N. JENKINS.

Dress-Stiffener.

No. 225,754. Patented Mar. 23, 1880.

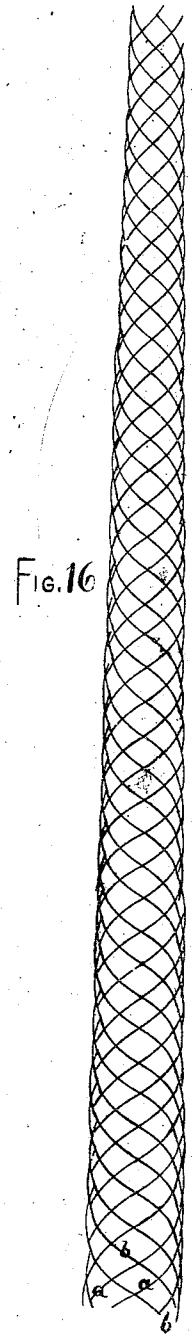

FIG. 16

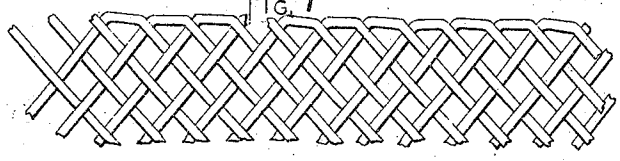

FIG. 1

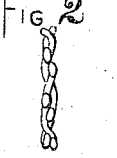

FIG. 2

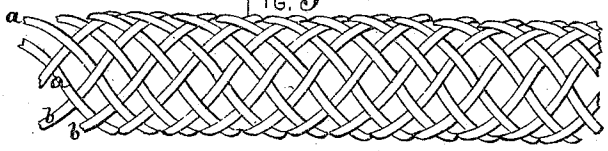

FIG. 3

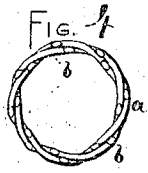

FIG. 4

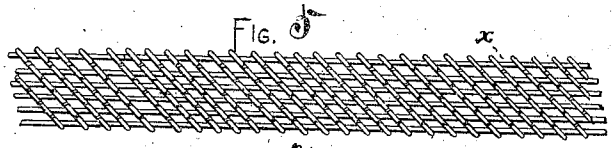

FIG. 5

FIG. 6

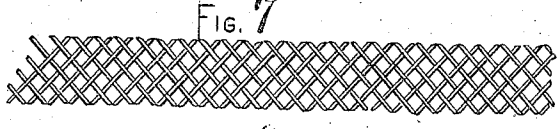

FIG. 7

FIG. 8

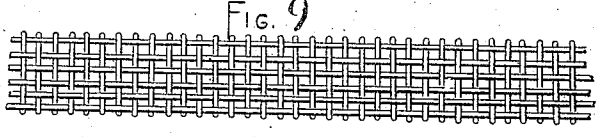

FIG. 9

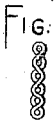

FIG. 10

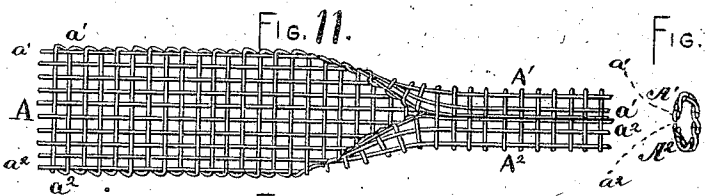

FIG. 11.

FIG. 12

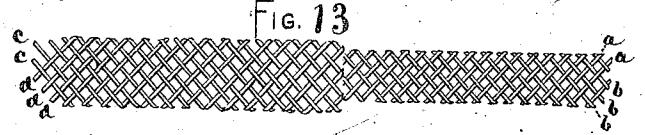

FIG. 13

FIG. 14

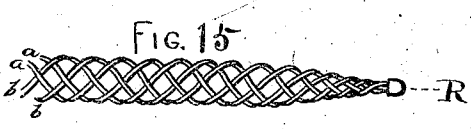

FIG. 15

R

INVENTOR:

Nicholas Jenkins

by his attorney,

Thomas D. Stetson

WITNESSES:

W. Colborne Brookes

E. B. Bolton

UNITED STATES PATENT OFFICE.

NICHOLAS JENKINS, OF NEW HAVEN, CONNECTICUT.

DRESS-STIFFENER.

SPECIFICATION forming part of Letters Patent No. 225,754, dated March 23, 1880.

Application filed September 16, 1879.

To all whom it may concern:

Be it known that I, NICHOLAS JENKINS, of the city and county of New Haven, in the State of Connecticut, have invented certain new and useful Improvements relating to Stiffeners or Springs for use in Clothing and other Purposes, of which the following is a specification.

