QUICK-CHANGE SUPPLY SYSTEM

8 Claims, 6 Drawing Figs.

ABSTRACT: A multimagazine supply system, including a magazine support having an active station and at least one inactive magazine, a plurality of supply magazines adapted to be slidable mounted on said tray support, camming means mounted on each of said supply magazine, locating means having a cam follower surface in spaced relationship with said camming means on said supply magazine, wherein sliding movement of a supply magazine from an inactive position on the magazine support to the active station will cam said locating means out of engagement with a magazine in said active position, allowing said last-named magazine to be removed from said magazine support and be replenished.
QUICK-CHANGE SUPPLY SYSTEM

CROSS REFERENCE TO RELATED APPLICATIONS

The apparatus described herein is adapted to be utilized as an element of machinery of the type described in assignee's
co-pending application Ser. No. 396,430, now U.S. Pat. No.
3,451,192 entitled "Bread Bagger".

BACKGROUND OF THE INVENTION

This application relates to the packaging of commodities,
and more particularly to a system for providing the packaging
medium wherein an exhausted supply of the packaging med-
ium may be replaced in a rapid and efficient manner.

Previously, one of the leading causes of downtime in auto-
matic packaging apparatus was the difficult and time-consum-
ing task of replenishing the packaging material supply. For ex-
ample, in a number of prior art machines, it is necessary to
detach a supply magazine from the machine and replace it
with a full magazine, taking care to align the new magazine
with the segments of the machine that withdraws the packag-
ing material from the magazine.

SUMMARY

It is, therefore, an object of this invention to provide a mul-
timedia supply system capable or rapid and simple chan-
geover of supply magazines.

It is another object of this invention to provide a multi-
timedia system wherein an exhausted supply magazine may
be quickly and simply removed from place and be replaced by
a full magazine that can be easily put in the same place as the
exhausted magazine.

In accordance with these and other objects, the invention
comprises a magazine support adapted to receive a plurality of
supply magazines in such a fashion that the supply magazine
are moveable thereon to and from a work station, and a locat-
ing member connected to said support member, said locating
member having means for locating a supply magazine at the
work station, and means in spaced relationship with said
supply magazine for disengaging the locating member from
supply magazine at the work station when a new supply is
moved along the support to the work station.

DESCRIPTION OF THE DRAWING

FIG. 1 is a plan view of a preferred embodiment of the inven-
tion shown attached to a machine.

FIG. 2 is a front elevation view, partly in section, of the
preferred embodiment of the invention.

FIG. 3 is a sectional view taken along lines 3-3 of FIG. 2.

FIG. 4 is a plan view of a portion of a supply magazine ac-
cordingly.

FIG. 5 is a sectional view taken along lines 5-5 of FIG. 4.

FIG. 6 is a partial front elevation view of the preferred em-
bodiment.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to FIG. 1, a preferred embodiment of the inven-
tion is shown attached to the machine disclosed in assign-
ee's pending application Ser. No. 396,430. As discussed in
that application, items to be packaged are advanced along
conveyor 10 to a station 12. Prior to the arrival of an item at
station 12, a pair of scoops, 14, 16, which are movable relative
to each other between open and closed positions, are driven,
while in their closed positions, along the direction indicated by
arrow 18 in an open mouth bag 209 (FIG. 3), said bag being
the topmost of a plurality of bags supported on a supply
magazine 20. A blast of air from a pneumatic source 22 opens
the bag before the scoops are driven therein.

As can be seen in FIG. 3, these bags are longer on one side
that the other, and are held in supply magazine 20 by the ex-
tended portion 24 of the longer side of the bag. When the
scoops enter the topmost bag, they are moved into their open
position, gripping the bag by frictional force and removing it
from the supply magazine 20. The scoops then are driven rear-
wardly past station 12, whereat an item is "dumped" from
conveyor 10 into bottom scoop 16. Then, as the scoops moved
rearwardly, the item in scoop 16 is stored by a blacking rod 26
and pushed against the back of the bag, forcing the bag and
the item therein off the scoops, the bagged item falling onto
an exit conveyor 28.

In its preferred embodiment, the invention comprises a
magazine support 30 which includes a pair of spaced rails 32
and 34 mounted on a yoke 36, which yoke is connected to the
main portions of the machinery as shown FIG. 38. Each magazine
includes a mounting member 40 which has a C-shaped portion
24 adapted to engage rail 34. The supply magazine may be
readily placed on and removed from support 30 by threading
rail 34 in C-shaped portion 42, the magazine proper resting on
the top of the rails, as shown in FIG. 3.

