

No. 775,850.

PATENTED NOV. 22, 1904.

F. E. NORCROSS.

BOBBIN RETAINING MEANS FOR ROTATABLE SPINDLES.

APPLICATION FILED SEPT. 26, 1904.

NO MODEL.

Fig. 1.

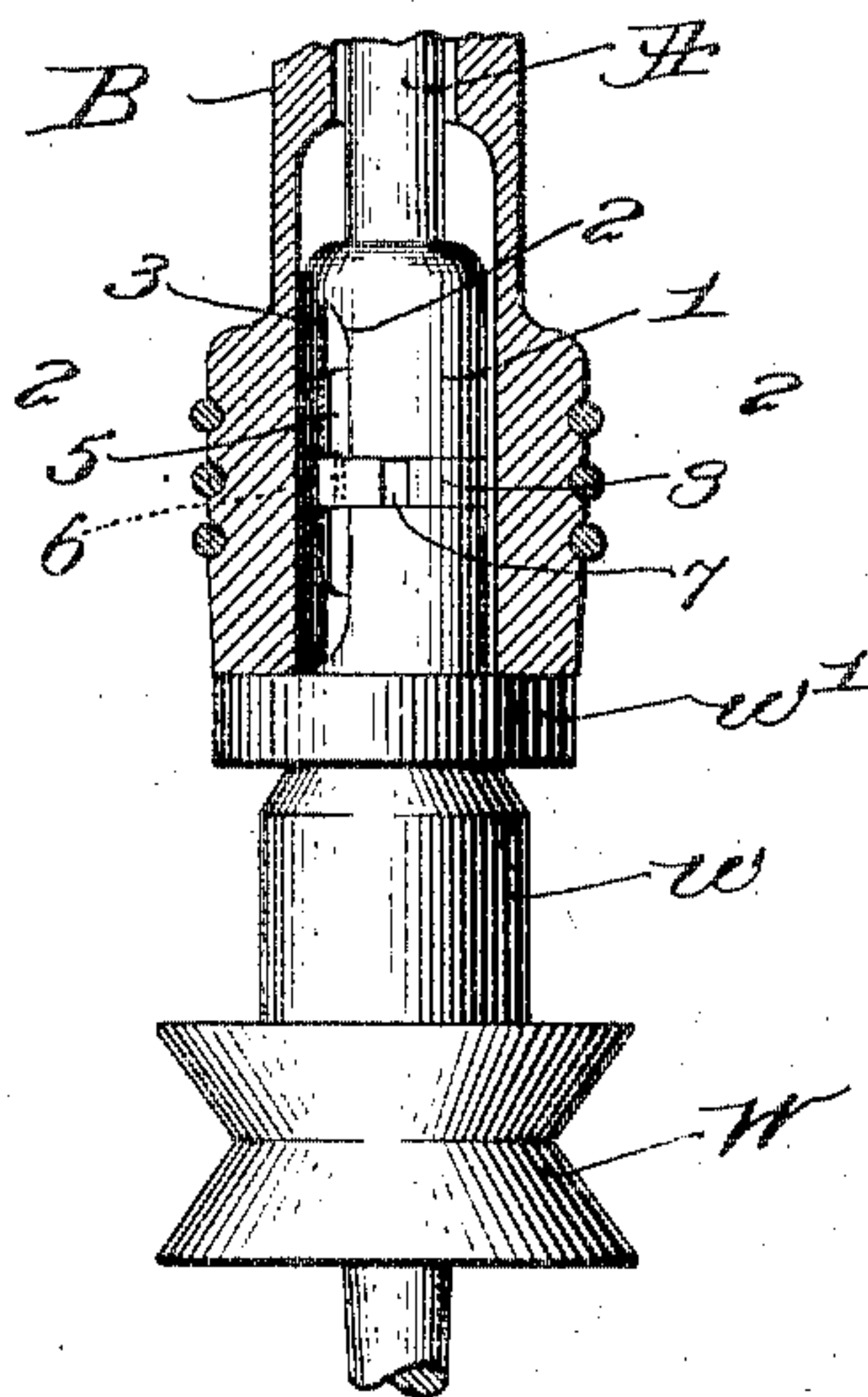


Fig. 2.

