June 8, 1937. F. MAGIDSON 2,083,534

PIN FEEDING APPARATUS

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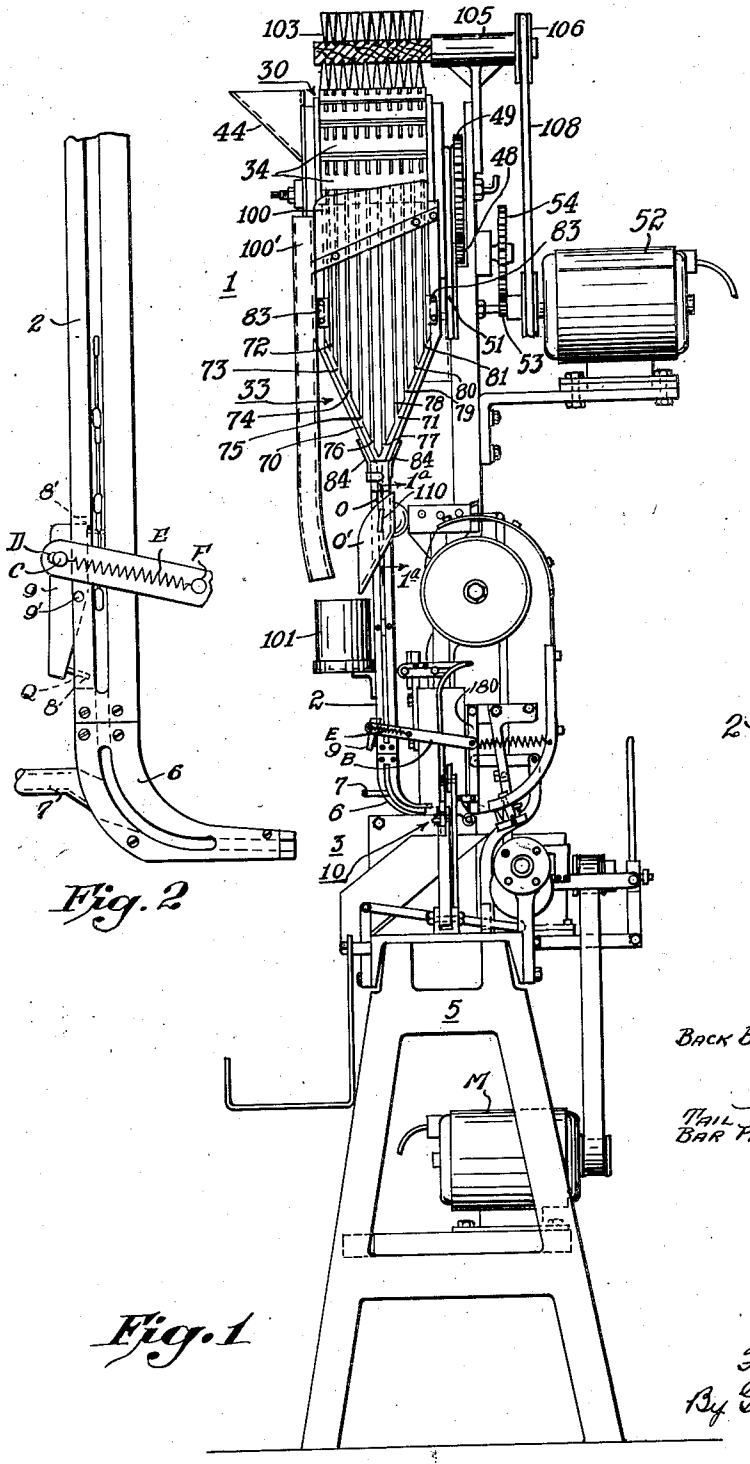


