H. M. SMITT.

TOBACCO AND LIKE PACKING MACHINE.

APPLICATION FILED AUG. 12, 1910.

997,712.

Patented July 11, 1911.

6 SHEETS—SHEET 1.

Fig: 1.

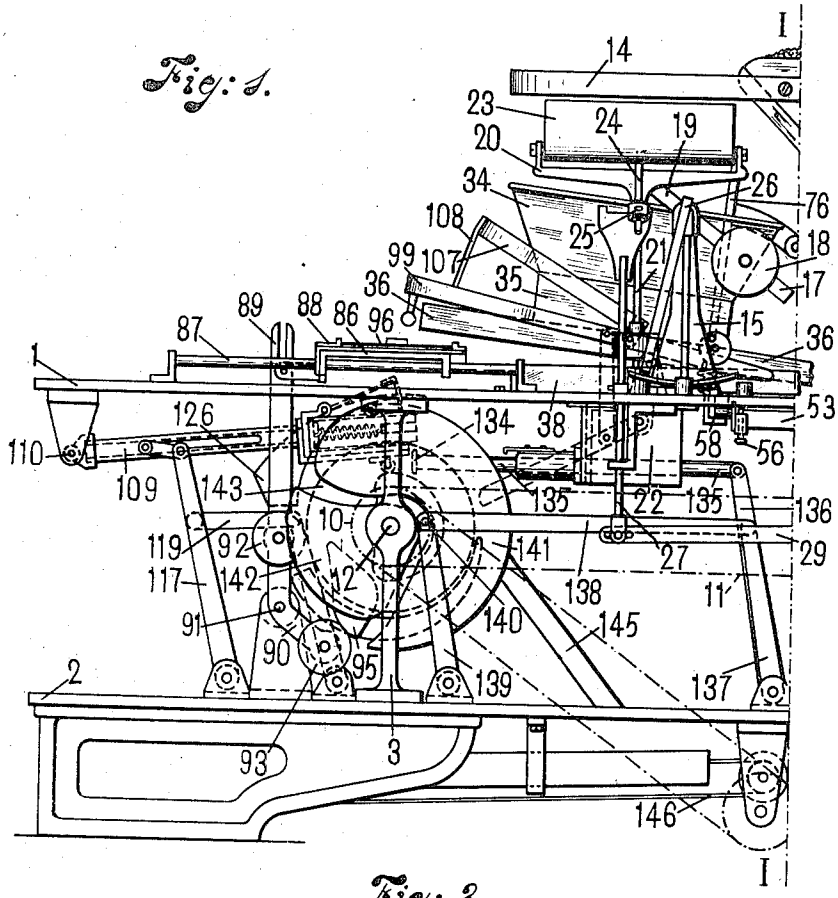
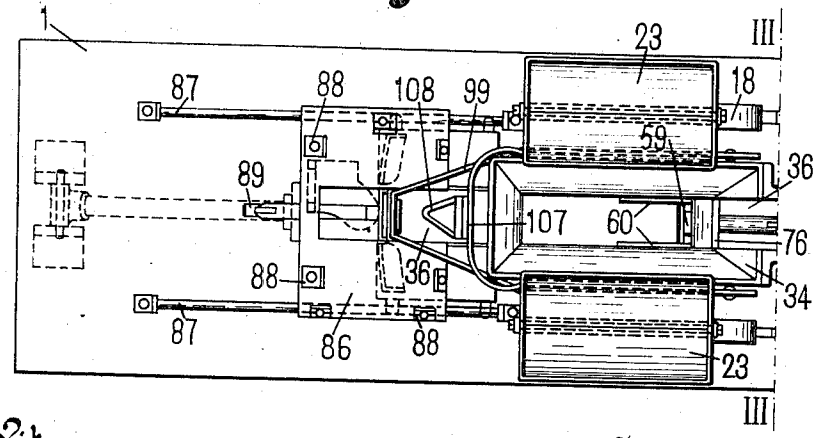


Fig: 3.



Witnesses

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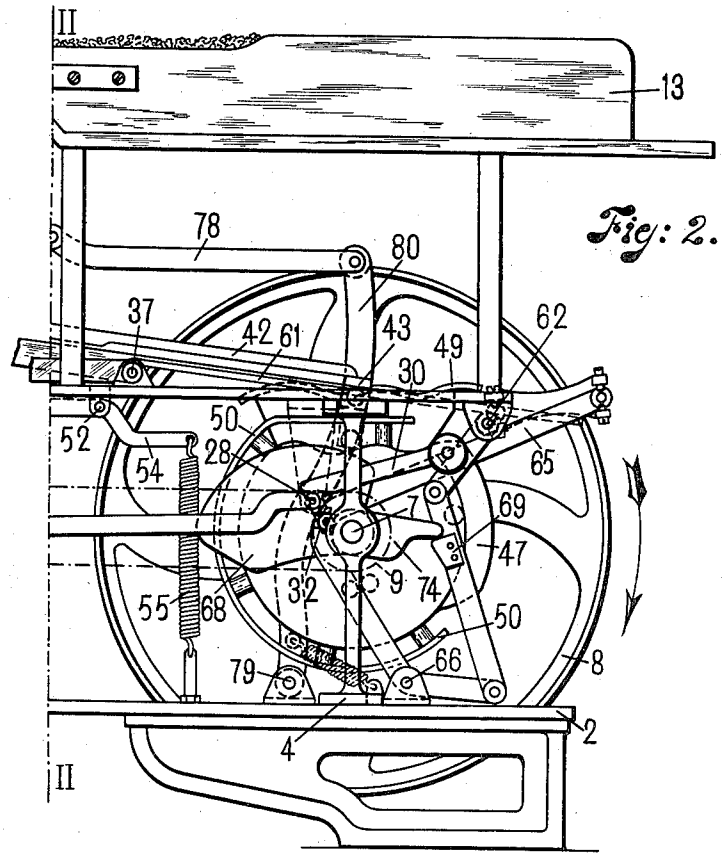

Fig: 2.

