March 26, 1957 L. R. BRIDENSTINE 2,786,673

TRIMMED EDGE REMOVING DEVICE

Filed Oct. 15, 1953 2 Sheets-Sheet 1

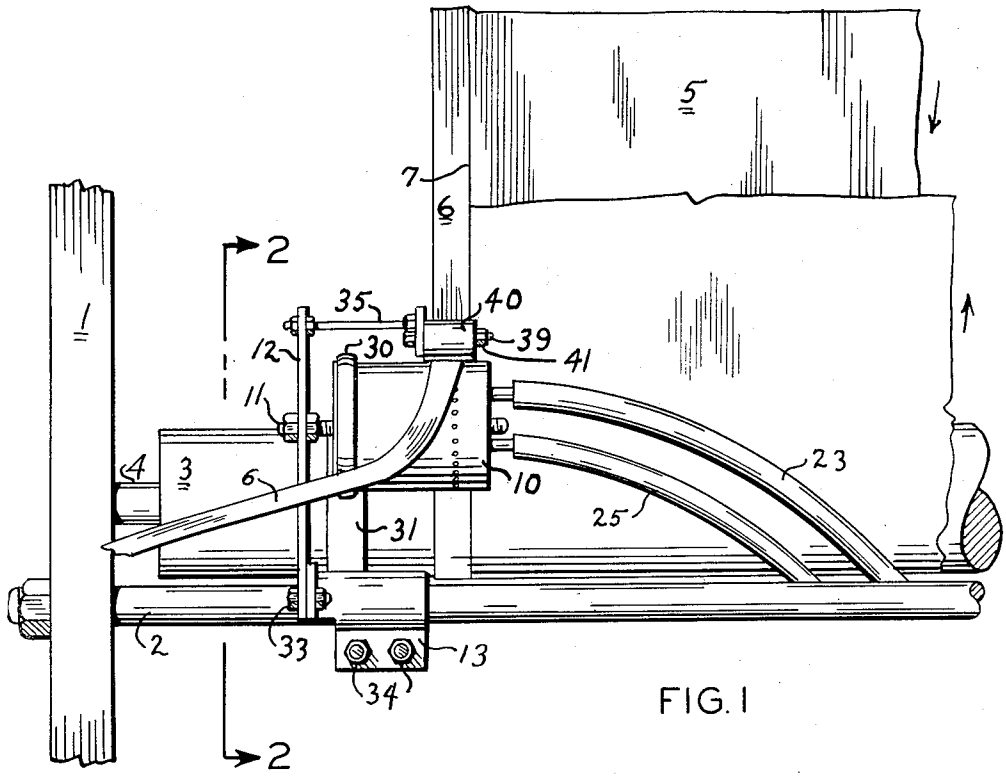


FIG. 1

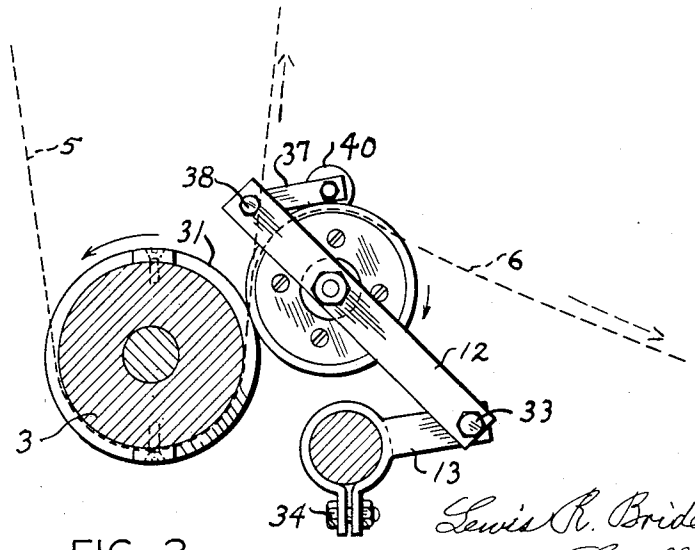


FIG. 2

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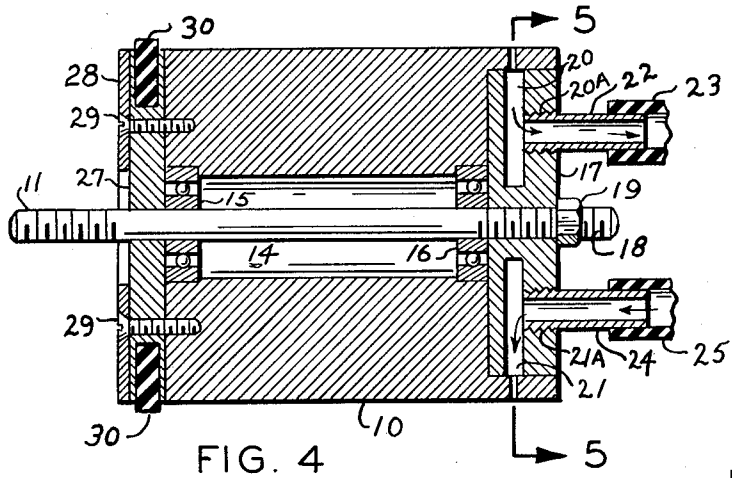


FIG. 4

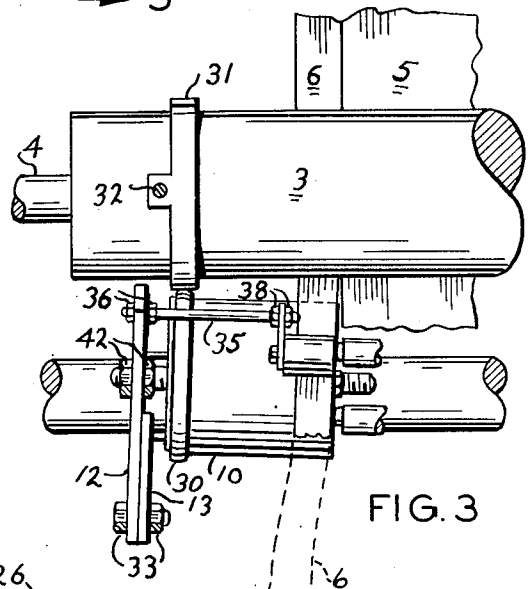


FIG. 3

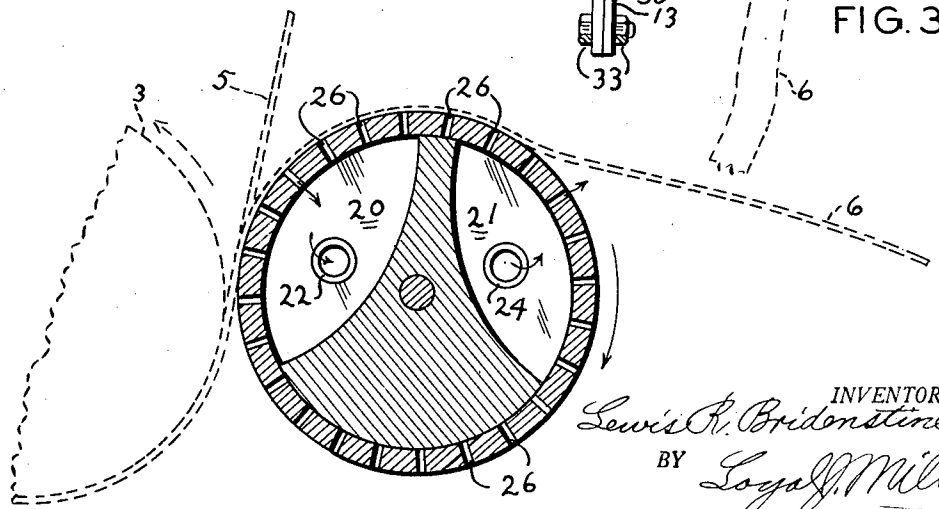


FIG. 5

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TRIMMED EDGE REMOVING DEVICE

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2 Claims. (Cl. 271—2.3)

My invention relates to edge trim mechanism for use in rotary printing presses, and more particularly to a device for removing the trimmed edge from the press after it has been trimmed from the traveling parent sheet of paper.

In printing register color work on rotary presses a trim is required on one edge of the sheet paper, because of the run-out or excess in width of the rolls of paper stock. Most rotary printing presses are equipped with a trim knife that may be adjusted to cut off the desired strip of excess paper. Difficulty is often experienced in sheet printing work due to the trimmed-off edge piling up and falling in front of the standard trim knife, stopping the trimming action and causing the sheet of paper to tear and necessitating the re-threading of the press. By removing the trimmed edge from the press at the lower compensating roller nearest the cut-off point, no pile up of the trim will occur.

The principal object of my invention is to provide a device to remove the trimmed-off edge of a sheet of traveling paper.

