Jan. 20, 1953 J. R. BAUMGARTNER 2,625,878

ROLLER ADJUSTING MECHANISM FOR ROTARY PRINTING PRESSES

Filed Dec. 26, 1950 3 Sheets-Sheet 1

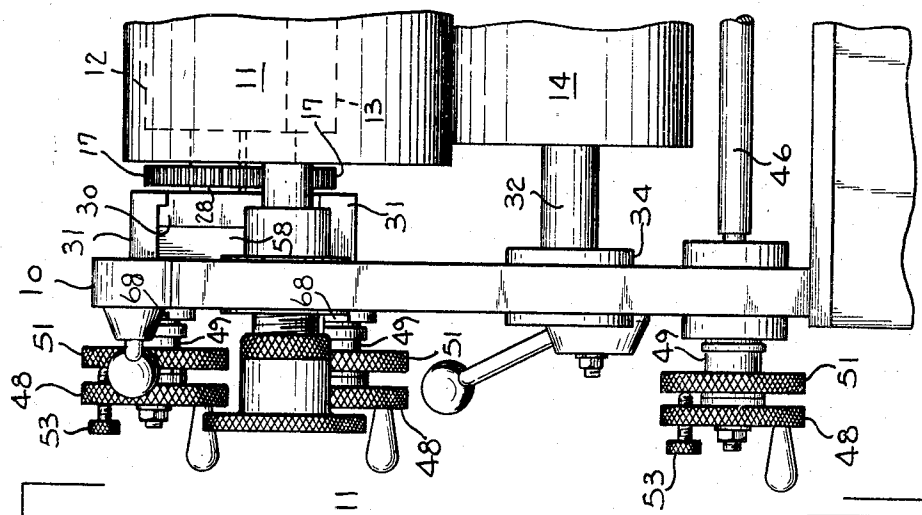


FIG. 2

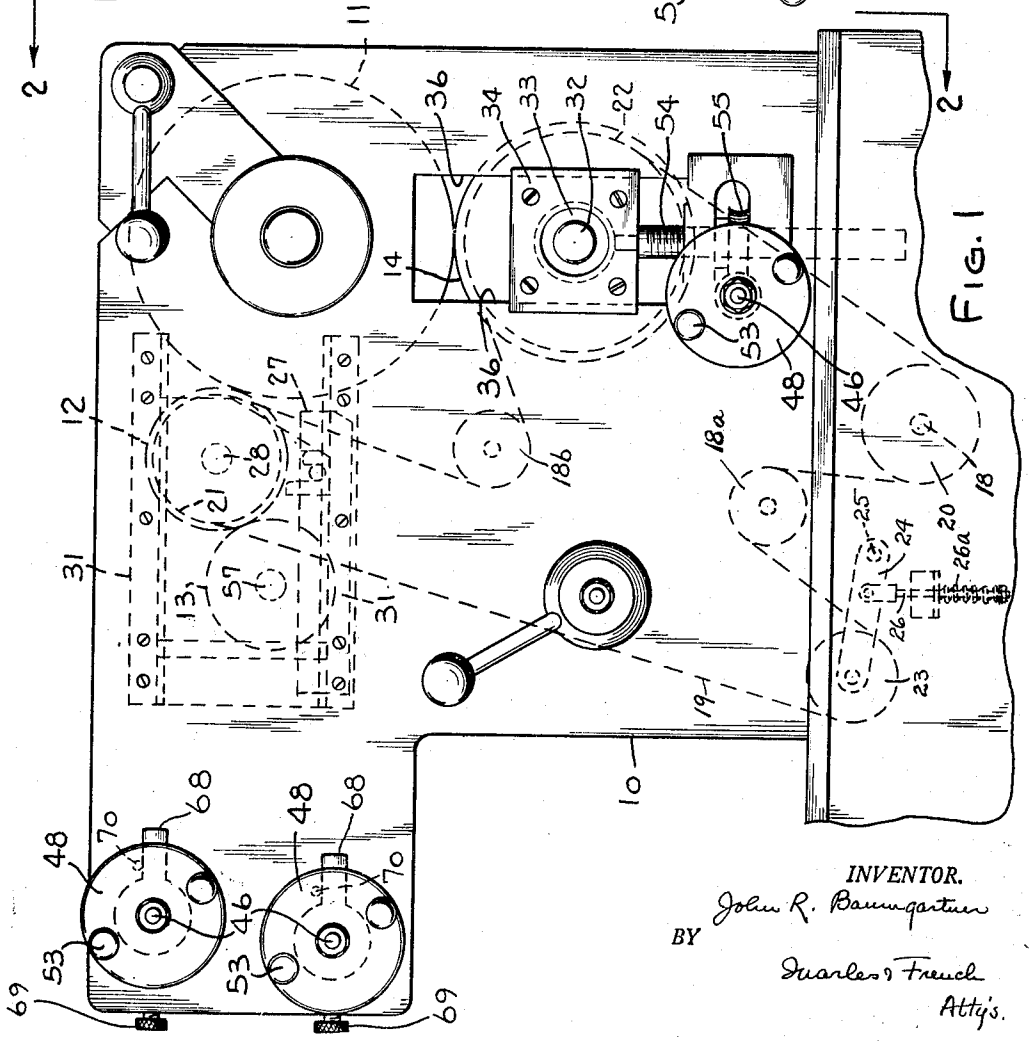