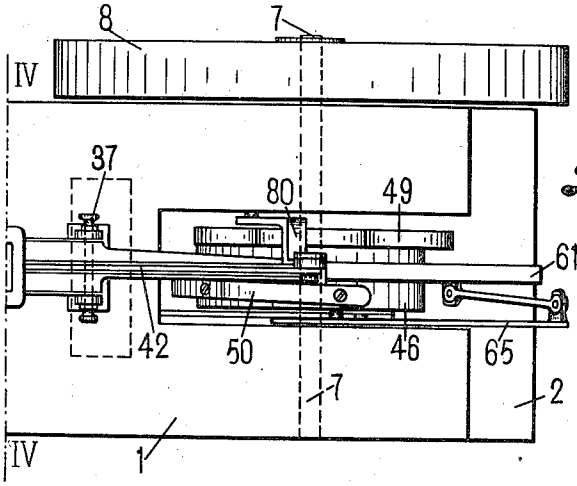

Fig: 4.

Witnesses

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6 SHEETS—SHEET 3.

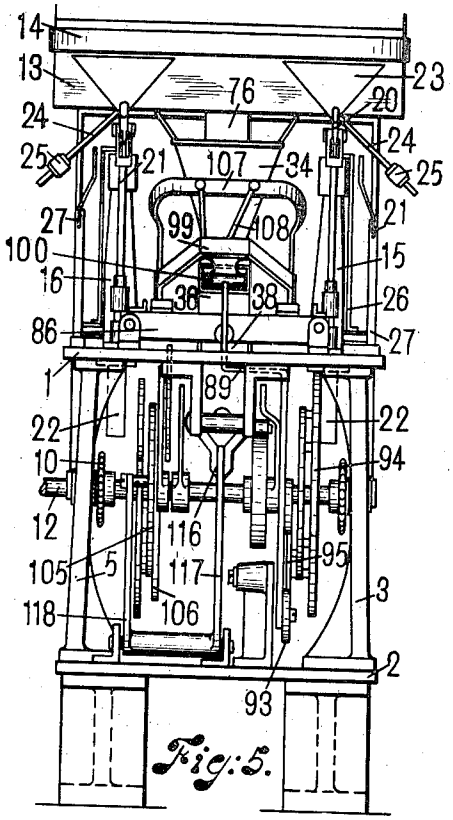


Fig: 5.

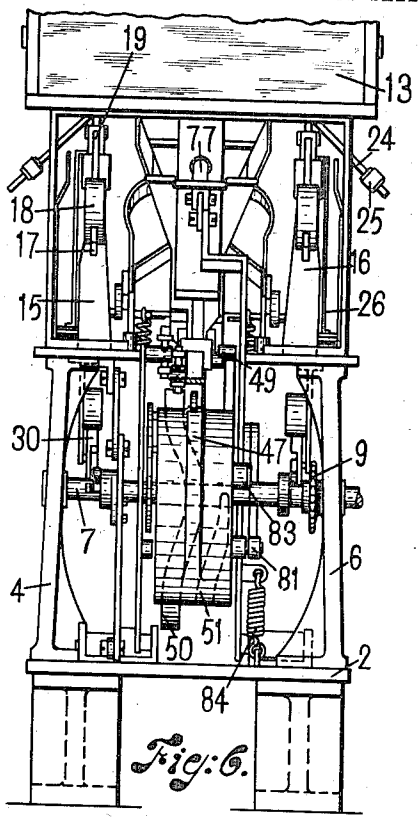


Fig: 6.

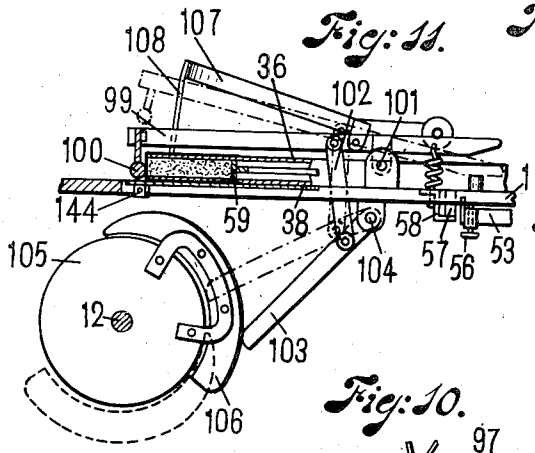
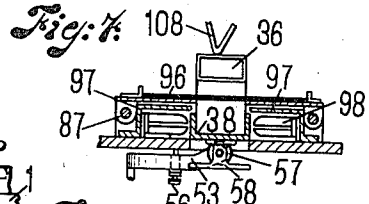


Fig: 11.



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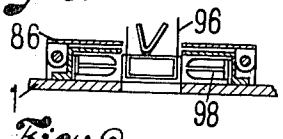

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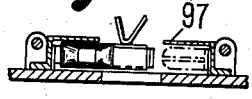

Fig: 10.

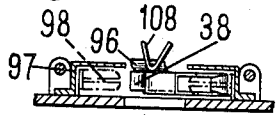

Fig: 9.

Witnesses

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TOBACCO AND LIKE PACKING MACHINE.

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6 SHEETS—SHEET 4.

Fig: 12.

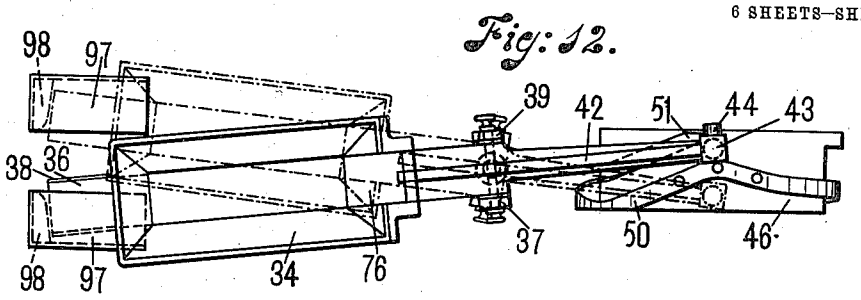


Fig: 13.

