I. H. PECK.

MACHINE FOR BUNCHING HAIR PINS.

APPLICATION FILED MAY 17, 1917.

**1,246,648.**

**Patented Nov. 13, 1917.**

2 SHEETS—SHEET 1.

Fig. 1

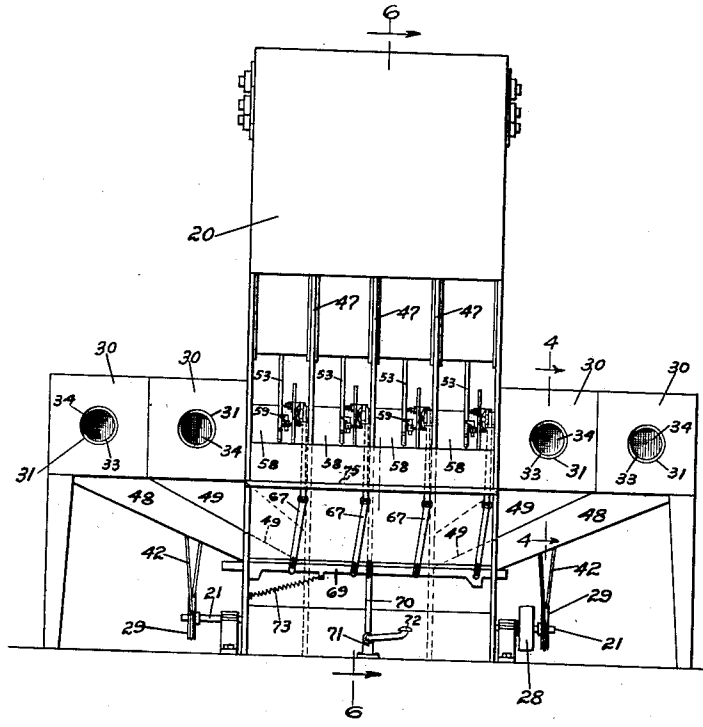



Fig. 2

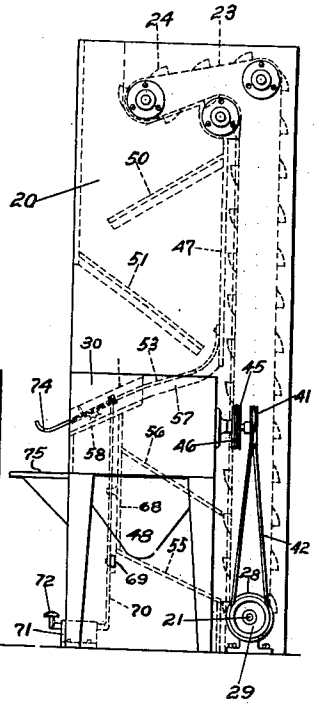



Fig. 3

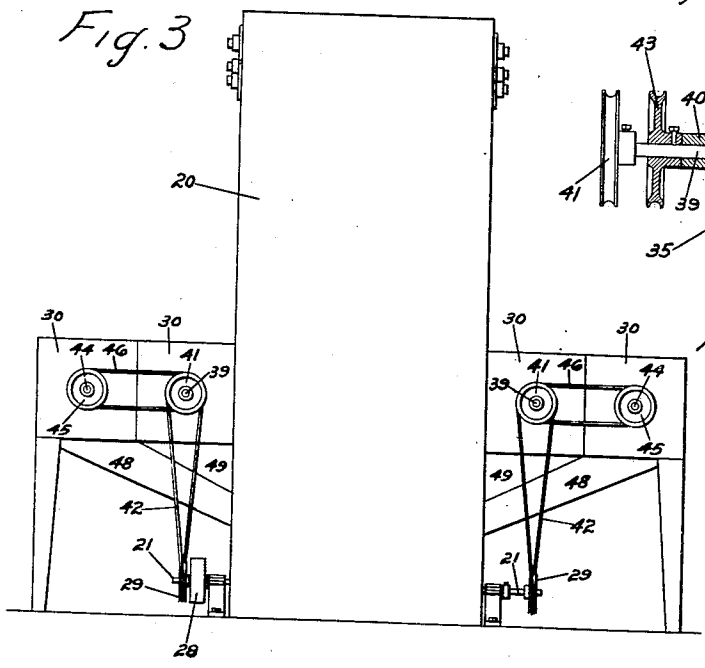



Fig. 4

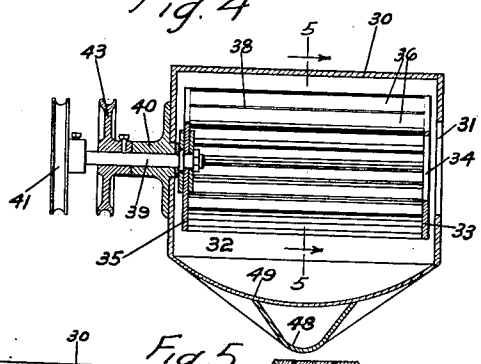
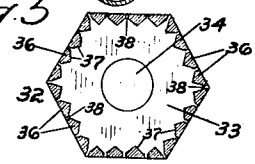



Fig. 5

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2 SHEETS—SHEET 2.

