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N. L. SOLOMON ET AL

2,544,364

CURL SETTING DEVICE

Filed April 10, 1948

4 Sheets-Sheet 2

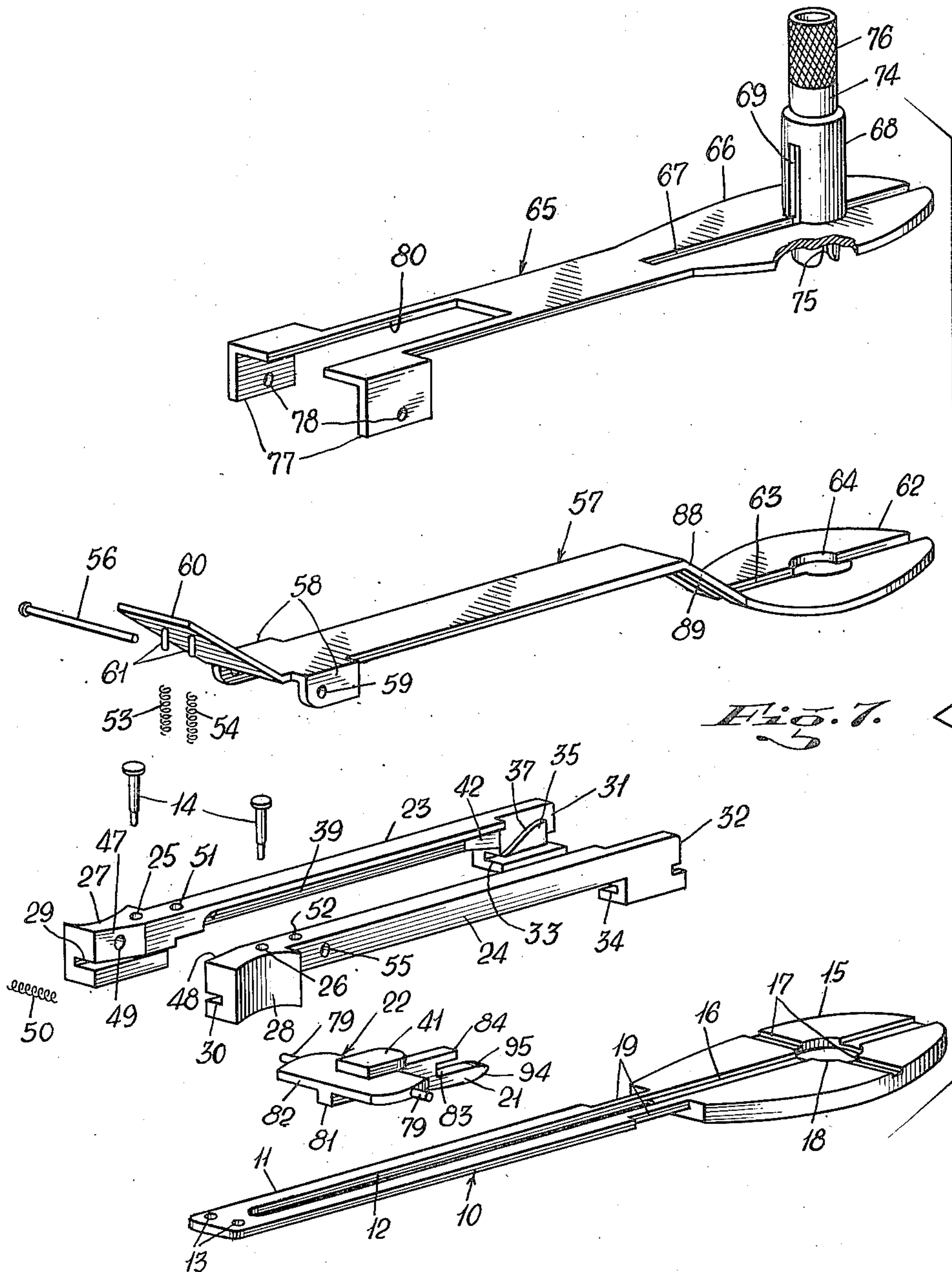


Fig. 7.

