

Sept. 26, 1933.

P. GANGLER

1,928,098

DEVICE FOR FEEDING INDIVIDUAL RAZOR BLADES TO
THE FEEDING MEANS OF A WRAPPING MACHINE

Filed Feb. 14, 1930

4 Sheets-Sheet 1

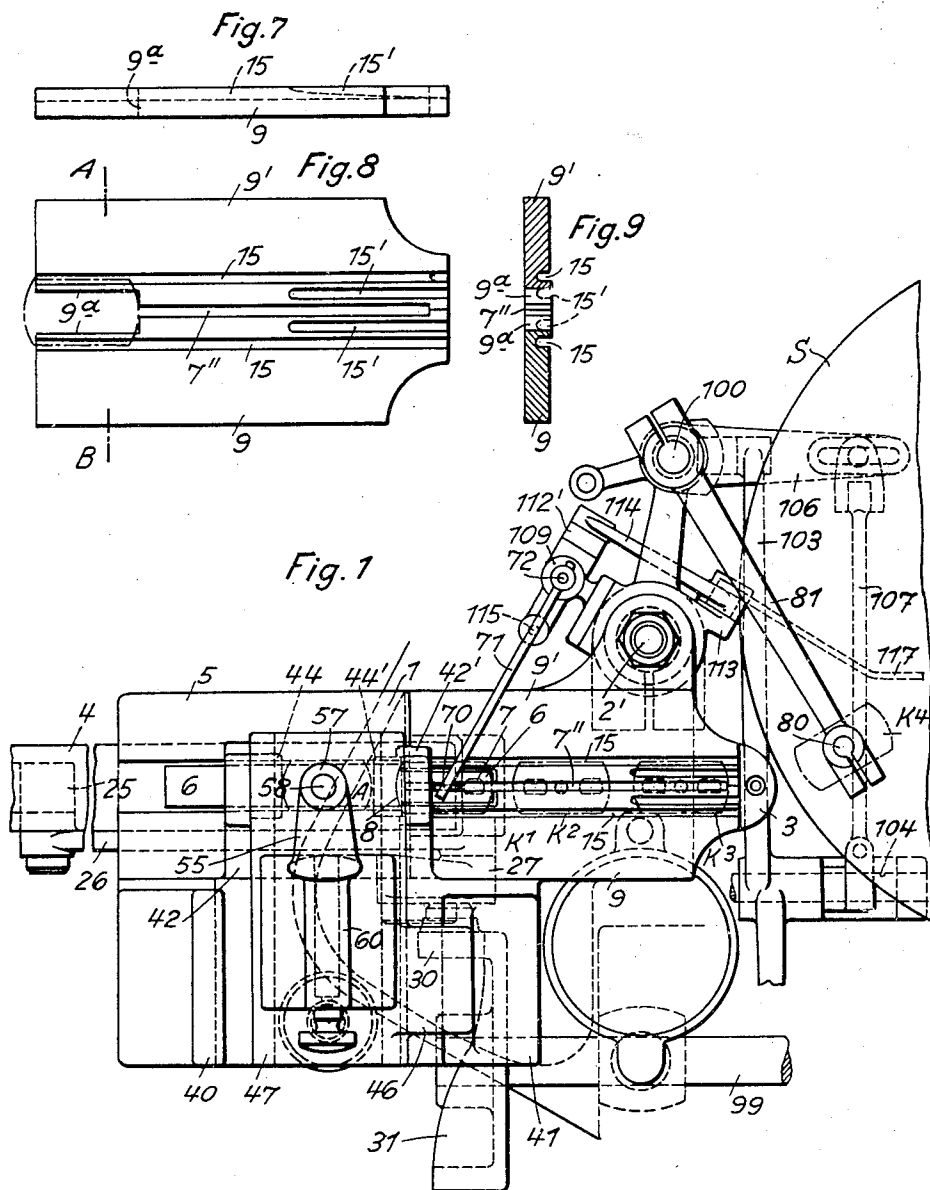


Fig. 7

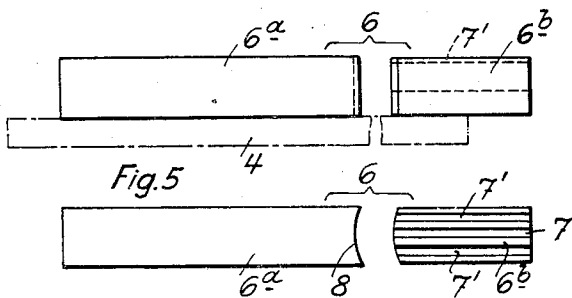
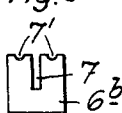
Fig. 8

