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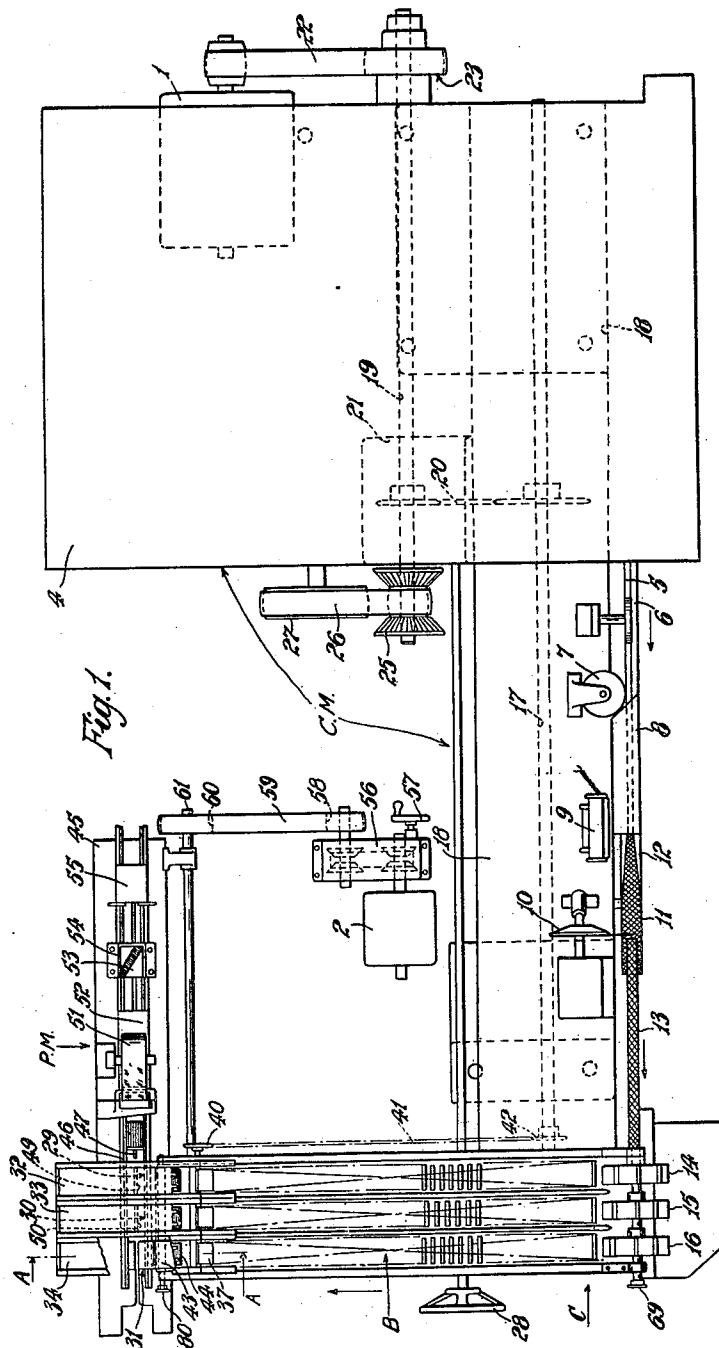
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2,330,000

MACHINE FOR MAKING AND PACKING CIGARETTES

Filed May 22, 1940

6 Sheets-Sheet 1



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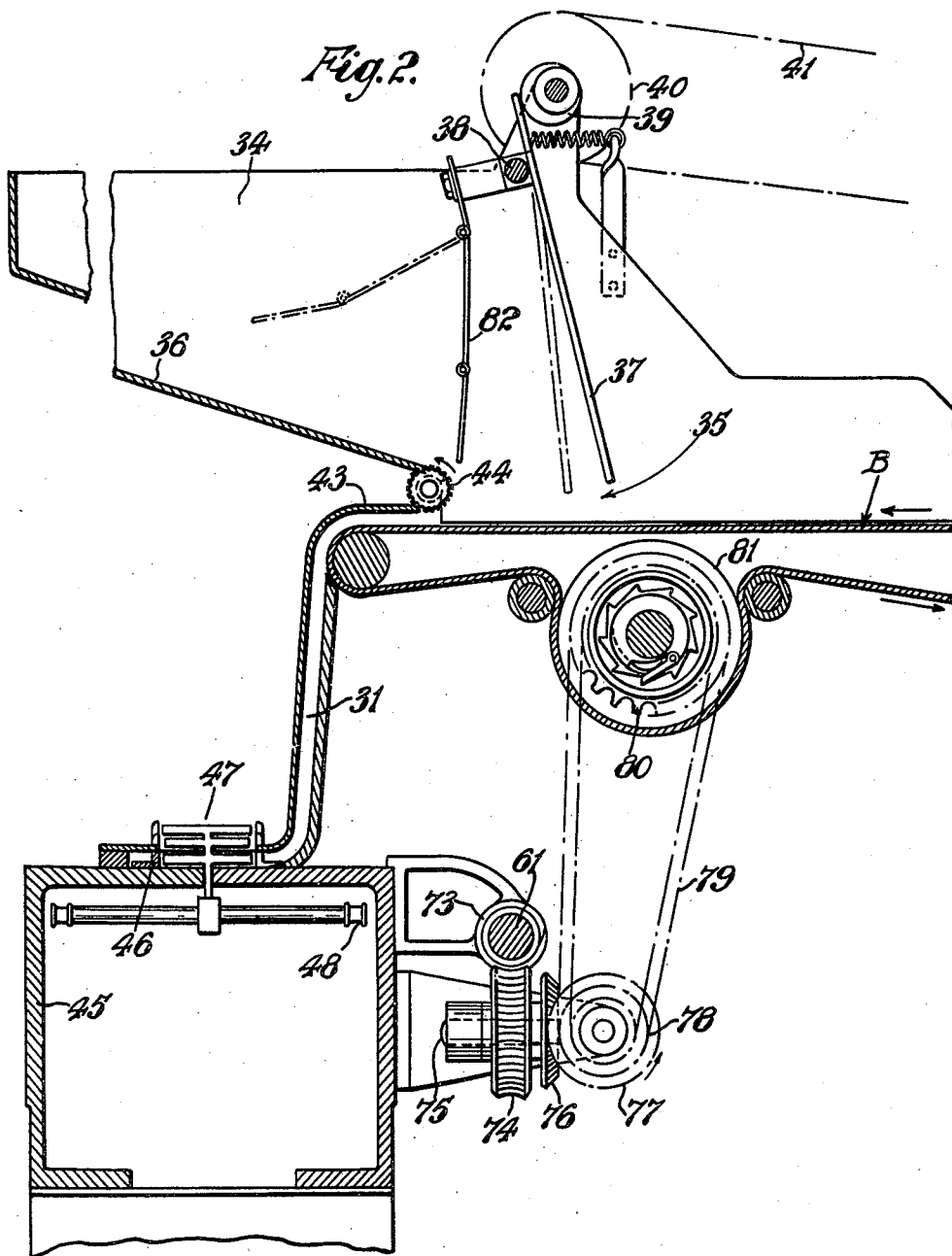
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MACHINE FOR MAKING AND PACKING CIGARETTES

