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D. SCHUSTEK & H. L. ANDREWS.

COLLAPSIBLE CHAIR.

APPLICATION FILED MAY 17, 1902.

2 SHEETS—SHEET 1.

Fig. 1.

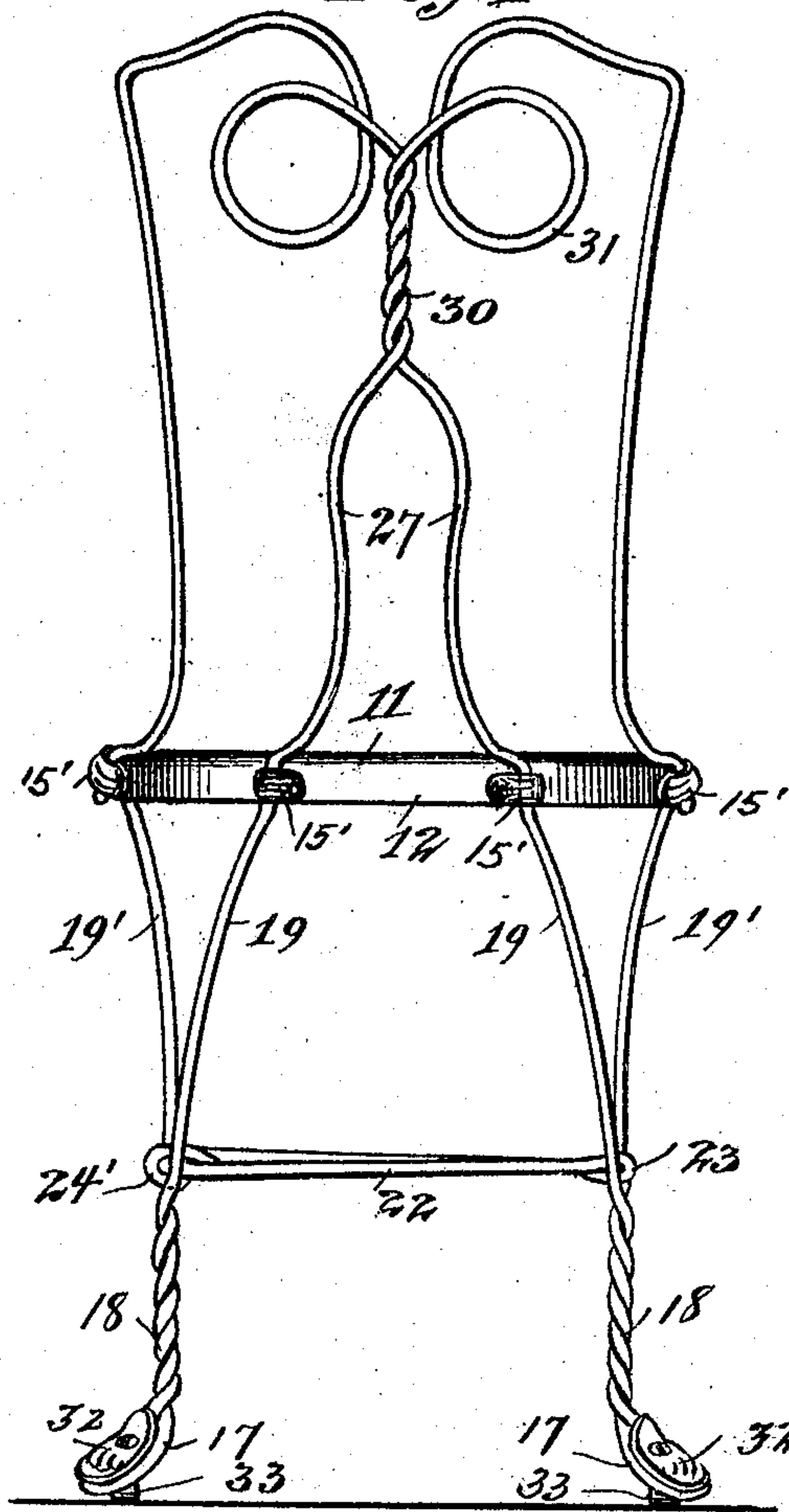
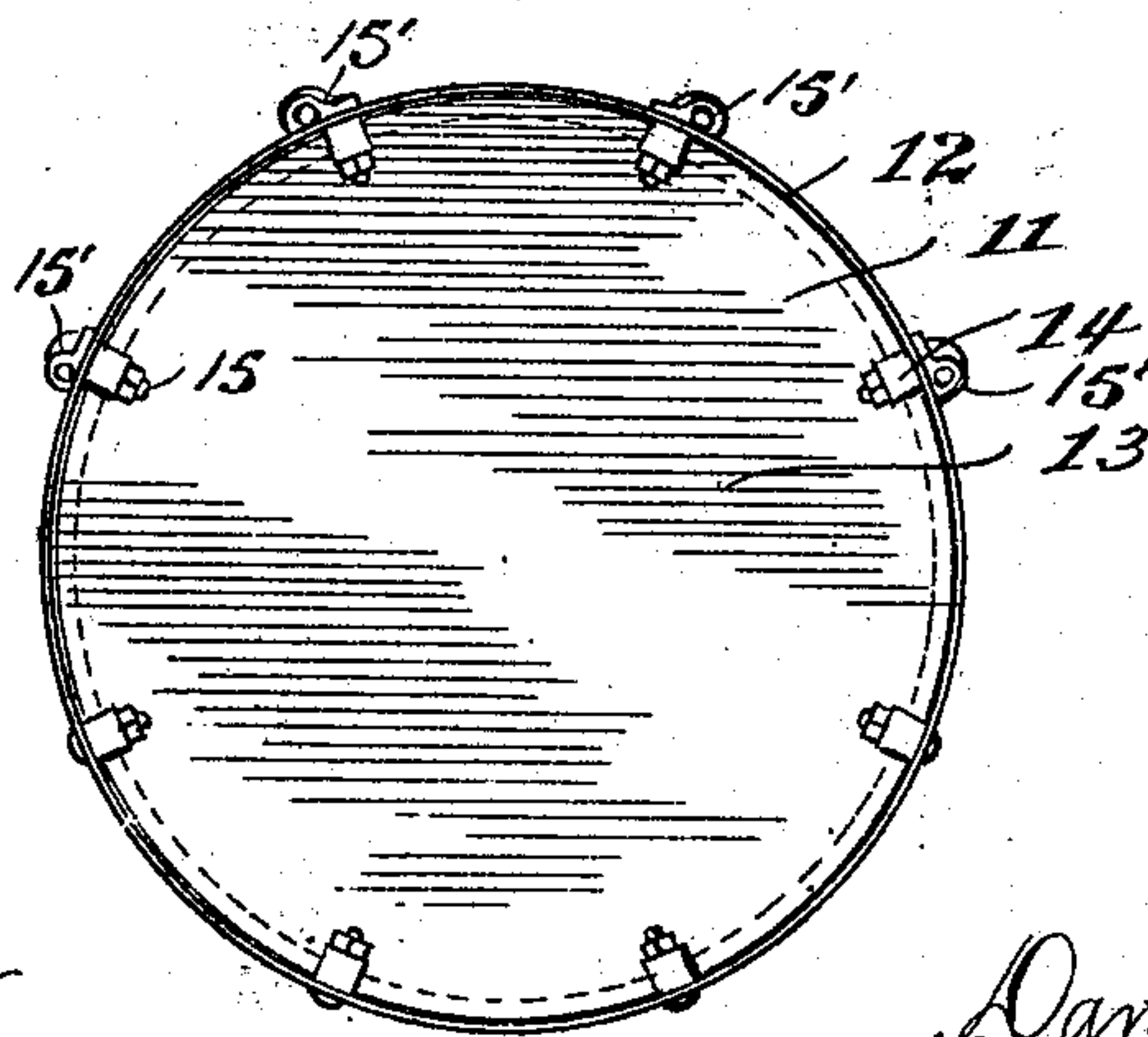