Another object is to provide a device that will deposit the trim at a point outside the frame work of a rotary press.

Still another object is to provide a device for removing trim that is small and may be attached to any size rotary press.

Yet another object is to provide a trim removing device that is simple in construction and with few moving parts and is not easy to get out of order.

A further object is to provide a trim removing device that utilizes the standard equipment on rotary presses as a means for operating the device.

Other objects will be apparent from the following description when taken in conjunction with the accompanying two sheets of drawings, wherein:

Figure 1 is a fragmentary side elevational view of the device installed on a rotary press;

Figure 2 is a vertical cross-sectional view taken substantially along line 2—2 of Fig. 1 showing an end elevational view of the device in operation, and in dotted lines the travel of the sheet of paper and the trim;

Figure 3 is a fragmentary top view of the device as seen in Fig. 1;

Figure 4 is a horizontal cross-sectional view of the drum of the device; and,

Figure 5 is a vertical cross-sectional view taken substantially along line 5—5 of Fig. 4 showing in dotted lines and by arrows the travel of the sheet paper and the removal of the trim.

Like characters of reference designate like parts in those figures of the drawings in which they occur.

In the drawings:

Reference numeral 1 indicates a part of one supporting leg of a conventional rotary press held rigidly in an upright position by a spacing rod 2.

Reference numeral 3 indicates a compensating roller mounted on a shaft 4 attached to the supporting leg 1.

Reference numeral 5 indicates a sheet of paper stock traveling around the compensating roller 3 with the trimmed-off edge 6. The line 7 indicates the cut made by the trim knife, not shown, in separating the trim 6 from the sheet paper stock 5.

The device, per se, consists substantially of a metal rotary drum 10 mounted on a fixed shaft 11 and supporting strip metal arm 12 attached to a metal clamp bracket 13. The drum 10 has a longitudinally hollow interior 14 adapted at each end to engage bearings 15 and 16 on the fixed shaft 11 as shown in Fig. 4. One end of the drum 10 is bored out to form a vacuum fit over a circular valve 17. The valve 17 is rigidly attached to the fixed shaft 11 by threads 18 and a nut 19, and has two opposing vertically positioned narrow ports 20 and 21 cut in an arc of and open to its circumference. A threaded hole 20–A is placed in the side of the valve 17 to communicate with the port 20, and a nipple 22 with one end threaded and the opposite end attached to a vacuum line hose 23, is screwed into the threaded hole 20–A, as shown in Fig. 4. Similarly a threaded hole 21–A is placed in the side of the valve 17 to communicate with the port 21, and a nipple 24 with one end threaded and the opposite end attached to a compressed air line hose 25, is screwed into the threaded hole 21–A. Said end of the drum 10 has a plurality of holes 26 spaced around its periphery to communicate alternately with the ports 20 and 21, as shown in Fig. 5, for the purpose more fully described hereinbelow.

The opposite end of the drum 10 is closed by a metal disc 27 and a metal ring 28 attached to the drum 10 by machine screws 29. The metal disc 27 has a groove or slot around its periphery to snugly nest a rubber ring or tire 30 which protrudes slightly beyond the periphery of the metal disc 27 to provide a tread to frictionally engage a driving ring 31 rigidly attached to the compensating roller 3 by machine screws 32, as shown in Fig. 3.

The free end of the fixed shaft 11 is rigidly attached and is perpendicular to the supporting arm 12 by nuts 42 at a selected point intermediate its ends. One end of the arm 12 is pivotally attached to the clamp bracket 13 by a bolt and nut 33. Said clamp bracket 13 is rigidly clamped around the spacing rod 2 by bolts and nuts 34. The opposite end of the arm 12 is perforated at a selected point near its end through which is placed one end of a metal rod 35 perpendicular to the arm 12 and parallel to the drum 10, and is rigidly held in place on the arm 12 by nuts 36. At a selected point near the opposite end of the rod 35, one end of a strip metal link 37 is pivotally attached and held in place on the rod 35 by nuts 38. The opposite end of the link 37 is perforated at a point near its end to receive a shaft 39 perpendicular to the link 37 and parallel to the drum 10. A roller 40 is mounted to freely rotate on the shaft 39 and is held in place by the nut 41.

