No. 672,330. Patented Apr. 16, 1901.

I. H. PECK.

MACHINE FOR BUNCHING HAIR PINS.

(Application filed Oct. 25, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1

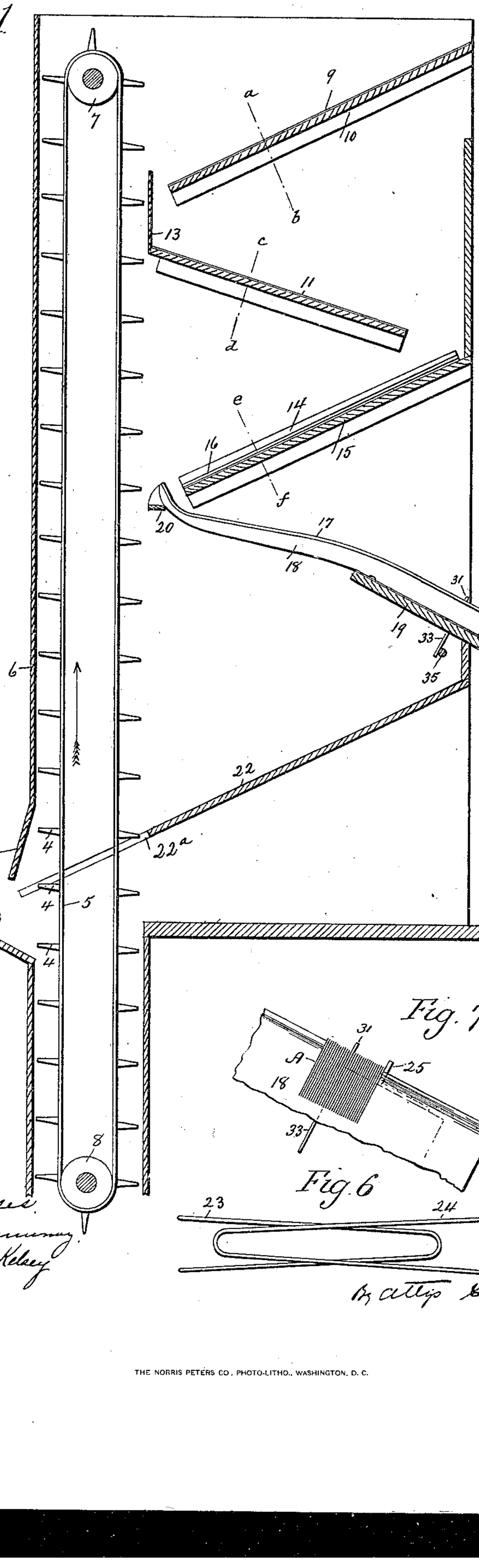

Fig. 2

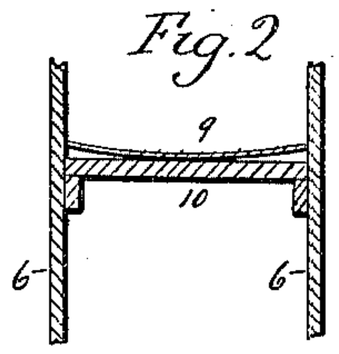

Fig. 3

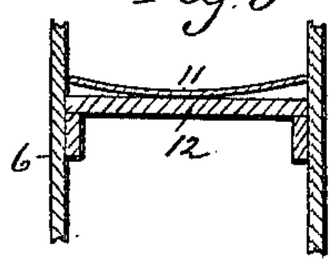

Fig. 4

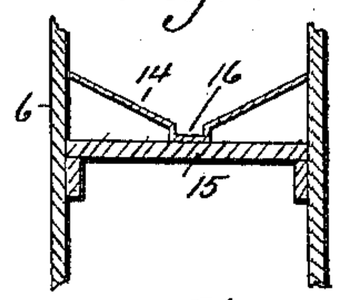

Fig. 5

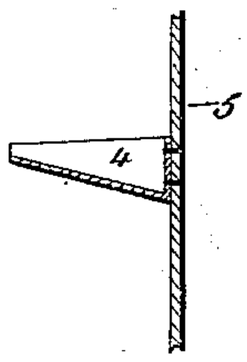

Fig. 11

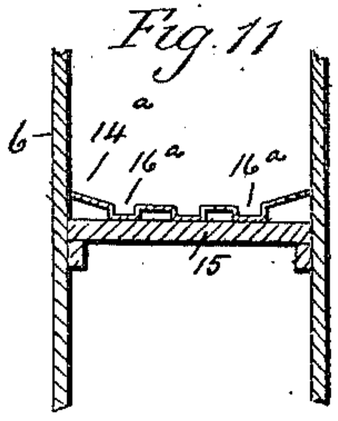

Fig. 7

Fig. 6

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2 Sheets—Sheet 2.