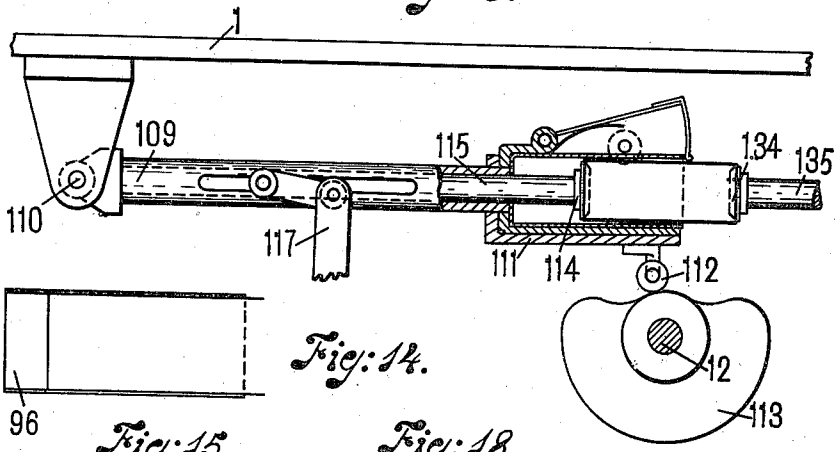
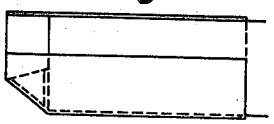


Fig: 14.

Fig: 15.



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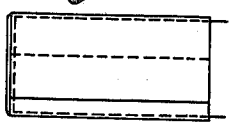


Fig: 16.

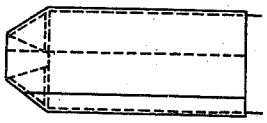
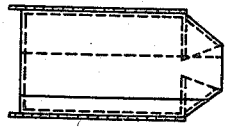


Fig: 19.



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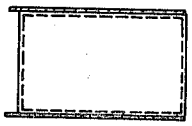

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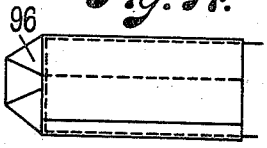

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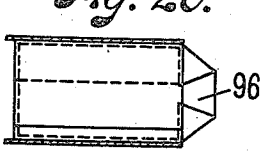
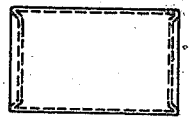


Fig: 22.



Witnesses

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TOBACCO AND LIKE PACKING MACHINE.

APPLICATION FILED AUG. 12, 1910.

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6 SHEETS—SHEET 5.

Fig. 23.

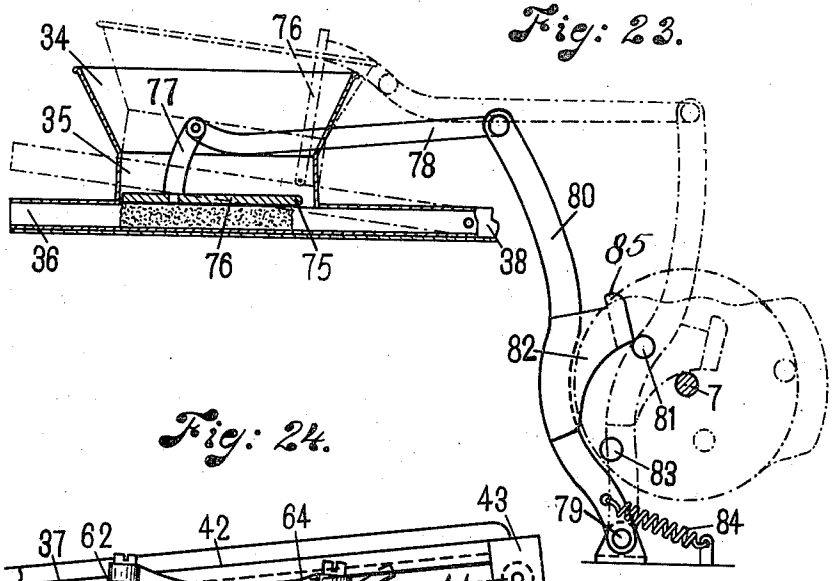
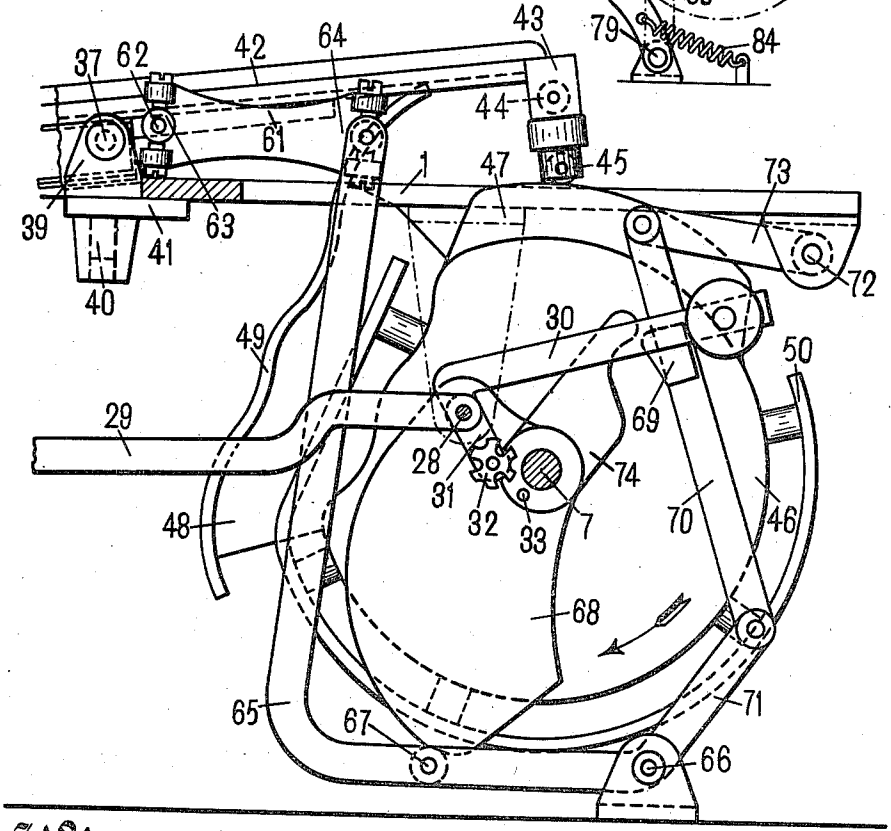


Fig. 24.