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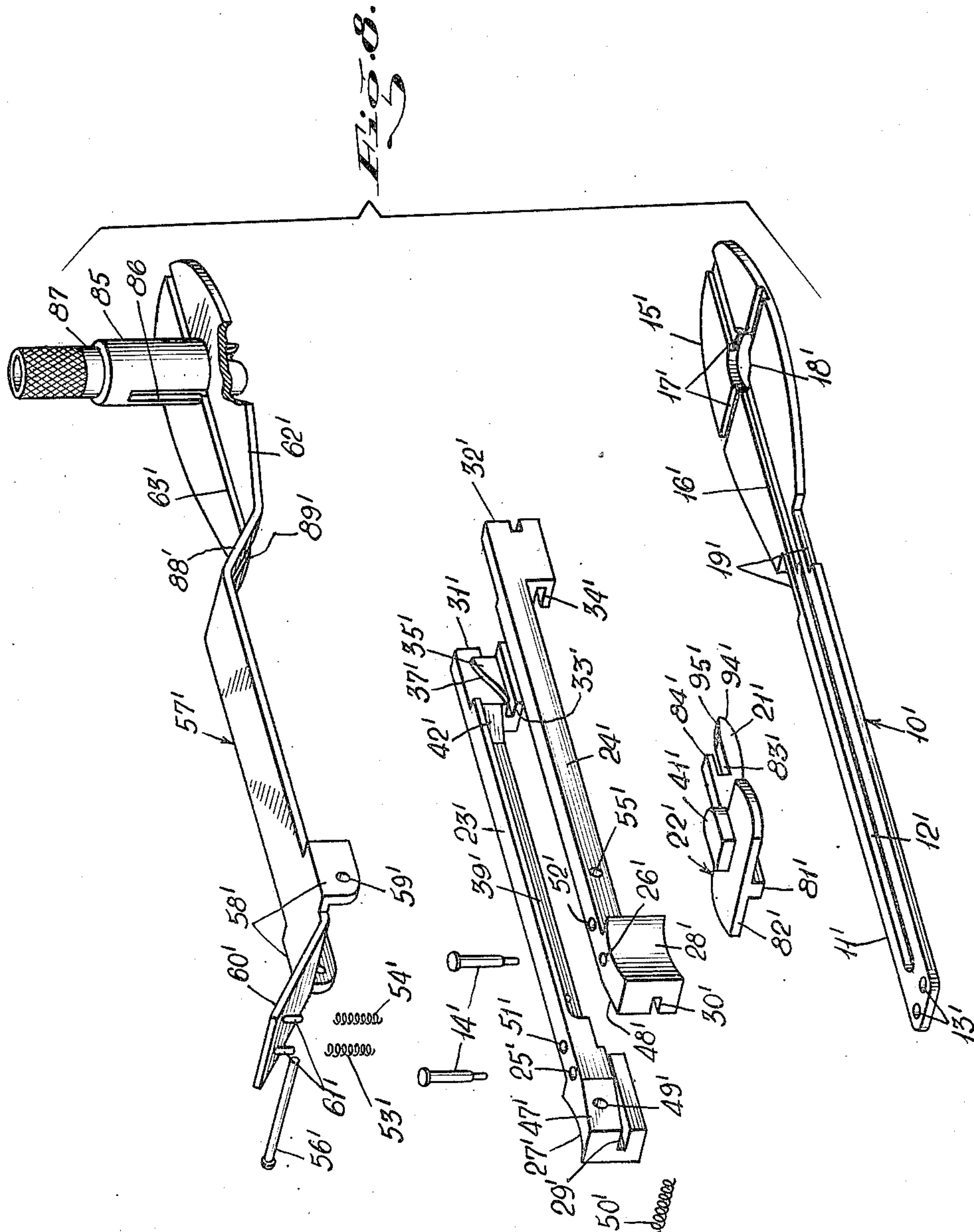
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4 Sheets-Sheet 3



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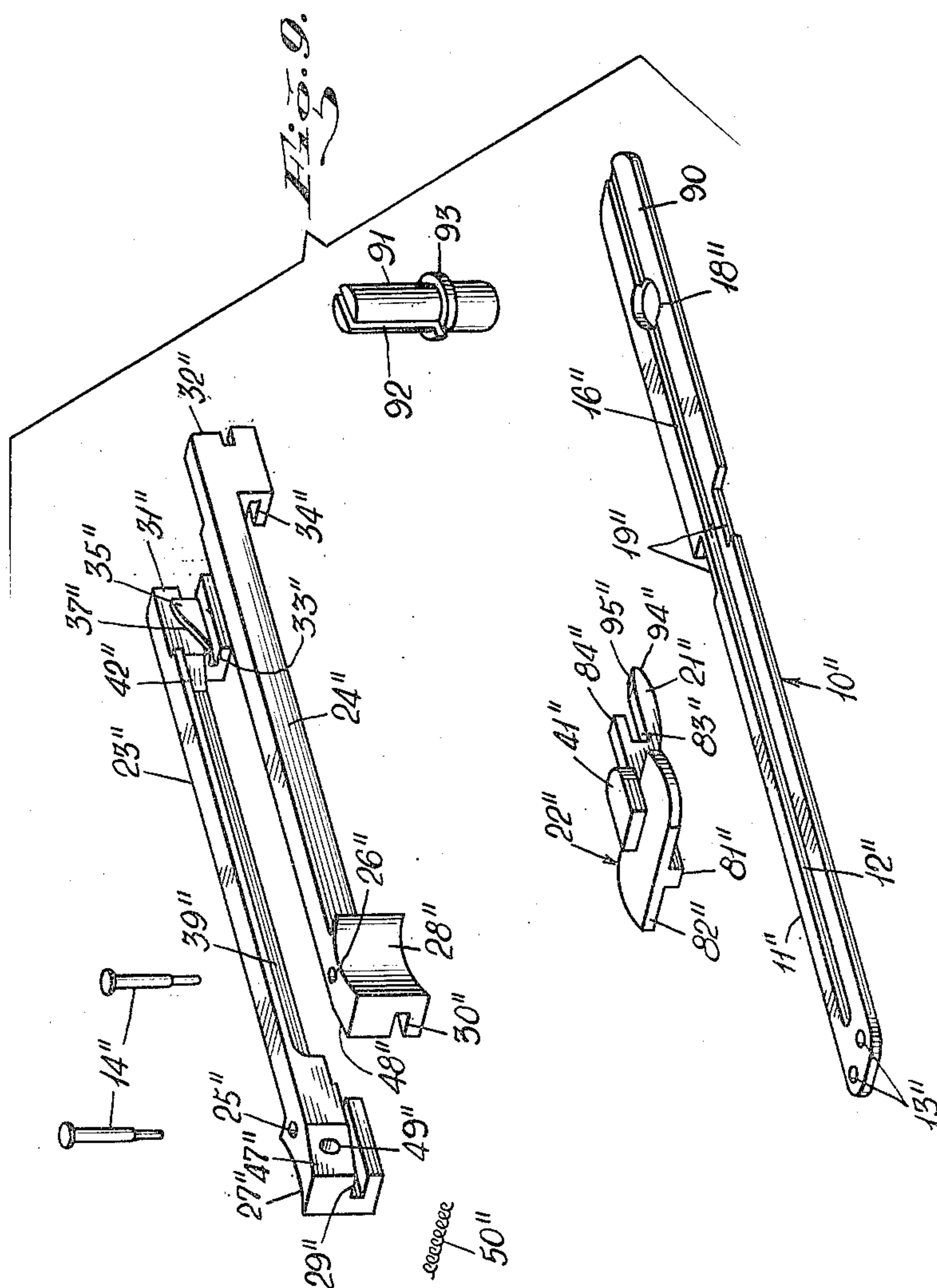
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## UNITED STATES PATENT OFFICE

