July 17, 1923. 1,461,822

H. EPSTEIN

CLAMP FOR PRODUCING MOTTLED SKEIN DYEING

Filed July 25, 1922 3 Sheets-Sheet 1

Fig. 1.

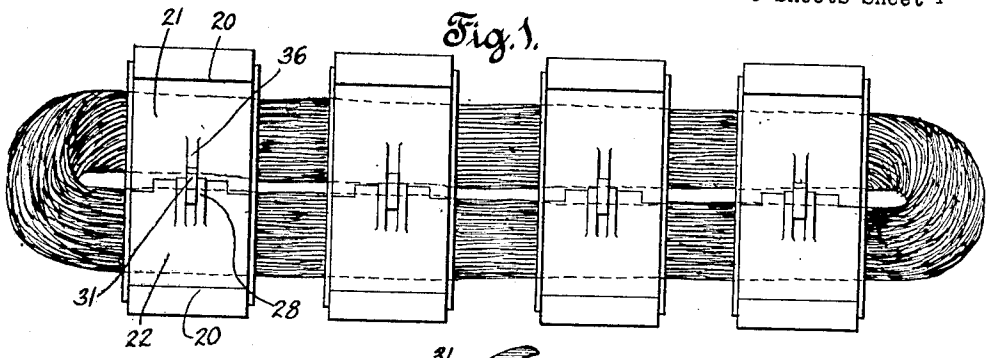


Fig. 2.

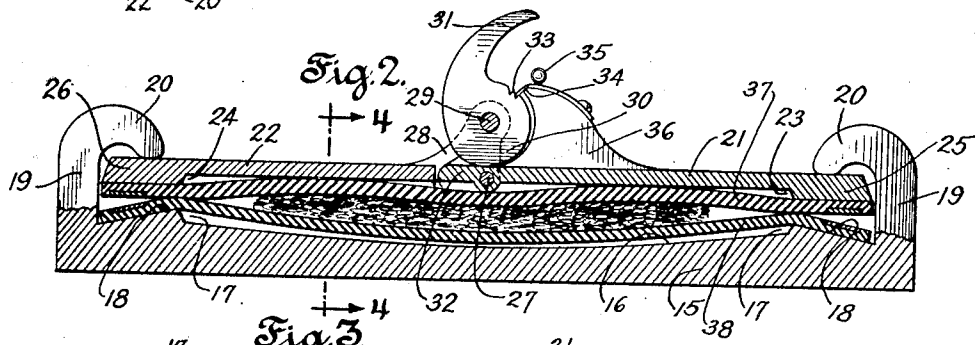


Fig. 3.

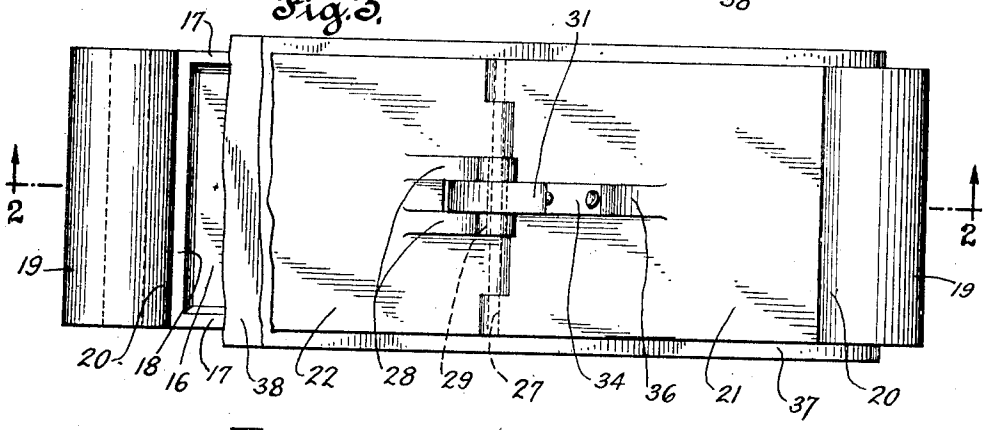
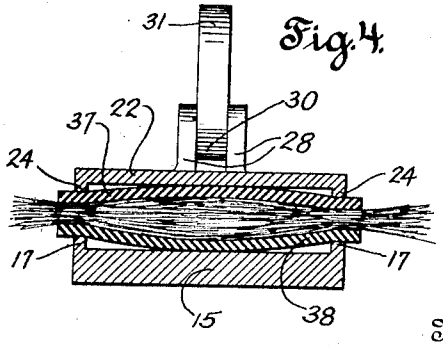


Fig. 4.