Witnesses

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APPLICATION FILED AUG. 12, 1910.

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6 SHEETS—SHEET 6.

Fig. 25.

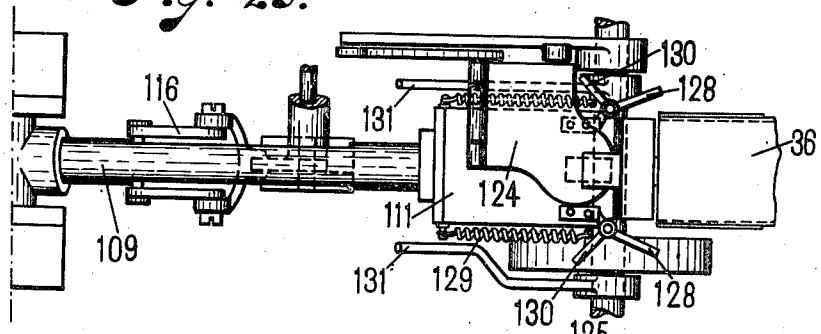


Fig. 27.

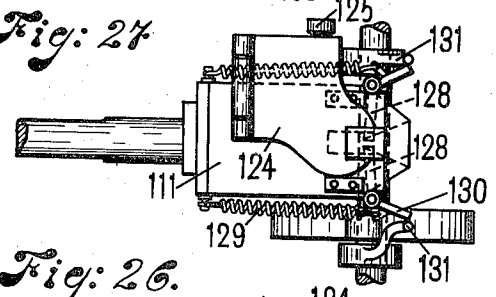
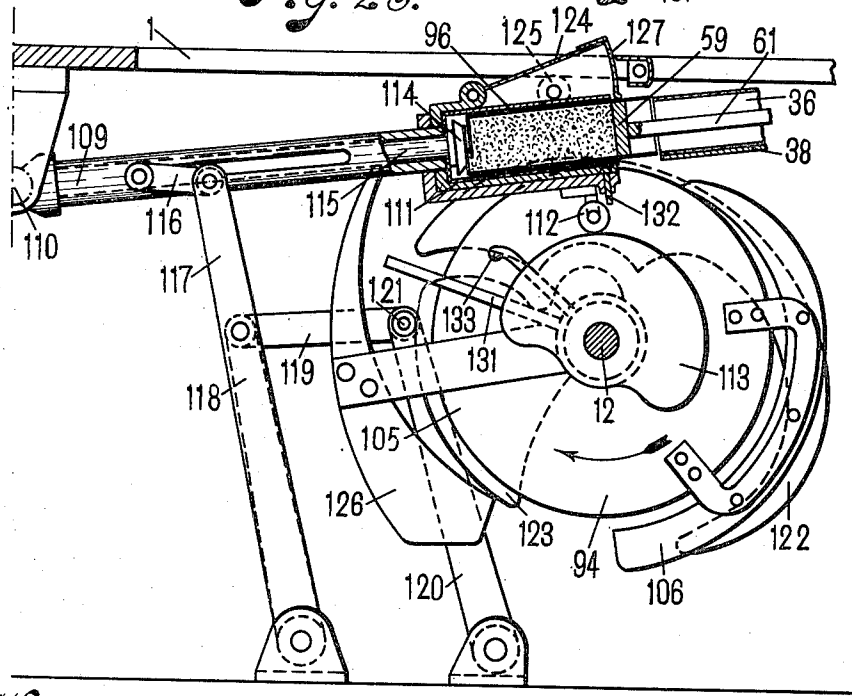


Fig. 26.



Witnesses

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UNITED STATES PATENT OFFICE.

HERMANUS M. SMITT, OF UTRECHT, NETHERLANDS.

TOBACCO AND LIKE PACKING MACHINE.

997,712. Specification of Letters Patent. Patented July 11, 1911.

Application filed August 12, 1910. Serial No. 576,867.

To all whom it may concern:

Be it known that I, HERMANUS MATTHEUS SMITT, a subject of the Queen of the Netherlands, residing at Bleÿenburgkade 73, Utrecht, Kingdom of the Netherlands, have invented certain new and useful Improvements in Tobacco and the Like Packing Machines, of which the following is a specification.

This invention relates to a packing machine adapted to automatically wrap weighed out quantities of tobacco and the like in paper in such a manner as to form rectangular packets which do not require to be subsequently sealed up.

Former tobacco packing machines are either of very primitive and inefficient construction or are comparatively complicated, in which case they require, in contradistinction to the present machine, a large number of attendants to work them.

The improved machine can be worked by two, or at most three, persons, who have nothing to do but lay pieces of paper upon a small reciprocating table, and place tobacco upon the pan of a weighing scale until a pointer indicates a definite weight, after which the operations of pressing, wrapping and delivery from the machine are effected automatically.

The pieces of paper, which are previously cut to the required size, are folded around a rectangular plunger box by downward and horizontal swinging movements of the box, at the same time that the end portions of the paper are closed at the front by tappets or cams. In the meantime the quantity of tobacco weighed out is fed through a funnel into the said box and is thrust by a plunger into that end of the box around which the paper is folded. The box is then moved farther downward until its open front end is located opposite the adjacent opening of a second plunger box. The plunger of the first box then pushes the folded paper together with the tobacco out of the first box into the second box, and the tobacco is transferred to the paper wrapper the rear end of which is still unfolded and projects from the second box. By suitable mechanism this rear end is then folded on all four sides, after which, and finally, the front and rear ends of the packet are pressed inwardly by two coöperating plungers in an otherwise well known way, so that the edges project sharply forward in a manner which renders any subsequent sealing up of the paper wrapper unnecessary. After this the finished packet is pushed out of the second box, by a plunger arranged therein, onto a conveyer band which carries it out of the machine.

One construction of the improved machine is illustrated in the accompanying drawings.

