Nov. 19, 1968 H. R. HURD 3,411,735

SWIVEL RACK FOR WIRE REELS

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Fig. 1

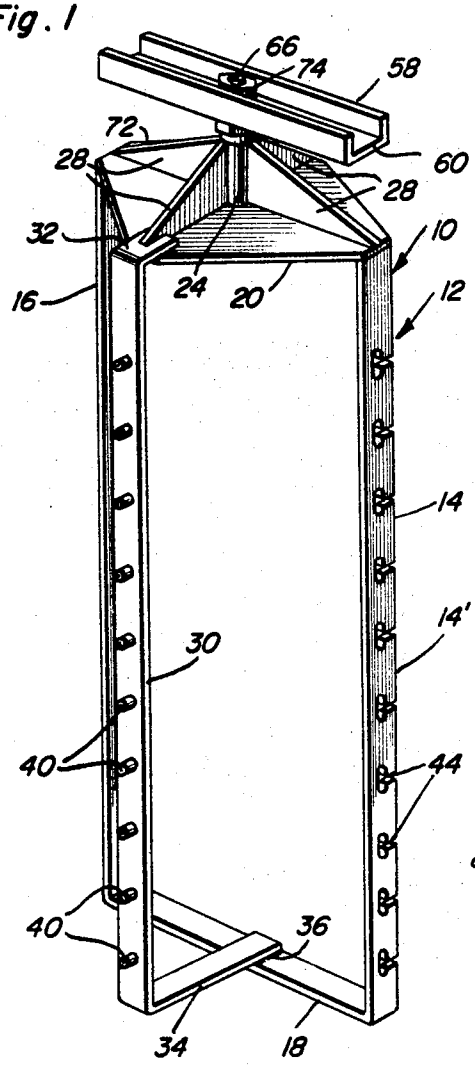

Fig. 5

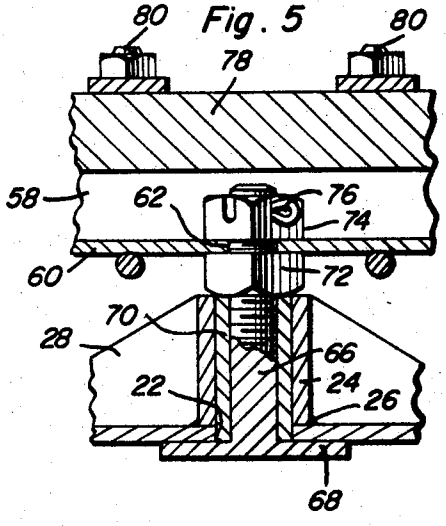

Fig. 6

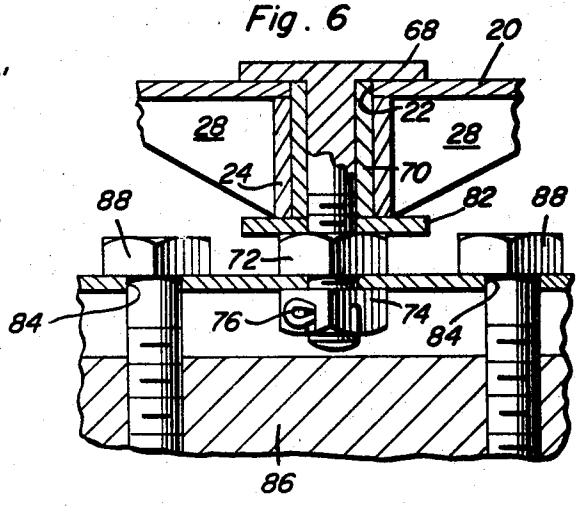

