Oct. 27, 1942. A. N. PERRY 2,300,059

TRANSPORTATION OF CYLINDRICAL OBJECTS

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Fig. 1.

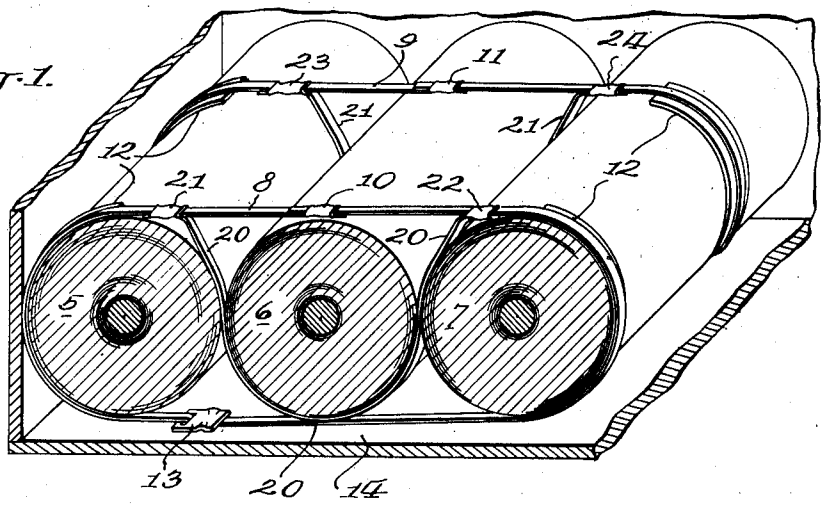


Fig. 2.

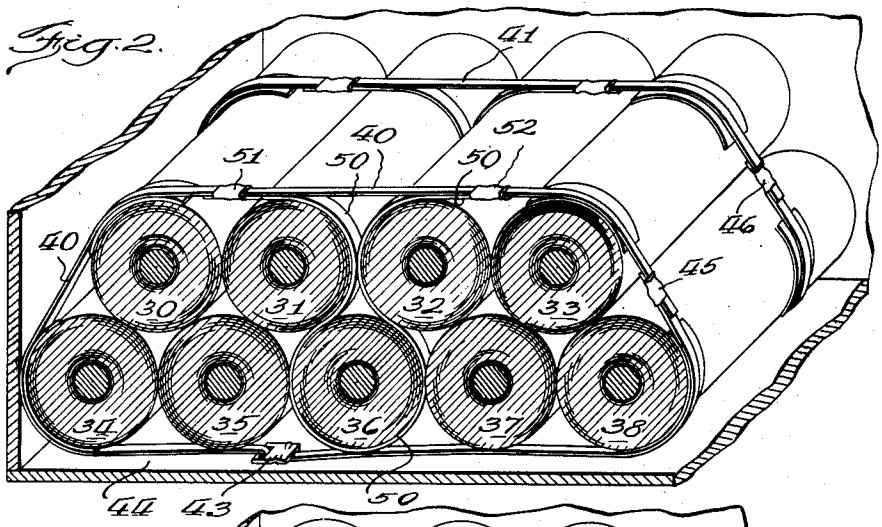
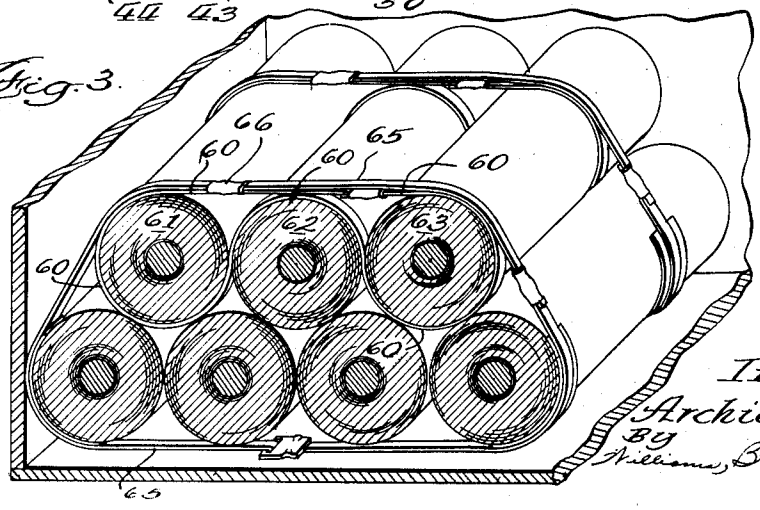


Fig. 3.



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TRANSPORTATION OF CYLINDRICAL OBJECTS

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4 Claims. (Cl. 105—367)

My invention relates to the transportation of cylindrical objects.

More particularly it relates to the transportation of cylindrical objects in prone or so-called "on bilge" position; that is with the axes horizontally disposed. Shipment of roll paper in this position is common—either because it is preferred or because conditions prompt its use—and my invention will be shown and explained as applied to the transportation of this commodity.