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

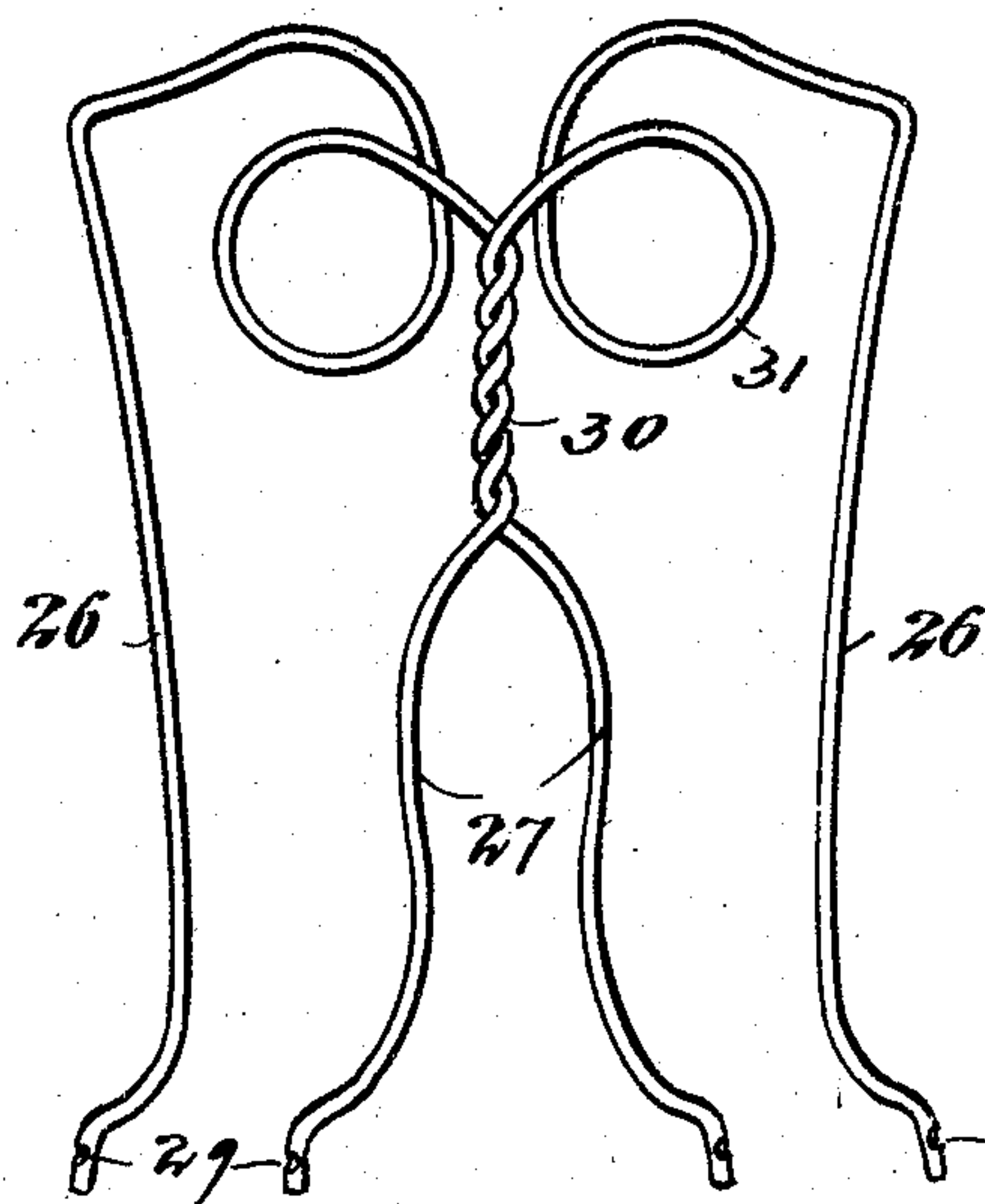


Fig. 6.

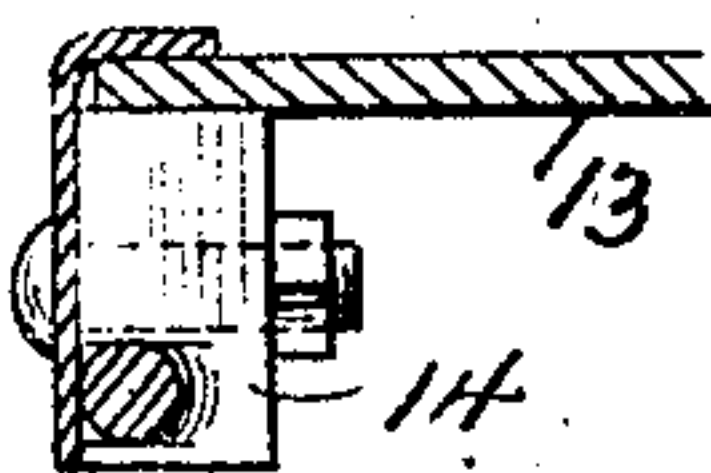


Fig. 7.

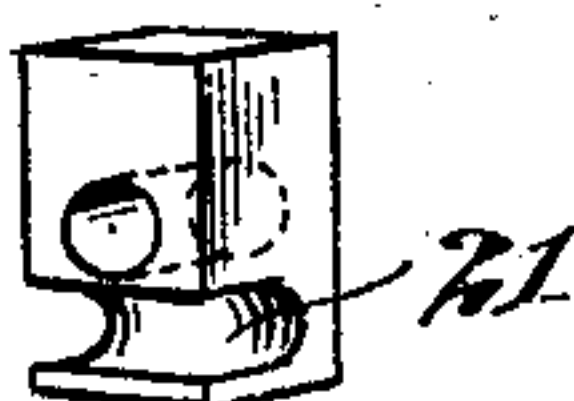


Fig. 8.

