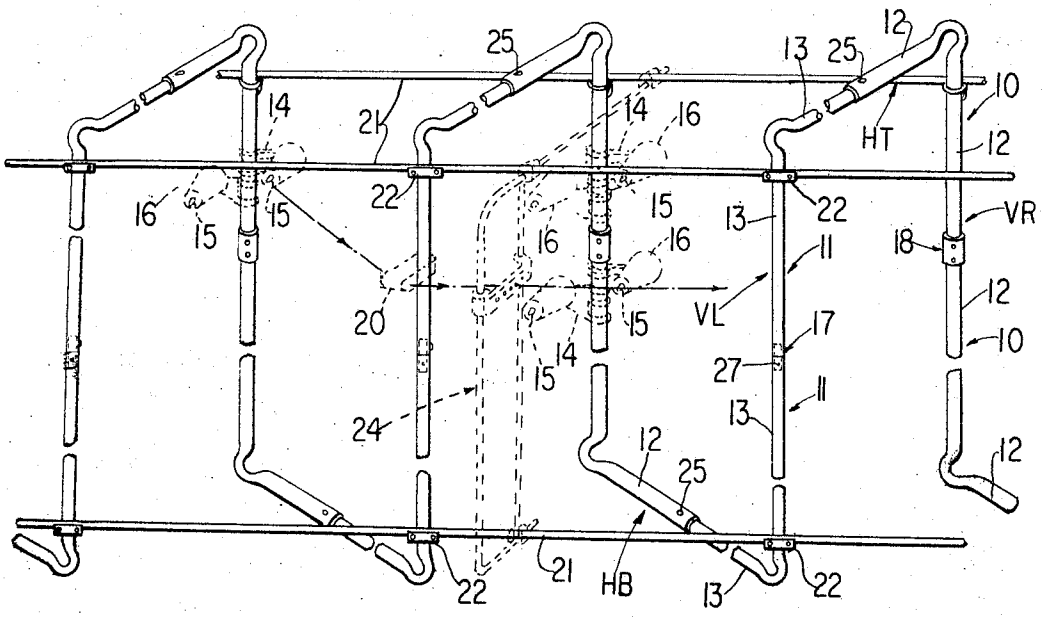
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YARN SUPPLY CREEL FRAME

