

March 13, 1934.

J. HOLMES, JR

1,950,492

TAKE IN AND PAY OUT REEL

Filed May 13, 1931

2 Sheets-Sheet 1

Fig. 1.

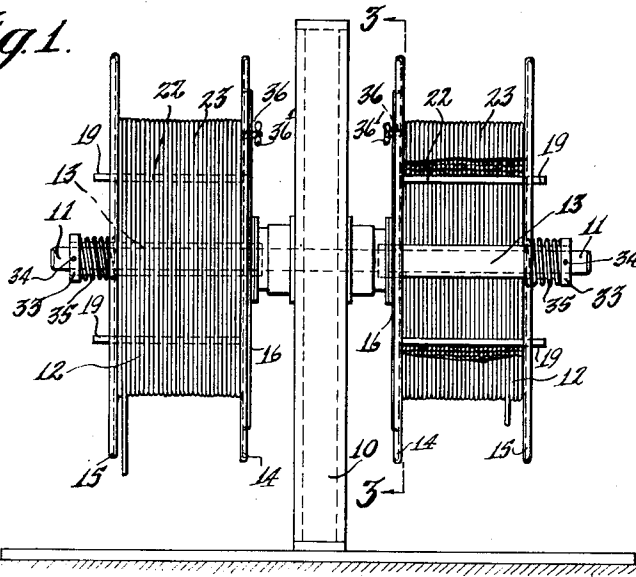


Fig. 2.

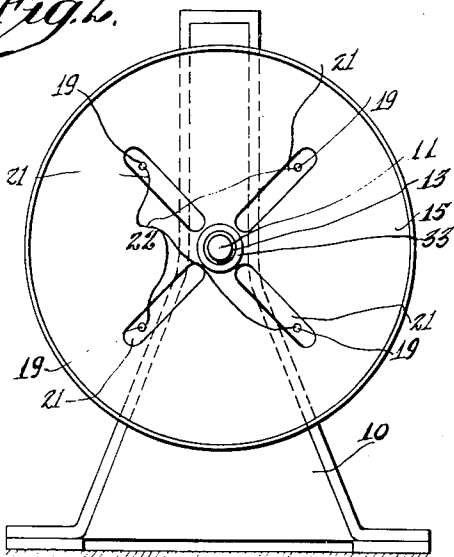


Fig. 3.

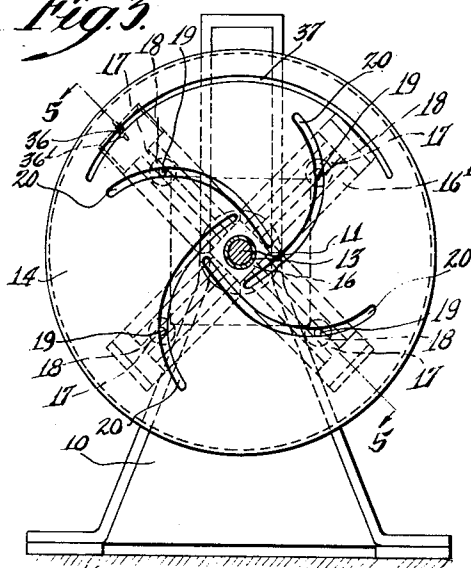
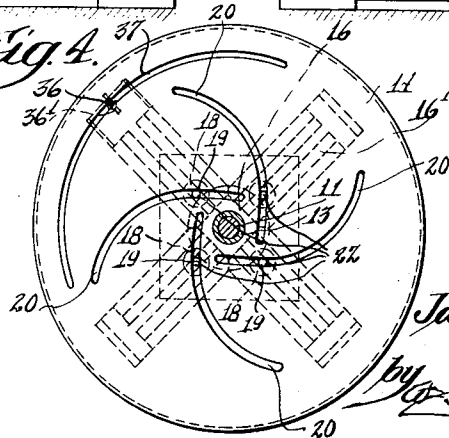


Fig. 4.



Witnesses

Amos W. Packard
Geo. C. Jepson

Inventor:
James Holmes Jr.

by *W. S. Hall* and *W. S. Hall*
Attorneys

March 13, 1934.

