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SADDLE FOR USE WITH FLEXIBLE WRAP-AROUND PRINTING PLATES

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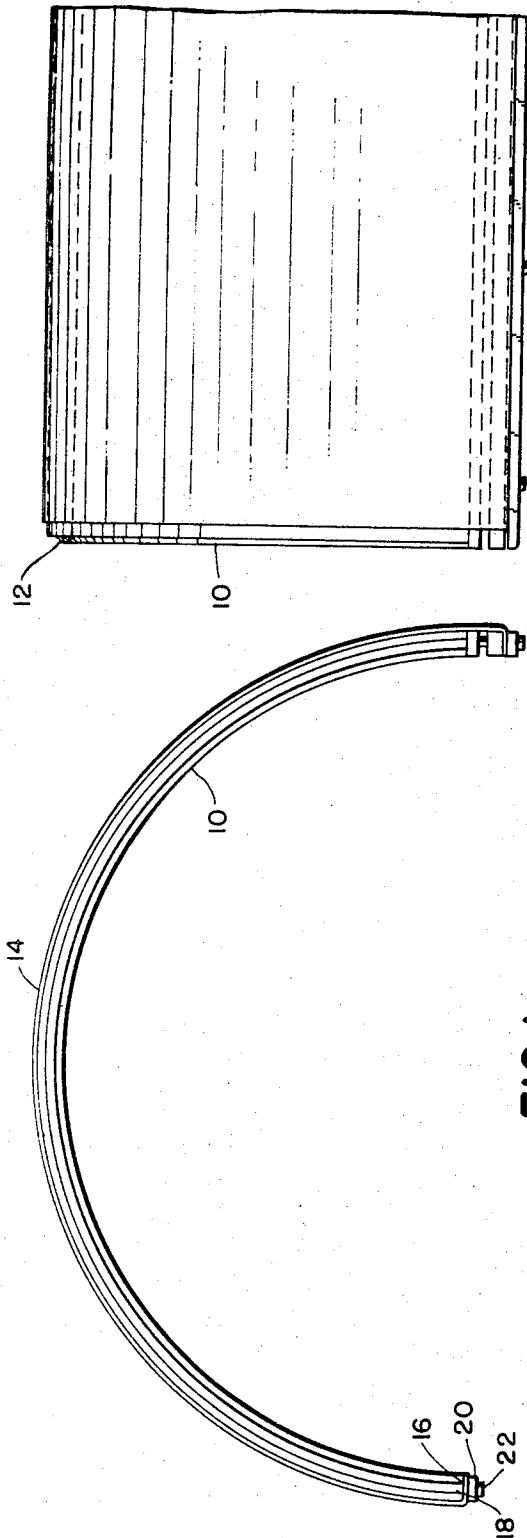