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FIG. 1



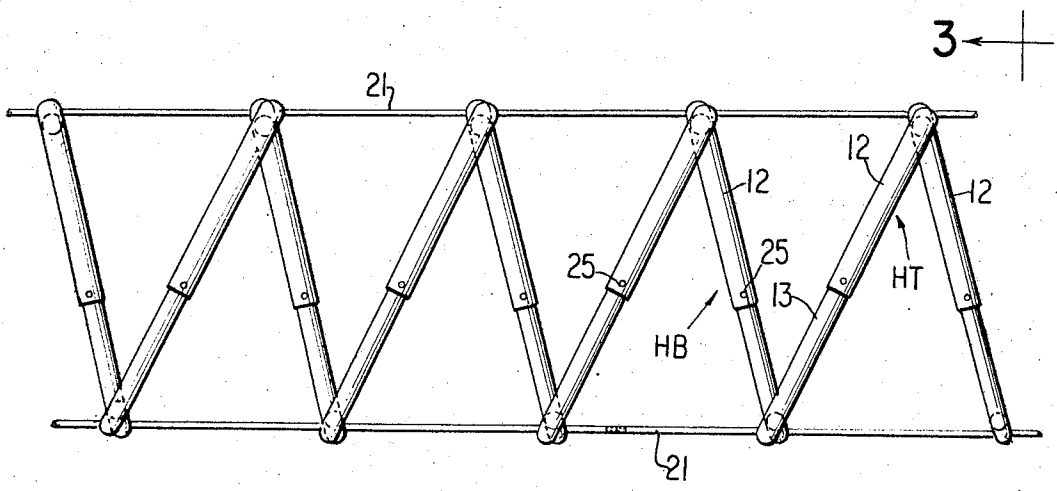




FIG. 2

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FIG. 3

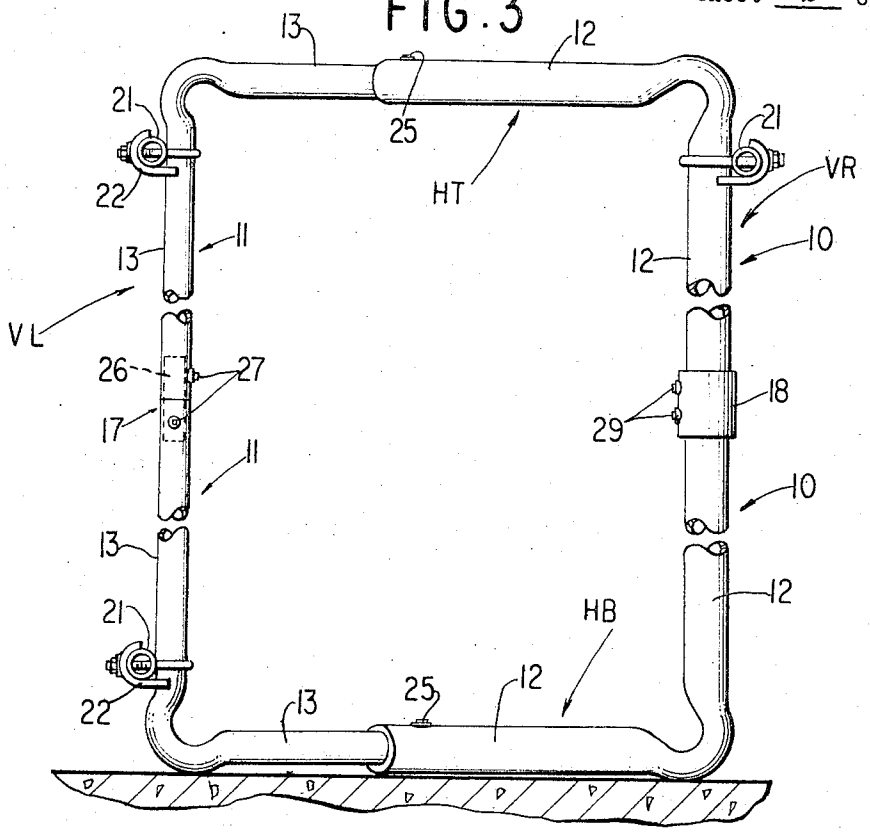
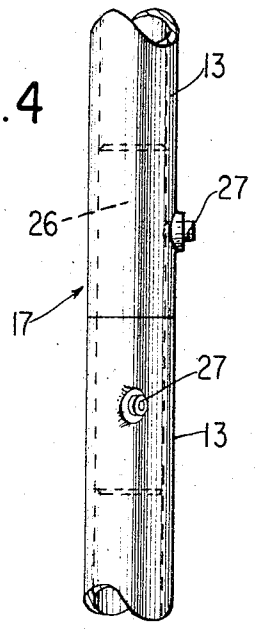



FIG. 4



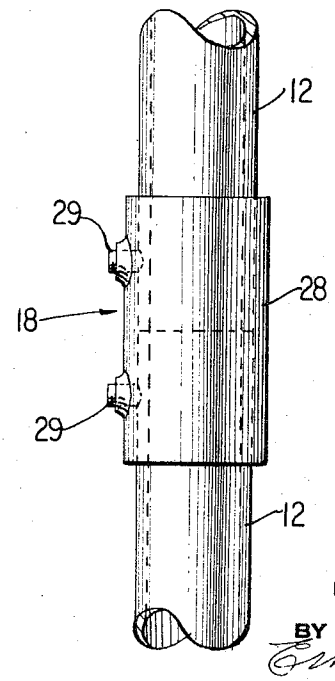




FIG. 5

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3,428,188

# YARN SUPPLY CREEL FRAME

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U.S. Cl. 211—175 5 Claims
Int. Cl. A47f 5/14; D02h 1/00; D03j 5/08

## ABSTRACT OF THE DISCLOSURE

A creel frame composed of a plurality of L-shaped members connected in series to provide alternate horizontal top and bottom sections following a zig-zag course and alternate right and left side sections. The members are slidably and pivotally connected to enable the creel frame to be expanded and contracted.