FIG. 1

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ROLLER ADJUSTING MECHANISM FOR ROTARY PRINTING PRESSES

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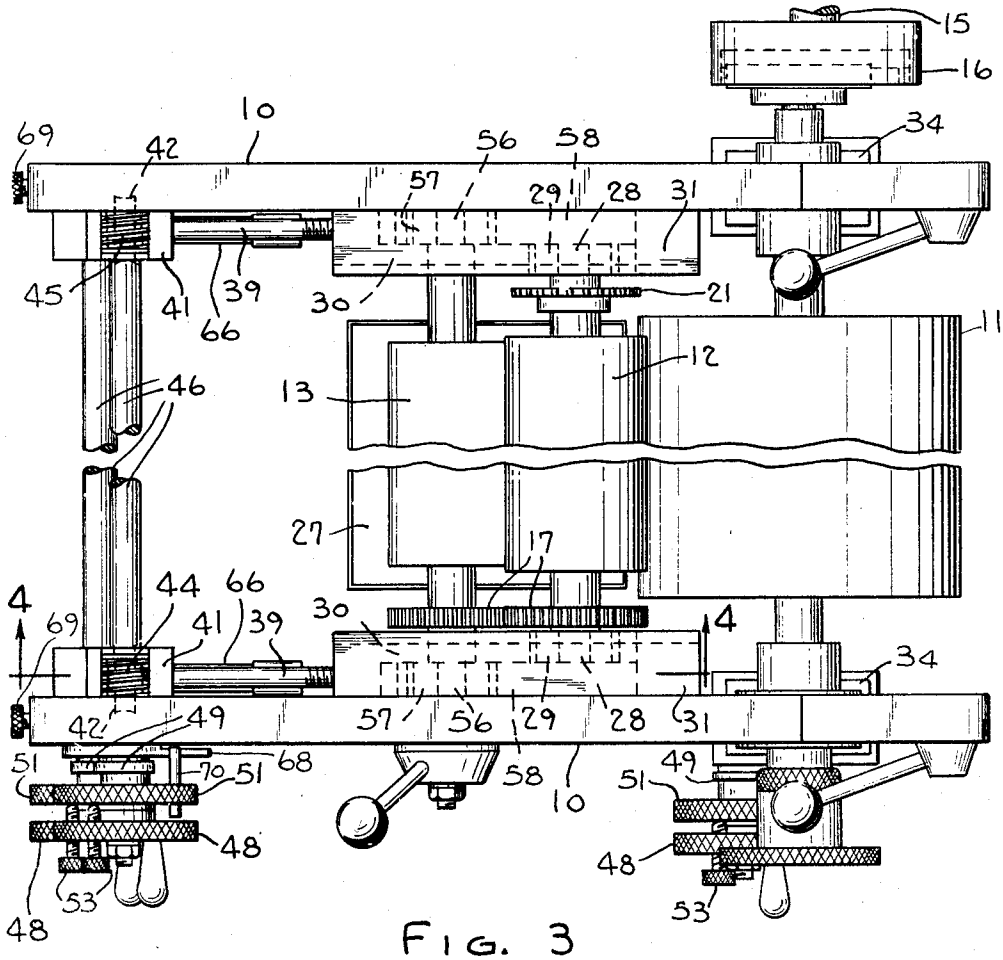