Inventor
Herman Epstein
By his Attorney Jack C. Fischer.

July 17, 1923. 1,461,822

H. EPSTEIN

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Filed July 25, 1922 3 Sheets-Sheet 2

Fig.5.

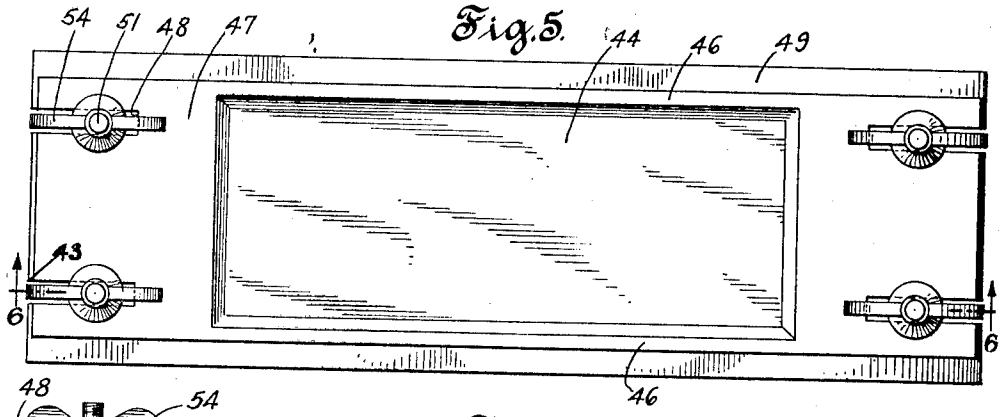


Fig.6.

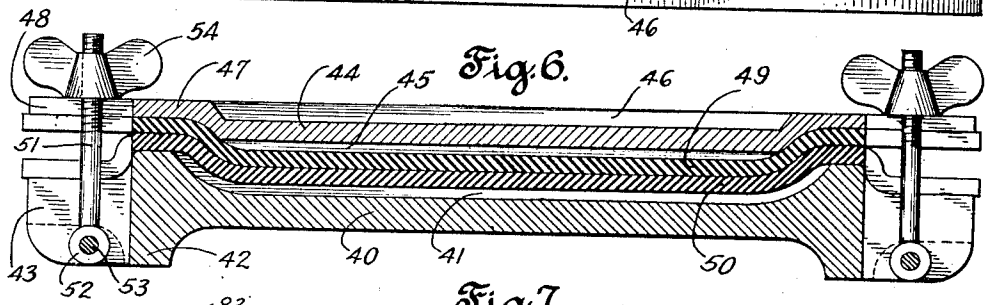


Fig.7.

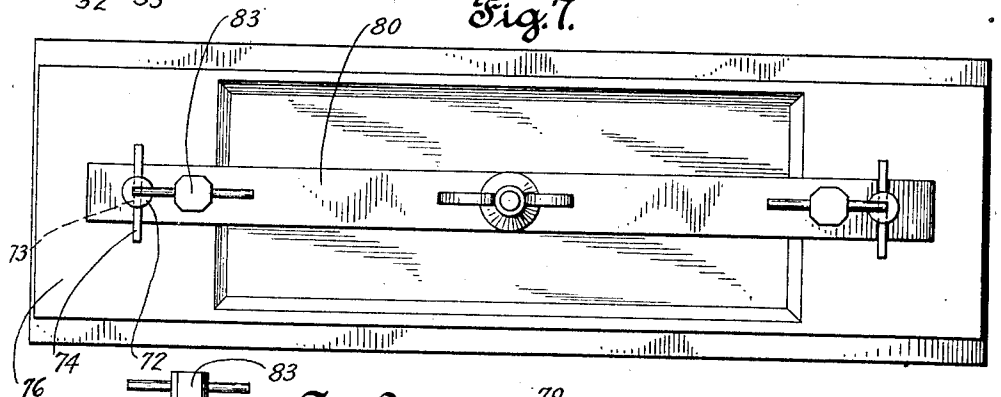


Fig.8.

