

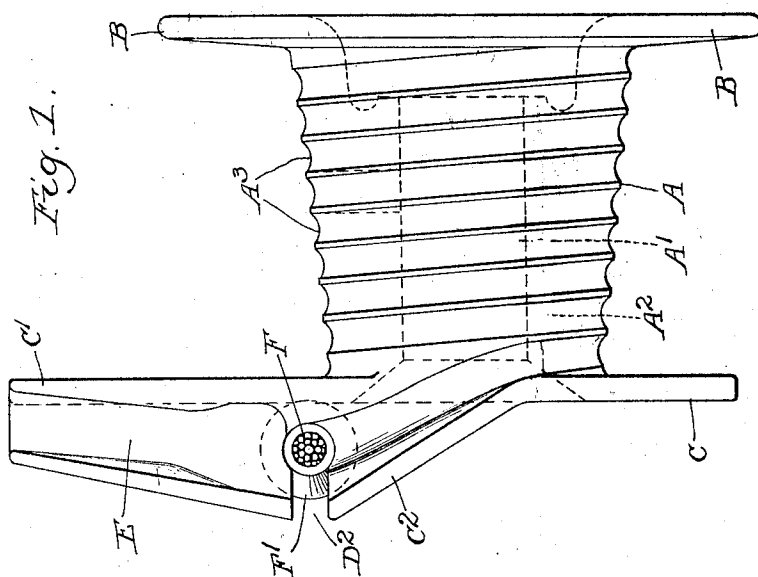
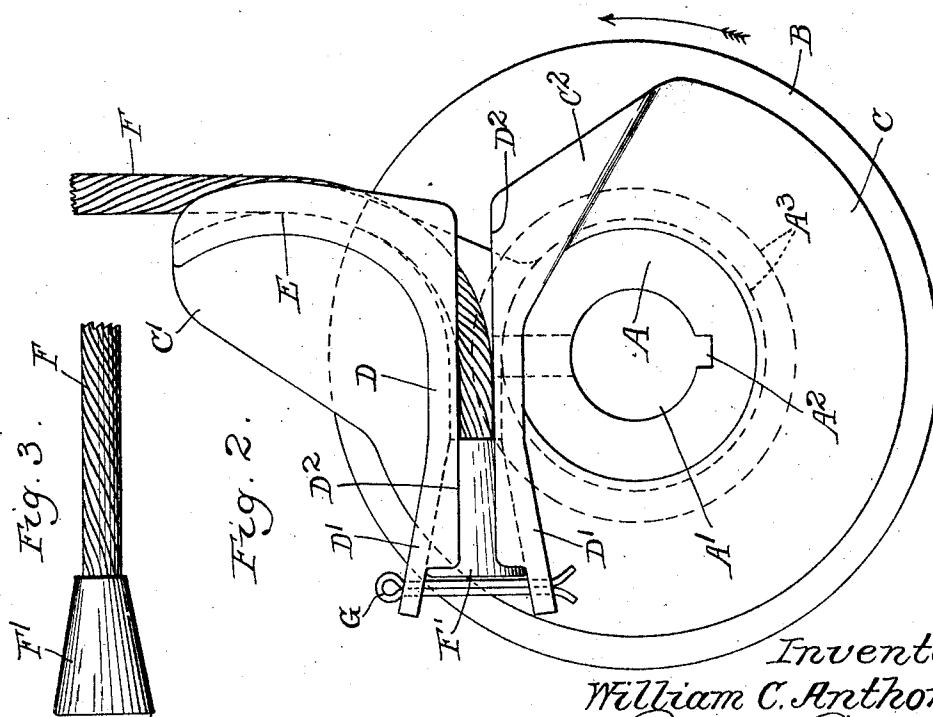
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SPOOL

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UNITED STATES PATENT OFFICE.

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SPOOL.

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To all whom it may concern:

Be it known that I, WILLIAM C. ANTHONY, a citizen of the United States, residing at Streator, in the county of La Salle and State of Illinois, have invented a certain new and useful Improvement in Spools, of which the following is a specification.

This invention relates to a spool for use in connection with hoists. It has for one object to provide a spool which may be of small diameter and which when used with a cable will not kink or twist or otherwise injure the cable. It has for another object to provide a spool to which cable may be attached and with relation to which the cable is free to rotate so as to avoid twisting. Other objects will appear from time to time throughout the specification and claims.

