Jan. 23, 1945. F. S. SANDER 2,367,891

ADJUSTABLE DRESS FORM

Filed Nov. 20, 1943

Fig. 1.

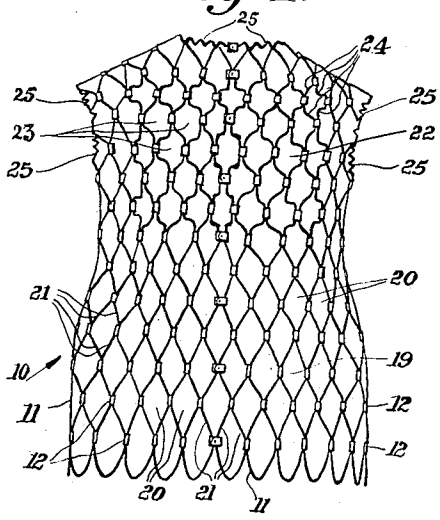


Fig. 2.

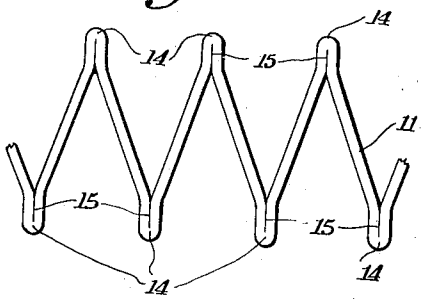


Fig. 3.

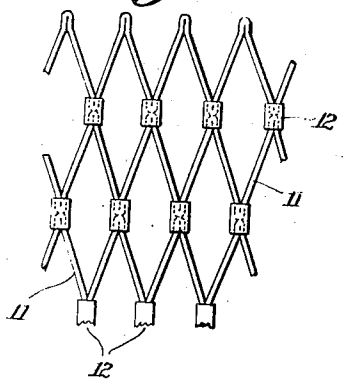


Fig. 4.

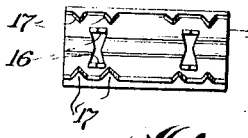


Fig. 5.



Fig. 6.

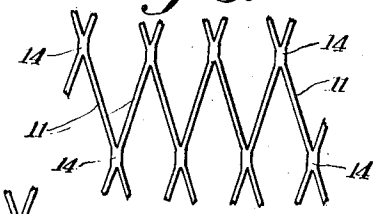


Fig. 7.

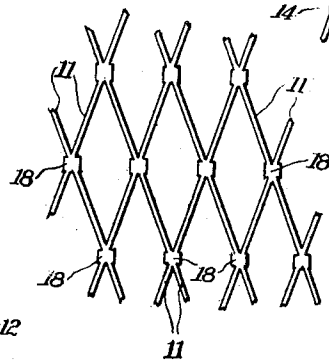
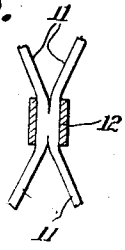


Fig. 8.



INVENTOR.
FRANK S. SANDER

BY

his agent

Patented Jan. 23, 1945 2,367,891

UNITED STATES PATENT OFFICE

2,367,891

ADJUSTABLE DRESS FORM

Frank S. Sander, New York, N. Y., assignor, by direct and mesne assignments, to Frank S. Sander, Judith Sander, Ida Waldes, and Ica Waldes, doing business under the name of My Double Company, a limited partnership of New York

Application November 20, 1943, Serial No. 511,129

3 Claims. (Cl. 223—68)

My present invention relates to dress forms and more particularly to dress forms which are adjustable to any desired figure.

The main object of my present invention is to improve the construction of dress forms in order to obtain the necessary stiffness and rigidity of the structure together with easy adjustability.

A further object of my present invention consists of a dress form which can be produced inexpensively in a very simple way, so as to be within easy reach of everybody who needs it.

Still a further object of my present invention consists in a dress form having an outer network made of a material which is particularly adapted for these purposes and which nevertheless is very inexpensive and easy to process.

Still a further object of my present invention consists of a dress form which can be molded to the body quickly and retains its exact shape rigidly for an unlimited time.