Fig. 2

Fig. 1

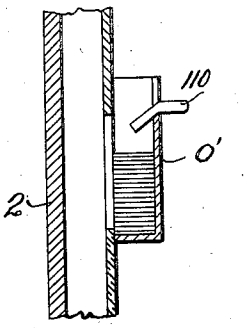


Fig. 1a

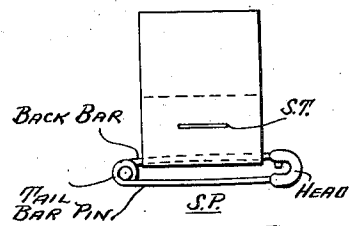


Fig. 3

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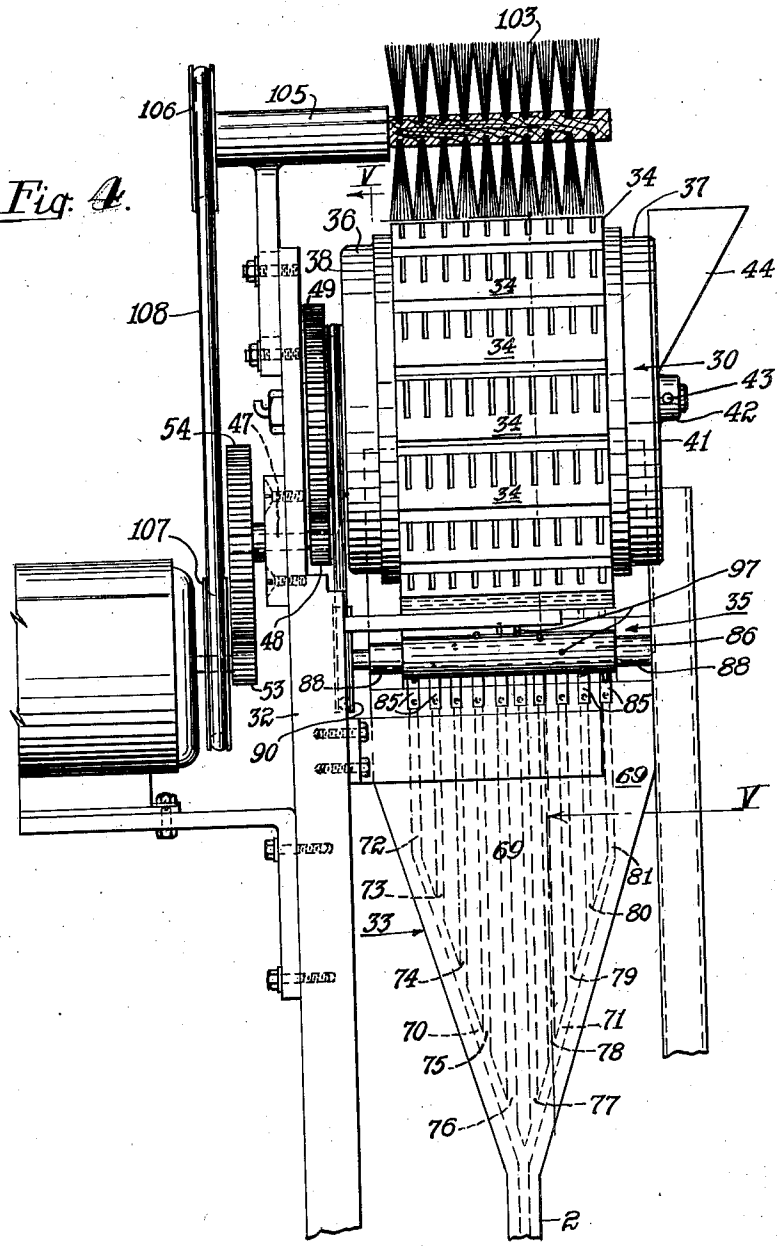
His Attorneys

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PIN FEEDING APPARATUS

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Fig. 4.



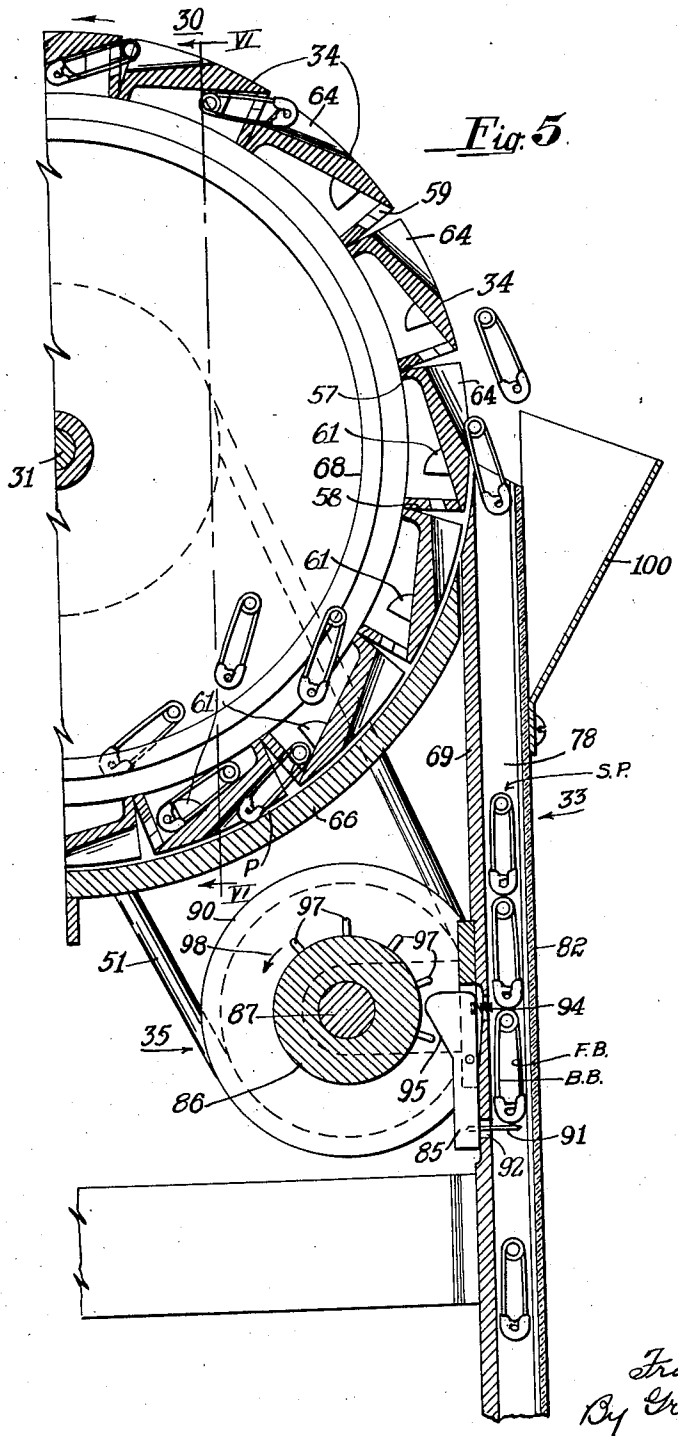
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PIN FEEDING APPARATUS

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Fig. 5.



