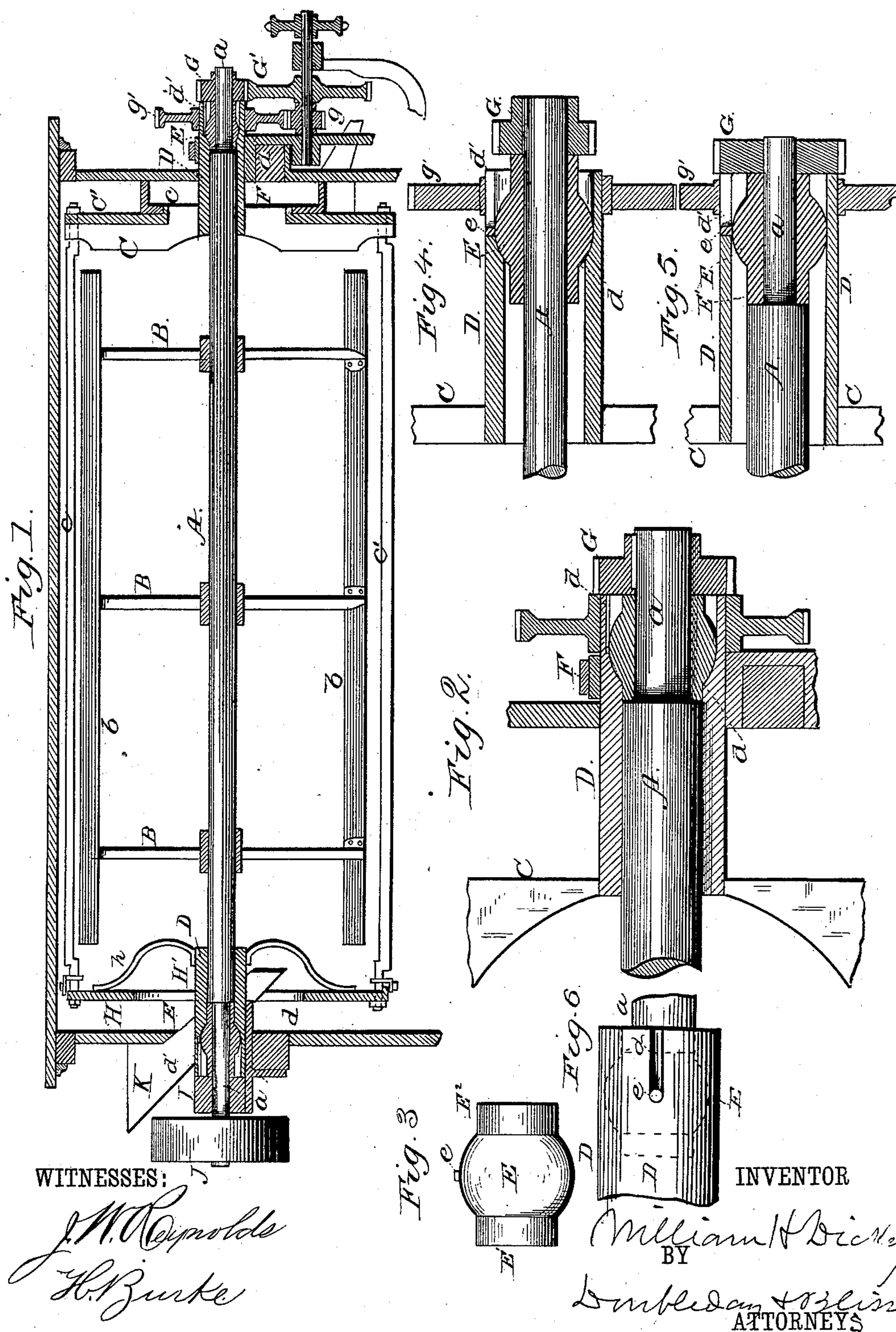


W. H. DICKEY.
CENTRIFUGAL REEL.

Patented July 15, 1884.



UNITED STATES PATENT OFFICE.

WILLIAM H. DICKEY, OF JACKSON, MICHIGAN.

CENTRIFUGAL REEL.

SPECIFICATION forming part of Letters Patent No. 302,220, dated July 15, 1884.

Application filed April 17, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. DICKEY, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Centrifugal Reels, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a central vertical longitudinal section of so much of a centrifugal reel as is necessary to illustrate my invention. Fig. 2 is a detached view, enlarged. Fig. 3 is a detached view, also enlarged, of the sleeve-bearing. Figs. 4 and 5 are detached views, enlarged, showing modifications. Fig. 6 is a plan or top view of one end of the reel-trunnion, the gear having been removed, and showing the groove d' as being cut entirely through the trunnion.