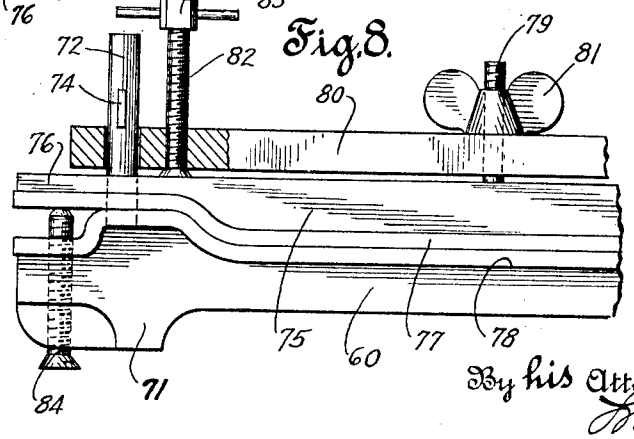
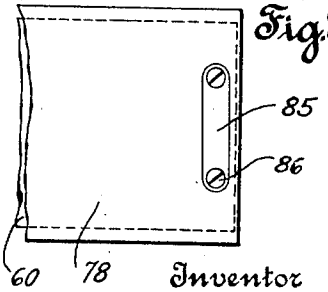


Fig.9.



Inventor
Herman Epstein
By his Attorney
Jesse C. Fischer.

July 17, 1923. 1,461,822

H. EPSTEIN

CLAMP FOR PRODUCING MOTTLED SKEIN DYEING

Filed July 25, 1922 3 Sheets-Sheet 3

Fig. 10.

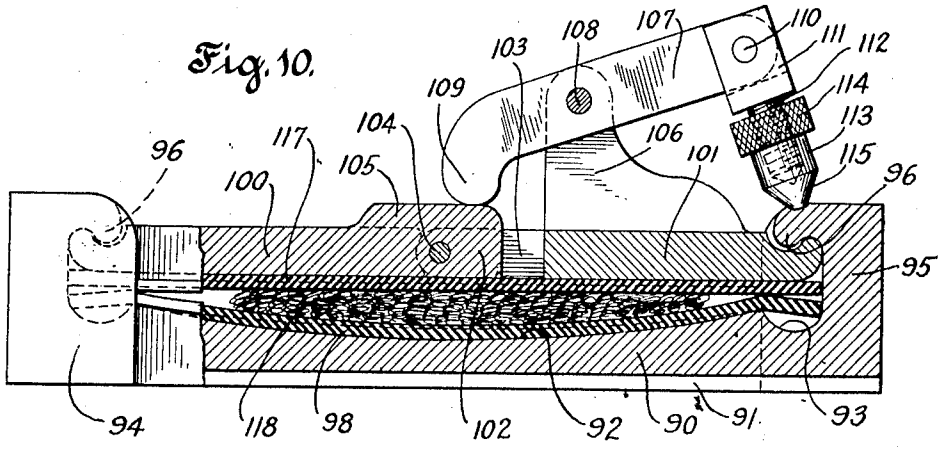


Fig. 11.

