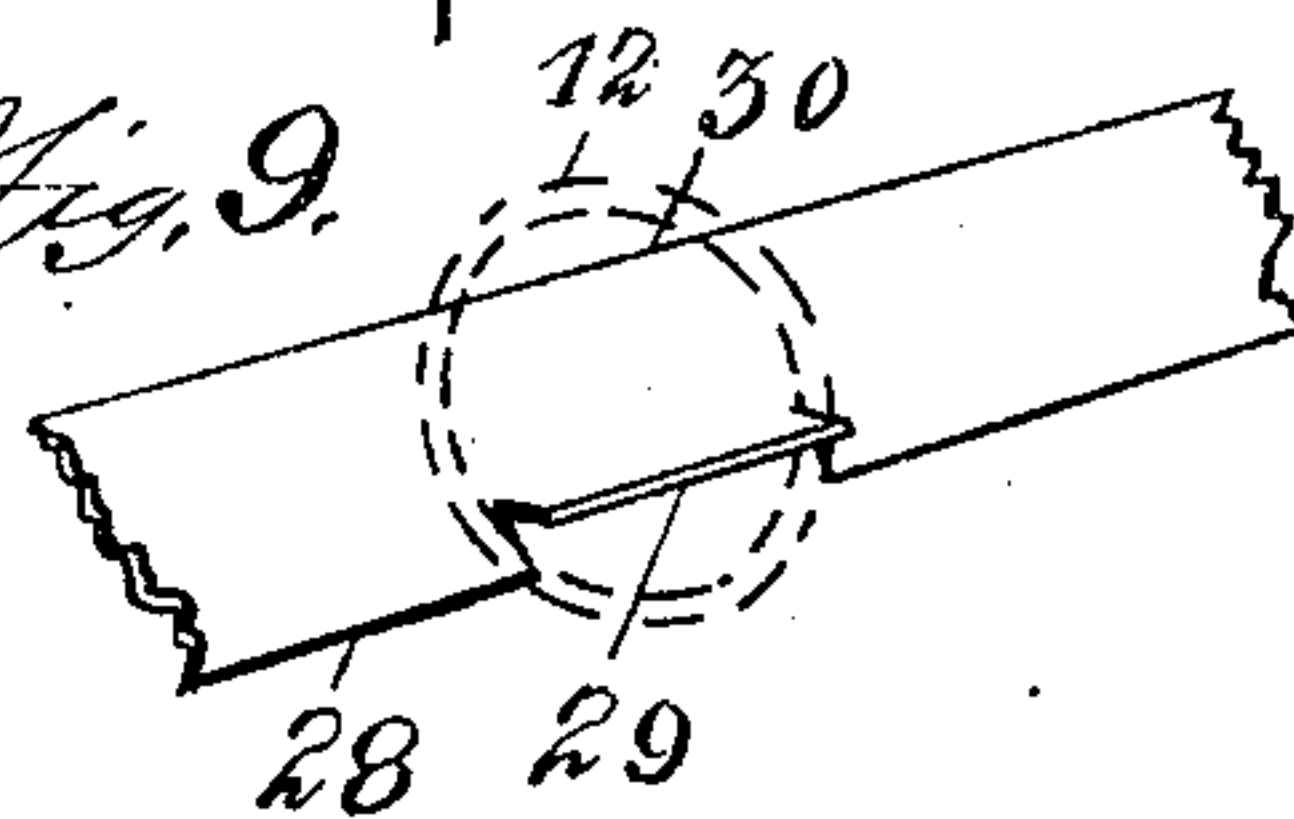


Fig. 11.