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6 Sheets-Sheet 2



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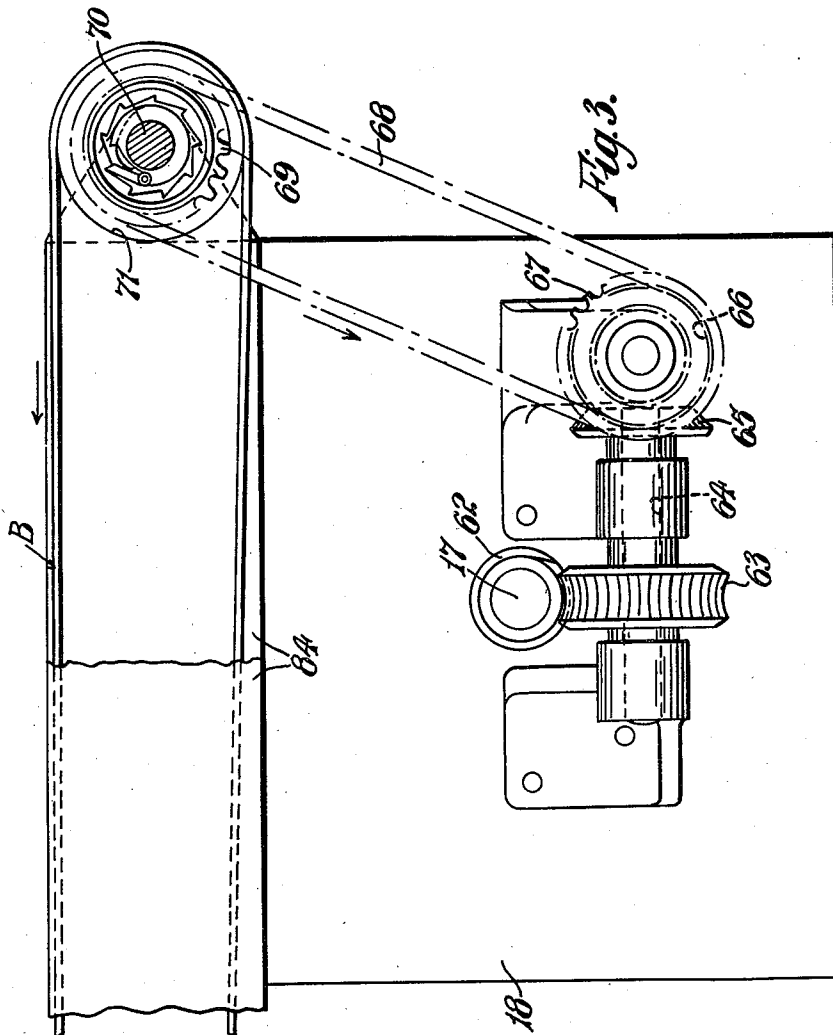
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MACHINE FOR MAKING AND PACKING CIGARETTES

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6 Sheets-Sheet 3



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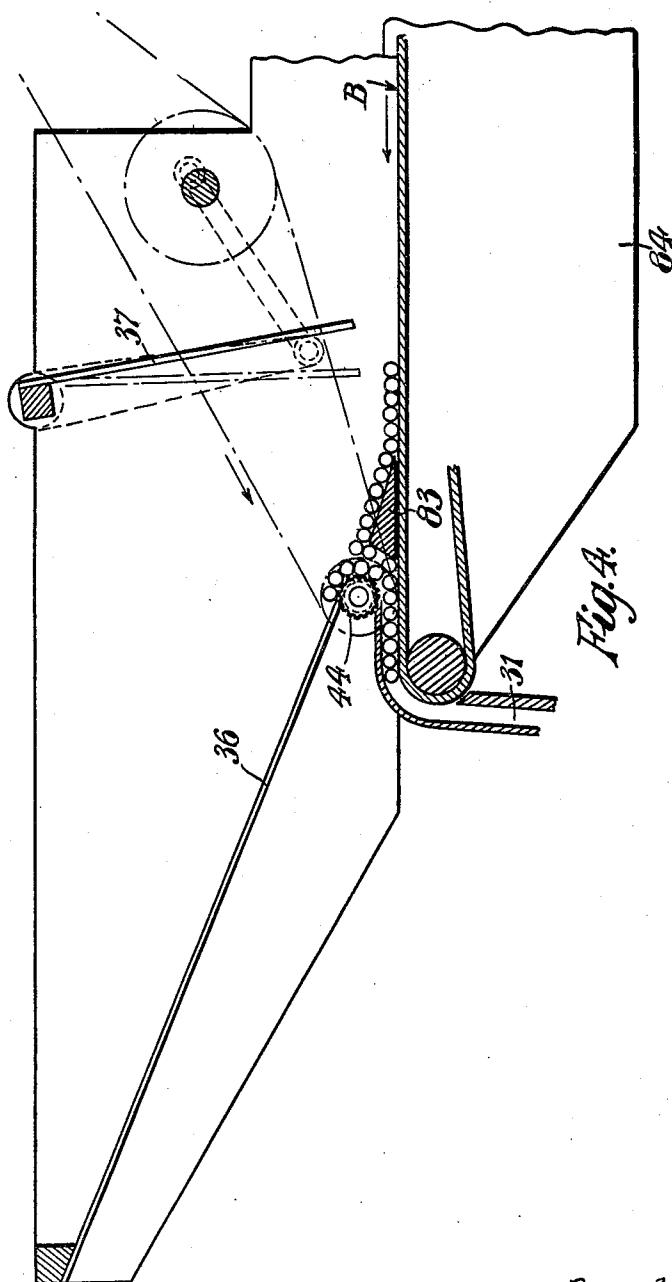
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MACHINE FOR MAKING AND PACKING CIGARETTES