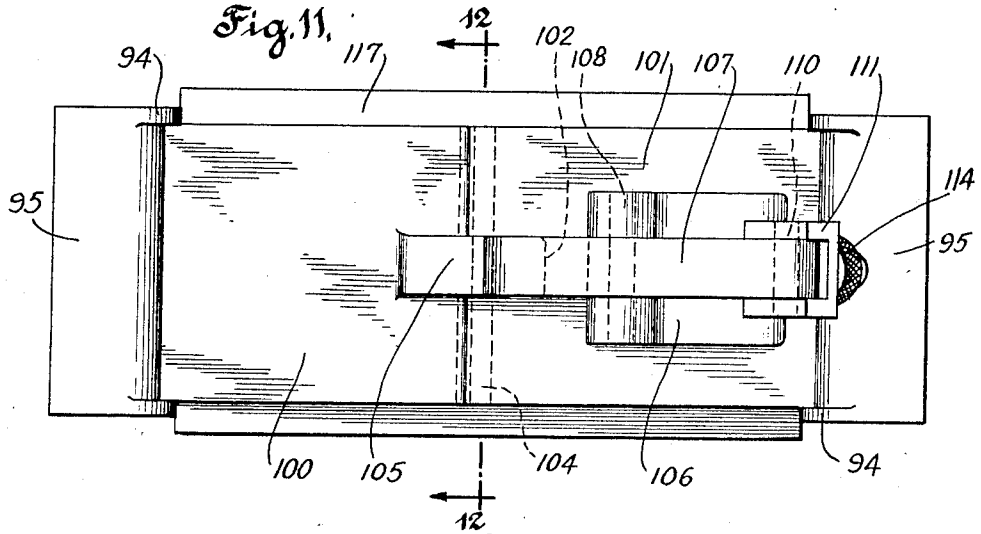
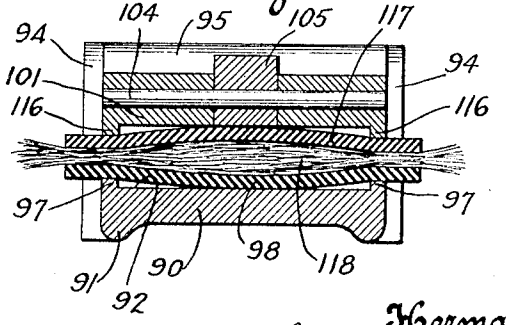


Fig. 12.



Inventor
Herman Epstein
By his Attorney-
Frank C. Fischer.

Patented July 17, 1923. 1,461,822

UNITED STATES PATENT OFFICE.

HERMAN EPSTEIN, OF NEW YORK, N. Y.

CLAMP FOR PRODUCING MOTTLED SKEIN DYEING.

Application filed July 25, 1922. Serial No. 577,283.

To all whom it may concern:

Be it known that I, HERMAN EPSTEIN, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Clamps for Producing Mottled Skein Dyeing, of which the following is a specification.

The invention relates to devices for use in dyeing silk and like fibers, when in the form of twisted yarns or threads, coiled and folded into skeins or hanks, and submerged in tanks containing dye of a definite color, the main object being to produce a mottled or variegated effect by preventing the dye from affecting portions of the skein which remain a different color, either natural or previously imparted.

A further purpose is to provide such devices in the form of quick operating clamps, having elastic engaging surfaces which bind the skein at the points where the original color is desired to remain, so firmly as to prevent the dye from infiltrating among the clamped fibers during the brief period the skeins are subjected to the dyeing liquid.

Another aim is to provide such clamp devices in forms cheap to construct, sturdy in their operation and of easy application.

These and other like objects are attained by the novel construction, combination and arrangement of parts hereafter described in their preferred forms and shown in the annexed drawings, forming an essential part of this disclosure, and in which:—

Figure 1 is a plan view of a conventional skein of yarn showing the application of several units of the invention thereto.

Figure 2 is an enlarged longitudinal sectional view of one of the units, the section being taken on line 2—2 of Fig. 3.

Figure 3 is a plan view of the preferred embodiment of the invention.

Figure 4 is a transverse sectional view taken on line 4—4 of Fig. 2.

Figure 5 is a plan view of a modified form of skein clamp on which bolts are substituted for cams in clamping the main elements of the device together.

Figure 6 is a longitudinal sectional view taken on line 6—6 of Fig. 5.

Figure 7 is a plan view showing a further modification in construction.

Figure 8 is a fragmentary side view of the same with parts broken away.

Figure 9 is a partial plan view of the elastic blanket and means for securing it to the clamp frame.

Figure 10 is a partial side elevational, partial sectional view showing a further modification of the clamp.

Figure 11 is a plan view of the same.

Figure 12 is a transverse sectional view taken on line 12—12 of Fig. 11.

In Figs. 1 to 4 inclusive of the drawings the numeral 15 designates the base element of the clamp, the same having a level lower surface throughout and a slightly concave upper surface 16 having raised ledges 17 at its side edges the same conforming to the profile of the surface 16.

Near each end of the base transverse elements 18 slope downward from the ends of the ledges 17 and terminate at the inner sides of raised end elements 19 shaped to produce inreaching hooks 20 extending entirely across the base, which, as will be seen, is an oblong rectangle in plan and of rigid integral construction.