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PIN FEEDING APPARATUS

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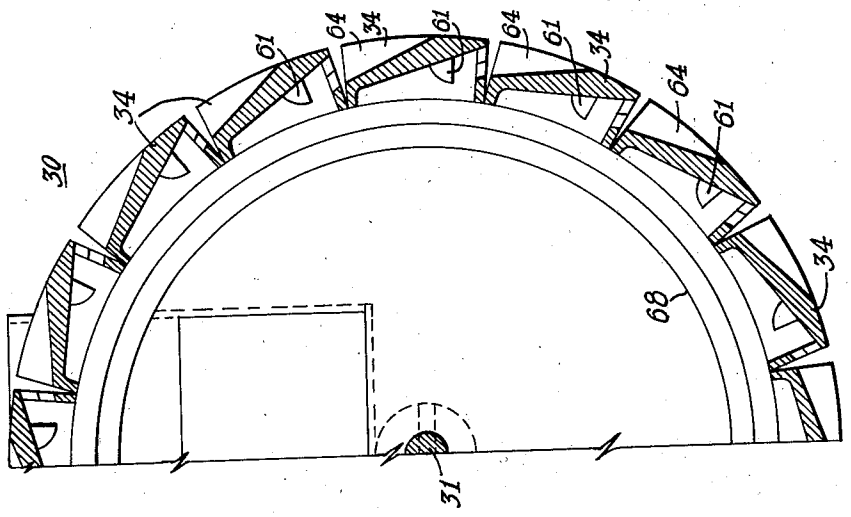


Fig. 7

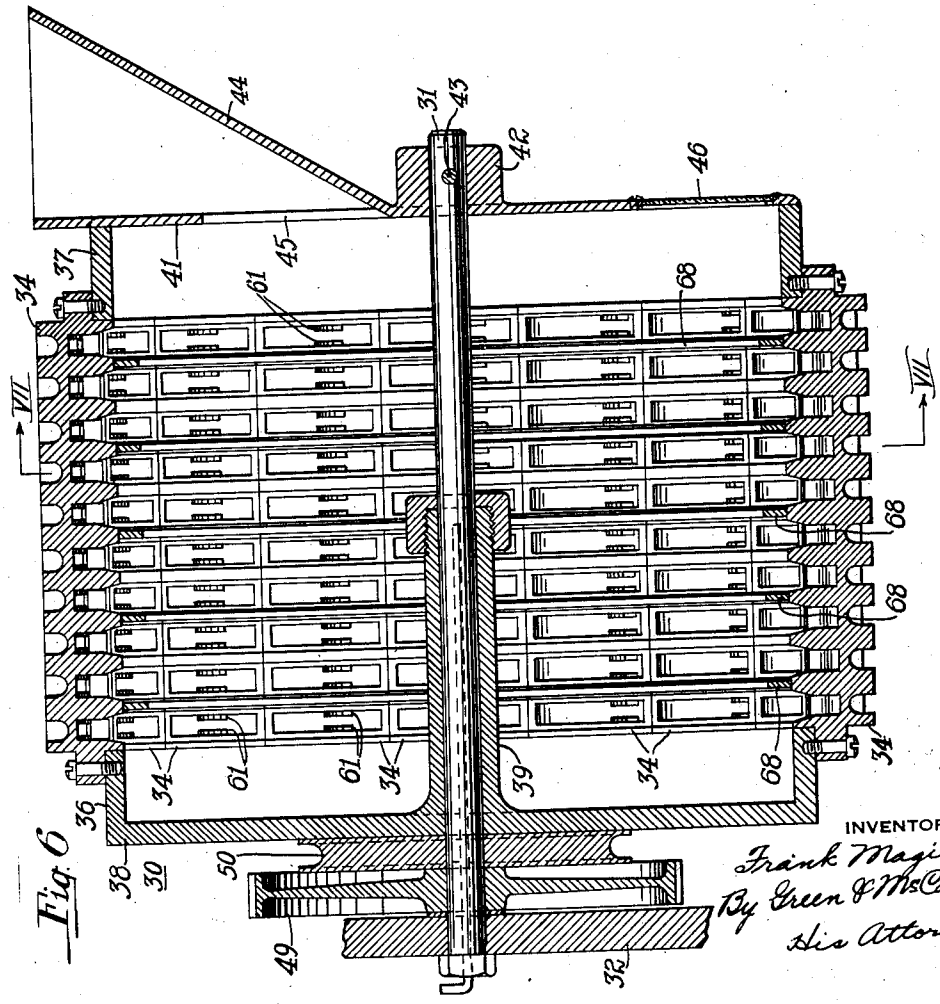


Fig. 6

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PIN FEEDING APPARATUS

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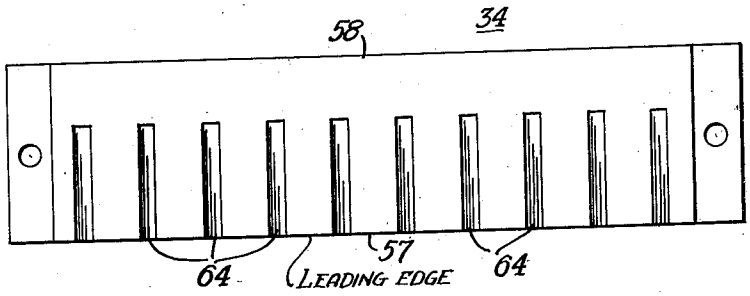