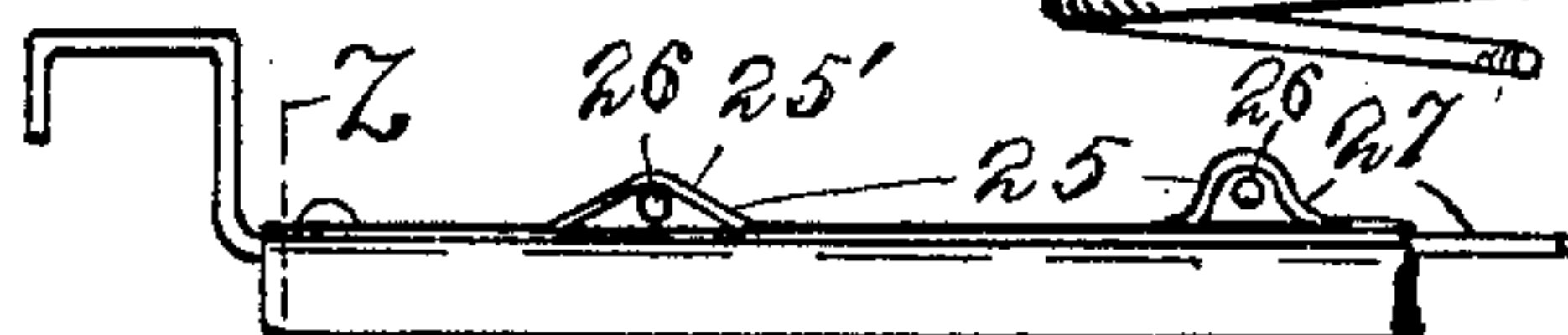


Fig. 10.

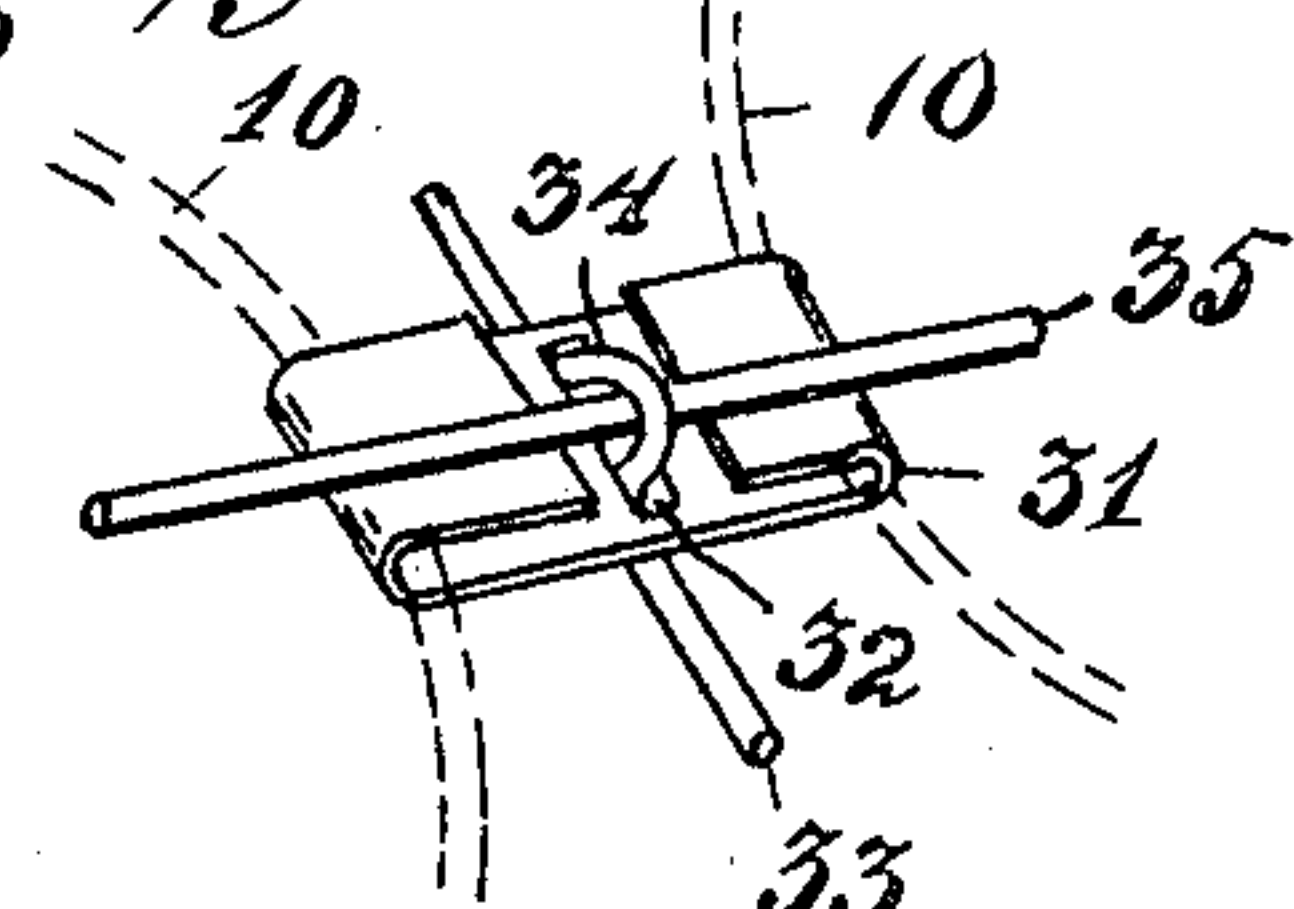


Fig. 12.