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6 Sheets-Sheet 4



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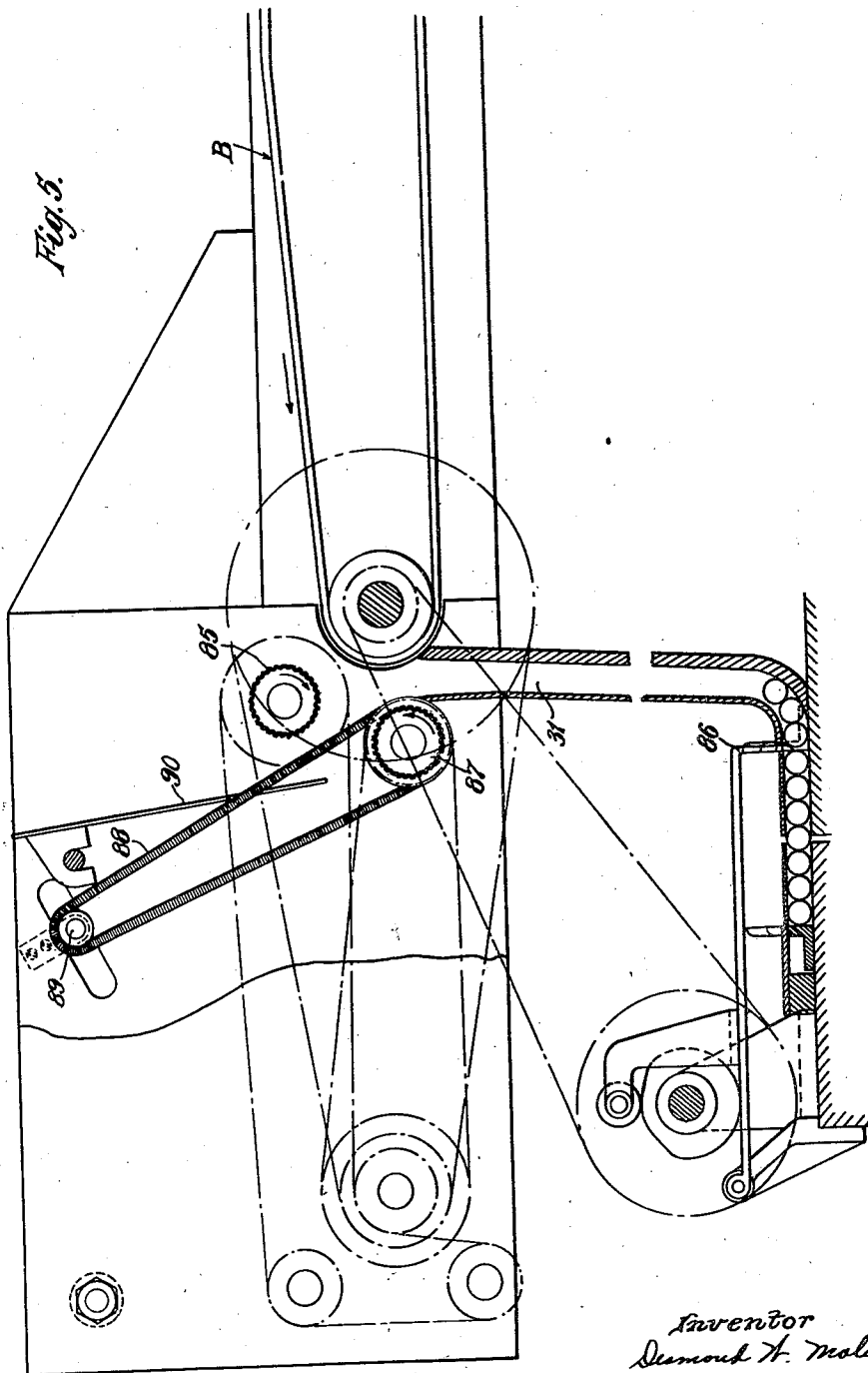
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MACHINE FOR MAKING AND PACKING CIGARETTES

Filed May 22, 1940

6 Sheets-Sheet 5



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MACHINE FOR MAKING AND PACKING CIGARETTES

Filed May 22, 1940

6 Sheets-Sheet 6

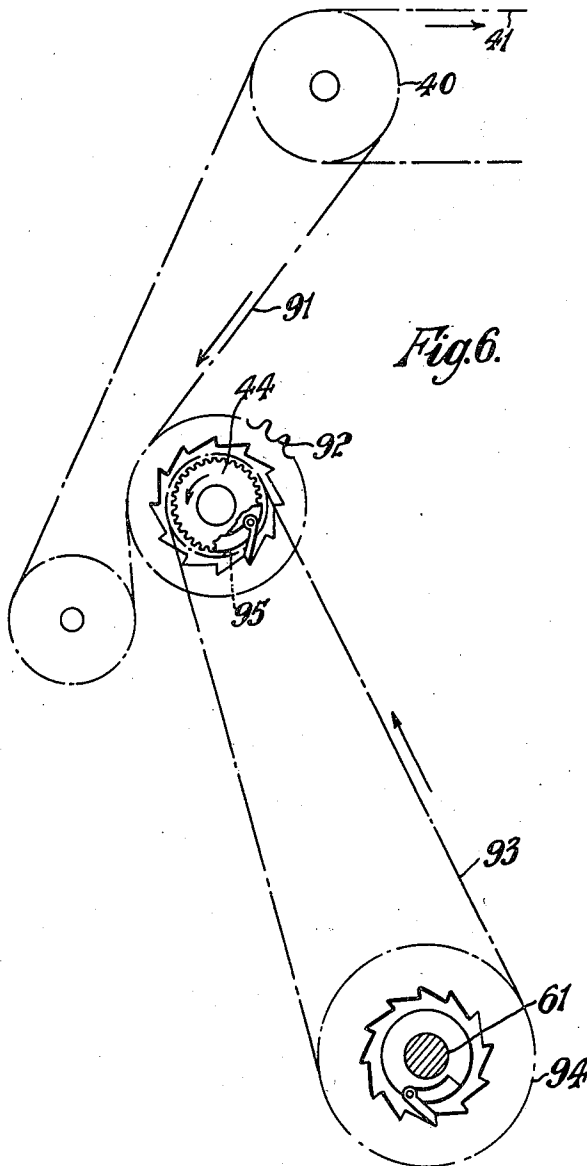


Fig. 6.

