Nov. 11, 1952 A. J. BURKE 2,617,574

RETRACTABLE PACKER TABLE

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FIG. 2.

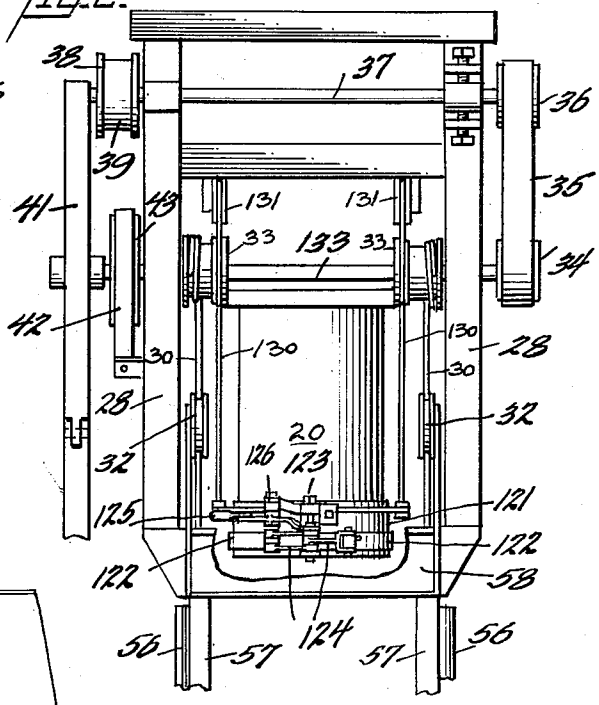


FIG. 1.

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RETRACTABLE PACKER TABLE

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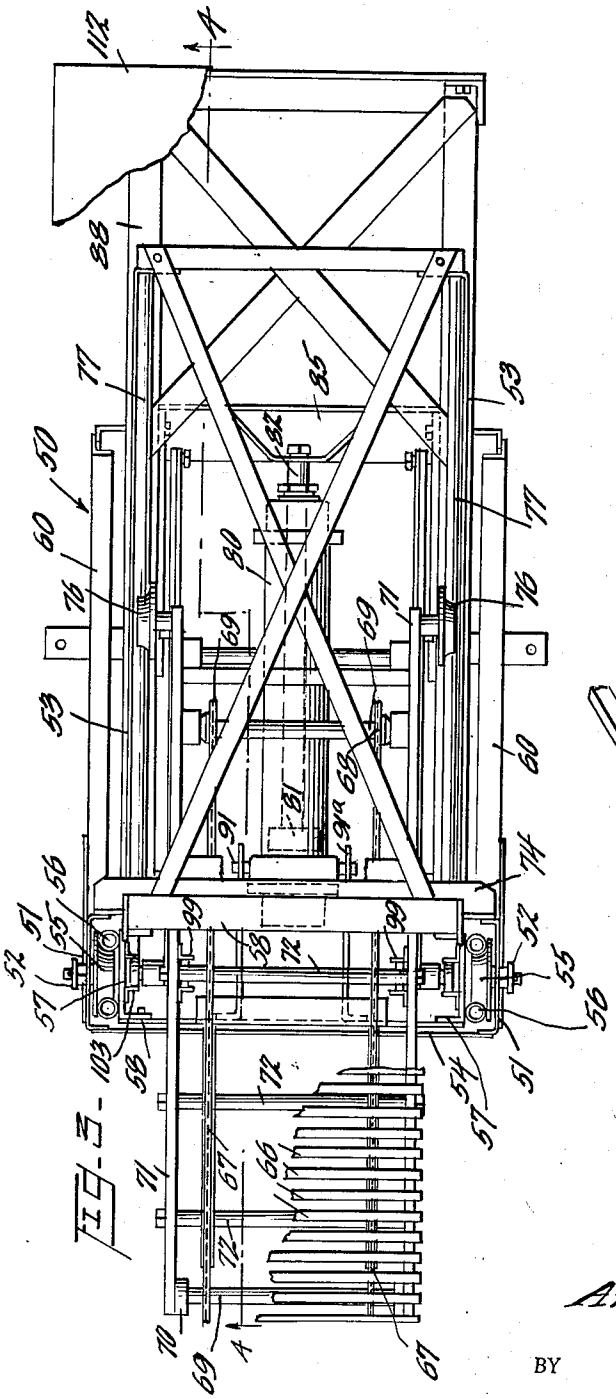


FIG. 3.

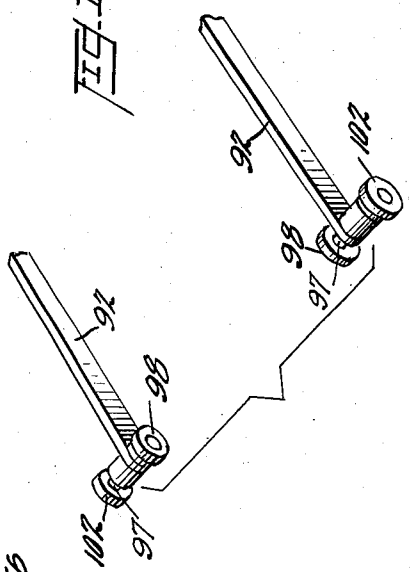


FIG. 14.

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Nov. 11, 1952 A. J. BURKE 2,617,574

RETRACTABLE PACKER TABLE

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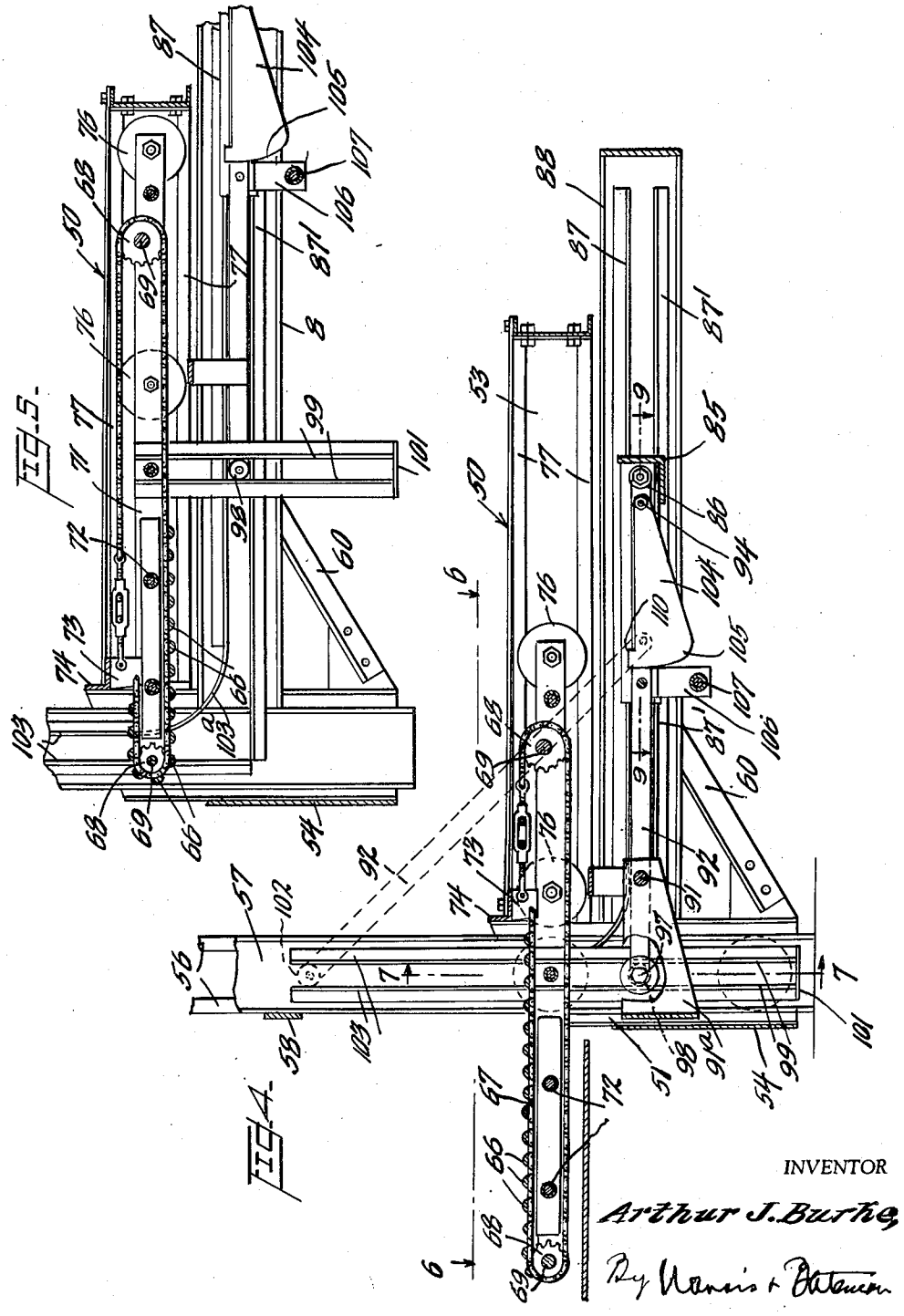


