No. 672,331. Patented Apr. 16, 1901.

I. H. PECK.

MACHINE FOR BUNCHING HAIR PINS.

(Application filed Jan. 28, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1

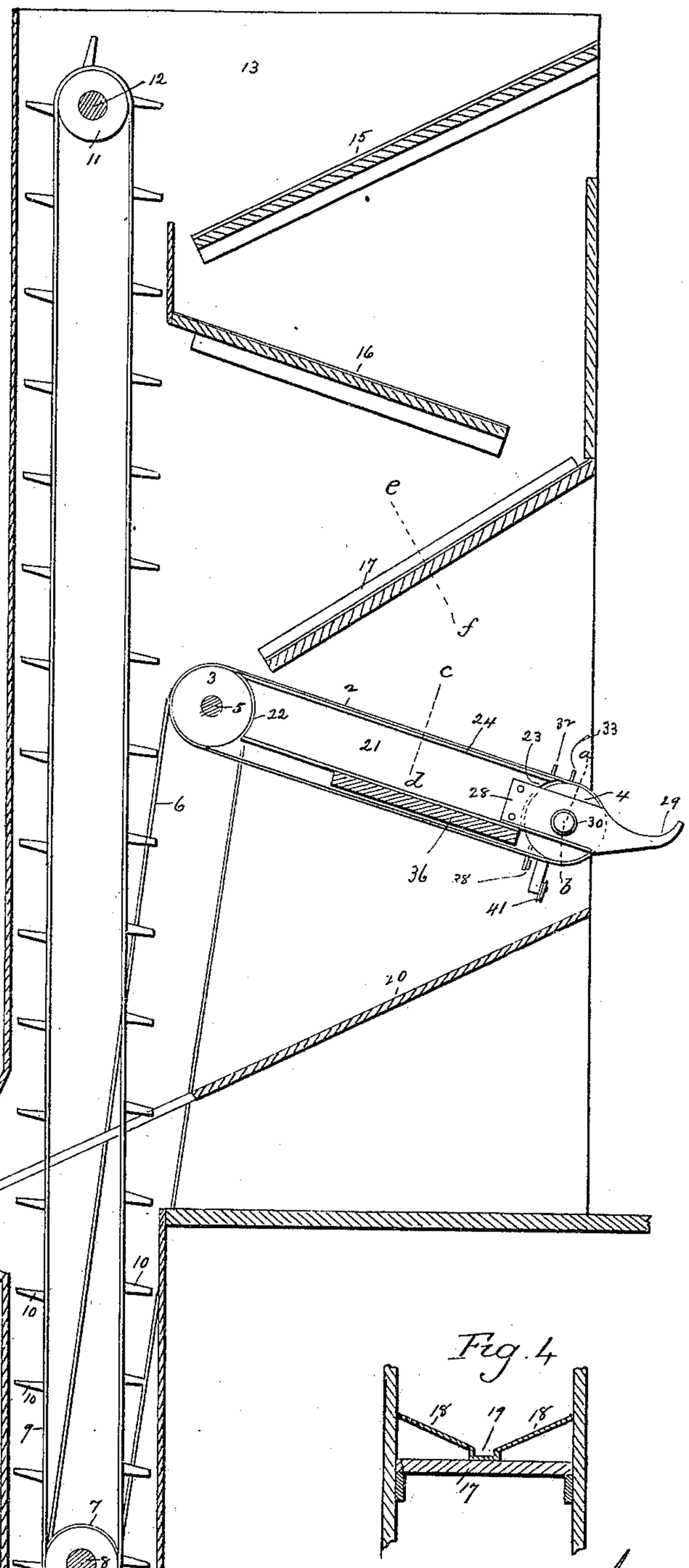

Fig. 2

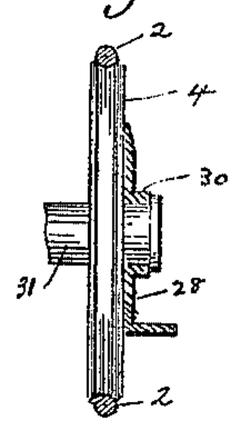

Fig. 3

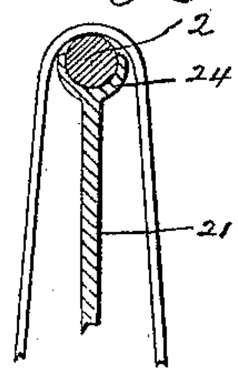

Fig. 9

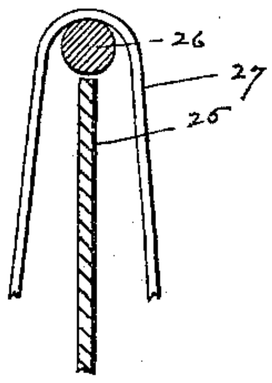

Fig. 4

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Fig. 5

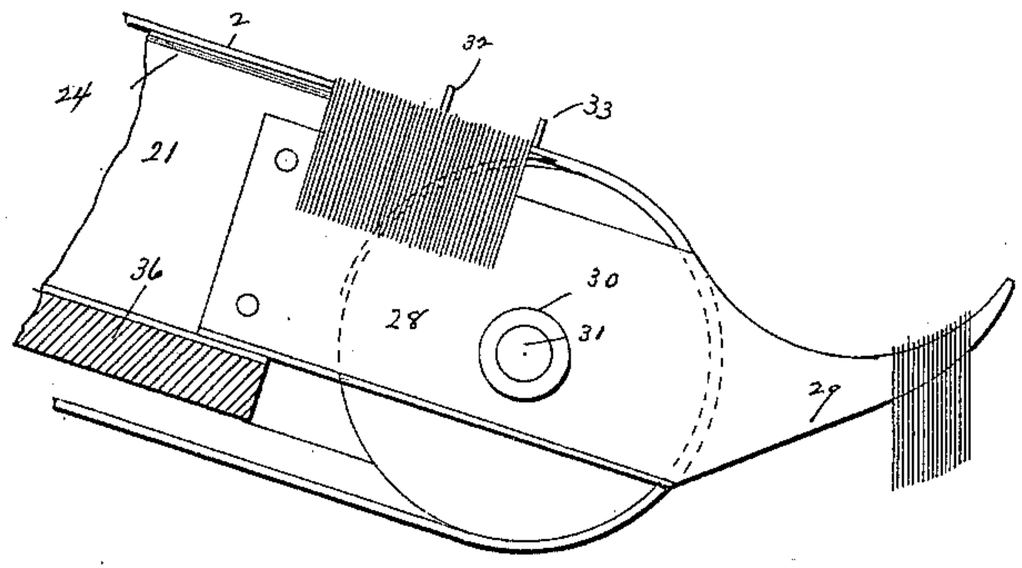


Fig. 6

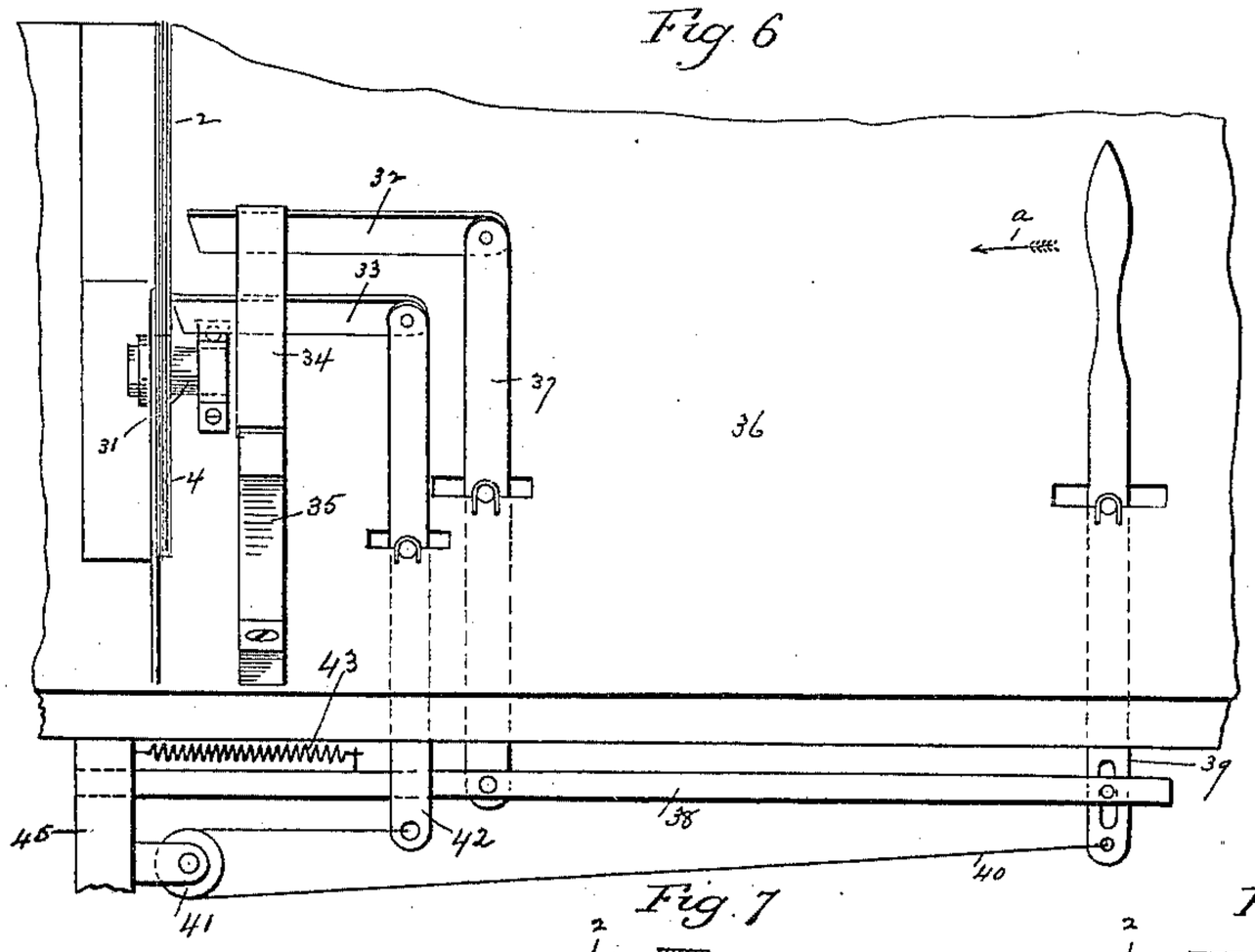


Fig. 7

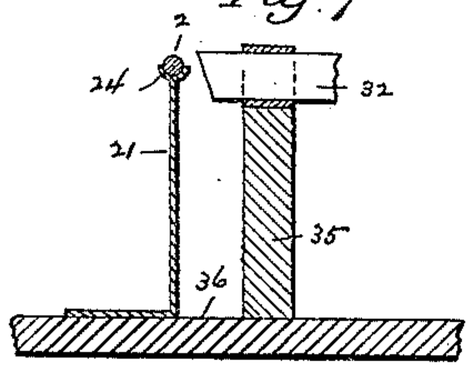
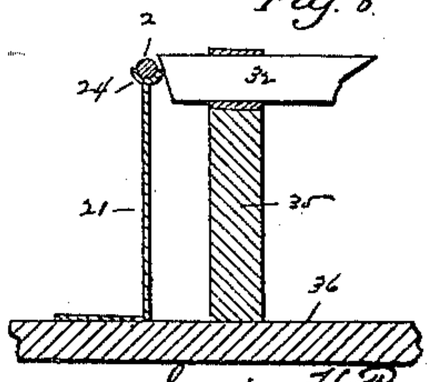


Fig. 8



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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. 672,331, dated April 16, 1901.

Application filed January 28, 1901. Serial No. 45,063. (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 numerals 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 machine may assume; Fig. 2, a view in vertical section, drawn to a larger scale, on the line *a b* of Fig. 1; Fig. 3, a view in vertical section, on a still larger scale, on the line *c d* of the same figure, showing a hair-pin suspended from the carrying-belt, which is supported in a trough located at the upper end of the fender; Fig. 4, a sectional view of the lower incline on the line *e f* of the same figure; Fig. 5, an enlarged broken view, in side elevation, designed particularly to show the connection of the bunching-hook with the lower end of the fender; Fig. 6, a broken front view of the inclined table of the machine, showing the cut-off mechanism thereof; Fig. 7, a broken sectional view showing one of the cut-off arms in its feeding position with relation to the belt; Fig. 8, a corresponding view showing the arm in its cutting-off position with respect to the belt; Fig. 9, a sectional view corresponding to Fig. 3, but showing a modified form of the fender.