A conventional type of yarn supply creel comprises at least two rows of a plurality of vertical rods or tubes mounted on a base or stand, lengthwise and crosswise extending rods or tubes connected to the vertical rods or tubes by T-fittings to provide a rectangular cage-like structure, and brackets mounted on certain of the rods or tubes for supporting yarn package holders, tension devices and other appurtenances. Such creels consist of many different parts, require considerable time to assemble, and once assembled are difficult to enlarge or reduce in size.

Accordingly, an object of the present invention is to provide an improved yarn supply creel frame which overcomes the foregoing objections and disadvantages.

Another object is to provide such a creel frame which is constructed of a small number of simple standardized parts carried in stock to thereby reduce inventory and enable off-shelf delivery without delay.

Another object is to provide such a creel frame which is light in weight but yet is sturdy in construction whereby shipping costs are reduced.

Another object is to provide such a creel frame which can be produced at a lower cost, and which is readily and rapidly erected without any particular degree of skill or a large assortment of tools.

Another object is to provide such a creel frame which can be readily lengthened, and which can be adjusted to accommodate yarn packages of various sizes.

Another object is to provide such a creel frame which makes it easy to increase or decrease the number of yarn package holder brackets, at any time after installation.

A further object is to provide such a creel frame which makes it easy to maintain the creel clean and in working order.

Other and further objects of the invention will be obvious upon an understanding of the illustrative embodiment about to be described, or will be indicated in the appended claims, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

A preferred embodiment of the invention has been chosen for purposes of illustration and description, and is shown in the accompanying drawings, forming a part of the specification, wherein:

FIG. 1 is a perspective view of a portion of a creel frame in accordance with the present invention illustrating in broken lines only a few of the yarn package holder brackets and tension devices on the frame and an I-bar.

FIG. 2 is a top view of the creel frame shown in FIG. 1, the brackets, the tension devices and I-bar being omitted.



FIG. 3 is an end view of the creel frame as viewed along the line 3—3 on FIG. 2.

FIG. 4 is an enlarged fragmentary view of one form of swivelling means.

FIG. 5 is an enlarged fragmentary side view of another form of swivelling means.

Referring now to the drawings in detail, there is shown a creel frame which generally comprises a plurality of L-shaped frame members **10** and **11** each having two arms **12** and **13**, respectively, disposed at right angles and being connected in series to provide horizontal alternate top and bottom sections HT, HB and to provide vertical alternate right and left side sections VR, VL.

The top and bottom sections HT, HB follow a zig-zag course. Preferably, all of the top sections HT are in the same horizontal plane, all of the bottom sections HB are in the same horizontal plane, all of the right side sections VR are in the same vertical plane and all of the left side sections VL are in the same vertical plane.

All of the frame members **10** are identical in size and shape; and all of the frame members **11** are identical in size and shape. The frame members **10** and **11** preferably are tubular and may be formed from pipe. The inner diameter of the members **10** and outer diameter of the members **11** are so dimensioned that the members **11** can be inserted into the member **10** for the purpose about to be described.

The sections VR serve as columns for mounting brackets **14** which support holders or spindles **15** having yarn packages **16** thereon. Two vertical rows of yarn packages occupy the space between adjacent sections VR. In order to enable this space to accommodate larger yarn packages, the distance between adjacent sections can be increased by swivelling the vertical arms **12** of frame members **10** at **17** and swivelling the vertical arms **13** of frame members **11** at **18**. This enables the creel frame to be extended and collapsed like an accordion to vary the space between adjacent sections VR and the space between adjacent sections VL.

