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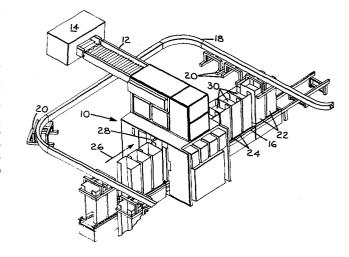
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54 Newspaper container loading apparatus.

An apparatus for loading newspapers into a container in a newspaper live storage buffer system having an indexing unit for moving the containers individually from the buffer's conveying device to a loading position. In loading position the container is operatively associated with upper and lower carrier conveying devices in which the upper one is provided with a plurality of spaced time members that are adapted to receive newspapers emanating from a printing press and to form stacks thereon which are lowered to a position for presenting the stacks to the lower carrier conveying device. This device includes a pair of spaced paddle members that are driven in an elliptical pathway to a position for receiving the stacks of newspapers from the time members, and then lowering them into the container.



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"NEWSPAPER CONTAINER LOADING APPARATUS" Background of the Invention

The newspaper container loading apparatus according to the invention forms a part of a newspaper live storage buffer which is an automatic system for handling newspapers as they leave the printing press whereby a reserve supply can be maintained that is capable of compensating for unintentional shut-down of the press as well as other devices downstream of the storage buffer which effect further processing of said newspapers.

United States Patent 3,881,716 discloses an apparatus for handling newspapers which includes an accumulator for receiving newspapers from the press and storing them in static form in the event the stuffers or other downstream devices should stop and interrupt the flow of newspapers that normally bypass the accumulator.

Certain U.S. Patents disclose mechanisms for receiving and forming stacks of newspapers or the like and for a detailed description of such teachings,

20 attention is directed to United States Patents 3,306,173 and 3,526,170.

The newspaper container loading apparatus comprising the invention utilizes a mechanism for forming stacks of newspapers and is considered a definite advance in the

- 25 art, for said mechanism is effective in delivering the stacks to a carrier conveying device which lowers said stacks into containers. The loaded containers are automatically placed in the buffer system's conveying apparatus where they are advanced to the systems
- 30 unloading apparatus whereat the newspapers are removed from the containers for further processing in the same order in which they were printed.

Summary of the Invention

The newspaper container loading apparatus according to the invention includes a loader housing operatively connected to a printing press via a stream conveyor and

- 5 with the conveying apparatus of a newspaper live storage buffer. This loader housing is provided with an indexing unit for moving the containers individually from the buffer's conveying apparatus to a newspaper loading position and then return the loaded containers to said
- 10 conveying apparatus. In loading position the containers are operatively associated with upper and lower carrier conveying devices in which the upper device is provided with a plurality of spaced time members that are caused to travel in a generally elliptical pathway and which are
- 15 adapted to receive newspapers emanating from the printing press via the stream conveyor. The time members are adapted to support the newspapers in superposed relation thereon defining stacks which are lowered by the times to a position where said stacks are transferred to the lower
- 20 carrier conveying device. This conveying device is provided with a pair of spaced paddle members that are driven in an elliptical pathway to a position for receiving the stacks of newspapers from the upper carrier conveying device and then lowering them into the

25 container.

It is a general object of the invention to provide a container loading apparatus for a newspaper live storage buffer system which is automatic and will not require intervention on the part of an operator.

Other objects and advantages of the invention will become more fully apparent by reference to the appended claims and as the following detailed description proceeds in reference to the figures of drawing wherein:

Brief Description of the Drawings

Fig. 1 is a perspective view of a portion of a newspaper live storage buffer showing the newspaper container loading apparatus according to the invention operatively associated therewith;

Fig. 2 is a view in side elevation showing the

various mechanisms comprising the invention;

Figs. 3, 4 and 5 are views in side elevation showing a container, the upper and lower carrier conveying devices and progressively how the stacks of newspapers are formed and lowered into the container.

Description of the Preferred Embodiment

Referring now to Fig. 1 the newspaper container loading apparatus comprising the invention is contained within a housing identified generally by numeral 10 and

- 10 by means of a stream conveyor 12 is operatively connected to a printing press diagramatically shown and identified by numeral 14. Additionally the housing 10 is operatively connected with a transfer conveyor 16 that in turn is operatively associated with an endless conveyor
- 15 18. This endless conveyor 18 is provided with a plurality of carrier elements 20 that depend from a driven chain (not shown) for effecting travel or said carrier elements about the entire pathway of said endless conveyor.
- As shown in Fig. 1 each carrier element 20 is capable of supporting a pair of container members 22 and are adapted to release said container members onto roller members 24 which form the upper portion of the transfer conveyor 16. By any appropriate means not shown such as
- 25 pneumatic cylinders, the container members are caused to travel in the direction of the indicating arrow 26 in Fig. 1.

