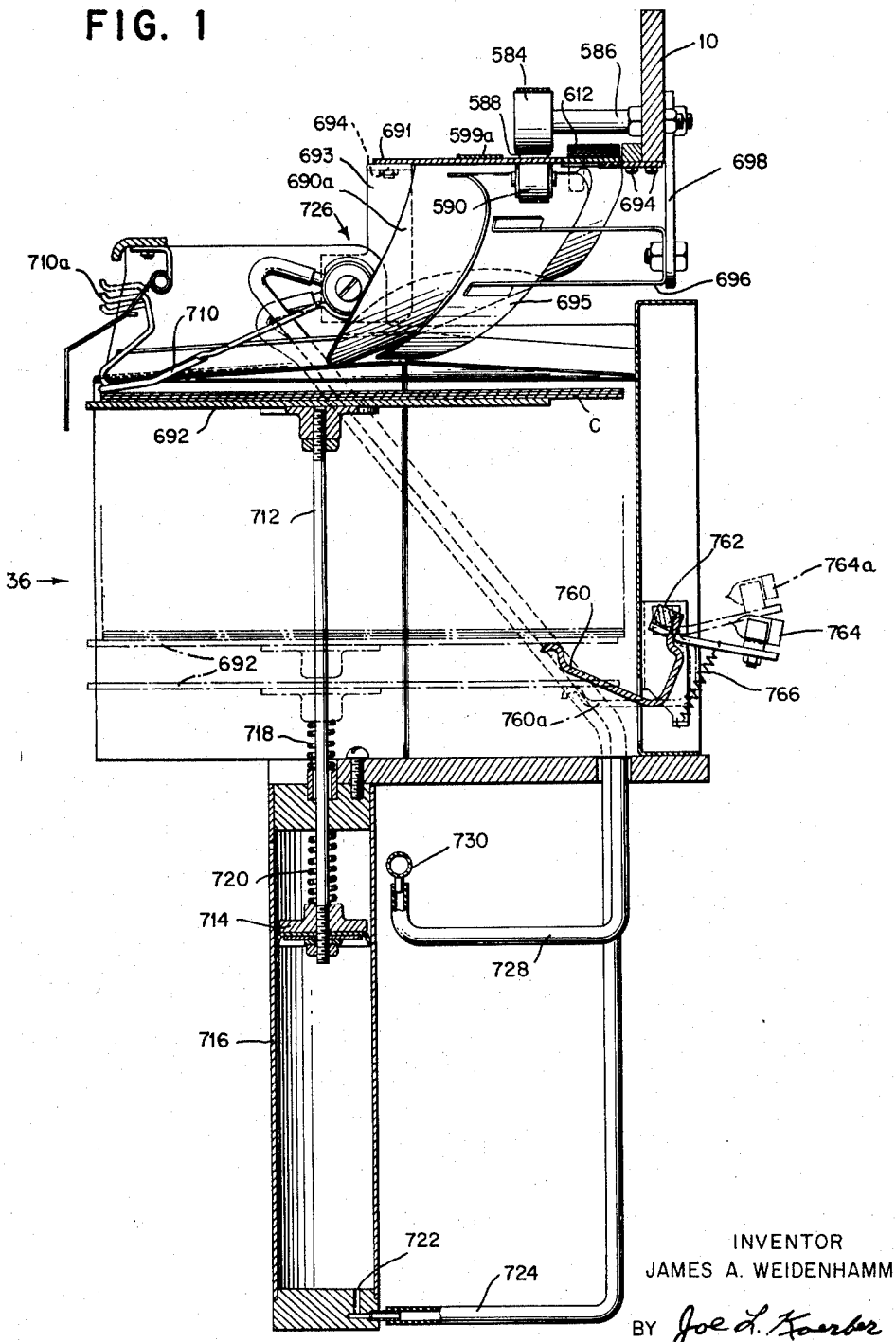
Oct. 27, 1959 J. A. WEIDENHAMMER 2,910,294