Fig. 6

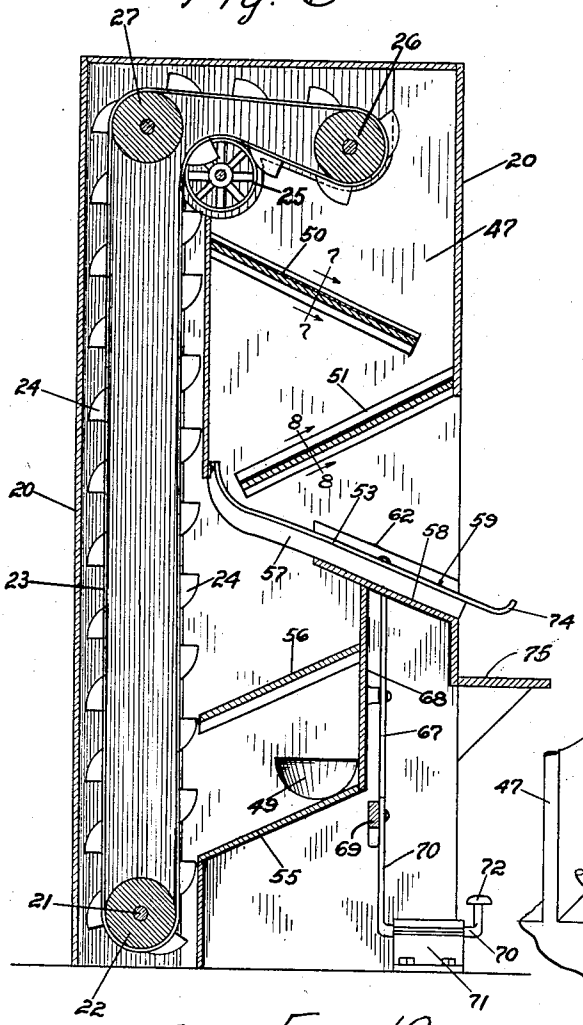



Fig. 7

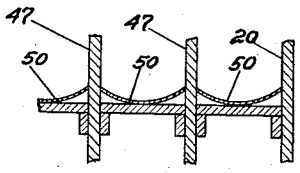



Fig. 8

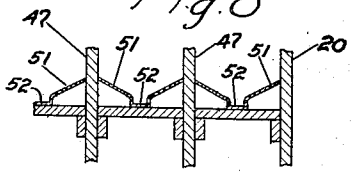



Fig. 9

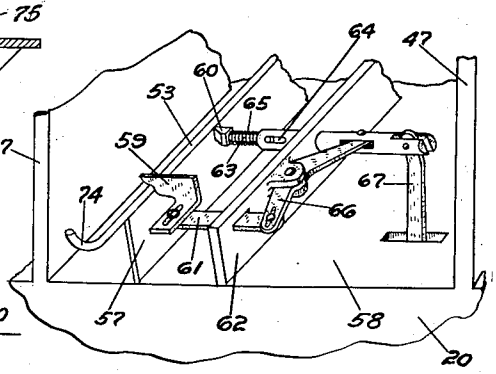



Fig. 10

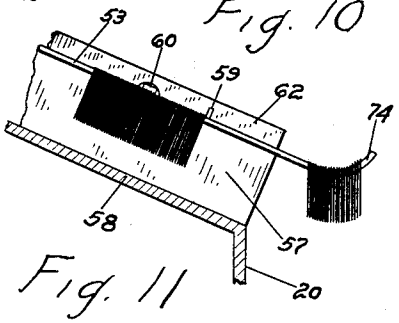



Fig. 11

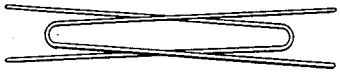
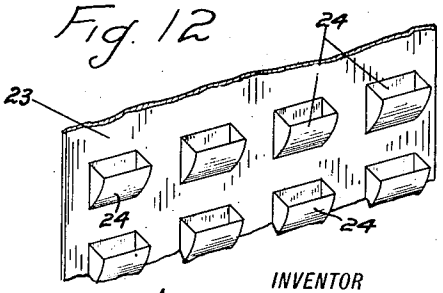


Fig. 12




INVENTOR

Irving H. Peck

BY

A. M. Wooster

ATTORNEY

# UNITED STATES PATENT OFFICE.

IRVING H. PECK, OF DERBY, CONNECTICUT.

## MACHINE FOR BUNCHING HAIR-PINS.

1,246,648. Specification of Letters Patent. Patented Nov. 13, 1917.

Application filed May 17, 1917. Serial No. 169,372.

*To all whom it may concern:*

Be it known that I, IRVING H. PECK, a citizen of the United States, residing at Derby, county of New Haven, State of Connecticut, have invented an Improvement in Machines for Bunching Hair-Pins, of which the following is a specification.

This invention relates to certain improvements in the machine for bunching hair pins for which Letters Patent No. 672,330, were granted to me April 16, 1901, and the invention has for its object to overcome certain objections inherent in my said former machine, and to effect a great saving in the cost of packing hair pins by providing a machine that will enable a single operator to handle several times as many hair pins as was possible with my said former machine and likewise, if required, to bunch and pack a plurality of sizes of hair pins simultaneously. One of the trade requirements at the present time is packages containing a predetermined number of four sizes of hair pins, and in the drawings I have illustrated a machine organized to bunch four sizes of hair pins simultaneously.

