H. A. KELLER.

PROCESS OF MAKING SOFT TOP CORSET STAYS.

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Fig. 1.

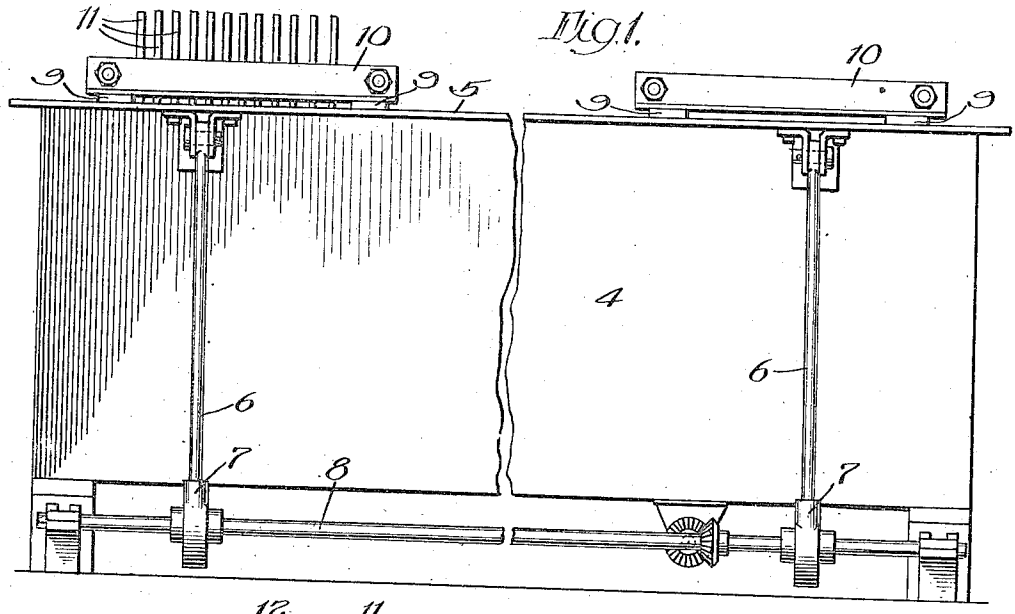


Fig. 2.

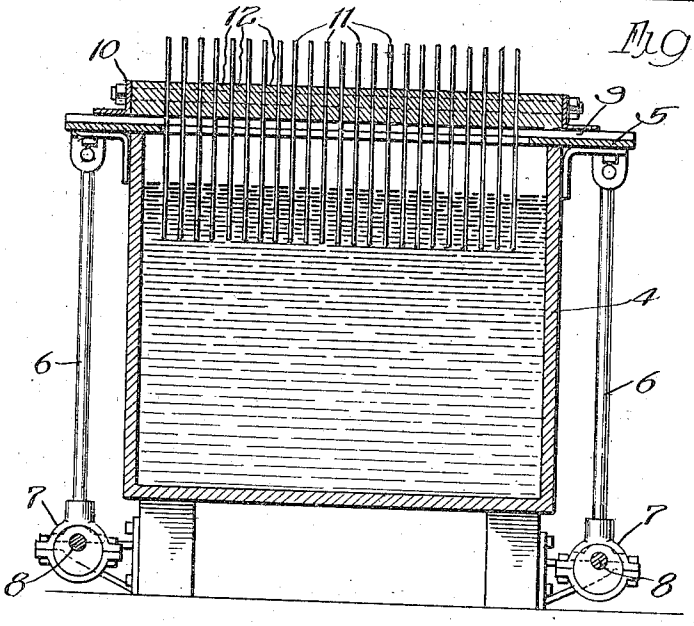


Fig. 3.



Witness

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UNITED STATES PATENT OFFICE.

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PROCESS OF MAKING SOFT-TOP CORSET-STAYS.

1,260,395. Specification of Letters Patent. Patented Mar. 26, 1918.

Application filed August 11, 1916. Serial No. 114,488.

To all whom it may concern:

Be it known that I, HERMAN A. KELLER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in the Processes of Making Soft-Top Corset-Stays, of which the following is a specification.

The present invention relates to a process for thinning one end of a corset stay to produce a soft flexible end on the stay, making what is commonly termed a soft top stay.

One of the primary objects of the invention is to produce this soft top by means of subjecting one end of the stay body to the action of an etching or acid solution, whereby a portion of the same is eaten away, thinning the end and producing flexibility.

A further object of the invention is to subject the stay, after being immersed in the etching bath, to a bath which will neutralize the effect of the acid to check further eating of the stay.

A further object of the invention is to move the stay longitudinally during its immersion in the etching bath to produce a tapered portion between the portion of the stay body having a normal thickness and the portion of the stay thinned by the action of the etching bath, to eliminate an abrupt joint between the thick and thin portions of the stay.