2,544,364

## CURL SETTING DEVICE

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20 Claims. (Cl. 132—33)

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This invention relates to tools for forming what is generally referred to as flat, pin or sculpture curls. More particularly, the invention deals with devices of this kind having means for moving a bobby-pin into engagement with the curl while held between two jaws of the device whereupon the jaws and forming pin are separated, facilitating removal of the curl with the bobby-pin thereon.

The novel features of the invention will be best understood from the following description when taken together with the accompanying drawings, in which certain embodiments of the invention are disclosed, and in which the separate parts are designated by suitable reference characters in each of the views, and in which:

Fig. 1 is a plan view of one form of tool which is employed.

Fig. 2 is a longitudinal section on the line 2—2 of Fig. 1.

Fig. 3 is an end view of the device as seen in Fig. 2.

Fig. 4 is a view similar to Fig. 2, showing the parts in a different position and showing only a part of the construction.

Fig. 5 is a sectional plan view of part of the construction shown in Fig. 1.

Fig. 6 is a view similar to Fig. 5, showing the parts in different positions.

Fig. 7 is an exploded view showing the several parts of the device detached preparatory for assemblage.

Fig. 8 is a view similar to Fig. 7, showing a modified form of device; and

Fig. 9 is a view similar to Figs. 7 and 8, showing another form of device which is employed.

The device as shown in the accompanying drawing, and later described in detail, will produce curls of the type and kind under consideration, which will be more perfectly formed than is possible with known devices or means. Different forms of tools are disclosed, and in the several forms shown, certain parts of the tools are substantially of the same form and construction and operate in the same manner.

In Figs. 1 to 7 inclusive, I have shown what might be termed the most complete tool, which is shown in assemblage in Figs. 1 to 6 inclusive, and in exploded relationship in Fig. 7. Referring to the latter figure, 10 represents what may be termed the base plate of the tool, or what may be further termed a fixed jaw. This tool part has a long narrow plate portion 11 with an elongated aperture 12 therein, the plate 11 having at one end a pair of apertures 13 for reception

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of rivet-pivot pins 14 in assemblage of the tool parts. At the other end of the plate 11 is an enlarged head or jaw 15, having on its upper surface a recess 16 registering with and of the same width as the aperture 12. The jaw 15 has another transverse recess 17 on its upper surface and both recesses 16 and 17 register with a circular pin receiving aperture 18. Where the jaw 15 joins the plate 11, the plate has recesses 19 at opposite sides thereof. The jaw 15 is of greater thickness than the plate 11, as will clearly appear in Figs. 2 and 4 of the drawing and in alignment with the recess 16, the lower surface of the jaw 15 is recessed, as seen at 20 for reception of the workpiece engaging and holding finger 21 of a slide block 22, later described.

At 23 and 24 is shown a pair of side plates or arms which are pivotally mounted upon the plate 11 by the pins 14, which pass through apertures 25—26 in enlarged fingerpiece ends 27—28. The fingerpiece ends 27—28 have slots or channels 29—30 for reception of the plate 11, thus maintaining alignment of the side plates or arms 23—24 on said plate. The forward jaw ends 31—32 of said arms have at their lower ends, similar channel portions 33—34 for engaging the plate 11 where the recesses 19 are located. This permits inner cam portions 35—36 of the jaws to abut, as clearly seen in Fig. 5 of the drawing. The cam portions 35—36 have inclined surfaces 37—38 upon which one member of a bobby-pin operates in the spreading of the pin for engagement with a curl, as later described.

Inner surfaces of the arms 23—24 have between the ends thereof, longitudinal recesses 39 and 40 for reception of the spreader element 41 of the sliding block 22, so as to normally maintain the arms in parallelism, except when the block engages bevelled surfaces 42—43 on the arms in order to spread the jaw ends of said arms, as seen in Fig. 6, to permit forward advancement of the bobby-pin, as will be apparent from the description which follows.

In Fig. 2 of the drawing, a bobby-pin is shown at 44, the bobby-pin having the conventional side members 45 and 46. As the bobby-pin is advanced in the tool, the upper member 45 travels over the cam surfaces 37—38 to spread the pin, so as to grasp a curl, and then to finally free the upper member 45, allowing it to drop onto the curl to hold the same until the parts of the tool are separated and the curl removed.

The ends 27—28 of the arms have adjacent bevelled surfaces 47—48, apertured as seen at 49, for reception of a spring 50. The spring 50 is



tensioned to normally urge the cam portions 35—36 into abutting engagement with each other and to maintain the arms in parallel relationship to each other, while at the same time, permitting the spreading of the jaw ends of the arms, as above described.

The arms 23—24 adjacent the fingerpiece ends have vertical apertures 51—52 for reception of springs 53—54 and forwardly of the apertures 51—52, the arms have slightly elongated horizontal apertures, one of which is shown at 55 for reception of a rivet-hinge pin 56 for pivotal mounting of a jaw plate 57 with said arms, while still providing free swinging movement of the arms with respect to the plate 57. One end of the plate 57 has downwardly extending lugs or flanges 58, apertured, as seen at 59, for the reception of the pin 56 in pivotal mounting of the jaw plate, as above stated. The end of the plate 57 has an upwardly offset fingerpiece portion 60, having on its lower surface guide pins 61 for the springs 53—54. These springs normally urge the jaw or head end 62 of the plate 57 in engagement with the jaw 15. The jaw end or head 62 is substantially of the contour of the jaw 15, and has a central longitudinal slot 63 registering with the recess 16, the jaw 62 also having an aperture 64 which registers with the aperture 18. The slot 63 provides for the free passage of the spread bobby-pin onto the curl arranged between the jaws 15—62, as will be apparent.