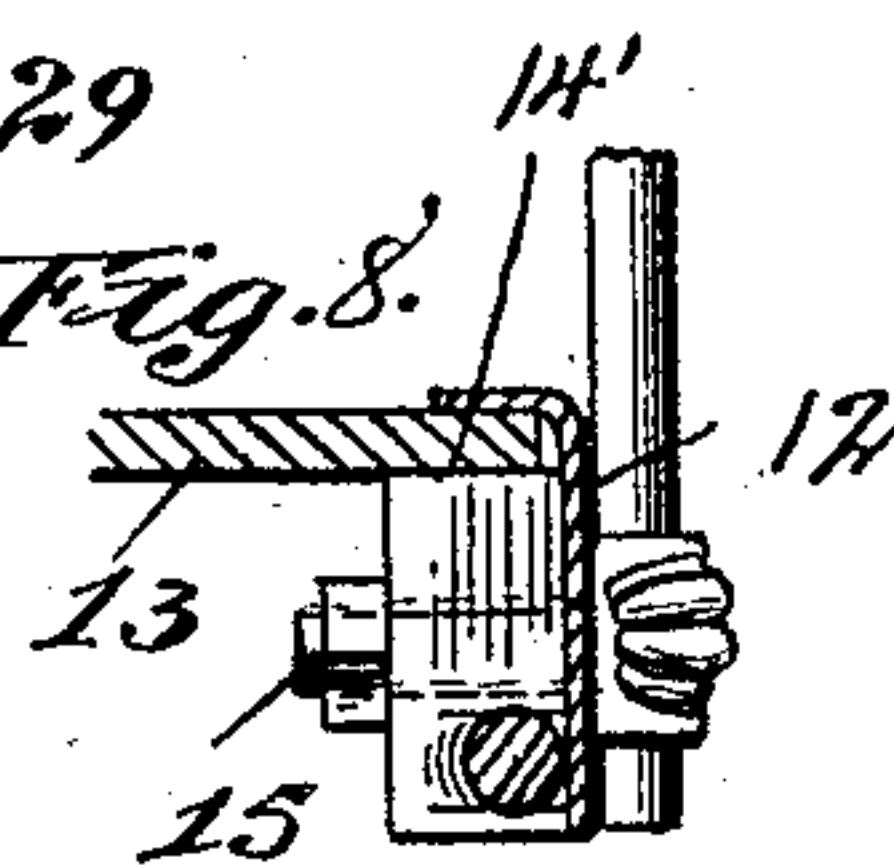


Fig. 9.

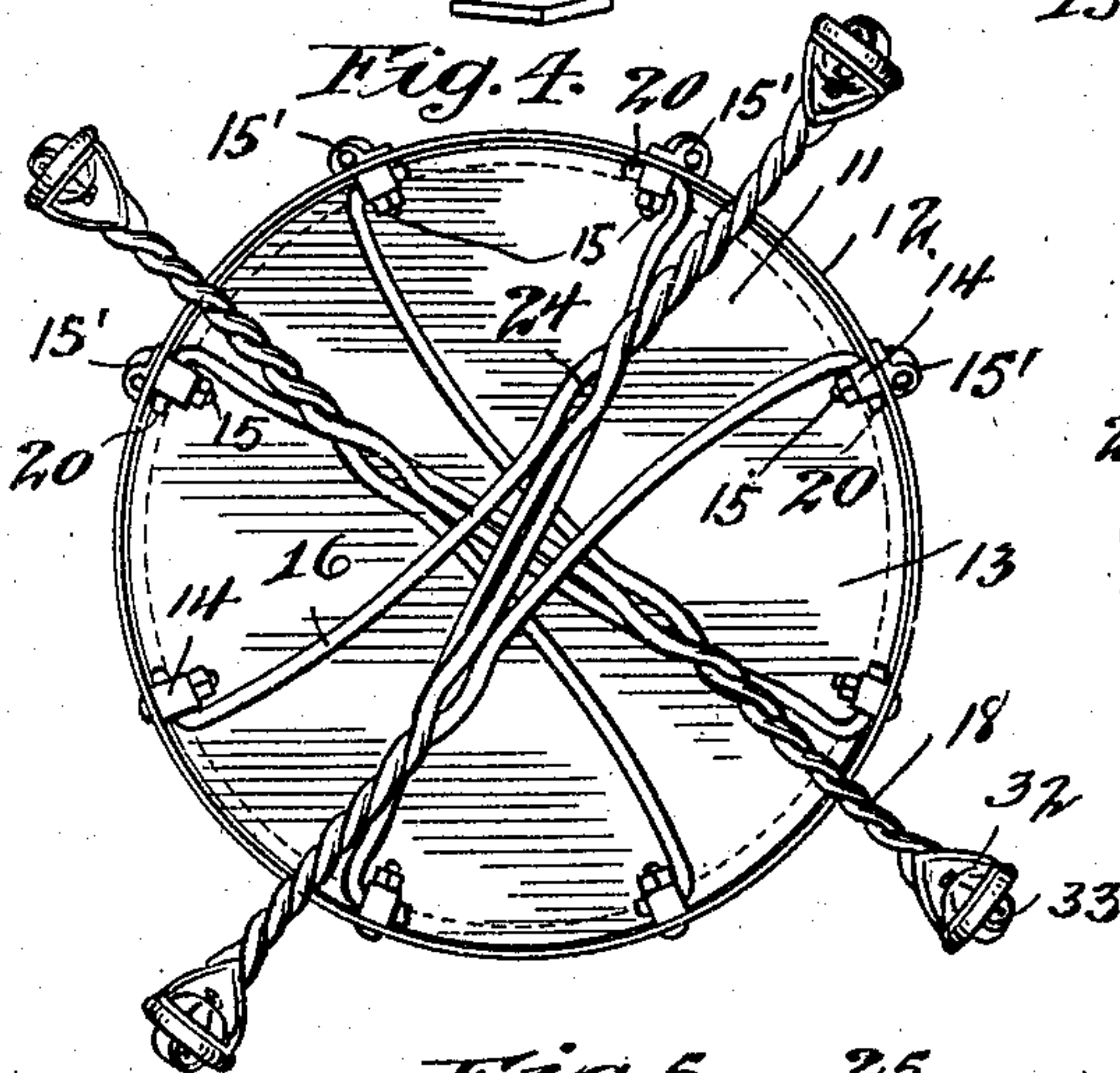
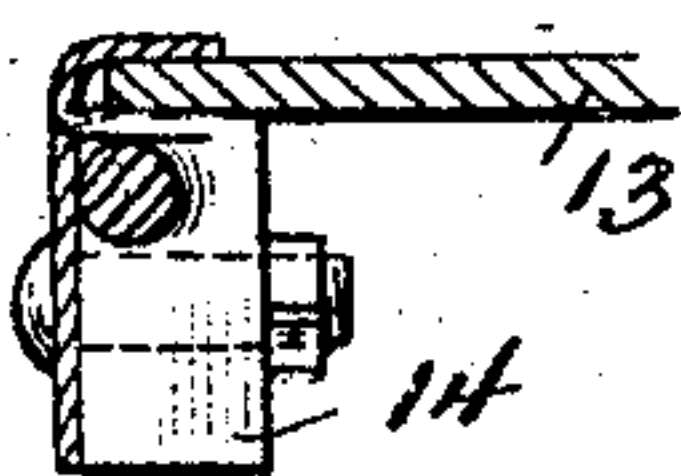