The container members 22 traveling in this direction are caused to enter the housing 10 as at 28 and when they 30 leave the opposite side of said housing they will have been loaded with superposed newspapers 30 in a manner now to be described. As the container members enter the housing 10, they are individually received by an indexing rotor that is identified generally in Fig. 2 by numeral

35 32. This indexing rotor 32 is effective in individual removal of each container from the transfer conveyor 16 and of supporting them in a newspaper loading position as at 34 in Figs. 2-5. The newspaper loading position 34 positions a container below a pair of spaced front and

rear stack guides 36 and 38 respectively. These stack guides 36 and 38 are operatively associated with an upper carrier conveying device that is depicted generally in Figs. 2-5 by numeral 40.

5 The conveying device 40 is provided with a pair of spaced track elements 42 (one only shown) that are operatively connected to a gear reduction drive motor 44 by means of drive chains 46 and 48 (Fig. 2) that in turn are connected to upper and lower drive shafts 50 and 52 respectively.

By means not shown these drive shafts 50 and 52 are operatively connected to chains that drive carrier elements with cam followers guide peripheral channels in track elements 42 and which are adapted to support a

- 15 plurality of tine members 54 (two only shown in Fig. 2). With the tine members having one end attached to the carriers which ride in the peripheral grooves, they are caused to move in a clockwise direction as viewed in Figs. 2-5.
- The end of the stream conveyor 12 most remote from the printing press 14 is operatively associated with the upper portion of the conveying device 40 and is adapted to release the newspapers traveling in shingled relation thereon onto the times 54 where they form stacks of superposed newspapers 30.
 - As shown in Figs. 3-5. a stack sensor 56 is located adjacent the area where the newspapers leave the stream conveyor and are placed one on top of the other on the times 54.
- This stack sensor 56 is effective in controlling the height of each stack of newspapers formed on a set of times 54 so that a time with a predetermined number of papers is caused to be lowered and another time moved into position to receive and form another stack.
- When each set of times 54 is lowered with its stack of newspapers it is caused to present said stack to a lower carrier conveying device that is depicted generally in Figs. 2-5 by numeral 58.

This conveying device 58 is provided with aligned

and vertically spaced sprocket members 60 and 62 which are interconnected by a drive claim 64. The upper sprocket as shown in Fig. 2 is identified by numeral 60 and is operatively connected to a drive motor 66 which is effective in causing the drive chain 64 to travel in an elliptical pathway about the sprockets 60 and 62. This drive chain is of the endless type and has a pair of spaced paddle members 68 and 70 mounted thereon and extending outwardly therefrom their free ends are also caused to travel in an elliptical pathway depicted by the phantom line 72 in Figs. 2-5.

The container members 22 are fabricated with one side having an open channel extending the full length thereof and with a U-shaped bottom which permits the paddle members to pass completely through a container in its loading position as said paddles are caused to move in their elliptical pathway.

As shown in Fig. 3, paddle member 70 is in position for receiving a stack of newspapers from tine member 54.

- 20 In Fig. 4 the stack is resting on paddle member 70 which has been lowered where it supports the stack in the upper portion of the container member 22 and another stack has been formed on another set of times 54. In Fig. 5 a sufficient number of stacks have been formed to fill the
- 25 container member 22 and paddle member 70 has passed through and beyond the bottom of said container while paddle member 68 is approaching the position for receiving the next stack to be formed on yet another time member 54.
- When the container member has been filled as shown in Fig. 5, the indexing rotor 32 returns it to the transfer conveyor 16 and simultaneously places another empty container member in loading position 34 where the loading cycle is again repeated.
- Although the present invention has been described in connection with a preferred embodiment, it is to be understood that modifications and variations may be resorted to without departing from the spirit and scope of the invention as those skilled in the art will readily

understand. Such modifications and variations are considered to be within the purview and scope of the invention and the appended claims.

WE CLAIM:

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- 1. A loading device operatively associated with the conveying apparatus of a newspaper live storage buffer for receiving newspapers from a printing press and
- 5 loading them into a container of the type having latching levers cooperating with a bottom defining a gate member pivotable between a closed latched position and an unlatched open position, said loading device comprising:
 - (a) a loader housing connected to the conveying apparatus;
 - (b) moving means operatively associated with the conveying apparatus for transferring a container to a newspaper loading position and then returning it to the conveying apparatus as required;
 - (c) means mounted within said loader housing for accepting the newspapers emanating from a printing press and forming stack thereof of a preselected number; and
 - (d) means operatively associated with said accepting means and the container in its loading position for receiving the stacks of newspapers formed by said accepting means and lowering them into the container.
- 25 2. The structure according to Claim 1 wherein said moving means defines an indexing apparatus for supporting a container in its newspaper loading position.
- 3. The structure according to Claim 1 wherein said loading device includes a stream conveyor interconnecting the printing press with said loader housing for receiving