In the structure shown in Figs. 1 to 7 inclusive, a pin supporting member 65 is employed, which has at one end a head 66, similar to the head 62 in general contour, with an elongated slot 67 registering with the slot 63. The head 62 has an upstanding integral tube 68 slotted at opposite sides, as seen at 69, to register with the slot 67. The tube 68 has adjacent its upper end, an annular recess 70 for supporting a spring ring 71 which is adapted to snap into spaced annular grooves 72—73 in a curl forming pin 74. The pin 74 is in the form of a tube, the lower end of which is split, as seen at 75 and the upper end portion of the tubular pin has a knurled head 76 whereby the pin may be moved longitudinally of the tube 68 in moving said pin from the operative position shown in Fig. 2, to a raised inoperative position, the pin being held in both positions by the spring 71. The other end of the member 65 has depending lugs or flanges 77 apertured, as seen at 78 to receive pivot pin extensions 79 on the slide 22, said extensions being riveted-over in the final assemblage in retaining the parts together. The last named end of the member 65 has an elongated slot 80 which is slightly greater in width than the width of the plate 57, so that when the member 65 is advanced, together with the slide 22, to the position shown in Fig. 4, the plate 57 will be free to swing vertically in wide separation of the jaws 15—62 for removal of the curl with the bobby-pin thereon. In this connection, it will be understood that with the parts in the position shown in Fig. 2, and in the operation of curling a swatch of hair on the pin 74, both the plate 57 and the member 65 will raise slightly and sufficient clearances will be provided between said plate and member at the pivot portion thereof to allow swinging movement on the respective pivots of the same.

The slide block 22 comprises what may be termed a bobby-pin feed element or delivery element and this element has in alinement with the finger 21, a key portion 81 which operates in the aperture 12 in keying the slide element in its

movement longitudinally of the device. Directly above the key 81 is a transverse plate 82 centrally of the ends of which are the pivot pins 79. The plate 82 provides a fingerpiece portion which extends beyond the plates 11, 23, 24 and 57 to facilitate operation of the slide in advancement of a bobby-pin, as later described, the fingerpiece plate 62 being arranged between the lower edge of the side plates or arms 23—24 and the plate 11. Rearward movement of the slide is checked by the enlarged fingerpiece portions 27—28 and forward movement by the downwardly extending channelled or grooved portions 33—34 at the jaw ends 31—32 of said arms. Directly above the finger 21, the slide 22 has a notch or recess 83 partially formed by a back-up or pusher 84 which is adapted to engage the bent end 44' of a bobby-pin in advancing the pin through the tool from the inserted position which is partially indicated diagrammatically in Fig. 2 of the drawing, to the advanced position illustrated in Fig. 4 of the drawing.

In Fig. 8 of the drawing is shown an exploded view of a modified form of tool, which differs from the construction shown in Figs. 1 to 7 in dispensing with the member 65 and in modifying the structure of the movable jaw plate 57. In other words, in Fig. 8, the part 10' is identical with the part 10. The part 22' is substantially the same as the part 22, by simply dispensing with the pivot pin 79. The parts 23'—24' are the same as the parts 23—24 and this includes the accessories 14'—50' and on these respective parts, like references will be primed to designate like parts without detailed reviewed description thereof.

The part 57' is generally of the same contour as the part 57, particularly with respect to the flanges 58', fingerpiece 60', pins 61', springs 53'—54' and pin 56'. The jaw or head end 62' is modified simply to the extent of including thereon a sleeve or tube 85 similar to the tube or sleeve 68 and having opposed slots 86 registering with the slot 63' in the jaw 62'. Associated with the sleeve 85 is a pin 87, similar to the pin 74. Between the head 62 and the plate 57, is an offset 88 having a slot 89 registering with slot 63. The same structure is employed in Fig. 8, and in Fig. 8, the pin 87 is moved with the jaw plate 57' and the slide or workpiece feed element 22' alone moves forwardly in the tool.

In Fig. 9 of the drawing is shown a still simpler form of construction which dispenses with not only the part 65, but also with the parts 57—57'. In this construction, the parts 23'—24' are substantially the same as the parts 23—24, being modified only to the extent of dispensing with the pivot pin apertures 55 and the spring receiving apertures or sockets 51—52. Here again, like structures will have the reference characters double primed over the structure, as shown in Figs. 1 to 7, in order to dispose of unnecessary repetition in description.

In Fig. 9, the slide or element 22' is identical with the element 22' shown in Fig. 8 of the drawing, and for this reason, the same reference character has been employed. The part 10'', Fig. 9, differs from the parts 10—10' in dispensing with the enlarged jaw portion and having an end 90 which is of the same width as the remainder of said part. The slots 16'' extend through said end 90 and said end has an aperture 18'' for reception of a pin 91 around which a swatch of hair is adapted to be wound in forming a curl. The pin has a transverse slot 92 which is adapted



to be placed in registering alinement with the slot 16'', the slot being of sufficient depth to register with the base of the slot or recess 16'' for reception of the lower member of the bobby-pin, as for example, the member 46 shown in Fig. 2. The pin has an annular stop flange 93 which seats upon the lower surface of the end portion 90 of the tool in the operation of winding the hair on the pin. It will be understood that the pin 91 has a frictional engagement with the aperture 18'', so that the same will be held in position in the aperture during the hair winding operation, while at the same time, facilitating removal of the pin after the bobby-pin has been coupled with the wound hair. The split 92 of the pin will provide the necessary spring engagement in addition to providing the slot for reception of the spread bobby-pin when moved into engagement with the curl.