FIG. 5.

FIG. 4.

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Nov. 11, 1952 A. J. BURKE 2,617,574

RETRACTABLE PACKER TABLE

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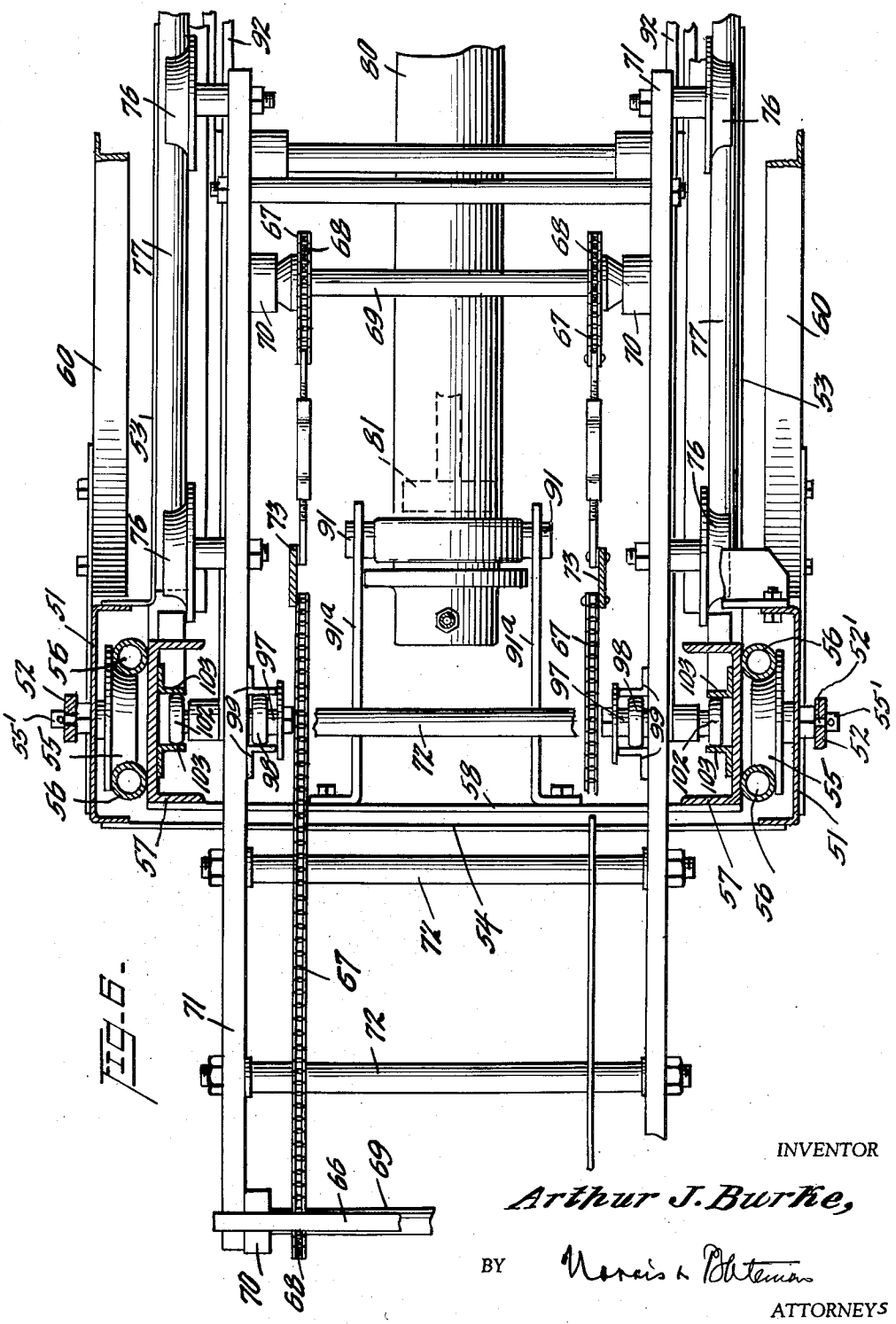


FIG. 6.

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Nov. 11, 1952 A. J. BURKE 2,617,574

RETRACTABLE PACKER TABLE

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FIG. 7.