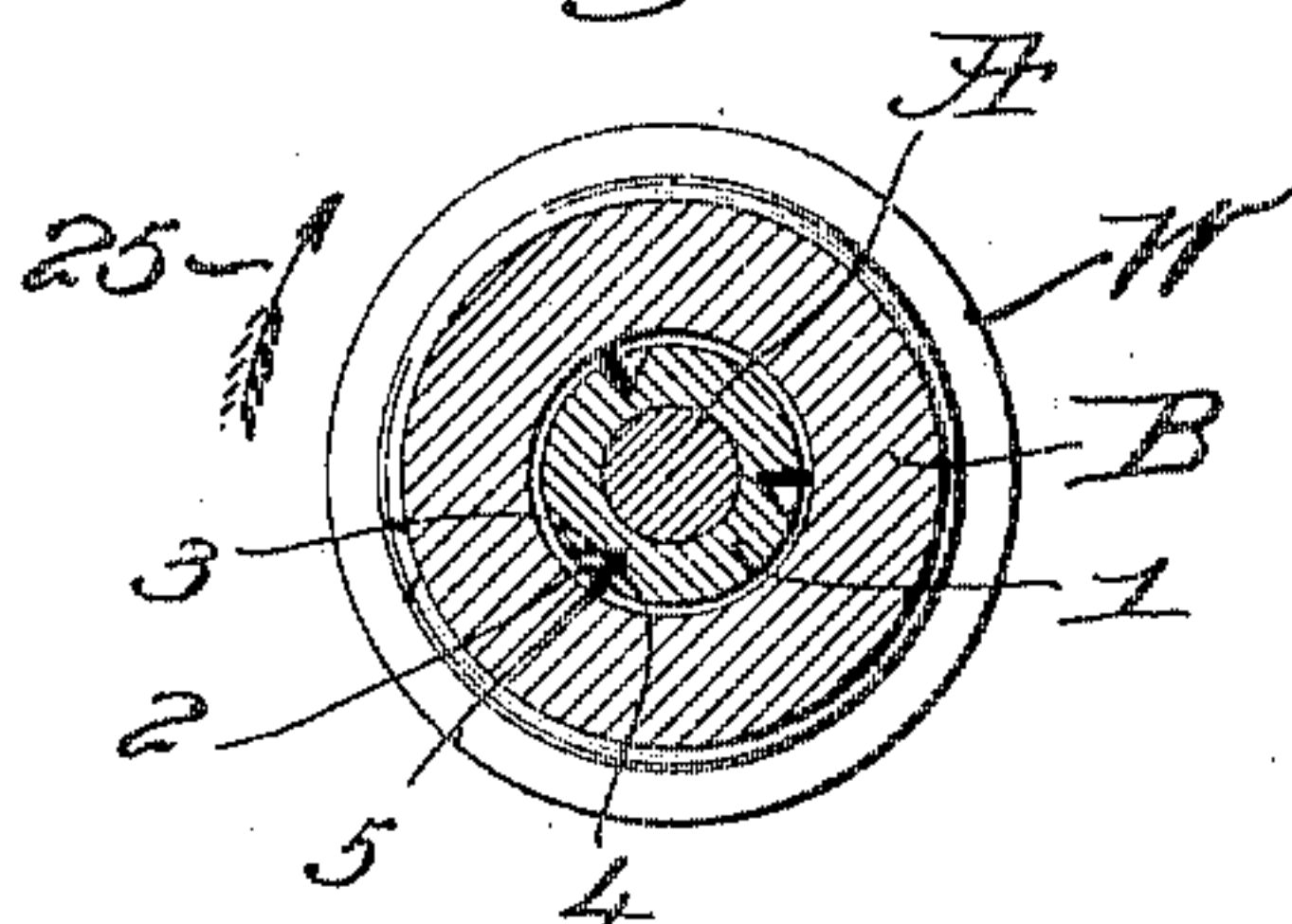


Fig. 3.