Fig. 8

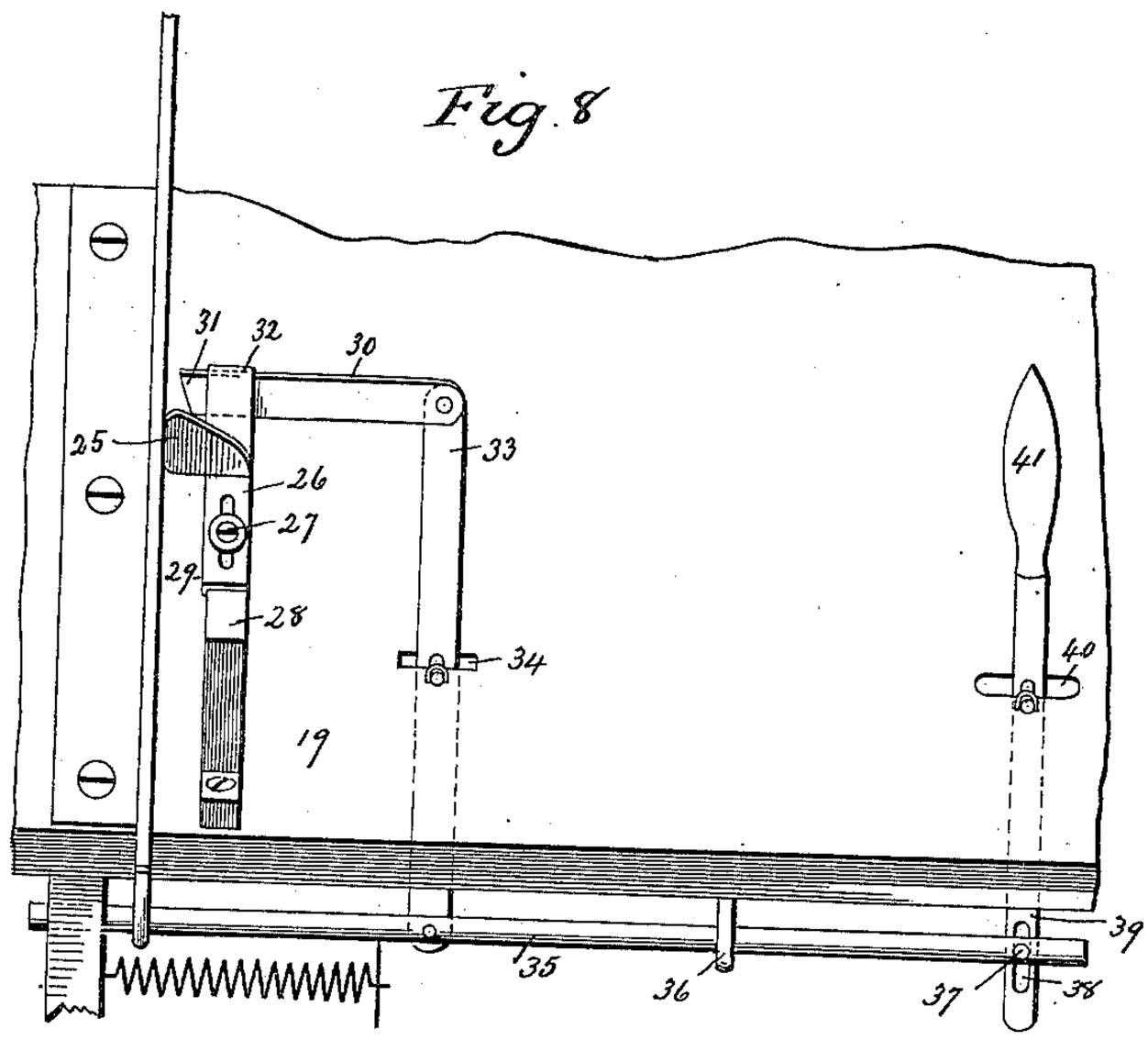


Fig. 12

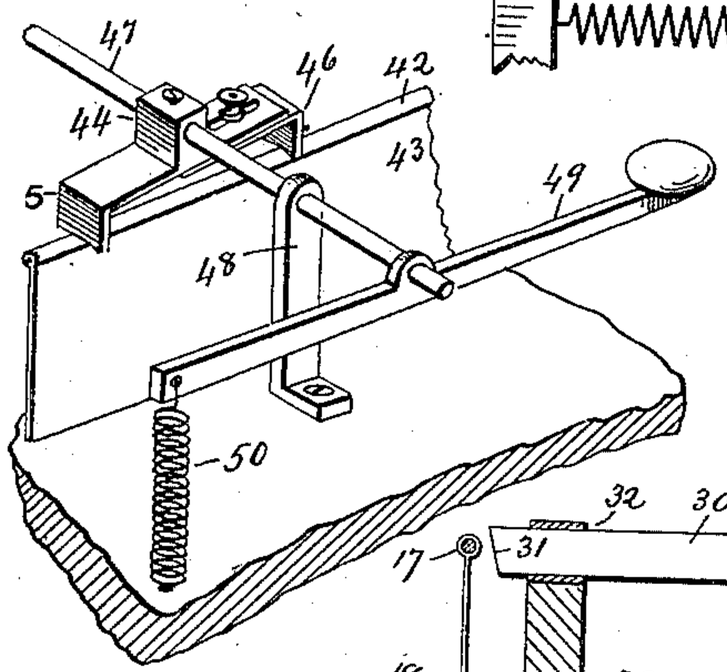


Fig. 9

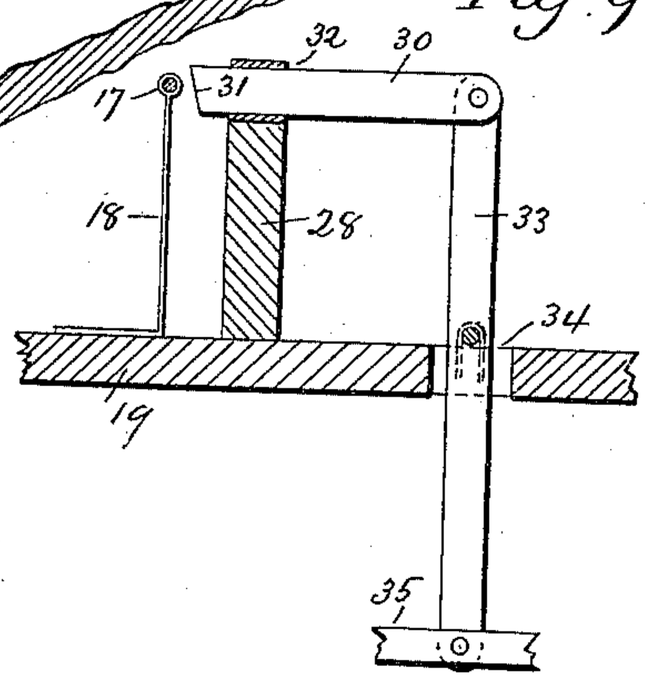
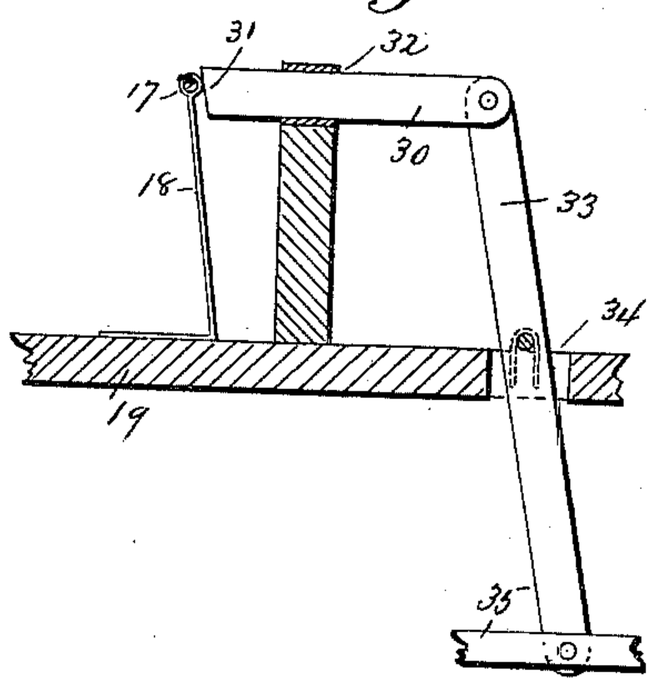


Fig. 10



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UNITED STATES PATENT OFFICE.

IRVING H. PECK, OF DERBY, CONNECTICUT.

MACHINE FOR BUNCHING HAIR-PINS.

SPECIFICATION forming part of Letters Patent No. 672,330, dated April 16, 1901.

Application filed October 25, 1900. Serial No. 34,250. (No model.)

To all whom it may concern:

Be it known that I, IRVING H. PECK, of Derby, in the county of New Haven and State of Connecticut, have invented a new Improvement in Machines for Bunching Hair-Pins; and I do hereby declare the following, when taken in connection with the accompanying drawings, and