

[54] **WORM HOUSING FOR DOUBLE
WORM PRESS**
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[22] Filed: **March 29, 1971**
[21] Appl. No.: **128,860**

[30] **Foreign Application Priority Data**
April 1, 1970 Switzerland4806/70
[52] **U.S. Cl.**100/146, 100/127, 425/192,
425/204
[51] **Int. Cl.**B30b 3/04, B29b 3/08
[58] **Field of Search**.....100/145, 146, 147, 148, 149,
100/150, 117, 129, 127; 425/192, 204, 198

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[57] **ABSTRACT**
A worm housing construction for a double worm press of the type equipped with wearing sleeves, wherein both the housing and the wearing sleeves are sub-divided in the plane of the worm axes into two halves, key connection means being provided at both longitudinal sides of the housing halves, such key connection means rigidly but detachably connecting with one another both housing halves.

8 Claims, 2 Drawing Figures

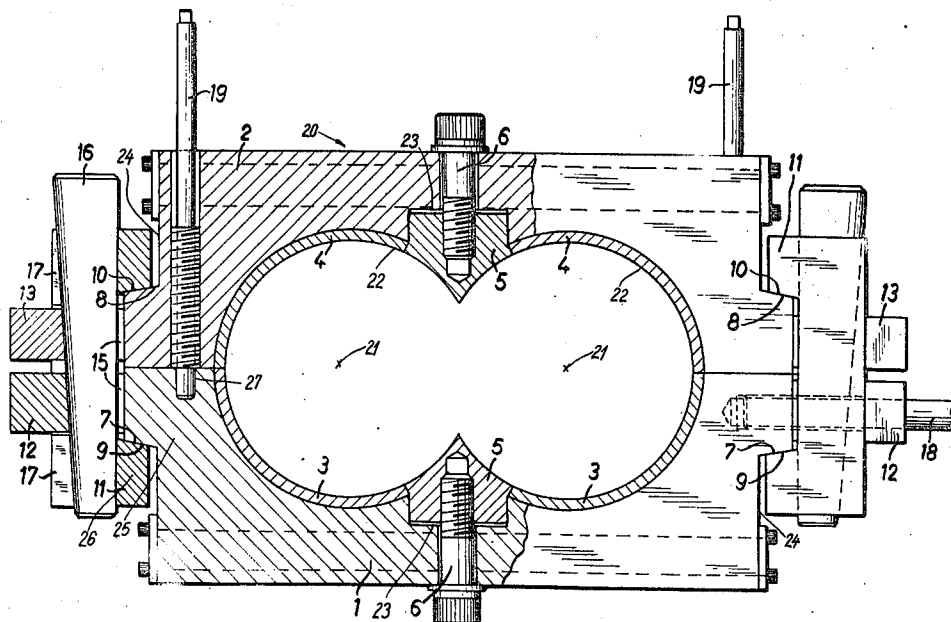
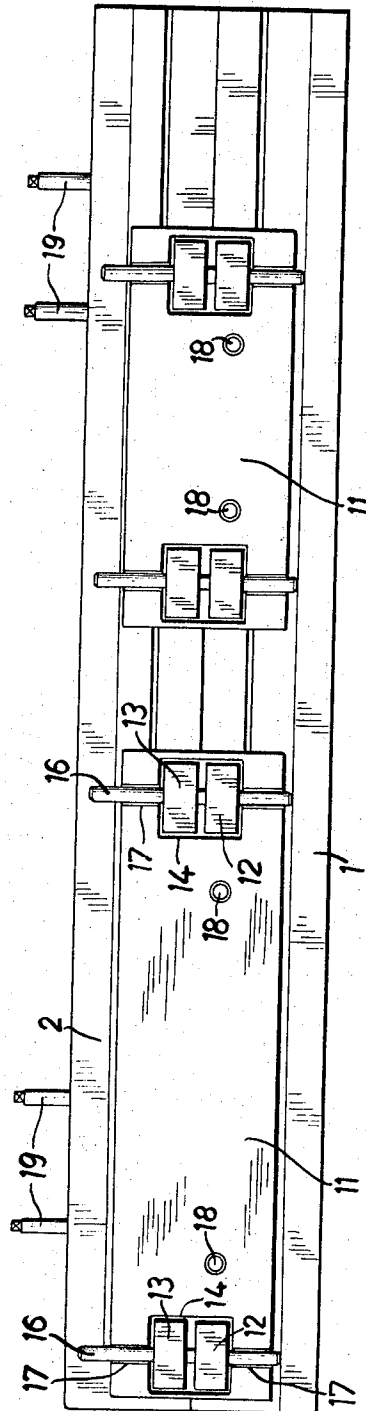