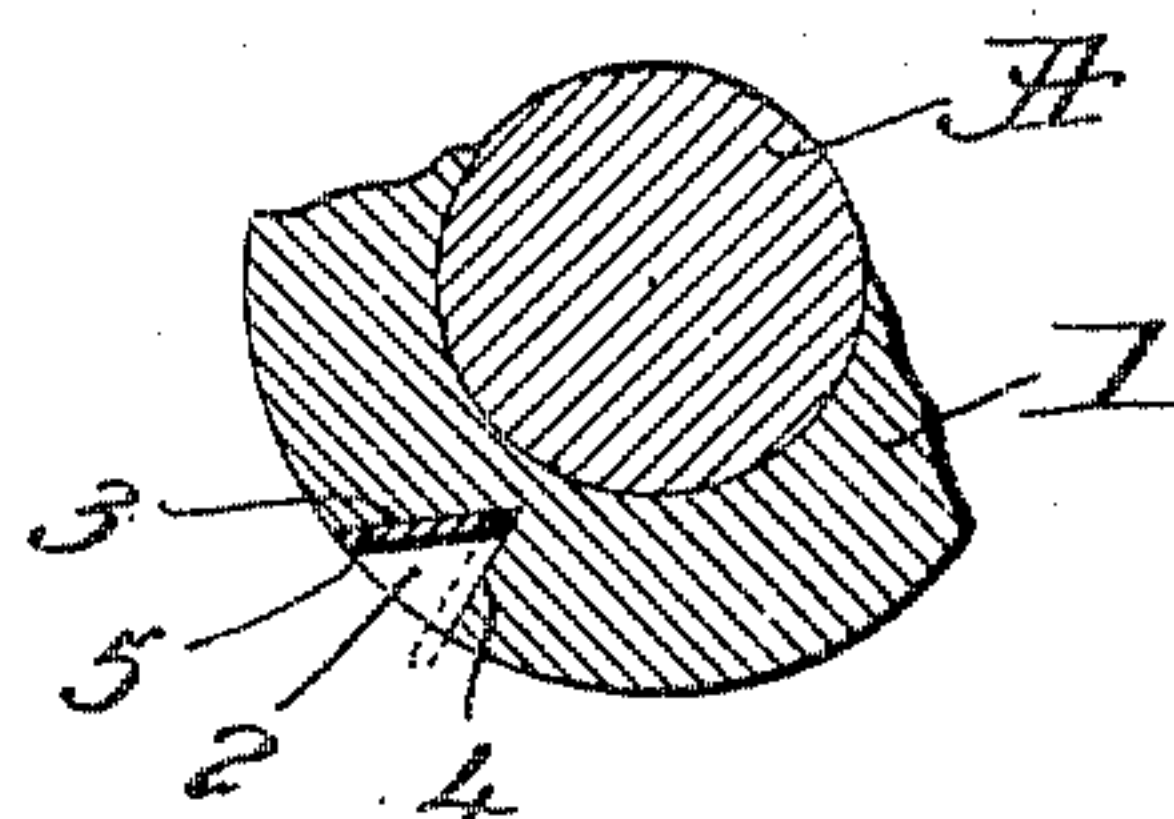
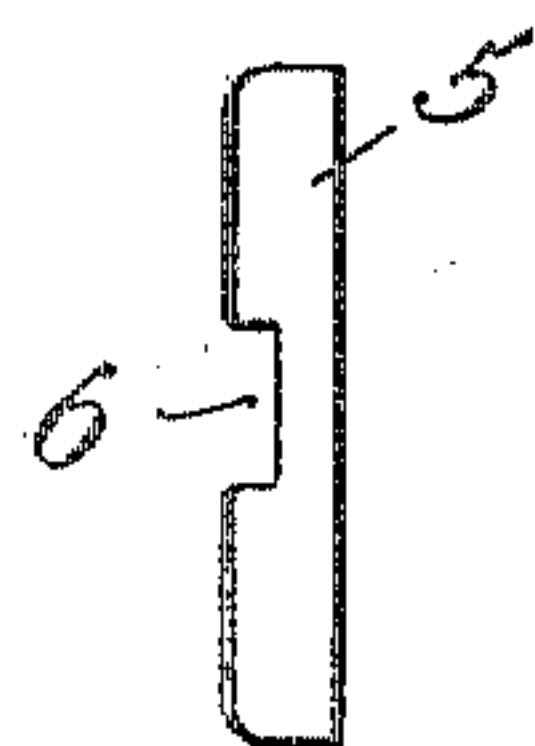