Fig. 7

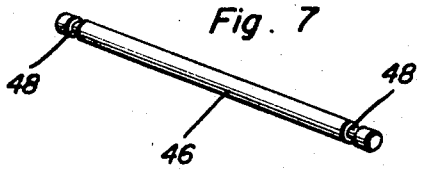

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Fig. 2

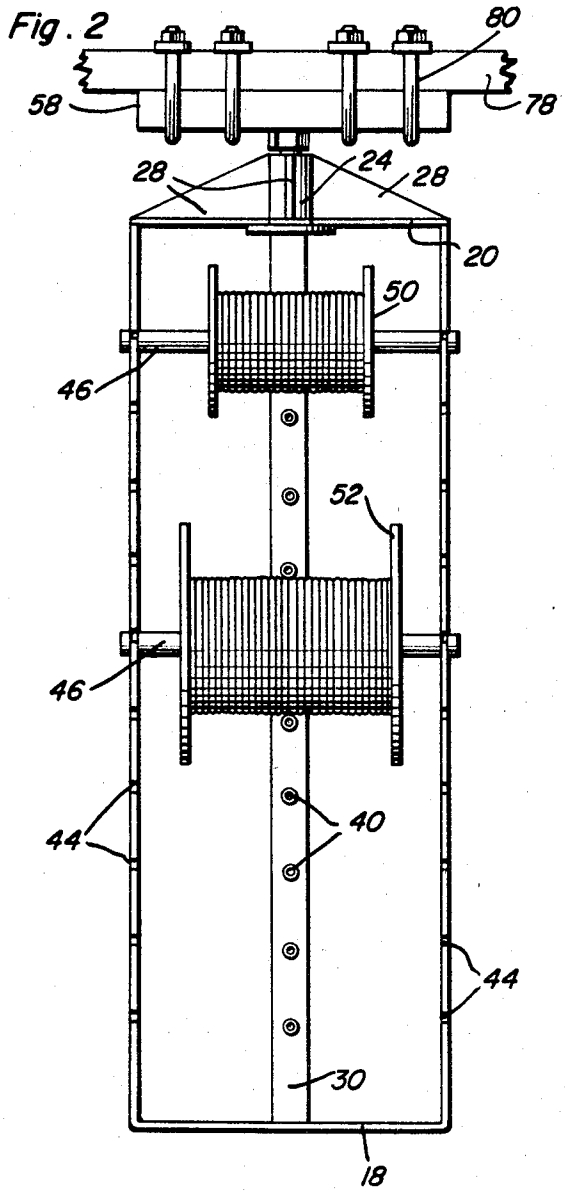


Fig. 3

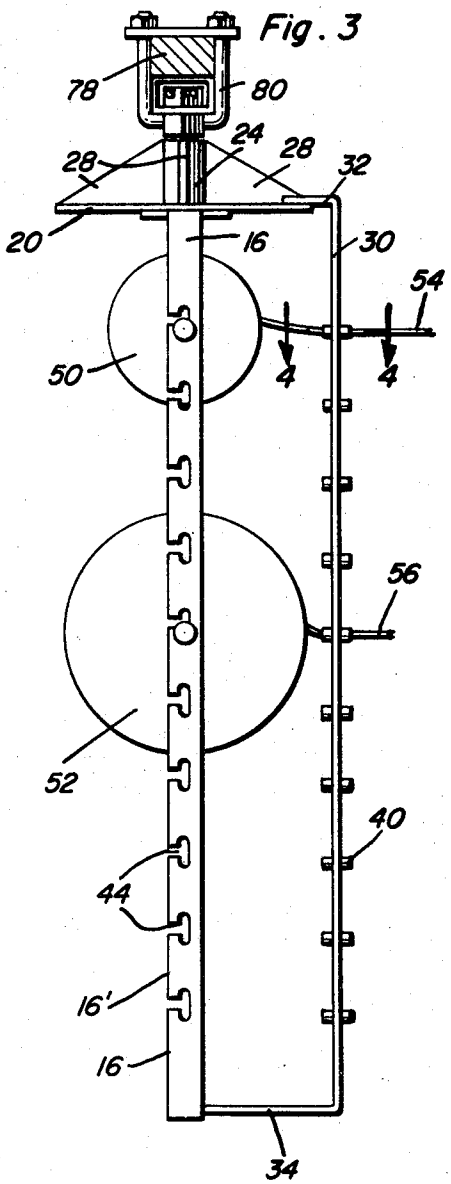
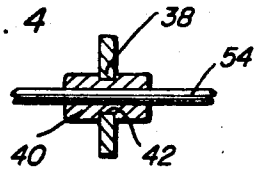