Fig. 9

Fig. 1

Fig. 4

Fig. 6



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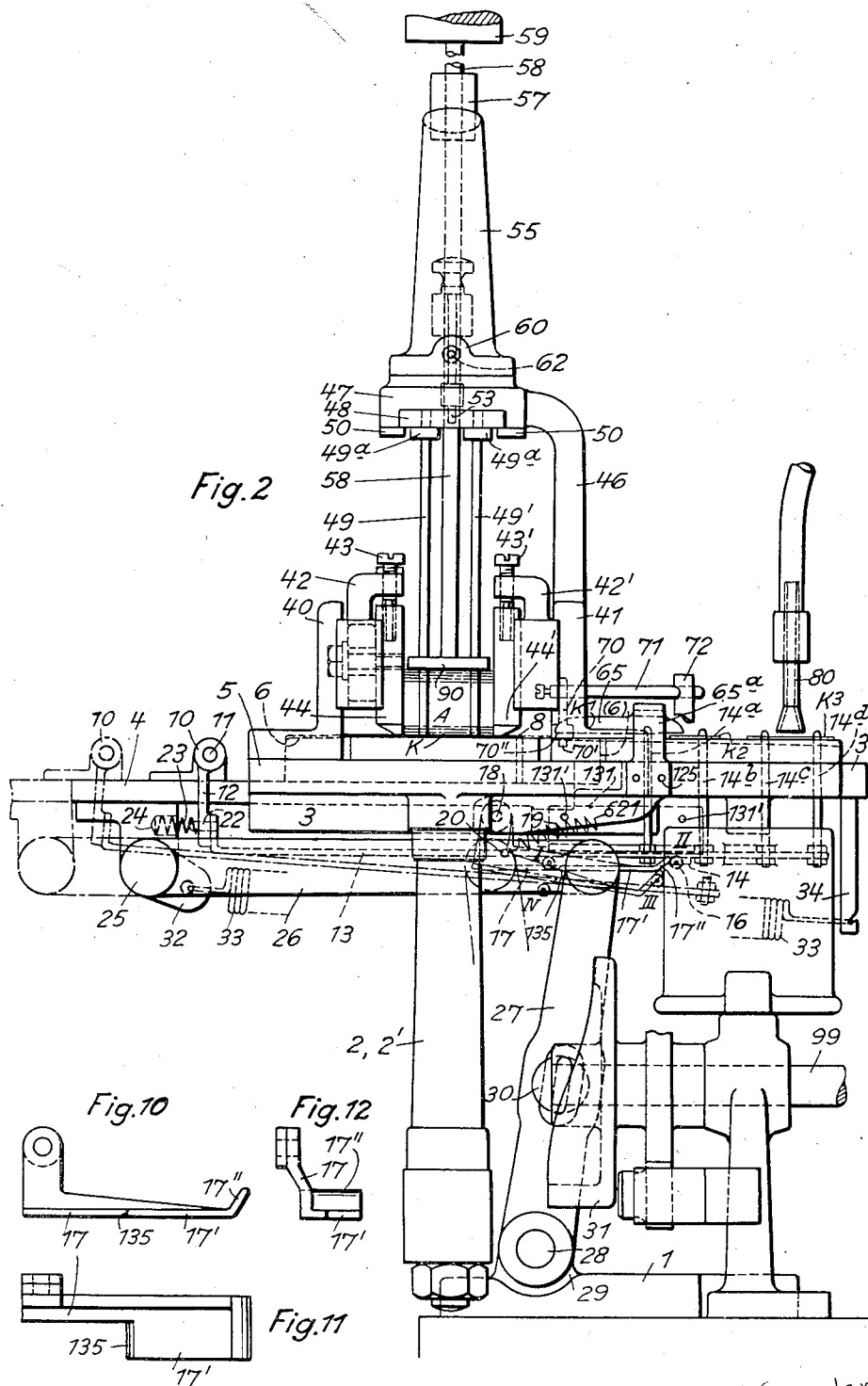
By *Otto H. H. H.*
his Attorney.

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4 Sheets-Sheet 2



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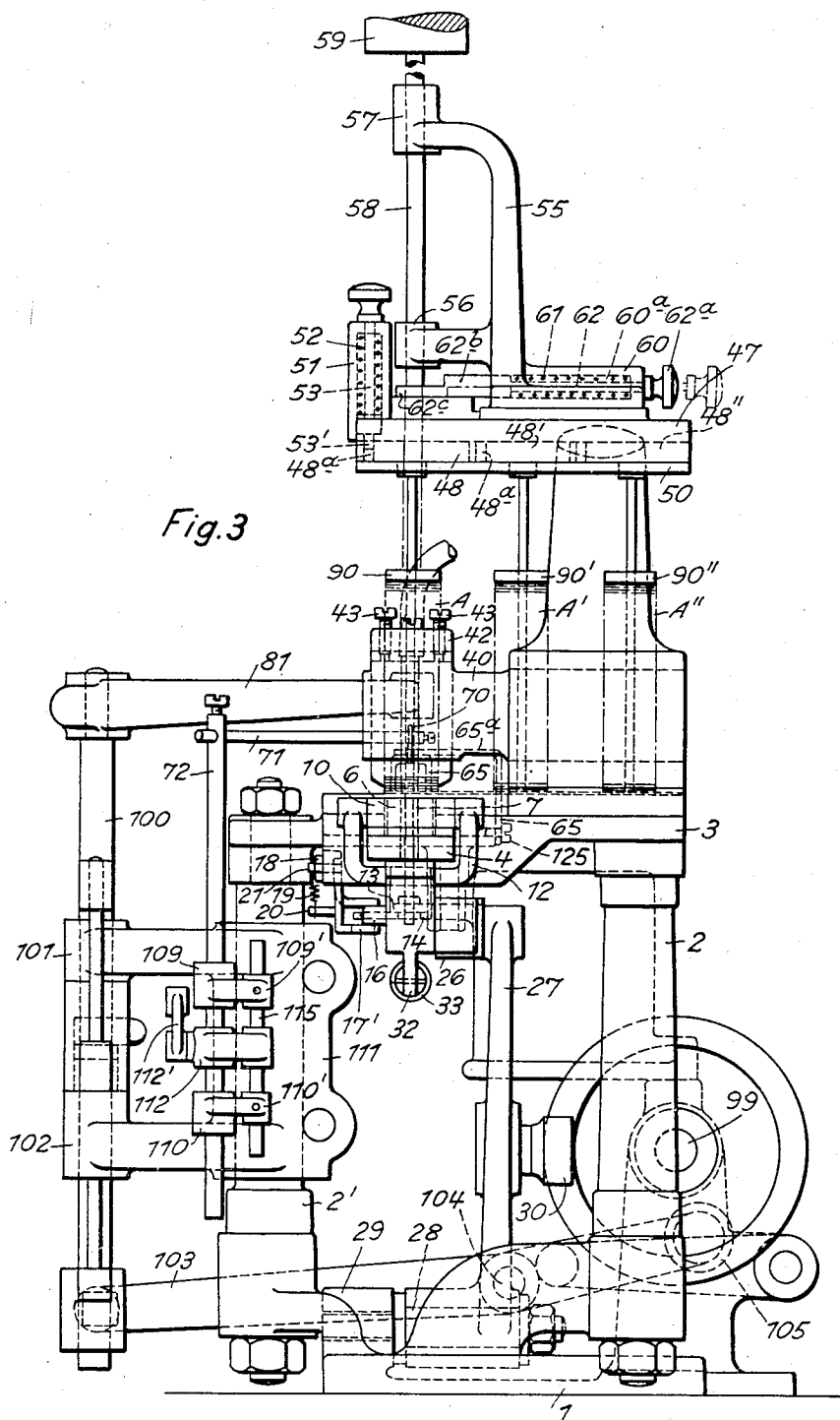
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DEVICE FOR FEEDING INDIVIDUAL RAZOR BLADES TO
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Filed Feb. 14, 1930