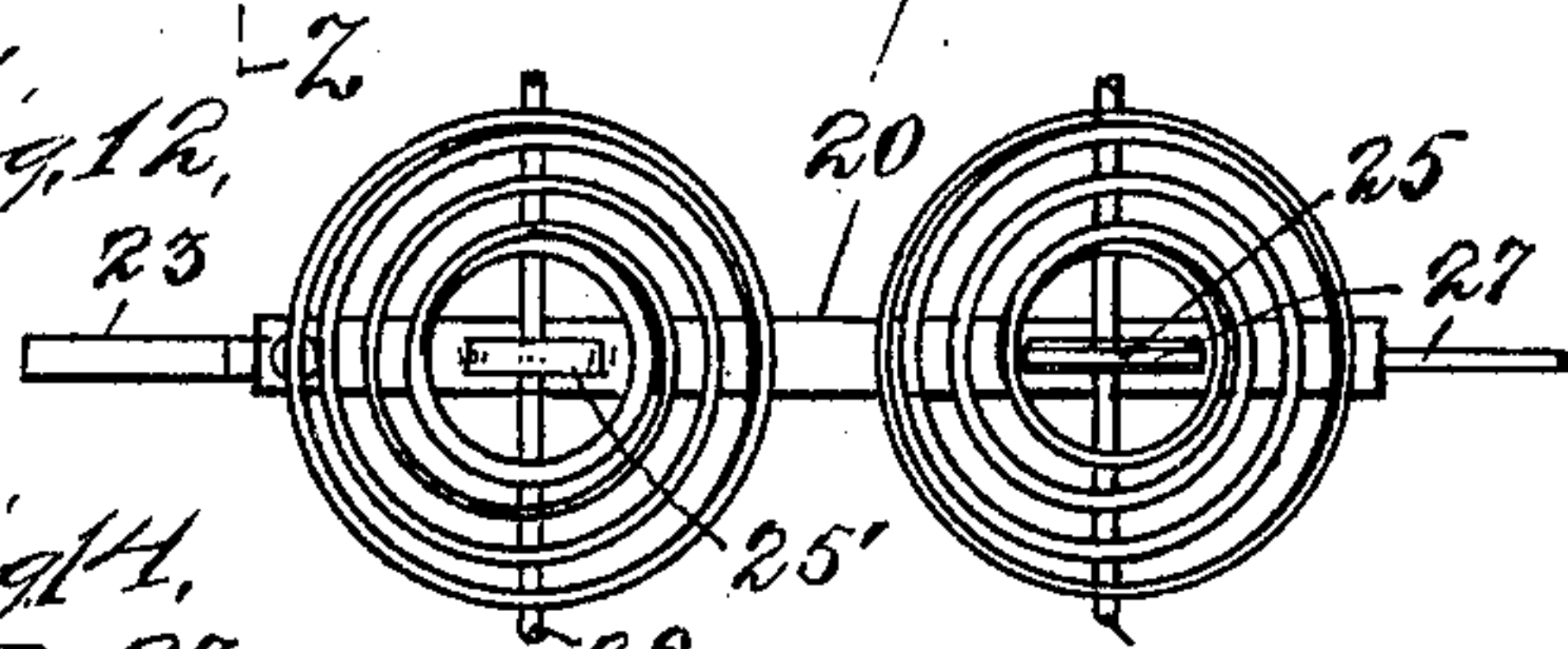
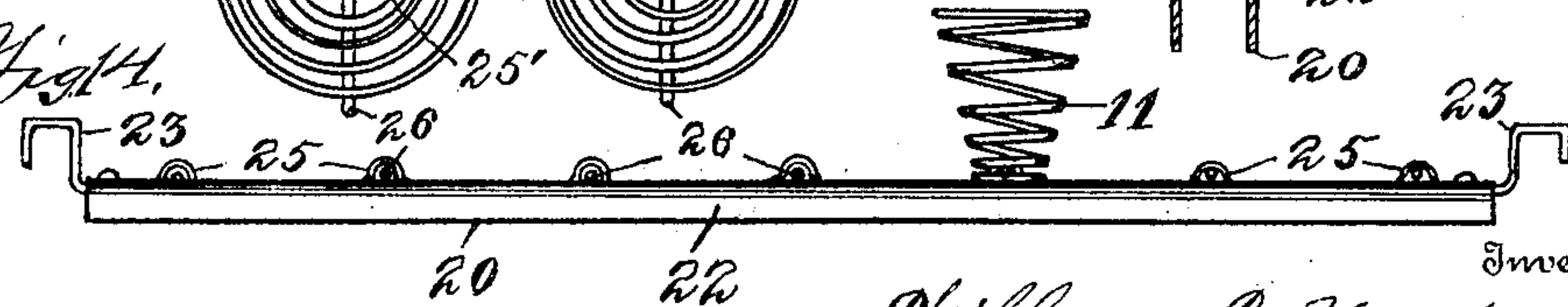