FIG. 3

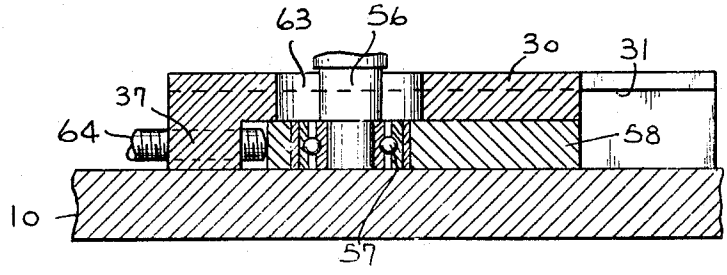


FIG. 8

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ROLLER ADJUSTING MECHANISM FOR ROTARY PRINTING PRESSES

Filed Dec. 26, 1950 3 Sheets-Sheet 3

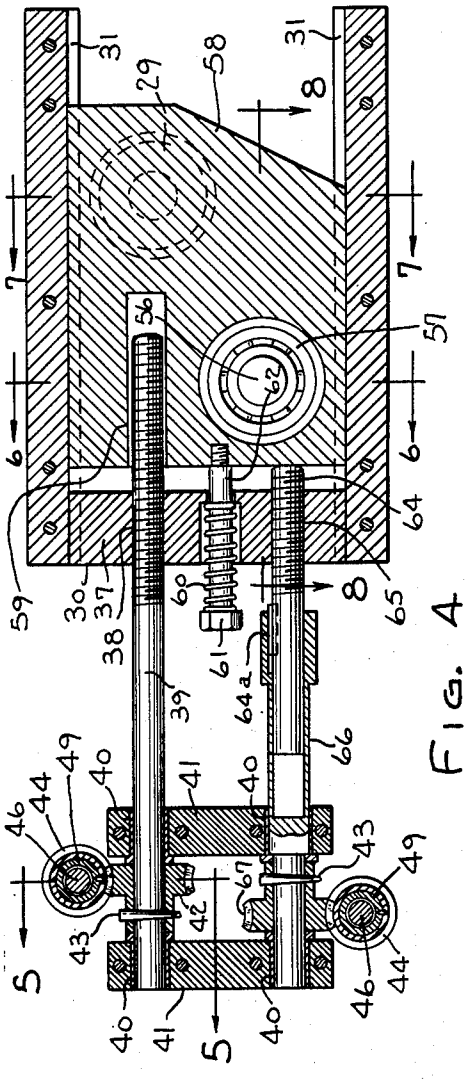


FIG. 4

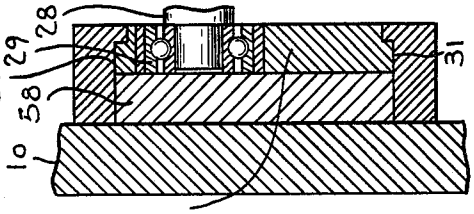


FIG. 7

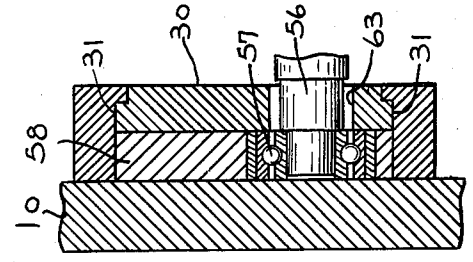


FIG. 6

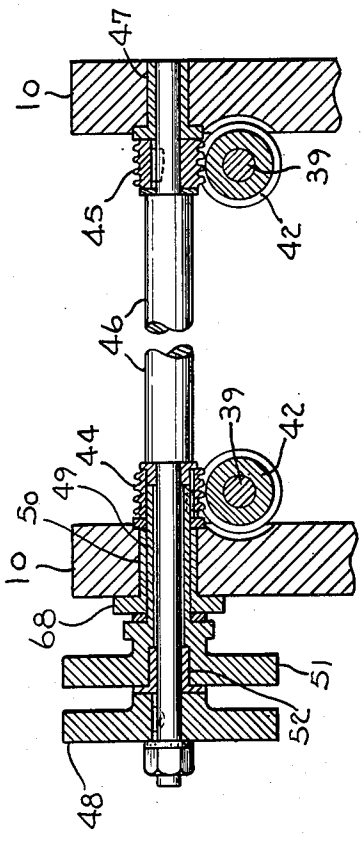


FIG. 5

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UNITED STATES PATENT OFFICE

2,625,878

ROLLER ADJUSTING MECHANISM FOR ROTARY PRINTING PRESSES

John R. Baumgartner, Milwaukee, Wis.

Application December 26, 1950, Serial No. 202,710

3 Claims. (Cl. 101—247)

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The invention relates to printing presses and more particularly to mechanism for adjustably positioning those rolls of the press that contact with or are associated with the plate cylinder of the press.

The general object of the invention is to provide a simple form of adjusting mechanism that may be used for adjusting either or both ends of such rolls as the impression cylinder and the inking roll relative to the plate cylinder of the press and also the fountain roll relative to the inking roll.

A further object of the invention is to provide adjusting means for adjusting the fountain roll and the inking roll relative to each other and both of these rolls relative to the plate cylinder of the press.

The invention further consists in the several features hereinafter described and more particularly defined by claims at the conclusion hereof.

In the drawings:

Fig. 1 is a side elevation view of a printing press equipped with mechanism embodying the invention;

Fig. 2 is an end elevation view of the press looking in the direction of the arrows 2—2 in Fig. 1, parts being broken away;

Fig. 3 is a plan view of the press, parts being broken away;

Fig. 4 is a detailed vertical sectional view taken on the line 4—4 of Fig. 3;

Fig. 5 is a detailed vertical sectional view taken on the line 5—5 of Fig. 4;