Fig. 4



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SWIVEL RACK FOR WIRE REELS

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ABSTRACT OF THE DISCLOSURE

An upstanding frame including generally parallel upstanding side members interconnected at corresponding ends by means of transversely exteding first and second end members, one of the end members including support means adapted for securement to a suitable support surface and from which the first end of the frame is journalled for rotation about an axis generally paralleling and disposed centrally intermediate the side members and the side members including means removably journalling wire reels therefrom for rotation about axes disposed generally normal to the axis of rotation of the frame relative to the support means and spaced along the side members.

The rack of the instant invention has been specifically defined for use in independent telephone company central offices as a means of centrally locating and rotatably supporting the various reels of jumper wire and miscellaneous marking wires that are needed to make cross connection on the main and distribution frames. Such cross connections have to be made any time a telephone number is changed, disconnected or a new number is installed. Further, the installation of the telephone can easily require two or three jumpers to be run and cross connected and accordingly, it may be seen that a considerable number of cross connection operations are performed.

The swivel rack of the instant invention is versatile in that it allows workmen to use wire from the reel supported thereby and the workmen may readily unreel any desired amount of the particular wire needed. Inasmuch as the rack is rotatably supported, it may be readily placed in an aisle and a workman unreeling wire from the rack need only pull on the wire being unreeled so as to cause the rack to pivot to the proper position for unreeling the desired wire therefrom.

The present manner of performing cross connection operations is typified by workmen stacking reels of wire on the floor or placing them on a piece of conduit pipe and wiring them underneath the main frame. Both of these operations are inadequate and result in the room being cluttered up with various spools of wire and strands of wire being cross connected and a considerable amount of time is wasted in attempting to properly dispense the different types of wire that are needed to run the jumpers and make the cross connections.

The main object of this invention is to provide a convenient rack for supporting reels of wire to be utilized in cross connection operations and which will support the various reels in vertically spaced relation so as to enable the rack to occupy the smallest possible plan area.

Another object of this invention is to provide a rack for supporting a plurality of wire reels and which is adapted for support from any suitable supporting surface for rotation about an upstanding axis whereby wire being unreeled from reels of wire supported from the rack will automatically cause the rack to pivot about its upstanding axis of rotation to a position facing the direction in which the wire is being reeled out.

Yet another object of this invention is to provide a rack in accordance with the preceding objects and including support means adapting it to be journalled from

a suitable supporting surface in upstanding positions inverted relative to each other.

A final object of this invention to be specifically enumerated herein is to provide a swivel rack for spools of wire which will conform to conventional forms of manufacture, be of simple construction, and easy to use so as to provide a device that will be economically feasible, long lasting and relatively trouble free in operation.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of the rack of the instant invention orientated to be dependingly supported from a suitable support surface;

FIGURE 2 is a front elevational view of the rack shown operatively supported from an overhead beam or bar;

FIGURE 3 is a side elevational view of the rack as seen from the right side of FIGURE 2;

FIGURE 4 is a fragmentary enlarged horizontal sectional view tkaen substantially upon the plane designated by the section line 4—4 of FIGURE 3;

FIGURE 5 is a fragmentary enlarged vertical sectional view taken substantially upon the plane passing through the axis of rotation of the rack and illustrating the manner in which it may be rotatably supported from an overhead support member;

FIGURE 6 is an enlarged fragmentary vertical sectional view similar to that of FIGURE 5 but illustrating the manner in which the rack may be rotatably supported in an upstanding position from a support surface disposed therebeneath; and

FIGURE 7 is a perspective view of an axle shaft which may be passed through the center of a wire reel and may be removably journalled from the opposite side members of the swivel rack.