My invention relates to an improvement in machines for bunching hair-pins, the object being to produce for this purpose a compact machine having a large capacity for work, adapted to be conveniently and easily operated, not requiring skilled labor, and constructed with particular reference to feeding the selected and arranged hair-pins by power to the action of the cut-off mechanism, which delivers the hair-pins in bunches to the operator, who removes them 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 selecting device in the form of a carrying-belt 2, round in cross-section and running over narrow pulleys 3 and 4, having shallow peripheral grooves, as shown in Fig. 2. The horizontal shaft 5, carrying the pulley 3, is furnished with a belt-pulley, (not shown,) but receiving the upper end of a belt 6, the lower end of which runs over a pulley 7, mounted upon a shaft 8, also driving the vertically-arranged endless belt 9, which is provided with outwardly-projecting shallow trays or buckets 10 and which at its upper face runs over a pulley 11, mounted upon a shaft 12, located within the upper end of the frame or housing 13, which is provided near its lower end with a hopper 14, into which hair-pins in bulk are thrown and the inclined floor of which delivers them into the buckets or trays 10, by which they are carried upward and thrown onto a series of oppositely-inclined trays 15, 16, and 17, constructed so as to arrange the hair-pins in a single line in which their bowed and open ends are indifferently presented forward. Loosening and separating of the hair-pins is facilitated by the drop or fall arranged between the upper incline 15 and the middle incline 16 and the middle incline 16 and the lower incline 17, and the latter is provided with a sheet-metal trough having inclined sides 18 and a narrow chute 19, which delivers a practically-continuous stream of alined hair-pins to the carrying-belt 2, which selects those hair-pins which are presented to it with their open ends downward, but not the pins which are presented to it with their bowed ends downward, such pins falling upon an incline 20, which delivers them into the hopper 14, which in turn returns them to the buckets 10 of the endless belt 9, which compels them to again pass through the inclines and over the selecting device.

As herein shown, I locate a vertically-arranged sheet-metal fender 21 between the narrow pulleys 3 and 4, the ends of the fender being cut away, as at 22 and 23, to conform to the curvature of the pulleys. This fender prevents the hair-pins selected by the carrying-belt 2 from canting laterally thereupon sufficiently to be dislodged or unduly deflected. As shown, I locate a trough 24

upon the upper edge of the fender for the belt 2 to run in; but this is not essential, it being necessary only that the upper edge of the fender shall extend sufficiently close to the upper reach of the belt to prevent the ends of the hair-pins from being entered between them, as shown, for instance, in Fig. 9, in which the fender 25 is not provided with any trough, but has its upper edge extended very close to the belt 26, from the upper edge of which the hair-pins 27 are suspended. To the lower end of the fender I secure the shank 28 of the bunching-hook 29, which with the said shank is made of sheet metal and located in a vertical plane. The shank 28 of the said bunching-hook is formed with a hub 30, receiving the shaft 31 of the lower pulley 4, as shown in Fig. 2.

It will be understood from this construction that the hair-pins will fall in a continuous single line upon the upper end of the upper reach of the belt 2, which is straddled by all, or substantially all, of the pins presented with their open ends downward, while the pins presented with their bowed ends downward fall on either side upon the incline 20. The pins so selected are then carried along by the gentle movement of the belt, from which they are suspended in a vertical position in a close column, from the lower end of which they are cut off in bunches, which are delivered from the lower end of the upper reach of the belt into the bunching-hook, the curvature of the upper edge of which merges, so to speak, into the curvature of the lower pulley 4.

The cut-off mechanism, as herein shown, consists of two reciprocating cut-off arms 32 and 33, having beveled ends and mounted for reciprocation in a head 34, located upon a bracket 35, secured edgewise to the inclined work-table 36 of the machine. The beveled ends of the cut-off arms 32 and 33 are separated from each other just far enough to include between them that much of the column of hair-pins required to make a bunch containing the required number of hair-pins for packing, and the said arms are reciprocated just enough to engage with the hair-pins of the column and stop their downward movement and to retire to permit the hair-pins to feed past them. As herein shown, the upper arm is pivoted to the upper end of a lever 37, the lower end of which is connected with a sliding bar 38, having a pin and-slot-connection at its outer end with an operating-lever 39, the lower end of which has connected with it a cord or cable 40, running over a pulley 41 and connected at its opposite end with the lower end of a lever 42, the upper end of which is connected with the arm 33. A spring 43, connected with the sliding bar 38, restores the arms to their normal positions in which they are shown in Fig. 6 after their operation by the operating-lever 39. It will be readily understood by reference to the said figure that when the said handle is moved inward in the direction of the arrow *a* the arm 32 will be caused to move inward toward the belt 2 and the arm 33 caused to move outward away from the belt. The effect of this will be to permit the hair-pins detained by the arm 33 to pass by its beveled end and ride down into the bunching-hook 29, while the arm 32 will be brought into position immediately to prevent more than the predetermined number forming a bunch from passing the arm 33. The handle 39 being let go, the spring 43 reverses the positions of the arms and restores them to their normal positions in which they are seen in Fig. 6 and so on. I do not, however, limit myself to the use of any particular form of cut-off mechanism, as that may be varied.