Figures 1 and 2 when joined together at the lines 1—1 and 2—2 thereof, show the whole machine in side elevation. In the same way Figs. 3 and 4 form a plan of the whole machine, when joined together at the lines 3—3 and 4—4. Fig. 5 is an end elevation of the machine looking from the left of Fig. 1. Fig. 6 is an end elevation looking from the right of Fig. 2. Figs. 7, 8, 9 and 10 are sectional views illustrating the first four operations which the paper wrapper undergoes in being folded. Fig. 11 illustrates the fifth of these operations in sectional side elevation. Fig. 12 is a plan illustrating the third and fourth operations performed in folding the paper wrapper. Fig. 13 is a side elevation of those parts of the machine which eject the finished packet of tobacco on to the conveyer band. Figs. 14, 15, 16, 17, 18, 19, 20, 21 and 22 are plans showing the paper wrapper and the packet after the successive steps of the folding operations. Figs. 23 and 24 illustrate those parts of the machine by which the tobacco when weighed is pressed into the first plunger box and the mechanism for operating this plunger box. Fig. 25 is a plan, Fig. 26 a sectional side elevation, and Fig. 27 a similar view to Fig. 25, illustrating those parts of the machine by which the paper wrapper with the tobacco therein is thrust into the second plunger box and the ear end of the packet closed up.

In the following description the machine and its action will be described as far as possible in accordance with the order and relationship of the various phases of working. The frame of the machine comprises two horizontal plates 1 and 2 arranged one above the other and connected by four columns 3,

4, 5 and 6. The machine rests upon four feet secured to the lower plate 2.

Mounted to rotate in suitable bearings in the columns 4 and 6 is a main shaft 7 adapted to be driven in the direction of the arrow by a belt pulley 8 and the shaft 7 is connected to drive a shaft 12, that is similarly mounted in the columns 3 and 5, by means of chain wheels 9 and 10 and chain 11. All the moving parts of the machine are actuated from the two shafts 7 and 12.

A receptacle 13 adapted to receive the tobacco to be weighed out and packed is located at the top of the machine above the plate 1. Standards 15 and 16 fixed to the plate 1, one near each side of the machine, carry two similarly constructed weighing scales, Figs. 1, 3 and 5, the pans 23 of which are located in front of the receptacle 13 under a stirrup shaped member 14 projecting horizontally from and fixed to the said receptacle. One arm 17 of each scale carries a weight 18 while the other arm 19 thereof is rotatably connected to a T-piece 20—21 the downwardly extending bar 21 of which is fitted with a piston that works in a glycerin brake chamber 22 arranged beneath the plate 1. Pivoted between two lugs fixed to the upper arm 20 of the T-piece is the corresponding scale pan 23 which is normally held in an upright position by an arm 24 carrying a small counterweight 25, Figs. 1 and 5. The pointer 26 of the scale moves along an indicating sector arranged at the foot of the corresponding standard 15 and an exact and definite amount of tobacco can be easily weighed out with a rapidity that is facilitated by the damping caused by the glycerin brake.

The scale pan is automatically tilted at the right moment by means of a vertical pressure bar 27 with a forked upper end arranged under the arm 24. The bar 27 is carried through the plate 1 and beneath this plate it is pivoted to a lever 29—30 mounted to turn on a fixed pin 28 and provided with a short arm 31, see Fig. 24, on which is mounted to freely rotate a wheel 32 formed with alternate deep and shallow recesses. Upon the main shaft 7 is mounted a small disk which is provided with a laterally projecting pin 33 adapted to engage the recesses of the wheel 32. When, during the rotation of the shaft 7, the pin 33 enters a deep recess in the wheel 32, the wheel will be simply moved forward one tooth, if however the pin 33 enters a shallow recess the short lever arm 31 will be moved angularly and the lever arm 29 will be thereby partially rotated upwardly about its pivot 28, which movement is assisted by a counterweight mounted on the lever arm 30, see Figs. 2 and 24. By this upward movement of the lever arm 29 the bar 27 will be pushed upwardly and the forked upper end thereof will lift the arm 24 and tilt the scale pan 23 until the arm 24 meets the stirrup 14 which thereby limits the tilting of the scale pan. The other scale pan 23, which is mounted on the standard 16 at the other side of the plate 1 is constructed and operates in a similar manner. The two wheels 32 are however so set on the shaft 7 that the scale pans are tilted alternately.

From the scale pans 23 the tobacco falls into a rectangular funnel 34 the lower part of which is provided with a box-like extension 35 having straight side walls and which terminates in a comparatively long movable plunger box 36, see Fig. 23. This plunger box is closed on its four longitudinal sides except at the point where the hopper extension 35 is mounted on it, and is mounted to turn about a pin 37, see Figs. 2 and 4. Mounted to turn about the same pin 37 is a U-shaped folding blade 38 the length of which corresponds to that of the plunger box and into which the latter fits with only a slight amount of play. The bearing 39 for the pivot pin 37 is carried by a pin 40 mounted to swivel on a supporting plate 41 fixed beneath the plate 1, so that the plunger box 36 together with the folding blade 38 can turn vertically about the pin 37 and horizontally about the pin 40. For the purpose of moving the plunger box 36 and blade 38, the rear end of the plunger box is provided with an extension piece 42 the end of which carries a guide block 43, see Fig. 24. The upper part of the guide block is quadrangular and provided at the side with a small roller 44, and the lower part thereof is cylindrical and is provided with a small roller 45 arranged to run on the periphery of a broad tappet cam 46 fixed on the main shaft 7. The roller 45 and the extension piece 42 are periodically moved up and down by the tappets 47 on the cam 46.

In Fig. 2 the roller 45 is shown in its lowest position and in Fig. 24 it is shown in its highest position resting on the tappet 47 of the cam, in which position the plunger box and the folding blade which embraces it are in their lowest positions and project downwardly through an oblong longitudinal opening formed in the plate 1. To insure the roller 45 working upon the periphery of the disk 46, a guide strip 49, connected to the disk by a plate 48, is so arranged as to catch over the roller 44 of the guide block.

The tappet cam 46 is so constructed that when the circular part thereof lies under the roller 45, the plunger box 36, with the folding blade 38 which at this period embraces it, are in a horizontal position, the base of the folding blade being located along its whole length in the same plane as the

upper face of the plate 1. In addition to the upward and downward movement the plunger box is also swung laterally for the purpose of turning over and folding in the front end edge of the paper wrapper. To effect these movements the cylindrical portion of the guide block 43 is guided between two bands 50 and 51, see Figs. 6, 12 and 24, which form a slot that extends around or nearly around the cam disk 46 in a zig-zag line. The folding blade 38 follows the swing of the plunger box 36 and both rotate at the same time about the pin 40.