Fig. 10.

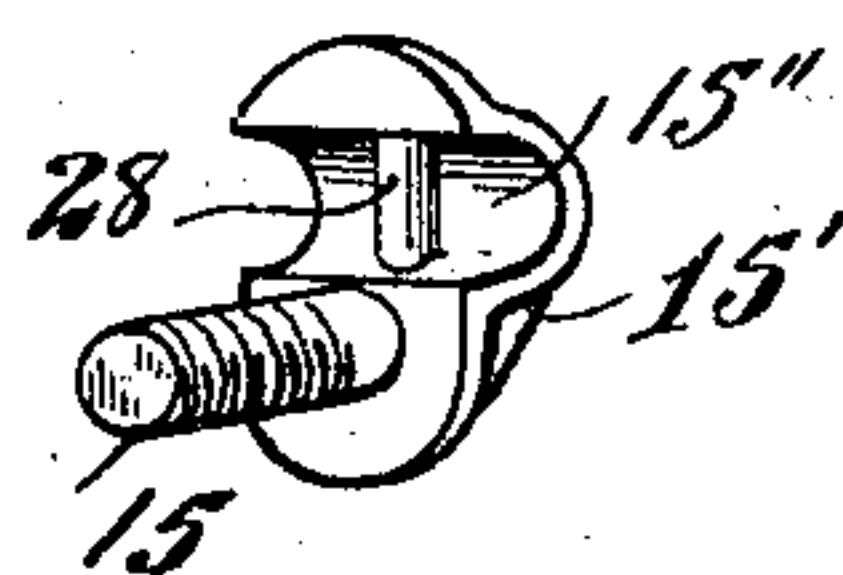
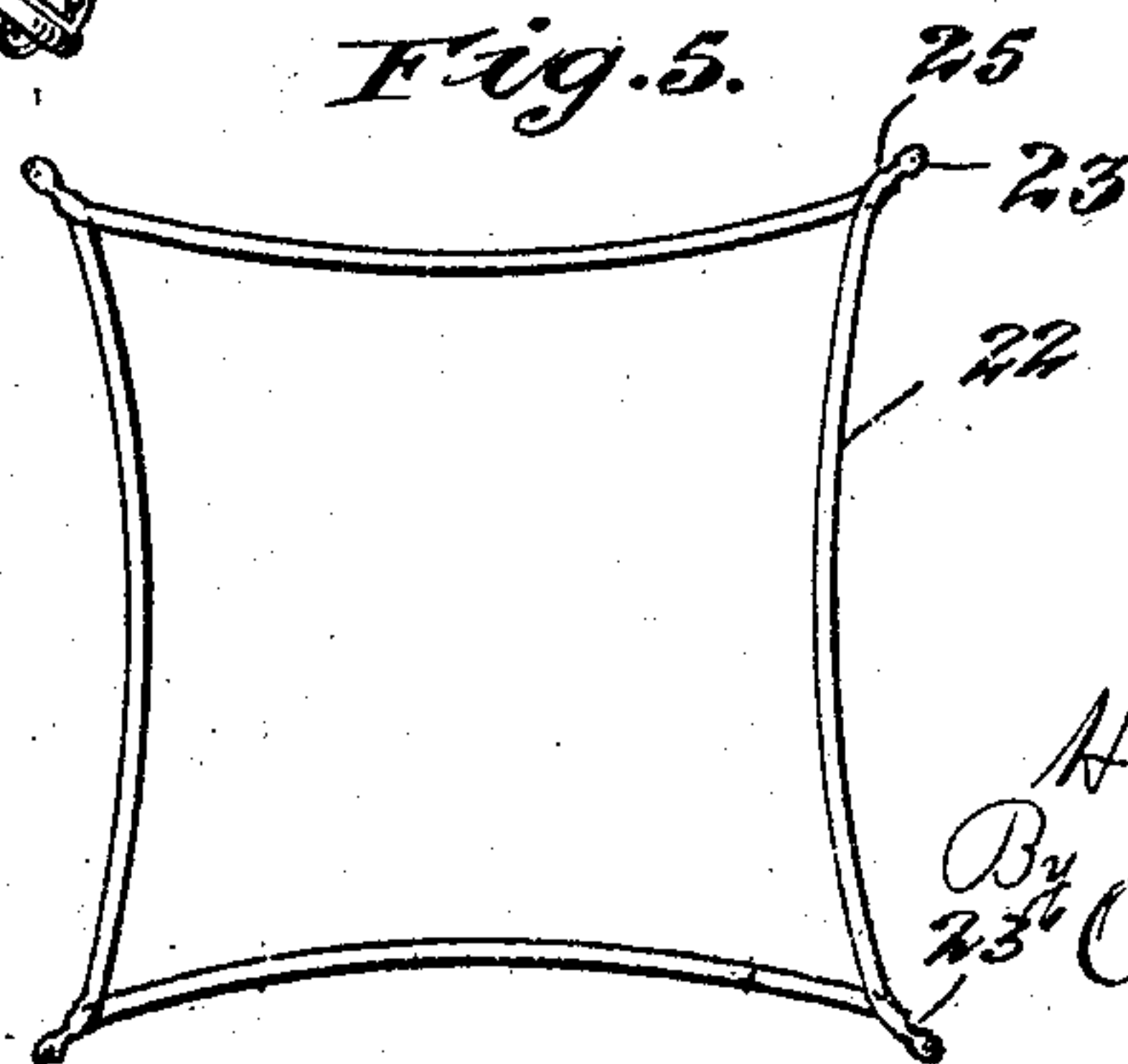