Referring now more specifically to the drawings, the numeral **10** generally designates the swivel rack of the instant invention.

The rack **10** includes a frame referred to in general by the reference numeral **12** and including a pair of upstanding opposite side members **14** and **16** which are substantially identical in configuration. The side members **14** and **16** are interconnected at their lower ends by means of an integral bight portion **18** extending therebetween defining a lower end member **18** for the frame **12** and a generally diamond shaped support plate **20** defining an upper end member for the frame **12** is secured between the upper ends of the side members **14** and **16**.

The plate **20** is centrally apertured as at **22** and has an upstanding sleeve **24** suitably secured to the portions of the plate surrounding the aperture **22** in any convenient manner such as by welding **26**. Further, a plurality of triangular gusset plates **28** are secured to the upper surface of the plate **20** and circumferentially spaced portions of the sleeve **24**, the plates **28** extending generally radially outwardly of the sleeve **24** and between the latter and the four corner portions of the plate **20**. The upper ends of the side members **14** and **16** are secured to diagonally opposite corner portions of the plate **20** and a third upstanding member **30** is provided and includes an inturned angularly directed horizontal upper end portion **32** secured to one of the corner portions of the plate **20**. The end portion **32** is bifurcated and receives between the furcation thereof the radial outermost end of the corresponding gusset plate **28**.

The lower end of the third upstanding member **30** includes an inwardly directed and generally horizontally disposed portion **34** whose free end is suitably secured to

the bight portion 18 centrally intermediate its opposite ends in any convenient manner such as by welding 36 and the third upstanding member 30 has a plurality of vertically aligned and horizontally extending apertures 38 formed therethrough in which grommets 40 provided with circumferentially extending grooves 42 are secured.

Each of the side members 14 and 16 includes a plurality of vertically spaced and generally horizontally disposed T-shaped slots or notches 44 including horizontal leg portions which open outwardly of the forward edges 14' and 16' of the side members 14 and 16, respectively. A plurality of shaft members 46 are provided and include opposite end portions in which circumferential grooves 48 are formed. The shaft members 46 have their opposite end portions received and journalled in the T-shaped notches or openings 44 with the portions of the side members 14 and 16 defining the lower extremities of the vertically extending portions of the openings 44 received in the circumferential grooves 48. In this manner, the shaft members 46 are rotatably supported from the side members 14 and 16 of the frame 12 in a removable manner and against axial shifting relative to the frame 12. Of course, the shaft members 46 extend through the hub portions of wire reels 50 and 52 supported from the frame 12. The wire reels 50 and 52 have lengths 54 and 56 of wire wound thereon and the free end portion of these lengths 54 and 56 of wire may be threaded through selected grommets 40.

A channel-shaped support member 58 is provided and includes a bight portion 60 having a centrally disposed aperture 62 formed therethrough. An externally threaded shank portion 66 and including a washer-like diametrically enlarged head 68 on its lower end is inserted upwardly through a sleeve bearing 70 disposed in the sleeve 24 and has a jam nut 72 threadedly engaged thereon below its upper end. The upper end portion of the shank portion 66 projecting above the jam nut 72 is passed through the aperture 62 and has a second nut 74 threadedly engaged thereon, the second nut 74 being threaded down to tight engagement with the bight portion 60 and secured in position relative to the shank portion 66 by means of a cotter pin 76. In this manner, the frame 12 is rotatably supported from the support member 58 and the latter may be suitably secured to an overhead bar or beam 78 by means of suitable U-bolts 80.