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2,330,000

MACHINE FOR MAKING AND PACKING
CIGARETTESDesmond Walter Molins, Deptford, London, Eng-
land, assignor to Molins Machine Company,
Limited, Deptford, London, EnglandApplication May 22, 1940, Serial No. 336,650
In Great Britain June 6, 1939

14 Claims. (Cl. 131—25)

This invention is for improvements in or relating to machines for making and packing cigarettes and refers to a combined cigarette making and packing machine in which a supply of cigarettes made by a cigarette making machine are received by an endless conveyor and are carried thereby to a packing machine driven in timed relationship with the cigarette making machine and in a manner such that the latter machine can continue to operate during temporary stoppages of the packing machine, said packing machine being normally operated at a speed such as to prevent a surplus of cigarettes from being deposited on the conveyor by the cigarette making machine. Such a combined machine will be referred to below as "a machine of the kind described."

In machines of the kind described it is found that when both the cigarette making machine and the packing machine are operating in their normal manner it is necessary to stop the packing machine at different times from the cigarette making machine.

In such combined machines the cigarette making machine may be operated at a speed of about 1200 or more cigarettes per minute, and the packing machine frequently is so arranged as to pack batches each containing twenty cigarettes.

A stoppage of the packing machine for the purpose of providing a new reel of wrapping material such as the metal foil commonly used for an interior wrapping usually occupies a space of time of from $\frac{1}{2}$ to 1 minute. It will be seen, therefore, that the stoppage of the packing machine is of a short or temporary nature. If, however, the cigarettes are being delivered by the cigarette making machine at the rate of 1200 cigarettes per minute, it will be seen that during the short stoppage of the packing machine approximately 1200 cigarettes will have been delivered by the cigarette making machine while no cigarettes have been used by the packing machine. It has heretofore been usual to collect these surplus cigarettes and to remove them from the conveyor band on to which they have been delivered from the cigarette making machine.

It is an object of the present invention to provide a machine of the kind described whereby it is not necessary to remove from the conveyor the surplus cigarettes which accumulate during a short or temporary stoppage as aforesaid of the packing machine.

According to the invention there is provided a machine of the kind described, wherein there is provided a reservoir for cigarettes communi-

cating with the path of the cigarettes delivered to the packing machine, and wherein adjusting mechanism operable at will is provided to cause the conveyor and the packing machine to be operated at a speed greater than the normal speed thereof for the purpose of disposing of cigarettes in said reservoir. The reservoir may be so arranged that cigarettes fed by the conveyor during stoppage of the packing machine will accumulate in the reservoir.

A driving mechanism for the cigarette making machine and a driving mechanism for the packing machine is provided, said driving mechanisms being operated from independent synchronized sources during the normal running of the machine, and a driving mechanism is provided for the conveyor and connected with each of said other driving mechanisms so as normally to be operated by the cigarette making machine driving mechanism. The adjusting mechanism includes means (e. g. a free-wheel device or devices) arranged to permit the drive to the conveyor through the cigarette making machine driving mechanism to be overrun when the packing machine is operated at a speed greater than the normal speed whereby the conveyor is, during the period during which the packing machine is operated at a greater speed, driven by the driving mechanism for the packing machine.

The cigarettes delivered by the conveyor may be discharged into a delivery chute through which the cigarettes pass to the packing machine and the reservoir may communicate with the supply delivered by the conveyor at a position above that at which the cigarettes are discharged into said delivery chute. The reservoir may comprise side walls extending lengthwise along the conveyor, and a movable wall disposed at a position opposite to and beyond that at which cigarettes are discharged from the conveyor and directed upwardly with its lower part adjacent a wall of the delivery chute, said movable wall comprising one or more endless bands (e. g. flexible bands) arranged to move in a direction such as to tend to move cigarettes away from the entrance to the chute. The movable wall may comprise a plurality of endless bands spaced apart from each other and the lower ends of fixed members may project downwardly between the endless bands so as to form a wall the lower part of which is movable while the upper part is stationary.

The reservoir may communicate with the supply of cigarettes carried by the conveyor at a position which is wholly above the conveyor.

The reservoir may comprise a bottom wall which slopes upwardly in the direction of movement of the conveyor and a front wall disposed in advance of the position at which cigarettes first engage the bottom wall, said front wall being journaled for pivotal movement at a position above said conveyor and mechanism is provided to swing the front wall about its pivotal axis to assist the movement of cigarettes from the conveyor into the reservoir. The lower end of the bottom wall may be retained in a fixed position above the conveyor, and a positively driven roller (e. g., a roller having peripheral flutes extending lengthwise in a direction transverse to the direction of movement of the conveyor) may be mounted for rotation at a position adjacent to the lower end of said bottom wall and above the conveyor to assist the movement of cigarettes from the conveyor into the reservoir.

The invention will be described by way of example with reference to the accompanying drawings, in which:

Figure 1 is a plan of a combined cigarette making and packing machine embodying the invention.

Figure 2 is a section of Figure 1 on line A—A, drawn to a larger scale.

Figure 3 is a view of a portion of Figure 1 in the direction of the arrow C, drawn to a larger scale and partly broken away.

Figure 4 is a view of part of Figure 2 showing certain modifications.

Figure 5 is a view similar to Figure 2 showing a modified form of reservoir.

Figure 6 is a diagram of certain driving arrangements, not to scale.

Referring to the drawings, a continuous rod type cigarette making machine indicated generally by the reference C. M. is connected to a packing machine indicated generally by the reference P. M. which is driven in timed relationship with the cigarette making machine, the cigarettes made by the latter being delivered on to an endless conveyor band marked B which conveys the cigarettes towards the packing machine and delivers them thereto in the manner described later.

In the construction shown the cigarette making machine and the packing machine are driven by separate electric motors 1 and 2 respectively and the conveyor band B is arranged during the normal running of the combined machine to be driven from the motor 1 which drives the cigarette making machine. The driving mechanism for the conveyor band includes a free wheel device which is connected with the driving mechanism for the packing machine and is so arranged as to be capable under the influence of the driving mechanism for the packing machine to overrun the driving mechanism of the cigarette making machine and thus to be driven at a greater speed than the normal speed of operation of the combined machine.