Fig. 8

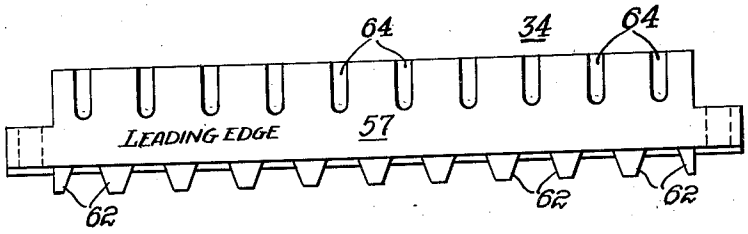


Fig. 9

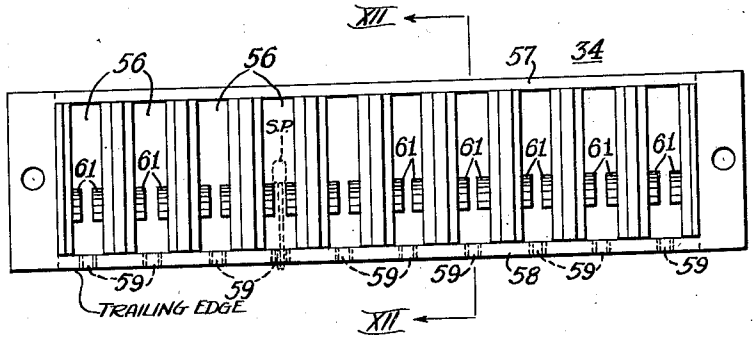


Fig. 10

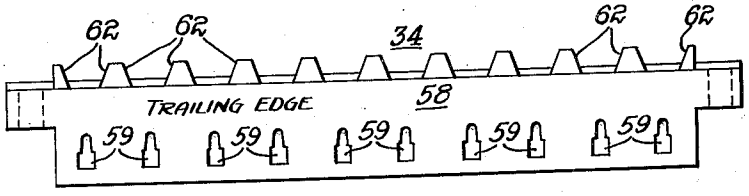


Fig. 11

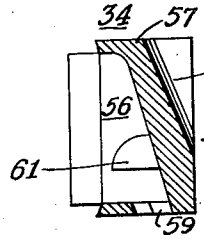


Fig. 12

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Patented June 8, 1937

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UNITED STATES PATENT OFFICE

2,083,534

PIN FEEDING APPARATUS

Frank Magidson, Pittsburgh, Pa., assignor to Pittsburgh Tag Company, a corporation of Pennsylvania

Application February 16, 1934, Serial No. 711,550

23 Claims. (Cl. 93—87)

This invention relates generally to automatic machines for feeding safety pins from a conglomerate mass to a point of use, the pins being fed in the same position relative to each other and in definite positive steps.

An object of this invention is the provision of a feeding mechanism whereby safety pins may be fed automatically from a conglomerate mass to a magazine one at a time and in the same relative position.

Another object of the invention is the provision of a feeding mechanism whereby safety pins may be discharged into collaterally arranged chutes or slots in the same relative position, and releasing pins one at a time and in a definite order from said chutes to a single chute from which the pins may be released one at a time as needed to meet particular requirements.

Other objects of the invention will, in part, be apparent and will, in part, be obvious from the following description taken in conjunction with the accompanying drawings, in which:

Figure 1 is a front view, in elevation, of a machine embodying one form of the invention;

Fig. 1*a* is an enlarged fragmentary view in section taken on line I*a*—I*a* of Fig. 1;

Fig. 2 is a partial enlarged view of the pin feeding mechanism shown in Fig. 1;

Fig. 3 is a view of a safety pin having a tab of cloth or other material secured to the back bar thereof, said tab being attached to the back bar automatically by the machine illustrated in Fig. 1.

Fig. 4 is an enlarged view in rear elevation of the pin sorting and feeding mechanism shown in connection with the machine of Fig. 1;

Fig. 5 is a view in section of the pin feeding mechanism taken on line V—V of Fig. 4;

Fig. 6 is a view in longitudinal vertical section of a portion of the feeding mechanism taken on line VI—VI of Fig. 5;

Fig. 7 is a view in section taken on line VII—VII of Fig. 6;

Figs. 8, 9, 10 and 11 are bottom, rear, top and front views respectively of a member embodied in the pin feeding mechanism shown in Figs. 1 and 4 to 7, inclusive; and

Fig. 12 is a view in section as taken on line XII—XII of Fig. 10.

Throughout the drawings and the specification, like reference characters indicate like parts.

The machine illustrated in the accompanying drawings, as embodying the principle of the invention in what now appears to be, a preferred form thereof, is designed to feed safety pins at a high rate of speed for use in connection with the manufacture of marking tags. As shown in Fig. 3, the tags with which such pins are used comprise a safety pin S. P. and a tab T. of cloth or other material, one end of which is wrapped or folded about the back bar B. B. of the pin and fastened by means of a staple S. T., preferably a wire staple.

The feeding device embodying the invention is designed to receive a quantity of pins, without regard to orderliness of arrangement and to feed the pins to a magazine one at a time and in exactly the same relative position. In the form illustrated, the pins are fed head forward with the back bars thereof all on the same side of the magazine.

From the magazine, the pins are fed one at a time in timed sequence to a suitable landing where the tags are formed.

Since a feeder of this character is designed, in the interest of economy and low production cost, to operate at high speed, it follows that each pin must be delivered from the magazine to the landing without any loss of time. This is accomplished by giving the pin a high acceleration the moment it is released from the magazine. To accomplish this function the pin, when released from the magazine, is propelled by an air blast to the landing to be in position to be operated on by a suitable tag forming mechanism such as shown in my copending divisional application Serial No. 141,380, filed May 7, 1937.

In Fig. 1 of the drawings, I have illustrated my pin feeding device as comprising a pin feeding mechanism **1**, a magazine **2**, to which the pins are fed by mechanism **1**, one at a time, head forward with the back bars thereof on the same side and stored head on tail, in connection with a tag forming machine **3** driven by a motor M.

The feeding mechanism **1**, magazine **2** and machine **3** are carried on a table or support **5** of such height as will provide the most convenient operating conditions for the operator. The lower end of the magazine **2** terminates in a curved portion **6** into which a continuous air blast is directed by means of a pipe **7** that is connected to a source of supply of air under pressure (not shown). Stops **8** and **8'** (see Fig. 2) secured to a pivoted lever **9** operate in the lower end of the magazine at a point above the curved portion **6** to release pins one at a time into the curved portion **6**, and by suitable mechanism delivered in timed relation with the tag forming operations of machine **3**.