The selecting mechanism of my present machine is substantially the same as in my former machine. It has proved an objection to the rapid working of my former machine that the hair pins, which were fed to the carrying belt in bulk, were apt to collect together in tangled masses which were carried up by the buckets, but were not separated by the inclined troughs and consequently, were not caught by the selecting track, but fell upon an incline below the track by which they were returned to the hopper and were repeatedly carried up by the belt and dropped upon the inclined troughs in masses. This objection is wholly overcome in my present machine by the use of novel feeding mechanism, an essential feature of which is a separating drum or a plurality of drums by which the hair pins are separated from each other so that they will pass to the belt singly and the carrying up of masses of hair pins by the belt is wholly avoided.

In the accompanying drawings forming a part of this specification,

Figure 1 is a front elevation of my novel machine complete;

Fig. 2 a side elevation as seen from the right, in Fig. 1;

Fig. 3 a rear elevation;

Fig. 4 a section on an enlarged scale, on the line 4—4 in Fig. 1, looking in the direction of the arrows;

Fig. 5 a section of the separating drum, on the line 5—5 in Fig. 4, looking in the direction of the arrows;

Fig. 6 a section on an enlarged scale on the line 6—6 in Fig. 1, looking in the direction of the arrows;

Figs. 7 and 8 are detail sectional views on the line 7—7 and 8—8, respectively in Fig. 6, looking in the direction of the arrows;

Fig. 9 a detail perspective view illustrating one of the cut-off mechanisms;

Fig. 10 a detail view partly in section, showing a bunch of hair pins upon the hook at the lower end of the track;

Fig. 11 a detail view showing hair pins in the two positions in which they pass to the selecting tracks, and

Fig. 12 is a detail perspective view, showing a portion of the compound belt.