AIR REGULATED MOVABLE PLATFORM

Filed June 4, 1957 2 Sheets-Sheet 1

FIG. 1



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FIG. 2a

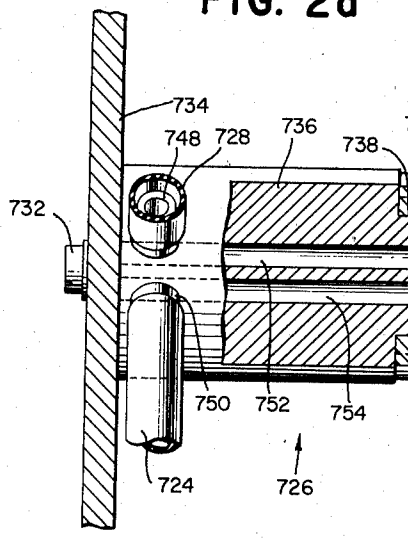


FIG. 2b

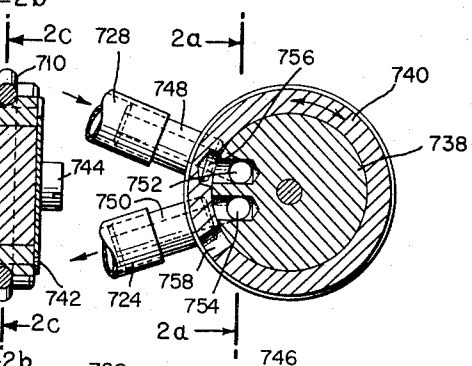


FIG. 2c

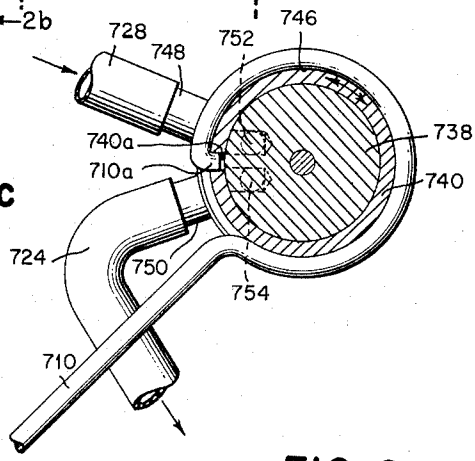


FIG. 2d

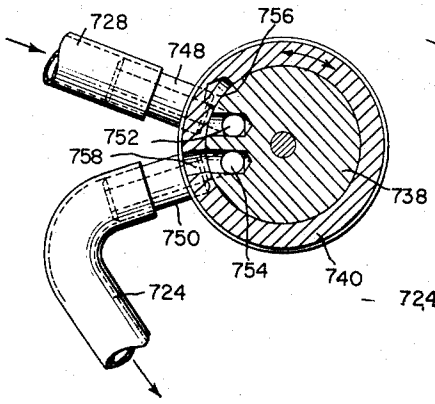
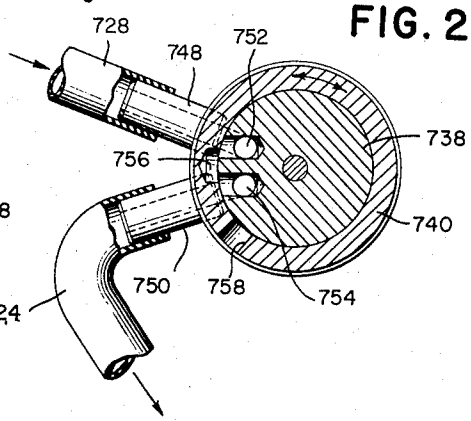


FIG. 2e



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AIR REGULATED MOVABLE PLATFORM

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Application June 4, 1957, Serial No. 663,523

2 Claims. (Cl. 271—88)

This invention relates to a movable load platform for a document receiver and more particularly to one which is regulated by an air cylinder.

The usual sorter stacker pockets have movable platforms forming the bottom of the pocket. These platforms usually are supported on graduated springs whereby the platform lowers progressively as documents are stacked thereon. The springs are graduated on the basis of the weight of the documents so as to maintain the top document on the platform at a predetermined level. Even with documents having identical dimensions originally, the predetermined level is not maintained after the cards are used because the cards become wrinkled and therefore occupy more space and thus raise the top level. If the cards absorb moisture they are heavier and tend to lower the platform more than the graduated amount.

