

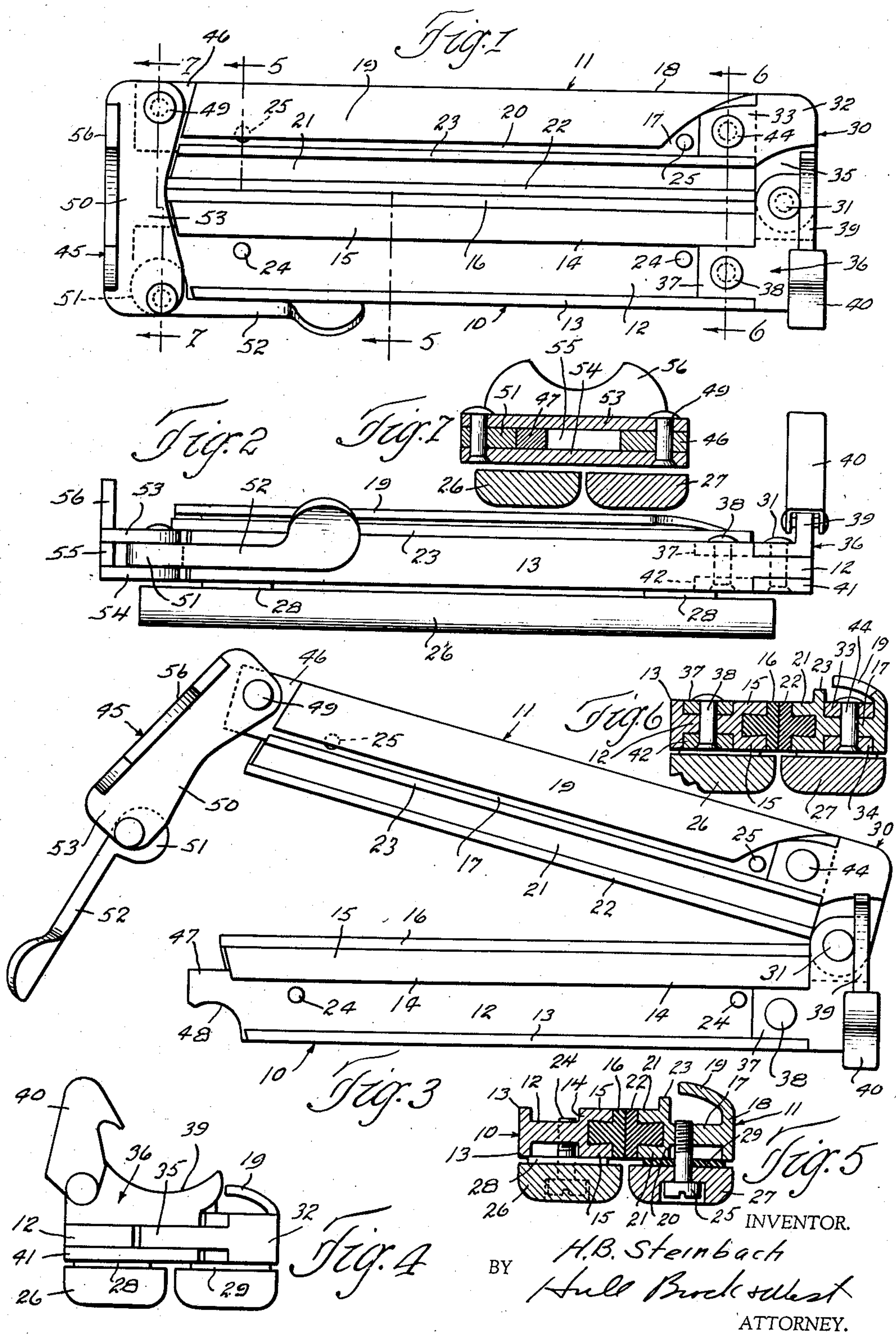
Feb. 28, 1939.

H. B. STEINBACH

2,149,234

PROTECTOR CLAMP

Filed Oct. 25, 1937



INVENTOR.  
H.B. Steinbach  
Hull Brockwell  
ATTORNEY.



## UNITED STATES PATENT OFFICE

2,149,234

## PROTECTOR CLAMP

Hans B. Steinbach, Cincinnati, Ohio, assignor to  
The Realistic Permanent Wave Machine Com-  
pany, Cincinnati, Ohio, a corporation of Ohio

Application October 25, 1937, Serial No. 170,736

5 Claims. (Cl. 132—36.1)

This invention relates to a protector clamp for use in permanent waving and has for its principal object to provide a device of this kind having at the same time greatly increased strength and greatly reduced weight.

More specifically, objects of the invention are the provision of clamping bars or jaws of improved cross section and improved hinge constructions, as well as improved gripping latch construction.