As may be seen in Fig. 2, lever **9** is pivotally mounted on a pin **9'**, is disposed in an opening

Q located in one side of magazine 2, and carries stops 8' and 8 at its upper and lower ends, respectively. The face of the lever from which stop 8 projects is inclined outwardly so that when the lever is in its full line position, stop 8' extends into the magazine in position to support a pin thereon, the stop extending through the loop defined by the back bar and bar pin and under the tail of such pin. Therefore, when stop 8' is in this position, the column of pins above the same is also supported thereby. When lever 9 is turned to the broken line position, stop 8' releases the pin which it supports and this pin comes to rest on stop 8 which now extends into the magazine. When lever 9 is returned to its full line position, the pin which has dropped down on stop 8 is released to section 6 of the magazine and propelled by the air blast to the landing place 10. Thus as lever 9 is oscillated to its full and broken line positions, pins are dropped one at a time into portion 6 of the magazine.

Lever 9 is operated by a reach bar B one end of which is secured to the lever by pin C that passes through an elongated slot D formed in the bar. A tension spring E connected to pin C and a pin F secured to the bar B maintains the pin C in yieldable contact with the right hand end of slot D, as seen in Fig. 2, but in case stop 8' should contact the head of a pin, the spring will yield as bar B moves and thereby avoid breaking any of the parts above mentioned. Reach bar B is connected to a system of suitable levers which effect the above described operation of lever 9. Reach bar B is connected to and oscillated by lever 180 of the tag-forming mechanism as shown in my aforesaid copending application Serial No. 141,380, filed May 7, 1937.

When a pin drops into portion 6, the air blast from pipe 7 accelerates the same and almost instantly delivers it to landing 10 of the machine, wherein the head and tail of the pin are suitably supported. When in this position, one end of suitable tab stock (not shown) may be folded around the back bar of the pin S. P. and a staple may be pushed through the overlapping portions of tape and clinched to form a tag, as shown in Fig. 3. A machine suitable for making tags is disclosed and described in detail in my copending application Serial No. 141,380, filed May 7, 1937, which is a division of this application.

Pin feeding mechanism

The pin feeding mechanism 1 comprises a rotating drum 30 mounted on an overhanging stationary shaft 31, which is supported at one end by an upright 32 carried by the table of the machine, a guiding device 33 into which pins are discharged from drum 30, and means 35 for effecting the delivery of pins one at a time to the magazine 2.

The drum 30 comprises a series of blocks 34 which effect the delivery of pins in a definite position to the guiding device and these blocks are secured at their opposite ends to rings 36 and 37. Ring 36 is formed preferably as an integral part of a plate 38 which constitutes a closure for one end of the drum. Plate 38 is provided at its center with a relatively long hollow hub 39 through which the shaft 31 extends and constitutes the journal for the drum.

The other end of the drum 30 is closed by a plate 41 having a hub 42 through which shaft 31 extends, plate 41 having sliding contact with ring 37. A pin 43 passing through the hub and shaft holds plate 41 stationary relative to the drum. A hopper-like funnel 44 is formed at the upper portion of plate 41 and this funnel terminates in an opening 45 through which pins may be fed to the interior of the drum. The lower portion of plate 41 may be provided with a window 46 in order that the operator may, by observation, determine when to feed pins to the drum so that a sufficient quantity may be maintained therein.

Drum 30 may be driven from a countershaft 47 having a pinion 48 thereon that meshes with a gear 49 loosely mounted on shaft 31 but secured to plate 38. A grooved pulley 50 interposed between gear 49 and plate 38, drives means 35 through a belt 51. A motor 52 drives the countershaft 47 through a pinion and gear connection 53, 54.

An understanding of the details of construction of drum blocks 34 may be had from the following description taken in conjunction with Figs. 4 to 12, inclusive.

Each block 34 is provided on its inner face with a plurality of parallel rectangular recesses or slots 56 which lie in parallel vertical planes disposed at right angles to the axis of rotation of the drum. The base of each slot slopes outwardly from a point adjacent the forward or leading edge 57 of the slot towards the outer face thereof and terminates at the trailing edge 58 in an opening 59 through which the pins discharge.

As was stated previously herein, the pins are delivered to landing 10 one at a time in exactly the same relative position. For the purpose of making tags it is preferred that the pins be fed head forward with the back bar B. B. towards the machine and the bar pin facing mechanism 14. This requires, for the arrangement shown, and the direction of pin feed, that the pins shall be delivered to the magazine 2 head forward and with the thinnest portion of the head, that is, the portion to which the back bar is attached, facing the drum (see Fig. 5). To insure that each pin shall always be delivered in this manner to magazine 2, openings 59 are shaped to conform to the shape of the heads of the pins with the widest part of each opening adjacent the bottom of slots or recesses 56 and with the narrowest part thereof extending towards the inner face of the drum (see Figs. 5, 8, 11 and 12). Thus, if a pin falls into any of these slots or recesses with the head towards opening 59, the pin can only pass through this opening if it is in the proper position, that is if the bar pin lies against the bottom of such slot.

In order to prevent the pins from discharging through openings 59 tail first, a lug 61 is formed on each of the walls of each slot. The space between these lugs is wider than the tail of a pin but narrower than the head thereof so that if the tail is forward, the head cannot pass between the lugs and the pin is therefore prevented from being discharged from the drum to the guiding device 33 and into magazine 2. However, when the head is forward and in that portion of a slot 56 located between an opening 59 and lugs 61 and with the bar pin against the bottom of slot 56, the pin will pass through opening 59.