Fig. 5.



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UNITED STATES PATENT OFFICE.

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COLLAPSIBLE CHAIR.

No. 806,369.

Specification of Letters Patent.

Patented Dec. 5, 1905.

Application filed May 17, 1902. Serial No. 107,744.

To all whom it may concern:

Be it known that we, DANIEL SCHUSTEK and HERBERT L. ANDREWS, residents of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Collapsible Chairs, of which the following is a specification.

This invention relates to improvements in chairs, and refers more specifically to improvements in chairs of that type which are made principally of rod metal or wire.

The objects of the present invention are to provide a construction which is when assembled extremely strong and rigid and is nevertheless capable of being collapsed or folded as to its principal parts into a compact form, to provide a construction of the character referred to in which the wire or rod parts thereof present the appearance of being endless or uninterrupted, as well as of graceful form when the device is assembled, and in general to provide a construction which lends itself to economical construction and assembly and which when assembled presents a neat and graceful appearance.

To the above ends the invention consists in the matters hereinafter described, and more particularly pointed out in the appended claims.

The invention will be more readily understood by reference to the accompanying drawings in connection with the description, in which—

Figure 1 is a view in back elevation of a chair embodying our invention. Fig. 2 is a bottom plan view of the seat member with the legs and back removed. Fig. 3 is a view of the back members detached. Fig. 4 is a view similar to Fig. 2, but showing the legs attached and arranged in collapsed form. Fig. 5 is a plan view of the leg-brace frame; and Figs. 6 to 10, inclusive, are details of the joint connections.

Referring to said drawings, 11 designates as a whole the seat member, which is circular and comprises a circular rim 12 of angular form in cross-section, as best indicated in Fig. 8, and a seat-board 13, which is conveniently constructed of wood and is formed to fit within the angular rim 12. At intervals around the depending flange portion of the rim 12 are secured a plurality of metal clips 14, the

principal function of which is to provide attachments for the leg and back members; but in the present instance these clips are also made to perform the function of holding the seat-body 13 within the rim. To this end said clip members are secured upon the interior of the rim by means of through-bolts 15, and their upper end surfaces are shaped to provide faces 14', which engage the lower surface of the peripheral portions of the seat-piece and hold the latter clamped against the horizontal or inturned part of the rim.

The construction of the several clips and the leg members 16 is such that the latter have pivotal connection with the seat-body and are capable of being folded into a collapsed position, as shown in Fig. 4. To this end each leg member is formed of a single piece of rod or wire metal bent upon itself centrally of its length and twisted together throughout approximately one-half of the length of the leg, so as to form a terminal loop 17 of oval shape, a closely-twisted lower leg portion 18, and divergent upper leg portions 19 and 19', which latter are respectively connected with a pair of the clips 14. In order to provide for the pivotal connection of the leg with the clips, the members 19 and 19' of each leg terminate in outturned pivot members 20, which outturned portions are approximately in alinement with each other, and these members 20 are engaged with transverse apertures 21, formed in the respective clips 14.