When the combined machine is being operated at its normal speed, the speed of operation of the packing machine is so co-related to that of the cigarette making machine that substantially the whole output of the cigarette making machine is absorbed by the packing machine thus avoiding an accumulation of surplus cigarettes on the conveyor band. When, however, the packing machine is temporarily stopped as for example during the changing of bobbins which contain the reels of wrapping material such as metal foil employed on the packing machine, the

cigarette machine continues to operate with the result that a surplus of cigarettes is accumulated on the conveyor band. To avoid the necessity of removing the accumulated cigarettes from the conveyor band the cigarettes which are delivered during a temporary stoppage of the packing machine are received into a reservoir as described later disposed above the conveyor band.

The machines are only shown diagrammatically in the drawings and the following brief description is sufficient for the understanding of the present invention. The cigarette machine comprises a tobacco feeding hopper 4 containing carded rollers and other usual devices for feeding tobacco from a mass and delivering it as a shower on to a conveyor such as a travelling paper web 5. The loaded web passes at 6 beneath a compression wheel or equivalent device, after which paste is applied by a wheel 7. The paper is folded around the tobacco in a former 8 and a heater 9 seals the seam of the rod. The heater is shown in the "off" position in the drawings, that is swung clear of the rod. This is the position to which the heaters are swung when the machine is temporarily stopped, to prevent overheating or charring of the rod when the latter is stationary. After passing the heater the rod is cut by a rotary cutter 10 to produce separate cigarettes. The movement of the paper web and resulting rod is effected as usual by an endless tape 11 driven by a tape drum 12. The cut cigarettes drop onto another conveyor tape 13 moving at a higher speed than the rod speed in order to separate the cigarettes axially. Finally the cut cigarettes are deflected laterally from their line of movement by deflecting devices 14, 15 and 16, and delivered in three rows on the band B. All the devices mentioned in the foregoing brief description are well known, and it only remains to remark that all are driven at their appropriate speeds from a main shaft 17 rotatably mounted in the interior of the bed 18 of the cigarette machine. The main shaft 17 is driven from a countershaft 19 by a chain 20 and a sprocket contained in the box 21.

The countershaft 19 is driven from the motor 1 by a belt 22 passing over a pulley 23 on said main shaft. An expandible pulley 25 on the countershaft drives all the mechanism contained in the hopper 4 by a belt 26 passing over a pulley 27 on the shaft of one of the hopper rollers, the other parts being suitably geared to said hopper shaft. The pulley may be expanded or contracted by manipulation of a handwheel 28 in order to change the speed of the hopper relatively to the rest of the cigarette machine as is customary on some such machines. The band B which is driven in the direction of the arrow as described in detail later conveys the cigarettes towards three chutes 29, 30 and 31, down which the cigarettes pass to the packing machine.

In the machine shown, the cigarettes are delivered from the cigarette making machine on to the conveyor band B in three rows so that during a run of one minute each of the three rows has delivered thereto approximately 400 cigarettes, that is, when the cigarette making machine is being operated at the rate of 1200 cigarettes per minute. When it is desired to pack twenty cigarettes in three rows, one row, usually the middle row, will only contain six cigarettes, while the other two rows each contains seven. In such a case the number of cigarettes delivered to each of the three rows on the band B is correspondingly proportioned and thus two rows

would receive slightly more than 400 cigarettes and one row slightly less than 400 during the stoppage. In Figure 1 three sets of seven, six and seven cigarettes respectively are shown on the band to illustrate this, but in actual practice the cigarettes in all the rows are close together, the whole band being covered as indicated by the crossed dot and dash lines. In order, therefore, to accumulate the surplus cigarettes three reservoirs 32, 33 and 34 are provided, one for each row of cigarettes on the endless conveyor band. The reservoirs are preferably made of a size such as to contain approximately 800 to 1,000 cigarettes thereby allowing a margin of time for effecting the necessary bobbin changes on the packing machine.

Each of the reservoirs is constructed in substantially the same manner and in the ensuing description only one such reservoir will be described with reference to Figure 2, which shows the reservoir 34.

The cigarettes are moved into the reservoir through an opening 35 in the bottom thereof, the opening being defined by the lower end of the bottom wall 36 of the reservoir and the lower end of the front wall 37 thereof. The bottom wall comprises a fixed plate which slopes upwardly in the direction of movement of the conveyor band and the lower end of the wall is arranged above the surface of the endless conveyor band. The front wall of the reservoir is disposed in advance of the position at which the cigarettes first engage the bottom wall of the reservoir and it is journaled for oscillatory movement on a spindle at 38 above the conveyor band. The front wall is oscillated by a cam 39 driven by a sprocket 40 which is driven by a chain 41 connected with the driving mechanism for the cigarette making machine by a sprocket 42 on the main shaft 17 as shown, and the wall 37 is arranged to be oscillated about its pivotal axis so as to facilitate the movement of the cigarettes from the conveyor band into the reservoir. Alternatively the wall may be oscillated by a crank and connecting rod as in the construction shown in Figure 4.

When the packing machine is stopped the cigarettes will be obstructed from moving towards the packing machine due to the fact that they pass beneath plates 43 constituting parts of the chutes 29, 30 and 31 which are disposed above the conveyor band B at a distance which is sufficient to permit the cigarettes to pass between the plates and the surface of the conveyor band, and such plates extend from the downwardly directed passages of the chute through which the cigarettes move from the conveyor band to the packing machine, to a roller 44 which is located above the conveyor band and which is adjacent to the lower end of the bottom wall of the reservoir. The cigarettes being delivered to the conveyor band during a temporary stoppage are therefore caused to pile up against those cigarettes which are between the top plates 43 of the chutes and the conveyor band and thereby tend to move upwardly through the opening in the reservoir. The roller which is located at the lower end of the bottom wall of the reservoir is provided with peripheral flutes which extend lengthwise transversely of the direction of movement of the conveyor band and the roller is positively rotated in the direction of the arrow in the manner hereinafter described, so as to assist the movement of the cigarettes into the reservoir.

The packing machine P. M. is, as aforesaid, only illustrated diagrammatically but the various organs hereinafter referred to may be constructed to the designs shown in the patents enumerated. The machine comprises a bed 45 on to which the cigarettes from the chute 31 are delivered as shown in Figure 2. The leading cigarette is arrested by a guide 46 and a pusher 47, which may be carried by a continuous conveyor 48 as shown, or be of the reciprocating plunger type, moves along the bed and carries away seven cigarettes from the end of the column. A suitable arrangement of the plunger type is shown in United States Patent No. 1,193,918, while a continuous conveyor arrangement is shown in British Patent No. 395,029, though in the latter case the cigarettes pass to the pushers more or less horizontally. The adaptation of the chutes shown in the present application to said arrangement is however obvious. As the pusher passes beyond the base of the chute 31 further cigarettes move down the chute on to the bed. The other chutes 30 and 29 respectively deliver their cigarettes on to platforms 50 and 49 respectively raised above the bed, the arrangement being such that the pusher sweeps six cigarettes from the next column which become superimposed on the seven first gathered by the pusher and still further movement of the pusher gathers seven cigarettes from the third column, thus collating a batch of twenty cigarettes in three rows.