The tools shown in Figs. 1 to 8 inclusive are adapted for use in winding a swatch of hair from the free end, to the scalp. Whereas the tool shown in Fig. 9, can be used by placing the tool adjacent the scalp and then winding the swatch of hair thereon. In all forms of construction shown it will be apparent that the slide 22—22' is positioned at the pivot end of the tool, as shown in Fig. 2 of the drawing, after which a bobby-pin is placed into position in the manner illustrated diagrammatically in Fig. 2, and then moved upwardly so that the end 44' is forwardly of the pusher 84. The bobby-pin is then moved backwardly to a slight extent to rest over the finger 21—21' and the swatch of hair is then formed around the curler pin which is employed.

At this stage with the structure shown in Figs. 1 to 8 inclusive, the pin is moved into raised position, leaving the curl supported between the two jaws 15—62 and 15'—62', whereupon the slide is then moved forwardly, in which operation the upper member 45 of the bobby-pin is raised to spread it widely from the lower side 46 of the pin, the latter moving forwardly in the slot 16—16' in this operation. Then as the wedge block 41—41' engages the cam surfaces 42—43 and 42'—43', the arms 23—24 and 23'—24' are separated, releasing the top side 45 of the bobby-pin, allowing the same to snap down upon the curl to grasp the same, as is indicated diagrammatically in Fig. 4 of the drawing. The finger-piece 60—60' is then depressed to raise the jaw 62—62', allowing removal of the curl, with the bobby-pin thereon.

The only difference in operation, in the structure shown in Fig. 9, is that the pin 91 remains in position, while the slide 22' is moved forwardly until the bobby-pin has been moved through the slot 92 into engagement with the curl, whereupon the pin 91 is then withdrawn, freeing the curl from the tool. It will also be understood that with the structure shown in Figs. 1 to 7 inclusive, the forward advancement of the slide 22 also advances the member 65, and as the jaw plate 57 is raised by the depression of the finger piece 60, the offset portion 89 thereof will move through the aperture 80 and the member 65 will also raise to a slight extent.

By constructing the several forms of the device from substantially like parts, three distinct models of the device can be formed without materially increasing the cost of production. Particularly in that all of the parts 23—24 and the parts similar thereto are the same. The parts 57—57' are the same, modified only to the extent defined, thus a line of these devices can be pro-

duced at a relatively normal cost, and at the same time, curl forming and gripper or holding tools are provided, which will more efficiently form curls of the type and kind under consideration.

The finger 21 has at its end, a lower bevelled surface 94 and an upper bevelled surface 95, and these surfaces facilitate springing of the bobby-pin 44 over the end 44' thereof on said finger to a position above the same.

In the use of the tool, as seen in Figs. 1 to 7 inclusive, the end of a swatch of hair is laid in the groove 17 of the head 15, and the slot 75 of the pin 74 is passed over this swatch of hair by movement into the full line position, as seen in Fig. 2, the swatch of hair being disposed beneath the head 62. The pin 75 is then rotated to curl the swatch of hair around the pin, the curled hair being maintained in a flat state by the tensional downward movement of the jaw head 62. Upon completing the curling of the entire swatch of hair to a position adjacent the scalp, the pin 74 is then moved into a raised position, with the spring 71 entering the groove 72. Then with a bobby-pin in position, as previously described and as partly indicated in Fig. 2, the block 21 is advanced forwardly, in which operation, the upper member 45 of the bobby-pin is raised by movement over the cam surfaces 37 and 38 and when the raised member 41 strikes the cam surfaces 42 and 43, the arms are spread, thus releasing the upper member 45 of the bobby-pin, permitting the same to drop into engagement with the flat curl, as diagrammatically illustrated in Fig. 4 of the drawing.

The forward movement of the block 21 is a quick movement which will advance the bobby-pin to a slight extent in engaging the flat curl. For sake of clarity, the jaw 57 has been shown in a slightly raised position in Fig. 4, whereas in fact, this jaw remains at all times in engagement with the swatch of hair until the jaw is manually raised by depression of the fingerpiece 60. In this operation, the part 57 passes upwardly through the aperture 80 in the member 65.

In repeating the above operation, the block 21 is moved back to its normal position and the pin 74 lowered for engagement with another swatch of hair and the above operation is again repeated.

With the structure shown in Figs. 1 to 6 inclusive, it will be apparent that the member 65 moves forwardly and backwardly in the movement of the block 21. It is, therefore, apparent that the block 21 cannot be advanced until the pin 74 has been drawn out of engagement with the aperture 18 of the head 15. Fig. 9 differs from the structure of the other figures, in that the swatch of hair is curled around a pin 91 and manually held thereon in advancement of the bobby-pin, which passes through the slot 92 in movement into engagement with the curl.

Having fully described the invention, what is claimed as new and desired to be secured is:

1. A device for forming curls of the character described, said device comprising an elongated base plate having a longitudinal opening, a pair of lateral swinging arms pivoted at one end upon one end of the base plate, jaws at the other end of said arms, tensional means normally urging the jaw ends of the arms into abutting engagement, a workpiece feed block slidably engaging the base plate to engage a workpiece and move the same longitudinally of the base plate within and between said arms, said block having a part



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disposed and operating between side walls of the arms in the movement thereof in the direction of the jaw end of the arms, means on said part of the block and on the side walls of the arms at the jaw ends thereof for spreading said arms, and means on the base plate beyond the limit of said arms for curling a swatch of hair to be engaged by a workpiece advanced in the direction of the formed curl by said block.