My invention is illustrated more or less diagrammatically in the accompanying drawing, wherein:

Figure 1 is a side elevation of the spool showing the cable in section;

Figure 2 is an end elevation of the spool showing the cable in place;

Figure 3 is a detail view showing the cable end.

Like parts are designated by like characters throughout.

The spool is formed of a main body A which is provided with a central bore A¹ and a key-way A². The body of the spool about which the winding surface A³ is formed is preferably of varying thickness so that the spool gradually increases in diameter from one end to the other. The winding surface is provided with a helical depression adapted to receive the cable as it is wound onto the spool.

At one end the spool is provided with a laterally extending generally circular flange B. At the other end it is provided with a flange C. This flange is provided with an outwardly extending enlargement C¹, and a laterally bent cable receiving track or portion C². This portion communicates with an open-sided cable receiving pocket D provided with the enlarged outer end D¹ and the slotted side D². The portion C¹ also carries the cable receiving depression E which is curved as shown particularly in Figure 2. This cable receiving portion E is curved away from the winding portion A³

of the spool and is preferably of a curvature at least as large as the smallest curvature of the spool proper.

The cable F is normally associated with the end enlargement F¹ which may be of any suitable construction, but is larger than the smallest diameter of the pocket within which the cable is fitted.

G is a cotter-pin mounted in the portion D¹ and adapted to prevent outward movement or displacement of the cable.

Although I have illustrated an operative device, still it will be obvious that many changes might be made in size, shape and arrangement of parts without departing materially from the spirit of my invention; and I wish, therefore, that my showing be taken as in a sense diagrammatic.

The use and operation of my invention are as follows.

The spool is associated usually with some form of hoisting mechanism. To attach the cable, to the spool, the cotter-pin is withdrawn, and the cable is drawn back so that the enlarged end does not at first come into the cable receiving pocket. The cable itself is then moved side-ways through the slotted side of the cable receiving pocket and is then drawn forward so that the enlarged end is brought into and seated within the cable receiving pocket. The cotter pin is then replaced and the cable is then held against lateral or axial displacement from the spool, and at the same time a construction is provided by means of which ready renewals and replacements of cables can be carried out.

When the hoisting takes place, the spool normally rotates in the direction of the arrow in Figure 2. The cable is thus wound about the exterior of the spool. If the spool is associated with the hoisting means, the hoisting will be carried out in the manner described. When the movement is to be reversed, usually the device which has hoisted is allowed to return, largely if not entirely by reason of its own weight, and the spool is thus rotated in the reverse direction and the cable unwound from it by the weight of the device which it has hoisted. In such reverse movement considerable momentum is frequently developed. When the cable has been completely unwound from the spool, the spool will frequently continue

its rotation in the unwinding direction. When this takes place, the portion E engages the cable and to a limited degree the cable is wound about that portion. Since that portion is curved it does not kink or crease or otherwise injure the cable, and by reason of its curvature, it serves as a track which absorbs the shock and cushions it and stops the reverse movement of the spool, without injuring the mechanism or the cable.

By reason of the loose mounting of the cable end within the spool, it may shift and rotate within this mounting and thus twisting of the cable about the spool is prevented, and normal winding and unwinding of the cable is permitted.

The radius of curvature of the part C¹ is constantly increasing. Its initial curvature is the same as that of the smallest portion of the main winding surface of the spool proper, and its radius of curvature increases constantly from that point to its upper or outer end. Thus the cable as it winds onto the portion C¹ on the receiving part E is bent about a curve of constantly increasing radius of curvature.

I claim:

1. In combination with a winding spool, a cable adapted to be wound thereon and means on the spool adapted, in combination with the cable, to cushion and stop reverse movement of the spool in the unwinding direction.

2. In combination with a winding spool, a cable adapted to be wound thereon and means on the spool adapted to contact the cable and therewith to push it and stop reverse movement of the spool in the unwinding direction.

3. In combination with a winding spool, a cable adapted to be wound thereon and means on the spool adapted, in combination with the cable, to cushion and stop reverse movement of the spool in the unwinding direction after the completion of the unwinding.

4. In combination with a winding spool, a cable adapted to be wound thereon and means on the spool adapted to contact the cable and therewith to push it and stop reverse movement of the spool in the unwinding direction after the completion of the unwinding.