FIG. 1

FIG. 2

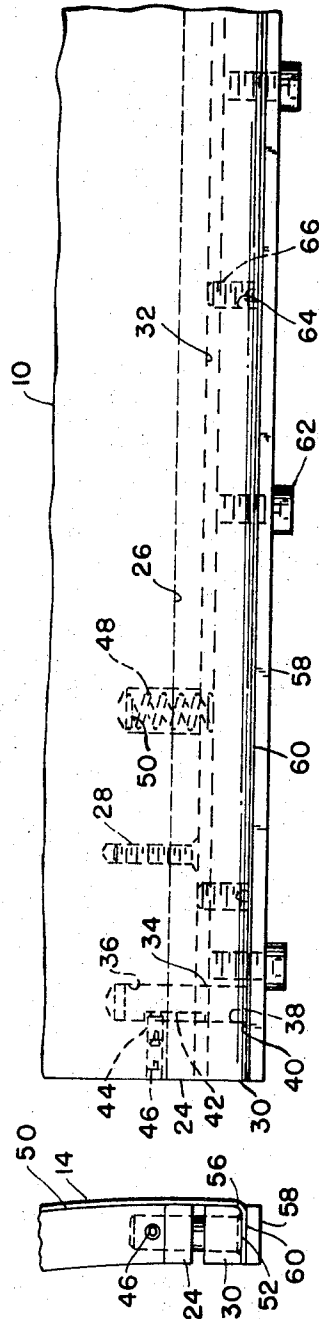


FIG. 3

FIG. 4

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ABSTRACT OF THE DISCLOSURE

A cylindrically shaped saddle formed of a light soft metal such as magnesium for mounting a flexible printing plate. Means connect one edge of the printing plate to one straight edge of the saddle. A steel bar is movable circumferentially toward and away from the other straight edge of the saddle. Guide means in the form of elongated pins longitudinally slidable in sockets, connect the bar for movement circumferentially of the saddle toward and away from the edge thereof. The pins include axially elongated recesses and abutments extend from the sides of the sockets into the recesses. Both compression springs and adjustable abutments screws are provided between the edge of the saddle and the steel bar.

It is an object of the present invention to provide a saddle to which a flexible wrap-around type printing plate may be quickly and easily attached and tensioned into proper operating conditions.

More specifically, it is an object of the present invention to provide a substantially semi-cylindrical saddle having at one edge thereof a bar having means thereon for clamping one edge of the printing plate, the bar being guided for movement toward and away from the edge of the printing plate, and resilient means urging the bar away from the printing plate to apply preliminary positioning tension thereto.

It is a further object of the present invention to provide a saddle as described in the preceding paragraph including means for limiting the movement of the bar away from the edge of the printing plate.

It is a further object of the present invention to provide a saddle as described in the foregoing in which the bar has a rounded corner around which one edge of the printing plate is bent.

It is a further object of the present invention to provide a saddle as described in the foregoing in which the surface of the movable bar to which an edge of the printing plate is clamped extends substantially radially of the saddle, thus requiring the edge portion of the printing plate to be bent through an angle of approximately 90 degrees.

Other objects and features of the invention will become apparent as the description proceeds, especially when taken in conjunction with the accompanying drawing, illustrating a preferred embodiment of the invention, wherein:

FIGURE 1 is an end elevation of the saddle showing a printing plate attached thereto.

FIGURE 2 is a side view of the structure shown in FIGURE 1.

FIGURE 3 is an enlarged fragmentary side view of an edge of the saddle.

FIGURE 4 is an end view of the structure shown in FIGURE 3.

In accordance with the present invention a substantially semi-cylindrical saddle 10 is formed as shown in FIGURES 1 and 2, having an end configuration including a beveled surface 12 for use in mounting the saddle on a press roll. Conveniently, these saddles are formed from

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a light metal and excellent results are obtained when they are essentially formed of magnesium. In use each of the saddles has secured thereto in circumferentially tensioned condition a printing plate 14.

At one edge of the saddle 10 the printing plate 14 has a bent over end portion 16 engaging a substantially flat radial end surface 18 of the saddle and it is clamped to the surface 18 by an elongated clamping strip 20 secured to the straight edge of the saddle 10 by clamping screws indicated at 22.

Means are provided at the opposite edge of the saddle for effecting a preliminary tensioning of the printing plate and for thereafter adjusting and equalizing the tension to effect proper securing and location of the plate on the saddle. This construction is best seen in FIGURES 3 and 4 to which attention is now directed. As best seen in these figures a steel strip 24 is secured to the flat generally radial edge surface 26 of the saddle 10, this strip being secured by a plurality of screws one of which is illustrated at 28. The strip 24 is primarily for the purpose of protecting the edge of the saddle because of the relatively soft material of which it is composed.

Associated with the saddle 10 is a movable clamping and tensioning bar 30. The bar 30 is movable toward and away from the adjacent side surface 32 of the strip 24 and it is guided for this movement by a plurality of pins 34 slidable in cylindrical recesses or sockets 36 provided both in the strip 24 and the adjacent edge portion of the saddle 10. Conveniently, the pins 34 may extend through openings 38 in the bar 30 and be welded or otherwise rigidly and permanently secured to the bar by suitable means such for example as the welded connection illustrated at 40.

In order to prevent separation between the bar 30 and the saddle 10, the pins 34 are provided with axially elongated recesses 42 into which the nose of a retaining screw 44 extends. In FIGURE 3 a locking screw 46 is indicated outwardly of the retaining screw 44.