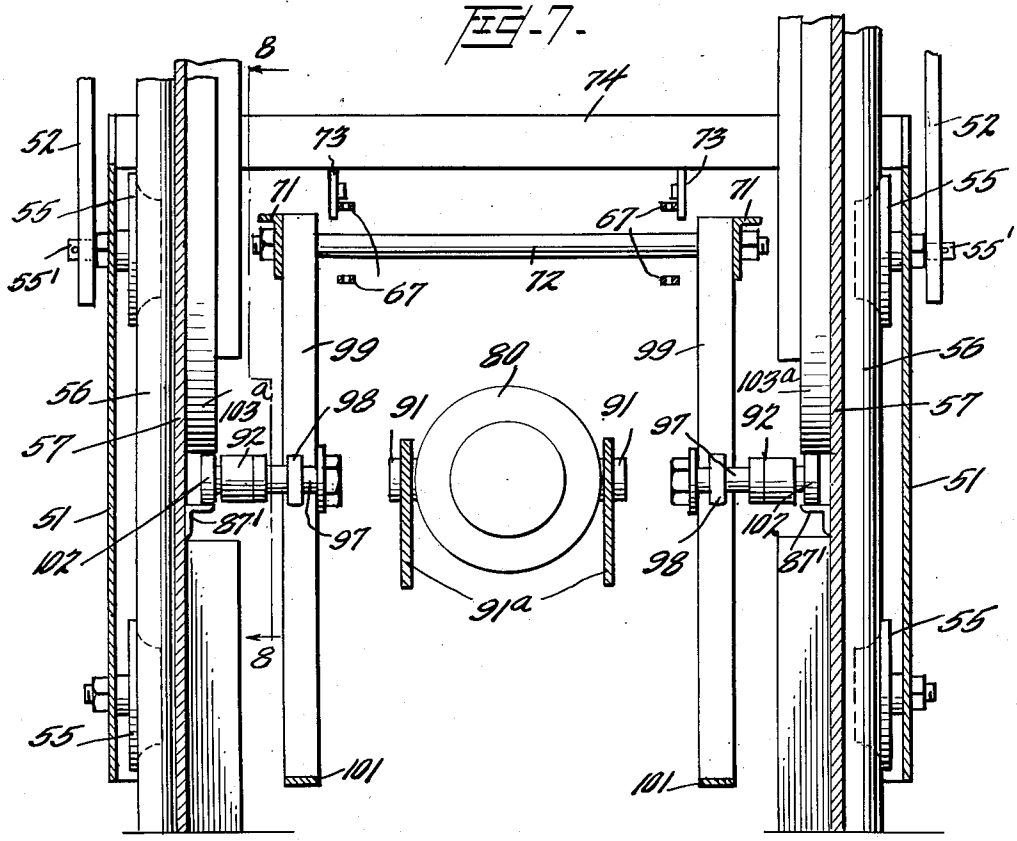
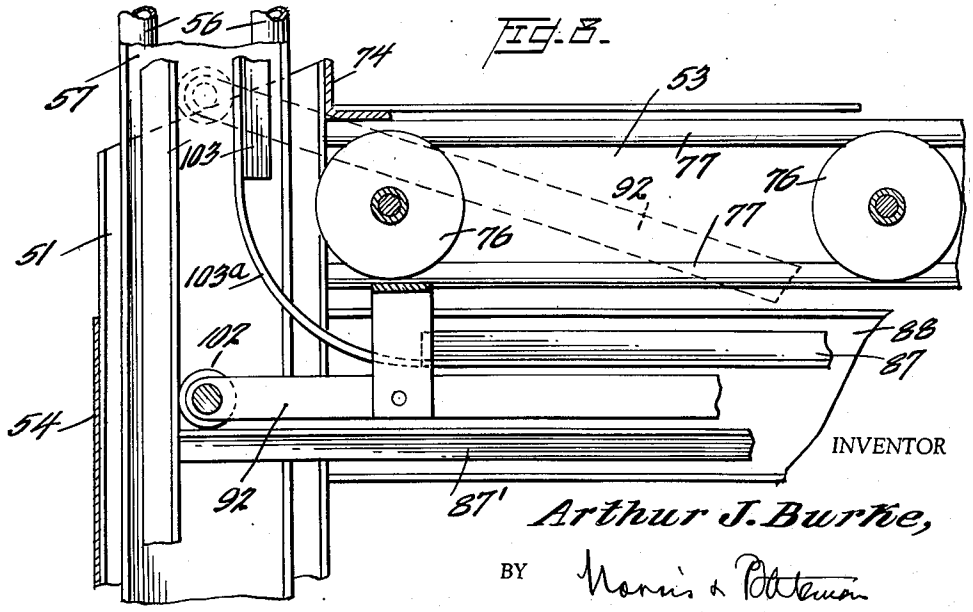


FIG. 8.



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Nov. 11, 1952 A. J. BURKE 2,617,574

RETRACTABLE PACKER TABLE

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FIG. 9.

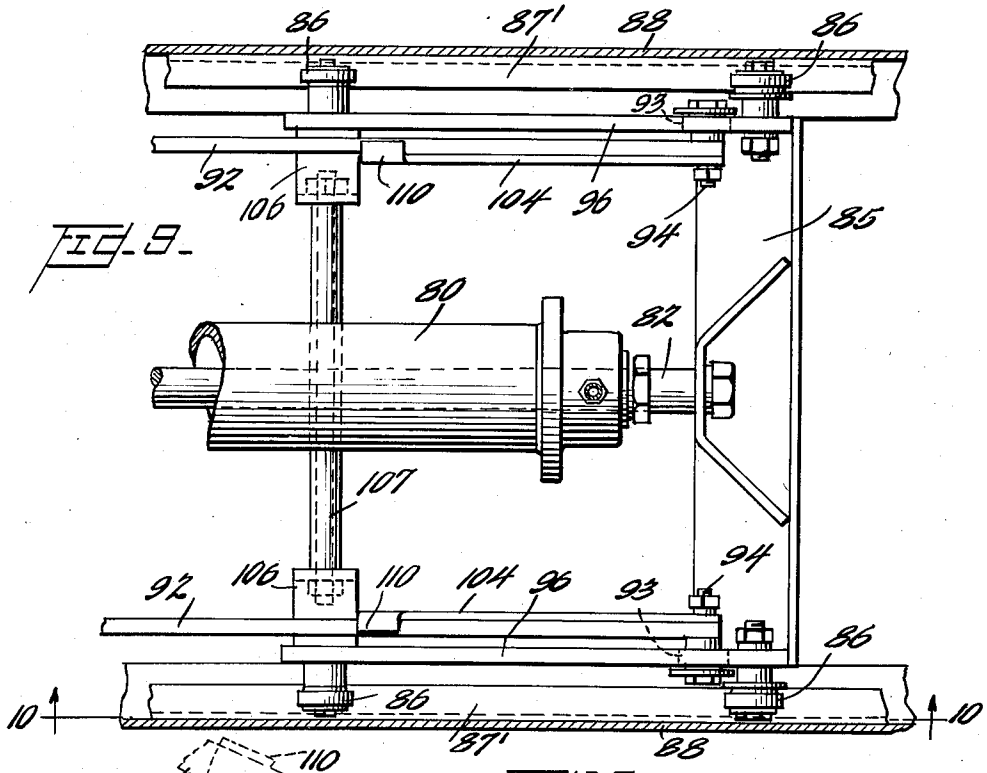


FIG. 10.

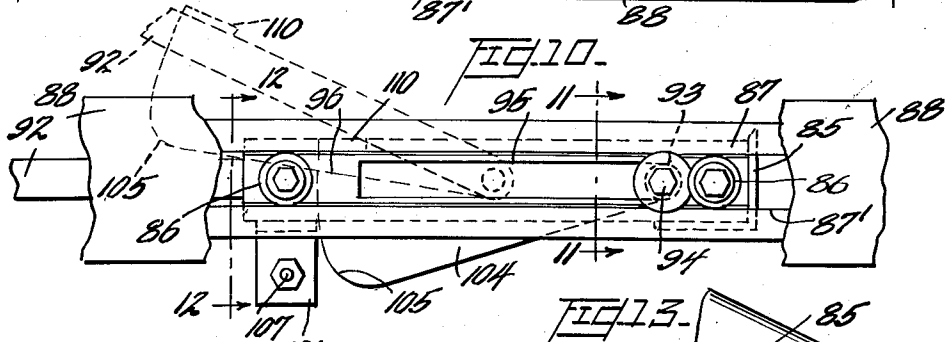


FIG. 11.

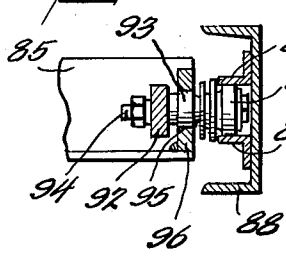


FIG. 12.