I make a strong, elastic, and sufficiently rigid stiffener, adapted for use in corsets, skirts, and other articles of dress, and for analogous uses, entirely of small wire.

I will describe the stiffener as a flat spring adapted for use in corsets and skirts. The wire should be spring-brass, hard iron, or steel.

I weave, by an ordinary narrow-ware loom, or otherwise, a tape of wire-cloth, and subsequently fold over the edges upon the main body, so as to cause the edges to nearly or quite abut together. I can effect this either in connection with means for compressing the material tightly together, thus forming a very flat product, or (as for many uses will be preferable) I can leave the folds a little up from the body, thereby making a rounder product.

Modifications in the proportions and construction may be usefully made, some of which may be better adapted than others to particular uses. I will represent several modes of carrying out the invention.

The accompanying drawings form a part of this specification, and represent what I consider the best means of carrying out the invention.

Figures 1, 3, 5, 7, 9, 13, 15, and 16 are side views. Figs. 2, 4, 6, 8, 10, 12, and 14 are cross-sections through the completely-formed springs, to which they respectively stand opposite. Fig. 11 is a side view of a short length partly formed. Fig. 12 is a cross-section through the completely-formed part. Fig. 15 is a side view of one end of a completed spring, showing the wires drawn together and soldered. Fig. 16 is a side view of my spring made in a gradually-tapering form for special purposes.

Similar letters of reference indicate corresponding parts in all the figures.

Referring to Figs. 11 and 12, A is the back or main body of a narrow fabric, and A' A^2 are folds thereof. The material is first formed as a tape of wire-cloth, preferably with selvage at each edge. The longitudinal wires or warp are of cast-steel with a spring-temper. The transverse wires or woof are of softer steel, or may be of a tough iron. This is folded by being passed through between suitable rollers, or through a Douglass binder, or both, so as to initiate the folds A' A^2, and to gradually and uniformly lay them over upon the main body A. When the article is complete, and the edges a' a^2 are protected by being folded inward toward the main body, my improved stiffener thereby produced may be used in the same manner and with the same effect as springs of whalebone or other ordinary material, and with the advantage of increased strength and toughness, owing to the rigidity and strength of the materials, which impart a very great capacity to resist fracture or a permanent set, and the fineness into which its several parts are divided, which give it great capacity for yielding to strains when necessary.

Referring to Figs. 3 and 4, *a* and *b* represent respective sets of steel wires braided together to form a tubular stiffener.

Referring to Figs. 5 and 6, Fig. 5 is a side view, and Fig. 6 a cross-section, of a tape woven sufficiently narrow and thick to serve directly as a stiffener for garments without the necessity for folding.

Figs. 9 and 10 represent another modification of this general plan.

Figs. 7 and 8 represent a nearly flat tape, made by braiding the wires together in the form of an elastic tube throughout, and then flattening the tube thus formed.

Referring to Figs. 13 and 14, *a b* is a set of steel wires, braided together by suitable machinery, constituting a fabric similar to that shown in Figs. 3 and 4, and *c d* is another set of wires, braided as a covering upon the set *a b*. The compound fabric thus produced is peculiarly tough and elastic.

Referring to Fig. 15, the spring, wrought in the main according to any of the modifications, is contracted at the ends by bringing the wires together, where they are strongly joined by soldering. R is a drop of solder. It is skillfully applied to present a rounded

drop at the end. This solder performs the triple functions of securing the ends, of the wire against displacement, contributing to the stiffness of the spring near the ends and producing a smooth and round end, so as to avoid injuring a garment in which the spring may be used.

Referring to Fig. 16, *a b* represent two sets of nearly helical steel wires, braided together, corresponding to what is shown in Figs. 3 and 4, but so as to form a tapering structure. This is especially adapted for whip-handles and analogous articles. The interior, at the larger end, may be filled by a correspondingly tapered core of tough and elastic material.

The spring may be used for a great variety of purposes. Bracelets and other articles of jewelry may be formed of richly-burnished wire, made of proper hard and elastic metal, coated with gold. Larger and more openly constructed, it may serve usefully as a suspension means for bird-cages. In such case it will allow the cage to teeter or dance with the motions of the bird.

I can use this spring formed of hard wire as a flexible shaft to operate machinery at a distant point.

I claim as my invention—

1. The compound metallic spring herein described, composed of two or more elastic wires woven together with their ends brought together and united by solder, so as to present smooth ends, adapted for use in dresses, as herein specified.

2. The double metallic spring for dresses, having two separate sets of wires, *a b* and *c d*, woven one within the other, with the ends united by solder R, all substantially as herein specified.

In testimony whereof I have hereunto set my hand this 2d day of August, 1879, in the presence of two subscribing witnesses.

NICHOLAS JENKINS.

Witnesses:
JOHN S. FOWLER,
CHARLES LEPPER.