Fig. 6 is a detailed vertical sectional view taken on the line 6—6 of Fig. 4;

Fig. 7 is a detailed vertical sectional view taken on the line 7—7 of Fig. 4;

Fig. 8 is a detailed horizontal sectional view taken on the line 8—8 of Fig. 4.

Referring to the drawings, the numeral 10 designates the frame of the press, 11 the plate cylinder suitably journalled in said press, 12 the inking roll, 13 the fountain roll, and 14 the impression cylinder or roll. The plate cylinder 11 is suitably driven from a drive shaft 15 through gearing indicated at 16 in Fig. 3. The rolls 12 and 13 are connected together by intermeshing gears 17. The rolls 12 and 14 are both driven from a drive shaft 18 by an endless chain 19 running over a sprocket 20 on the shaft 18, a sprocket 21 on the shaft for the roll 12, a sprocket 22 on the shaft for the roll 14, idler sprocket 18a and 18b and a tensioning sprocket 23 carried in the arms 24 of an automatic tensioning device including a shaft 25 carrying said arms and a rod

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26 connected with the arms and acted on by a spring 26a to urge the arms 24 and sprocket 23 to a chain tensioning position. The fountain roll 13 dips into an ink supply fountain 27.

The extended shaft ends 28 of the inking roll 12 are each journalled in a bearing 29 mounted in a block 30 slidably mounted in guideways 31 secured to the side portions of the frame 10. The extended shaft ends 32 of the impression cylinder 14 are each similarly journalled in a bearing 33 mounted in a block 34 slidably mounted on the sides of a guide slot 36 on the frame 10.

Similar means are provided in each instance for simultaneously or individually adjusting the blocks 30 to bring the roll 12 into proper registry with the plate cylinder 11 and for simultaneously or individually adjusting the blocks 34 to bring the roll 14 into proper registry or alinement with said plate cylinder. Details of these similar means have been shown more particularly in connection with the roll 12 though, as noted, similar means are used in connection with the roll 14.

