

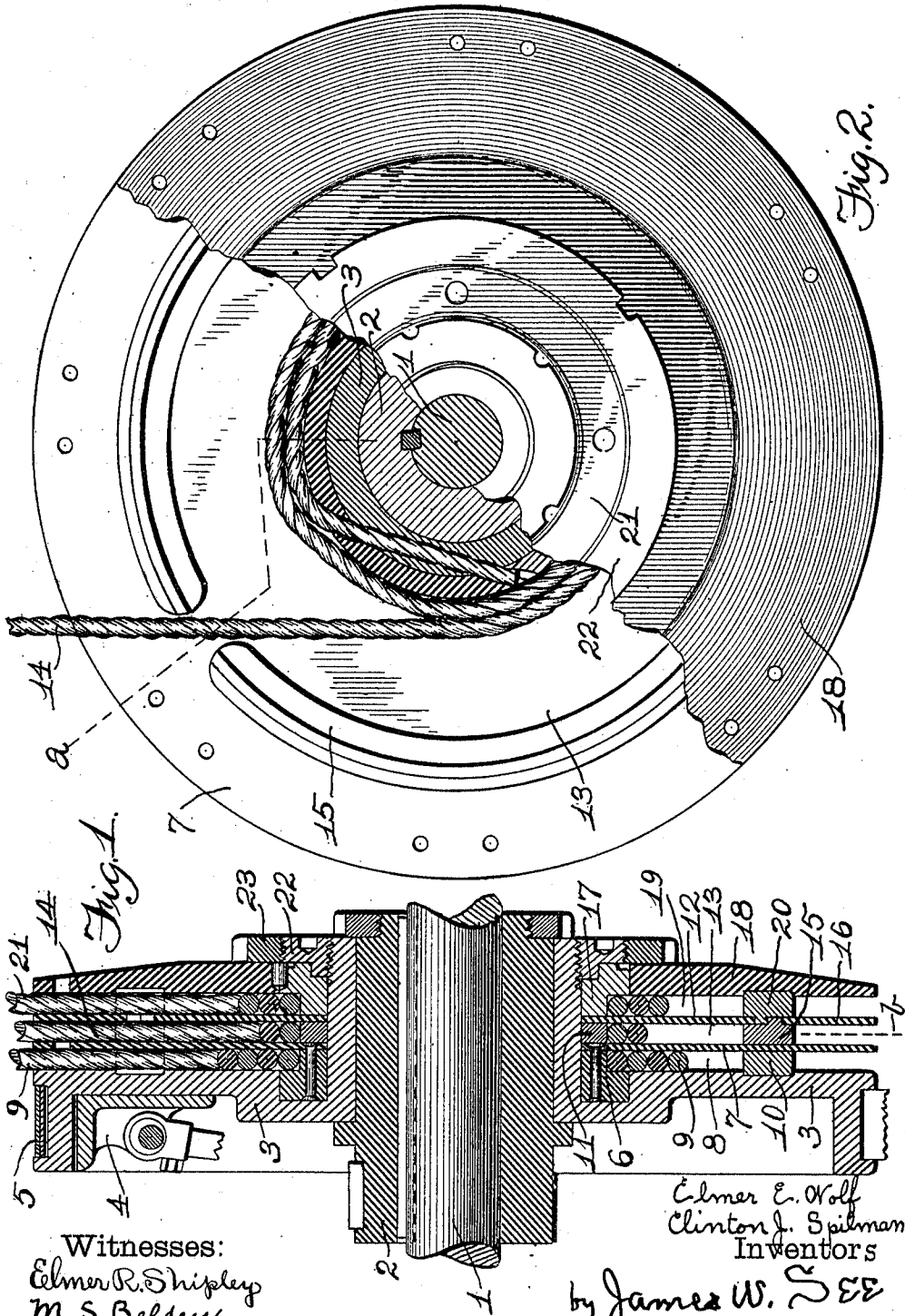
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COMPOUND REEL.

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UNITED STATES PATENT OFFICE.

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COMPOUND REEL.

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To all whom it may concern:

Be it known that we, ELMER E. WOLF and CLINTON J. SPILMAN, citizens of the United States, residing at Springfield, Clark county, Ohio, and Sidney, Shelby county, Ohio, respectively, have invented certain new and useful Improvements in Compound Reels, of which the following is a specification.