Another object of my present invention consists of a dress form which is pliable and thus easily storable and which nevertheless can be remolded over and over again whenever needed, either for various figures or for the same figure if it changes.

Still another object of my present invention consists in a dress form shaped already before use in a certain entirely new and practical way facilitating molding of the thus pre-shaped form to the body of the person using it.

It should be mentioned that adjustable dress forms have been made heretofore. However, none of them combines all advantageous characteristic features of the dress form proposed by me herewith. Thus, for instance, it has already been proposed to use dress forms in which the outer network was composed of wires flexibly connected to each other at their joints. However, such dress forms have the substantial disadvantage that flexible joints never keep their position. Therefore, forms with such flexible joints cannot be considered as shape retaining at all, and thus defeat in advance the purpose for which they are created.

It has also been proposed by other inventors to make dress forms of uncovered metallic wires which, as well-known, have a smooth surface. Dress forms made of such wires are necessarily flexible at the points at which they are connected to each other, since no connecting means are able to grip such uncovered metallic wire in the necessary firm and rigid way and to avoid relative turning of the connected wires to each other. Therefore, all connections between the uncovered metallic wires of such metallic dress forms will have an unavoidable joint-like effect making rigid unturnable connections of these wires practically impossible. Thus, also wire dress forms of this type are unusable for the purposes of the present invention.

With the above objects in view and in order to avoid the above discussed disadvantages of all known constructions, I herewith propose to make an adjustable dress form comprising in combination an outer network consisting of flexible, substantially non-resilient thin rods of plastic material being relatively soft and deformable and means rigidly connecting these thin plastic rods at the connecting points of the network in such a manner as to prevent at these points movement of the connected thin plastic rods relative to each other; this is obtained by deforming the plastic rods during application of the connecting members so that the thin plastic rods are not able to turn within the connecting members, thus preventing movement of these plastic rods relative to these members and to each other.

I have found that such thin plastic rods are relatively easily deformable because they have a relatively soft surface portion and thus easily acquire the shape of the connecting members, avoiding relative movement between the rods and the connecting members.

Furthermore, the resiliency and flexibility as well as deformability of such thin plastic rods can be varied relatively easily within any desired limits, thus making dress forms comprising a network made of such plastic rods adaptable for any desired purposes.

I wish to stress that the term "plastic rods" as used above and in the following description and claims is intended to comprehend not only rods consisting exclusively of plastic material but also such plastic rods which are hollow, i. e., tube shaped, or contain a core of metal or other material. I have called the rods of which my new dress forms consist "plastic" because they have not only the appearance of plastic rods but because at least their outer portions at and near their surface consist of plastic material being relatively soft and easily deformable as set forth above.

Still another extremely important advantage of my new dress form is that the plastic rods may be fused to each other very easily by heat or solvents, avoiding thereby the necessity of additional connecting members. Of course, such

connections are absolutely rigid and firm, and thus best adapted for the purposes of the present invention.

The thin plastic rods forming the outer network of the dress form might also be connected to each other by metallic or non-metallic connecting members which are preferably sleeve-shaped and rigidly enclose the plastic rods at their connecting points. In accordance with a preferred embodiment of my present invention, I use as connecting members longitudinal connecting sleeves having a substantially 8-shaped cross section.

All connecting members used by me have to be applied in such a way as to prevent turning of the connected thin plastic rods relative to these members; this might be attained, as explained above, simply by deforming the rod portions within the connecting members; but I have found it preferable to provide on these connecting members projections bent inward into the plastic material of the thin plastic rods of which the network consists. Such arrangement definitely prevents relative turning of the connected plastic rods.

Of course, it is of great importance to shape the dress form in such a way that it is not only easy to use but that it is also easy to produce. Therefore, it is of importance to make an outer network of equally shaped wires, i. e. a network consisting of equally shaped meshes. Each of these meshes is formed by four wire portions of equal length. Of course, it is evident that if all these meshes remained equally shaped, only exactly cylindrical shapes could be covered with such a network. It is therefore necessary to preform such a network to a certain degree, adjusting it to the general shape of the human body.