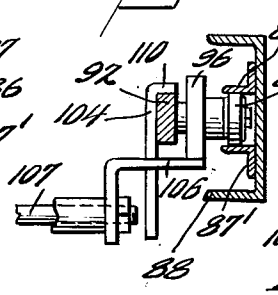
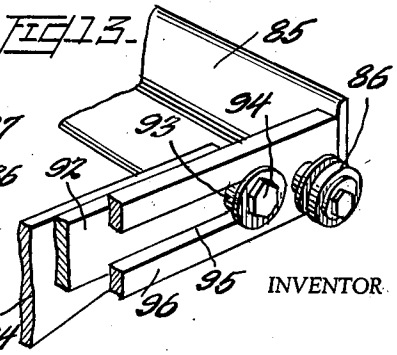


FIG. 13.



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Patented Nov. 11, 1952 2,617,574

UNITED STATES PATENT OFFICE

2,617,574

RETRACTABLE PACKER TABLE

Arthur J. Burke, Oakland, N. J.

Application June 14, 1950, Serial No. 168,055

20 Claims. (Cl. 226—25)

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The present invention relates to apparatus for packing flour, feeds and other powdery, granular or free flowing materials into bags or other containers, and it relates more particularly to a table for supporting the bags or containers while they are being filled and for discharging the filled bags therefrom.

A primary object of the invention is to provide a novel and improved table for positioning and supporting the bags during filling, and which is retractable after filling of the bags, thereby discharging the filled bags from the table without the necessity of manually lifting the filled bags as heretofore, and the table preferably drops the filled bags in a manner suitable for reception by a conveyor which may conduct them to a sewing machine or other suitable bag closing apparatus or to any other suitable or desired point, with minimum or no manual handling.

A more particular object of the invention is to provide a novel and improved packer table adapted for use with a packer of the well known type employing an auger for packing the material into a bag while the latter rests on an elevated table or platform, and in which the table descends and lowers the bag as the filling thereof proceeds, the present invention providing means for retracting or withdrawing the table from beneath the filled bag and thereby permitting it to drop by gravity from its lowered or filled position for further disposition as may be desired.

To these and other ends, the invention consists in certain improvements, and combinations and arrangements of parts, all of which will be hereinafter more fully described, the features of novelty being pointed out more particularly in the claims at the end of this specification.

The preferred embodiment of the invention is shown in the accompanying drawings, wherein—

Fig. 1 is a side elevation of a retractable packer table embodying the present invention, the table being shown applied to a conventional form of packer of the auger type.

Fig. 2 is an elevation of the upper portion of the packer shown in Fig. 1 as viewed from the right thereof.

Fig. 3 is a horizontal section, on an enlarged scale, taken on the line 3—3 in Fig. 1, a portion of the casing being omitted.

Fig. 4 is a vertical section taken on the line 4—4 in Fig. 3, the table being shown in extended position.

Fig. 5 is a vertical section of a portion of the structure shown in Fig. 4 but showing the table in retracted position.

Fig. 6 is a horizontal section, on an enlarged scale, taken on the line 6—6 in Fig. 4.

Fig. 7 is a vertical section, on an enlarged scale, taken on the line 7—7 in Fig. 4.

Fig. 8 is a vertical section on the line 8—8 in Fig. 7.

Fig. 9 is a horizontal section, on an enlarged scale, taken on the line 9—9 in Fig. 4.

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Fig. 10 is a detail vertical section, taken on the line 10—10 in Fig. 9.

Fig. 11 is a detail vertical section taken on the line 11—11 in Fig. 10.

Fig. 12 is a detail vertical section taken on the line 12—12 in Fig. 10.

Fig. 13 is a perspective view of a portion of the table actuating means.

Fig. 14 is a perspective view of another portion of the table actuating means.

Similar parts are designated by the same reference numerals in the different views.

The packer table provided by the present invention is applicable generally to packers of the well known type employing a table or platform which is raised to support a bag or other form of container to receive the material from the packer and is lowered as the filling of the bag progresses, it being shown for example in the present instance as applied to a packer of this type as shown and described in Patent No. 274,878, granted March 27, 1883, to H. A. Barnard, to which reference may be had for a detailed illustration and description thereof. As the particular form of packer used forms no part of the present invention, it is believed to be sufficient, for the purposes of the present invention, to describe the example of packer shown in said patent briefly as comprising a packing cylinder 20 which contains an auger 20a which operates therein to force the material downwardly into a bag which may be held in filling position by any suitable or well known form of bag holder, that shown for example being of the construction shown and described in Patent No. 1,449,285, granted March 20, 1923, to which reference may be had for a detailed illustration and description of the construction and mode of operation thereof, it being sufficient for the purposes of the present invention to describe such a bag holder as carried by a sleeve 121 which surrounds and is slidable vertically on the packing cylinder 20 and comprising a pair of segmental arms 122 pivoted on the sleeve at 123 to swing toward and from opposite sides of the packing cylinder to clamp and release the mouth of a bag surrounding the lower end of the sleeve by toggle links 124 connecting the arms at the outer side of the pivot, the middle pivot of the toggle being connected to an operating lever 125 pivoted at 126 to the sleeve. The material to be packed in the bags may be fed to the top of the packer cylinder through a hopper 23 to which the material may be supplied by a screw conveyor or any other suitable means. The auger has a shaft 24 which extends upwardly through the hopper 23 and may be driven continuously by any suitable means, as by a bevel gear 25 fixed to the auger shaft and meshing with a bevel gear 26 fixed to a shaft 27 journaled in a suitable frame 28 and driven by a belt or other suitable means.

The table on which the bag rests and is lowered during filling is guided to move vertically on a

main frame 29, the table provided by the present invention, and which replaces the platform shown in said Patent No. 274,878, being supported by a pair of cable 30 which pass around sheaves 31 and 32 supported in the upper portion of the main frame and are arranged to wind on and unwind from drums 33 fixed on a shaft 133 journaled in the frame 28. Rotation may be imparted to the shaft 133 in a direction to wind the table-supporting cables by any suitable means, as by a belt pulley 34 fixed on said shaft and cooperating with a belt 35 which cooperates with a pulley 36 fixed on one end of a shaft 37, one end of the latter shaft being journaled in the frame 28 so that its other end may shift toward and from the shaft 27, and this latter end of the shaft 37 has a pulley 38 fixed thereon and cooperating with a belt 39 which latter cooperates with a pulley 40 fixed to the shaft 27. The shiftable end of the shaft 37 carrying the pulley 38 is journaled in the upper end of a lever 41 which is mounted on the shaft 133 so that it may rock thereon as a fulcrum to shift the pulley 36 away from the pulley 40 and thereby tighten the belt 39 to drive the shaft 37 and thus rotate the shaft 133 in a direction to wind the cable on the drums 33 thereon and thereby lift the table or platform, or to shift the pulley 36 toward the pulley 40 and thereby slacken the belt 39 and interrupt the drive to the cable winding shaft 133 and thus free the table or platform for descent under the weight of the material in the bag and the action of packing the material therein, under control of a brake band 42 which engages a brake drum 43 fixed to the shaft 133 and is controlled by a lever 44 pivoted on the frame at 45 and connected to the brake band at 46, the brake lever being loaded, as by a weight, to apply the appropriate degree of resistance to rotation of the shaft 133 to regulate the descent of the table or platform to effect the desired degree of packing of the material in the bag, and the brake lever being operable manually to relieve the cable winding shaft 133 of the brake resistance while said shaft is being driven in the direction to lift the table or platform. A link 48 pivotally connected to the lower end of the lever 41 and pivotally connected to a lever 49 provides means for shifting the movable end of the shaft 37 to tighten and slacken the belt 39.