This invention relates to improvements in reels designed to deal with a plurality of ropes in such manner that the several ropes may be wound up at once and then wound up individually and then again wound up at once. An exemplifying use for such a reel is found on the theater stage where a rolled-up scene is to be put into suspension and then trimmed and then hoisted and lowered as desired.

Our invention will be readily understood from the following description taken in connection with the accompanying drawing in which:—

Figure 1 is a section of our compound reel in the plane of line *a* of Fig. 2: and Fig. 2 is a face view of the reel, parts appearing in section in the plane of line *b* of Fig. 1.

In the drawing:—1, indicates a shaft which is to be given suitable support and provided with power means for its rotation: 2, a hub fast on the shaft and constituting, so far as the present invention is concerned, an enlargement of the shaft on which our combined reel is mounted: 3, a reel-body mounted to turn loosely on hub 2: 4, a friction-clutch-part typifying means for frictionally locking the reel-body to the shaft at pleasure: 5, a brake-band engaging the reel-body: 6, a reel-hub mounted to turn freely on the hub of the reel-body: 7, a thin disk secured, as by riveting, to reel-hub 6 and having a diameter substantially equal to that of the reel-body 3: 8, a thin rope-space formed around reel-hub 6 and between the reel-body and disk 7, this rope-space being of such width that the rope to be dealt with may wind within it spirally but not helically, in other words, the rope-receiving por-

tion of reel-hub 6 having a length less than twice the thickness of the rope to be dealt with: 9, a first rope having an end secured permanently to reel-hub 6, the rope winding upon this reel-hub and extending upward out of space 8, the rope to go thence over proper pulleys and to the scene or other article to be dealt with by the reel: 10, a floating ring disposed between the reel-body and disk 7 and having a bearing in a groove in the reel-body, the ring being gapped, as indicated in Fig. 2, to permit of the upward passage of rope 9: 11, a reel-ring mounted, as by means of a feather, to slide but not to turn on the hub of the reel-body, this reel-ring having preferably the same diameter as reel-hub 6: 12, a disk loose on the hub of the reel-body and seating against reel-ring 11 and having an outside diameter somewhat greater than the inside of floating-ring 10: 13, a rope-space formed between disks 7 and 12, this space having also a width less than the thickness of two ropes, due to the fact that reel-ring 11 has a length less than twice the thickness of the rope to be dealt with: 14, a rope disposed in space 13 and having its end secured to the hub of the reel-body so that it may wind up spirally on reel-ring 11: 15, a floating-ring similar to floating-ring 10 but disposed in space 13: 16, a disk-ring in the plane of disk 12 and serving, so to speak, in giving disk 12 a diameter equal to that of disk 7 and reel-body 3: 17, a second reel-hub loosely mounted on the hub of the reel-body outside disk 12 and having, preferably, a winding diameter the same as that of reel-hub 6 and reel-ring 11, the rope-receiving portion of this reel-hub having also a length less than twice the thickness of the rope to be dealt with: 18, a flange mounted, as by means of a feather, to slide but not to turn on reel-hub 17, and having a diameter substantially the same as that of reel-body 3, disk 7, and disk-ring 16: 19, rope-space formed between disk 12 and flange 18. 20, a floating ring similar to the other floating rings, but disposed in space 19: 21, a

third rope, disposed in space 19 and having its end secured to reel-hub 17 so as to wind spirally upon that reel-hub: 22, a clamp-nut threaded onto the hub of reel-body 3, and serving, when screwed up, to clamp reel-hub 17, reel-ring 11, and reel-hub 6 to reel-body 3 so that they turn as a unit: and 23, a clamp-nut threaded on clamp-nut 22 and serving, when screwed up, to clamp the three floating rings tightly to reel-body 3.