Fig. 13.



Fig. 14.



Inventors

William C. Van Cise  
and Frederick J. Van Cise

By

S. Arthur Baldwin  
Attorney

Witnesses

F. E. Baldwin  
A. W. Kettle



# UNITED STATES PATENT OFFICE.

FREDERICK J. VAN CISE AND WILLIAM C. VAN CISE, OF MAYVILLE,  
NEW YORK.

## SPRING BED-BOTTOM.

No. 804,352.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed January 6, 1905. Serial No. 239,874.

*To all whom it may concern:*

Be it known that we, FREDERICK J. VAN CISE and WILLIAM C. VAN CISE, citizens of the United States, and residents of Mayville, in the county of Chautauqua and State of New York, have invented a new and useful Spring Bed-Bottom, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

Our invention relates to means for supporting cone-springs in an upright resilient position in bed or couch bottoms; and the objects of our improvements are, first, to provide a firm and resilient base for cone-springs; second, to provide a cheap and durable hanger which binds the bed-bottom firmly in place on the hanger; third, to furnish a metal connecting-strip for the central coils of double-cone springs, which can be easily sprung into binding connection therewith, and, fourth, to provide a novel locking connection for the tops of the cone-springs.

In the drawings, Figure 1 is a plan view of the under side of a spring bed-bottom without the hangers attached, showing our means for resiliently supporting the bottom coils. Fig. 2 is a plan view of the upper side of a lower coil as held by metal supporting-strips, the spring being broken away. Fig. 3 shows plan and side views of a portion of the cross-strips with the rim in section. Fig. 4 is a side elevation of double-cone springs supported in our improved manner and showing means of attachment to the side rail of the bed or couch. Fig. 5 shows sectional views of the supporting-strips at lines X X and Y Y in Fig. 2. Fig. 6 is a plan view of the top of a bed-bottom, showing our interlocking connection for the tops of cone-springs. Fig. 7 is a side elevation of the middle portion of a cone-spring with the improved connecting-strip in section, and Fig. 8 is a similar view showing the improved connecting-strip in process of insertion into the coil. Fig. 9 is a detail perspective view of a portion of the improved connecting-strip with the single upturned edge and the locking-coil of the spring shown in dotted outline. Fig. 10 is a perspective view of the locking connection for the tops of the cone-spring, the top wires being shown in dotted outline as embraced by the locking-clip. Fig. 11 is a side elevation of a portion of the improved hanger. Fig. 12 is a plan view of the same with cone-

springs thereon. Fig. 13 is a sectional view of the hanger at line Z Z in Fig. 11. Fig. 14 is a side elevation of a hanger, showing a modification of our bed-bottom, which shows a single-cone spring supported directly upon the hanger.

Similar numerals refer to corresponding parts in the several views.

The numeral 10 indicates a double-cone spring, and the numeral 11 the single-cone spring.

The numeral 12 indicates the central coils of the double-cone spring.

The bottom coils of springs 10 are securely held and supported by folded sheet-metal strips 13 on opposite sides of each row of springs. Metal strips 13 are placed on opposite sides of the row of springs with their open sides facing each other. The bottom coil of each spring is inserted into the open sides of the folded strips and the sheet metal is bent down over the wire, as shown at 14 in Figs. 2, 4, and 5, holding the springs securely in place. The lower fold of strip 13 is usually made a little wider than the upper to give a sufficient support for the spring. Metal strips 13 thus form a light, springy, and durable means of connecting the bottoms of the springs and holds them in place, supporting the springs so that the bottom cannot tip to either of the strip-supported sides.