4 Sheets-Sheet 3



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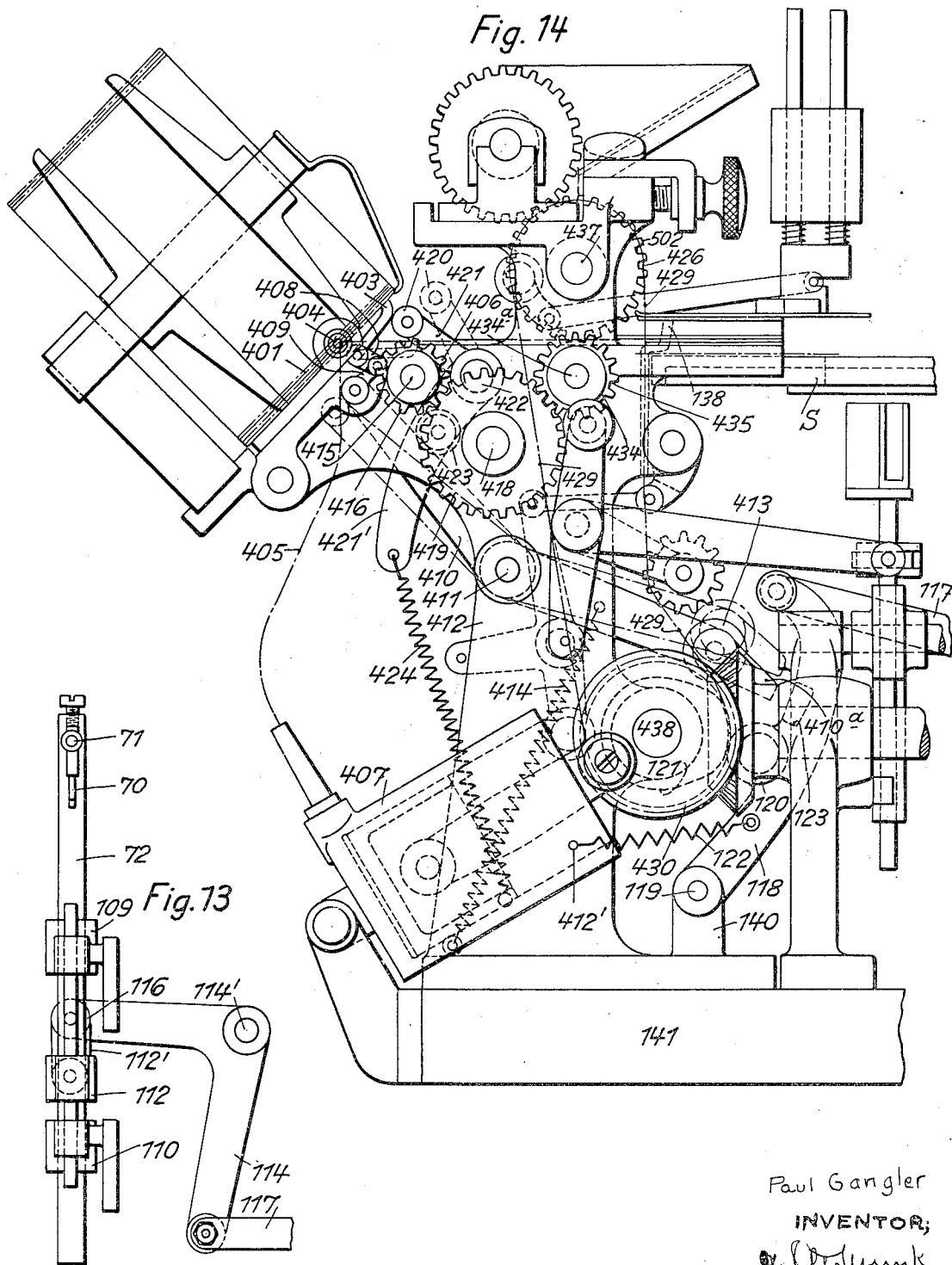
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4 Sheets-Sheet 4