Other and more limited objects will be in part apparent and in part pointed out in connection with the accompanying drawing wherein Fig. 1 is a plan view of a protector clamp embodying the invention, that is, a view looking toward the side of the clamp which is opposite the scalp when the device is in use; Fig. 2 is an edge view or elevation of the device shown in Fig. 1; Fig. 3 is a view similar to Fig. 1 but showing the parts in open position; Fig. 4 is an end elevation and Figs. 5, 6 and 7 are sections corresponding substantially to the lines 5—5, 6—6 and 7—7 respectively of Fig. 1.

Referring now to the drawing, the numerals 10 and 11 indicate generally the clamping bars or jaws whose resistance to bending is the most important strength factor required in a device of this kind. I prefer to make the bars 10 and 11 of a light weight metal of high strength, preferably duraluminum. Other metals, however, can be used with more or less good results. I prefer to form the bars or jaws 10 and 11 by extrusion since a fairly complex cross sectional shape is desirable and the extrusion method lends itself most readily to the production of such shapes while at the same time preserving the inherent strength of the metal. The fundamental shape of the bar 10 is that of an I-beam having a web 12 and an outer flange 13 of simple form and a flange 14 having integral portions 15 forming a slightly tapering channel for the reception of a deformable gripping element 16, preferably rubber. The jaw 11 is of the same fundamental cross section, although more complex, being made up of a central web 17 and an outer flange 18 terminating in a curved portion 19 and an inner flange 20 having inwardly extending portions 21 forming a channel for the reception of a second deformable gripping element 22 similar to the element 16. The uppermost portion of the flange 20 extends upwardly toward the curved portion 19 as indicated at 23. The purpose of the elements 19 and 23 is to form a groove for the reception of a bead at the edge of a hair treating pad. This method of attachment of hair treating pad is similar to that shown in United States Patent to Spaeth No. 1,746,018.

Secured to the web portions 12 and 17 of the clamping bars 10 and 11, by means of screws 24 and 25, are heat insulating strips 26 and 27, pref-

erably composed of wood of high heat insulating value and spaced from the bars 10 and 11 by spacing washers 28 and 29.

Cooperating with the clamping bars 10 and 11 at the right hand end as seen Figs. 1 and 3 is a hinge indicated generally by the numeral 30 and comprising relatively movable portions pivoted together by means of the pivot pin 31. The hinge portion 32 is preferably a unitary fitting of a maximum thickness equal to the thickness of the flange 13 and is milled out from an integral piece of metal to form spaced tongues 33 and 34 which are received snugly in the spaces formed between the web 17 and the adjacent flanges. The element 32 is provided with a projection 35 extending at right angles to the tongues 33 and receiving the pivot pin 31. The projection 35 is preferably of the same thickness as the web 17 and thus is of a thickness equal to the space between the elements 33 and 34. It is to be understood that the corner portion of the element 32 is of a thickness equal to the sum of the thicknesses of the two elements 33 and 34 and the element 35. The other portion of the hinge 30 is made up of two elements, one of which 36 is applied to the upper surface of the clamping bar 10, as seen in Fig. 1, the flanges 13 and 14 of such bar being cut away to receive the element 36. The element 36 is provided with a tongue 37 extending into the space between the flanges 13 and 14 and lying in contact with the web 12 and secured thereto as by rivet 38. Preferably the web 12 extends to the extreme right of the element 36 as clearly indicated in Fig. 2.

The element 36 is provided with a cradle portion 39 extending at right angles to the plane of the jaw 10 and carrying a pawl 40 for reception of the usual winding mandrel. Underneath the element 36 and parallel therewith is an element 41 which cooperates with the element 36 to complete the portion of the hinge member secured to the jaw 10. The element 41 is provided with a tongue 42 extending into the space between the flanges 13 and 14 on the underside. The tongues 37 and 42 are secured to the web 12 by a suitable rivet 38 while the tongues 33 and 34 are secured to the web 17 by a rivet 44. It should be noted that these tongues fit snugly in the space between the flanges against the webs and connect the hinge elements with the clamping jaws in a very effective manner, the rivets 38 and 44 being relied upon merely to hold the parts in assembled relation but not taking any considerable amount of stress when the clamping jaws are subjected to bending force at the time they are being closed on a strand of hair.

At the other ends of the clamping jaws 10 and 11 is a latch indicated generally by the numeral 45. The flanges of the clamping bar 11 are cut away to leave a projecting web portion as indi-



cated at 46. The jaw 10 similarly has the flanges cut away to leave a projecting web portion as indicated at 47, the outside face of the portion 47 being curved as indicated at 48 to provide a seat for the latching cam. Pivoted to the portion 46 by means of pivot pin 49 is the latch element 45 which is made up of a channel shaped element 50 and a latching cam 51 controlled by the hand piece 52. The element 50 has upper and lower plate like elements 53 and 54 which receive the projections 46 and 47 therebetween. The portions 53 and 54 are integral with a connecting portion 55. The channel portion 50 also carries an integral cradle element 56 adapted to cooperate with the cradle element 39 to support the winding mandrel.

