

March 15, 1960

J. A. BURTON ET AL

2,928,619

SUPPLY ROLL SUPPORT AND COUPLING DEVICE

Original Filed Oct. 10, 1955

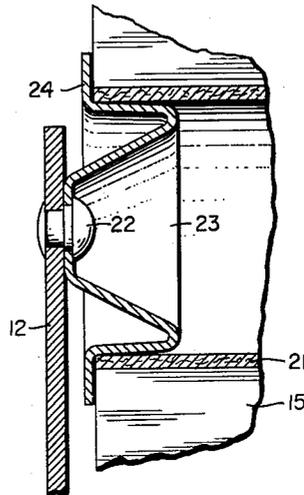
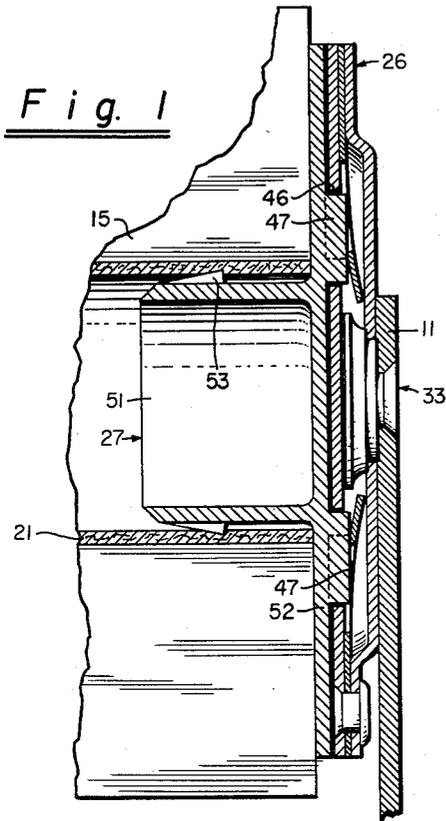


Fig. 2

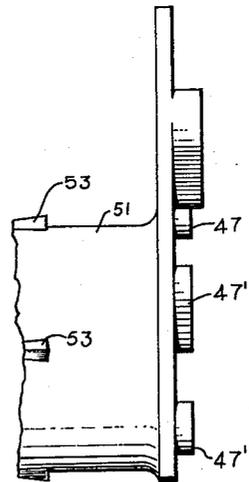
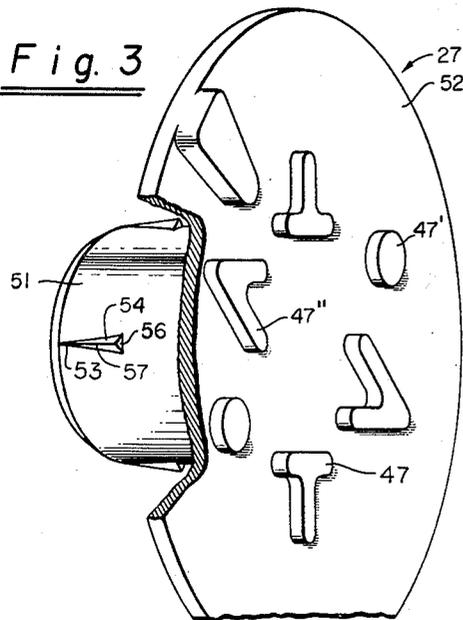


Fig. 4

INVENTORS
John A. Burton
Frederick D. Helversen
James B. Hyde

BY: *Fryer & Johnson*
Attorneys

1

2,928,619

SUPPLY ROLL SUPPORT AND COUPLING DEVICE

John A. Burton, Vancouver, British Columbia, Canada, Frederick D. Helversen, Burlingame, and James B. Hyde, San Mateo, Calif., assignors to Crown Zellerbach Corporation, San Francisco, Calif., a corporation of Nevada

Original application October 10, 1955, Serial No. 539,332. Divided and this application April 15, 1957, Serial No. 653,001

2 Claims. (Cl. 242—68.1)

This invention relates to coupling and supporting means for supply rolls of sheet material, and more particularly to a support plug insertable into the core of a supply roll of paper or the like to be positioned in a dispensing cabinet. The present application is a division of co-pending parent application, Serial No. 539,332, filed October 10, 1955, for "Supporting and Coupling Means for Supply Rolls."

Summarizing the invention, it has as its objects, among others, the provision of improved means for securing a supply roll coupling device in the end of a core of a supply roll, and which is of simple and economical construction that can be readily fabricated. Other objects of the invention will become apparent from a perusal of the following description.

In general, the coupling device comprises a hub portion adapted to be inserted into the end of the core of a supply roll; the hub portion being provided with a special arrangement of barbs of special shape for engaging the core of the supply roll to prevent relative rotation between the core and the coupling device when the latter is inserted into the core. Such arrangement of barbs also prevents withdrawal of the coupling device, after it has once been inserted into the core.