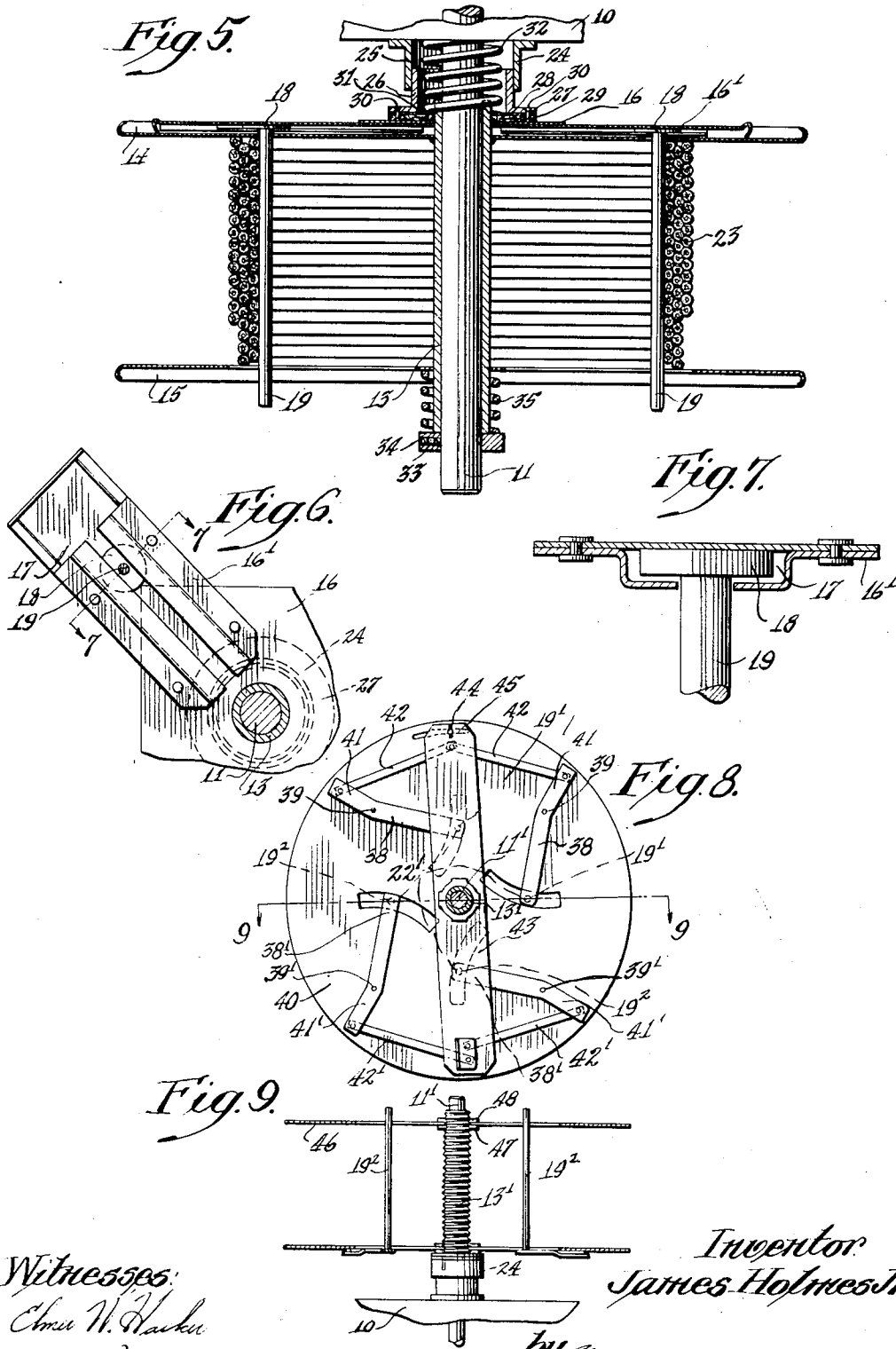
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2 Sheets-Sheet 2



Witnesses:
Chas. W. Harker
Geo. C. Jepson

Inventor:
James Holmes Jr.
by J. S. Slatton and Son
Attorneys.

UNITED STATES PATENT OFFICE

1,950,492

TAKE IN AND PAY OUT REEL

James Holmes, Jr., Philadelphia, Pa.

Application May 13, 1931, Serial No. 537,162

3 Claims. (Cl. 242—110)

My invention relates to reels for holding coiled wire or other similar flexible material, and more particularly to the type known as "take up" and "pay out" reels.

5 The main purpose of my invention is to equip a wire-supporting mandrel of a reel with a cam-controlled adjustment.

A further purpose is to construct a reel having a mandrel comprising adjustable arms which 10 are adapted to move concurrently radially in slots in end flanges of the reel.

A further purpose is to provide a reel with a cam-actuated mandrel, and flanged end plates 15 adapted to move laterally to accommodate different sizes of coils of wire.

A further purpose is to lock a reel flange to a plate and to mount both the flange and the plate on a horizontal shaft extending from the 20 reel support.

A further purpose is to provide a reel with a friction brake control to limit too rapid unwinding of the reel.

A further purpose is to construct a reel support with a horizontal shaft extending from both 25 sides thereof and adapted to support reels for winding or unwinding wire or the like, the reels comprising cam-actuated mandrels and end flanges on the mandrel, one of the end flanges 30 on each reel being removable in order that a new coil may be placed on the reel.