To aid or increase the facility with which pins tumble into these slots or recesses, the inner edges of the recess walls are extended inwardly from the inner face of each block 34 and are tapered as at 62.

The outer faces of blocks 34 are provided with grooves 64 that start at the leading edges there-

of and terminate at the outer surface of the drum. These grooves are disposed in alignment with the discharge openings **59** and act as guides or chutes for directing the pins into the guiding device **33**. These slots also act as elevators to carry pins which have passed through openings **59**, before reaching the point of delivery to guiding device **33**, to the point where such pins will discharge into the guiding device. This elevator action is accomplished by placing a curved plate **66** on the underside of the drum (see Fig. 5) and occurs when a pin is situated as at P, Fig. 5. As the drum revolves, pin P will be pushed up plate **66** by the bottom of the trailing end of groove **64** and be discharged into the guiding device **33**.

In order that the supply of pins contained within the drum may be uniformly distributed so that each slot of the various blocks may deliver approximately the same number of pins to the guiding device **33**, a plurality of rings **68** are mounted within the drum. It has been found by experimentation that a ring placed on every other wall defining slots **56** provides a sufficient number and efficient distribution. The rings, as may be seen in Figs. 6, 5 and 8, are parallel, at right angles to the axis of rotation of the drum, and conform to the contour of the cylindrical surfaces formed by the slot walls.

The guiding device **33** comprises a vertical plate **69** having grooves or slots **70** and **71** in the front face thereof which terminate at their lower ends in open communication with the magazine **2**. These slots diverge upwardly at an angle to the vertical, and have open communication with a plurality of vertical slots **72** to **81**, inclusive, each disposed in alignment with a groove or slot **56** in the blocks **34** of drum **30** (see Figs. 1, 4 and 12).

The grooves or slots **70** to **81** are closed at their fronts by a transparent plate **82** which is slidably fastened to plate **69** by means of clips **83** and is supported by inclined strips **84** disposed adjacent the top of magazine **2**.

Since plate **82** is transparent, the operator may observe what is going on in the grooves or slots of plate **69** so that in case these slots become obstructed with pins, the transparent plate may be lifted upwardly and the cause of such obstruction removed. This may be accomplished quickly without in any way interrupting the operation of the machine.

In order that the pins shall be delivered into magazine **2** one at a time from the grooves or slots in the plate **69**, for otherwise "jamming" is likely to occur in the magazine, the means **35** previously mentioned herein is provided. Means **35** comprises a plurality of hinged or pivoted fingers **85** mounted on the rear face of plate **69**, there being one finger for each slot or groove of this plate and a timing cam **86** mounted on a shaft **87** which is journalled in bearings **88** and driven from the grooved pulley **50** by a belt **51** and a pulley **90** attached to shaft **87**.

Each finger **85** is provided with a pin or projection **91** at its lower end that operates in an opening **92** in the back of plate **69** and this pin extends far enough into the associated groove or slot of plate **69** to engage under the head of a pin (see Fig. 5) and thereby support a column of pins above the same in head on tail arrangement as illustrated. The upper end of each finger is provided with a projection in the form of a coiled spring **94** which normally does not engage the pins. However, when a finger **85** is turned by cam **86** in a clockwise direction, as seen from Fig. 5, the coil spring **94** of a finger moves between the tail and head of abutting pins while projection **91** moves away from the pin which it supports, allowing the same to drop into the magazine. Each finger is also provided with a cam surface **95** adapted to cooperate with cam **86**. Cam **86** is provided with a plurality of projecting elements **97** mounted spirally along the cam and at spaced intervals, the spacing being the same as the spacing of fingers **85**. Thus as the cam rotates, fingers **85** are operated in sequence, thereby insuring that a pin will not be released into the magazine at the same time that another pin is released to the magazine. Thus if it be assumed that there is a column of pins in each of the slots or grooves of plate **69** and disposed above a plane containing the projections **91** of fingers **85** and that cam **86** is turning in the direction of arrow **98**, with the cam in the position indicated in Figs. 4 and 5, then the finger at the extreme right as seen in Fig. 4, will be actuated, then the next and so on until the finger at the extreme left is actuated. These fingers will thus be actuated in sequence from right to left as seen in Fig. 4, but never is more than one of these fingers actuated at the same time. Therefore, pins will be dropped from the grooves in plate **69** into magazine **2** one at a time in a progressive sequence, starting with groove **73** and ending with groove **81**. The process then repeats itself in the same order and pins are fed to the magazine **2** one at a time as above described.

It often occurs in the operation of the drum that pins are carried upwardly too far to be discharged into the guiding device **33** and in such case these pins are often thrown on the floor or away from the machine, thereby wasting pins. In order to collect the pins that are carried too far as indicated in Fig. 5, a collecting hopper **100** is secured to plate **82** and this hopper serves as a catch-all for pins that do not fall into the slots or grooves of the guiding device. The bottom of this hopper slopes downwardly from right to left, as seen in Fig. 1, and terminates at the top of a conduit **100'** into which the overflow pins are directed and from which they discharge into a container **101**. The pins collected in the container are returned, from time to time, to drum **30**.

In the operation of drum **30**, it often happens that pins are fed at a greater rate to magazine **2** than from the magazine to landing **10**, and as a consequence the magazine fills up. To avoid the jamming of pins in the slots of plate **69**, an opening O is provided at the top of the magazine so that the excess of pins delivered by the drum to the magazine may overflow into a chute O' and be collected in container **101**. To make certain that the excess pins shall be expelled when the magazine is full, an air blast may be played on opening O, a nozzle **110**, to which a supply of compressed air may be connected, being provided for this purpose. This air blast also serves to prevent pins falling out of opening O when the magazine is not full, thus insuring sufficient delivery of pins to the magazine.