In accordance with the foregoing observations, it is the principal object of this invention to provide an improved document support in which the top document on a platform is maintained at a desired elevation independently of the size, thickness, weight or condition of the documents.

A further object of the invention is to provide a document support wherein the level of the platform is controlled by the level of the top document.

Another object of the invention is to provide a movable platform the level of which is controlled by an air cylinder.

Still another object of the invention is to provide a movable platform the level of which is controlled by an air cylinder and the air supply is controlled by a lever actuated by the platform or the top document on the platform.

Other objects of the invention will be pointed out in the following description and claims and illustrated in the accompanying drawings, which disclose, by way of example, the principle of the invention and the best mode, which has been contemplated, of applying that principle.

In the drawings:

Fig. 1 is a sectional view of a stacker pocket.

Figs. 2*a*–2*e* are sections illustrating a valve.

The subject document stacker platform and the air servo control therefor, are shown and described in patent application Serial No. 631,925, filed December 31, 1956, on behalf of the instant applicant and others. Figs. 1 and 2*a*–2*e* correspond to Figs. 22 and 24*a*–24*e* respectively of the above cited application and corresponding reference numbers are used there and herein.

Only as much of the machine as is necessary to the understanding of the air servo device is shown and described herein. Reference may be made to the cited application for additional details.

As checks are fed into a pocket 36 in the manner described in the above cited application, it is desirable that the checks remain in the order in which they enter the pocket. Therefore, it is desirable to assure that a following check does not enter underneath a preceding check as it is fed into the pocket. In order to insure this action, the platform **692**, Fig. 1, is maintained in close relation to the members **690***a* and **695**. To this end a lever **710** is positioned to be actuated by a check entering between the lever **710** and the platform **692** or between the lever **710** and the uppermost check C on the platform. When the lever **710** is raised by one or more checks entering the pocket, the servo-mechanism is actuated to lower the platform an amount corresponding to the thickness of the entering checks. When the checks are removed from the platform **692**, the lever **710** is permitted to drop, thereby actuating the servo-mechanism to raise the platform **692** to a position in contact with the lever **710** wherein the lever **710** assumes the position of Fig. 2*b*. A shaft **712**, supporting the platform **692**, mounts a piston **714** mounted in a cylinder **716**. A spring **718** is mounted on the shaft **712** to cushion the platform **692** in its lowest or full pocket position. A spring **720** is mounted on the shaft **712** to bias the piston **714** downwardly. A port **722** is provided in the bottom of the cylinder **716** connected with an air hose **724**. The air hose **724** leads to a valve generally designated **726**. An air hose **728** leads from the valve **726** to a tube **730** connected to any suitable air pressure supply (not shown). Referring to Figs. 2*a* through 2*e*, the valve **726** is mounted by a bolt **732** on a bracket **734** suitably mounted on the frame of the machine. The valve **726** comprises a stationary cylindrical member **736** having a reduced hub portion **738** loosely mounting a sleeve **740**. The sleeve **740** is held in position by a washer **742** and a screw **744**. The sleeve **740** mounts the lever **710** by snapping a looped end of the lever **710** into a groove **746**, Fig. 2*c*. A turned over end **710***a* engages a hole **740***a* in the sleeve **740**. A pair of radially extending nipples **748** and **750** connect respectively with holes **752** and **754** extending lengthwise of the cylinder **736** to a point midway on the turned down hub portion **738** where the holes **752** and **754** turn at right angles and extend radially to the outer surface of the turned down hub portion. The hose **728** connects the air supply tube **730** with the nipple **748** whereas the hose **724** connects the port **722** of the cylinder **716** with the nipple **750**. A cavity **756** formed on the inner surface of the sleeve **740** in alignment with the holes **752** and **754** is adapted, in one position of the sleeve **740**, Fig. 2*b*, to cover the hole **752**; in another position of the sleeve **740**, Fig. 2*d*, to be out of alignment with both holes **752** and **754**; and in a third position of the sleeve **740**, Fig. 2*e*, to connect the holes **752** and **754**. An exhaust port **758** is drilled in the sleeve **740** and is adapted, in one position of the sleeve **740**, Fig. 2*d*, to be in alignment with the hole **754** and to connect the hole **754** with the atmosphere. In the other positions of the sleeve **740**, Figs. 2*b* and 2*e*, port **758** is out of alignment with the hole **754**. In operation of the servomechanism, the lever **710** is normally in contact either with the platform **692** or with the uppermost check on the platform, as illustrated in Fig. 1. When additional checks are fed under the lever **710**, the lever **710** is rotated in a clockwise direction, to the dotted position **710***a*, Fig. 1, moving the sleeve **740** to the position of Fig. 2*d* in which position the exhaust port **758** connects with the hole **754** thereby exhausting air from the cylinder **716** through the port **722**, the hose **724**, the nipple **750**, the hole **754** and the exhaust port **758** to the atmosphere. Exhausting air from the cylinder **716** permits the spring **720** to lower the piston **714** thereby lowering the platform **692** and causing the lever **710** to rotate in a counterclockwise direction until the exhaust port **758** is no longer in registration with the hole **754**. Assuming there are checks in the stacker

