Aug. 13, 1963 J. C. LANG 3,100,442

ROTARY TYPE HOLDER

Filed Oct. 9, 1961

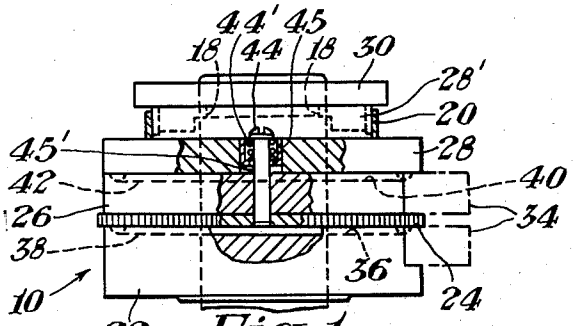

Fig. 1.

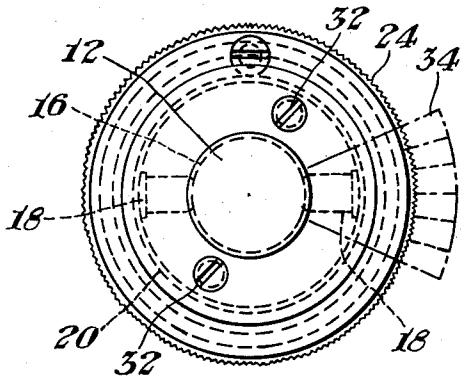

Fig. 2.

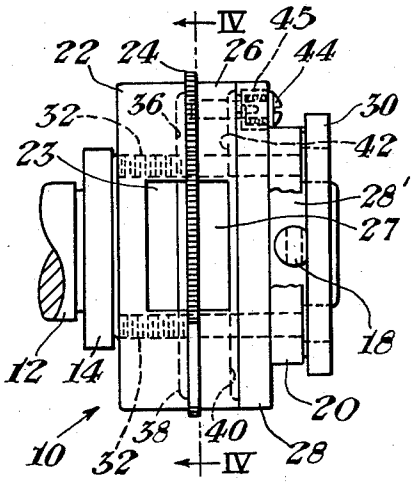

Fig. 3.

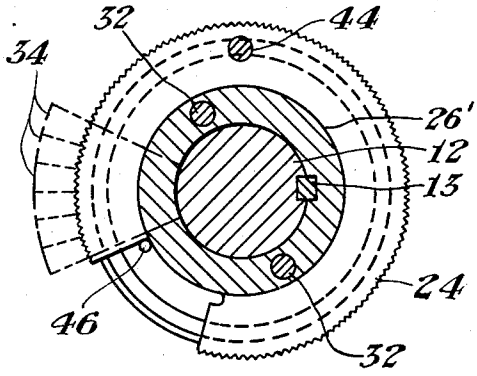

Fig. 4.

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ROTARY TYPE HOLDER

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This invention relates to new and useful improvements in rotary type holders for mounting on the shaft of a machine, and is for a holder that provides a quick and easy interchange of type.

Rotary type holders of the type to which the present invention relates are extensively used in industry, commonly, but not necessarily, being used in complementary pairs between which objects, as for example can lids, are passed, and a code or other mark impressed therein. The nature of their use requires that from time to time the marking dies be changed to imprint a different marking. It has heretofore been the general practice to employ a holder that must be removed from the shaft of the machine in which the holder is used, after which screws or other fasteners must be removed from the parts, and the parts separated to remove the type, and all or part of the type replaced with new type. The various parts are then reassembled, the screws or fasteners replaced, and the entire assembly remounted on the shaft of a machine. This requires considerable time, and it is awkward to handle the numerous parts of the holder and type at the same time.

My invention provides a rotary type holder applicable to existing machines, which need not, but may be removed from the shaft of a machine to change or rearrange type, and which is of simple, rugged construction. It further provides a locking member which is movable arcuately a few degrees to permit quick and easy removal and insertion of new type. After type is placed in the holder, the locking member is moved arcuately back to locking position and secured by a lock pin. The operation may be accomplished quickly and with a saving of time, and the manufacture thereof is simplified.

The principal object of this invention is to provide a type holder that permits quick and easy interchange of type.

Another object of this invention is to provide a holder that can be easily removed from the shaft of a machine, and which is of unique and simple construction and may be interchanged with existing holders and types.

This invention is an improvement in rotary type holders of the type disclosed in Weber Patent No. 2,358,674, of September 19, 1944.