For a more detailed description of the invention, reference is made to the drawings, in which,

Fig. 1 is a vertical longitudinal sectional view through a form of supply roll coupler mechanism and coupling device of a desirable type described and illustrated in detail in the aforementioned parent application, illustrating the position of the parts with the coupling device in one end of the supply roll;

Fig. 2 is a similar section illustrating a form of more or less conventional means for journalling the opposite end of the supply roll;

Fig. 3 is an isometric view of the coupling device adapted to be inserted into an end of the supply roll core; a portion of the device being shown broken away to disclose the construction more clearly; and

Fig. 4 is a fragmentary side elevation of the coupling device illustrated in Fig. 3.

In the type of dispensing cabinet referred to in the parent application, the supply roll is adapted to be supported on arms 11 and 12 forming part of a roll supporting frame (not shown), and pivoted for inward and outward movement with respect to a dispensing cabinet (not shown). A supply roll 15 of paper or the like is wound about the usual paperboard core 21. One support arm 12 carries a pivot pin 22 upon which a hub member 23 is journalled for free rotation; one end of a supply roll core 21 being adapted to be positioned on the hub 23. To limit axial movement of the supply roll when it is placed on hub 23, the hub is formed with a flange 24. Usually in mounting the supply roll on the arms 11 and 12, it is first positioned on hub 23; the arms 11 and 12 being capable of being spread apart for this purpose be-

2

cause of the flexibility thereof. When the roll is mounted on the arms, they spring inwardly to effect proper support of the roll.

The opposite end of the supply roll is supported on special coupler mechanism indicated generally by reference numeral 26, which is journalled for rotation on a stud 33 on the other arm 11 of the supply roll support. The coupler mechanism is cooperable with a coupling device, indicated generally by reference numeral 27, secured in such opposite end of supply roll core 21.

Cooperating means is provided on coupler mechanism 26 and on coupling device 27 for allowing free rotation of the coupler mechanism when it carries a supply roll but which results in automatic latching of the coupler mechanism against rotation relative to its support when the coupling device is disconnected. Such cooperating means includes openings 46 in coupler mechanism 26, matching projections 47, 47' and 47'' on coupling device 27 and latching means, all fully described in the aforementioned parent application.

Coupling device 27 to which this application is directed is preferably made of molded plastic material but can be of any other material, such as metal. Such coupling device comprises a hub portion 51 adapted to be inserted into an end of core 21 of the supply roll, and an outer integral plate member 52 which carries actuating projections 47, 47' and 47'' and limits inward axial positioning of the coupling device in the roll core. For preventing relative rotation between the roll core 21 and the coupling device when the latter is inserted into the core, and also for preventing withdrawal of the coupling device after it is once inserted into the core, it is provided on its hub portion 51 with a plurality of peripherally arranged axially extending and radially projecting elongated barbs 53; the barbs being positioned in axially spaced relationship with respect to plate 52 at the inner end of the hub 51.

As can be seen from Fig. 3, each of the barbs is of triangular cross section at any transverse section thereon and has triangular shaped sides 54 so that the barbs taper both inwardly and downwardly from a triangularly shaped end 56 thereof adjacent plate 52 and extending transversely to the axis of hub 51, thus forming a relatively sharp edge 57 at the top. As a result, when hub 51 is inserted into the roll core, the resultant pointed shape of the barbs at their inner ends enables the hub to be readily inserted axially into the core while edges 57 cut into the core. However, because of the increased size of the barbs adjacent the plate end of the hub, the hub when fully inserted into the core cannot be withdrawn without damaging the core.

At the same time, the barbs fixedly secure the hub to the core against relative rotatable movement with respect thereto. In this connection, it will be noted with reference to Fig. 1 that the outside diameter of hub 51 is slightly less than the inside diameter of core 21 to facilitate insertion but at the same time prevent retraction by virtue of the larger outer ends 56 of the barbs. With the described construction, securing of the coupling device to the core can be quickly accomplished by merely a straight one-step endwise insertion of the coupling device into the core without damaging the same.

The construction for securing hub 51 in the core, although described in connection with the advantageous type of coupling mechanism claimed in the aforementioned parent application, may be employed on the hub of any other type of supply roll coupling mechanism for holding the same in the core of the roll.

We claim:

1. A molded coupling device for a supply roll of sheet material comprising a hub portion adapted to be inserted into the core of said roll and having at one end thereof a

3
 plate member adapted to engage an end of said roll to limit the inward axial positioning of the device in the roll core, a plurality of peripherally arranged axially elongated radially projecting barbs on said hub portion for fixedly securing the coupling to said core, each of said barbs having a substantially triangularly shaped enlarged end adjacent to but spaced from said plate member and a relatively sharp top edge extending from the apex of said enlarged end, each of said top edges sloping downwardly from said apex toward the opposite end of said hub portion, whereby when said device is inserted into said core withdrawal thereof is precluded without damage to the core.

10
 2. A supply roll of sheet material having a paperboard

4
 core and the coupling device of claim 1 secured in said core by said barbs at a position wherein said plate member engages an end of said roll and the barbs are spaced from said roll end internally of the core.

References Cited in the file of this patent

UNITED STATES PATENTS

671,576	Barnett	Apr. 9, 1901
737,407	Hirsch	Aug. 25, 1903
1,919,769	Brown et al.	July 25, 1933
1,999,765	Laveau	Apr. 30, 1935
2,049,334	Sobota	July 28, 1936