The cover or removable portion of the clamp is comprised of two sections, respectively 21 and 22, corresponding in width with the base and like it having raised edges 23 and 24 terminating at their outer ends in transverse reenforcements 25 and 26.

Said sections are of substantially the same length, fitted to interengage at their junction and pivoted on a hinge pin 27 presenting approximately level upper and lower surfaces.

Raised from the plate 22 are pairs of lugs 28 between which, mounted on the pin 29, is a cam 30 having an extending manually operable handle 31.

The plate 22 is cut away between the lugs to receive a tongue 32 extending in from the mating plate 21 providing a smooth seat to receive the thrust of the cam when operated, and in order to hold the cam in adjustment notches 33 are formed across its upper face receptive of a spring detent 34 having an operating knob 35 and secured to a lug 36 raised from the plate 21 in register between the lugs 28 of the mating plate.

Flexible blankets of such material as rubber 37 and 38 cover the respective adjacent

faces of the clamp elements, the lower blanket being secured to the elements 18 and the upper blanket to the corresponding but level upper elements 25 and 26, said blankets extending over and past the edges 17 and 24 respectively.

In operation, the covers being removed, the clamp bases are disposed on any level surface, adjusted at any desired distances apart and the skein of material to be variegated laid across the lower blanket.

The covers are then applied by releasing the cams, entering the ends under the hooks 20, and pressing the cover downward, moving the cam lever towards the right until sufficient pressure has been applied.

Due to the elasticity of the blankets the raised walls of the inner surface of the clamp elements bind the spun threads, yarn or textile filaments so tightly together as to render them impervious to moisture within the chamber thus formed, and in this condition the skein and attached clamps are entered into the tank of dye, so that the exposed portions of the skein absorb the same to the required extent, none entering the parts of the skein between the clamp plates.

In Figs. 5 and 6 the base 40 is shown as straight with raised edges 41 and thickened ends 42 having open slots 43 near each corner, which is reduced in thickness as shown.

The cover 44 presents a straight lower surface having side ledges 45, a depression 46 in its top, its ends 47 being reduced to agree with the corresponding raised upper surface of the base ends and containing slots 48.

Similar blankets 49 and 50 are interposed between and secured to the cover and base, said blankets extending beyond the sides and to the ends, being slotted to agree with the slots in the clamp.

Bolts 51, having eyes 52 in place of heads, are pivoted on pins 53 in the lower portion of the slots 43 and turn thereon to swing into a vertical position in the slots 48, these bolts being provided with wing nuts 54 by which the several elements are firmly clamped together, binding any material entered therebetween in the manner previously explained, the operation of releasing the goods being merely to slacken the nuts and turn the bolts outward and downward on the pivots 53.

It will be understood that, while four bolts are shown, if the clamp be relatively narrow, one bolt at each end will suffice to accomplish the purpose.

The modification illustrated in Figs. 7 and 8 shows a similar base 60 having thickened ends 71 carrying rigid upstanding posts 72 provided with narrow slots 73 in which can be inserted flat tapered keys 74.

The posts pass through the upper element or clamp cover 75 at its attenuated ends 76, between which are the pliable elastic blankets 77 and 78 of the type described.

In this construction a single central bolt 79 is fixed in the cover element and passes through a rigid bar 80 where it is provided with a wing nut 81 to equalize the strain in clamping the bar.

When in use, the wedge keys 74 are inserted in the slots of the posts 72 and the screws 82, actuated by their heads 83, press the cover element against the base element in an obvious manner.

In order to avoid danger of breaking the ends 76 of the cover element, stop screws 84 are inserted in the base ends 61, the screws being adjusted so that their points will make contact with the ends of the cover elements when the latter are under stress.

The elastic blankets are preferably fastened by thin plates 85 inserted in their adjacent faces and held by screws 86 entering the adjacent plate surfaces, as shown in detail in Fig. 9.

Figures 10, 11 and 12 illustrate an embodiment of the invention, similar to that of Figs. 2, 3 and 4, but of more sturdy design.

In this construction, the numeral 90 designates the base having lateral bottom ribs 91, a longitudinally curved upper surface 92 and recesses 93 near each end.