Other objects and features of the invention will become apparent to those skilled in the art as the disclosure is made in the following detailed description of a preferred embodiment of the invention as illustrated in the accompanying sheet of drawing, in which:

FIG. 1 shows a plan view, partly in section, of a preferred embodiment of the invention;

FIG. 2 illustrates a front elevation of the device mounted on the shaft of a machine;

FIG. 3 shows a side elevation of the device shown in FIG. 2; and

FIG. 4 shows a section of the device taken along the line IV—IV of FIG. 3.

Referring now ot the drawing, wherein like reference characters designate like or corresponding parts throughout the several views, there is shown in FIG. 3 a rotary quick change type holder designated generally as **10** mounted on a shaft **12** of a machine. The rotary quick change type holder **10** abuts a collar **14** formed on the shaft **12** and is secured thereto by locating keys **18**

snapping into an annular groove **16** provided in the shaft **12**. The keys **18** are urged radially inward by a locking spring **20**.

The rotary quick change type holder **10** as here shown comprises a second line type holder disc **22**, a locking ring **24**, a first line type holder disc **26**, an end ring **28**, and an end member or end plate **30**, all arranged in face-to-face relation and held together by screws **32** passing through holes provided in end plate **30**, end ring **28**, first line type holder disc **26** and threaded into type holder disc **22**. The end ring **28** has a reduced portion **28'** having non-circular holes broached therethrough to receive the keys **18**, and the spring **20** encircles this hub portion. The locking ring **24** is an incomplete or segmented annulus, having a gap between its two ends, as clearly shown in FIG. 4.

To assemble the rotary quick change type holder, the second line type holder disc **22** may be first slid onto the shaft **12**, one end abutting the collar **14** formed on the shaft and limiting movement of the type holder in one direction. Locking ring **24** is then placed in abutting relationship to the type holder disc **22**. Type holder disc **22** has a segmented notch or opening **23** in its circumference for receiving type **34** and an annular groove **36** on one face for receiving the raised portion or bead **38** provided on the face of the locking ring **24**. The first line type holder disc **26**, which also has a segmented notch **27** or opening for receiving type **34**, is then placed on the shaft **12** in abutting relationship with locking ring **24**. The inside diameter of the locking ring **24** moves arcuately on an annular shoulder **26'** provided on one end of the first line type holder disc **26** (see FIG. 4). The first line type holder disc **26** also has a groove **40** provided on one face for receiving the annular raised portion or bead **42** provided on one face of the end ring **28**. When the parts are all assembled on the shaft, screws **32** are inserted to hold the parts assembled. A key **13** is shown for keying the holder to the shaft **12**.

For releasably holding the ring **24** against relative rotation in the assembly, there is a locking pin **44** passing through type holder disc **26** having its inner end projected into an opening in the ring **24**. The pin passes through a sleeve **45** press-fitted into a recess in the outer face of the ring **28**. A spring **44'** urges the pin outwardly, while a transverse pin **45'** passing through pin **44** engages the inner end of the bushing to restrain such outward movement. The inner end of the bushing is notched so that if pin **44** is rotated to the proper position, transverse pin **45** registers with the notches, allowing pin **44** to spring outwardly enough for its inner end to clear the ring **24**.

When it is desired to change type, spring lock pin **44** is first retracted. This permits locking ring **24** to be rotated in a clockwise manner from a locked-in position as viewed in FIG. 4. The segmented opening in locking ring **24** will thus be aligned with the segmented opening in type holder disc **22** and the segmented opening in first line type holder disc **26**. There is a stop pin **46** on that face of holder disc **22** which confronts the locking ring to limit the rotation of the locking ring by contacting an end of the locking ring to thereby prevent the ring from being turned too far. When the segmented openings are thus aligned, enough clearance space is provided to move the type **34** in both holders free from engagement of the type notches with the beads **38** and **42** for radially removing or changing the type or for rearranging it within the holders. After the rearranged or different type is inserted in the segmented openings of the type holders, locking ring **24** need be merely turned counterclockwise a few degrees and the type is locked in place. When the ring has been rotated to the full limit of its movement in the reverse direction and the

other end abuts pin 46, the lock pin 44 is pushed in and turned to prevent relative movement of the ring. As is usual in devices of this kind, the printing dies or type elements are notched on one side inwardly from the outer end so that the bead 38 on the locking ring 24 enters the grooves or notches in the type in holder disc 22, and bead 42 of the holder disc 26 engages the type in such holder. The locking ring 24 prohibits axial movement of the type when rotated to the position shown in FIG. 4, and this locks the type against radial movement because the beads 38 and 42 are captured within the grooves of the type. The type elements are wedge-shaped, and their narrow inner ends bear on the shaft 12.