the characters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view in vertical section of one form which my improved hair-pin-bunching machine may assume; Fig. 2, a sectional view on the line *a b* of Fig. 1, showing the upper incline; Fig. 3, a corresponding view on the line *c d* of Fig. 1, showing the middle incline; Fig. 4, a corresponding view on the line *e f* of Fig. 1, showing the lower incline; Fig. 5, an enlarged broken sectional view of the endless belt, showing one of the buckets or trays thereof; Fig. 6, a plan view showing each of the two ways in which the hair-pins are presented to the track; Fig. 7, a broken view of the lower end of the track, showing a bunch of small pins upon the hook forming the terminal of the wire of the track; Fig. 8, a broken front view of the inclined table of the machine, showing the cut-off mechanism thereof; Fig. 9, a broken detail view showing the cut-off arm in its normal position with relation to the track; Fig. 10, a corresponding view showing the deflection of the track by the cut-off arm for the purpose of clearing the track from the gage, which also acts as a detent; Fig. 11, a sectional view showing a modified form of the selecting-trough; Fig. 12, a broken perspective view showing a modified form of cut-off mechanism.

My invention relates to an improvement in machines for bunching hair-pins, the object being to produce for this purpose a simple, compact, and effective machine having a large capacity for work and designed to receive hair-pins in bulk and to deliver them in bunches of any desired number for packing.