While the folding blade 38 swings about the pin 40 the bottom edge never rises higher than the upper edge of the plate 1. This corresponds to the horizontal position of the folding blade, see Figs. 7 to 10. To keep the blade in this position there is provided a lever 53, 54 pivoted at 52 and to one arm of which is connected a spring 55, see Fig. 2, which constantly tends to press the blade upward. The other arm 53 of the lever is formed with a lateral extension that is furnished with an adjustable screw 56 that bears against the underside of the plate 1 when the blade is in its highest position, as shown in Fig. 1. The arm 53 also carries a roller 57 which bears against the underside of the folding blade 38. Fixed to the bottom of the folding blade is a plate 58 bent around at right angles, see Figs. 1, 7 and 11, so as to loosely embrace the roller 57, the folding blade being thereby prevented from rising with the plunger box above the position in which its underside is level with the top of the plate 1. When the folding blade swings laterally the roller 57 consequently rolls along the underside of the blade transversely.

As will be hereinafter fully described, the four longitudinal sides of the paper wrapper and also the front end portions thereof will be folded around the plunger box 36 by the upward and downward movement of the plunger box 36 and of the folding blade 38 as well as by the lateral swinging movements thereof. The tobacco weighed out must be thrust into the plunger box and for this purpose there is arranged therein a plunger 59, see Figs. 3 and 26, which fits it exactly and which is provided with two side wings 60, see Fig. 3, and with a pusher bar 61, see Fig. 4, that works in a guide groove in the extension piece 42 and is operated as will now be described with particular reference to Fig. 24. Projecting laterally from the pusher bar 61 is a pin 62 upon which a ring or collar 63 is mounted to rotate. The conical points of a forked connecting piece 64 engage the ring or collar 63 at diametrically opposite points thereof, so that the connection is movable in every direction. At its other end the connecting piece is connected in exactly the same way to one end of a bell crank lever 65 mounted to turn about a pivot 66. This universal joint between the pusher bar 61 and the bell crank lever 65 is necessary as the pusher bar 61 periodically moves up and down independently of the bell crank lever. The bell crank lever 65 is provided on one side with a roller 67 on which a cam 68 on the shaft 7 is arranged to work in order to move the bell crank lever into its extreme lowest position shown in Fig. 24. see also Figs. 2 and 4. The plunger 59 is at this time in its extreme inward position which coincides with the lowest position of the plunger box 36. The withdrawal of the plunger is effected by a tappet arm 74 on the shaft 7 moving downwardly against a stop 69 on a link 70 which is pivotally connected to a lever arm 71, rigidly fixed to or formed in one with the bell crank lever 65, a link 73 being pivoted at 72 serving to properly position the link 70. The bell crank lever is thereby partially rotated about the pivot 66 in a clockwise direction, and the plunger 59 is withdrawn into the position shown in Figs. 2 and 4.

For the purpose of pressing down the tobacco falling through the funnel 34 into the plunger box 36 there is arranged in the funnel a door 76, see Fig. 23, mounted to turn about a pivot 75 and which when closed just closes the opening at the top of the plunger box. Fixed to the door is an arm 77 to the end of which is pivoted one end of a pusher bar 78, which passes through an opening formed therefor in the funnel wall and the other end of which is pivoted to a lever arm 80 mounted to turn about a pin 79. The operation of the door 76 is effected by a roller 81 arranged on one side of the disk 46 and adapted to run along the face of a projection 82 attached to the side of the lever arm 80, in order to swing the latter outwardly and thereby close the door 76. The door must remain closed until the plunger 59 has pushed the tobacco to the left along the plunger box, see Fig. 23. For this purpose there is arranged on the disk 46 another roller 83 adapted to run along the lever arm 80 and hold it in its outward position, even when the roller 81 has left the projection 82. This roller 83 finally moves away from the lever 80, past the lateral projection 82 and a spring 84 attached at one end to the plate 2 draws the lever arm 80 backwardly and thereby opens the door 76. In order however to positively initiate this withdrawing movement there is attached to the inside of the projection 82 a small plate 85 which lies in the same plane as the lever arm 80 and against which the roller 83 strikes as it leaves the lever and thereby draws the lever back and conse-

quently positively imparting an initial opening movement to the door. This arrangement is preferable as it insures lifting of the door even should it become jammed by tobacco lying between it and the opening it controls.

The paper wrappers in the form of pieces of paper cut to the proper size, are placed on a table 86 which is mounted to move above the plate 1 on two guide bars 87, see Figs. 1 and 3, small stops 88 insuring the papers being in the correct position on the table. The table is recessed or cut away in part to allow the plunger box 36 to pass, with only very little clearance, on its downward movement.

For the purpose of moving the table 86 forward and backward there is provided a lever 89, 90 mounted to turn about a pivot 91 and which carries two rollers 92 and 93, the upper end of the arm 89 being formed with a slot that engages a pin attached to the table. This lever is operated by a tappet 95 carried by a disk 94 rigidly secured to the shaft 12, see Figs. 1 and 5. When, during the rotation of the shaft, the tappet meets the roller 93, the table 86 will be moved toward the right, see Fig. 1, and when, on the further rotation of the shaft 12, the tappet meets the roller 92, the table will be moved to the left.