In order to obtain this object, a network preshaped in accordance with my present invention consists of a waist and lower body portion composed of straight rod meshes formed by substantially straight rod portions of equal length and of an upper body portion composed of bent deformed rod meshes formed each by four bent rod portions of equal length, two of which are preferably bent inward into the space within the mesh and two of which are bent outward into the adjacent mesh. Furthermore, it is advantageous to make those rod portions of the bent meshes which form the neck-line and arm holes of the outer network undulated so as to enable easy adjustment of these rod portions of the network to the figure.

The novel features which I consider as characteristic of my invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawing, in which:

Figure 1 is a front view of a dress form according to my present invention;

Figure 2 is a zig-zag shaped plastic rod of the type used for the outer network of the dress form shown in Figure 1;

Figure 3 is an enlarged front view of a part of the outer network of the dress form shown in Figure 1;

Figure 4 is a top view of a sleeve-shaped connecting member before the same has been clamped around the thin plastic rods to be connected;

Figure 5 is an end view of the connecting member shown in Figure 4 in finished bent shape;

Figure 6 is an enlarged view of an outer network made by fusing to each other the thin plastic rods of which this network consists;

Figure 7 is an enlarged view of another embodiment of an outer network consisting of plastic rods and plastic connecting members; and

Figure 8 is still another enlarged view of another embodiment of an outer network consisting of plastic rods fused to each other and provided additionally with metallic connecting members.

As shown in Figure 1, my new dress form consists of an outer network 10 made of flexible, substantially non-resilient thin rods 11 of a plastic material being relatively soft and deformable, i. e. being substantially softer and substantially more easily deformable than metal used up to now for these purposes, as for instance copper, iron or steel. Of course, these thin plastic rods 11 have to be of such type as to be bendable into the required shape with relative ease and to retain this shape after they are bent. As shown in this figure, the thin plastic rods 11 forming the network 10 are connected with each other by connecting members 12 shown in detail in Figures 4 and 5. Furthermore, reinforcing members are provided in order to support the plastic network 10 after it has been shaped in the required manner.

As shown in Figure 2, the thin plastic rods 11 of which the dress form consists are zig-zag shaped. As shown in this figure, the rod portions adjacent to the turning points 14 are bent substantially parallel to each other, thus forming at these turning points substantially U-shaped rod portions 15. The thus bent zig-zag shaped thin plastic rods 11 are arranged in such a manner that the turning points 14 of each two juxtaposed zig-zag shaped plastic rods 11 contact each other, as shown in Figure 3. The thus positioned plastic rods 11 are connected by sleeve-shaped connecting members 12 shown in detail in Figures 4 and 5 so that each of these connecting members 12 rigidly encloses a contacting pair of U-shaped rod portions 15 of two of the zig-zag shaped plastic rods 11 at and near one of the contacting turning points 14, thereby preventing relative movement of the two zig-zag shaped plastic rods connected at the respective contacting points.

The connecting sleeve which might be made of metal or plastic is shown in Figure 4 in open unused condition and in Figure 5 after being bent into a form with a substantially 8-shaped cross section. This connecting sleeve 12 is provided with projections 16 within its surface and projections 17 along its longitudinal edges. It is evident that these projections reach into the space enclosed by the connecting member 12, thus penetrating into the plastic material of the thin plastic rods 11 and thereby substantially increasing the holding power of the connecting members 12. As shown in Figure 3, these connecting members are arranged parallel to the longitudinal axis of the form, i. e. normal to the direction of the zig-zag shaped thin plastic rods; this fact further increases their grip on the plastic rods 11 as it makes pulling of the rod ends out of the connecting members substantially impossible.

As shown in Figure 6, the zig-zag shaped thin plastic rods 11 might be fused to each other at their connecting points 14 by application of heat

or a solvent, thus forming a unitary plastic network consisting of thin plastic rods absolutely rigidly connected to each other at all contacting connecting points of the network.

In order to further increase the firmness of connection, it is also possible, as shown in Figure 7, to apply at the connecting points additional plastic connecting members 18 fused on one or both sides to the rod ends to be connected. By application of pressure, heat, or solvents, it is possible to make these plastic connecting members an integral part of the network structure, thus still further increasing the firmness of such a unitary plastic network at and near the connecting points.