The bag holder is interconnected to the table so that as the table rises the bag holder will rise and as the table descends the bag holder will descend therewith. Such simultaneous vertical movements of the bag holder and table may be effected in any suitable manner as, for example, by providing a pair of cables 130 which are connected at one end to the sleeve 121 and extended over idler sheaves 131 mounted on the frame 28 at opposite sides of the packer tube, the other ends of these cables being connected to the respective drums 33 to wind thereon in the same direction of rotation thereof in which the cables 30 wind thereon. Consequently, when the drums are rotated in a direction to wind the cables 30 thereon and thereby raise the table, the cables 130 will also be wound thereon to raise the bag holder, and as the drums are rotated in the opposite direction, cables 30 and 130 will be unwound therefrom, permitting the table and bag holder to descend under the weight of material in the bag.

The table as shown comprises a table unit 50 which is guided to move vertically of the main frame by a carriage 51 having bars 52 suspended from the cables 30, each bar having a vertical series of holes 52' any one of which is engageable respectively by pivot pins 55' fixed to the respective sides of the carriage, thus providing means for adjusting the height of the table relatively to the packer cylinder to accommodate bags of different lengths. The carriage as shown has a pair of side members 53 which are rigidly conetced by a cross member 54, each side member having a pair of upper and lower rollers 55 journaled at the inner side thereof and arranged to travel on rails 56 welded or otherwise suitably fixed to the outer sides of a pair of laterally spaced uprights 57 of the main frame, these uprights being preferably composed of channel irons which are rigidly connected by a suitable number of cross members 58. The carriage 51 thus has an extension which is rigidly connected thereto and projects rearwardly and horizontally therefrom, and the extension is rigidified with the carriage by a brace 60 at each side which is fixed to the lower portion of the carriage and the distant portion of the rearward extension thereof.

The table according to the present invention is adapted to be extended into a position beneath the packer cylinder 20 and to be lifted to support a bag during filling, and of being lowered during the bag filling operation, and when fully lowered, to be retracted from beneath the packer cylinder, thus causing the filled bag to be discharged or dropped from the table to be received, for example, by a conveyor 65 which may conduct the filled bag to a sewing machine or other bag closing means, or to any other desired point.

The retractable table provided by the present invention comprises a flexible member, preferably in the form of a series of slats 66 carried by a pair of chains 67 or other suitable flexible means, the slats being spaced apart at suitable intervals along the length of the chains, and the chains passing around pairs of forward and rear sprocket wheels 68, each pair of sprocket wheels being mounted on a shaft 69 the ends of which are journaled in bearing 70 mounted in the respective side members of a frame 71 having cross ties 72 or other suitable means rigidly connecting the side members. The ends of each of the chains are connected to anchors 73 which are fixed to a cross member 74 of the carriage, turn buckles being preferably provided between one end of each chain and the respective anchor 73 to tension and take up slack in the chains. The upper stretch of the flexible member thus provided forms susbtantially a surface which at one end is adapted to support the bag during and after filling.

The frame 71 carrying the chains and slats thereon is supported to travel horizontally in the carriage extension by a pair of rollers 76 journaled at each side of this frame and arranged to travel along and between upper and lower horizontal rails 77 which are fixed to the inner sides of the respective side members 53 of the carriage, whereby this frame and the chains and slats thereon are supported to be raised and lowered by the carriage, and the frame 71 and the sprocket wheels carried thereby are adapted to be shifted within the substantially endless flexible structure formed by the chains and slats in a direction longitudinally of such structure to extend and retract the table. Since the ends

of the upper stretches of the chains are anchored on the carriage, the longitudinal movement of the frame 71 and sprocket wheels in one direction longitudinally within the substantially endless flexible structure will extend the forward pair of sprocket wheels 68 and the portions of the chains and the slats adjacent thereto beyond the laterally spaced uprights 57 of the main stationary frame and into a position beneath the packing cylinder 20, and movement of said frame carrying the sprockets thereon longitudinally in the opposite direction will retract the forward pair of sprocket wheels 68 and the adjacent portions of the chains and slats from beneath the packing cylinder, it being understood that during the longitudinal movement of the frame 71 within the endless structure formed by the chains and the slats thereon, the sprockets rotate incident to the passing of the chains and slats from the lower side around the forward sprocket wheels 68 to the upper side of the table to extend the table, and to the passing of the chains and slats from the upper side around the forward sprocket wheels 68 to the lower side of the table to retract the table.

Such a mode of extending and retracting the flexible table structure formed by the chains and slats and their carrying frame enables the extended portion of the table to be withdrawn from beneath a filled bag resting thereon so that such a bag will drop by its own weight onto a conveyor or other receiving means without requiring manual lifting of the bag, which is of particular importance in the handling of bags the contents of which are heavy.

The frame 71 of the table is reciprocated to extend and retract the table preferably by a cylinder 80 having a piston 81 reciprocable therein and provided with a piston rod 82, the piston being operable by compressed air or other suitable fluid pressure which may be admitted to one or the other end of the cylinder to extend or retract the piston by any suitable valve or valves which form no part of the present invention and therefore are not shown.

Means is provided for reciprocating the table carrying frame 71 from the cylinder 80 which enables a cylinder of minimum length to be employed, and which accommodates itself to the lifting and lowering movements of the table, and such reciprocating means also preferably maintains an operative connection between the table and the piston of the cylinder during such lifting and lowering table movements. As shown in the present instance, such table reciprocating means comprises a cross head 85 to which the outer end of the piston rod 82 is fixed, and this cross head is provided at its opposite sides with pairs of rollers 86 which are arranged to travel in guideways each preferably formed by a pair of upper and lower angle irons 87 and 87' fixed respectively to the inner sides of a horizontal extension 88 below the table unit 50 and which is rigidly connected to the uprights 57 of the stationary main frame, these uprights being adapted to rest at their lower ends on a floor or other suitable surface, and the extension 88 is provided with legs 89 also adapted to rest on such floor or other surface.

The cylinder 80 is connected to the main frame by trunnions 91 which are pivotally supported by the arms of a bracket 91a which is bolted or otherwise rigidly fixed to the cross member 58 connecting the uprights 57 of the main stationary frame, such trunnion support for the cylinder providing for maintenance of proper alinement between the cylinder and the cross head. The cross head is adapted to be connected to the frame 71 of the table by a pair of arms 92 the rear ends of which carry rollers 93 mounted on stud shafts 94 fixed to these arms and positioned to operate in slots 95 formed longitudinally in the respective sides 96 of the cross head, and the other ends of the arms 92 carry respectively shafts 97 having rollers 98 mounted thereon and which are adapted to travel in vertical guides 99 each formed preferably by a pair of angle irons fixed respectively to the inner sides of the frame 71 and extend rigidly downwardly therefrom, the space between the lower ends of these guides being closed by plates 101 suitably fixed thereto.