Fig. 14



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UNITED STATES PATENT OFFICE

1,928,098

DEVICE FOR FEEDING INDIVIDUAL RAZOR
BLADES TO THE FEEDING MEANS OF A
WRAPPING MACHINE

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Application February 14, 1930, Serial No. 428,308,
and in Germany April 8, 1929

12 Claims. (Cl. 271-44)

The invention relates to a device for withdrawing razor blades one by one from a pile of blades and for feeding them to the wrapping mechanism. The present feeding device is distinguished by its simple construction and reliable operation while preserving the sensitive cutting edges of the blades and is particularly suitable for feeding individually greased or oiled razor blades from the pile to the wrapping mechanism.

One form of the invention is illustrated in the accompanying drawings.

Fig. 1 is a plan of the device,

Fig. 2 is a side elevation, and

Fig. 3 a front elevation viewed from the left of Fig. 2,

Figs. 4 and 5 represent as a detail in elevation and plan respectively the parts of the slide for separating the blades from the pile,

Fig. 6 is a front elevation of one part of the slide,

Figs. 7, 8 and 9 represent as a further detail the feed track for the blades, in elevation, plan and cross-section along line A—B of Fig. 8, respectively

Figs. 10-12 show elevation, plan and front elevation respectively of another detail consisting in a switch like member for controlling a part of the feeding mechanism,

Fig. 13 shows in front elevation parts of the feeling mechanism controlling the supply of the wrappers in connection with the supply of the blades, and

Fig. 14 shows in side-elevation the main parts of the mechanism for supplying the wrappers.

On the base-plate 1 there is mounted the machine plate 3 by means of the pillars 2, 2'. On the machine plate 3 a rail 4 is adapted to slide between the bars 5 from the position shown in broken lines in Fig. 2 into the position shown in full lines, and back again. The displacement of the slide is effected by a lever 27 pivoted on a bolt 28 fixed in the eye 29 of the base-plate 1. The lever 27 engages the slide 4 by means of a connecting rod 26 at a bearing indicated by 25 and mounted below the free end of the said slide. A spring 33 which is stretched between an eye 32 of the said bearing 25 and a bolt 34 fixed underneath the machine plate 3, draws an anti-friction roller 30 carried by the lever 27 against the cam face of a pot-shaped eccentric 31 of well known construction and mounted on the first motion shaft 99 of the machine, the eccentric 31 thus effecting the reciprocation and control of the rail 4.

On the rail 4 is mounted a rail-like slide 6

which at a certain distance from its front end marked (6) in Fig. 2 is provided with a step or offset 8, Figs. 1 and 2, of approximately the shape of the front edge of the blade for sliding the lowermost blade away from the pile of blades indicated at A and arranged above the slide 6. To obtain the step or offset 8 the slide 6 may be preferably composed of two parts 6^a and 6^b, Figs. 4 and 5, of which the part 6^a is slightly higher than the part 6^b so that when the two parts are assembled, the edge or step 8 is formed. The front portion 6^b is slightly narrower than the rear portion 6^a and is provided with a longitudinal slot 7 as well as with longitudinal grooves 7' to facilitate the sliding off of the blades from the part 6^b as will be described. The cutting edges of the blade project laterally beyond the slide.

In the continuation of the two guide bars 5 there are mounted on the table plate 3 two plates 9 and 9', Figs. 1 and 7-9, which are provided with a common recess 9^a for the entrance of the front portion 6^b of the slide 6 as well as in continuation of the slot 7 of the slide with a longitudinal slot 7'' and parallel thereto with continuous longitudinal grooves 15 and with short longitudinal grooves 15' so that the edges of the blade lie quite free during their feed, as shown at K² and K³ in Fig. 1, and the blades may be displaced easily in the longitudinal direction upon the plates 9, 9'. The support for the edges of the blades formed by the projecting edges of the said recess 9^a is slightly higher, viz. by about 1/200 mm., than the slide portion 6^a.

The continuous longitudinal slots 7, 7'' serve for the passage of feed pins 14^a, 14^b, 14^c and 14^d fixed to a supporting bar 13 which is reciprocated simultaneously with the rail 4. The supporting bar or rail 13 is for this purpose mounted on a bifurcated rocker arm 12, Figs. 2 and 3, which is secured to the rail 4 by means of a pin 11 pivoted in a bearing 10. Between a pin 22 of the rocker arm 12 and a bore 24 of the above named bearing 25 is stretched a spring 23 which has the tendency to turn the rocker 12 upwards to the right in Fig. 2. On the rail 13 is mounted a supporting member 14 with a laterally projecting guide roller 16. A switch 17, Figs. 2, 3 and 10 to 12, is by means of a pin 18 pivoted to the underside of the table 3 and is controlled by a spring 19 stretched between a pin 20 of the said switch 17 and a pin 21 of the table 3. The switch 17 is provided with a lateral guiding face 17' for the said roller 16 and with a bent-up front end 17''. Above the

switch 17 an additional guiding face 131 is mounted on the table 3 by means of screws 131'.