It will be noted that the flanges of the bars 10 and 11 are cut away at an angle and that the latch element 50 has its edges adjacent to such cut away portions formed in a V-shape. This configuration makes possible the attainment of a somewhat greater effective length for a given over-all length of the device, at the same time providing adequate strength for the latch. The cam element 51 is of a thickness substantially equal to that of the webs 12 and 17 and substantially fills the space between the elements 53 and 54. I prefer to make the hand piece 52 rather narrow and of such size that it will bend, in an attempt to tighten the device on too large a strand of hair, before there is any serious danger of bending the jaws or clamping bars 10 and 11. This handle thus becomes a safety feature which protects the remainder of the clamp and in the event an operator should attempt to clamp too large a strand of hair, the damage to the device would be slight and could be repaired by the renewal of a small part.

By the use of the above construction, I have been able to secure for a given weight an increase in strength as great as 50% as compared to previous protector clamps with which I am familiar.

From the foregoing, it will be obvious that I have provided a protector clamp which is well adapted for its intended purpose and while I have shown and described the present embodiment, I wish it understood that I am not limited to the details of the disclosure but only in accordance with the scope of the appended claims.

Having thus described my invention, what I claim is:

1. A protector clamp for use in permanent waving, the same comprising, in combination, a pair of elongated jaw bars, hinge means connecting said bars at one end and latch means for connecting said bars at the other end, each of said bars being of fundamental I-beam section with their webs in substantially the same plane, one of the flanges of each of said bars having portions defining a channel, said channels opening toward each other, deformable gripping elements received in said channels, and said hinge means comprising a pair of hinge elements pivoted together and having tongues received in and substantially filling portions of grooves defined between the flanges and webs of said bars.

2. A protector clamp for use in permanent waving, the same comprising, in combination, a pair of elongated jaw bars, hinge means connecting said bars at one end and latch means for connecting said bars at the other end, each of said bars being of fundamental I-beam section with their webs in substantially the same plane, one of the flanges of each of said bars having portions de-

fining a channel, said channels opening toward each other, deformable gripping elements received in said channels, and said hinge means comprising a pair of hinge elements pivoted together and having tongues received in and substantially filling portions of grooves defined between the flanges and webs of said bars, said tongues extending at right angles to the pivotally connected portions of said hinge elements and said pivotally connected portions abutting the ends of the flanges of said jaw bars.

3. A protector clamp for use in permanent waving, the same comprising, in combination, a pair of elongated jaw bars, hinge means connecting said bars at one end and latch means for connecting said bars at the other end, each of said bars being of fundamental I-beam section with their webs in substantially the same plane, one of the flanges of each of said bars having portions defining a channel, said channels opening toward each other, and deformable gripping elements received in said channels, said latch element comprising a channel shaped element pivoted to the webs of said bars, the flanges of said bars being cut away to accommodate said latch element, said latch element also including a cam lever pivoted within the channel of said channel shaped element.

4. A protector clamp for use in permanent waving, the same comprising, in combination, a pair of elongated jaw bars, hinge means connecting said bars at one end and latch means for connecting said bars at the other end, each of said bars being of fundamental I-beam section with their webs in substantially the same plane, one of the flanges of each of said bars having portions defining a channel, said channels opening toward each other, deformable gripping elements received in said channels, and said hinge means comprising a pair of hinge elements pivoted together and having tongues received in and substantially filling portions of grooves defined between the flanges and webs of said bars, said latch element comprising a channel shaped element pivoted to the webs of said bars, the flanges of said bars being cut away to accommodate said latch element, said latch element also including a cam lever pivoted within the channel of said channel shaped element.

5. A protector clamp for use in permanent waving, the same comprising, in combination, a pair of elongated jaw bars, hinge means connecting said bars at one end and latch means for connecting said bars at the other end, each of said bars being of fundamental I-beam section with their webs in substantially the same plane, one of the flanges of each of said bars having portions defining a channel, said channels opening toward each other, deformable gripping elements received in said channels, and said hinge means comprising a pair of hinge elements pivoted together and having tongues received in and substantially filling portions of grooves defined between the flanges and webs of said bars, said tongues extending at right angles to the pivotally connected portions of said hinge elements and said pivotally connected portions abutting the ends of the flanges of said jaw bars, said latch element comprising a channel shaped element pivoted to the webs of said bars, the flanges of said bars being cut away to accommodate said latch element, said latch element also including a cam lever pivoted within the channel of said channel shaped element.

HANS B. STEINBACH.