As may be seen in Fig. 5, pins have a tendency to remain in grooves or slots **56** with an end thereof projecting through an opening **59** after a block **34** has been carried past the point at which pins are normally discharged into guiding device **33**. If these pins are not removed from the slots many of these slots might be rendered ineffective most of the time the machine is in operation. In order to make certain that pins shall not be lodged in the grooves of the drum block, a rotat-

ing brush 103 is provided. This brush is as long as blocks 34 and is mounted immediately above the drum for rotation on a shaft (not shown) that is journalled in a bearing 105. The brush is driven by motor 52 through a connection comprising grooved pulleys 106 and 107 and a belt 108, and in such direction that the portion of the brush contacting the drum moves in the same direction as drum 30. Thus any pins that remain in slots 56 are brushed out of the same and into the interior of drum 30. To effectively accomplish this function, the brush is driven at a higher peripheral speed than that at which the drum is driven.

What I claim as new and desire to secure by Letters Patent is:

1. A feeding device for safety pins comprising a rotating drum having a plurality of rows of segmental circumferentially spaced slots through which pins may pass from the interior of the drum and be discharged, said slots being provided with means for allowing pins to pass therethrough only when occupying a predetermined position in the slots, and a magazine for receiving the pins and storing them in the same relative position as they were in when discharged from the drum.

2. A feeding device for safety pins comprising a rotating drum having a plurality of segmental slots through which pins may pass from the interior of the drum and be discharged, said slots being provided with means for allowing pins to be discharged only when occupying a predetermined position in the slots, a magazine for receiving the pins and storing them in the same relative position as they were in when discharged from the drum, and means for releasing pins one at a time from the magazine.

3. A feeding device for safety pins comprising a rotating drum having a plurality of segmental slots through which pins may pass from the interior of the drum and be discharged, said slots being provided with means for allowing pins to be discharged only when occupying a predetermined position in the slots, a magazine for receiving the pins and storing them in the same relative position as they were in when discharged from the drum, and means for positively dislodging pins from the slots which have not discharged therefrom and returning them to the interior of the drum.

4. A feeding device for safety pins comprising a rotating drum having a plurality of segmental slots through which pins may pass from the interior of the drum and be discharged, said slots being provided with means for allowing pins to be discharged only when occupying a predetermined position in the slots, a magazine for receiving the pins and storing them in the same relative position as they were in when discharged from the drum, and a rotating brush disposed to sweep across the exterior surface of the drum and return to the interior of the drum, such pins that fail to discharge from the slots.

5. A feeding device for safety pins comprising a rotating drum in which a quantity of pins may be placed, the interior surface of said drum having a plurality of peripherally spaced segmental slots terminating in discharge openings at the outside of said drum, said slots having restrictions spaced forwardly of the discharge openings through which the tail, but not the head of the pin can pass, so that only such pins as fall into the slots with the heads positioned between the restrictions and the discharge openings can issue therefrom, a magazine for storing pins end on end, and means for receiving the pins discharged from the drum and guiding and delivering them to the magazine.

6. A feeding device for safety pins comprising a rotating drum in which a quantity of pins may be placed, said drum having a plurality of rows of segmental circumferentially spaced pin receiving grooves on the inner surface of the drum into which grooves pins tumble in response to rotation of the drum, said grooves terminating in discharge openings at the exterior of the drum and through which pins may discharge, a magazine for storing pins end on end, and means for delivering pins one at a time to said magazine as they discharge through the plurality of rows of discharge openings of said drum.

7. A feeding device for safety pins comprising a rotating drum in which a quantity of pins may be placed, the interior of said drum having a plurality of segmental circumferentially spaced pin receiving grooves that terminate in discharge openings at the exterior surface of the drum, and means in said grooves for causing pins to discharge through said openings only when the head of the pin is pointing towards such opening.

8. A feeding device for safety pins comprising a rotating drum in which a quantity of pins may be placed, said drum having a plurality of segmental circumferentially spaced grooves on the interior surface thereof into which pins may tumble, said grooves terminating in discharge openings at the trailing ends thereof, through which pins may discharge end forward, and segmental grooves on the exterior surface of the drum disposed in alinement with the discharge openings of the interior grooves to facilitate and give direction to the discharge of pins issuing from said openings.

9. A feeding device for safety pins comprising a rotating drum in which a quantity of pins may be placed, said drum having a plurality of segmental circumferentially spaced grooves on the interior surface thereof into which pins may tumble, said grooves terminating in discharge openings at the trailing ends thereof of the same general shape as the head of a pin, through which pins may discharge only when the head of a pin is in shape alinement with said openings.

10. A feeding device for safety pins comprising a rotating drum in which a quantity of pins may be placed, said drum having a plurality of segmental circumferentially spaced grooves on the interior surface thereof into which pins may tumble, said grooves terminating in discharge openings at the trailing ends thereof through which pins may discharge, and a restriction in each of said grooves which prevents the discharge of pins from the drum except when the head of a pin and a discharge opening are contiguous.

11. A feeding device for safety pins comprising a rotating drum in which a quantity of pins may be placed, said drum having a plurality of segmental circumferentially spaced grooves on the interior surface thereof into which pins may tumble, said grooves terminating in discharge openings at the trailing ends thereof of the same general shape as the head of a pin through which pins may discharge only when the head of a pin is in shape-alinement with said openings, and means in each of said slots for preventing the discharge of pins from the drum except those which are positioned in a groove with the head thereof contiguous to the discharge opening.