When the piston 81 is retracted into the cylinder 80, the rollers 93 are engaged by the rear or right hand ends of the respective slots 95 in the cross head 85, as shown in Figs. 9, 10 and 11, thereby pushing the arms 92 forwardly or toward the left in these figures, causing the rollers 98 on these arms acting on the respective guides 99 to extend the frame 71 and the flexible table structure thereon into the extended position shown in Figs. 3 and 4, the rollers 98 being then above the bottom plates 101 closing the space between the lower ends of the guides 99.

Each of the shafts 97 also carries a roller 102, these rollers being adapted to travel vertically in vertical guides 103 composed preferably of angle irons fixed to the inner sides of the respective uprights 57 of the stationary main frame. When the carriage 51 is lifted to raise the table, the bottom plates 101 closing the lower ends of the guides 99 come into engagement with the rollers 98 on the arms 92 and swing these arms upwardly, as indicated by the dotted lines in Fig. 4, while the frame 71 and the table structure remain in extended position. During the upward swing of the arms 92, they swing upwardly a pair of plates 104 which are pivoted respectively on the shafts 94 on which the rollers 93 are mounted, these plates each having an arcuate edge 105 which is eccentric to the respective pivot shaft 94 and which, while the arms 92 are lowered, occupy positions behind brackets 106 which are welded or otherwise fixed rigidly to the respective sides 96 of the cross head and are rigidly connected by a tie rod 107. The plates 104 are swung upwardly with the arms 92 by lugs 110 on the upper edges of these plates which overlie the respective arms 92, thereby causing these plates to be lifted into the positions indicated by the dotted lines in Fig. 10 to clear the brackets 106 and thereby permit the rollers 93 to shift forward from the rear ends of the slots 95 and toward the forward ends thereof while the cross head 85 and the table frame 71 remain at rest with the table in horizontally extended position beneath the packer cylinder, thereby permitting the table to be lifted without interference by the cross head and its actuating piston. While the table is being lowered, as during the filling of a bag thereon, the arms 92 swing downwardly toward horizontal position, incident to the lowering of the bottom plates 101 on which the rollers 98 rest at this time, allowing the plates 104 to swing downward with their lugs 110 resting on the upper edges of the respective arms 92, at which time the arcuate edges 105 on the plates 104 are restored to positions behind the respective brackets 106. When the table approaches its fully lowered position, the rollers

102 on the arms 92 come to rest on the lower rails 87', the arms 92 then being in the horizontal position shown in Fig. 4, and as the frame 71 completes its descent, the bottom plates 101 descend further into the position shown in Fig. 4.

While the table is in its fully lowered position, as shown by the full lines in Fig. 4, and the arms 92 are in horizontal position with the rollers 102 thereon resting on the rails 87', admission of compressed air or other fluid pressure to the inner end of the cylinder 80 will push the cross head 85 to the right from the position shown in Fig. 4 to the position shown in Fig. 5 by the brackets 106 on the cross head acting on the then lowered plates 104, thereby retracting the table horizontally from beneath the packer cylinder and discharging a filled bag from the table in the manner hereinbefore described.

While the table is being raised from its lowered position and is being returned thereto, the piston 81 and cross head 85 remain stationary, but the rollers 93 travel along the slots 95 in the sides of the cross head, thus providing lost motion which compensates for the horizontal travel of the rollers 93 at the rear ends of the arms 92 while the other ends of these arms are being raised or lowered.

The plates 104 provide driving connections between the cross head and the arms 92 during the operation of retracting the table, and during the lifting of the table they are lifted to clear the brackets 106 and thus permit the rollers 93 to advance in the slots 95 in the cross head as the arms 92 are swung upwardly, and when the table is lowered and the arms 92 are swung downwardly and the rollers 93 return to the rear ends of the slots 95 in the cross head, these plates resume their positions behind the brackets 106 and thus restore the driving connection between the arms 92 and the cross head preparatory to retraction of the table, thus enabling a shorter cylinder to be employed than would otherwise be required, since the piston and cross head are idle or at rest during the raising and lowering of the table.

The pivoted plates 104 also enable retraction of the table to be effected without lost motion when the cross head is actuated after the table has been lowered, the edges 105 on these plates being then in position for engagement immediately by the brackets 106 on the cross head. These plates also provide an inter-control between the table carrying frame 71 and the cross head 85 which will prevent blocking or damage to the apparatus if the cross head should be operated inadvertently to extend the table before the latter has fully returned to its lowered position, in which event these plates would rest on and merely pass idly over the brackets 106 without acting on the table to extend it, and it would be necessary merely to retract the cross head until these plates drop down behind the brackets in order to restore the parts to their proper operative relation.

In order to facilitate transfer of the rollers 102 from the vertical guides 103 to the horizontal rail 87' and from the latter rail to the vertical guides 103, especially if retraction or lifting of the table is attempted prematurely, curved transfer guides 103a are preferably interposed between one of each pair of vertical guides 103 and the upper horizontal rails 87.

The space above the main frame extension 88 in which the table unit moves vertically is preferably enclosed by a casing 112 for the safety of the attendants.

The construction and operation of the various parts of the apparatus having been hereinbefore described in detail, the general operation is as follows: assuming that the table occupies its forwardly extended and fully lowered position as shown in Figs. 1, 3 and 4, with a filled bag resting thereon, the piston 81 in the cylinder 80 will then occupy its retracted position within the cylinder, as shown in Fig. 3 with the cross head 85 in its forward position, and arms 92 will occupy their forward horizontal position, and plates 104 will be lowered and bheind the brackets 106 on the sides of the cross head.

Admission of fluid pressure to the inner end of the cylinder will then push the piston 81 outwardly from the cylinder, thereby retracting the cross head and brackets 106 rearwardly, and these brackets will act against the arcuate edges of the plates 104 to retract the arms 92, causing the rollers 98 thereon, acting on the vertical guides 99 fixed to the table carrying frame 71, to retract said frame. The outer rollers 102 during such retraction of the arms 92 ride on the respective lower rails 87', on which rail the rollers 86 supporting the cross head 85 also ride, and the rollers 73 supporting the table carrying frame 71 ride during such retraction on the rails 77. Since the ends of the upper stretch of the chains 57 of the table are fixed to the anchors 73, retraction of the frame 71 and, in consequence, the sprocket wheels 68 and 68' around which the chains pass will shift these sprocket wheels within the endless chains, and while the upper stretch of the table on which the bag rests will be held from retraction bodily by the chain anchors, the sprocket wheels 68 at the forward end of the table will be retracted, as toward the right in Fig. 4, causing a portion of the upper stretch of the flexible table to pass downwardly around and beneath these sprocket wheels until the table reaches its fully retracted condition as shown in Fig. 5. The table is thus progressively withdrawn from beneath the bag resting thereon, and the filled bag is free to drop by gravity from the table, without requiring manual lifting therefrom, and the filled bag may thus be discharged onto, for example, a conveyor for transfer while in upright position to a sewing machine or other bag closing means, or to any other desired point.