Fig. 4.



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UNITED STATES PATENT OFFICE.

FRANK E. NORCROSS, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO
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BOBBIN-RETAINING MEANS FOR ROTATABLE SPINDLES.

SPECIFICATION forming part of Letters Patent No. 775,850, dated November 22, 1904.

Application filed September 26, 1904. Serial No. 225,909. (No model.)

To all whom it may concern:

Be it known that I, FRANK E. NORCROSS, a citizen of the United States, and a resident of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Bobbin-Retaining Means for Rotatable Spindles, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention has for its object the production of novel means for retaining a yarn-receiver or bobbin in operative position upon a rotating spindle during the operation of laying yarn upon the receiver, the construction of the retaining means being simple, substantial, and durable and not liable to become clogged with yarn.

In accordance with my invention a plurality of blade-like clutching members are pivotally mounted upon and around the spindle in substantially vertical position and so arranged that when the spindle is rotated they will be swung horizontally on their axes by the action of centrifugal force to cause their outer edges to come into driving engagement with the interior of a bobbin when placed upon the spindle.

The clutching members are mounted in elongated seats having converging walls of different widths, the leading wall, or that one in the direction of rotation of the spindle, being the wider and substantially tangential to the spindle, or non-radial. The clutching members are of similar width, so that when swung on their axes away from said walls by centrifugal force their outer edges will project and are adapted then to engage internally and drive a bobbin placed on the spindle.

The novel features of my invention will be fully described in the subjoined specification, and particularly pointed out in the following claims.

Figure 1 is a side elevation of a portion of a rotatable spindle with one embodiment of my invention applied thereto, a bobbin being shown in section applied to the spindle. Fig. 2 is a transverse section on the line 2-2, Fig. 1 looking down. Fig. 3 is an enlarged detail

on the same section-line to show more clearly one of the seats and a clutching member therein, and Fig. 4 is a detached view in side elevation of one of the clutching members.

A rotatable spindle A, having an attached whirl W, is shown in Fig. 1, and at the upper end of the whirl-sleeve *w* an annular enlargement *w'* is provided, constituting a rest to vertically support the yarn-receiver or bobbin B. Above the bobbin-rest the spindle is surrounded by a sleeve-like elongated carrier 1, rigidly secured to the spindle in any suitable manner, said carrier having a plurality of elongated axial seats 2, formed in its periphery, three of such seats being shown in Fig. 2. Each seat has converging sides 3 4, the side 3 being the wider and substantially tangential to the spindle, (see Figs. 2 and 3,) while the other narrower side, 4, may be substantially radial, the sides 3 being termed the "leading" sides, as they are in advance of the other sides when the spindle is rotated in the direction of arrow 25, Fig. 2.

Bobbin engaging or clutching members 5, made conveniently of thin flat metal stamped or cut out in any suitable manner, are loosely inserted in the seats, the outer edge of each member being notched, as at 6. The extreme width of the clutching member is equal to the width of the wider side 3 of a seat, so that when the said member is swung or rocked on its inner edge as an axis into the position shown in Figs. 1 and 3 its outer edge will be flush with the periphery of the carrier 1. When, however, the clutch member is swung over toward the side 4 of the seat, (see dotted lines, Fig. 3,) its outer edge will project into operative position.