Fig. 1



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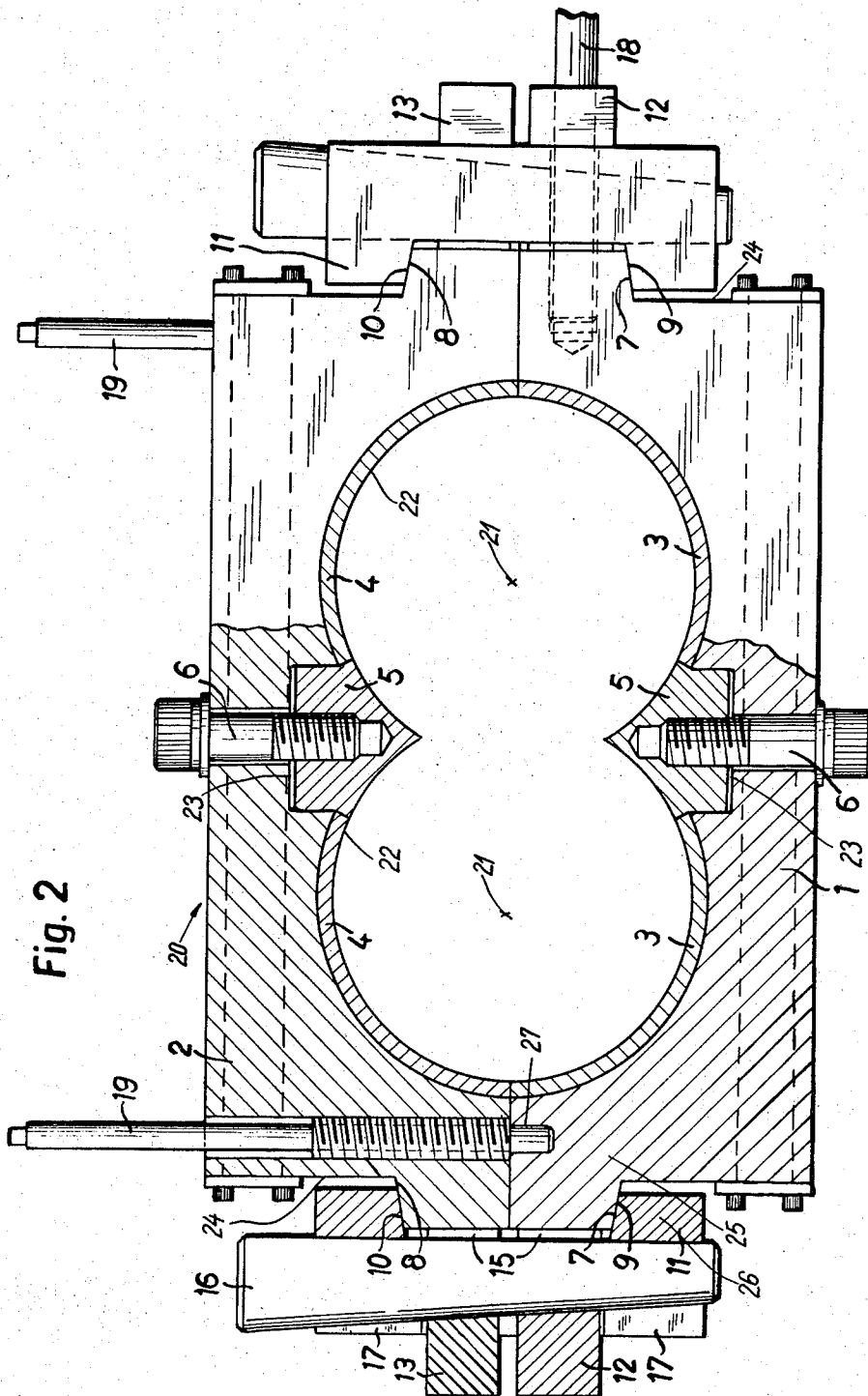


Fig. 2

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WORM HOUSING FOR DOUBLE WORM PRESS

BACKGROUND OF THE INVENTION

The present invention broadly relates to presses and, more specifically, deals with a worm housing construction for a double worm press of the type equipped with wearing sleeves.