The assembled batch is moved against a strip of wrapping material fed from a reel 51 which is folded about the batch in a folding device 52. These devices may be constructed on the lines illustrated in United States Patent No. 1,468,246 and where it is desired to fold down the open end of the wrapper on to the exposed ends of the cigarettes the arrangements shown in United States Patent No. 1,517,307 may be used. After the wrapping operation the wrapped batch may be thrust into an outer wrapper. As shown, open ended packets 53 are stacked in a magazine 54. A wrapped batch is pushed into a packet by further movement of the pusher 47, in the manner shown in United States Patent No. 1,468,246, and continued movement of the pusher also carries the filled packet out of the magazine and into a tucking device 55, constructed for example as shown in British Patent No. 287,209, which closes the open end of the packet. The closed packet is then discharged from the machine.

The packing machine is driven by the motor 2 through a variable speed gear 56 of known kind which may be adjusted by a handwheel 57 or the like. A pulley 58 on the variable speed gear 56 is connected by a belt 59 to a pulley 60 on the mainshaft 61 of the packing machine. The motors 1 and 2 are of such type (e. g. synchronous), and the driving arrangements are such, that normally the two machines run at proper co-related speeds until the packing machine stops.

After said machine has been stopped and for example a new reel of wrapping material has been placed in position on the packing machine, the latter is restarted and would normally continue to operate with the cigarette making machine in the normal manner. During the stoppage, however, as described above, a surplus of cigarettes has been accumulated in the reservoirs arranged above the conveyor band and it is

desired to disperse this accumulation of cigarettes before the next stoppage of the packing machine occurs. In order to effect this, the variable speed mechanism 55, which can be adjusted at will by the handwheel 57, is provided in the drive for the packing machine, and by means of this variable speed mechanism the packing machine is caused to operate for a period of time at a speed which is greater than the normal speed of the combined machine. This greater speed of the packing machine is continued until the surplus cigarettes contained in the reservoirs are completely used up or until only a few cigarettes remain in the reservoirs. As previously mentioned, during the period of greater speed of the packing machine the conveyor band is also moved at a greater linear speed.

Figures 2 and 3 show the driving arrangements at each end of the conveyor band B. The band is normally driven from the mainshaft 17 of the cigarette machine. In view of the relatively slow speed of the band as compared with the rest of the machine, reduction gearing is incorporated in the drive to the band. As shown in Figure 3, the shaft 17 has a worm 62 fixed on it which engages a worm wheel 63 mounted on a spindle 64. The spindle 64 also carries a bevel wheel 65 which engages with another bevel wheel 66, to which is attached a sprocket 67. A chain 68 passes around said sprocket and around a free wheel sprocket 69 on the shaft 70 of the band driving roller 71. When the combined machine is operating normally the chain 68 drives the roller 71 directly as the pawl of the free wheel is in operative engagement.

Referring to Figure 2, a similar drive is shown at the other end of the band B. The mainshaft 61 of the packing machine has a worm 73 on it engaging a wormwheel 74 on a spindle 75. The spindle 75 also has a bevel wheel 76 attached to it, which latter wheel engages with another bevel wheel 77 to which is attached a sprocket 78. A chain 79 runs over the sprocket 78 and over a free wheel sprocket 80 on the band roller 81. The gear ratios of the respective drives are so related that when the combined machine is running normally the drive shown in Figure 2 is idling, that is to say it does not operate to drive the roller 81; alternatively the band roller 81 may travel slightly faster under the influence of the Figure 3 drive than the free wheel sprocket 80 which will thus be overrun. When the packing machine stops, the band B will continue to move at its former rate, being driven by the drive shown in Figure 3, and the free wheel sprocket 80 will thus be overrun. Cigarettes will therefore be delivered into the reservoirs 32, 33 and 34 as previously described.

When the packing machine is restarted it is speeded up by suitable manipulation of the handwheel 57 of the variable speed gear 56. Then the drive shown in Figure 2 will become operative and the band B will be driven at increased speed until the cigarettes in the reservoirs have been exhausted, or nearly so, when the machine operator adjusts the handwheel 57 again until the combined machine is running at proper co-related speeds in the normal manner.

If desired, a shield such as is shown at 82, Figure 2, may be provided in each of the reservoirs to control the cigarettes as they pass out of the reservoirs on to the conveyor band in order properly to align the cigarettes with re-

spect to the positions which it is desired they shall occupy on the band for delivery to the packing machine. As shown, this shield is formed in hingedly connected sections, and is connected with the moving front wall of the reservoir so as to be oscillated therewith.

It will be obvious that if desired should the packing machine be stopped for a greater period of time than it is normally anticipated would be occupied in the replacement of a reel of material, some of the cigarettes may be removed from the reservoirs and placed into suitable receptacles by the machine minder. Cigarettes removed in this manner or additional cigarettes which may have been acquired in some other manner, may be inserted by the machine minder into the reservoir when the packing machine is again restarted and may be disposed of during the period in which the packing machine is operated at a speed greater than the normal speed of the combined machine.

In the modified construction shown in Figure 4, the front wall 37 of the reservoir is moved a short distance further away from the sloping bottom wall 36 thereof, and between the lower end of the sloping bottom wall and the moving front wall there is provided a fixed ramp 83 which is supported by the frame 84 carrying the endless conveyor band B. The ramp comprises a substantially triangular bar which extends across the width of the endless conveyor band, one surface of the bar sloping downwardly towards the endless conveyor band and being arranged in a plane substantially parallel with the plane of the sloping bottom wall of the reservoir, the plane of the bottom wall being slightly above that of the ramp. The arrangement is such that cigarettes can pass from the endless conveyor band up the sloping surface of the ramp and are directed thereby towards the lower end of the bottom wall of the reservoir in a substantially straight line. An adjoining surface of the ramp is also directed downwardly towards the endless conveyor band and is disposed at a distance from the roller 44 which is located at the lower end of the sloping bottom wall of the reservoir which distance is less than the diameter of two cigarettes but greater than the diameter of one cigarette. This arrangement provides an outlet to the reservoir through which cigarettes issuing from the reservoir can pass, and the provision of the ramp tends to release the pressure on the cigarettes moving out of the reservoir, thereby facilitating the easy passage of the cigarettes from the reservoir. In this modified construction it is not necessary to use the shield 82 above referred to, since it is found that the cigarettes issuing from the reservoir tend to become properly aligned by the ramp or by cigarettes engaged by the ramp.

