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H. R. MATHISON

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TABLET PRESS OVERHEAD FEED SYSTEM

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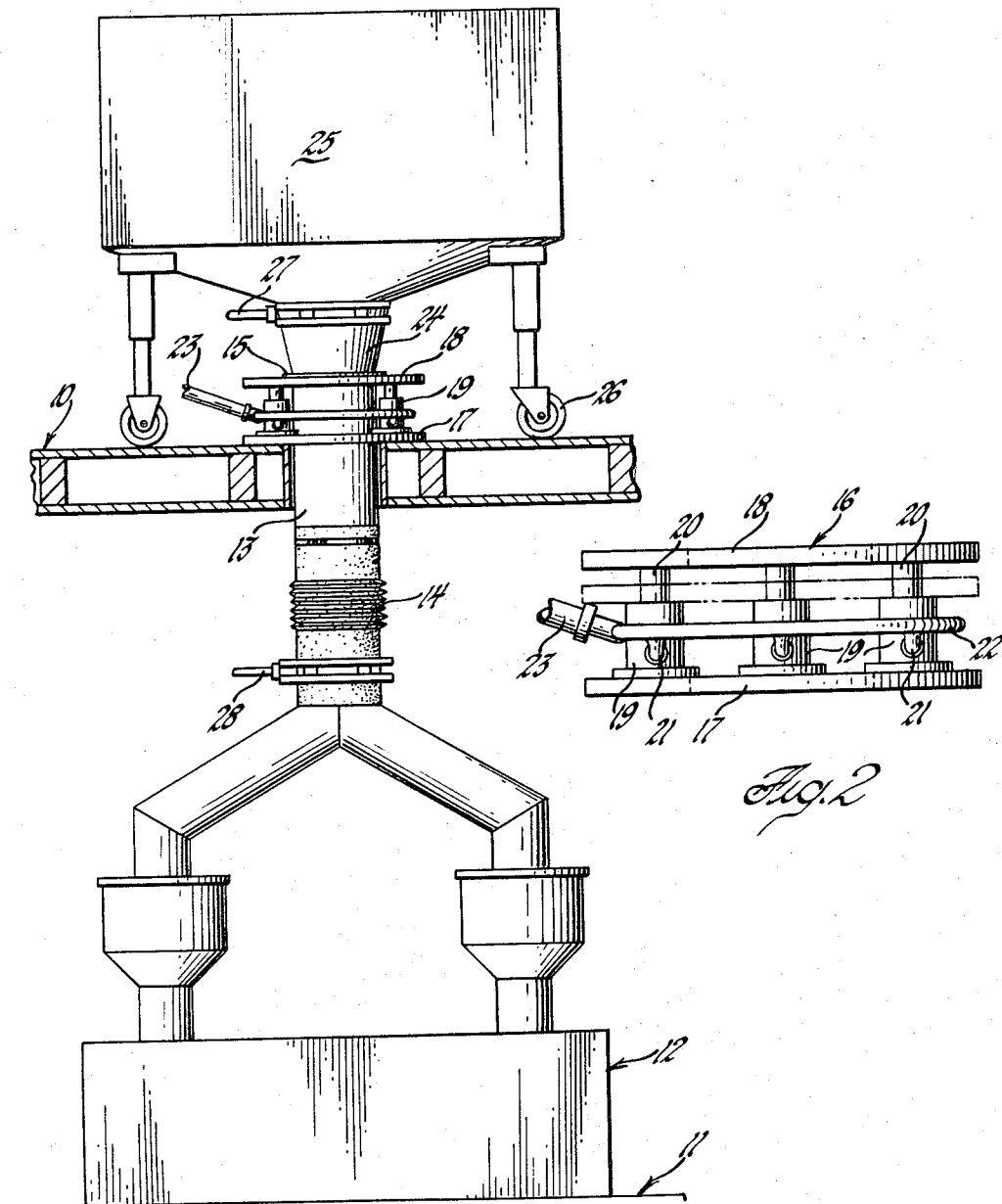


Fig. 1

Fig. 2

INVENTOR

Harold R. Mathison

BY *Martin J. Spellman, Jr.*

ATTORNEY

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TABLET PRESS OVERHEAD FEED SYSTEM
Harold Richard Mathison, Suffern, N.Y., assignor to
Geigy Chemical Corporation, Ardsley, N.Y., a corpora-
tion of Delaware

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ABSTRACT OF THE DISCLOSURE

A tablet press overhead feed system in which a wheel supported bin at an upper floor level is movable to align its conically tapered discharge spout with a delivery conduit located at floor level leading to a tablet press at a lower floor level. A fluid pressure operated coupling means is used to couple the discharge spout with the conduit.

The present invention is a system and apparatus for delivering batches of pharmaceutical tablet material from a portable overhead carrier to a subjacent fixed press in which the mix comprising the tablet material is compressed into tablets for distribution to the trade.

Industrial plants engaged in the commercial production of tablets, pills, and the like usually operate on a two-floor system basis in which a batch mix of the desired ingredients and consistency is prepared on an upper floor and discharged by gravity from a portable carrier into a conduit passed through the floor and which delivers the mix to press apparatus on a floor below. In practice, that portion of the delivery conduit which passes through the upper floor is movable on a vertical axis for elevation into connection with the discharge spout of a batch carrier positioned over the upper end of the delivery conduit. Power mechanism is required to lift the upper end of the delivery conduit into forcible sealing engagement with the batch carrier discharge spout.