A plurality of compression springs 48 are provided in pockets 50 formed in the strip 24 and the adjacent edge portion of the saddle 10, the outer ends of the springs engaging the inner surface of the clamping and tensioning bar 30 to urge the bar outwardly.

As best seen in FIGURE 4, the clamping bar is provided with a flat surface 52 which extends generally radially of the saddle 10 and which is interconnected to the outer cylindrical surface 54 of the saddle 10 by the arcuately curved corner portion indicated at 56. Associated with the bar 30 is a clamping strip 58 which engages the bent over portion 16 of the printing plate 14 and is retained in clamping relation by a plurality of clamping screws indicated at 62.

In addition, the bar 30 is provided with a plurality of threaded openings 64 receiving adjustable abutment screws 66 for a purpose which will presently be described.

In use one edge of the flexible printing plate is suitably clamped to one edge of the saddle by the clamping bar 20, after which the printing plate is bent around the saddle and its opposite edge is bent around the arcuate corner 56 and across the outer flat surface 52 of the bar 30. At this time the abutment screws 66 are retracted and the bar 30 will be held against the adjacent surface 32 of the strip 24. This edge of the printing plate is either notched or apertured to receive the clamping screws 62 and also to afford access to the abutment screws 66. The clamping screws 62 are tightened to clamp the edge portion of the printing plate against the bar 30 at which time the springs 48 are effective to urge the bar 30 circumferentially away from the edge 32 of the saddle 10 and strip 24 to apply preliminary tension to the printing plate. Thereafter, the abutment screws 66

are adjusted as required to apply the requisite tension to the printing plate and to equalize the tension and effect proper positioning of the plate.

In practice, the printing plate may be stripped to a key line for proper location, sheared, the ends crimped to engage the edge surfaces of the saddle, and these crimped edge portions punched to provide openings or slots for the reception of clamping screws and access to the abutment screws as previously described.

The location of the printing plate on the saddle may thus be accurately controlled in accordance with suitable indicia provided on the surface of the saddle, thereby insuring the require registration between impressions in multicolor printing operations.

The drawing and the foregoing specification constitute a description of the improved saddle in such full, clear, concise and exact terms as to enable any person skilled in the art to practice the invention, the scope of which is indicated by the appended claims.

What I claim as my invention is:

1. A saddle for mounting a flexible printing plate to a press roll, said saddle being semi-cylindrically shaped and having two straight parallel edges at opposite sides thereof, means at one straight edge of said saddle for securing one edge portion of a flexible printing plate thereto, a bar at the opposite straight edge of said saddle, guide means comprising elongated pins slidable longitudinally in sockets connecting said bar to the said opposite edge of said saddle for movement of said bar circumferentially of said saddle toward and away from said opposite edge, means for clamping the opposite edge portion of said flexible printing plate to said bar, resilient means interposed between said bar and the said opposite edge of said saddle urging said bar away from said saddle, stop means acting between said bar and said saddle to limit separation therebetween, and adjustable abutment screws extending through said bar and engageable with the said opposite edge of said saddle.

2. A saddle as defined in claim 1 in which said stop means comprises axially elongated recesses in the pins of said guide means, and abutments extending from the sides of said sockets into said recesses.

3. A saddle as defined in claim 1 in which said pins are fixedly connected to said bar, and said sockets are formed in the adjacent edge of said saddle.

4. A saddle as defined in claim 1 in which said saddle is formed essentially of magnesium or a magnesium alloy, and comprises a steel strip permanently affixed thereto to form the said other straight edge of said saddle.

5. A saddle as defined in claim 4 in which the sockets are elongated guide sockets formed in the other straight edge portion of said saddle, the sockets extending through the steel strip into the magnesium or magnesium alloy, and the pins are elongated guide pins fixedly connected to said bar and slidable longitudinally in said sockets.

6. A saddle as defined in claim 5 in which the stop means comprises axially elongated recesses provided in the sides of said guide pins, and abutments extending from the sides of said sockets into said recesses.

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