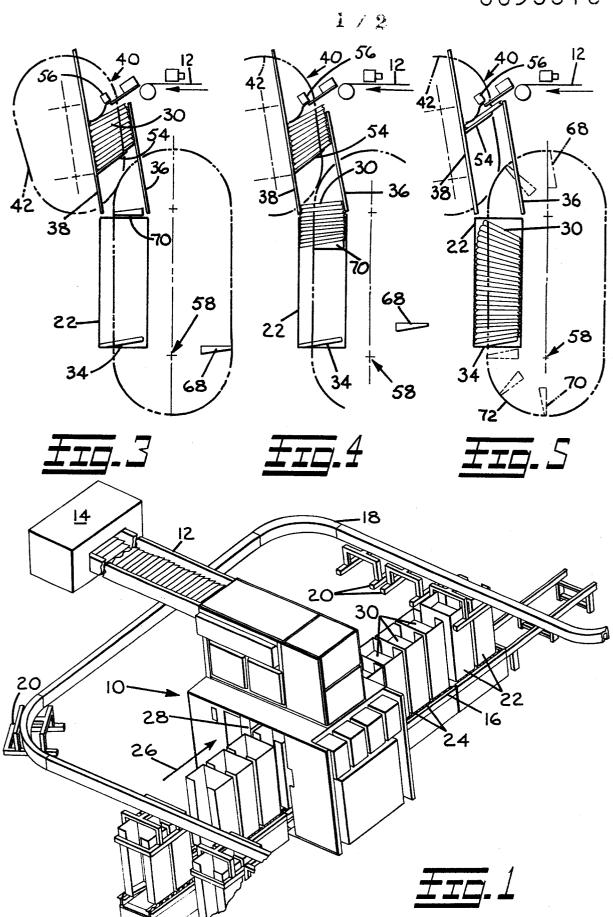
newspapers into the latter.

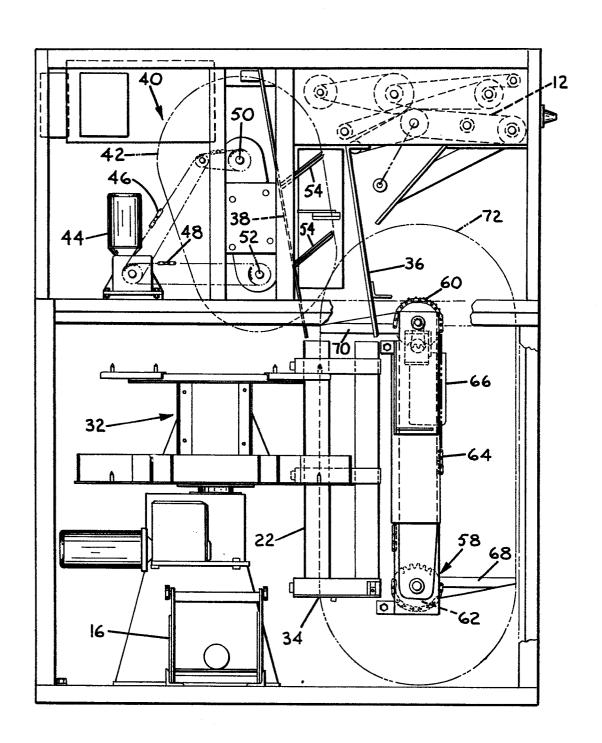
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- 4. The structure according to Claim 3 wherein said accepting means defines an upper carrier conveying device including:
 - (a) a plurality of spaced tine members mounted for movement in a generally elliptical pathway for receiving the newspapers conveyed by said stream conveyor; and
- (b) guide members operatively associated with said time members for guiding the newspapers stacked thereon to a position for delivery to said receiving means.
- 5. The structure according to Claim 4 wherein said receiving means defines a lower carrier conveying device including:
 - (a) a pair of spaced paddle members;
 - (b) drive means operatively connected to said paddle members for moving the latter in an elliptical pathway to positions for receiving stacks of newspapers from the tine members and lowering them into the container.
 - 6. The structure according to Claim 5 wherein said drive means includes:
- 25 (a) a drive motor;
 - (b) a first sprocket member operatively connected to said drive motor;
 - (c) a second sprocket member rotatably supported in spaced relation to said first sprocket member; and
 - (d) a drive chain interconnecting said first and second sprocket members with said paddle members operatively connected thereto.





<u>Fig.</u>2