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APPARATUS FOR BREAKING APART SEGMENTS OF A SLIT PAPER ROLL

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3 Claims. (Cl. 164—84.5)

This invention relates to apparatus for handling rolls, and more particularly to apparatus for handling slit paper rolls.

An object of the invention is to provide new and improved apparatus for handling rolls.

Another object of the invention is to provide new and improved apparatus for handling slit paper rolls.

A further object of the invention is to provide apparatus for breaking apart segments of a slit paper roll without damaging the roll.

An apparatus illustrating certain features of the invention may include an arbor fitting closely into one segment of a slit paper roll for holding that segment rigidly. A second arbor is designed to fit closely in another segment of the roll, and means are provided for oscillating the second arbor to break the segment thereon from the segment on the first arbor.

A complete understanding of the invention may be obtained from the following detailed description of an apparatus forming a specific embodiment thereof, when read in conjunction with the appended drawings, in which

Fig. 1 is a front elevation of an apparatus forming a specific embodiment thereof; and

Fig. 2 is a vertical section taken along line 2—2 of Fig. 1.

Referring now in detail to the drawings, there is shown therein an apparatus for breaking apart segments 10, 11 and 12 of a paper roll 13. An upright 14 mounted rigidly on a base 15 supports an arbor 16 rigidly thereon, and an upright 17 rigidly secured to the base supports a double-acting pneumatic cylinder 18 pivotally thereon. A cradle 19 secured to the base serves to support the cylinder 18 in a convenient position when the roll 13 is loaded onto the arbor 16.

Flexible hoses 21 and 22 and pipes 23 and 24 connect the upper and lower ends of the cylinder 18 to a four-way valve 25 having a handle 26, and a pipe 27 connects the valve to a suitable supply of air under pressure (not shown). A removable pin 31 connects a piston 32 pivotally to an arbor 33 having a collar 34 thereon. The arbor 33 fits closely and slidably into the hole in the paper roll 13. A stop pin 35 may be inserted into a socket 36 in the arbor 16 to position a two-segment roll of paper on the arbor 16. A stop 37 limits the distance that a three-segment roll can be inserted onto the arbor 16.

A manually releasable, spring-pressed latch 41 is designed to enter a hole 42 in a disc 43 secured rigidly to the cylinder 18. The latch is designed to hold the cylinder 18 in an upright position. Then, when a roll segment on the arbor 33 is broken loose, the cylinder remains upright, and, the slot 38 providing only a slight clearance for pivotal movement between the arbor 33 and the piston 32, the arbor 33 supports the segment thereon without dropping it.

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Operation

The roll 13 is slid onto the arbor 16 until it engages the stop 37 after which the arbor 33 is inserted into the segment 12. The piston 32 and the cylinder 18 then are swung to place the end of the piston in the slot 38 and the pin 31 is inserted into a position securing the arbor 33 and the piston pivotally together. The handle 26 of the valve then is actuated back and forth manually to reciprocate the piston, which action breaks the segment 12 from the segment 11. The latch 41 then is released and the cylinder 18 and the segment 12 are swung to the cradle. The arbor 33 then is swung further, and the segment 12 is removed therefrom.

The segments 10 and 11 then may be slid out on the arbor 16, and the pin 35 is inserted into the socket 36. The segment 11 then is broken from the segment 10 by the procedure described hereinabove with reference to the separation of the segment 12 from the segment 11 along the slit therebetween.

The above-described apparatus greatly facilitates handling of rolls, and breaks apart the segments thereof quickly with no damage to the rolls.

It is to be understood that the above-described arrangements are simply illustrative of the application of the principles of the invention. Numerous other arrangements may be readily devised by those skilled in the art which will embody the principles of the invention and fall within the spirit and scope thereof.

What is claimed is:

1. A roll-breaker, which comprises a base, an upright positioned at one end of the base, an arbor projecting from the upright for supporting a slit roll thereon, means for limiting the distance the roll can be inserted onto the arbor, a second arbor designed to fit into the roll in alignment with the first arbor, a double-acting cylinder mounted pivotally on the base, a piston operable by the cylinder connected pivotally to the second arbor, and means for actuating the cylinder to oscillate the second arbor.

2. A roll-breaker, which comprises a base, an upright positioned at one end of the base, an arbor projecting from the upright for supporting a slit roll thereon, means for limiting the distance the roll can be inserted onto the arbor, a second arbor designed to fit into the roll in alignment with the first arbor, a double-acting cylinder mounted pivotally on the base, a piston operable by the cylinder connected pivotally to the second arbor, means for actuating the cylinder to oscillate the second arbor, means for latching the cylinder in an upright position, and a cradle for supporting the piston in a horizontal position.

3. A roll-breaker, which comprises a base, an upright positioned at one end of the base, an arbor projecting horizontally from the upright for supporting a slit roll thereon, means for limiting the distance the roll can be inserted onto the arbor, a second arbor designed to fit into the roll in alignment with the first arbor, a double-acting cylinder mounted pivotally on the base, a piston operable by the cylinder, releasable means for connecting the piston pivotally to the second arbor, means for actuating the cylinder to oscillate the second arbor, releasable means for latching the cylinder in an upright position, and a cradle for supporting the cylinder in a horizontal position.

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