Specifically my invention is an improvement upon the load disclosed in the patent of L. J. Scales, No. 1,920,917, adopting it to more effective use with cylindrical objects which, because of that shape, may offer insufficient resistance to movement of the snubbed brake-band relative to the load. In other words, where the objects are cylindrical and shipped prone, the snubbing of the encircling band to retard movement of a load unit relative to the car floor may result in movement of the unit within and relative to the band. Such movement, particularly if the cylindrical objects are easily damaged as is the case with rolls of paper, is objectionable. Chafing, unreliable braking of load movement under impacts and loss of tension in binders, permitting relative shifting of constituents of a load unit, sometimes occur with resultant damage.

The principal object of my invention is to overcome the above mentioned difficulties.

Another object is to provide a load of nested objects wherein the tendency is to maintain the tension in the encircling binder.

Another object is to lessen the liability of undue strain upon the unit binder-bands caused by the tendency of top rolls in multi-deck loads to become displaced.

Other objects and advantages will hereinafter appear.

Typical embodiments of my invention are illustrated in the accompanying drawing, wherein

Fig. 1 is a vertical sectional perspective through a load unit of one deck or layer of paper rolls incorporating my invention;

Fig. 2 is a similar sectional perspective of a two-deck load unit of rolls showing an arrangement for anchoring the brake-band to the load through rolls in both decks, and

Fig. 3 is a similar view of a double deck load wherein the brake-band anchorage is through rolls in the top deck.

In general my improved load unit comprises a group of cylindrical objects—such as rolls of paper—lying on their sides with axes transverse to the direction of travel, the group being encircled by a flexible metallic braking member (this braking member may be a load binder) which is subjected to a braking action—such as set forth in the previously mentioned Scales patent—to retard and control the movement of the group as a whole relative to the car and relative movement between the braking member and the group being prevented by a flexible metallic anchoring member which at least partially encircles one or more of the objects constituting the group and is at opposite ends fixedly secured to the braking member. Thus the anchoring member is prevented from movement relative to the group by its relation to the group and prevents relative movement between the group and the braking member by being secured to the latter.

Referring first to Fig. 1, the load unit for one end of the car consists of three rolls **5**, **6** and **7** which are tightly bound together by a pair of encircling tensioned flexible metal binders **8** and **9**, such as steel strap or ribbon. Ordinarily, when two binders are employed, as shown, they are spaced equal distances from the ends of the rolls. The encircling loops when drawn sufficiently tight are made permanent by seal-joints **10** and **11** of any appropriate type. If desired, the outside rolls may be protected from the binder bands by suitable shields **12**, such as strips of paper, cloth or other material. As fully explained in the Scales patent, each binder **8** and **9** is threaded through a snubber plate **13**, which is anchored to the floor **14** of the car and, by a snubbing action upon its binder, serves to retard the longitudinal movements of the unit under the shocks and jars incident to travel, switching and the like. Thus each snubbed binder, in addition to constituting a load binding element, performs the function of a movement braking member. Relative movement between these snubbed braking members and the load is prevented—or at least restricted to unobjectionable amounts—by binder anchoring members **20** and **21**, respectively. Each anchoring member may consist of a length of strap, like that of which the binders are formed, lying partly around the inner roll **6** which, for convenience will be termed the anchor roll and having its opposite ends immovably or fixedly secured to the corresponding binder in any suitable manner such as by seal-joints **21—22** and **23—24**. Preferably the joints for attaching the ends of each anchoring member to its associated binder-braking member should be located be-

tween rolls in such a position as to cause the taut anchoring member to exert as great a component as possible in the line of the upper chord of the binder, i. e., horizontally.

Now with a load unit thus assembled, the tendency of the load binders to move relative to the load when snubbing or braking action is placed upon them by the snubber plates is resisted by the anchoring members which are fixed to the load and also to the load encircling snubbed binder.

In forming a single deck load unit, such as indicated in Fig. 1, the snubber plates 13 with the binders 8 and 9 (preferably cut to the desired length for encircling the complete load unit) threaded therethrough are nailed or otherwise securely fastened to the car floor. Those portions of the binders which extend from the snubber plates toward the end of the car are laid along the car floor until the end of the car is reached and then the rest is temporarily raised up and fastened so as not to interfere with the stowing of the load; those portions of the binders which extend from the snubber plates toward the doorway are laid along the floor so that the rolls may be rolled over them into proper position. Moving of rolls into position in the end of the car will continue until the roll which immediately precedes the anchor roll is positioned. Then the cut to length pieces of strap which will form the anchoring members are partly laid over the roll preceding the anchor roll and partly laid on the floor and the anchor roll is moved into place. With the anchor roll in place, the ends of the anchor members which were on the floor are raised up so that when the next roll is positioned against the anchor roll, the anchor members will extend up therebetween. After all the rolls constituting a load unit are in place, the opposite ends of the binder-braking members are brought together, the encircling loops are tightened—preferably by suitable tensioning tools—until they are sufficiently tight and the ends are fastened together to render the loops permanent. Then one end of an anchoring member is joined to its binder and, after pulling it taut about the anchor roll, the other end is joined to its binder. Of course, if sufficient operators are available, the work may be done upon two or more binders and anchoring members simultaneously. Also if desired and found to be more feasible, the anchor members may be secured at one end to the binders before the binders are tensioned.