With these ends in view my invention consists in a machine having certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In carrying out my invention as herein shown the machine is furnished with a hopper 2, into which hair-pins are fed in bulk, and which has an inclined bottom 3, which delivers the hair-pins into shallow sheet-metal buckets or trays 4, firmly secured to an endless belt 5, located closely adjacent to one of the side walls of the housing 6 of the machine and at its upper and lower ends running over small drums 7 and 8, driven from any convenient source of power. In operating the machine the endless belt will be driven with sufficient rapidity to cause the hair-pins in the buckets to be thrown by centrifugal action with considerable force upon a sheet-metal plate 9, supported upon an inwardly-pitched incline 10, located between the side walls of the frame 6, as shown in Fig. 2. The hair-pins now slide downward and drop off the lower end of the plate 9 upon a very shallow sheet-metal trough 11, supported upon an outwardly-pitched intermediate incline 12, as clearly shown in Fig. 3. A vertically-arranged fender 13 is located at the lower end of the upper incline 10 for deflecting the hair-pins away from the endless belt and upon the trough 11, supported by the incline 12. In the trough 11 the hair-pins are centered and formed into a stream and fall upon a sheet-metal alining-trough 14, supported upon the inwardly-pitched lower incline 15, which is also located between the side walls of the frame, as shown in Fig. 4. The said trough 14 is formed with a central longitudinally-arranged alining-groove 16, into which the hair-pins will be deflected by the steep side walls of the trough and from the lower end of which the hair-pins will emerge in a practically continuous line, composed of about half and half hair-pins with their looped ends presented downward and with their open ends presented downward and more or less interlocked with each other—for instance, as shown in Fig. 6. The groove 16 of the trough 14 is located in line with the upper end of a selecting device in the form of an inclined track, which, as shown, consists of a wire 17, mounted upon the upper edge of a vertically-arranged fin-like plate 18, secured at its lower end to an inclined table 19, mounted in the frame of the machine. As shown, the upper end of the track

is curved so as to face, as it were, the lower end of the groove 16 and is supported by a small cross-piece 20. The lower end of the track projects below the lower end of the plate 18 and terminates in a bunching-hook 21, the end of which is upturned. Those hair-pins which descend through the groove 16 of the trough 14 with their open ends downward will be "selected," as it were, by the said track, which they will straddle and slide down upon, while those hair-pins which are presented to the track with their looped ends downward will be "rejected" thereby and deflected to one side or the other thereof and fall upon the inclined partition 22, by which they will be returned again to the hopper 2, aforesaid, around the endless belt 5, which passes upward through an opening 22^a, formed in the partition 22. In Fig. 6, showing two hair-pins, the hair-pin 23 will straddle the track, which will thus choose or select it, as it were, while the hair-pin 24 will be rejected by the track and be deflected thereby and returned to the hopper, from which it will be taken up by the endless belt and passed through the sorting process again. It will thus be seen that by very simple means hair-pins in bulk are sorted or chosen according to their chance presentation to an inclined track, on which they are left suspended in regular order and close together, so as to form a solid row or column A, Fig. 7, from the lower end of which the hair-pins are cut off, as it were, in bunches A′ for being packed.