What I particularly wish to emphasize is that by means of the carrying-belt the selected hair-pins are gently fed forward to the action of the cut-off mechanism. When the belt is full of pins and can contain no more, it slides under them while they remain at rest, its frictional contact with them and the power under which it is driven being so light that it passes under them without buckling them up or otherwise disturbing them.

It is obvious that in view of the modifications shown and described and of others which might be made I would have it understood that I do not wish to limit myself to the particular construction shown and described, but hold myself at liberty to make such changes 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 means for taking pins in bulk and arranging them in line, of a carrying-belt arranged to be straddled by those pins which are presented to it with their open ends downward, whereby a column of pins is collected upon and suspended from the upper reach of the belt, and cut-off mechanism coacting with the upper reach of the belt for cutting off bunches of pins from the lower end of the said column.

2. In a machine for bunching hair-pins, the combination with means for taking pins in bulk and arranging them in line, of a carrying-belt arranged to be straddled by those pins which are presented to it with their open ends downward, whereby a column of pins is collected upon and suspended from the upper reach of the belt, a fender located below the upper reach of the belt, and cut-off mechanism for cutting off bunches of pins from the lower end of the column of pins suspended from the upper reach of the belt.

3. In a machine for bunching hair-pins, the combination with means for taking pins in bulk and arranging them in line, of a carrying-belt arranged to be straddled by those pins which are presented to it with their open ends downward, whereby a column of pins is collected upon and suspended from the up-

per reach of the belt, a fender located below the upper reach of the belt, and provided upon its upper edge with a trough in which the said reach of the belt travels, and cut-off mechanism coacting with the upper reach of the belt for cutting off bunches of pins from the lower end of the said column.

4. In a machine for bunching hair-pins, the combination with means for taking pins in bulk and arranging them in line, of a carrying-belt arranged to be straddled by those pins which are presented to it with their open ends downward, grooved pulleys over which the said belt runs, a fender located between the said pulleys and below the upper reach of the belt for preventing the pins from sidewise deflection, and cut-off mechanism.

5. In a machine for bunching hair-pins, the combination with mechanism for taking pins in bulk and arranging them in line, of a carrying-belt arranged to be straddled by those pins which are presented to it with their open ends downward, a bunching-hook to which the pins are delivered from the lower end of the upper reach of the belt, a cut-off mechanism coacting with the upper reach of the belt for cutting off bunches of pins from the lower end of the column of pins upon the belt.

6. In a machine for bunching hair-pins, the combination with means for taking pins in bulk and arranging them in line of a carrying-belt arranged to be straddled by those pins which are presented to it with their open ends downward, a fender located below the upper reach of the belt, a bunching-hook connected with the lower end of the fender, and receiving the pins from the lower end of the upper reach of the belt, and cut-off mechanism.

7. In a machine for bunching hair-pins, the combination with means for taking pins in bulk and arranging them in line, of a carrying-belt arranged to be straddled by those pins which are presented to it with their open ends downward, a vertically-arranged fender located below the upper reach of the belt, a bunching-hook located in a vertical plane, and extending forward from the lower end of the fender and receiving pins from the lower end of the upper reach of the belt, and cut-off mechanism.

8. In a machine for bunching hair-pins, the combination with inclines upon which hair-pins in bulk are thrown, and which arrange them in line, of a carrying-belt located with the upper end of its upper reach below the lower end of the lower incline, a bunching-hook located at the lower end of the upper reach of the belt, and cut-off mechanism coacting with the belt.

9. In a machine for bunching hair-pins, the combination with means for taking pins in bulk and arranging them in line, of a carrying-belt arranged to be straddled by those pins which are presented to it with their open ends downward, whereby a column of pins is collected upon and suspended from the upper reach of the belt, and cut-off mechanism coacting with the said belt, and comprising two cut-off instrumentalities operating alternately upon the said column of pins to cut off and release the pins in bunches.

10. In a machine for bunching hair-pins, the combination with means for taking pins in bulk and arranging them in line, of a carrying-belt arranged to be straddled by those pins which are presented to it with their open ends downward, whereby a column of pins is collected upon and suspended from the upper reach of the belt, a bunching-hook virtually forming a continuation of the upper reach of the belt which delivers the pins to it, and cut-off mechanism comprising two reciprocating arms actuated in opposite directions and alternately acting to release the pins in bunches which then ride onto the said hook, and to stop the column.

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

IRVING H. PECK.

Witnesses:
THOS. E. ATWATER,
WM. C. ATWATER.