20 denotes the casing of the machine and 21 a shaft which extends through the casing and carries within the casing a pulley or drum 22, over which a compound belt 23 passes. I term this a compound belt, for the reason that it carries a plurality of sets of buckets 24, which are secured to the belt in longitudinal alinement. The belt passes upward from pulley 22 and over a plurality of idler pulleys 25 between which the buckets pass in dumping position then over an idler pulley or drum 26, then backward over an idler pulley or drum 27 and over pulley or drum 22 again.

Power is applied by means of a belt, not shown, passing over a pulley 28 on the shaft, which also carries belt pulleys 29.

*The feeding mechanism.*—In the present instance I have shown a machine provided with four housings 30, each having an opening 31 through which the hair pins are passed in bulk into the interior of a separating drum 32. These drums are polygonal in form (preferably hexagonal) and each consists of an end piece 33 having a feeding opening 34 registering with the opening 31 in a housing, a closed end piece 35 and a plurality of slats 36 secured to the end pieces. The inner face of each slat consists of inclines 37 which meet at an angle. Between the slats are spaces 38, each of which permits a hair pin to pass through easily when in lon-

gitudinal alinement with the space. Two housings are placed side by side on each side of the casing. The separating drums in the two inner housings are carried by shafts 39, journaled in bearings 40, secured to the rear ends of the housings. Each shaft carries a belt pulley 41, over which and over the corresponding pulley 29 a belt 42 passes, and also carries a belt pulley 43. The separating drums in the two outer housings are carried by shafts 44 having belt pulleys 45, over which, and over belt pulleys 43, belts 46 pass.

The space within the casing in front of the compound belt is divided by vertical partitions 47, into four compartments, each compartment having an inclined bottom 55 and corresponding with one of the separating drums and containing one of the sets of buckets on the compound belt.

As already stated, hair pins of a certain size are fed to each separating drum in bulk, it being, of course, immaterial whether the same or different sizes of hair pins are supplied to the several drums, as the hair pins from each drum remain separated from hair pins from the other drums while being operated upon by the selecting and bunching mechanisms, presently to be described.

The action of the separating drums is to tumble the masses of hair pins about to separate them. The hair pins as they are tumbled about in the drums, continually fall back upon the angles of the slats, the effect of which is to disentangle the masses and to ultimately cause each hair pin to be brought into longitudinal alinement with a space between the slats, when it will drop out from the drum. The drums and slats are so proportioned as to provide plenty of spaces for the hair pins to pass out so that, as a matter of fact, the hair pins are supplied quite as fast as they can be taken up by the compound belt and disposed of by the selecting and bunching mechanisms.

The hair pins from each separating drum drop into a special chute and are conducted thereby to a special compartment 47 in the casing, and to a special set of buckets on the compound belt. The chutes from the two outer housings are indicated by 48, and the chutes from the two inner housings by 49, see Fig. 1 in connection with Fig. 6, which shows the opening into the corresponding compartment of one of the chutes 49, in the present instance, the chute 49 at the right in Fig. 1. The configuration and inclination of the chutes is such as to prevent any massing of the hair pins therein. This will be obvious from the fact that the scale of Fig. 10 is approximately double the scale of Fig. 6. In practice, the separating drums effectually separate the individual hair pins from the masses therein, so that they will drop out from the drums singly and pass down the chutes singly to the buckets by which they are carried upward.