Finally, as shown in Figure 8, it is also possible to fuse the thin plastic rods 11 to each other within the connecting members 12 which might be made of metal. By fusing of the rod ends to each other this construction prevents movement of these thin plastic rods 11 relative to each other and by application of the metallic connecting sleeves 12 it prevents breaking of the network at the connecting points. I wish to mention that a network connection of this type can easily be obtained by applying heated metallic connecting members which would cause deformation of the plastic rods within the connecting members and fusing of the same to each other. Of course, it is also possible to combine the application of metallic or plastic connecting members 12 with application of a solvent and to obtain thus substantially the same result.

As already mentioned above, it is necessary to pre-shape the outer network 10 to a certain degree before its use. Furthermore, it is necessary to shape the network, i. e. to mold it to the figure during its use. Such pre-shaping and final molding is obtained by combining the network as shown in Figure 1 of a lower body part 19 composed of straight rod meshes 20 formed each by substantially straight rod portions 21 and of an upper body part 22 composed of bent deformed rod meshes 23 formed each by four curved rod portions 24. As shown in Figure 1, the bent deformed rod meshes 23 cover mainly the shoulders and the upper part of the bust and back and are composed each of four bent rod portions 24 of equal length, two of which are bent inward into the space within the bent mesh 23 and two of which are bent outward into the adjacent bent mesh. Thus, each of these bent meshes 23 has two curved sides formed by bent rod portions 24 which are bent inward and two curved sides formed by rod portions 24 which are bent outward. In this connection, it should be mentioned that all rod portions 21 and 24 between each two adjacent connecting points of the network have equal length and that the molding of the network to the figure is obtained only by more or less stretching the straight meshes 20 in the lower part of the bust and deforming, i. e. bending the meshes 23 in the upper part of the network in the way described above.

In order to enable easy and simple adjustment of the network portions around the neckline and armholes to the corresponding parts of the body, those rod portions 25 of the bent meshes 23 which form the neckline and armholes of the network are undulated, as shown in Figure 1, so as to adjust themselves properly to the figure. Adjustment of these undulated rod portions to variously shaped arms and necks is obtained by stretching or compressing the undulated rod portions in longitudinal direction.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of dress forms differing from the types described above. Thus, for instance, my proposal to use variously shaped network meshes and to undulate the rod portions around the armholes and necklines is not limited to the use of thin plastic flexible rods but these improvements might also be used for dress forms having an outer network composed of metallic wires or thin metallic rods.

While I have illustrated and described the invention as embodied in plastic dress forms, I do not intend to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of my invention.

Without further analysis, the foregoing will so fully reveal the gist of my invention that others can by applying current knowledge readily adopt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What I claim as new and desire to secure by Letters Patent is:

1. Adjustable dress form comprising in combination an outer network consisting of flexible, substantially non-resilient thin rods having a circular cross section and made of a plastic material being relatively soft and deformable, and sleeve-shaped connecting members rigidly enclosing said plastic rods at the connecting points of said network in such a manner that the plastic rod portions within said sleeve-shaped connecting members are deformed, thus preventing turning and other relative movement of said connected thin plastic rods at said connecting points relative to each other.

2. Adjustable dress form comprising in combination an outer network consisting of flexible, substantially non-resilient thin rods having a circular cross section and made of a plastic material being relatively soft and deformable, and sleeve-shaped connecting members rigidly enclosing said plastic rods at the connecting points of said network, projections on said connecting members bent inward into the plastic material of said thin plastic rods, thereby preventing turning of the same relative to said connecting members and to each other.

3. Adjustable dress form comprising in combination an outer network consisting of flexible substantially non-resilient thin rods of a plastic material being relatively soft and deformable, and sleeve shaped connecting members rigidly enclosing said plastic rods at the connecting points of said network in such a manner that edge portions of said connecting sleeves are bent inward into the plastic material of said plastic rods, thereby preventing turning of the same relative to said connecting sleeves.

FRANK S. SANDER.