2. A device for forming curls of the character described, said device comprising an elongated base plate having a longitudinal opening, a pair of lateral swinging arms pivoted at one end upon one end of the base plate, jaws at the other end of said arms, tensional means normally urging the jaw ends of the arms into abutting engagement, the arms having on adjacent surfaces upwardly inclined cam surfaces, a workpiece feed block slidably engaging the base plate to engage a workpiece and move the same longitudinally of the base plate within and between said arms, said block having a part disposed and operating between side walls of the arms in the movement thereof in the direction of the jaw end of the arms, means on said part of the block and on the side walls of the arms at the jaw ends thereof for spreading said arms, means on the base plate beyond the limit of said arms for curling a swatch of hair to be engaged by a workpiece advanced in the direction of the formed curl by said block, the workpiece advanced by the block having side members normally tensioned to engage each other, said members being disposed one above the other in movement longitudinally of the base, and the upper member being separated from the lower member by movement over the cam surfaces at the jaw ends of said arms and released to engage a curl by spreading of said arms by said block.

3. A device for forming curls of the character described, said device comprising an elongated base plate having a longitudinal opening, a pair of lateral swinging arms pivoted at one end upon one end of the base plate, jaws at the other end of said arms, tensional means normally urging the jaw ends of the arms into abutting engagement, the arms having on adjacent surfaces upwardly inclined cam surfaces, a workpiece feed block slidably engaging the base plate to engage a workpiece and move the same longitudinally of the base plate within and between said arms, said block having a part disposed and operating between side walls of the arms in the movement thereof in the direction of the jaw end of the arms, means on said part of the block and on the side walls of the arms at the jaw ends thereof for spreading said arms, means on the base plate beyond the limit of said arms for curling a swatch of hair to be engaged by a workpiece advanced in the direction of the formed curl by said block, the workpiece advanced by the block having side members normally tensioned to engage each other, said members being disposed one above the other in movement longitudinally of the base, the upper member being separated from the lower member by movement over the cam surfaces at the jaw ends of said arms and released to engage a curl by spreading of said arms by said block, and the end of the base plate upon which the curl is formed having a groove receiving the lower member of the workpiece for positioning beneath the curl formed on said base plate.

4. A device for forming curls of the character described, said device comprising an elongated base plate having a longitudinal opening, a pair

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of lateral swinging arms pivoted at one end upon one end of the base plate, jaws at the other end of said arms, tensional means normally urging the jaw ends of the arms into abutting engagement, the arms having on adjacent surfaces upwardly inclined cam surfaces, a workpiece feed block slidably engaging the base plate to engage a workpiece and move the same longitudinally of the base plate within and between said arms, said block having a part disposed and operating between side walls of the arms in the movement thereof in the direction of the jaw end of the arms, means on said part of the block and on the side walls of the arms at the jaw ends thereof for spreading said arms, means on the base plate beyond the limit of said arms for curling a swatch of hair to be engaged by a workpiece advanced in the direction of the formed curl by said block, the workpiece advanced by the block having side members normally tensioned to engage each other, said members being disposed one above the other in movement longitudinally of the base, the upper member being separated from the lower member by movement over the cam surfaces at the jaw ends of said arms and released to engage a curl by spreading of said arms by said block, the end of the base plate upon which the curl is formed having a groove receiving the lower member of the workpiece for positioning beneath the curl formed on said base plate, and the curl forming means having a slot registering with the groove of the base plate for passage of the upper member of the workpiece onto the upper surface of the curl.

5. A device for forming curls of the character described, said device comprising an elongated base plate having a longitudinal opening, a pair of lateral swinging arms pivoted at one end upon one end of the base plate, jaws at the other end of said arms, tensional means normally urging the jaw ends of the arms into abutting engagement, the arms having on adjacent surfaces upwardly inclined cam surfaces, a workpiece feed block slidably engaging the base plate to engage a workpiece and move the same longitudinally of the base plate within and between said arms, said block having a part disposed and operating between side walls of the arms in the movement thereof in the direction of the jaw end of the arms, means on said part of the block and on the side walls of the arms at the jaw ends thereof for spreading said arms, means on the base plate beyond the limit of said arms for curling a swatch of hair to be engaged by a workpiece advanced in the direction of the formed curl by said block, the workpiece advanced by the block having side members normally tensioned to engage each other, said members being disposed one above the other in movement longitudinally of the base, the upper member being separated from the lower member by movement over the cam surfaces at the jaw ends of said arms and released to engage a curl by spreading of said arms by said block, the end of the base plate upon which the curl is formed having a groove receiving the lower member of the workpiece for positioning beneath the curl formed on said base plate, the curl forming means having a slot registering with the groove of the base plate for passage of the upper member of the workpiece onto the upper surface of the curl, said curl forming means comprising a vertically swinging jaw pivoted to the arms adjacent the pivot ends of said arms, and said jaw being movable toward and from the base plate.

6. A device for forming curls of the character



described, said device comprising an elongated base plate having a longitudinal opening, a pair of lateral swinging arms pivoted at one end upon one end of the base plate, jaws at the other end of said arms, tensional means normally urging the jaw ends of the arms into abutting engagement, the arms having on adjacent surfaces upwardly inclined cam surfaces, a workpiece feed block slidably engaging the base plate to engage a workpiece and move the same longitudinally of the base plate within and between said arms, said block having a part disposed and operating between side walls of the arms in the movement thereof in the direction of the jaw end of the arms, means on said part of the block and on the side walls of the arms at the jaw ends thereof for spreading said arms, means on the base plate beyond the limit of said arms for curling a swatch of hair to be engaged by a workpiece advanced in the direction of the formed curl by said block, the workpiece advanced by the block having side members normally tensioned to engage each other, said members being disposed one above the other in movement longitudinally of the base, the upper member being separated from the lower member by movement over the cam surfaces at the jaw ends of said arms and released to engage a curl by spreading of said arms by said block, the end of the base plate upon which the curl is formed having a groove receiving the lower member of the workpiece for positioning beneath the curl formed on said base plate, the curl forming means having a slot registering with the groove of the base plate for passage of the upper member of the workpiece onto the upper surface of the curl, said curl forming means comprising a vertically swinging jaw pivoted to the arms adjacent the pivot ends of said arms, said jaw being movable toward and from the base plate, and a split pin rotatably mounted in said jaw and movable vertically therein.