The clamp-nuts and flange 18 and disk 7 are provided with spanner holes or notches by means of which they may be angularly adjusted. Assume a rolled up scene lying on a stage and having the three ropes of the reel attached to its top batten, the ropes, of course, going over suitable elevated sheaves. Middle rope 14, the one that is attached to reel-body 3, is preferably to be attached to the middle of the batten of the scene, while the other two ropes attach at opposite ends of the batten. Clamp-nut 23 is to be slacked off, leaving the three floating rings free, and clamp-nut 22 is to be tightened, thereby making the inner ends of the three ropes temporarily fast to the reel-body. The sliding motion of reel-ring 11 and reel-hub 17 relative to reel-body 3 is a mere trifle, merely sufficient to permit clamp-nut 22 to clamp the three reels to the reel-body or release them so that reel-hubs 6 and 17 may be turned independent of the reel-body, and the sliding motion of flange 18 relative to reel-hub 17 is a mere trifle, merely sufficient to permit clamp-nut 23 to cause the flange to clamp the three floating rings to reel-body 3 or to release them so that they may remain stationary while the ropes are winding on their respective reels. The reel-body is now to be started into rotation, by engaging the clutch, whereupon the three ropes are simultaneously wound upon their respective reels, the floating rings remaining stationary. This winding is to be continued till the scene is in a condition of complete suspension. When the scene is thus freely suspended it is to be trimmed, and at this time the clutch is to be disengaged and the brake applied, thus locking the three reels. Clamp-nut 22 is now to be slacked off, leaving the reels of the two side-ropes free, while the middle rope is held by the reel-body and supports the scene. Now, by applying a spanner to disk 7, or to flange 18, either side rope may be wound up or slacked off to such extent as is necessary to bring the scene into trim. When this is done then clamp-nut 22 is to be tightened again, after which clamp-nut 23 is to be tightened thereby clamping the three floating rings tightly to the reel-body. The winding previously referred to took place on the small reels inside the floating rings but now, when the

reel-body is put into rotation, the winding of the ropes takes place on the floating rings. 65

Floating ring 20 has its bearing in an annular groove in the inner face of flange 18, after the manner of floating-ring 10. The disks are preferably of such thinness as not to permit of their furnishing an annular groove for floating-ring 15, and it is for this reason that the inner face of floating-ring 20 is formed with an annular rib forming a journal for an annular rib projecting from the outer face of floating-ring 15. 70 75

In the use of compound reels in connection with the theater scenery compactness is a matter of importance and it is to be observed that in the present construction the device may be made comparatively thin. In the illustration three ropes are provided for but it is manifest that the system well lends itself to two or any greater number of ropes. 80

We claim:—

1. A compound reel comprising, a plurality of reels disposed side by side and mounted for independent turning, said reels having each a length less than twice the thickness of the ropes to be dealt with, a rope secured to each of the reels, disks disposed between the ropes, a reel-body forming a disk outside one of the outer ropes, a flange outside the other outer rope, a gapped floating ring disposed concentric with the reel in each rope-space, clutch and brake mechanism for driving and holding the reel-body, means for locking the several reels to the reel-body while the floating rings are free, and means for locking the several floating rings to the reel-body, combined substantially as set forth, whereby the several ropes may be wound independently or simultaneously within the floating rings or simultaneously outside the floating rings. 85 90 95 100 105

2. A compound reel comprising, a reel-body, clutch and brake mechanism for driving and holding the reel-body, independent reels mounted free on the hub of the reel-body and having each a length less than twice the thickness of the rope to be dealt with, disks disposed between the ropes, a flange disposed outside the rope farthest from the reel-body, a gapped floating ring disposed concentric with the reel in each rope space, a clamp-nut arranged to clamp the reels together and to the reel-body, and a clamp-nut arranged to clamp the flange and floating rings to the reel-body, combined substantially as set forth. 110 115 120

3. A compound reel comprising, a reel-body, clutch and brake mechanism for driving and holding the reel-body, a reel loose on the hub of the reel-body and having a length less than twice the thickness of the rope to be dealt with, a disk secured to said reel at its end opposite the reel-body and 125

forming one wall of a rope space of which the reel-body forms the opposite wall, a reel-ring outside said disk and slidable against said disk, a disk outside said reel-ring, a reel outside of and slidable toward the second disk, a flange slidable on the second reel and forming the outside wall of a rope-space, a gapped floating-ring in each rope-space, a clamping nut to clamp the reels and reel-rings to the reel-body, and a clamping nut to clamp the floating-rings between the flange and the reel-body, combined substantially as set forth.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