A modified form of reservoir is shown in Figure 5, in which means are provided for keeping open the mouth of the chute 31. The band B slopes slightly down towards the reservoir and a roller 85 which may be smooth or fluted rotates in the direction of the arrow and in co-operation with the band frictionally feeds the cigarettes towards the entrance of the reservoir, and controls them so that they cannot fall askew. The chute 31 normally takes away the cigarettes to the packing machine. A cam operated stop 86 may be fitted to the chute to arrest the movement of the cigarettes down said chute, the stop operating in timed relationship with the packing machine.

Each time said stop checks the flow of cigarettes down the chute a slight accumulation of cigarettes will take place in the neighbourhood of the entrance to said chute, and it is often desirable, when operating a combined machine of the kind herein described, to permit a few cigarettes to accumulate in the reservoir to make up for any defective cigarettes removed from the band B by the operator. Such an accumulation however tends to choke the mouth of the chute and prevent the free flow of cigarettes into it and often, owing to the rolling of the cigarettes on one another due to the action of the band B and roller 35, the cigarettes tend to arch or bridge across the mouth of the chute and prevent cigarettes from moving into it.

A fluted or roughened roller 87, generally similar to the roller 44 shown in Figure 2, is arranged and rotated as shown, and this roller relieves the choking but does not always prevent bridging, and means are provided to carry surplus cigarettes away from the vicinity of the mouth of the chute and to relieve the mouth from the weight of said surplus so that the cigarettes can flow freely. This means comprises a flexible conveyor 88 consisting of two or more endless bands formed from helical wire springs. The bands lie in grooves in the roller 87 by which they are driven and pass over an adjustable roller 89 by means of which the tension and angle of the bands may be adjusted.

The moving parts are all driven at the necessary speeds by chains and sprockets as indicated by dot and dash lines, and it is not thought necessary to describe these. The band B is of course driven in the manner previously described with reference to Figures 2 and 3. The back wall of the reservoir is formed partly by the conveyor bands 88 and partly by a plate 90 arranged as shown. The plate 90 may be arranged to touch the bands 88, in which case it will be vibrated by them. Alternatively the plate 90 may be fixed clear of the bands 88. The capacity of the reservoir may be increased by extending the sides further along the band B.

In the constructions above described it is preferable, in order to reduce as far as possible rotation of the cigarettes as they enter and issue from the reservoir to control the speed of rotation of the roller 44 or 87 as the case may be, which is located at the lower end of the reservoir. With this object in view, the roller is driven by a free wheel device and is so arranged that when the combined packing and cigarette making machines are running in their normal manner the roller is arranged to rotate at a relatively high speed, but when the packing machine is stopped and cigarettes are being delivered into the reservoir the speed of rotation of the roller is reduced by about one-half.

Referring to Figure 6 of the drawings, the roller 44, shown broken, is driven by a chain 91 from a sprocket similar to and on the same shaft as the sprocket 49 previously referred to. This is the slow drive and operates only when the packing machine has stopped. The chain 91 passes over a free wheel sprocket 92 and the gearing is such as to drive the roller 44 at say 60 revolutions per minute.

When the combined machine is working the roller 44 is driven by a chain 93 from a free wheel sprocket 94 on the packing machine mainshaft at say 120 revolutions per minute. The chain passes over a sprocket 95 on the shaft of roller

44 and thus normally the free wheel 92 is overrun. When the packing machine stops the inner member of free wheel 94 will of course stop but the chain 93 will continue to move and the free wheel 94 will be overrun.

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

1. A machine as claimed in claim 9, wherein the lower end of the bottom wall is retained in a fixed position above the conveyor and wherein a positively driven fluted roller is mounted for rotation at a position adjacent the lower end of said bottom wall and above the conveyor to assist the movement of cigarettes from the conveyor into the reservoir.

2. A machine as claimed in claim 9, wherein a shield comprising hinged connected sections is located in the reservoir and connected with the front wall of the reservoir for movement therewith.

3. A machine as claimed in claim 9, wherein a fixed ramp is located between the lower end of the sloping bottom wall of the reservoir and the moving front wall and at such a distance from the surface of the conveyor that all cigarettes carried by the conveyor towards the reservoir pass over the ramp.

4. A combined cigarette making and packing machine comprising in combination a cigarette-making unit and packing-unit driven in timed relationship to one another, an endless conveyor to receive cigarettes from the making-unit, the packing-unit being normally operable at a speed such as to prevent a surplus of cigarettes accumulating on the conveyor, but capable of being stopped independently of the conveyor and the making-unit, a reservoir for cigarettes communicating with the path of the cigarettes moving towards the packing-unit, and mechanism operable at will to cause the conveyor and the packing-unit to be operated at speeds greater than their normal speeds for the purpose of disposing of cigarettes which have accumulated in the reservoir during a stoppage of the packing-unit.

5. A combined cigarette-making and packing machine, comprising in combination, a cigarette-making unit and a packing-unit, independently controllable driving mechanisms for the cigarette-making unit and for the packing-unit respectively, the driving mechanisms being driven from separate independent but synchronized sources, an endless conveyor to receive cigarettes from the cigarette-making unit and to convey them towards the packing-unit, a reservoir for cigarettes communicating with the path of the cigarettes moving towards the packing-unit, a driving mechanism for the conveyor connected with each of said other driving mechanisms, arranged normally to be operated by the driving mechanism of the cigarette-making unit but operable at will to cause the conveyor and the packing unit to be operated at a speed greater than the normal speed of the packing-unit for the purpose of disposing of cigarettes which have accumulated in the reservoir during the stoppage of the packing-unit.