In addition, the rack 10 may be inverted so that the shank portion 66 projects downwardly therefrom and a thrust washer 82 may be disposed between the ends of the sleeves 24 and 70 from which the externally threaded shank portion 66 projects and the jam nut 72. In this manner, the support member 58, after being suitably apertured as at 84 may be secured to a suitable flooring member 86 in inverted position by means of fasteners 88 secured through the apertures 84 and anchored to the flooring member 86. Thus, it may be seen that the rack 10 may be suspended from an overhead beam, such as beam 78 or supported from the floor such as by means of the floor member 86. Of course, if the frame 12 is inverted in the correct manner, the reels 50 and 52 need not even be removed from the frame 12 as it is being inverted.

In operation, workmen desiring to run a cross-connection may pull on the extended end of the length 56 or the length 54 of wire whereupon the frame 12 will automatically pivot to a position with the outer face of the third member 30 facing in the direction in which the wire is being pulled. Of course, more than two reels may be supported from the rack 10 and inasmuch as the latter may be supported either from a suitable flooring member or from an overhead beam such as beam 78, the rack 10 has great versatility which, when coupled with the rotatable mounting of the frame 12 relative to the support member 58, provides a suitable support for spools of wire that greatly simplifies the task of making a cross-connection.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A swivel rack for reels of wire, said rack comprising an upstanding frame including a pair of generally parallel upstanding opposite side members, first and second end members secured between and interconnecting corresponding ends of said side members, said first end member including support means adapted for securement to a suitable support surface and from which said first end member is journalled for rotation about an axis generally paralleling said side members, a plurality of reels, means removably journalling said reels from said side members for rotation of said reels about axes disposed generally normal to said axis and spaced along and extending between said side members, said means removably journalling said reels from said side members including a plurality of shaft members on which said reels are disposed and horizontally disposed generally T-shaped notches formed in said side members opening outwardly through the forward portions of said side members, the opposite ends of said shaft members including circumferential grooves in which corresponding portions of said side members defining said notches are received.

2. The combination of claim 1 wherein said frame includes a third upstanding member extending and interconnected between said end members, spaced laterally outwardly of and generally paralleling said axis and disposed in a plane containing said axis and disposed generally normal to a plane containing said opposite side members.

3. The combination of claim 2 wherein said third upstanding member includes means defining a plurality of vertically spaced fairlead means adapted to slidingly guide end portions of wire being unreeled from said reels.

4. The combination of claim 3 wherein said support means is adapted to be secured to a suitable support in selected positions inverted relative to each other.

5. A swivel rack for reels of wire, said rack including a pair of generally parallel upstanding opposite side members, first and second end members secured between and interconnecting corresponding ends of said side members, said first end member including support means adapted for securement to a suitable support surface and from which said first end member is journalled for rotation about an axis generally paralleling said side members, said support means including means adapting said support means to be secured to a suitable support in selected positions inverted relative to each other, a plurality of reels including opposite end outwardly projecting shaft portions, said side members including corresponding sets of vertically spaced generally horizontally elongated openings opening outwardly through corresponding sides of said side members facing in directions extending transversely of the plane containing said side members at corresponding ends, the inner ends of said horizontally elongated openings including vertically elongated portions having upper and lower closed ends spaced above and below the inner ends of the corresponding openings, said outwardly projecting shaft portions being removably cradled by the portions of said side members defining corresponding ends of the elongated portions of corresponding openings formed in said side members, said side members and said shaft portions including coacting means retaining said shaft portions against axial shifting relative to said side members.

6. The combination of claim 5 wherein said one end member includes a sleeve portion coaxial with said axis and through which a shank portion is rotatably received,

said shank portion including a first end portion spaced axially from said sleeve adapted to be secured to said support surface, and said shank portion including thrust means limiting axial shifting of said shank portion relative to said sleeve portion.

7. The combination of claim 5 wherein said rack includes a third upstanding member extending and interconnected between said end members, spaced laterally outwardly of and generally paralleling said axis and disposed in a plane containing said axis and disposed generally normal to a plane containing said opposite side members.

8. The combination of claim 7 wherein said third upstanding member includes means defining a plurality of vertically spaced fairlead means adapted to slidingly guide end portions of wire being unreeled from said reels.

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