The oiled or greased blades K, with their longitudinal axis extending in the direction of the feed of the slide 6 and above it are threaded upon the rods 49, 49' into a pile A. The rods 49, 49' are mounted on the base-plate 48, and between the base collars 49^a of said rods and the blade pile proper A there is interposed on the rods 49, 49' a slidable plate 90. The pile is pushed in its reversed position with the base plate 48 into a guide formed by a gutter 47 and rails 50 laterally mounted thereon, as shown in Figs. 2 and 3. On the guide 47 there is mounted a sleeve 51, Fig. 3, with a compression spring 52 which presses on a collar of a locking pin 53 guided in the said sleeve 51 and which, provided the pile A has the correct position with respect to the slide 6, engages with its lower end 53' an opening 48^a in the base plate 48 of the pile. The guide 47 is by means of a supporting arm 46 connected to a pedestal 41 mounted on the table 3.

To facilitate the insertion of a fresh pile of blades the guiding device 47 is so designed according to Fig. 3 that the base plates of a plurality of piles may be placed into the guiding device. As shown in Fig. 3, the base plates 48, 48' and 48'' of three piles A, A' and A'' are inserted into the guide 47, of which the pile A on the far left and secured in position by locking pin 53 is in the correct withdrawal position in relation to the slide 6. When the pile A has been used up, the piles are, after pulling back the locking pin 53, moved forward towards the left in the guide 47 until the locking pin 53 engages the hole 48^a of the base plate 48' of the pile A'. The empty pile has thus been ejected from the guide 47 and the pile A' is now in the position for the withdrawal of its blades, whilst the pile A'' has taken up the former position of the pile A', so that a third fresh pile may now be introduced into the guide 47.

On the above mentioned pedestal 41 a supporting member 42' is adjustably mounted upon which a rail-like wall 44' is adapted to be displaced vertically by means of adjusting screws 43'. The rail 44' abuts against one front face of the pile A and is adjusted so far above the slide 6 that it permits only one blade to pass at a time when the slide 6 is advanced.

At the other front face, there is likewise adapted to be displaced vertically by means of screws 43 in a support 42 a rail-like wall 44 said support 42 being adjustably mounted on a pedestal 40 secured to the table 3. The rail 44 is adjusted so low that it prevents the lowest blade of the pile from being entrained by the friction set up by the returning slide 6.

To ensure that the blades in the pile drop down correctly, a weight 59 is provided to press on the above mentioned slidable intermediate plate 90 by means of a rod 58. The rod 58 is adapted to slide vertically in bearings 56 and 57 of a pedestal 55. The pedestal 55 is mounted on the guide 47 and has its flange reinforced at 60 by a beading provided with a bore 60^a in which a locking pin 62 may be withdrawn by means of a knob 62^a against the resistance of a compression spring 61 from the position shown in Fig. 3. When bolt 62 is in its advanced position, a shoulder 62^c of its angular end 62^b serves for holding the lifted rod 58 during the above described advance of a fresh pile of blades into the operative position.

Above the place marked K' in Figs. 1 and 2, a holding down member 65 is mounted on the table

3. According to Fig. 3, this member is of U-shape and attached to the angle 65^a mounted to the table 3 by screws 125.

The mode of operation of the mechanism described is as follows:

As soon as a fresh pile has been brought into the position A and has been fixed by the locking pin 53, the locking bolt 62 is withdrawn from the position shown in Fig. 3 so that under the action of the weight 59 the press rod 58 will press upon the plate 90 as indicated in broken lines in Fig. 3, so that the lowest blade of the pile is forced upon the surface of the foremost part 6^b of the slide 6.

In the extreme left-hand position of the rail 4 indicated by illustration of the bearing 10 in dotted lines in Fig. 2, the slide 6 which is likewise withdrawn into its left-hand end position, is located with its shoulder 8 slightly at the left of the left-hand front edge of the lowest blade K, viewed in Fig. 2. Just before, the guide roller 16 has passed in the manner presently to be described from the position IV in Fig. 2 past the left-hand edge 135 of the switch part 17' into its upper starting position I where it is pulled against the lower face of the stationary angle 131 by the spring 19. The feed pins 14^{a-d} thus take up their upper feed position shown in Fig. 2. If now the slide 4 is advanced towards the right into the position shown in full lines in Fig. 2, the step 8 the height of which is slightly less than the thickness of a razor blade, carries along merely the lowermost blade of the pile A, since the rail 44' allows only this lowest blade to pass, and moves said lowest blade from the position K into the position K' under the holding-down member 65 where it remains resting only with two lateral narrow strips of its base-face upon the plates 9 and 9' at either side of the recess 9^a. Simultaneously with the advance of the slide 4, the feed pins 14^{a-d} projecting through the slot 7, 7' above the surface of the plates 9, 9' have according to Fig. 2 been moved into their right-hand end position. During this movement, the roller 16 has run along the underside of the stationary angle 131 and has reached the position II. Shortly before reaching this position, the roller 16 has turned the movable switch 17' by means of the bent-up end 17'' downwards into the position shown by dotted lines in Fig. 2 against the resistance of the spring 19 to enable the roller 16 to pass, and now the switch 17' resumes its upper position under the action of the pull of the spring 19, the end 17'' abutting from below against the stationary angle 131.

