

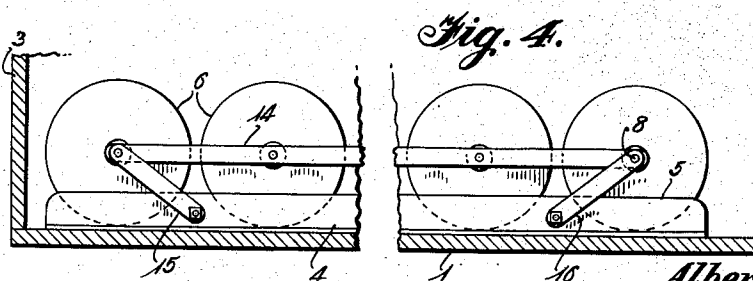
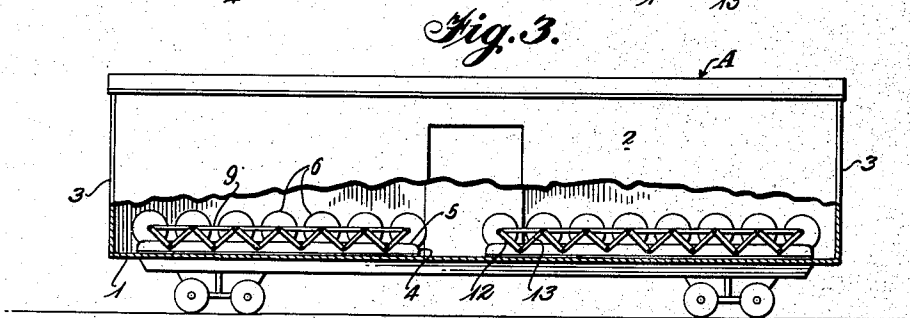
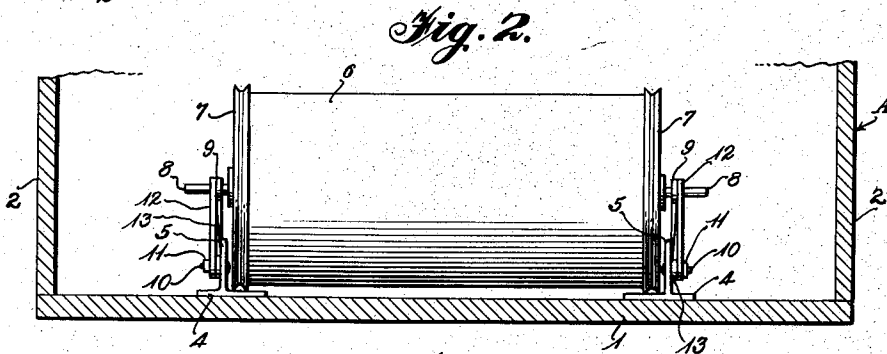
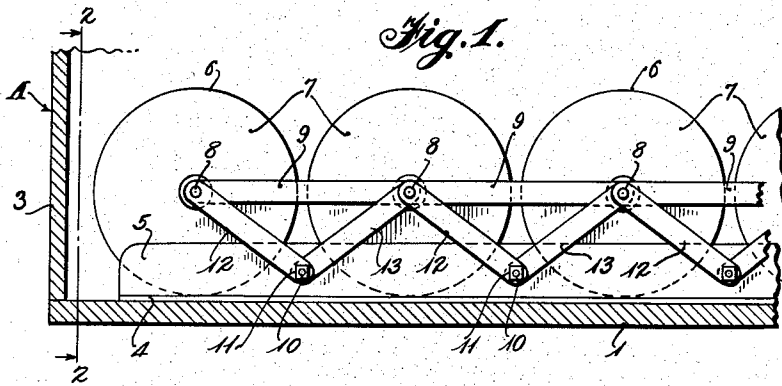
Nov. 16, 1943.

A. H. LATHROP

2,334,335

LOADING BEAM

Filed April 30, 1942



Inventor

Albert H. Lathrop

By

Alvin F. Knight

Attorney

UNITED STATES PATENT OFFICE

2,334,335

LOADING BEAM

Albert H. Lathrop, Asheville, N. C., assignor to
American Enka Corporation, Enka, N. C., a cor-
poration of Delaware

Application April 30, 1942, Serial No. 441,207

1 Claim. (Cl. 214—10.5)

This invention relates to the transportation of yarn beams and the like. More particularly the invention concerns an apparatus for loading heavy spools or beams of yarn in a vehicle in such a way as to avoid shifting of the load in transit.

The invention is especially applicable to the loading and transportation of the type of heavy beams upon which rayon or other yarns are wound for shipment to manufacturers to be used for reinforcing material in the manufacture of pneumatic tires and the like, and it is extremely important that the beams be loaded and maintained immobile during movement of the vehicle and thereby prevent damage to the yarn. These beams are suitable for transporting any type of yarn but are particularly adapted for yarn of synthetic origin because of its delicate nature. Regardless of the denier yarn to be transported, relatively heavy packages are wound on each beam, the empty beams weighing several hundred pounds. A beam fully loaded with 1100 denier yarn may weigh between 1,000 and 1,200 pounds, and the loading of such a beam for shipment requires the exercise of considerable care to prevent injury to the yarn during transportation.