After the table has been retracted and the filled bag has been discharged therefrom, another bag to be filled may be placed on the packer cylinder 20 and its mouth held thereon by any suitable form of bag holder indicated conventionally at 21, and the table is extended by admitting fluid pressure to the rear end of the cylinder, thereby causing the piston rod 82 to be drawn into the cylinder and the cross head 85 to move forwardly from the position shown in Fig. 3 into the position shown in Fig. 4. During such forward movement of the cross head, the rollers 93, engaged by the rear ends of the slots 95 in the sides of the cross head, are advanced, thereby pushing forwardly the arms 92 connected to the pivots 94 of the rollers 93 until the rollers 102 connected to the forward ends of the arms 92 are alined with the vertical guides 103 on the uprights 57 on the main stationary frame, and during such forward movement of the arms 92, the rollers 98 thereon, acting on the vertical guides 99 fixed to the table carrying frame 71, push this frame forwardly into its extended position. As the frame 71 is thus

extended or advanced, the sprocket wheels 68 and 68' carried thereby are also advanced within the endless chains connecting the slats composing the table, a portion of the lower stretch of the flexible table being thereby caused to pass up around and over the forward sprocket wheels 68 and thus add to the length of the extended portion of the table and thereby extend the table.

While the table is in its extended condition, it may be raised, as in the manner hereinbefore described by the cable 30, and as the table is lifted, the bottoms 101 of the guides 99 on the frame 71 come into engagement with the rollers 98 on the forward ends of the arms 92, thereby swinging the forward ends of these arms upwardly in the guides 103 until the table has been fully raised. During such upward swing of the arms 92, the plates 104 are swung upwardly so that they may pass forwardly over the respective brackets 106 on the cross head, and the rollers 93 move forwardly in the respective slots in the sides of the cross head, the latter and the piston rod remaining idle or stationary during the raising of the table.

While the table is in raised position and a bag is clamped by the bag holder, the material is fed through the packer cylinder 20 and packed in the bag by the auger as in packers of the conventional auger type, and during the packing operation, the brake may be adjusted to effect packing of the material in the bag to the desired degree. When the bag has been filled, and while the table and bag holder approach fully lowered position under the weight of the material in the bag and the packing action thereon, the bottom plates 101 on the guides 99 on which the rollers 98 rested descend and allow the arms 92 to swing downwardly by gravity into horizontal position, and during the continued descent of the guide bottom plates 101, they disengage from the rollers 98 and leave the rollers 102 to rest on the lower guide rails 87'. While the arms 92 are swinging into horizontal position, they move the rollers 93 to the rear ends of the slots 95 in the cross head, and the plates 104 go into positions behind the respective brackets 106 on the cross head. The filled bag may then be discharged from the table, after opening of the bag holder, by retracting the table in the manner hereinbefore described, thus completing the cycle of operations.

The preferred embodiment of the invention has been shown and described in detail, but it is to be understood that the invention is not confined to the precise structure shown and described. The invention in its broader aspects provides a retractable table having a surface on which a filled bag may rest but which is removed from beneath the bag without sliding such surface against the bag bottom. The filled bag will therefore drop by gravity from the table by the retraction thereof while the bag remains in upright position, and it may be received while in upright position by a conveyor below the path of travel of the table and which may conduct the bag while still in upright position to a sewing machine or other suitable means for closing the mouth of the bag, or to any other desired point, with minimum or no manual handling.

I claim:

1. A retractable bag supporting table for a bag packer, comprising a horizontally reciprocable and rotatable member, a flexible member extending around the rotatable member and having upper and lower portions, the upper portion being adapted to form a bag support, means for holding the upper portion of the flexible member from movement during reciprocation of said rotatable member in either direction, and means connected to the rotatable member for reciprocating it to extend and retract the upper portion of the flexible member relatively to said holding means.

2. A retractable bag supporting table for a bag packer, comprising a horizontally reciprocable frame having rotatable members mounted adjacent to its ends, members mounted on and movable around the rotatable members, a flexible member carried by said members and having an upper portion adapted to support a bag thereon, and anchoring means for holding the upper portion of the flexible member from movement during reciprocation of the frame in either direction.

3. A retractable bag supporting table for a bag packer, comprising a horizontally reciprocable frame having rotatable members mounted thereon in longitudinally spaced relation, a flexible member having portions above and below and extending around the rotatable members, the portion above the rotatable members providing a bag support, means for reciprocating the frame and the rotatable members thereon, and means for holding the upper portion of the flexible member from movement during reciprocation of the frame in either direction.

4. A retractable bag supporting table for a bag packer, comprising a frame mounted to reciprocate horizontally and having rotatable members mounted thereon adjacent to its ends, a flexible substantially endless member extending around and above and below one of said rotatable members, the upper portion of the flexible member being designed to support a bag thereon, means for reciprocating the frame and the rotatable members thereon, and means for anchoring the upper portion of the flexible member from movement in either direction of reciprocation of the frame.

5. A retractable bag supporting table for a bag packer, comprising a frame mounted to reciprocate horizontally and having sprocket wheels mounted rotatably toward its ends, substantially endless chains extending above and below and around the sprocket wheels, slats mounted transversely on the chains, means for reciprocating the frame, and anchors connected to the upper portions of the chains for holding said portions of the chains and the slats thereon from movement in either direction of reciprocation of the frame.

6. A retractable bag supporting table for a bag packer, comprising a carriage mounted for reciprocation in directions to raise and lower it relatively to the packer, a bag supporting table mounted on the carriage for extension horizontally to a position beneath the packer and for retraction from said position, relatively stationary power means, and means operated by the power means and connected to the table for extending and retracting the table, said connecting means providing lost-motion between said stationary power means and the table during raising and lowering movements of the table.

7. A retractable bag supporting table for a bag packer, comprising a carriage mounted for reciprocation in directions to raise and lower it relatively to the packer, a bag supporting table mounted on the carriage for extension horizontally to a position beneath the packer and for retraction from said position, relatively stationary power means, an arm pivotally connected at one end to the power means and connected at its other end to the table for extending and re-

tracting the table, the latter end of the arm maintaining its connection with the table during raising and lowering movements of the carriage, and the connection of the other end of the arm with said stationary power means providing lost motion between said arm and power means during the raising and lowering movements of the table.

8. A retractable bag supporting table for a bag packer comprising a stationary supporting frame, a horizontally reciprocable power operated element mounted on said frame, a carriage mounted on said frame for raising and lowering movements relatively to the packer and said power operated element, a bag supporting table mounted on the carriage for extension horizontally to a position beneath the bag packer and for retraction from said position, an actuating arm pivotally connected at one end to the table and maintaining its connection therewith during raising and lowering movements of the carriage, and a lost-motion connection between the other end of the arm and the horizontally reciprocable power operated element on the stationary frame.

9. A retractable bag supporting table for a bag packer comprising a stationary supporting frame, a horizontally reciprocable power operated element mounted on said frame, a carriage mounted on said frame for raising and lowering movements relatively to the packer and said power operated element, a bag supporting table mounted on the carriage for extension horizontally to a position beneath the bag packer and for retraction from said position, an actuating arm pivotally connected at one end to the table and maintaining its connection therewith during raising and lowering movements of the carriage, a lost-motion connection between the other end of the arm and said power operated element, and a member controlled by said arm to take up the lost motion in said connection and thereby provide a direct operative connection between said arm and power operated element while the latter operates in a direction to retract the table.

10. A retractable bag supporting table for a bag packer, comprising a stationary supporting frame having a carriage mounted thereon for raising and lowering movements, a bag supporting table mounted on the carriage for horizontal extension and retraction and carrying a vertical guide, a reciprocatory power operated element mounted on the stationary frame, an actuating arm having means at one end engaging the guide on the table while the latter is lowered and remaining in cooperation with said guide during raising and lowering movements of the table, and a lost-motion connection between the other end of the actuating arm and said power operated element on the stationary frame.