A further purpose is to provide radially extending guideways adapted to receive heads of pins that form a mandrel of a reel.

35 A further purpose is to support end flanges on a shaft of a reel, the flanges being spring pressed, one towards the other.

Further purposes will appear in the specification and in the claims.

40 I have elected to illustrate one main form only of my invention, with a minor modification, showing, however, forms that are practical and efficient in operation and which well meet the needs of service.

45 Figure 1 is a side elevation, partly in section, of my improved reel mounted upon its supporting structure.

Figure 2 is an end elevation of Figure 1.

50 Figure 3 is a sectional elevation taken on the line 3—3 of Figure 1.

Figure 4 is a view similar to Figure 3 but showing the parts in different position.

Figure 5 is a fragmentary sectional plan view taken on the line 5—5 of Figure 3.

55 Figure 6 is a fragmentary section of the structure of Figure 5.

Figure 7 is a fragmentary section taken on the line 7—7 of Figure 6.

60 Figure 8 is a sectional elevation similar to Figure 3 but illustrating a modification.

Figure 9 is a sectional plan view taken on the line 9—9 of Figure 8.

Similar numerals indicate like parts in all figures.

Describing in illustration but not in limitation 65 and referring to the drawings:—

My invention relates to reels and more particularly to supply reels, for holding coils of wire or other like flexible material, and upon which the material may be wound or from which it may 70 be unwound at the option of the user. Electricians, for instance, when unwinding wire from coils for use in wiring buildings, find that the wire gets tangled, causing considerable trouble and a great waste of time in straightening out. 75 Reels for holding wire intended to avoid this inconvenience and waste of time have been used, but these reels present many objectionable features and it is these objections that my invention is intended to eliminate. 80

In carrying out my invention, referring more particularly to Figures 1 to 7 inclusive, I employ a central supporting structure 10 through which a stationary horizontal shaft 11 is extended.

Figure 1 shows two reels 12, one mounted on 85 each side of the supporting structure 10. Each reel 12 is free to rotate with a sleeve 13 on the shaft 11. The sleeve 13 serves as a body for the reel, to support the sides. It will be obvious that the body could be of any one of a great variety of 90 forms, and need not be at the center provided it does not interfere with the placing of wire on the reel.

Both reels are constructed in exactly the same manner and I will therefore refer to the corresponding parts by the same reference numbers. 95

Each reel comprises sides consisting of end flanges 14 and 15, mounted on the body or sleeve 13 which rotates on the shaft 11. Adjacent the inner end of the flange 14 and on and angularly loose with respect to the sleeve 13, I place a guide 100 carrier 16, here shown comprising radially extending arms 16' which are provided with guideways 17 in which the heads 18 of extending pins 19 move and are supported. 105

The pins 19 project outwardly from the guideways 17 through cam slots 20 in the end flange 14 and through radial slots 21 in the flange 15, to form a mandrel 22, about which a coil of wire or similar flexible material 23 can be placed for 110 unwinding as desired.

Between the guide carrier 16 and the supporting structure 10, I place a friction brake 24 which will prevent too rapid unwinding of the coil of wire from the mandrel.

The brake 24 comprises concentric sleeves 25 and 26, the outer sleeve 25 being secured to the supporting structure 10, and the inner sleeve 26 being free to move both rotatably and laterally in the outer sleeve 25. 115 120

The inner sleeve 25 is flanged at 27 and a partition in the form of a disc 28 is placed between a friction surface 29 and the sleeve 25. The disc 28 and the friction surface 29 are riveted or otherwise fastened together at 30.

The disc 28 extends inwardly at 31 and a spring 32 is placed between the stationary structure 10 and the disc 28, pressing the disc 28 and the friction surface 29 outwardly against the guide carrier 16 to retard the rotation of the reel.

At the opposite end of the sleeve 13, I secure a collar 33 on and to the shaft 11 by means of a set screw 34 and between the collar 33 and the movable end flange 15, I insert a spring 35 which tends to keep the flange 15 in contact with the coil 23 about the mandrel 22, and at the same time presses the reel against the friction surface of the brake.

The size of the coils to be placed on the mandrel differ greatly depending upon the amount of wire or thickness of material in the coil. This difference affects both the interior coil diameter and also the width of the coil.

My reel is capable of receiving coils of great variety of shapes and sizes because of the adjustability of the space between the two end flanges and because of the adjustability of the diameter of the mandrel.

It will be clearly seen in Figure 3 that the mandrel is capable of considerable variance in diameter, due to the arrangement of the cam slots which move the pins and change the size of the mandrel.