The ends of strips 13 are attached to the rim-wire of edge strip 16 in the following manner: A tongue 15 is cut from the end of the strip 13 and bent around the rim-wire or edge strip 16, as shown in Fig. 3. It is obvious that the folded strip 13 can be used as a rim or edge strip instead of the usual rim-wire, since it can be extended down the side of the bed and turned around the lower coil of the corner-spring and thence extended across the ends, as shown at 17, and the end springs may have the additional support of this end strip. This cheapens and simplifies the construction over a regular rim-wire.

The use of strips 13 on opposite sides of the lower coil of a row of double-cone springs forms a strong support for the same; but we find that open and highly-resilient cone-springs, such as are used in couch and seat work, are improved by placing strips of woven-wire webbing 18 lengthwise between the supporting-strips 13, attaching the webbing-strips 18 at their ends to the rim-wire or folded strip,



and stretching them sufficiently to give a spring tension as they support the bottoms of the springs. Other webbing might be used in place of woven wire; but we find that the  
 5 woven wire gives an added resiliency to the spring on account of the elasticity of the same. It also overcomes all noise from the coils of the springs striking upon the metal supports and hangers, and it also keeps the  
 10 center of the coil from bending below the level of the base, as it will sometimes do when not supported. For large springs the strips 18 may be stiffened and strengthened by inserting edge wires 19 in the outer edge coils  
 15 of the webbing.

We provide a cheap hanger or cross-slat 20 for supporting the bed upon the bed-rail 21. Hanger 20 is composed of a folded sheet-metal central part 22, which is placed in the bed  
 20 with the cylindrical or folded side uppermost, thus forming a strong and rigid support. Hooked ends 23 are attached to the ends of central portions 22 by suitable rivet and may  
 25 be attached thereto by a suitable screw or nail, as shown at 24 in Fig. 4.

It is found that cone-springs have greater resiliency and work better if they are held firmly in position against sidewise move-  
 30 ments. Consequently a binding-loop 25 is supplied in the upper edge of hanger 20, through which cross binding-wires 26 are inserted, which binding-wires pass through the loops 25 and over the bottom coils or binding-  
 35 strips 13, thus binding the springs so rigidly in place that all their resiliency may be reproduced. The loop 25 may be made by means of a strip cut from the sheet metal 22 and bent upward, as shown at 25' in Fig. 11,  
 40 or it may be formed by a slot cut in the sheet metal and the wire 27 extended through the hanger with upward bends at each of the slots, as shown in Figs. 11 and 12.

It is apparent that if a sufficient number of  
 45 cross-hangers 20 were supplied for each row of springs the lower coils of single-cone springs 11 could be attached directly to the top of the hanger and that binding-wire 26 would hold the bottom of the single cone  
 50 firmly in position on the hanger. If a suitable top connection were supplied, this would form a modification of our spring construction which might serve the purpose. It does not, however, form as resilient and satisfac-  
 55 tory a spring as our preferred construction.

In former Letters Patent, No. 641,660, a locking connecting-strip was shown for holding the central coils of double-cone springs in place. This strip served its purpose well,  
 60 but is slow and hard of insertion, each spring having to be turned onto the strip with its double upturned locking-flanges. Our improved strip 28 is formed with a single upturned locking-flange 29, which is given a  
 65 slight incline toward the outer edge of the

strip, so that the opposite straight edge 30 of the strip can be inserted between the coils, as shown in Fig. 8, and the inclined upturned edge 29 presses the coils apart until it slips  
 70 within the coil, locking the same around it and bracing against the inner side of the coil, the straight edge 30 pressing against one side of the coil and both ends of the upturned edge 29 locking against the opposite inner side, so  
 75 that it cannot be removed without turning the spring off from it, but which allows of its being pressed into place almost instantaneously in the making of the spring. This simplifies the construction, does just as good  
 80 work as the former construction, and saves considerable in the cost of inserting the locking-strips. The outer ends of strip 28 may be attached to the bed-rail, as shown at 24 in Fig. 4.