The four legs are spaced equidistant around the periphery of the chair-seat and are each practically symmetrical in form. It would follow, therefore, that if the clips were constructed and located precisely alike the legs would lie diametrically across the under side of the seat and would so interfere with each other as to prevent them from being folded.

In order to enable the legs to be folded past each other into position as shown in Fig. 4, the clips are made precisely alike, but are adapted to be secured in alternately-reversed relation, the pivot-aperture of one clip being above the through-bolt or near the upper end of the clip, while the aperture of its fellow of the pair is located near the lower end of the clip. One of the members 19 or 19' of each chair-leg is made slightly shorter than the

other to correspond to the different locations of the pivot-apertures of the clips, so that the leg stands plumb when placed in erect position, but when the several legs are folded
5 across the bottom of the seat they will lie slightly oblique to each other, and thus nest together or fold past each other, as in Fig. 4.

4. By making the clips 14 exactly alike, but reversible, in the manner described, all danger of mistakes in assembling the chair is
10 avoided, as well as the cost of manufacture reduced.

In order to hold the legs in rigid relation to each other when erect, a horizontal brace-frame member 22 is provided, which is also
15 formed of rod wire and is approximately rectangular in shape, as shown in Fig. 5, but has its angle portions so shaped as to form lugs 23, adapted to extend and fit between
20 the bifurcated portions of the leg members. The peculiar construction of the brace-frame 22, whereby the lugs 23 are formed, is a feature of some importance and affords great rigidity when the brace-frame is connected
25 with the leg members, as will hereinafter appear. In forming the lugs 23 the rod metal is bent upon itself, so that at each lug one portion of the rod lies vertically above and in the same vertical plane with the connected por-
30 tion, the two rods being arranged to extend substantially parallel with each other throughout the length of the portions which form the lugs, as shown clearly in plan view Fig. 4. The object of this construction is to provide
35 lateral faces of greater width for engagement with the embracing portions of the lug members. The brace-frame is made of a continuous piece of wire or rod, the two ends of which are brought together at one of the angles of
40 the frame, as at 23', one end being formed into a hook and the other end placed longitudinally between the arms of said hook, so as to lie in the same plane. In the case of this lug, therefore, the vertical width of the lug 23' is equal
45 to three times the diameter of the rod metal.

In order to form a rigid union of the brace-frame with the lug members, the latter are so formed as to provide elongated or slot-like openings 24 just above the twisted portions
50 18 of the legs, within which the several lug members of the frame 22 are inserted, and in order to provide a more accurate and rigid connection the said lugs are provided with lateral indentations 25, semicircular in form and
55 arranged to receive the engaging portions of the leg. Inasmuch as the rod metal of which the legs are formed is resilient, said parts may be constructed to fit together under tension, and it follows that the legs are united with
60 the brace-frame very rigidly. Furthermore, the construction of the brace-frame in which the double portions forming the lugs are superposed throughout the length of the lugs greatly stiffens the brace-frame against bend-

ing in a direction to permit oscillatory move- 65
ments of the legs on their pivotal axes. The meeting ends of the brace-frame being substantially concealed by the embracing portions of the leg, the brace-frame has the appearance of being and to all practical intents is con- 70
tinuous.

In order to provide means for detachably connecting the back frame member, the four through-bolts which serve to secure the four clips at the rear side of the chair are provided
75 with clip-shaped heads 15', each provided in its inner face with a groove or recess 15'', adapted to receive and embrace the several arms 27 of the back member, (designated as a whole 26.) In order that the clip-shaped heads 80
15' may more securely engage the arms 27, the grooves or recesses 15'' are each provided interiorly with a transverse lug-like projection 28 of semicircular form in cross-section, and the engaging portion of each arm 27 is pro- 85
vided with a transverse recess or dent 29, adapted to register with and fit upon the lugs 28, so that when the clip is in clamping engagement with the arm their separation is im-
possible. 90

The construction of the back member 26 is such as to afford both a rigid construction and a neat graceful appearance. To this end two lengths of rod metal are twisted together at a pivot intermediate their lengths, as indicated
95 at 30, the ends at one side of said twisted portion being arranged to diverge outwardly to form the inner or proximate pair of arms, while the other two ends are each formed into a coil or circular loop, as 31, then carried out- 100
wardly to such an extent as to form a back of suitable width, and then extended downwardly, so as to form the outer arms, as indicated clearly in Fig. 3.

The chair may or may not be provided with 105
extra foot-pieces—such, for example, as a cushion-piece or caster—the loops 17 themselves forming suitable foot-pieces, as well also as a means for attaching supplemental foot-pieces. In the present instance such supplementary 110
foot-pieces 32 are shown as fitted within the loops 17 and supporting casters 33.