An object of the present invention is to provide in a system of the character above described a simple force applying mechanism of few parts and capable of remote control operation for elevating the upper end portion of a delivery conduit into forcible sealing engagement with the discharge spout of a portable batch carrier positioned thereover.

Other and incidental objects will be apparent from the following description in conjunction with the accompanying drawings in which:

FIG. 1 is a general elevational view of a two-floor system incorporating the present invention.

FIG. 2 is a side elevation of the lifting and sealing means of the invention.

The present invention is used in an industrial plant installation having an upper floor 10 and a lower floor 11. A conventional tablet press 12 on the lower floor is supplied with tablet composition material gravity fed from the floor above through a delivery conduit 13. This conduit includes an intermediate expandable and flexible coupling portion 14 which permits the cylindrical upper end portion of the conduit to move axially in and through a complementary opening in the upper floor. The upper end of conduit 13 projects above the floor and is formed as a flat, external, circumferential flange 15 that extends laterally from the conduit in a plane normal to its axis.

The flange 15 seats on and is supported by an axially expandable collar assembly indicated generally as 16 that surrounds the upper end portion of the conduit between the flange 15 and the surface of the floor. Collar assembly 16 is comprised of a flat base ring 17 seated loosely on the floor surface and a movable upper ring 18 on which the conduit flange 15 seats. The collar rings are connected by fluid expansible chamber means here shown

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as a plurality of cylinders 19 fixed on the base ring 17 at circumferentially spaced points and provided with fluid actuated pistons 20 that are fixedly attached at their upper ends to the ring 18. Operating fluid under remote control is supplied to cylinders 19 by inlets 21 leading from a ring manifold 22 that has communication by way of a supply line 23 with a source (not shown) of fluid under pressure. When not in use the pistons 20 normally are retracted so that the upper ring of the collar assembly occupies the lowered phantom line position shown in FIG. 2.

The collar assembly is a means of connecting the upper end of the conduit 13 to the cone-tapered discharge spout 24 of a portable bin carrier 25 on the upper floor mounted on roller casters 26. The mouth of spout 24 occupies a plane normal to its axis, and its outer diameter is appreciably less than the internal diameter of conduit 13 at its upper end; so that when the expansible collar assembly elevates the flange 15 the open upper end of the conduit rides up over the tapered surface of the spout into forcible sealing engagement therewith. When the collar is collapsed in the phantom line position of FIG. 2 the mouth of the spout 24 is spaced above the conduit flange 15 so that it may pass freely thereover.

In operation, a bin 25 carrying a batch of material to be pelleted is rolled into position above the upper end of conduit 13 with its spout 24 registered axially with the conduit. Fluid under pressure then is admitted to the cylinders 19 to elevate the upper ring 18 of the collar and thus lift and hold the upper end of conduit in forced, tight sealed connection with the bin spout. Closure valve means 27 on the bin discharge spout is opened and the contents of the bin flows by gravity down through the delivery conduit to the press 12. Valve means 28 controls delivery from conduit 13 to the press.

It is to be understood that the herein disclosed embodiment of my invention is illustrative of a practical example and that the invention is not restricted thereto. It may comprise any structure falling within the scope of the invention as claimed.

I claim:

1. In combination: a pelleting press; a vertical delivery conduit for gravity feed of pelleting material to said press; said conduit having an open upper end provided with a lateral external flange; a fixed support below said flange; the upper end portion of the conduit being axially movable in and through said support; a pelleting material carrier movable on said support for positioning over the flanged upper end of said conduit; a discharge spout on the bottom of said carrier and terminating in vertically spaced relation above the upper end of the delivery conduit when disconnected therefrom; said spout being connectible with the open upper end of the conduit by insertion therein; and fluid pressure expansion means between said fixed support and the delivery conduit flange and operative to lift the axially movable upper end portion of the conduit into connection with the carrier discharge spout.

2. In the combination of claim 1, said fluid pressure expansion means including a collar seated on said support and surrounding the upper end portion of the conduit, said collar engaging beneath and supporting the flange on the delivery conduit.

3. In the combination of claim 2, said collar comprising a base ring, a separate upper ring movable axially relative to the base ring, a plurality of cylinders fixed on one of said rings, pistons in said cylinders and engaging the other of said rings, and means for supplying fluid under pressure to said cylinders to project said pistons and move their engaged ring axially from the other.

4. A tablet press overhead feed system comprising: a lower floor having thereon a press; an upper floor; a conduit for delivering pelleting material thereto and includ-

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ing a cylindrical upper end portion movable axially in
and through said upper floor and extending thereabove; a
lateral external flange on the upper end of the conduit; a
pelleting material carrier movable on said upper floor to
a position over the upper end of the conduit; fluid pres- 5
sure expansible means seated on the upper floor and in
turn seating the delivery conduit flange; a conically tap-
ered discharge spout on the bottom of said carrier for in-
sertion in the cylindrical upper end of the delivery con-
duit; and means for supplying fluid under pressure to 10
said expansible means to lift said flange and thereby force

the upper end of the delivery conduit upwardly and over
said discharge spout to effect sealed connection therewith.

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WALTER A. SCHEEL, *Primary Examiner.*

A. O. HENDERSON, *Assistant Examiner.*