The entire assembly is held together by screws 32 passing through holes in end plate 30, end ring 28, first line type holder disc 26, and screwed into type holder disc 22. The first line type holder disc 26 is a discontinuous annulus or circular member of greater extent than 180°, but less than 360°, and the space 27 between the open ends of the ring-like member provide the type holding space. The locking ring 24 is a similar but thinner incomplete ring, and the space between its ends is of the same angular extent as the space between the ends of the type holder disc 26, so that when type is to be removed or replaced, the segmental areas between the open ends of these two members are in register.

If it is desired to remove the rotary quick change type holder from the shaft of a machine, a flat key of substantially the same width as the shaft diameter is inserted in a slot transverse the end of shaft 12 to spread the locating keys out of the annular groove in the shaft, thus permitting the removal of the type holder assembly. Because of the non-circular holes in the hub portion of the end member 30 which have the locating keys 18 slidably fitted therein, these keys being also non-circular where they pass through the holes so that they cannot rotate, the ring-like spring 20 is all that is required to retain them in place.

It should be understood, of course, that the foregoing disclosure illustrates a preferred embodiment of the invention and that various modifications or alterations may be made therein without departing from the spirit and scope of the invention as set forth in the appended claims.

I claim:

1. A rotary type holder for segmental type having bead-receiving notches in the sides thereof comprising an end ring having an annular bead on one face thereof, a type holder disc of the shape of a segmented annulus of more than 180° with spaced ends, said type holder disc being in face-to-face contact with said one face of the end ring and having a groove in the ring-confronting face thereof into which the bead of the end ring is received, the space between the ends of the holder disc forming a type-receiving space, the bead on the ring being received into the notches of type inserted in the space, a locking ring confined against the other face of the type holder disc and supported for relative concentric rotation thereagainst, the locking ring being segmented for alignment of an opening with the type-receiving space of the holder disc when rotated whereby type may be freed from the bead of the end ring, means confining the locking ring against endwise movement relative to the type holder disc, and an end member on the end ring having a hub portion with radially-movable locating keys therein for removably positioning the holder on a shaft.

2. A rotary type holder for segmental type having bead-receiving notches in the sides thereof comprising an end ring having an annular bead on one face thereof, a type holder disc of the shape of a segmented annulus of more than 180° with spaced ends, said type holder disc being in face-to-face contact with said one face of the end ring and having a groove in the ring-confronting face thereof into which the bead of the end ring is received, the opening between the ends of the holder disc forming a type-receiving space, a second line type holder disc having a segmental type-receiving opening therein concentric with and aligned with the first type holder disc in face-to-face relation therewith, a concentric segmental locking ring confined between the confronting faces of the two type holder discs and supported on one of the discs for rotational movement relative to the type discs, said locking ring having a bead around that face thereof which is toward the second line type holder disc and which is the counterpart of the bead on the end ring, said locking ring being of an arcuate extent greater than 180° and less than 360° so that there is an open space between its ends which may be moved by rotation of the locking ring into alignment with the type-receiving openings of the type holder disc whereby type may be moved first axially into the open space and then radially from the discs, and means connecting the end ring and type holder discs against relative endwise movement and holding them in aligned position.

3. A rotary type holder for segmental type having bead-receiving notches in the sides thereof comprising an end ring having an annular bead on one face thereof, a type holder disc of the shape of a segmented annulus of more than 180° with spaced ends, said type holder disc being in face-to-face contact with said one face of the end ring and having a groove in the ring-confronting face thereof into which the bead of the end ring is received, the opening between the ends of the holder disc forming a type-receiving space, a second line type holder disc having a segmental type-receiving opening therein concentric with and aligned with the first type holder disc in face-to-face relation therewith, a concentric segmental locking ring confined between the confronting faces of the two type holder discs and supported on one of the holder discs for rotational movement relative to the type holder discs, said locking ring having a bead around that face thereof which is toward the second type holder disc and which is the counterpart of the bead on the end ring, said locking ring being of an arcuate extent greater than 180° and less than 360° so that there is an open space between its ends which may be moved by rotation of the locking ring into alignment with the type-receiving openings of the type holder disc whereby type may be moved first axially into the open space and then radially from the discs, means connecting the end ring and type holder discs against relative endwise movement and holding them in aligned position, and means for releasably holding the locking ring against rotation.