Our new interlock or top connection for the  
 85 cone-springs is composed of a metal clip 31, which embraces the adjacent top coils of the springs 10 or 11, which clip has a slot 32 cross-wise of its central portion. A cross-wire 33 is provided with return-bends 34, which are in-  
 90 serted in slots 32 of clips 31. A wire 35 crosses wire 33 at right angles, being inserted within bends 34 of wires 33 and locking the ends of clips 31, thus forming a tie and locking all the parts. The outer ends of wires 33 and 35 are attached  
 95 to the rim-wire, as shown in Fig. 6. Suitable clips 36 may be placed at intervening points between the top wires of the cone-springs and between the rim-wire and the top wires of the  
 100 outer row. It is apparent that the interlocking clip 31, which locks against wires 33 and 35, can be worked either side up, the cross-wire 35 passing over the tops of the cone-springs, as shown in Fig. 10, or beneath the  
 105 outer coil, as shown in Fig. 4, as seems most desirable.

We claim as new—

1. In a spring-bottom for beds and the like, cone-springs, two strips of folded sheet metal one for each side embracing opposite sides of  
 110 the bottom coils of said springs to hold the same, and suitable connecting-supports for the upper coils of said springs.

2. In a spring-bottom for beds and the like, cone-springs, suitable connecting-supports for  
 115 the upper coils of said springs, two strips of folded sheet metal embracing opposite sides of the bottom coils of said springs to support the same, the outer edge strip extended across the ends for a rim, and the central folded strips  
 120 attached to the said end strip, substantially as and for the purpose specified.

3. In a spring-bottom for beds and the like, double-cone springs, suitable connections for  
 125 the upper coils of said springs, two strips of folded sheet metal embracing opposite sides of the bottom coils of said springs, and a strip of webbing stretched tight between said folded metal strips to support the center of the coil.

4. In a spring-bottom for beds and the like, 130



double-cone springs, straight and flat metal connecting-strips for the middle coils of said springs, and flanges on one edge of said strips having an outward inclination to allow of easy  
5 insertion between and to hold within said coils.

5. In spring-bottoms for beds and the like, double-cone springs, straight and flat metal connecting-strips for the middle coils of said springs, and a projection carried by said strips  
10 bearing an angular relation to the flat faces of said strips, the free end of said projection bearing against one of the coils of the spring to retain the longitudinal edge of the strip opposite to said free end in engagement with  
15 said coils.

6. In combination with double-cone springs, strips for supporting said springs from the middle coils thereof, said strips carrying lateral angular projections whereby said strips  
20 may be inserted sidewise between the progressive coils of the spring and said projection may engage said coils and force the same apart to allow said projection to engage said middle coil from the interior thereof.

25 7. In combination with double-cone springs, strips for supporting said springs, said strips carrying an inclined projection the free end of which forces the coils of the spring apart at the point of insertion in a wedge-like manner to enable said projection to be disposed  
30 within the said coils and engage the inner faces thereof.

8. In combination with double-cone springs, strips for supporting said springs, and projections carried by the strips, the free ends of said projections forcing the coils apart at the point of insertion of the strip to enable said projections to be disposed within the said coils and engage the inner faces thereof.  
35

40 9. In combination with double-cone springs, strips for supporting said springs, and elements carried by the strips and projecting upwardly from the face thereof whereby said

elements when the strip is inserted between the coils of said springs will force said coils 45 apart and bear against the inner surfaces thereof after insertion.

10. In a spring-bottom for beds and the like, cone-springs having a suitable support for the bottoms of the springs, flat metal connecting-clips for the tops of said springs, crosswise slots in said clips, a holding-wire having returned bends insertible in said slots, and a second holding-wire passing through said bends and locking the ends of said clips. 50 55

11. In a spring-bottom for beds and the like, cone-springs having suitable holding means, a support for said springs consisting of a folded strip of sheet metal having means for attaching to the bed-rails, loops raised from the upper edge of said sheet metal, and crosswires passing through said loops and over the lower coils or holding means of said springs, substantially as and for the purpose specified. 60

12. In a spring-bottom for beds and the like, the combination of the upright cone-springs 65 10, the parallel folded holding-strips 13 16 and webbing 18 for the lower coils of said springs, the connecting-strips 28 with holding-flanges 29 for the middle coils of said springs, the connecting-clips 31 and interlocking crosswires 33 and 35 for holding the tops of the springs, and the hanger 20 having loops 25 and cross binding-wires 26 to hold said springs, substantially as and for the purpose specified. 70 75

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FRED. J. VAN CISE.  
WILLIAM C. VAN CISE.

Witnesses:

ADOLPH HALLSTROM;  
ARTHUR R. SEARS.