5. In combination with a winding spool, a cable adapted to be wound thereon and means on the spool adapted to contact the cable while the latter is under tension, and therewith to push it and stop reverse movement of the spool in the unwinding direction after the completion of the unwinding.

6. In combination in a spool, a part adapted normally to receive a cable and an additional part adapted to receive said cable, said second part being curved outwardly away from the normal winding surface of

the spool to receive the cable after the same has been fully unwound from the spool.

7. In combination in a spool, a part adapted normally to receive a cable and an additional part adapted to receive said cable, said second part being curved outwardly away from the normal winding surface of the spool to receive the cable after the same has been fully unwound from the spool, said second cable receiving part spaced laterally beyond the normal cable receiving part of the spool.

8. In combination in a spool, a part adapted normally to receive a cable and an additional part adapted to receive said cable, said second part being curved away from the normal winding surface of the spool to receive the cable after the same has been fully unwound from the spool, said second cable receiving part having a curvature as great as that of the cable receiving portion of the spool proper.

9. In combination in a spool, a part adapted normally to receive a cable and an additional part adapted to receive said cable, said second portion being curved away from the normal winding surface of the spool to receive the cable after the same has been fully unwound from the spool, said second cable receiving part having a radius of curvature greater than that of the cable receiving portion of the spool proper.

10. In combination in a winding spool, a surface adapted to receive a cable, a laterally bent cable receiving part, said cable receiving part being curved away from the normal winding surface of the spool itself and adapted to receive the cable after the same has been unwound from the spool and to cushion reverse movement of the spool.

11. In combination in a winding spool, a surface adapted to receive a cable, a laterally bent cable receiving part, said cable receiving part being curved away from the normal winding surface of the spool itself and adapted to receive the cable after the same has been unwound from the spool and to prevent sharp bending of the cable.

12. In combination in a winding spool, a surface shaped to receive a cable, a flange about one end of the spool and a laterally bent cable receiving portion at the other end of the spool, said cable receiving portion being curved away from the normal winding surface of the spool itself and adapted to receive the cable after the same has been fully unwound from the spool.

13. In combination with a spool, a cable attaching part including a closed cable receiving chamber of varying interior diameter, said chamber having a slot in one side.

14. In combination with a spool, a cable attaching part including a closed cable receiving chamber of varying interior diameter, said chamber having a slot in one side,

and a cable receiving portion separate from the normal cable receiving surface of the spool and curved outwardly away from said surface.

5 15. In combination with a spool, a cable attaching part including a closed cable end receiving chamber interiorly tapered, said chamber having a slot in one side, and a cable receiving portion separate from the
10 normal cable receiving surface of the spool and curved outwardly away from said surface.

16. In combination with a spool, a cable and a cable receiving portion on said spool,
15 said cable provided with an enlarged end, said cable receiving portion including a hole of varying interior diameter having an open side through which the cable may be slipped, the size of the opening being less than that
20 of the enlarged end of the cable.

17. In combination with a spool, a cable and a cable receiving portion on the spool, the cable having an enlarged end, the cable receiving portion including a hole of vary-
25 ing interior size, a portion of the hole being substantially the same size as that of the cable, and another portion of the hole being substantially the same size as that of the enlarged end of the cable, there being a slit
30 in the side of said cable receiving portion

of a size less than that of the enlarged end of the cable and larger than the thickness of the cable itself, said cable adapted to be slipped through said slot and pulled for-
ward to seat its enlarged end in the en- 35
larged portion of the hole, and means for preventing withdrawal of the cable from the hole.

18. In combination in a spool, a part adapted normally to receive a cable and an
40 additional part adapted to receive said cable, said second part being curved away from the normal winding surface of the spool to receive the cable after the same has been
fully unwound from the spool, said second 45
cable receiving part having a radius of curvature greater than that of the cable receiving portion of the spool proper.

19. In combination in a spool, a part adapted normally to receive a cable and an
50 additional part adapted to receive said cable, said second part being curved away from the normal winding surface of the spool to receive the cable after the same has been
fully unwound from the spool, said second 55
cable receiving part having a curvature of constantly increasing radius.

Signed at Chicago, county of Cook, and State of Illinois, this 29th day of May, 1924.

WILLIAM C. ANTHONY.