7. A device for forming curls of the character described, said device comprising an elongated base plate having a longitudinal opening, a pair of lateral swinging arms pivoted at one end upon one end of the base plate, jaws at the other end of said arms, tensional means normally urging the jaw ends of the arms into abutting engagement, the arms having on adjacent surfaces upwardly inclined cam surfaces, a workpiece feed block slidably engaging the base plate to engage a workpiece and move the same longitudinally of the base plate within and between said arms, said block having a part disposed and operating between side walls of the arms in the movement thereof in the direction of the jaw end of the arms, means on said part of the block and on the side walls of the arms at the jaw ends thereof for spreading said arms, means on the base plate beyond the limit of said arms for curling a swatch of hair to be engaged by a workpiece advanced in the direction of the formed curl by said block, the workpiece advanced by the block having side members normally tensioned to engage each other, said members being disposed one above the other in movement longitudinally of the base, the upper member being separated from the lower member by movement over the cam surfaces at the jaw ends of said arms and released to engage a curl by spreading of said arms by said block, the end of the base plate upon which the curl is formed having a groove receiving the lower member of the workpiece for positioning beneath the curl formed on said base plate, the curl forming means having a slot regis-

tering with the groove of the base plate for passage of the upper member of the workpiece onto the upper surface of the curl, said curl forming means comprising a vertically swinging jaw pivoted to the arms adjacent the pivot ends of said arms, said jaw being movable toward and from the base plate, a split pin rotatably mounted in said jaw and movable vertically therein, the jaw having a sleeve in which said pin is rotatably and slidably mounted, and means on the pin and in said jaw for retaining the pin in different positions therein.

8. A device for forming curls of the character described, said device comprising an elongated base plate having a longitudinal opening, a pair of lateral swinging arms pivoted at one end upon one end of the base plate, jaws at the other end of said arms, tensional means normally urging the jaw ends of the arms into abutting engagement, the arms having on adjacent surfaces upwardly inclined cam surfaces, a workpiece feed block slidably engaging the base plate to engage a workpiece and move the same longitudinally of the base plate within and between said arms, said block having a part disposed and operating between side walls of the arms in the movement thereof in the direction of the jaw end of the arms, means on said part of the block and on the side walls of the arms at the jaw ends thereof for spreading said arms, means on the base plate beyond the limit of said arms for curling a swatch of hair to be engaged by a workpiece advanced in the direction of the formed curl by said block, the workpiece advanced by the block having side members normally tensioned to engage each other, said members being disposed one above the other in movement longitudinally of the base, the upper member being separated from the lower member by movement over the cam surfaces at the jaw ends of said arms and released to engage a curl by spreading of said arms by said block, the end of the base plate upon which the curl is formed having a groove receiving the lower member of the workpiece for positioning beneath the curl formed on said base plate, the curl forming means having a slot registering with the groove of the base plate for passage of the upper member of the workpiece onto the upper surface of the curl, said curl forming means comprising a vertically swinging jaw pivoted to the arms adjacent the pivot ends of said arms, said jaw being movable toward and from the base plate, a split pin rotatably mounted in said jaw and movable vertically therein, and tensional means normally retaining the jaw in abutting engagement with said base plate.

9. A tool for forming a flat curl and for engaging a bobby-pin with the flat curl to hold said curl in position upon removal of the tool, said tool comprising a base plate, means arranged vertically at one end portion of the plate for forming a curl arranged flatly on said plate, means movable on the base plate for engaging a bobby-pin to spread the same and advance the spread pin in the direction of a curl formed at the first named end of the base plate, means releasing the pin to close upon the formed curl preparatory to removing the curl from the tool, said last named means comprising a hand operated block slidably engaging the base plate, a pair of laterally swinging arms separated by advancement of the block on the base plate, a vertically movable jaw for holding the formed curl preparatory to engagement of the bobby-pin therewith, and said



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first named means comprising a member pivoted to and movable with said block.

10. A tool for forming a flat curl and for engaging a bobby-pin with the flat curl to hold said curl in position upon removal of the tool, said tool comprising a base plate, means arranged vertically at one end portion of the plate for forming a curl arranged flatly on said plate, means movable on the base plate for engaging a bobby-pin to spread the same and advance the spread pin in the direction of a curl formed at the first named end of the base plate, means releasing the pin to close upon the formed curl preparatory to removing the curl from the tool, said last named means comprising a hand operated block slidably engaging the base plate, a pair of laterally swinging arms separated by advancement of the block on the base plate, a vertically movable jaw for holding the formed curl preparatory to engagement of the bobby-pin therewith, said first named means comprising a member pivoted to and movable with said block, said member having at its free end a slotted sleeve, and a split pin rotatably mounted in the sleeve for curling a swatch of hair between the base plate and said jaw.