11. A retractable bag supporting table for a bag packer comprising a frame having a vertical guide thereon, a power operated element mounted on the frame for reciprocation transversely of said vertical guide, a carriage mounted on the frame for raising and lowering movements relatively to said power operated element, a bag supporting table mounted on the carriage for extension and retraction in the direction of reciprocation of said power operated element and having a vertical guide connected thereto, an actuating arm having connecting means at one end engaged by the guide on the table and also engageable with the vertical guide on the frame during raising and lowering movements of the carriage, and means at the other end of the actuating arm for connecting it to said power operated element.

12. A retractable bag supporting table for a bag packer comprising a stationary frame having a vertical guide thereon, a carriage mounted on the frame for raising and lowering movements, a power operated element mounted on said frame for reciprocation transversely of the raising and lowering movements of the carriage, a bag supporting table mounted on the carriage for horizontal extension and retraction and having a vertical guide fixed thereto, an actuating arm having connecting means at one end engaged by the guide on the table and also engageable with the vertical guide on the frame during raising and lowering movements of the carriage, the guide connected to the table having means engageable with said connecting means on the actuating arm for swinging said arm upwardly while the carriage is raised, and a lost-motion connection between the other end of the actuating arm and the power operated element on the stationary frame.

13. A retractable bag supporting table for a bag packer comprising a frame having a vertical guide thereon, a power operated element mounted on said frame for reciprocation transversely of said guide, a carriage mounted on the frame for raising and lowering movements relatively to the bag packer and power operated element, a bag supporting table mounted on the carriage for horizontal extension and retraction and having a vertical guide connected thereto, an actuating arm having connecting means at one end engaged by the guide on the table and also engageable with the vertical guide on the frame during raising and lowering movements of the carriage, the guide connected to the table having means engageable with said connecting means on the actuating arm for swinging said arm upwardly while the carriage is raised, a lost-motion connection between the other end of the actuating arm and the power operated element which is operative during the swinging movements of said arm while said power operated element is at rest, and means rendered operative by the downward swing of said arm to take up the lost motion in said connection and establish a direct operative connection between said arm and the power operated element.

14. A retractable bag supporting table for a bag packer, comprising a frame, a carriage mounted thereon for raising and lowering movements, a bag supporting table mounted on the carriage for horizontal extension and retraction, a substantially horizontally reciprocable power operated element mounted on the frame, and having a slot therein extending in the direction of reciprocation of said element, an actuating arm connected at one end to the table for extending and retracting it while in lowered position and maintaining its connection with the table during raising and lowering thereof, and connecting means on the other end of said arm operative longitudinally in the slot in said element during raising and lowering of the table while said element is at rest.

15. A retractable bag supporting table for a bag packer, comprising a frame, a carriage mounted thereon for raising and lowering movements, a bag supporting table mounted on the carriage for raising and lowering movements therewith and for horizontal extension and retraction, a substantially horizontally reciprocable power operated element mounted on the

frame, an actuating arm swingable to and from substantial alinement with the direction of reciprocation of the power operated element and having means at one end for connecting it to the table for extending and retracting it while the carriage is in lowered position, means for swinging said end of said arm upwardly during raising of the carriage and for swinging said end of said arm downwardly into substantial alinement with the power operated element during lowering of the carriage, and lost-motion means connecting the other end of the actuating arm to the power operated element during said swinging of said arm while said element is at rest.

16. A retractable bag supporting table for a bag packer, comprising a frame, a carriage mounted thereon for raising and lowering movements, a bag supporting table mounted on the carriage for horizontal extension and retraction, a substantially horizontally reciprocable power operated element mounted on the frame, an actuating arm having means at one end for connecting it to the table for extending and retracting it while in lowered position, means for swinging said end of said arm upwardly during raising of the carriage and for swinging said end of said arm downwardly into substantial alinement with the power operated element during lowering of the carriage, said power operated element having abutments thereon spaced in the direction of its reciprocation, a pivot on the other end of the actuating arm mounted to operate between said abutments and provide lost motion between said arm and the power operated element, and a member connected to said pivot and controlled by the swinging movement of said arm and movable during downward swing of said arm into substantial alinement with the power operated element into cooperation with one of said abutments to establish a direct operative connection between the power operated element and the actuating arm.

17. The combination of a bag packer having a packing cylinder and an auger operative therein, a stationary supporting frame having a carriage mounted thereon for raising and lowering movements relatively to the frame, a table mounted on the carirage for horizontal extension into a position below the packing cylinder to support a bag during filling and packing and for retraction from said position to discharge a filled bag, power means mounted on the stationary frame for extending and retracting the table while in lowered position, and means for maintaining an operating connection between the power means on the frame and the table during the raising and lowering movements of the carriage relatively to the frame.

18. The combination of a bag packer having a packing cylinder and an auger operative therein, a stationary supporting frame having a carriage mounted thereon for raising and lowering movements relatively thereto, a table mounted on the carriage for horizontal extension relatively thereto into a position below the packing cylinder to support a bag during filling and packing and for retraction from said position to discharge a filled bag, power means on the stationary frame for extending and retracting the table while in lowered position relatively to the power means, and actuating arms pivotally connected to the table and to the power means and swingable during the raising and lowering movements of the carriage relatively to the power means to maintain an operative connection between the table and power means.

19. The combination with a bag packer having a frame, a packing cylinder mounted on the frame and having an auger operative therein, and a conveyor mounted below the packing cylinder for conducting filled bags from the packer, of a carriage mounted on the frame for raising and lowering movements between the packing cylinder and conveyor, a table frame mounted on the carriage for reciprocation thereon in a direction transversely of the raising and lowering movements of the carriage, a rotatable member mounted on and reciprocable with the table frame, a flexible table member extending around said rotatable member and having portions thereof at the upper and lower sides respectively of the rotatable member, the portion of the flexible member at the upper side of the rotatable member forming a support for a filled bag to rest thereon, means for reciprocating the table frame in said direction, and means fixed to the carriage for holding the potrion of the flexible member at the upper side of the rotatable member from movement during retraction of the table frame to cause a portion of the flexible member to pass around said rotatable member from the upper to the lower side thereof and thereby remove the flexible member from beneath the filled bag and permit such bag to drop by gravity onto the conveyor.

20. The combination with a bag packer having a main frame, a packing cylinder mounted thereon and having an auger operative therein, and a conveyor below the packing cylinder for removing filled bags from the packer, of a carriage mounted on said frame for raising and lowering movements, a table frame mounted on the carriage for reciprocation between the packing cylinder and the conveyor in a direction transversely of the raising and lowering movements of the carriage, a member mounted on the table frame for reciprocation therewith for extension beneath the packing cylinder and above the conveyor and for retraction therefrom, a flexible table member extending around said reciprocatory member from its upper to its lower side, means for reciprocating the table frame in its said direction of reciprocation to extend said reciprocatory member beneath the packing cylinder and to retract said member, and means fixed to the carriage and connected to the flexible member to hold the portion of said member above said reciprocatory member from movement during extension of said reciprocatory member and thereby cause a portion of said flexible member to pass from the lower to the upper side of said reciprocatory member and thereby provide a support for a bag to rest thereon during filling, and to hold the portion of the flexible member above said reciprocatory member from movement during retraction of said member and thereby cause a portion of said flexible member to pass from the upper to the lower side of said reciprocatory member and remove the flexible member from beneath the filled bag and permit such bag to drop onto the conveyor.

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The following references are of record in the file of this patent:

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