After a certain amount of tobacco has been weighed in either of the scale pans 23, the tobacco will be automatically shot into the funnel 34 and fall into the plunger box 36, as hereinbefore explained, both funnel and plunger box being located in the positions shown in Fig. 1. The table with a piece of paper 96 upon it is then moved partly under the plunger box 36, see Figs. 1 and 3. As can be seen from Fig. 7, the folding blade 38 is at this time located underneath the table 86 and therefore underneath the paper wrapper 96, and the plunger box 36 is located above it. The plunger box now moves downward into the position shown in Fig. 8, the side portions of the paper wrapper being folded up at the edges of the opening in the table 86, see Figs. 8 and 14, and the paper wrapper is simultaneously laid in the folding blade 38. The table 86 is now withdrawn by the lever mechanism 89; the door 76 shuts down in the funnel 34, see Fig. 23, and presses the tobacco into the plunger box. At the same time the bar 27, which has tilted the scale pan, moves downward again, whereby the scale pan again assumes its upright position ready to be once more filled with a definite weight of tobacco. The plunger box now moves toward the right, see Figs. 9 and 12, whereby first one upstanding side portion of the paper wrapper is folded down over the plunger box by a rectangularly bent plate 97 attached to the plate 1, and secondly one end portion of the corresponding side is folded down across the end of the plunger box by a cam 98 on the plate 97, see Figs. 9 and 12. The wrapper then appears as shown in Fig. 15. The plunger box 36 now moves toward the other side in doing which the other upstanding side portion of the paper wrapper is similarly folded, see Fig. 16, and finally the plunger box returns to its central position again. The top of the corresponding end of the paper wrapper is now folded down by means of a cross bar 100 attached to a stirrup 99, see Figs. 1 and 11, hinged upon a pin 101 on the plate 1, and held by a spring in the position shown by dotted lines in Fig. 11, in which the free ends of the stirrup rest upon stops. The stirrup 99 is also connected by a link 102 to a lever arm 103 which is mounted on a pin 104 beneath the plate 1. When the lever arm 103 is moved downwardly by a cam 106 connected to a disk 105 secured to the shaft 12, the stirrup 99 will also be moved downwardly, and the cylindrical cross bar 100 will pass slightly in front of the front end of the plunger box and fold down the top edge of the paper, see Fig. 17. Pivoted to the stirrup 99 is another stirrup 107 provided with a bent arm 108. When the stirrup 99 is in its highest position the arm 108 extends to the upper face of the plunger box, see Fig. 9, and will bear thereon when the stirrup 99 is moved downwardly, see Fig. 11. The purpose of the arm 108 is to prevent the folds of the paper at the top from springing up again.

During the folding of the paper wrapper the plunger 59 has moved toward the left, see Fig. 3, and pushed the tobacco up to the end of the plunger box around which the paper wrapper is folded, see Fig. 11. The door 76 in the funnel is now raised again. The underside of the front end portion of the paper wrapper has now to be folded up into the position shown in Fig. 18, and furthermore the rear end of the packet must be folded and be brought out of the position shown in Fig. 18 into that shown in Fig. 22. To effect this folding the mechanism employed will now be described.

Pivoted on a pin 110 fixed to the plate 1, near one end, is a hollow guide bar 109, see Figs. 1 and 26, the end of which is provided with a box 111 open at the front and resting by means of a roller 112 on a cam disk 113 secured to the shaft 12. When the disk 113 rotates the box 111 is moved about the pivot 110 upwardly into its highest position shown in Fig. 26, and downwardly into the horizontal position shown in Fig. 13. Arranged to work in the box 111 is a plunger 114 of a shape corresponding to that of the box and

the pusher bar 115 of which is movable in the hollow bar 109. The pusher bar is provided with a transverse pin which passes through slots formed in both sides of the hollow bar 109. Pivoted to this pin are links 116 pivotally connected to the forked upper end of an arm 117 of a two-armed lever 117, 118, see Figs. 1 and 26, the arm 118 of which is connected by a link 119 to a lever 120. The pin connecting the rod 119 and the lever 120 is furnished at one side with a roller 121 that is so moved by two cam portions 122 and 123 secured to the disk 105, that the levers 120 and 118 and the plunger 114 are drawn to and fro at the proper moment. Hinged to the top of the box 111 is a door 124 held by a spring in the raised position, as shown in Fig. 26. One side of the door is provided with a roller 125 which is drawn down by the inner face of a hook 126 attached to the shaft 12 and at the same time a small plate 127 arranged on the front of the door is also moved downwardly. Other doors, 128, pivoted at the sides of the box 111 are adapted to close in the open end of the box, see Fig. 27. The doors 128 are held open by springs 129 which are each attached at one end to the box and at the other end to an arm 130 which is rigidly attached to the corresponding door 128 and forms an angle therewith. The doors are closed by two rods 131 attached to the shaft 12 and which, when the shaft rotates, strike the backs of the arms 130 and move them angularly until the doors are closed, after which the arms slip off the rods and under the pull of the springs the doors and arms return to the open positions shown in Fig. 25. Working in a slot formed in the underside of the box is a clamping plate 132 which is raised at intervals by the sloping end of a rod 133 attached to the shaft 12. Between the two plates 1 and 2 there is also arranged a third plunger 134, see Figs. 1 and 13, which is movable horizontally in a guide located at the same level as the plunger 114, by means of a pusher rod 135. The pusher rod 135 is pivoted to an arm 136 of a two-armed lever 136, 137, and the end of the arm 137 of such lever is pivotally connected to a lever 139 by a link 138, see Fig. 1. The pin connecting the link 138 to the lever 139 is provided at one side with a roller 140 which works in a slot 143 formed between two disk portions 141, 142, connected to the disk 94; the pusher rod 135 and the plunger 134 are thereby pushed to and fro at the right moments.