11. A tool for forming a flat curl and for engaging a bobby-pin with the flat curl to hold said curl in position upon removal of the tool, said tool comprising a base plate, means arranged vertically at one end portion of the plate for forming a curl arranged flatly on said plate, means movable on the base plate for engaging a bobby-pin to spread the same and advance the spread pin in the direction of a curl formed at the first named end of the base plate, means releasing the pin to close upon the formed curl preparatory to removing the curl from the tool, said last named means comprising a hand operated block slidably engaging the base plate, a pair of laterally swinging arms separated by advancement of the block on the base plate, a vertically movable jaw for holding the formed curl preparatory to engagement of the bobby-pin therewith, said first named means comprising a member pivoted to and movable with said block, said member having at its free end a slotted sleeve, a split pin rotatably mounted in the sleeve for curling a swatch of hair between the base plate and said jaw, and means on said pin and sleeve for supporting the pin in lower operative position and upper inoperative position.

12. A tool of the character described comprising an elongated base plate, a workpiece engaging and operating block, means on the block and base plate for guiding the block for movement longitudinally of the base plate, a pair of arms pivoted to one end of the base plate, said arms being mounted to swing laterally over the upper surface of the base plate in movement of the free jaw end of said arms toward and from each other, tensional means normally urging the jaw ends of said arms in abutting engagement with each other, and means on said arms and said block for spreading the jaw ends of said arms in movement of the block in the direction of said jaw ends of the arms.

13. A tool of the character described comprising an elongated base plate, a workpiece engaging and operating block, means on the block and base plate for guiding the block for movement longitudinally of the base plate, a pair of arms pivoted to one end of the base plate, said arms being mounted to swing laterally over the upper surface of the base plate in movement of the free jaw end of said arms toward and from each other,

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tensional means normally urging the jaw ends of said arms in abutting engagement with each other, means on said arms and said block for spreading the jaw ends of said arms in movement of the block in the direction of said jaw ends of the arms, and workpiece engaging and operating means at the jaw ends of said arms.

14. In a curler, the combination of a main body having handle and winding sections, a winding section having a plate, a pin arranged perpendicularly to the plate at the winding section upon which hair may be wound to form a curl, means to maintain a bobby pin in open condition in the handle section, and means for transferring the open bobby-pin from the handle section into engagement with a curl at the winding section, and to release the bobby-pin to close on a formed curl at the winding section.

15. A tool for forming a flat curl and for engaging a bobby pin with the flat curl to hold said curl in position upon removal of the tool, said tool comprising an elongated base plate having a flat head at one end, means arranged vertically at the head end of the plate for forming a curl arranged flatly on said head, means movable longitudinally on the base plate for engaging a bobby pin to spread the same and advance the spread pin in the direction of a curl formed at the head end of the base plate, and means releasing the pin to close upon the formed curl, preparatory to removing the curl from the tool.

16. A tool for forming a flat curl and for engaging a bobby pin with the flat curl to hold said curl in position upon removal of the tool, said tool comprising an elongated base plate having a flat head at one end, means arranged vertically at the head end of the plate for forming a curl arranged flatly on said head, means movable longitudinally on the base plate for engaging a bobby pin to spread the same and advance the spread pin in the direction of a curl formed at the head end of the base plate, means releasing the pin to close upon the formed curl, preparatory to removing the curl from the tool, and said last named means comprising a hand-operated block keyed to and slidably engaging the base plate.

17. A tool for forming a flat curl and for engaging a bobby pin with the flat curl to hold said curl in position upon removal of the tool, said tool comprising an elongated base plate having a flat head at one end, means arranged vertically at the head end of the plate for forming a curl arranged flatly on said head, means movable longitudinally on the base plate for engaging a bobby pin to spread the same and advance the spread pin in the direction of a curl formed at the head end of the base plate, means releasing the pin to close upon the formed curl, preparatory to removing the curl from the tool, said last named means comprising a hand-operated block keyed to and slidably engaging the base plate, and a pair of laterally swinging arms separated by the block when advanced on the base plate in the direction of said head.

18. A tool for forming a flat curl and for engaging a bobby pin with the flat curl to hold said curl in position upon removal of the tool, said tool comprising an elongated base plate having a flat head at one end, means arranged vertically at the head end of the plate for forming a curl arranged flatly on said head, means movable longitudinally on the base plate for engaging a bobby pin to spread the same and advance the spread pin in the direction of a curl formed



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at the head end of the base plate, means releasing the pin to close upon the formed curl, preparatory to removing the curl from the tool, said last named means comprising a hand-operated block keyed to and slidably engaging the base plate, a pair of laterally swinging arms separated by the block when advanced on the base plate in the direction of said head, and a vertically adjustable jaw for holding the formed curl on said head, preparatory to engagement of the bobby pin therewith.

19. A tool for forming a flat curl and for engaging a bobby pin with the flat curl to hold said curl in position upon removal of the tool, said tool comprising an elongated base plate having a flat head at one end, means arranged vertically at the head end of the plate for forming a curl arranged flatly on said head, means movable longitudinally on the base plate for engaging a bobby pin to spread the same and advance the spread pin in the direction of a curl formed at the head end of the base plate, means releasing the pin to close upon the formed curl, preparatory to removing the curl from the tool, said last named means comprising a hand-operated block keyed to and slidably engaging the base plate, a pair of laterally swinging arms separated by the block when advanced on the base plate in the direction of said head, a vertically adjustable jaw for holding the formed curl on said head, preparatory to engagement of the

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bobby pin therewith, and said jaw and base plate being recessed to guide the bobby pin in its movement for engagement with the curl.

20. A tool for forming a flat curl and for engaging a bobby pin with the flat curl to hold said curl in position upon removal of the tool, said tool comprising an elongated base plate having a flat head at one end, means arranged vertically at the head end of the plate for forming a curl arranged flatly on said head, means movable longitudinally on the base plate for engaging a bobby pin to spread the same and advance the spread pin in the direction of a curl formed at the head end of the base plate, means releasing the pin to close upon the formed curl, preparatory to removing the curl from the tool, and said curl forming means comprising a slotted pin, around which the curl is formed.

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