When the slide 4 and the rail 6 perform their return stroke, the blade K' is detained by the holding-down member 65, and the roller 16 of the supporting rail 13 now runs over the lower face of the bent-up end 17'' on the under face of the switch 17' and thus through the position III into the position IV so that the feed pins 14^{a-d} move back below the surface of plates 9 and 9' in the slots 7, 7' during the return stroke.

On arrival in the position IV, the roller 16 moves, as above mentioned, past the edge 135 upwards into the position I and the feed pins 14^a and 14^b pass upwards into the holes of the blade K' previously moved forward by the slide 6 under the holding-down member 65 and held tight by said holding down member.

During the next forward stroke, the next lowest blade K is conveyed from the pile A into the position K' under the holding-down member 65 by the step 8 of the slide 6, in the manner de-

scribed above. Simultaneously the feed pins 14^a, 14^b have moved the blade which was during the preceding forward stroke conveyed below the holding-down member 65, from the position K' into the position K². During the next forward stroke, the lowermost blade K of the pile A is moved under the holding-down member 65 by the step 8 of the slide 6, the blade K' is moved by the feed pins 14^a, 14^b into the position K², and the blade previously conveyed to this place is moved by the feed pins 14^c and 14^d into the position K³, this cycle of operations being now repeated during the following feed movements until the pile A is exhausted, whereupon in the manner described the next pile A' is moved into the place of the pile A and the operation continues.

The conveyance of the blade from the working station K³ to the working station K⁴ on the feed disk or table S of the wrapping machine proper may take place by means of a suction nozzle 80 of well known construction and which by means of the arm 81 is adapted to perform an up and down motion as well as a swinging motion between the positions K³ and K⁴. The said arm 81 is for this purpose mounted on a rod 100 which is vertically slideable as well as rotatable in the bearings 101 and 102 of the pedestal 111 mounted on the pillar 2'. The raising and lowering of the rod 100 takes place by means of the operating lever 103 which by means of bolt 104 is journaled in a bearing of the base-plate 1 and is kept in engagement with a suitable cam mounted on the driving shaft 99 by means of a guide-bowl 105. The to and fro oscillation of the rod 100 takes place by means of a lever 106 which through the agency of a link 107 is moved by a suitable operating mechanism.

Above the point K¹ of the blade feed track, a feeler 70 is mounted on a rod 71 which is secured to the upper end of a rod 72. The rod 72 is vertically guided in eyes 109 and 110 secured to the pedestal 111. Between the eyes 109 and 110 is fixed upon the rod 72 an eye 112 which by an intermediate link 112' is engaged by a double-armed lever 114, Figs. 1 and 13, which is pivoted by means of bolt 114' in an extension 113 of the pedestal 111. To prevent angular motion of the rod 72, lateral eyes 109' and 110' of the eyes 109 and 110 engage a rod 115 on which is vertically guided a lateral eye 112'' of the eye 112. The double-armed lever 114 is connected by means of the link 117 to a lever 118 pivoted by means of the bolt 119 on a bracket 140 which is mounted on the base-plate 141 of the device illustrated in Fig. 14 for feeding the wrappers from a pile 401 individually upon the feed disk S of the wrapping machine. This device is fully and in detail described and illustrated in my co-pending patent application Serial No. 259,825, filed on March 7, 1928. Said lever 118 is provided with an anti-friction roller 120, and a spring 122 stretched between the lever 118 and a fixed pin 412' of pedestal 412 has the tendency to pull the pivoted lever 118 with said roller 120 in contact with an eccentric 121 which is mounted on the driving shaft 438 of the wrapper feeding device. The lever 118 is also provided with a lateral lug 123 which is arranged in the same vertical plane of the extension 410^a of the double-armed lever 410. As fully set forth and illustrated in my said prior application Serial No. 259,825, said lever 410 serves to operate and control the suction nozzle 403 provided for withdrawing the lowermost wrapper from the

pile of wrappers 401 and adapted to oscillate between the front flap of the lowest wrapper and the feed roller 406. In the same manner as described in my said prior application, the suction pipe of said nozzle 403 is secured in the rotary hollow shaft 404 communicating by a hosepipe indicated at 405 with the airpump 407 driven and controlled in the well known manner from the driving shaft 438. The oscillating or rocking motion is imparted to the hollow shaft 404 by the arm 408 suitably mounted upon it, the connecting link 409 and the said double-armed lever 410 pivoted upon the bolt 411 and kept in engagement with a suitable cam or eccentric of the driving shaft 438, by means of the bowl 413 and the spring indicated at 414, said cam or eccentric being so shaped that during the rotation of the shaft 438 the lever 410 is oscillated from its position shown in Fig. 14 in dotted lines into the position shown in full lines, and back again.

The feed roller 406 is journaled in two pedestals 412 (only one of which is represented) by means of the shaft 415 and is continuously rotated by the spur wheel 416 meshing with the spur wheel 419 keyed to the shaft 418. The shaft 418 is driven by the spur wheel 435 of shaft 434^a from the spur wheel 502 upon the shaft 427, which is continuously rotated by means of a sprocket wheel and a chain 429 from a sprocket wheel 430 keyed to the shaft 438. The said shafts 434^a and 427 carry the feed rollers 434 and 426 respectively. The roller 406 is provided with a suitable annular groove for the entrance of the suction nozzle 403 and cooperates with the roller 420 which is adapted to be swung from its upper inoperative position shown in dotted lines in Fig. 14 into the operative position shown in full lines and back again. The roller 420 is adapted to rotate loosely in two bearing levers 421 which are fixed upon a shaft 422 journaled in the pedestals 412. The extension 421' of one of these arms is kept in engagement with a suitable cam keyed to the shaft 418, by means of a friction bowl 423 and tension spring 424 attached to the free end of the lever arm 421'. The mode of operation of the feeling device is as follows:

If by the cooperation of the eccentric 121 with the bowl 120 of lever 118 and the spring 122, the lever 118 is turned inward opposite to the clock-wise direction, the feeler 70 is lowered by means of lever 118, connecting rod 117 and double-armed lever 114, from its upper inoperative position, not shown, towards the feed track of the blades. If during its above described forward stroke the slide 6 has withdrawn a blade from the pile A and conveyed same into the position K¹ on the feed track, the lower pin 70' of the feeler 70 enters the central hole of the blade, but immediately afterwards the broader flat extension 70'' of the pin 70 comes in contact with the blade, so that the further downward motion of the feeler 70 as well as the further inward oscillation of the lever 118 are arrested against the action of the spring 122. The lever 118 is arrested in such a position that the extension 410^a of the lever 410 is allowed to pass freely the lug 123 of lever 118 when the lever 410 is oscillated from its position shown in dotted lines into the position shown in full lines for turning the suction nozzle 403 from its inoperative position shown in Fig. 14 in dotted lines into its operative position against the front flap of the lowermost wrapper of pile 401. Therefore, in this case, the suction nozzle is able to

attract the said front flap and to carry it upon the continuously rotating feed roller 406 when being swung back again into its position shown in dotted lines, so that the wrapper may be conveyed by the co-operation of the feed roller 406 and the roller 420 which is now lowered from its upper position shown in dotted lines in Fig. 14 against the said roller 406, forward between the above mentioned continuously rotated feed rollers 426 and 434, and after having passed said feed rollers, by means of the oscillating fingers 138 upon the feed table S of the wrapping machines, as fully described in my said co-pending application Serial No. 259,825.

If on the other hand, no blade has been conveyed into the position K¹ by the slide 6, the flat broad extension 70'' of the feeler 70 is able to enter freely into the slot 7 of the front part 6^b of the slide, and the feeler as well as the lever 118 are thus able to complete their motions under the action of the spring 122. If now the lever 410 is to be turned from its position shown in dotted lines into its position shown in full lines, its extension 410^a will be arrested by the lug 123 of the lever 118 which has been moved into its full inner position. Therefore, the lever 410 is now not able to turn the suction nozzle 403 upwards against the front flap of the lowermost wrapper of pile 401, and thus no wrapper will be supplied. Before or during the return of the slide 6, the feeler 70 is again raised into its upper position.

I claim as my invention:

1. In a device for feeding individual razor blades from a pile of blades to the feeding means of a wrapping machine, in combination, a feed track for the individual blades extending from said pile towards said feeding means, means comprising a slide arranged to reciprocate between said pile and said track and to push the lowermost blade off said pile and convey same upon the said feed track, said feed track being provided adjacent to the pile with a recess open towards the pile and adapted to receive the forward part of said slide at its forward stroke.

2. In a device for feeding individual razor blades from a pile of blades to the feeding means of a wrapping machine, in combination, a feed track for the individual blades extending from said pile towards said feeding means, means comprising a slide arranged to reciprocate between said pile and said track and to push the lowermost blade off said pile and convey same upon the said feed track, adjustable walls at both the front and rear ends of said pile of blades, and means for adjusting said walls so that the front wall, in the feed direction, permits only one blade to pass through under it on the forward stroke of the slide and the rear wall prevents the bottommost blade from being carried along by said slide on its return stroke.

3. In a device for feeding individual razor blades from a pile of blades to the feeding means of a wrapping machine, in combination, a feed track for the individual blades extending from said pile towards said feeding means, means comprising a slide arranged to reciprocate between said pile and said track and to push the lowermost blade off said pile and to convey same upon the said feed track, means comprising pins adapted to enter the holes in the blade for feeding the blade stepwise on said feed track, means for reciprocating said pins in the feed direction, means for moving said pins into engagement with said holes in the blade during the forward stroke,

and means for withdrawing said pins from said holes at the return stroke, and a longitudinal central slot in the said feed track for allowing the movements of said feeding pins.

4. In a device for feeding individual razor blades from a pile of blades to the feeding means of a wrapping machine, in combination, a feed track for the individual blades extending from said pile towards said feeding means, means comprising a slide arranged to reciprocate between said pile and said track and to push the lowermost blade off said pile and to convey same upon the said feed track, means comprising pins adapted to enter the holes in the blade for feeding the blade stepwise on said feed track, said feed pins being mounted on a supporting rail secured to a rocking arm of the feeding slide and carried along during the reciprocation of the slide, means comprising a spring actuated switch member for controlling said supporting rail during the reciprocation of the slide so as to move said pins into engagement with said holes in the blade during the forward stroke and to withdraw said pins from said holes at the return stroke of the supporting rail, and a longitudinal central slot in the said feed track for allowing the movements of said feeding pins.