These recesses are accessible from the inner sides and are formed to constitute pockets by the integral side plates 94 which serve to guide and maintain the clamp elements in proper position.

The end elements 95 are arranged to overhang, that is extend inwardly, constituting hooks 96 as shown.

Raised ribs 97 on the upper surface of their margins act as grips for the blanket 98 covering the lower element in the manner described.

The cover is composed of two sections 100 and 101, the former having a tenon 102 extending into a corresponding recess 103 in the mating member, these elements being connected in the manner of a hinge by the pin 104.

The upper surface of the tenon 102 is raised, as at 105 and on the corresponding upper surface of the mating member are raised lugs 106, between which is pivoted a lever 107 on the pin 108, the shorter end 109 of the lever extending over the element 105 to make contact with it when depressed the other, outer end of the lever having attached, by the pivot pin 110, a clevis 111.

The base of the clevis carries a screw-threaded stud 112 engaging a nut 113 provided with a knurled portion 114 and terminating in a conical point 115 adapted to enter a corresponding recess in the adjacent end 95 of the base.

The lower surface of the combined clamp

elements is straight and level except for the side ribs 116 which serve to grip the blanket 117 upon the application of pressure.

In operation, the material, as skeins of yarn 118 are laid on the blanket 98, the clamp, turned down at its ends to enter below the hooks 96 and then forced down by pressure applied by any convenient means to bind the skeins between the blankets after which, the nut 113 is adjusted to maintain the pressure thus applied in a manner that will be easily understood.

The foregoing disclosure is to be regarded as descriptive and illustrative only, and not as restrictive or limitative of the invention, of which obviously an embodiment may be constructed including many modifications without departing from the general scope herein indicated and denoted in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. Skein dyeing devices comprising one or more sectional clamps having base and cover elements, each being recessed on adjacent surfaces to present chambers, means at the ends of said elements suited for inter-engagement, means for forcing said elements towards each other, and means carried by said elements to prevent moistening the portion of the skein held between said cover and base elements when subjected to immersion.

2. Skein dyeing devices for producing a mottled appearance comprising upper and lower chambered elements, flexible, elastic linings disposed over the adjacent faces of each element, said linings extending marginally outward and having between them a skein the exposed portions of which are to be dyed, and means for firmly pressing said elements together to protect the portions of the skein therebetween.

3. Skein dyeing devices for producing a mottled appearance comprising, upper and lower chambered elements, flexible, elastic linings disposed over the adjacent faces of each element, posts fixed in the ends of said lower element extending through the upper element, said posts being slotted, a bar over said upper element engaging said posts, wedge keys suited to the slots in said post abutting said bar, and means carried by said bar for exerting pressure on said upper element towards the lower element.

4. Skein dyeing devices for producing a mottled appearance comprising, upper and lower chambered elements, flexible, elastic linings disposed over the adjacent faces of each element, posts fixed in the ends of said lower element extending through the upper element, said posts having narrow vertical slots, tapered keys fitting the slots, a bar over said upper element through which said posts freely pass, said keys maintaining said bar against displacement, screws carried by said bar impinging on said upper element, and stop screws set in the ends of said lower element to contact with the corresponding ends of the upper element when under stress.

5. Skein dyeing devices for producing a mottled appearance comprising, upper and lower chambered elements, flexible, elastic linings disposed over the adjacent faces of each element, posts fixed in the ends of said lower element extending through the upper element, said posts having narrow vertical slots, tapered keys fitting the slots, a bar over said upper element through which said posts freely pass, said keys maintaining said bar against displacement, screws carried by said bar impinging on said upper element, a stud fixed in said upper element passing through said bar, a nut on said stud to prevent the bar from buckling, and stop screws set in the ends of said lower element to contact with the corresponding ends of the upper element when under stress.

6. Skein dyeing devices for producing a mottled appearance comprising upper and lower elements having relatively thin ribs, flexible, elastic linings disposed over the adjacent ribs of each element, said linings extending marginally outward and having between them a skein the exposed portions of which are to be dyed, and means for firmly pressing said element together to protect the portions of the skein therebetween.

This specification signed and witnessed this 13th day of July, 1922.

HERMAN EPSTEIN.

Witnesses:
FRED'K C. FISCHER,
F. NOLL.