Referring to Figs. 3, 4, and 8, each slide block 30 has an angled end portion 37 provided with a threaded bore 38 in which a threaded adjusting screw 39 is mounted, the shaft end of this screw being journalled in spaced bearings 40 in frame blocks 41. Between the blocks 41, the screw 39 has a worm wheel 42 secured thereto by a pin 43. The wheel 42 on one of the screws 39 meshes with a worm gear 44 while the wheel 42 of the other screw meshes with a worm gear 45. As shown in Fig. 5, the worm 45 is keyed to a reduced end portion of an adjusting shaft 46 journalled at one end in a bearing 47 in a side of the frame 10 and having a hand wheel 48 keyed to its other end. The worm 44 is keyed to the outer end of a sleeve shaft 49 surrounding a portion of the shaft 46 and journalled in a bearing 50 in the other side of the frame 10 and having a hand wheel portion 51 carrying an outboard bearing 52 for the shaft 46.

With this construction rotation of wheel 48 will, through the gears 45 and 42, turn the feed screw 39 in the block 30 at the farther side of the machine as viewed in Fig. 3, and rotation of the wheel 51 will, through the gears 44 and 42, turn the feed screw 39 in the block 30 at the nearer side of the machine and, depending upon which direction the screws 39 are turned, the blocks 30 will be moved toward or away from the plate cylinder shaft extensions so as to bring the inking roll into the desired alinement with the plate cylinder 11. Also both of the hand

wheels 48 and 51, and consequently the shafts and gearing associated therewith, may be moved together by locking these wheels together as by a manually operable set screw 53 mounted in the wheel 48 and engageable with the front face of the wheel 51.

Referring to Figs. 1 and 2, each block 34 carries a feed screw 54 mounted so that it can rotate relative thereto, which feed screw has threaded engagement with the side portion of the frame of the machine, so that turning of said feed screw will raise or lower the block 34 to bring the cylinder or roll 14 into proper registry with the plate cylinder 11. For turning the screws 54, each feed screw 54 has a worm wheel 55 slidably keyed thereto, and the mechanism for turning these wheels 55 is identical with that just described and shown in Fig. 5 for turning the worm wheels 42 so that details of the meshing worms have not been shown, but similar numerals for similar parts have been applied to these parts in Fig. 2, to wit: the adjusting shaft 46 with its hand wheel 48 and which shaft carries a worm wheel, similar to the worm wheel 45, and meshing with the worm gear 55 on the feed screw 54 on the opposite side of the machine from that shown in Fig. 1, the sleeve adjusting shaft 49 with its hand wheel 51, and which shaft carries the worm wheel 44 meshing with the worm gear 55 shown in full in Fig. 1 and the locking screw 53 for securing the wheels 48 and 51 together as a unit. The turning of the screws 54 either singly or together through the adjusting mechanism above described acts to adjust either end or both ends of the roll 14 relative to the plate cylinder 11 in the same way that the turning of the screws 39 act to adjust the inking roll 12 relative to said plate cylinder.

As the inking roll 12 receives its ink from the fountain roll 13, this roll must be capable of adjustment so that it will cooperate with the roll 12 in any position in which it has been adjusted relative to the cylinder 11, and for this purpose adjusting mechanism similar to the other adjusting mechanisms above described have been provided for this roll 13.

Referring to Figs. 4 to 8, each shaft extension 56 for the roll 13 is journalled in a bearing 57 mounted in a supporting block 58 slidably mounted in the guides 31 between the block 30 and the side portion of the frame 10 adjacent this block 30. Each block 58 has a clearance opening 59 for the outer end of the screw 39 and is normally urged toward the angled end 37 of the block 30 by a spring 60 interposed between the headed end 61 of a bolt 62 and said end 37, said bolt 62 being anchored to the block 58 and slidably mounted in said end 37, as shown in Fig. 4. A clearance opening 63 in each block 30 for the extension 56, as shown in Fig. 6, allows for movement of the block 58 relative to its associated block 30. For adjustably positioning each block 58 relative to the block 30 at the same side of the machine, a feed screw 64 is mounted in a threaded bore 65 in the end 37 of the block 30 which under the action of spring 60 limits the movement of the block 58 toward the left as viewed in Fig. 4 and which under the screwing-in movement of said screw 64 acts on the block 58 to move it to the right in said figure. Thus the individual adjustment of each screw 64 individually adjusts the ends of the roll 13 relative to the roll 12. The turning of each screw 64 is done manually through mechanism similar to that used in connection with the associated block 30. Each screw 64 has a slidably keyed connection at 64a with a shaft portion 66 which is journalled in bearings in the blocks 41 and has a worm wheel 67 pinned thereto and mounted between said blocks 41.