5. In a device for feeding individual razor blades from a pile of blades to the feeding means of a wrapping machine, in combination, a feed track for the individual blades extending from said pile towards said feeding means, means comprising a slide arranged to reciprocate between said pile and said track and to push the lowermost blade off said pile and convey same upon the said feed track, and means for feeding the blade stepwise on said feed track, this means comprising a supporting rail provided with pins adapted to enter the holes in the blade, and secured to a rocking arm of the feeding slide and carried along during the reciprocation of the slide, a fixed guide rail, a pivoted switch member arranged underneath said guide rail and having at its front end an upwards bent tongue, a spring adapted to draw said pivoted switch member with said tongue against said fixed guide rail, said supporting rail with the feed pins being provided with a guide roller adapted to cooperate with said guide rail and said pivoted switch member in such a manner that the said roller will run in its raised position along the said fixed rail when the supporting rail is fed forward and will near its front position temporarily move aside the tongue of the switch member, and that the roller will run back along the underface of the tongue and switch member in its lowered position when the supporting rail performs its return stroke, and will be pulled up again past the switch member against the underface of the guide rail by the spring when reaching its return position.

6. In a device for feeding individual razor blades from a pile of blades to the feeding means of a wrapping machine, in combination, a feed track for the individual blades extending from said pile towards said feeding means, means comprising a slide arranged to reciprocate between said pile and said track and to push the lowermost blade off said pile and convey same upon the said feed track, a rod slidably guided and arranged to press the blade pile upon the said slide, and locking means for arresting said rod in a raised inoperative position.

7. In a device for feeding individual razor blades from a pile of blades to the feeding means of a wrapping machine, in combination, con-

5 sisting of a base-plate and two rods for thread-
 ing up the blades thereon, a feed track for the
 individual blades extending from said pile to-
 wards said feeding means, means comprising a
 10 slide arranged to reciprocate between said pile
 and said track and to push the lowermost blade
 off said pile and convey same upon the said feed
 track, and means for attaching said pile in its
 15 inversed position above the said slide in such
 a manner that the lower ends of the two pile
 rods are situated at a distance from the surface
 of the slide sufficient for sliding off the lowest
 blade.

8. In a device for feeding individual razor
 15 blades from a pile of blades to the feed-
 ing means of a wrapping machine, in com-
 bination, consisting of a base-plate and two
 rods for threading up the blades thereon,
 a feed track for the individual blades extending
 20 from said pile towards said feeding means, means
 comprising a slide arranged to reciprocate be-
 tween said pile and said track and to push the
 lowermost blade off said pile and convey same
 upon the said feed track, means for attaching
 25 the said pile in its inversed position above the said
 slide, said attaching means comprising a guide
 adapted for inserting the pile base-plate dis-
 placeably into it, and locking means on said guide
 for arresting the base-plate of the pile in its
 30 correct position with respect to the slide.

9. In a device for feeding individual razor
 blades from a pile of blades to the feeding means
 of a wrapping machine, in combination, consist-
 ing of a base-plate and two rods for threading
 35 up the blades thereon, a feed track for the in-
 dividual blades extending from said pile to-
 wards said feeding means, means comprising a
 slide arranged to reciprocate between said pile
 and said track and to push the lowermost blade
 40 off said pile and convey same upon the said
 feed track, means for attaching the pile in its
 inversed position above the said slide, said at-
 taching means comprising a guide arranged
 transversely to the said feed track and adapted
 45 for inserting displaceably a plurality of piles,
 and locking means on said guide for arresting the
 base-plate of the operative pile in its correct
 position with respect to the slide.

10. In a device for feeding individual razor
 50 blades from a pile of blades to the feeding means
 of a wrapping machine comprising a pile of
 wrappers, in combination, means to withdraw a

wrapper from said pile of wrappers and convey
 same to said feeding means, a feed track for the
 individual blades extending from said pile of
 blades towards said feeding means, means com-
 80 prising a slide arranged to reciprocate between
 said pile of blades and said track and to push
 the lowermost blade off said pile and convey
 same upon the said feed track, feeling means
 comprising a feeler member arranged above the
 feed track and adapted to be yieldingly lowered
 85 upon the said blade and to enter a recess in said
 feed track when a blade is missing, means for
 arresting the said wrapper withdrawing means,
 and means for controlling said arresting means
 by said feeling means so that said arresting
 means is stopped in its inoperative position when
 the feeling member is arrested by a blade, and
 that said arresting means may be moved into
 its operative position when a blade is missing.

11. In an apparatus for feeding individual razor
 95 blades from a stack of blades to the feeding
 mechanism of a wrapping machine, comprising
 a reciprocable feed slide including an elevated
 rear portion movable for substantially its entire
 extent under said stack, a vertical shoulder at
 100 the forward edge of said rear portion, said shoul-
 der being of less depth than the thickness of a
 blade and conforming in shape to the edge of
 such blade, a depressed front portion immediately
 adjacent said shoulder and serving as a support
 105 for individual blades, the depressed front por-
 tion of the slide being of less width than the ele-
 vated rear portion thereof and means for re-
 ciprocating said slide to cause said shoulder to
 advance individual blades which drop from the
 110 stack to said depressed portion and move said
 elevated portion of the slide under substantially
 the entire width of the stack.

12. In an apparatus for feeding individual
 razor blades from a stack of blades to the feed-
 115 ing mechanism of a wrapping machine, a recipro-
 cable feed slide including an elevated rear por-
 tion movable for substantially its entire extent
 under said stack, a vertical shoulder at the for-
 ward edge of said rear portion, said shoulder be-
 120 ing adapted to engage the edge of a blade and a
 depressed front portion of less width than the
 elevated rear portion, said front portion being
 immediately adjacent said shoulder and having
 a longitudinal groove and longitudinal slots in
 125 its upper face.

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