An annular groove 7 is made in the carrier about midway between the upper and lower ends of the seats and intersecting the latter, and a split ring or band 8 is snapped into the groove. This band serves as a retaining device to hold the clutching members 5 seated, while permitting them to swing on their own axes, the band passing through the notches 6, the retaining means thus being common to all of the clutching members. Preferably the ends of the latter are rounded, as shown in Fig. 4, to obviate any sharp corners.

When the spindle is rotated in the direction of arrow 25, Fig. 2, the action of centrifugal force will cause the clutching members to swing in the seats from the sides 3 to the narrower sides 4, so that the outer edges of the clutching members project in operative position, as shown in Fig. 2.

The bobbin B has its head chambered, as at b, Fig. 1, to easily receive the carrier 1 when the bobbin is applied to the spindle, and as the bobbin is slipped down onto the rest w' the walls of the chamber slide over the clutch members. The latter are then swung by centrifugal force into holding and driving engagement with the walls of the chamber, whereby the bobbin will be retained in position upon and positively driven in unison with the spindle. Removal of the bobbin is readily and easily effected by an upward pull on the same, causing it to slide up from engagement with the clutch members.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination, with a rotatable spindle, an attached carrier having a series of elongated axial seats with converging sides of different widths, the leading, broader side of each seat being substantially tangential to the spindle, blade-like clutching members loosely resting in the seats and adapted to be swung on their inner edges away from the leading sides by the action of centrifugal force and thereby cause their outer edges to project beyond the periphery of the carrier, and means to cooperate with the outer edges of and retain said members in the seats.

2. In combination, with a rotatable spindle, an attached carrier having a series of elongated axial seats with converging sides of different widths, the leading, broader side of each seat being substantially tangential to the spindle, blade-like clutching members loosely resting in the seats and adapted to be swung on their inner edges away from the leading sides by the action of centrifugal force and thereby cause their outer edges to project beyond the periphery of the carrier, and means common to all of said members to retain them in their seats while permitting their swinging movement.

3. A rotatable spindle having, in combination, an attached sleeve-like carrier provided with elongated axial seats substantially V-shaped in cross-section, the leading side of each

seat being made wider than the opposite seat and substantially tangential to the spindle, thin, flat clutching members each having a notched outer edge and adapted to swing on their inner edges in the seats, and a retaining-band encircling the carrier and entering the notches of the clutching members, rotation of the spindle acting through centrifugal force to swing said members on their inner edges away from the leading sides of the seats and thereby cause their edges to project beyond the periphery of the carrier into operative position.

4. In combination with a rotatable spindle having an attached carrier provided with elongated axial seats each having a substantially radial side and an intersecting side substantially tangential to the spindle, and clutching-blades disposed between the spindle and the bobbin and adapted to swing on their inner edges in said seats, of a removable bobbin having its head chambered to easily receive the carrier, rotation of the spindle acting through centrifugal force to swing the clutching members on their inner edges and cause their outer edges to positively engage and drive the chambered head of the bobbin, and means to cooperate with all of said members and retain them in the seats.

5. A rotatable spindle having an attached bobbin-rest, a sleeve above it surrounding and secured to the spindle and provided with elongated axial seats having converging sides of different widths, the wider side of each seat being substantially tangential to the spindle, blade-like bobbin-clutching members located in the seats and adapted to swing therein on their inner edges, the said members being substantially equal in width to the leading sides of the seats and each having a notch in its outer edge, and a retaining-band encircling the sleeve and entering the notches of the clutching members, to retain the latter in their seats while permitting them to be swung on their inner edges by or through the action of centrifugal force away from the leading sides of the seats when the spindle is rotated.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK E. NORCROSS.

Witnesses:

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