Each worm wheel 67 meshes with a worm associated with turning mechanism similar to that shown in detail in Fig. 5 and similarly numeralled so that in Fig. 4 the worm 67 meshes with the worm 44 on the sleeve shaft 49 while a worm 45 keyed to the adjusting shaft 46 of this mechanism meshes with the other worm 67 on the opposite feed screw 64. The shafts 46 and 49 have the hand wheels 48 and 51 mounted thereon with the associated locking pin 53 so that the turning of either hand wheel or the joint turning of both hand wheels will effect the desired adjustment of the fountain roll 13 relative to the inking roll 12, and this adjustment can be effected in any adjusted position of the block 30 relative to the plate cylinder 11 since the sliding key connection permits relative movement of the screw 64 and its associated shaft 66.

In each instance in order to facilitate bringing the rolls back to an initial point of predetermined adjustment I have made the bearing 50 angularly adjustable in the frame 10 and provided it with a stop extension 68 which may be moved to different angular positions relative to the shafts 46 and 49 and locked in position in the frame 10 by a set screw 69 which is threaded into the frame 10 and engages the outer surface of the bearing 50. This angularly adjustable stop member 68 is adapted to be engaged by a pin 70 carried by the hand wheel 51. This stop mechanism is shown more particularly in connection with the adjustments for the inking roll 12 and the fountain roll 13.

From the above it will be noted that I have provided a simple form of adjusting mechanism associated with the impression roll, the inking roll, and the fountain roll of a press whereby the ends of these rolls may be individually adjusted or both ends of these rolls moved together as a unit for the purpose of bringing the impression and inking (or ink distributing) rolls into proper registry or contact with the plate cylinder 11 and also bringing the fountain roll 13 in proper transfer contact with the inking roll 12.

I desire it to be understood that this invention is not to be limited to any particular form or arrangement of parts except in so far as such limitations are included in the claims.

What I claim as my invention is:

1. In a printing press, the combination with a frame, a plate cylinder journalled in the frame, and a roll cooperating with said plate cylinder, bearing blocks for the ends of said roll slidably mounted relative to the plate cylinder, and means for adjusting the shaft ends of said roll either individually or together comprising a feed screw operatively connected to each of said bearing blocks, a manually adjustable shaft having a geared connection with one of said feed screws, a manually adjustable shaft having a geared connection with the other of said feed screws, said shafts being concentrically disposed with one shaft extending through a bore of the other shaft, said shafts having adjacently disposed hand wheel extensions at the same side of the frame for individually turning each of said shafts, and means for locking both of said hand wheels together for simultaneously turning said shafts by either hand wheel or both hand wheels.

2. The structure as defined in claim 1 in which the locking means comprises a manually operable set screw carried by one of said hand wheels and engageable with the other.

3. In a printing press, the combination of a frame, a plate cylinder journalled in the frame, an ink distributing roll cooperating with said plate cylinder, bearing blocks for said roll slidably mounted on the frame, a fountain roll cooperating with said inking roll, bearing blocks for said fountain roll also slidably mounted on said frame adjacent the bearing blocks for the inking roll, means for individually or simultaneously moving the bearing blocks for the inking roll relative to said plate cylinder to bring said inking roll into cooperative relation with said plate cylinder, and means for individually and simultaneously moving the bearing blocks for the fountain roll relative to the bearing blocks for the inking roll to bring said fountain roll into cooperative contact with said inking roll, each of said means comprising a feed screw for moving each bearing block, and a manually adjustable rotary shaft having geared connection with said feed screw whereby both of the feed screws for one set of bearing

blocks may be adjusted simultaneously or independently of each other, parts of the feed screws for the bearing blocks for said fountain roll being mounted in the bearing blocks for said inking roll and other parts of said feed screws being journalled in the frame, and means providing a lengthwise adjustable slidable key connection between said parts of the feed screws for the blocks for the fountain roll to permit their rotary adjustment irrespective of the adjustment of the bearing blocks for the inking roll.

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