*The selecting mechanism.*—This mechanism differs in details only, from the selecting mechanism of my former patent. The belt is driven with sufficient speed to cause the hair pins in the buckets to be expelled therefrom as the buckets pass idlers 25 and to drop upon outwardly inclined shallow troughs 50, which they slide down and drop upon inwardly inclined troughs 51. These troughs are each provided with a central longitudinal alining groove 52 into which the hair pins are caused to pass by the inclined side walls of the troughs, and from which the hair pins drop upon inclined selecting tracks 53. The hair pins which drop from troughs 51 with the looped ends downward will not be caught by the tracks, but will fall upon inclines 56 down which they slide and drop into one of the buckets in the corresponding set upon the belt. The hair pins which drop from the alining grooves with their open ends, downward will straddle the selecting tracks and slide down upon them as in Fig. 10.

*The bunching mechanism.*—This mechanism is an improvement upon the bunching mechanism of my said patent, from which it differs in important details of construction. The selecting tracks are carried by rigid plates 57, which extend upward from an inclined wall 58. Operating in connection with each selecting track, is a gage 59 and a cut-off 60. The gages are adjustably secured to slides 61, which are adapted to reciprocate in a guide plate 62 secured to wall 58. The cut-offs are provided with shanks 63 which have longitudinal movement in slides 64, themselves adapted to reciprocate in the guide plate. Coil springs 65 surrounding the shanks bear against the cut-offs and against the ends of slides 64, and act to retain the cut-offs at their forward position. 66 denotes horizontally disposed levers pivoted to the guide plate, the respective ends of which are pivotally connected to slides 61 and 64. The rear ends of slides 64 are pivotally connected to vertically disposed levers 67, themselves pivoted to a vertical wall 68. The lower ends of levers 67 are pivoted to a slide 69, adapted to reciprocate in the side walls of the casing. Movement is imparted to slide 69 to actuate the gages and cut-offs in reverse directions by means of a bell crank lever 70, having its fulcrum in a bracket 71 and its free arm positioned to serve as a treadle 72. A spring 73 connected to slide 69 and to a wall of the casing, retains the parts in their normal position, as in Figs. 1 and 9. In this position of the parts, the hair pins caught by each selecting track will pass the cut-off and slide down on the track until

stopped by the gage. The operator now presses down on the treadle, which instantly causes each cut-off to pass between two hair pins on the track, springs 65 on the cut-offs yielding as the gages move away from the tracks. The hair pins below the cut-offs now slide down past the gages and are bunched on hooks 74 at the lower ends of the tracks, as in Fig. 10. The instant the treadle is released, spring 73 will cause the gages to engage the tracks again, but springs 65 will retain the cut-offs in engagement with the tracks long enough to prevent hair pins from passing the cut-offs until the gages are in position to stop them, it being understood that owing to springs 65, the cut-offs have less movement, away from the tracks, than the gages. The operator sitting at a table 75, takes the bunched hair pins from the hooks and packs them as may be required. Each operation of the treadle causes the predetermined number of hair pins for a bunch to be separated by each cut-off, and then to pass the gage and slide down on the hook. Release of the treadle causes the gages to engage the selecting tracks again, and an instant later the cut-offs permit hair pins on the tracks to pass down to the gages again.

Having thus described my invention, I claim:—

1. In a machine of the character described, the combination with a carrying belt provided with buckets, of a feeding mechanism comprising a separating drum into which hair pins are placed in bulk and which is provided with a plurality of slats with spaces between them through which the hair pins pass separately, and a chute by which hair pins dropping from the separating drum are conveyed to the carrying belt.

2. In a machine of the character described, in combination, a plurality of compartments, a carrying belt having sets of buckets in longitudinal alinement, each set being adapted to pass through a separate compartment, feeding mechanism comprising corresponding separating drums into which hair pins are fed in bulk, each drum being provided with slats between which the hair pins pass separately, and chutes by which the hair pins dropping from each drum are conveyed to a compartment and delivered to the set of buckets in that compartment.