The cut-off mechanism as herein shown comprises a combined gage and detent 25, arranged in contact with the lower end of the track or so close thereto that normally the column of selected hair-pins will be arrested in their descent by it. The said gage 25 is provided with a slotted arm 26, receiving a screw 27, by means of which it is adjustably secured to an inclined bracket 28, fastened to the table 19. The arm 26 is formed with longitudinal flanges 29, fitting over the edges of the bracket 28, so as to prevent the arm from swiveling or turning upon the screw 27. Above the gage 25 I locate a cut-off 30, the edge of which, as shown, is beveled, as at 31, to adapt it to cut in between any two hair-pins on the track, and so cut off or separate a section of the column of hair-pins. The inner end of this cut-off passes through an opening 32, formed to receive it in the bracket 28, while its outer end is pivotally connected with the upper end of a lever 33, which passes down through a small opening 34, formed for the purpose in the table 19, the lower end of the said lever being connected with a rod-like slide 35, having longitudinal movement in a bearing 36 and having its outer end connected by a pin 37 and slot 38 with the lower end of a handle-lever 39, projecting upward through an opening 40, formed in the table 19, above which the grip 41 of the lever extends. By moving the grip 41 of the handle-lever 39 to the left the cut-off 30 will be shot toward the track and between two hair-pins thereupon, whereby all of those hair-pins between the cut-off and the gage 25 will be separated from the rest of the column, which constitutes its upper part. This bunch of hair-pins must now be released from the gage and allowed to slide down into the hook 21. For this purpose the lower end of the track is deflected, as shown in Fig. 10, by continuing the inward movement of the cut-off, whereby the track is bodily pushed so far to the left that it entirely clears the gage, which then no longer acts as a detent to prevent the downward passage of the isolated bunch of hair-pins. Just as soon, however, as these hair-pins have passed below the gage the pressure upon the grip 41 of the handle-lever is removed, whereby the track will spring back into its normal position, in which it will either be engaged with the gage or brought into such close proximity thereto that the same will act as a detent for the column of hair-pins until another bunch is cut off from the lower end of the column by the action of the cut-off. The described lateral movement of the track jars the same sufficiently to cause the column of pins suspended from it to feed downward and, as it were, transforms the track into an agitator for keeping the selected pins in motion. As fast as the hair-pins are presented in bunches upon the hook 21 they are seized by an operator, who grasps them by her fingers and either deftly slips them into a packing-case of some sort or places them upon a tray or belt, from which they are taken and packed.

It is apparent that in carrying out my invention various changes in the construction herein shown and described may be made. Thus, if desired, I may provide each machine with more than one track, in which case it would be necessary to provide the alining-trough 14^a of the machine with a corresponding number of grooves 16^a, as illustrated in the modification shown by Fig. 11, which represents a trough of three selecting-grooves. A machine employing such a trough would obviously have three selecting-tracks, each of which would be furnished with a cut-off mechanism. Of course the number of oppositely-pitched inclines may be varied as desired, as well as their construction, cross-sectional form, pitch, and separation relative to each other. As to their relative separation, that should be sufficient to cause the pins to be separated and opened out by the drop from one incline to the incline below it. In this connection it is to be observed that hair-pins on account of their length bunch up and hang together much more tenaciously than shorter objects—such as staples, double-pointed tacks, or shoe-button fastenings. For this reason unless the number of hair-pins selected in one passage through the machine is to be small provision must be made to shake them out and separate them. In the machine as herein shown I have provided for accomplishing that

end by the employment of a series of inclines with a sufficient drop or fall between them to cause them to open out the bunched-up hair-pins.

A modified form of cut-off mechanism is shown in Fig. 12, in which the track consists of a wire 42, mounted upon the upper end of a sheet-metal plate 43. This mechanism comprises a block 44, furnished with a cut-off 45 and an adjustable gage 46, together forming a pallet or verge-like structure which is located directly over the said track. The block 44 receives a small rock-shaft 47, having bearing in a bracket 48 and rocked by means of a finger-lever 49, controlled by a spring 50. In operating this device the finger-lever is depressed at its outer end to overcome the tension of the spring and rock the spindle 47, whereby the cut-off 45 is lifted away from the wire 42, while the gage 46 is brought into contact therewith. The cut-off mechanism is maintained in this adjustment long enough to permit the space between the cut-off and gage to be filled with hair-pins by the sliding of the column of hair-pins on the track, after which the lever 49 is released, when the spring 50 at once acts to enter the cut-off 45 between two hair-pins of the column and so isolate the hair-pins between the cut-off and gage from the column. When the cut-off is entering between the hair-pins, the gage clears the same, so as to allow the isolated bunch of hair-pins to slide down upon the hook, forming the terminal for the wire 42 and corresponding to the hook 21, though not shown. This is an illustration of one of the modified forms which the cut-off mechanism may assume. I would therefore have it understood that I do not limit my invention to the precise construction herein shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. In a machine for bunching hair-pins, the combination with a series of inclines located one above the other with a drop or fall between them, whereby hair-pins in bulk are separated and alined so as to flow in a stream from the lower incline, of a selecting device constructed to be straddled by the hair-pins and thus adapted to select the hair-pins presented to it with their open ends downward by the lower incline.