It will be understood from the foregoing description that a chair embodying the inven- 115
tion may be packed in a most convenient and compact manner. The back may be detached and laid flat and the brace-frame disengaged by simply loosening the clip-bolts slightly, whereupon the legs may be forced apart suf- 120
ficiently to disengage them from the angles of the brace-frame and the legs then folded down flat upon the lower side of the seat member, thus enabling all of the members of the chair to be made into a substantially flat package. This is a feature of great impor- 125
tance, since it not only lessens the cost of transportation and storage, but it also lessens the danger of the chair becoming injured

in transportation. It will also be noted that the clips need not be disengaged from their proper places in order to collapse the chair, but need only be slightly loosened, so that there is little danger of their becoming disengaged and lost. When assembled, the chair is perfectly rigid and presents a neat and ornamental appearance.

While we have herein described our invention as embodied in a chair, yet it will be obvious that so much of the invention as pertains to the supporting of a horizontal body is applicable to other articles of furniture, such as stools, tables, &c. We accordingly do not limit ourselves to the particular embodiment shown herein.

We claim as our invention—

1. In a metal chair the combination of a seat-body provided with a peripheral flange member, a plurality of attaching-clips mounted upon said flange member, a plurality of leg members pivotally attached to said clips and adapted to fold flatly across each other on the under side of said seat-body, and a detachable brace-frame for holding said leg members in operative position.

2. In a chair, the combination of a seat-body, a plurality of leg members formed of twisted wire and each provided with two pivot members or arms arranged to stand at a distance apart, means pivotally connecting said legs with the seat member and constructed to permit the legs to fold across the seat, a detachable brace-frame constructed to hold said legs in rigid relation to the seat and a detachable skeleton back, substantially as described.

3. In a chair, the combination of a circular seat-body, provided with a peripheral depending flange and a series of pairs of clips mounted upon said flange at intervals apart, each clip being provided with a pivot-aperture, a plurality of leg members, each bifurcated at its upper end and pivotally engaged with a pair of said clips, a horizontally-extending uninterrupted brace-frame, provided with angular portions which are severally engaged with the respective legs at points intermediate with the length of the latter and a skeleton back detachably connected with the seat-body, substantially as described.

4. In an article of furniture, the combination of a seat-body, pairs of leg-supporting clips secured to the margin thereof, each provided with a transverse pivot-aperture, some of which pivot-apertures are located lower or more remote from the lower surface of the seat-body than the others, and leg members provided with pivot-arms at their upper ends, engaged with said clips, whereby said legs are capable of folding across the seat-body and oscillating about an axis inclined to a plane parallel to the plane of the seat-body, for the purpose set forth.

5. In a chair, the combination of a circular seat-body, provided with a peripheral depending flange and a plurality of pairs of leg-supporting clips secured to said flange at intervals apart, each of said clips provided with a transverse pivot-aperture extending tangentially to the periphery of the seat-body, the aperture of one clip being located above or nearer the plane of the seat than that of its fellow clip of the pair, a series of legs engaged with the respective pairs of clips, each leg consisting of a length of wire twisted closely together to form the lower portion of the leg, having its upper end portions extending divergently and terminating in oppositely-extending pivot portions which are engaged in said clips and means for securing said legs in perpendicular relation to the seat-body, substantially as described.

6. In an article of furniture, the combination of a body and a leg mechanism for supporting said body comprising a plurality of pairs of oppositely-disposed clips secured to said body, each provided with a transverse pivot-aperture, the pivot-aperture of one clip of each pair being located lower or more remote from the plane of the body than the other and the clips of each pair being spaced apart, and leg members each provided with a pair of pivot-arms engaged with said clips, whereby said legs are pivotally connected with the body to oscillate upon axes inclined to the plane of the body, and are adapted to fold past each other, for the purpose set forth.

7. In an article of furniture, the combination with the body, of a plurality of legs pivotally connected with said body, each formed of rod metal twisted together throughout a part of the length of the leg and provided with a slot-like opening formed intermediate the length of the leg, and a brace-frame consisting of a single length of rod metal formed into a continuous ring and having a series of lug-like angles interengaged with the slot-like openings of the several legs, said angles being formed by bending the rod metal abruptly back upon itself and one portion superposed vertically upon the other as and for the purpose set forth.

8. In a chair, the combination with the seat thereof provided with a flange, of means for detachably connecting a rod-like member therewith, comprising a bolt, the head of which is extended at one side and provided therein with a transversely-extending groove, a lug-like projection within said groove and extending transversely thereof, a rod-like member provided with a transversely-extending groove adapted to fit the groove within said head, with the groove in said rod fitting over the lug-like projection, whereby said rod-like member is held rigidly against lateral and rotary movement, and a clamp-nut

for said bolt, substantially as and for the purpose described.

9. In an article of furniture having leg members provided with yieldable brace-receiving
5 sockets, a brace member provided at each of its leg-engaging portions with a reduced neck-like part with shoulders at each end thereof, said parts adapted to be sprung into said sock-

ets, whereby said legs are held in operative position.

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