A further object of the invention is to carry on this process in a cheap and simple manner, thereby materially reducing the cost of production of stays of this character.

The invention further consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawings:

Figure 1 is a face view of a tank equipped with mechanism to carry on the process of the present invention;

Fig. 2, a cross section through said tank and mechanism; and

Fig. 3, an enlarged edge view of a stay after it has been treated by the present process.

In the art to which the present invention relates, it has been found desirable to thin one end of corset stays in order to produce what is known as the soft top or flexible stay. So far as I am aware, these stays have heretofore always been thinned by subjecting one end of each stay individually to the action of abrasive grinding wheels. This process is necessarily somewhat slow because of having to subject each individual stay to an action of the grinding members, thus eliminating the production of a plurality of stays at a single operation. It has, moreover, been found that grinding in this manner will result in a wide variance in the flexibility of the stay, some of them being so thin that they break off in use, and others being so thick that they lack the flexibility required.

In the present invention it is possible to subject at one time a vast number of stays to an operation which produces the soft top. And, furthermore, by subjecting the stay to acid treatment, a uniform degree of flexibility will be imparted to the stay, since the stays are all subjected to a similar reducing action.

Referring now to the drawings, wherein one means for practising the present process is illustrated, there is shown a tank 4 of suitable construction, which has positioned upon its upper edge a frame 5 of sheet metal or other suitable material. This frame is connected to rods 6, which in turn are joined to eccentrics 7 mounted on shafts, which shafts are driven in synchrony by any suitable means. The eccentric and rod construction causes a periodical lifting and lowering of the frame 5, the function of which will be hereinafter explained.

In the construction shown, a plurality of cross bars or plates 9 are placed on the frame 5, and on these cross bars rest holders 10 for containing a plurality of stays 11, the stays being clamped in the holders by any suitable means; and, as shown, the rows of stays are spaced apart from one another by spacing members 12.

The tank 4 is filled with any suitable form of etching or acid solution, as, for instance, nitric acid and water in proportions of three parts water to one part acid, although the invention is in no wise deemed limited to any particular solution for carrying on the work. The stays 11 are then placed within the holder 10 and the holder placed in position above the tank, as in Figs. 1 and 2, so that a portion of the stay projects into the solution contained within the tank, after which the shafts 8 are set in motion, resulting in a movement of the eccentrics 7, which moves the rods 6 up and down, raising and

lowering the frame 5, and moving a portion of the stay periodically into and out of the acid solution. This results in forming a portion of the stay with a taper, as at 13 in Fig. 3, producing a taper-portion between that part of the stay of normal thickness and that portion eaten away to the minimum thickness by the acid. This is highly desirable since it eliminates an abrupt shoulder at the juncture of the large and small part of the stay which might readily cause the stay to break.

After the stays have remained in the etching solution for a predetermined period of time, that is, until they are reduced to the desired thinness at their end, they are removed and immersed in a bath of acid-neutralizing composition, as, for instance, a sal-soda or other suitable solution in proportions of twenty-five gallons of water to one pound of sal-soda. It is understood that the amount of metal that it is desired to eat away from these stays is relatively small, since the maximum thickness of the stay is not great, and although there will be a certain amount of the width of the stay removed by the action of the acid, this will be so small that for all practical purposes the stay will simply be reduced in thickness and not in width.

If desired, after the stay has been subjected to the neutralizing bath, it can be coated with zinc or other substance to render it water-proof, although this latter feature has nothing whatever to do with the production of the soft top, but rather to the production of the commercial stay.

From the foregoing, it will be understood that by the present process a vast number of stays can be simultaneously treated for the purpose of producing the soft top; and being simultaneously treated, all of the stays will be of the same degree of flexibility at their top, eliminating the variance found in stays produced by the action of abrasive materials.

It is further understood that the means herein described for carrying on the process is simply one means used for illustration, and that the invention is in no wise limited thereby, but is only limited by the terms of the appended claim.

I claim:

The process of making soft top corset stays, which consists in taking a thin, elongated metal strip and subjecting a portion of its length at one end thereof to the action of a fluid metal-dissolving agent, to dissolve a minute amount of metal from said end portion and produce a uniform thinning of said end portion, thereby rendering it of greater flexibility than the remainder of the body and moving the strip for a predetermined distance longitudinally of itself during said immersion to move a part of said immersed end portion in and out of the dissolving agent to form a taper intermediate the ends of the strip and produce a gradual increase in the thickness of the metal between the thinned end portion and the unthinned body portion, and then subjecting the stay to the action of a neutralizing medium, substantially as described.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."