Previously the worm housing of double-worm presses were designed as unitary or one-piece structures. Thus with a very simple construction it was possible to achieve a stable housing of sufficient strength characteristics. Yet, such physical manifestation of housing construction possessed the noteworthy drawback that the solidified plastic or synthetic resin remaining within the press housing upon interruption in the operation of the press could only again be removed under extreme difficulties and with great loss of time.

SUMMARY OF THE INVENTION

Hence, in consideration of the foregoing it will be appreciated that prior art press constructions do not yet adequately satisfy the need for easily and conveniently removing the materials from the press during operational interruptions. Accordingly, a primary object of the present invention is to provide a new and improved type of housing construction for a double-worm press which copes with the existing problems of material removal in a most efficient, rapid and time-saving manner.

Still another significant objective of the present invention is directed to a novel worm housing construction for a worm press wherein means are provided for enabling ready access to the press interior for cleaning purposes, and during press operation such means serve to securely maintain the housing halves of the worm housing in a most efficient yet releasable engagement with one another.

Another and equally important object of the present invention relates to a novel type of housing design for worm presses wherein the housing as well as the wearing sleeves are each sub-divided into two halves, connection means cooperating therewith for the purpose of urging the two housing halves into snug seating engagement with one another but still affording rapid release of such housing halves to enable cleaning of the press interior in a most facile manner.

Now, in keeping with the above objectives of this invention and for the purpose of overcoming the drawbacks explained above in connection with the heretofore known state-of-the-art press housing constructions, this invention contemplates sub-dividing the press housing and the wearing sleeves into two halves at the plane of the worm axes. Along both longitudinal sides of the housing halves there are provided connecting elements in the form of wedge or key connection means serving to fixedly detachably interconnect both housing halves with one another. When interruptions in the operation of the press occur, then, both housing halves can be easily separated from one another, thereby readily exposing the internal cylindrical compartment of the housing for the purpose of removing hardened plastic or other contaminants, and specifically for cleaning the interior of the press housing. During operation of the press both housing portions or housing halves are again fixedly and rigidly connected with one another by the wedge or key connection means.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be better understood and objects other than those set forth above, will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

FIG. 1 is a side view of a preferred constructional form of inventive worm housing of a double worm press and embodying the teachings of the present invention; and

FIG. 2 is an enlarged cross-sectional view of the press structure shown in FIG. 1, expressing details of the inventive housing construction and connection means for the two housing halves.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Describing now the drawings, in FIGS. 1 and 2 there has been illustrated a preferred exemplary embodiment of inventive worm housing 20 of a double worm press construction. Within the worm housing there are arranged a pair of conventional worms, which have not been particularly shown in order to preserve clarity in illustration, but the respective lengthwise axes of each has been conveniently indicated at location 21. Now along a plane containing these worm axes 21 the housing 20 is sub-divided into a lower housing half or portion 1 and an upper housing half or portion 2. Similarly, the wearing sleeves 22 are likewise divided into two respective lower portions 3 and two respective upper portions 4 at this plane containing the worm axes 21. Further, at the central or median region of the housing halves 1 and 2 saddle or block members 5 are guided within grooves 23. Threaded tensioning screws 6 attached to these block members 5 serve to urge the latter against the wearing sleeves 22 so that the wearing sleeve halves 3,4 are tightly pressed against the cylindrical inner wall of the housing halves 1 and 2.

The invention further contemplates connection elements for securely yet releasably connecting both housing halves 1 and 2 with one another. To this end, it will be recognized that along both longitudinal sides of both housing halves 1 and 2 there are provided stepped or shoulder portions 25 which form key or wedge surface means 7 and 8. These wedge surface means 7 and 8 will be seen to extend with a converging taper from their inside portions located at the side situated closest to the housing 20 towards their outside portions situated at the location spaced from such inside portions. Cooperating with these tapered wedge surface means 7 and 8 are counter wedge surface means 9 and 10 formed at the inside of legs 26 of substantially U-shaped pressure rail means 11. Further, at both sides of the housing halves 1 and 2 brackets or lugs 12 and 13 are provided, these brackets extending through openings 14 of the pressure rail means 11. The brackets 12 and 13 will be seen to possess recesses or openings 15 through which there can be inserted keys or wedges 16 in the form of dowel pins. These dowel pins 16 extend into and are situated within grooves 17 provided at the respective pressure rail means 11. As used in the context of this application it should be understood that the terms "dowel or dowel pins" are used in a broader sense as referring to any convenient configured type of element which affords a proper fixed yet releasable