12. A feeding device for safety pins comprising a rotating drum in which a quantity of pins may be placed, the interior surface of said drum having a plurality of parallel groups of segmental pin receiving slots, the slots of each group being circumferentially spaced and each slot terminating in a discharge opening at the exterior of the drum from which pins may issue as the drum rotates, a receiving chute for each group of slots for receiving pins end-on-end as they issue from the drum, a magazine having communication with all of said chutes, and means for releasing one pin at a time to the magazine from said chutes.

13. A feeding device for safety pins comprising a rotating drum in which a quantity of pins may be placed, the interior surface of said drum having a plurality of parallel groups of segmental pin receiving slots, the slots of each group being circumferentially spaced and each slot terminating in a discharge opening at the exterior of the drum from which pins may issue as the drum rotates, a receiving chute for each group of slots for receiving pins end-on-end as they issue from the drum, oppositely acting movable support fingers in each chute disposed to support a column of pins thereon and operating to release pins one at a time from the chutes, a magazine having communication with each chute into which pins may drop by gravity, and means for operating said support fingers in sequence so that pins are released in sequence from the chutes and one at a time to the magazine.

14. A feeding device for safety pins comprising a rotating drum having a cylindrical portion composed of circumferentially spaced blocks each having a segmental slot therein on its inner surface which terminates at the trailing edge of its associated block in a discharge opening from which pins may issue as the drum rotates, a receiving chute for the pins, and mean for preventing the discharge of pins from the drum until the block from which a pin is in position to issue has moved past the chute.

15. A feeding device for safety pins comprising a rotating drum having a cylindrical portion composed of circumferentially spaced blocks each having a segmental slot therein on its inner surface which terminates, at the trailing edge of its associated block, in a discharge opening from which pins may issue as the drum rotates, each block having a segmental groove on its exterior surface disposed in line with the discharge opening of a block in advance thereof, said exterior groove having maximum depth at the leading edge of a block in which it is formed, gradually decreasing in depth towards the trailing edge thereof, and terminating and finally merging with the exterior surface of the block, a curved plate disposed under the drum and extending upwardly around the drum to a point at which pins are to be discharged therefrom, and a receiving chute for receiving the pins discharged at said point, said plate in conjunction with the exterior grooves of the drum blocks acting as a carrier to elevate pins, which have prematurely issued from the discharge openings of the blocks, to the point of delivery to the chute.

16. A feeding device for safety pins comprising a cylindrical rotating drum which is closed at both ends and in which a quantity of safety pins may be placed, the cylindrical surface of the drum comprising a plurality of blocks spaced circumferentially of the drum and each having a plurality of longitudinally spaced segmental slots on its interior surface, the slots of each block terminating in discharge openings at the trailing edges thereof from which pins may issue as the drum rotates, a receiving chute for each of said blocks, and means for guiding pins issuing from said discharge openings to said chutes as the drum rotates.

17. A feeding device for safety pins comprising a cylindrical rotating drum which is closed at both ends and in which a quantity of safety pins may be placed, the cylindrical surface of the drum comprising a plurality of blocks spaced circumferentially of the drum and each having a plurality of longitudinally spaced segmental grooves on its interior surface, the grooves of each block terminating in discharge openings at the trailing edges thereof from which pins may issue as the drum rotates, means within the drum for effecting relatively uniform distribution of pins throughout the length of the drum, a receiving chute for each of said blocks, and means for guiding pins issuing from said discharge openings to said chutes as the drum rotates.

18. A feeding device for safety pins comprising a rotating drum having a cylindrical portion composed of circumferentially spaced blocks each having a segmental slot therein on its inner surface which terminates, at the trailing edge of its associated block, in a discharge opening of the same general shape as the head of the pin so that only such pins as enter a slot with the heads thereof in shape-alinement with the discharge opening may issue therefrom.

19. A feeding device for safety pins comprising a rotating drum having a cylindrical portion composed of circumferentially spaced blocks each having a segmental slot therein on its inner surface which terminates, at the trailing edge of its associated block, in a discharge opening of the same general shape as the head of the pin so that only such pins as enter a slot with the heads thereof in shape-alinement with the discharge opening may issue therefrom, and spaced lugs in each of the slots providing a restriction which is narrower than the heads but wider than the tails of the pins that prevents the issuance of pins through said discharge openings when the tails thereof are contiguous thereto.

20. A feeding device for delivering safety pins to a point of working that comprises a magazine, means for delivering pins end on end to said magazine, oppositely acting movable supports for supporting a column of pins above the same and, as the supports move alternately to and from supporting position, releasing pins to fall by gravity one at a time, and means for supplementing the force of gravity for additionally accelerating the pins thus released and while in motion to the point of working.

21. A feeding device for delivering safety pins to a point of working that comprises a magazine in which pins are stored end on end, oppositely acting movable supports for supporting a column of pins above the same and, as the supports move alternately to and from supporting position, releasing pins one at a time, and means for directing an air blast into the magazine at a point below the supports for accelerating the pins as they are released to the point of working.

22. A feeding device for safety pins comprising a rotating drum in which a quantity of pins may be placed, the interior surface of said drum having a plurality of rows of peripherally spaced segmental slots terminating in discharge openings at the ouside of the drum, means in said

slots for causing pins to pass head forward only through said discharge openings as the drum rotates, means for separately receiving the pins as they pass through the slots of the respective rows, and means for effecting individual release of pins from the receiving means in timed sequence.

23. A feeding device for safety pins comprising a rotating drum in which a quantity of pins may be placed, the interior surface of said drum having a plurality of rows of peripherally spaced segmental slots terminating in discharge openings at the outside of the drum, said discharge openings being so shaped that all pins must pass therethrough in the same position relative to each other, and means for delivering the pins passing through the slots of said rows singly and in timed sequence to a predetermined point.

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