This problem of shipping heavy cylindrical beams has been previously solved in connection with the transportation of wire cables and the like, and an apparatus for this purpose is described in U. S. Patent No. 1,850,597. The apparatus described therein is designed to brace cable reels upon a railroad freight car to prevent shifting when the car is jolted in transit. The reels are fastened to the car floor by means of braces connected to the reel shaft. In addition, the reel heads are provided with heavy rim flanges in the shape of metal I-beams. It appears that these I-beams are provided solely for the purpose of supplying a gripping portion so that the rims of adjacent reels can be connected by clamps. Such a reel construction adds considerably to the weight of the reel and is rather expensive. Furthermore, the device is complex and considerable time is required to adjust the braces and to affix the clamps. On the other hand, the heads of beams employed for winding yarn are merely provided with peripheral reinforcements inasmuch as the yarn beam must be mounted upon a fabricating machine and minimum weight consistent with relatively strong construction is a prime consideration. Consequently there is no structure on the heads of yarn beams to permit fastening together adjacent beams by means of

clamps as in the case of the construction shown in the McGuire patent above referred to.

It has also been proposed to load beams of yarn upon tracks placed upon the floor of a vehicle, the tracks being flanged to prevent lateral shifting of the beams and chocks being provided at each end of the track to prevent longitudinal movement of a series of yarn beams. However, no means were provided to prevent vertical movement of the beams and the loading method was further regarded as impractical for both truck and rail transportation, since the end chocks were not sufficient to withstand the severe shocks to which rail cars and trucks are subjected.

The present invention overcomes the difficulties inherent in the above described methods and apparatus and has for its object a simple and efficient apparatus for loading yarn beams in such a manner that they may be subjected to severe shocks in transit without incurring shifting of the load.

Another object is the provision of means for loading a plurality of yarn beams without the danger of one beam contacting an adjacent beam during transit in such a way as to scuff or bruise the yarn wound thereon.

A further object of the invention is to provide a simple structure which will immobilize the loaded beams during any type of transit.

Other objects and advantages will appear from the following detailed description when considered in conjunction with the accompanying drawing, wherein

Fig. 1 is a sectional elevation of a portion of a vehicle, for example a railroad freight car, showing a number of yarn beams loaded in accordance with the present invention,

Fig. 2 is a section taken on line 2—2 of Fig. 1,

Fig. 3 is a diagrammatic elevation, in partial section, of an entire freight car loaded according to the present invention, and

Fig. 4 shows a modified form of Fig. 1.

In the drawing the numeral 1 designates the floor of a freight car A having side walls 2 and end walls 3. Affixed to the floor of the car are T-shaped tracks 4, provided with vertically upstanding flange members 5 adapted to guide the yarn beams 6 as they are loaded and prevent lateral shifting after the beams are mounted in position.

Yarn beams 6 are of the usual type employed for transporting rayon and the like, and are provided with heads 7 and a shaft 8 which projects beyond the beam at both ends. The beams placed on tracks 4 are connected by spacer bars 9 (see

Fig. 1) having openings bored in each end to receive the shafts 8 of adjacent yarn beams, said beams being similarly connected at opposite ends thereof. Between each pair of beams, vertical members 5 are provided with openings for the reception of bolts 10 screw-threaded at the ends to receive nuts 11. Tie bars 12 and 13 are connected at one end to the shafts of adjacent beams, their other ends being affixed to bolts 10 and made fast by means of nuts 11. Thus each pair of yarn beams is connected and each beam immobilized i. e., prevented from shifting laterally, longitudinally or vertically, by a triangular brace comprising spacer bars 9 and tie bars 12 and 13, and since all of the beams in a series are so connected by similar linkage, an entire section of yarn beams is protected against shifting during movement of the vehicle in which they are loaded. The spacer bars 9 are preferably of equal size and length, the same being true of tie bars 12 and 13, so that the spacer bars as well as the tie bars are interchangeable at will.

If desired, of course, instead of individual spacer bars 9, a single bar 14, one on each side of a row of beams, may be substituted therefor, said bar being provided with openings at spaced points to accommodate the beam shafts 8. It will likewise be readily understood that while the construction shown in Fig. 1 provides maximum protection against shifting of the beams a number of the tie bars 12 and 13 may be eliminated without seriously impairing the efficiency of the invention. For example, the modification shown in Fig. 4 may be employed where simplification at some sacrifice in strength may be desired. In Fig. 4, it will be observed that the single spacer bar 14 is employed for connecting the projecting

shafts on each side of an entire row of yarn beams. In this case, the single tie bars 15 and 16 are placed at each end of the row and are sufficient, as the inflexible bar 14 maintains the beams in spaced relationship and prevents all vertical movement thereof, and the tie bars prevent longitudinal movement and lateral shifting. As a matter of fact, if two tie bars are fastened to two adjacent points on the track, they may be connected to the same shaft of one beam, provided it is not the beam at either end of the car.

Having now described my invention it is to be understood that modifications may be made therein without departing from the spirit thereof. Therefore the invention should be limited only by the scope of the appended claim.

I claim:

Apparatus for loading in a vehicle a plurality of heavy yarn beams provided with projecting shafts, comprising a track fastened to the vehicle and having upstanding flanges to guide and prevent lateral displacement of the beams, rigid unitary spacer bars of equal length between successive beams, each said bar connecting the shaft of one beam with the shaft of an adjacent beam to prevent longitudinal movement of each beam with respect to each other and to maintain each beam in fixed equi-spaced alignment, rigid unitary tie bars of equal length connecting each end of the shaft of each beam to the track at two points, except the shafts of the terminal beams which are connected to the track at only one point whereby lateral, longitudinal and vertical movement of the beams with respect to the vehicle is prevented.

ALBERT H. LATHROP.