In operation the device is mounted on the spacing rod 2 by the clamp bracket 13 at a slight angle from parallel to the compensating roller 3, as shown in Fig. 3 to partly guide the trim away from the sheet paper and in line with the trim 6. The trim 6 is then placed over the end of the drum 10 in contact with the holes 26 and under the roller 40. As shown by arrows in Fig. 5, as the sheet paper 5 travels through the press the trim 6 is held in contact with the drum 10 by a vacuum pull of air through the hole 26 above the port 20 and is blown from contact with the drum 10 and laterally outside the frame work of the press by a blast of air from the port 21 out through the holes 26. The purpose of the roller 40 is to insure continuous contact of the trim 6 with the vacuum pull of air through the holes 26 over the port 20, when a heavy grade of sheet paper is run through the press, by the weight of the roller 40 and the link 37 pivotally mounted

on the arm 12. The device is adapted to remove trim from the opposite side of the sheet paper stock, as shown in Fig. 1, by repositioning the fixed shaft 11 in relation to the arm 12 and swinging the roller 40 and the pivotally connected link 37 the opposite way to rest on the drum 10.

Obviously the invention is susceptible to some change or alteration without defeating its practicability, and I therefore do not wish to be confined to the preferred embodiment shown in the drawings and described herein, further than I am limited by the scope of the appended claims.

I claim:

1. In a trim removing device the combination with a rotary printing press having a sheet of material with a trimmed edge entrained around a revolving shaft and having a vacuum line and a compressed air line, of: a bracket rigidly mounted on said press adjacent one end of said shaft; an arm pivotally connected at one end to said bracket for pivoting the free end of said arm toward and away from said shaft in a substantially perpendicular relation thereto; a shaft rigidly connected at one end to said arm intermediate its ends in perpendicular relation thereto and extending in longitudinal angular relation away from said revolving shaft; a drum having a hollow interior rotatably mounted on said fixed shaft, whereby said arm and said drum are pivoted by gravity toward said revolving shaft for holding one peripheral end portion of said drum in frictional driving contact with the periphery of said revolving shaft, said drum having radially spaced-apart holes adjacent the end opposite the first said end; a cylindrical valve rigidly mounted on said fixed shaft within said drum, said valve having a pair of opposing radially spaced-apart ports for alternately communicating with the holes in said drum as the same is rotated, said valve having a pair of lateral openings for connecting said vacuum line and said compressed air line, respectively, with the ports of said valve, thereby permitting the suction of said vacuum line to hold the trimmed portion of said sheet in contact with said drum and for releasing said trim from the drum by air exhausted from said compressed air line; a rod rigidly connected perpendicularly adjacent the free end of said arm and extending longitudinally in spaced-apart substantially parallel relation with said drum; a link pivotally connected to the free end of said rod for vertical movement toward and away from the periphery of said drum; and a roller rotatably mounted on said link in a superposed substantially parallel relation with said drum, whereby gravitional pull on said roller urges the same toward peripheral contact with said drum above the holes adjacent the end of the same, thereby holding the trimmed portion of said sheet in flat circumferential contact with a portion of said drum.

2. In a trim removing device the combination with a rotary printing press having a sheet of material with a trimmed edge entrained around a revolving shaft and having a vacuum line and a compressed air line, of: a bracket rigidly mounted on said press adjacent one end of said shaft; an arm pivotally connected at one end to said bracket for pivoting the free end of said arm toward and away from said shaft in substantially perpendicular relation thereto; a shaft rigidly connected at one end to said arm intermediate its ends in perpendicular relation thereto; a drum having a hollow interior rotatably mounted on said shaft, whereby said arm and said drum are pivoted by gravity toward said revolving shaft for holding one peripheral end portion of said drum in frictional driving contact with the periphery of said revolving shaft, said drum having radially spaced-apart holes adjacent the end opposite the first said end; a cylindrical valve rigidly mounted on said fixed shaft within said drum, said valve having a pair of opposing radially spaced-apart ports for alternate communication with the holes in said drum as the same is rotated, said valve having a pair of lateral openings for connecting said vacuum line and said compressed air line, respectively, with the ports of said valve, thereby permitting the suction of said vacuum line to hold the trimmed portion of said sheet in contact with said drum and for releasing said trim from the drum by air exhausted from said compressed air line; a rod rigidly connected perpendicularly adjacent the free end of said arm and extending longitudinally in spaced-apart substantially parallel relation with said drum; a link pivotally connected to the free end of said rod for vertical movement toward and away from the periphery of said drum; and a roller rotatably mounted on said link in a superposed substantially parallel relation with said drum, whereby gravational pull on said roller urges the same toward peripheral contact with said drum above the holes adjacent the end of the same, thereby holding the trimmed portion of said sheet in flat circumferential contact with a portion of said drum.

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