The sections VL serve as columns for mounting brackets **19** which support yarn tension devices **20**.

Horizontal stringers **21** may be secured by clamps **22** to sections VR or VL, or both, adjacent either the upper end or the lower end or both ends of these sections. Such stringers add rigidity to the creel frame and lock the sections VR and VL in their adjusted position. Preferably, as shown, a stringer **21** is clamped to the sections VL and VR adjacent their upper ends and to the section VL adjacent its lower end. The stringers on the section VL serve as a support for I-bars **24** through which the yarn ends are guided and gathered to establish a warp of yarn. The stringers may be a single rod extending at least the maximum length of the creel or may consist of several shorter rod sections coupled together as adjacent ends to provide a unitary stringer. The latter arrangement enables rod sections to be added or taken away depending on the length of the creel.

The horizontal arms **13** of the members **11** are slidably inserted into adjacent horizontal arms **12** of the members **10**, and are held in adjusted position by set screws **25**. This arrangement enables the sections HT and HB to be lengthened or shortened to thereby widen or narrow the creel frame. Also, this arrangement enables the frame to be lengthened by connecting to the endmost horizontal arm **12** of the frame member **10** or arm **13** of the frame member **11** in a section HB additional serially connected frame members **10** and **11**. When the creel frame is so lengthened, a stringer **21** of appropriate length is coupled to the end of the stringer already clamped to the frame.

In FIG. 4, swivel means are shown at **17** which comprise a rod **26** having a portion thereof inserted into ad-

jacent vertical arms **13** and releasably secured by set screws **27**.

In FIG. 5, swivel means are shown in **18** which comprise a collar **28** into which are inserted the ends of adjacent vertical arms **12**, and set screws **29** for releasably securing the collar to the arms.

The swivel means preferably are located at the middle of the sections VR and VL so that the arms **12** of the frame members **10** are of equal length and the arms **13** of the frame members **11** likewise are of equal length. This facilitates erection of the creel because the arms are reversible and cannot be placed in an improper position.

The swivel means shown in FIGS. 4 and 5 are arranged so that the arms of certain sections VR and VL can be taken apart to add to or take away yarn package holder and tension device brackets without disturbing the entire creel. Either type of swivel means may be used at **17** and **18**.

When the creel frame has been adjusted to its desired length and width and the stringer has been clamped in place, the endmost lower horizontal arms **12** and **13** and other such arms can be secured directly to the floor. This eliminates the necessity of a base or stand for the creel frame and numerous connections of vertical frame columns thereto.

From the foregoing description, it will be seen that the present invention provides an improved creel frame which has many advantageous features.

As various changes may be made in the form, construction and arrangement of the parts herein, without departing from the spirit and scope of the invention and without sacrificing any of its advantages, it is to be understood that all matter herein is to be interpreted as illustrative and not in any limiting sense.

We claim:

**1.** A yarn supply creel frame comprising a plurality of generally L-shaped frame members each having two arms at about right angles and being connected in series to provide horizontal alternate top and bottom sections and to provide vertical alternate right and left side sections, said top and bottom sections following a zig-zag course, the arms of frame members providing top and bottom sections being telescopically connected to vary the distance between right and left side sections.



**2.** A frame according to claim **1**, wherein the arms of frame members providing right and left side sections are connected by swivel means to vary the distance between adjacent right side sections and to vary the distance between adjacent left side sections.

**3.** A frame according to claim **2**, wherein said swivel means include locking means for preventing swivelling of connected arms.

**4.** A frame according to claim **2**, wherein stringers are removably secured to adjacent frame members providing said right or left side sections or both adjacent either the upper or lower end or both ends of said side sections.

**5.** A frame according to claim **4**, wherein said stringers are unitary members extending at least the length of the creel.


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U.S. Cl X.R.

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