Fig. 2 shows one satisfactory arrangement for a load unit wherein the rolls of paper are disposed in two layers or decks. The rolls 30 to 33 constituting the top deck lie nested in the valleys between rolls 34 to 38, constituting the bottom decks. In this arrangement the roll 36 in the bottom deck may be termed the anchor roll. Here the binders 40 and 41, which constitute the braking members, thread through snubber plates 43, which are secured to the car floor 44, and are made into permanent loops by the seal joints 45 and 46. Preferably each braking member has an anchoring member associated therewith, but since both may be alike, only one needs to be explained. Thus the looped binder-braking member 40 has a flexible anchoring member 50 which has one end secured thereto by the seal joint 51. From the joint 51 anchoring member 50 extends partly around roll 31, down between rolls 31 and 32, then almost completely around anchor roll 36, up between rolls 31 and 32, partly around roll 32, and its other end is secured to binder 50 by a seal joint 52. Anchor member 50 serves to limit if it does not absolutely prevent slippage of the binder-anchoring member 40 when the latter is acted upon by the snubber to retard bodily shifting of the load unit. Furthermore, it seems to prevent or limit the jumping of rolls 31 and 32 (i. e., the momentary vertical displacement of these rolls from the rolls therebelow) caused by up and down movements of the car floor and by the tendency of rolls in upper decks to roll up the valleys formed by the rolls of lower decks even when the displacing forces are entirely horizontal. Thus the end rolls 30 and 33 may be effectively held down in place by the downward pull of the binders trained about them but inside rolls of the upper deck, such as rolls 31 and 32, have little if any downward pull normally exerted upon them by the binders 40 and 41. Without anchoring bands, such as herein described, inner rolls of top decks have been known to jump and put such a strain upon the binders as to break them. The anchoring bands, however, can effectively restrain the inner rolls of the top deck against jumping because through these bands, which are held down by the anchor roll, an effective downward pull can be exerted upon them.

Fig. 3 illustrates a different arrangement for double deck loads. Here the anchor band 60 passes partly around the three rolls 61, 62 and 63 constituting the upper deck. One end of the anchor band is secured to a binder-braking band 65 at 66 between rolls 61 and 62 and at the other end it is secured to the binder by a joint 67 between rolls 62 and 63. In this arrangement also the anchoring band exerts a restraining effect upon the jumping tendency of the center anchoring roll 62 which otherwise would normally have little, if any, restraint exerted thereon by the load unit binder.

Of course, it will be readily understood that it is not at all necessary that the load binders serve also as the braking members, although ordinarily it probably will be the better practice to take advantage of the dual function. Thus, if desired, a load unit may be encircled with one or more tensioned flexible members for binding purposes only and by another or others primarily or solely for braking purposes. But in either event the anchoring member or members will be secured to the braking member or members, i. e., to those that are acted upon by snubbing members.

Having thus explained the nature and several typical embodiments of my invention, what I claim and desire to secure by United States Letters Patent is as follows:

1. A load unit for transport in a railway car comprising a group of cylindrical objects lying on their sides, a tensioned flexible metallic braking member encircling the group of objects, snubbing means acting upon the braking member to impede the movement thereof and thereby retard movement of the group of objects, and a flexible metallic anchor member looped about one of the objects and immovably secured to the braking member to limit movement between the braking member and the group of objects.

2. A load unit for transport in a railway car comprising a group of cylindrical objects lying on their sides and nested together in at least two superposed rows, a tensioned flexible metallic braking member encircling the group of objects, snubbing means acting upon the braking member to impede the movements thereof and thereby

retard movement of the group of objects, and a flexible metallic anchor member looped about one of the objects in a row remote from the top row and fixedly secured to the braking member to limit movement between the braking member and the group of objects.

3. A load unit for transport in a railway car, of the type consisting of a group of cylindrical objects lying on their sides and encircled by a tensioned flexible metallic braking member which is disposed longitudinally of the car and is acted upon by snubbing means to impede movements of the braking member and thereby retard movement of the unit relative to the car, characterized by a flexible anchor member looped about one of the objects constituting the group and fixedly secured to the braking member to limit relative movement between the group of objects and the braking member.

4. A load unit for transport in a railway car, of the type consisting of a group of cylindrical objects lying on their sides and encircled by a tensioned flexible metallic braking member which is disposed longitudinally of the car and is acted upon by a snubbing means to impede movements of the braking member and thereby to retard movement of the unit relative to the car, characterized by a flexible anchor member tautly looped about one of the objects constituting the group and fixedly attached at opposite ends to the braking member to limit relative movement between the group of objects and the braking member.

ARCHIE N. PERRY.