pocket and they are removed therefrom, the lever **710** is allowed to fall, rotating the sleeve **740** in a counterclockwise direction to the position illustrated in Fig. 2*e*, in which position the cavity **756** in sleeve **740** connects the holes **752** and **754** thus supplying air from the tube **730** through the hose **728**, the nipple **748**, the hole **752** through the cavity **756** into the hole **754**, through the nipple **750**, the hose **724** and the port **722** into the cylinder **716** thereby raising the piston **714** and the platform **692** against the action of the spring **720**. The upward movement of the piston **714** and the platform **692** will continue until the platform **692** engages the lever **710** moving it upwardly whereby the sleeve **740** is rotated to the position of Fig. 2*b*, at which time the supply of air from the hole **754** through the cavity **756** to the hole **752** is cut off. This latter position is the normal position of the valve **726**. Referring to Fig. 1, a raised position of the platform **692** with several checks thereon is illustrated. In dotted outline, two additional positions of the platform **692** are illustrated. When the platform is lowered to the middle position by the feeding of checks into the pocket, the platform engages a lever **760** fixed to a rod **762** which is pivotally mounted on the frame of the machine. The rod **762** also carries a mercury type switch **764** which is adapted to close electrical contacts when moved to the dotted position **764***a* when the lever **760** is moved to the dotted position **760***a* by the platform in the lowermost illustrated position. The rod **762** and the associated lever **760** and switch **764** are normally maintained in the full line position by a spring **766**. Eleven of the thirteen pockets **36** described in the above cited application have a lever **760**, all of which are commonly mounted on the rod **762**. The switch **764** when operated, signals that one of the eleven pockets is filled to capacity.

While there have been shown and described and pointed out the fundamental novel features of the invention as applied to a preferred embodiment, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention. It is the intention therefore, to be limited only as indicated by the scope of the following claims.

What is claimed is:

1. A document receptacle comprising, in combination, a hopper having sidewalls, a movable platform, means for stacking documents on said platform, a cylinder, a fluid operated piston within said cylinder mounting said platform for vertical movement, a first spring for biasing said piston in one direction, a second spring for cushioning said platform in a lowered position, a supply of said fluid under pressure for moving said piston in an opposite direction, a three-position valve operable in a first position for admitting said fluid to said cylinder, operable in a second position for exhausting said fluid from said cylinder and operable in a third position for maintaining said fluid in said cylinder and a lever operable by an upper surface formed by said platform or by the uppermost document thereon for operating said valve whereby said upper surface is maintained at a predetermined level.

2. The device of claim 1 wherein said valve comprises a member having an input port, an output port, an atmosphere port, a connection between said fluid supply and said input port, a connection between said output port and said cylinder, a sleeve rotatably mounted on said member and having a cavity movable to a first position to connect said input port with said output port, movable to a second position to connect said output port with said atmosphere port and movable to a third position out of alignment with all said ports.

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