4. A rotary type holder for segmental type having bead-receiving notches in the sides thereof comprising an end ring having an annular bead on one face thereof, a type holder comprising disc of the shape of a segmented annulus of more than 180° with spaced ends, said type holder disc being in face-to-face contact with said one face of the end ring and having a groove in the ring-confronting face thereof into which the bead of the end ring is received, the opening between the ends of the holder disc forming a type-receiving space, a second line type holder disc having a segmental type-receiving opening therein concentric with and aligned with the first type holder disc in face-to-face relation therewith, a concentric segmental locking ring confined between the confronting faces of the two type holder discs and supported on one of the holder discs for rotational movement relative to the type holder discs, said locking ring having a bead around that face thereof which is toward the second type holder disc and which is the counterpart of the bead on the end ring, said locking ring being of an arcuate extent greater than 180° and less than 360° so that there is an open space between its ends which may be moved by rotation of the locking ring into alignment with the type-receiving openings of the type holder disc whereby type may be moved first axially into the open space and then radially from the discs, and means connecting the end ring and type holder discs against relative endwise movement and holding them in aligned

position, there also being an end member confined against the other face of the end ring, said end member having radially-movable locating keys therein for removably positioning the holder on a shaft.

5. A rotary type holder for segmental type having bead-receiving notches in the sides thereof comprising an end ring having an annular bead on one face thereof, a type holder comprising disc of the shape of a segmented annulus of more than 180° with spaced ends, said type holder disc being in face-to-face contact with said one face of the end ring and having a groove in the ring-confronting face thereof into which the bead of the end ring is received, the opening between the ends of the holder disc forming a type-receiving space, a second line type holder disc having a segmental type-receiving opening therein concentric with and aligned with the first type holder disc in face-to-face relation therewith, a concentric segmental locking ring confined between the confronting faces of the two type holder discs and supported on one of the holder discs for rotational movement relative to the type holder discs, said locking ring having a bead around that face thereof which is toward the second type holder disc and which is the counterpart of the bead on the end ring, said locking ring being of an arcuate extent greater than 180° and less than 360° so that there is an open space between its ends which may be moved by rotation of the locking ring into alignment with the type-receiving openings of the type holder disc whereby type may be moved first axially into the open space and then radially from the discs, means connecting the end ring and type holder discs against relative endwise movement and holding them in aligned position, there also being an end member confined against the other face of the end ring, said end member having radially-movable locating keys therein, said second line type holder disc being an annulus with a segment-shaped notch in the face which confronts the first holder disc, and which constitutes the type-receiving opening therein.

6. A type holder for segmental type having bead-receiving notches in the sides thereof comprising an annular end plate, an annular end ring concentric with the end plate, a type holder disc provided with a segmented opening in its circumference forming a space between its ends for receiving type, a locking ring having a segmented opening provided in its circumference and an aperture through the ring radially located from the ring center, said locking ring abutting said type holder disc to hold type in place in the holder disc, a lock pin passed through registering bores in said annular end ring and said type holder disc and seated in the aperture in said locking ring for releasably securing the locking ring against rotation whereby when said lock pin is removed said locking ring may be rotated to align the opening in said locking ring with the opening in said type holder disc for removing or interchanging type, and means holding the end plate, the type holder disc and locking ring in aligned side-by-side relation, said end ring and holder disc providing a central shaft-receiving opening.

7. In a type holder having confronting type holder discs in side-by-side relationship and segmental openings for receiving type with bead-receiving notches therein with the discs being releasably confined against axial movement on a shaft, a locking ring positioned between confronting faces of the type holder discs with a segmental opening, the locking ring and one of the discs each having an annular bead extending partially into the type-receiving openings and into the type bead-receiving notches for maintaining the type fixed against radial movement, means for releasably holding the locking ring from rotation on the shaft and frictionally against the confronting faces of the type holder discs, and means for limiting arcuate movement of the locking ring for aligning the opening of the locking ring selectively with the type receiving openings in the discs and for moving the type held in the discs axially into the locking ring opening with the type notches free from engagement with the beads such that the type may be removed radially from the shaft while maintaining the holder discs in fixed position thereon.

8. In a type holder having confronting type holder discs in side-by-side relationship and segmental openings for receiving type therein with the discs being releasably confined against axial movement on a shaft, a locking ring positioned between confronting faces of the type holder discs with a segmental opening, means for releasably holding the locking ring from rotation on the shaft and frictionally against the confronting faces of the type holder discs whereby the opening of the locking ring is aligned selectively with the type receiving openings in the discs for enabling the type held in the discs to be moved axially into the locking ring opening free from engagement with the discs such that the type may be removed radially from the shaft while maintaining the holder discs in fixed position thereon, and means for interlocking the type with the locking ring against radial movement from the holder when the locking ring opening is non-aligned with the openings in the discs.

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