connection between the housing halves to urge same into snug contact with one another, while still enabling convenient and quick removal thereof for easy and rapid separation of such housing halves. Following insertion of the dowel or dowel pins 16 such are supported within the recesses 15 of the brackets 12 and 13 and act upon the associated pressure rail means 11 in such a way that the latter are pressed against the housing halves 1 and 2. Consequently, the wedge surface means 7 and 8 of the housing halves 1 and 2 act in such a manner that both housing halves 1 and 2 are fixedly pressed against one another and in this way are rigidly yet easily detachably interconnected with one another. The above-described key connection arrangement will thus be understood to afford the required contact of the housing halves for proper press operation, and similarly the convenience of rapid dismantling thereof for separation of such housing halves during, for instance, press cleaning operation.

The invention further contemplates a specific manner of mounting the pressure rails or plates 11 at the housing 20 so that these plates can be displaced conveniently away from the press housing to allow separation of the housing halves 1 and 2. To this end, it will be seen by referring to FIGS. 1 and 2 that four respective bolt members 18 are threaded into each of both longitudinal sides 24 of the housing 20 and these bolt members 18 pierce through the associated pressure rail or plate 11. Hence, upon dismantling of the wedge members or dowel pins 16 the pressure rail members or pressure rail means 11 are carried by such bolt members 18 and each such pressure rail member can be conveniently displaced outwardly away from the sides of the housing 20 to such an extent that these pressure plate members are no longer within the region of the brackets or lugs 12 and 13 during such time that the upper housing half 2 is to be raised from the lower housing half 1. Also for the purpose of facilitating lifting of the upper housing half 2 away from the lower housing half 1 threaded bolt members 19 are threaded into the upper housing half 2 and are supported within a respective blind hole of the lower housing half 1. Now by rotating these threaded bolt members 19 the upper housing half 2 can be raised away from the lower housing half 1 so that the cylindrical internal compartment of the press is easily exposed for the purpose of removing any solidified and therein deposited material, specifically for cleaning of the press interior from any undesirable materials contained therein.

While there is shown and described present preferred embodiments of the invention, it is to be distinctly understood that the invention is not limited thereto but may be otherwise variously embodied and practiced within the scope of the following claims. Ac-

cordingly,

What is claimed is:

1. A worm housing construction for a double worm press of the type equipped with wearing sleeves, comprising a housing having a pair of longitudinal sides, wearing sleeves located in said housing, each said housing and wearing sleeves being sub-divided substantially along the plane of the worm axes into two halves, and key connection means located along both longitudinal sides of said housing for securely yet releaseably interconnecting both housing halves with one another.

2. A worm housing construction as defined in claim 1, wherein said key connection means comprises wedge surface means provided along both longitudinal sides of said housing halves, said wedge surface means extending with a converging taper from their inside portions located at the side situated closest to said housing towards their outside portions situated at a location spaced from said inside portions, substantially U-shaped pressure rail means having counter wedge surface means cooperating with said tapered wedge surface means of said housing, and dowel pin means, for pressing said housing halves to fixedly press said housing halves against one another.

3. A worm housing construction as defined in claim 2, wherein said pressure rail means includes leg means, said counter wedge means being located at the inside of said leg means.

4. A worm housing construction as defined in claim 2, further including bracket means located along the longitudinal sides of said housing halves for receiving and supporting said dowel pin means acting upon said pressure rail means.

5. A worm housing construction as defined in claim 4, further including guide and support means for said pressure rail means provided at said longitudinal sides of said housing.

6. A worm construction as defined in claim 5, wherein said guide and support means comprise threaded bolt means threadably secured to said longitudinal sides of said housing.

7. A worm housing construction as defined in claim 6, wherein said threaded bolt means possess a length sufficient to permit outward displacement therealong of said pressure rail means into spaced relationship from said wedge surface means at said housing to permit separation of said housing halves from one another.

8. A worm housing construction as defined in claim 6, wherein said housing halves define an upper housing half and a lower housing half, threaded bolt members threaded through said upper housing half and supported at said lower housing half such that by rotating said threaded bolt members said upper housing half can be raised away from the lower housing half.

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