The hereinbefore mentioned last operations on the paper wrapper or packet are effected as follows: As the plunger box 36 together with the folding blade 38 move downwardly through the opening in the plate 1 the front underside unfolded portion of the paper wrapper rubs along the nose 144 situated in the opening in the table 1 and is thereby folded down (see Figs. 11 and 18). The plunger box 36 is then located exactly opposite the plunger box 111, which is then in its highest position, and the plunger 59 is moved forward to push the tobacco out of the plunger box 36 into the plunger box 111, and the paper which is wrapped around the box 36 is simultaneously pushed into the box 111, by the ends of the side wings 60 of the plunger 59 which extend alongside the tobacco up to the front edge of the folded paper wrapper. The tobacco is then passed into the paper wrapper itself, that is to say it is moved out of the plunger box 36, and the wrapper with the tobacco in it leaves the box and the folding blade, see Fig. 26. At the same time the plunger 114 of the plunger box 111 moves toward the packet so that the packet is held between the two plungers 59 and 114. The plunger 59 is then completely withdrawn and at the same time the paper and the tobacco are securely held in the plunger box 111 by the clamping plate 132. The plunger box 36 together with the folding blade 38 now move upwardly and the plunger box returns to its highest position and the folding blade again assumes a horizontal position over the opening in the plate 1, see Fig. 7. The doors 128 of the box 111 are now closed, whereby the side ends of the paper are folded in, see Figs. 19 and 27. At this stage of the work the table 96 is moved forward with another piece of paper and a second packet is put in hand, the tobacco being tipped into the funnel 34 by the tilting of the second scale pan 23. The hereinbefore mentioned operations on the second packet therefore take place partly simultaneously with the last operations on the first packet. The doors 128 then again fly open and the small plate 127 on the door 124 is moved downwardly so as to fold down the top of the rear end of the paper wrapper, see Fig. 26, whereby the packet is brought into the form shown in Fig. 20. In the meantime the third plunger 134, see Fig. 1, has been pushed so far forward that it is located right under the front end of the box 111. The box 111 then moves downwardly into its horizontal position, see Fig. 13, whereby the underside of the paper wrapper is folded up by contact with the plunger 134, as is shown by dotted lines in Fig. 1. The packet is consequently brought into the form shown in Fig. 21. The two plungers 134 and 114 then move slightly toward each other so that at the ends the sides of the packets are pushed in by the beveled edges of the two rectangular plungers, see Fig. 22. The tobacco will be correspondingly compressed longitudinally. The edges of the packet are thereby sharply pinched

over and the folds do not come apart again so that subsequent sealing up of the packets is not necessary. Finally the plunger 134 is withdrawn and the plunger 114 pushes the now finished packet out into the delivery conduit 145 by which it is led to the conveyer band 146 which carries it out of the machine.

What I claim is:

1. A machine for packing weighed charges of tobacco and similar materials comprising a receiving box, a weighing scale arranged to deliver material therefrom into the receiving box, the latter containing a plunger, a plunger box coöperative with the receiving box, the receiving and plunger boxes being mounted to swing in vertical and horizontal directions to fold a sheet of wrapping paper around an end portion of the plunger box, means for pushing a charge of tobacco into said end portion of the plunger box, means for ejecting the wrapping paper and tobacco from the plunger box, a second plunger box opposite to the first mentioned plunger box, means for folding the unfolded ends of the wrapper which project from the second plunger box, means for then pressing in or indenting the ends of the package, and means for ejecting the closed package out of the second plunger box.

2. A machine of the character described comprising a receiving box having a rear extension, said box being mounted to turn about vertical and horizontal pivots, a cam acting upon the rear extension of the box to move the latter upwardly, said cam also having a guide strip whereby said box is moved downwardly, and guide bands whereby said box is moved laterally, a folding blade arranged to embrace the box and mounted concentrically with the horizontal pivot thereof, and means connected to move the folding blade vertically and having a device whereby the upward movement of the blade is limited.

3. A machine of the character described comprising a pivoted receiving box, a plunger therein, and means for operating the plunger embodying a lever, a cam adapted to coöperate with the lever to actuate said plunger in one direction, another cam operative to actuate the plunger in a reverse direction, and a member having universal connections with the plunger and said lever whereby the plunger may be reciprocated while said box is moved about its pivot.

4. A tobacco packing machine embodying a receiving box for the tobacco and a coöperative folding blade adapted to receive a wrapper, the receiving box and folding blade being movable laterally, plates and cams mounted at opposite sides of the folding blade against which the upper portions of the longitudinal sides of the wrapper and the two front portions of such sides bear when the receiving box and folding blade are shifted laterally in opposite directions whereby the wrapper is folded, an arm mounted to coöperate with the upper face of the receiving box to retain the latter in folded condition, a downwardly movable folding bar operative to fold the opposite end of the wrapper, and a rib for completing the folding of said opposite end of the wrapper.

5. In a tobacco weighing and packing machine, the combination of a receiving funnel, a pair of scale pans mounted tiltably to alternately discharge their contents into said funnel, weighted arms connected to the scale pans for normally retaining them in non-discharging position, presser rods adapted to coöperate with said weighted arms on the scale pans to tilt them and thereby discharge their contents, and means for alternately actuating said presser rods embodying a shaft having pins rotatable therewith, a pair of wheels each having alternately deep and shallow recesses, said wheels being operatively connected to the presser rods and said wheels being so related to the pins on said shaft that one pin will enter a shallow recess in one wheel and thereby tilt the corresponding scale pan while the other pin simultaneously enters a deep recess in its respective wheel and thereby permits its respective scale pan to remain in non-discharging position.

6. In a tobacco packing machine, the combination of a hopper or funnel to receive the tobacco, a box arranged to receive the tobacco from said hopper, said box containing a reciprocatory plunger, a hinged door arranged between the hopper and receiving box, and means for operating it to press the tobacco from the hopper into the receiving box prior to the compressing movement of the plunger, said means embodying a lever operatively connected to the door, a revoluble member having a pin coöperative with said lever to move the door in closed position, a second pin on said member coöperative with the lever to retain the door in closed position, and a part on the lever adapted to be engaged by the second pin to positively cause initial opening movement of the door.

7. In a tobacco packing machine, the combination of a receiving box containing a reciprocatory plunger provided with lateral wings, said box being movable laterally of the direction of motion of its plunger, a plunger box opposed and movable relatively to the receiving box and containing a reciprocatory plunger, means for positioning the receiving box and plunger box in alinement, and means connected to said plungers

for operating them simultaneously and at equal speed whereby the plunger in the plunger box constitutes an abutment for the folded end of a partially wrapped package of tobacco while said package is being transferred from the receiving box and to the plunger box.

8. In a tobacco packing machine, the combination of a movably mounted box adapted to contain a charge of tobacco and a wrapper therefor, hinged wings coöperative with said box for folding inwardly the front portion of the sides of the wrapper, a hinged arm also coöperative with said box for folding down the upper front portion of the wrapper, and a package transferring plunger coöperative with said box during a relative shifting movement thereof for folding up the lower front portion of the wrapper.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HERMANUS M. SMITT.

Witnesses:

JOHANNA G. W. O. LE HENNEPE,

THOMAS H. VEHAVE.