3. In a machine of the character described, in combination, a plurality of compartments, a compound carrying belt having a set of buckets passing through each compartment, feeding mechanism comprising separating drums into which hair pins are placed in bulk, each drum being provided with slats between which the hair pins pass separately, means for conducting the hair pins dropping from each drum to a corresponding set of buckets on the belt, outwardly inclined and inwardly inclined troughs upon which the hair pins drop from the belt, selecting tracks adapted to be straddled by hair pins dropping with their open ends downward, and a gage and cut-off coöperating with each selecting track by which the hair pins from each separating drum are bunched independently.

4. In a machine of the character described, the combination with a carrying belt, and selecting and bunching mechanisms, of a separating drum into which hair pins are placed in bulk and which is provided with slats between which they pass out separately, and means for conducting the hair pins to the carrying belt.

5. In a machine of the character described, the combination with a compound carrying belt having a plurality of sets of buckets and corresponding selecting and bunching mechanisms, of corresponding separating drums to which hair pins are supplied in bulk and which are provided with slats between which they pass out separately, and means for conducting the hair pins to the corresponding sets of buckets on the belt.

6. In a machine of the character described, the combination with a carrying belt, and selecting and bunching mechanisms, of a separating drum to which hair pins are fed in bulk and which is provided with slats between which the hair pins pass singly, the inner face of each slat consisting of inclines which meet at an angle, and means for conducting the hair pins to the carrying belt.

7. In a machine of the character described, the combination with a plurality of independent feeding mechanisms, a compound carrying belt having a set of buckets corresponding with each feeding mechanism, corresponding selecting tracks which are straddled by hair pins presented with the open ends downward, a gage and a spring controlled cut-off corresponding with each selecting track, horizontally disposed levers by which the gages and cut-offs are actuated alternately, vertically disposed levers by which the horizontally disposed levers are actuated, a slide by which the vertically disposed levers are actuated, a bell crank lever, one arm of which serves as a treadle, by which the slide is actuated, and a spring for normally retaining the gages in engagement with the selecting tracks.

8. In a machine of the character described, the combination with a plurality of selecting tracks which are straddled by pins with the open ends downward, of corresponding gages adapted to engage each track, corresponding cut-offs adapted to engage each track above the gage and provided with shanks, slides in which the

shanks have longitudinal movement, springs for normally holding the cut-offs forward, means for normally holding the gages in engagement with the tracks, and means for moving the gages and cut-offs in reverse directions, the cut-offs engaging the tracks quickly when moved forward and the springs yielding as the gages move backward, and the springs retaining the cut-offs temporarily in engagement with the tracks when the gages move forward.

9. In a machine of the character described, the combination with a rigidly supported selecting track and means for supplying hair pins thereto, of a gage, a spring controlled cut-off, means for moving the gage and cut-off in reverse directions, and means for retaining the gage normally in contact with the track, so that hair pins will slide past the cut-off and be stopped by the gage, and when the cut-off is caused to engage the track the spring will yield as the gage moves backward and be temporarily retained in engagement with the track when the gage moves forward, to prevent passage of hair pins until the gage is in position to stop them.

10. In a machine of the character described, in combination, a separating drum to which hair pins are fed in bulk and which is provided with slats between which they pass singly, a carrying belt, means for conducting the hair pins from the separating drum to the belt, a rigid selecting track, means for conducting the hair pins from the belt to the track, a gage and a spring controlled cut-off coöperating with the track for the purpose set forth, means for moving the gage and cut-off in reverse directions, and means for normally retaining the gage in engagement with the track.

11. In a machine of the character described, in combination, a plurality of separating drums to which hair pins are fed in bulk and which are provided with slats between which they pass singly, a carrying belt having a plurality of sets of buckets, means for conducting the hair pins from each separating drum to a special set of buckets, corresponding selecting tracks, means for conducting the hair pins from the buckets to the tracks, a gage and a spring controlled cut-off coöperating with each track for the purpose set forth, means for moving the gages and cut-offs in reverse directions, and means for normally retaining the gages in engagement with the tracks.

In testimony whereof I affix my signature.

IRVING H. PECK.