Each of the supply magazines 20 also includes (FIG. 3) a
tray portion 44 adapted to support a stack of the open mouth
bags 19. A tension spring arrangement 46 provided the stack
of bags against a pair of retaining rollers 47 which are
mounted on a member 48, serving to maintain the position of
the uppermost bag at a constant level opposite pneumatic
source 22 as bags are removed from the stack. Alignment of
the bags in the stack is assisted by threading them on a pair of
spaced rods 49, which are the legs of a U-shaped wicket. The
crossbar of the wicket is mounted in slot 50 in member 48,
being retained therein by a pair of springs 51. The bags are
made of such material, or provided with suitable cut portions,
that the scoops may easily remove the bags from rods 49 when
they engage the bag and move incrementally to the left, as
viewed in FIG. 3. Once placed on the rails, the magazines are
readily slidable therealong. To facilitate this slidable relation-
ship, coupling member 50 is preferably made of plastic having
a low coefficient of friction. Each magazine 20 also includes a
camming member 52, the purpose of which will be made ap-
parent hereinafter.

A positioning and latching member 54 is pivotally mounted
(at 56) to the frame of the machine, as best seen in FIG. 3, and
includes a cam follower surface 58 as seen in FIG. 2. The cam
follower surface is in spaced relationship with the camming
member 52 of the magazines when they are on support 30.
While this surface is shown (in FIGS. 2 and 6) at only one end
of member 54, it is to be understood that it may be on both
ends thereof within the scope of the invention. Member 54
also includes a recess 60. On the embodiment disclosed
herein, one side 62 of the recess has a more gentle slope than
the other side 64. However, both sides of the recess would
be as side 64 if a cam follower surface 58 is provided at both ends
of member 54.

For substantially automatic changing of magazines, an au-
tomatic changing system 65 may be provided at one or both
sides of member 54. Automatic changing system 65 comprises
an air cylinder 66, including a piston rod 68 and a spring
return element 70, the air cylinder being mounted on the
frame of the machine adjacent magazine support 30. A finger
member 72 is mounted on piston rod 68 in spaced relationship
with the coupling member 40 of magazines mounted on
magazine support 30. Air is supplied to cylinder 66 from a
suitable hose or pipe 74 connected thereto, and to a hose
source (not shown), the hose having a valve 76 provided
therein. The valve is operated by a solenoid 78 which is con-
ected, through a switch 80, to a power source 82. Valve 76,
and therefore air cylinder 66, is activated by manipulation of
switch 80. This causes finger member 72 to move to the
left, as viewed in FIG. 2, where it engages the coupling
member 40 of a magazine placed on support 30 and drives
the magazine to the left.

With reference to FIGS. 2-4, in operation, at the startup of
the main machine, a magazine 20 having a full supply of bags
therein is placed on support 30 at the bottom of the magazine.
The magazine is then slid along the support to the left. When
the camming member 52 engages cam follower surface 58, and is
moved therealong, the positioning and latching member 54 is
3,556,316

3. means mounted adjacent said support for fixing a supply magazine in said active station against movement along said supply magazine in either direction, said fixing means also including a cam follower surface normally in spaced relationship with the camming means on said supply magazines, wherein sliding movement of a supply magazine from an inactive position on the support to the active position will cam said fixing means out of fixing engagement with the magazine in said active position, allowing said last-named magazine to be removed from said magazine support.

4. A multiunit supply system according to claim 2, wherein each of said supply units includes:

a tray portion for receiving a stack of articles in such manner that they may be withdrawn therefrom;
retaining means for engaging a portion of the top article of said stack; and
resilient means biasing said stack of articles against said retaining means for maintaining the height of the top article constant as articles are withdrawn from the tray.

5. A multimagnet supply system, which comprises:
a magazine support having an active station and at least one inactive station;

a supply magazine adapted to be slidably mounted on said magazine support;

means mounted adjacent to said support for positioning and latching said supply magazine at the active station;

means operatively connected to said last named means for unlatching said supply magazine at the active station; and

means mounted adjacent said support for fixing a supply magazine in said active station against movement along said supply magazine in either direction, said fixing means also including a cam follower surface normally in spaced relationship with the camming means on said supply magazines, wherein sliding movement of a supply magazine from an inactive position on the support to the active position will cam said fixing means out of fixing engagement with the magazine in said active position, allowing said last-named magazine to be removed from said magazine support.

6. A quick-change system for supply magazines according to claim 5, wherein:
said magazine support comprises at least two spaced rails; and
said supply magazines include:
a tray portion adapted to be supported on top of said rail and containing a plurality of articles to be withdrawn therefrom; and

a mounting element adapted to engage other portions of said rails to limit movement of said magazines on said rails to said sliding movement.
7. A quick-change system for supply magazines according to claim 5, further comprising: driving means for moving the supply magazine at an inactive station along said support toward the active station, said driving means comprises an air cylinder, a piston rod mounted for reciprocal movement therein, and a member connected to the piston rod in spaced relationship with the mounting members of the supply magazines, wherein activation of the air cylinder causes said member connected to the piston rod to strike the mounting member of a supply magazine and drive the supply magazine along the support rails.

8. A quick-change system for supply magazines according to claim 5, wherein each of said supply magazines includes: a tray portion for receiving a stack of articles in such manner that they may be withdrawn therefrom; retaining means for engaging a portion of the top article of said stack; and resilient means biasing said stack of articles against said retaining means for maintaining the height of the top article constant as articles are withdrawn from the tray.