6. A combined cigarette making and packing machine, comprising in combination a cigarette-making unit and a packing-unit, independently controllable driving mechanisms for the cigarette-making unit and for the packing-unit respectively, the driving mechanisms being driven from separate independent but synchronized sources, an endless conveyor to receive cigarettes

from the cigarette-making unit and to convey them towards the packing-unit, a reservoir for cigarettes communicating with the path of the cigarettes moving towards the packing-unit, and a driving-mechanism for the conveyor connected with each of said other driving mechanisms, arranged normally to be operated by the driving mechanism of the cigarette-making unit but operable at will to cause the conveyor and the packing-unit to be operated at a speed greater than the normal speed of the packing-unit for the purpose of disposing of cigarettes which have accumulated in the reservoir during the stoppage of the packing-unit, said driving mechanism for the conveyor including means arranged to permit the drive to the conveyor through the cigarette making machine driving mechanism to be overrun when the packing machine is operated at a speed greater than the normal speed whereby the conveyor is, during the period during which the packing machine is operated at a greater speed, driven by the driving mechanism for the packing machine.

7. A combined cigarette making and packing machine, comprising in combination a cigarette-making unit and a packing-unit, independently controllable driving mechanisms for the cigarette-making unit and for the packing-unit respectively, the driving mechanisms being driven from separate independent but synchronized sources, an endless conveyor to receive cigarettes from the cigarette-making unit and to convey them towards the packing-unit, a reservoir for cigarettes communicating with the path of the cigarettes moving towards the packing-unit, a driving mechanism for the conveyor connected with each of said other driving mechanisms, arranged normally to be operated by the driving mechanism of the cigarette-making unit but operable at will to cause the conveyor and the packing-unit to be operated at a speed greater than the normal speed of the packing-unit for the purpose of disposing of cigarettes which have accumulated in the reservoir during the stoppage of the packing-unit, and a delivery chute located between the conveyor and the packing-unit and below the reservoir.

8. A combined cigarette-making and packing machine, comprising in combination a cigarette-making unit and a packing-unit, independently controllable driving mechanisms for the cigarette-making unit and for the packing-unit respectively, the driving mechanism being driven from separate independent but synchronized sources, an endless conveyor to receive cigarettes from the cigarette-making unit and to convey them towards the packing-unit, a reservoir for cigarettes communicating with the path of the cigarettes moving towards the packing unit, a driving mechanism for the conveyor connected with each of said other driving mechanisms, arranged normally to be operated by the driving mechanism of the cigarette-making unit but operable at will to cause the conveyor and the packing-unit to be operated at a speed greater than the normal speed of the packing-unit for the purpose of disposing of cigarettes which have accumulated in the reservoir during the stoppage of the packing-unit, a delivery chute located between the conveyor and the packing-unit and below the reservoir, the reservoir comprising side walls extending lengthwise along the conveyor, and a movable wall disposed at a position opposite to and beyond that at which cigarettes are

discharged from the conveyor, and directed upwardly with its lower part adjacent a wall of the delivery chute, said movable wall comprising one or more endless bands arranged to move in a direction such as to tend to move cigarettes away from the entrance to the chute.

9. A combined cigarette-making and packing machine, comprising in combination a cigarette-making unit and a packing-unit, independently controllable driving mechanisms for the cigarette-making unit and for the packing-unit respectively, the driving mechanism being driven from separate independent but synchronized sources, an endless conveyor to receive cigarettes from the cigarette-making unit and to convey them towards the packing unit, a reservoir for cigarettes communicating with the path of the cigarettes moving towards the packing unit, a driving mechanism for the conveyor connected with each of said other driving mechanisms, arranged normally to be operated by the driving mechanism of the cigarette-making unit but operable at will to cause the conveyor and the packing-unit to be operated at a speed greater than the normal speed of the packing-unit for the purpose of disposing of cigarettes which have accumulated in the reservoir during the stoppage of the packing-unit, a delivery chute located between the conveyor and the packing unit and below the reservoir, wherein the reservoir comprises a bottom wall which slopes upwardly in the direction of movement of the conveyor and a front wall disposed in advance of the position at which cigarettes first engage the bottom wall, said front wall being journaled for pivoted movement at a position above said conveyor, and mechanism operative to swing the front wall about its pivotal axis to assist the movement of cigarettes from the conveyor into the reservoir when the packing machine is stopped.

10. For use with a combined cigarette-making and packing-machine, a reservoir, a conveyor extending along the bottom of the reservoir, said reservoir having side walls extending lengthwise of the conveyor, said conveyor forming a part of a discharge orifice from the reservoir, and a movable wall disposed at a position opposite the end of the conveyor and forming a further part of the discharge orifice, said movable wall comprising at least one endless band arranged to move in a direction such as to tend to move cigarettes away from the discharge orifice.

11. For use with a combined cigarette-making and packing-machine, a reservoir, a conveyor extending along the bottom of the reservoir, side walls extending lengthwise of the conveyor, the conveyor being arranged to terminate at a point inside the reservoir and forming a part of a discharge orifice from the reservoir, and a wall disposed at a position opposite the end of the conveyor and forming a further part of the discharge orifice, said wall comprising a plurality of endless bands arranged to move in a direction such as to tend to move cigarettes away from the discharge orifice and fixed members projecting downwardly so that their lower ends extend between two of the endless bands, the endless bands and the fixed members forming a wall of the reservoir.

12. For use with a combined cigarette-making and packing-machine, a reservoir, a conveyor extending along the bottom of the reservoir, side walls extending lengthwise of the conveyor, the conveyor being arranged to terminate at a point

inside the reservoir and forming a part of a discharge orifice from the reservoir, and a movable wall disposed at a position opposite the end of the conveyor and forming a further part of the discharge orifice, said movable wall comprising one or more endless flexible bands which are arranged to move in a direction such as to tend to move cigarettes away from the discharge orifice.

13. For use with a combined cigarette-making and packing-machine, a reservoir, a conveyor extending along the bottom of the reservoir, side walls extending lengthwise of the conveyor, the conveyor being arranged to terminate at a point inside the reservoir and forming a part of a discharge orifice from the reservoir, and a wall disposed at a position opposite the end of the conveyor and forming therewith a discharge orifice,

5 said wall comprising a plurality of endless flexible bands which are arranged to move in a direction such as to tend to move cigarettes away from the discharge orifice, and fixed members projecting downwardly so that their lower ends extend between two of the endless flexible bands, the endless flexible bands and the fixed members forming a wall of the reservoir.

10 14. A machine as claimed in claim 8, wherein the movable wall comprises a plurality of endless bands spaced apart from each other and a fixed member projecting downwardly so that its lower end extends between the bands, the bands and member together forming a wall the lower part
15 of which is movable while the upper part is stationary.

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