As the cam slots in the flange 14 move clockwise with respect to the pins 19, the pins are carried radially outward in their guideways 17. Similarly, as the cam slots in the flange 14 move counterclockwise the pins are carried radially inward. Thus at any circumferential position of the flange 14 there is only one radial position of the pins 19.

All of the pins move radially inward and outward at the same time so that it is not necessary to set the position of the pins separately.

When the mandrel has been adjusted to the desired size, a coil of wire or the like can be placed thereon by removing the end flange 15. This may be accomplished by loosening the set screw 34 to detach the collar 33 from the shaft 11 to leave the mandrel free to receive the coil.

After the coil has been placed about the mandrel, if the mandrel be not large enough in diameter to engage firmly the interior core of the coil, the pins can be radially adjusted to provide firm engagement. The disc 14 and the guide carrier are then fastened together by means of a screw 36 which extends through an aperture in the guide carrier 16 and through a slot 37 in the disc 14. This slot will allow rotation of the disc 14 to move the pins. A thumb nut 36' is then placed on the screw 36 which when tightened will hold the guide or pin carrier and disc together.

The reel as a unit will then be free to rotate on the sleeve but will be retarded by the action of the braking arrangement before described, the result being that there will be practically no surplus of wire hanging from the reel due to the loose action thereof.

In Figures 8 and 9, I have shown a modification of the structure seen in Figure 3, in which pins 19' are carried on the respective ends of two upper levers 38 pivoted at 39 to a disc 40. The opposite ends 41 of the two upper levers 38 have secured thereto links 42 which at their opposite ends connect with the upper end of a rocker 43 pivoted to

a sleeve 13' on the shaft 11' of the reel. At its lower end the rocker 43 connects with links 42', which in turn operate levers 41', pivoted at 39' and supporting at their opposite ends 38' projecting pins 19' to form the mandrel 22'.

The rocker can be locked in position after the size of the mandrel has been adjusted by means of a screw and thumb nut 44, the screw projecting through a slot 45 in the disc and an aperture in the rocker, and the thumb nut being used to fasten the disc and rocker together.

In Figure 9 the end flange 46 is made movable laterally as required by threading the sleeve 13' and by screwing a nut 47 on the sleeve. After the adjustment has been made the lock nut 48 may be screwed against the end flange 46 to hold the end flange in the desired position.

It will be evident that the radial positions of pins or mandrel members 19 are adjustably determined by the adjustable angular setting of the carrier 16 with respect to the flange 14, in that each of these pins is located at an intersection of one of the radial slots 17 of the carrier with one of the cam slots 20 of the flange.

My invention is particularly advantageous for use upon previously wound coils of wire and the like. The pins 19 may be adjusted until the coil can be inserted about them, and then the pins may be moved outward until they grip the coil. The pins 19 are in effect segments of an internal chuck which forms part of my reel.

Of course my reel is not restricted to use upon circular coils, although circular coils are most usual, and therefore have been illustrated.

My device, as will be seen from the drawings and the above description is exceedingly simple in construction and in operation, can easily be adjusted to any size of commercial coils and has been found to be highly efficient in use.

In view of my invention and disclosure variations and modifications to meet individual whim or particular need will doubtless become evident to others skilled in the art, to obtain all or part of the benefits of my invention without copying the structure shown, and I, therefore, claim all such in so far as they fall within the reasonable spirit and scope of my invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a reel, a body, circular sides on the body in spaced relation, one of the sides being secured to the body, a plurality of separate guideways on and angularly adjustable with respect to the body adjacent to the said one side and directed generally away from the body, slots in the adjacent side, one for each guideway, headed pins having their heads in the guideways and the bodies of the pins extending transverse to and between the sides through the respective slots, the cooperating guideways and slots being intersecting so that relative angular movement of the guideways with respect to the adjacent side will cam the pins radially inwardly and outwardly in unison.

2. In a reel, a body, circular sides on the body in spaced relation, one of the sides being secured to the body, a plurality of separate radial guideways on and angularly adjustable with respect to the body adjacent to the said one side, cam slots in the adjacent side, one for each guideway, headed pins having their heads in the guideways, the bodies of the pins extending transverse to and between the sides through the respective cam slots whereby relative angular movement of the guideways with respect to the adjacent side will

cam the pins radially inwardly and outwardly in unison.

3. In a reel, a body, circular sides on the body in spaced relation, one of the sides being secured to the body, a plurality of separate radial guideways on and angularly adjustable with respect to the body adjacent to the said one side, cam slots in the adjacent side, one for each guideway, headed pins having their heads in the guideways,

the bodies of the pins extending transverse to and between the sides through the respective cam slots whereby relative angular movement of the guideways with respect to the adjacent side will cam the pins radially inwardly and outwardly in unison and attaching means for securing the guideways and adjacent side against relative angular change of position.

JAMES HOLMES, JR.

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