2. In a machine for bunching hair-pins, the combination with a series of oppositely-pitched inclines located one above the other with a drop or fall between them, whereby the hair-pins are separated and alined so as to flow in a stream from the lower incline, of a selecting device constructed to be straddled by the hair-pins and thus adapted to select the hair-pins presented to it with their open ends downward by the lower incline.

3. In a machine for bunching hair-pins, the combination with a series of inclines located one above the other with a drop or fall between them, whereby hair-pins are separated and alined so as to flow in a stream from the lower incline, of a track constructed to be straddled by those hair-pins presented to it with their open ends downward by the lower incline, and means for depositing hair-pins in bulk upon the upper incline, and for returning to the upper incline those hair-pins which fail of being selected by the said track when presented thereto by the lower incline.

4. In a machine for bunching hair-pins, the combination with a series of inclines located one above the other with a drop or fall between them, including a trough formed with a longitudinally-arranged alining-groove in which the hair-pins are arranged in line after their separation by the inclines, of a track located adjacent to the lower end of the said groove and constructed to be straddled by the hair-pins presented with their open ends downward by the said groove, whereby pins so presented are selected by the track from which they are suspended in a column.

5. In a machine for bunching hair-pins, the combination with a series of inclines located one above the other and constructed and arranged to separate hair-pins in bulk and arrange them in line, of a selecting-track to which the hair-pins are presented by the lower end of the lower incline, and upon which hair-pins presented to it with their lower ends downward are caught and suspended in a close column, and a cut-off mechanism coacting with the lower end of the track in cutting off the lower end of the column of hair-pins so as to form bunches of hair-pins which are successively removed from the machine for packing.

6. In a machine for bunching hair-pins, the combination with a track adapted to be straddled by and thus to select hair-pins presented to it with their open ends downward, and formed at its lower end with a bunching-hook, of a cut-off mechanism cutting off the lower end of the column of hair-pins upon the track in the form of bunches which ride down into the hook from which they are removed for packing.

7. In a machine for bunching hair-pins, the combination with a selecting-track from the upper edge of which hair-pins are suspended in a solid column, of a cut-off mechanism comprising a gage and a cut-off.

8. In a machine for bunching hair-pins, the combination with a track from the upper edge of which hair-pins are suspended in a solid column, and which is adapted to yield sidewise, of mechanism comprising a gage and a cut-off, one of which is utilized for springing the track sidewise to release the bunch of hair-pins cut off from the column by the action of the cut-off.

9. In a machine for bunching hair-pins, the

combination with a track, from the upper edge of which hair-pins are suspended in a solid column, of a cut-off mechanism comprising a cut-off, means for operating the same, and a gage located below the cut-off and acting both as a gage and a detent for the column of hair-pins on the track.

10. In a machine for bunching hair-pins, the combination with a selecting-track from the upper edge of which hair-pins are suspended in a solid column, of a cut-off mechanism comprising a cut-off, a gage located below the cut-off, and acting as a gage and as a detent, and means for operating the cut-off, whereby the same not only cuts off bunches of hair-pins from the column, but also springs the track laterally to free it from the action of the said detent.

11. In a machine for bunching hair-pins, the combination with a selecting-track from the upper edge of which hair-pins are suspended in a solid column, of a cut-off mechanism comprising a gage, and a cut-off, one of which is adjustable.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

IRVING H. PECK.

Witnesses:
GEORGE C. BRYANT,
CARRIE S. HATHAWAY.