Referring particularly to Figs. 1, 2, and 3, A is the beater-shaft, its ends $a a$ being of reduced diameter, forming shoulders, for a purpose which will be explained. B B are spiders, and $b b$ are beaters mounted upon and carried by the beater-shaft. C C' are respectively the spokes or arms and flange of the reel-head at the discharging end of the machine. The spokes C C' project radially from a hollow trunnion or tubular support, D, which extends through the casing, and is mounted in a bearing, F', which parts may be of any usual or approved construction. F is a chamber or offal-box having a circular opening in its inner wall, the opening being concentric to the tubular support D D. c is a circular flange formed upon the reel-head, and also concentric to the tubular support D, so as to fit closely the opening in the offal-box. The reel-head at the opposite end of the bolt consists of an outer rim, H, connected by means of curved arms $h h$ to a hollow trunnion or tubular support, D, like that at the discharging end of the reel.

As the construction of the tubular supports and the bearings at each end of the reel are substantially alike, I will describe one of them only.

Referring particularly to Figs. 2 and 3, the bearing is constructed with a central spherical portion, E, having two projecting cylindrical portions, E' E², and is provided with a longitudinal opening or seat to receive the end

of the beater-shaft. The tubular support D is enlarged at its outer end and constructed with a concave shoulder, substantially as indicated at d , to receive and support the opposing adjacent face of the sleeve-bearing. This bearing is provided at its greatest diameter with a projecting lug, e , which enters and is seated in a groove, d' , in the inner face of the tubular support. In order to retain the sleeve-bearing in proper position, and also to prevent longitudinal movement of the beater-shaft, I employ stops rigidly attached to the beater-shaft at its ends which project beyond the sleeve-bearings. By preference the stop at the tail end or discharging end consists of a spur-pinion, G, which meshes with the spur-gear G', having attached thereto a spur-pinion, g , meshing with a spur-gear, g' , which is rigidly affixed upon the tubular support D, so that when the beater-shaft is rotated this train of gearing rotates the reel at a reduced speed. The stop at the opposite end or receiving end of the bolt may consist of a simple collar, I, keyed or otherwise rigidly attached to the beater-shaft.

In Fig. 4 I have shown a construction in which the beater-shaft is of uniform diameter from end to end, the parts being otherwise constructed substantially as indicated in Fig. 1, except that the stop, which in this instance is a pinion, G, does not engage with the outer end of the tubular support, but is in close contact only with the outer end of the cylindrical part E² of the sleeve-bearing. In this figure the beater-shaft is shown as being of uniform diameter throughout. In Fig. 5 the opening in the tubular support is of uniform diameter from end to end, and hence the stops on the shaft should be arranged to engage with not only the outer ends of the sleeve-bearings, but also with the outer ends of the tubular support at both ends of the reel, in order to prevent longitudinal movement of either the beater-shaft or the sleeve-bearings. In Figs. 4 and 5 the upper side of the tubular support is slotted, as at d' , to receive the pin or lug e , which prevents the sleeve-bearing from rotating.

In Fig. 6 I have shown the pin e as projecting entirely through the slot which is formed in the trunnion and extends to one end thereof, as indicated at d' , while in Figs. 1 and 2 the pin does not project entirely through the trun-

nion, but is seated in a longitudinal groove formed in the inner surface of the trunnion; but so far as performing its function of preventing the sleeve-bearing from rotating is concerned, the pin operates in substantially the same manner whether it be seated in the comparatively shallow groove or in the slot which is cut entirely through the trunnion.

Among the advantages which are incident to this invention are the following: In consequence of the tubular support, the sleeve-bearing, and the beater-shaft being mounted upon or in a single bearing or boxing at each end of the reel, there is much less liability of any disturbance in the alignment of these bearings than there would be if the bearings for the ends of the shaft were separate from the bearings for the tubular supports of the reel, and this is true even though the shaft-bearing and the tubular-support bearing were both cast in the same piece with the shaft-bearing at some distance farther from the end of the machine than the tubular support and trunnion-bearing, as is the case in, for instance, the reel shown in Patent No. 266,781, W. B. Dell, October 31, 1882, upon which this invention is intended as an improvement. By reference to that Dell patent it will be seen that there are separate and independent supports for the beater-shaft and the tubular reel-supports at both ends of the machine, these supports being at such distance apart as to permit the introduction of mechanism between them, whereas in my invention the boxing which supports the beater-shaft and the tubular reel-support is one and the same, and is arranged between the spur-pinion G and the collar I. Another advantage is the facility with which long sleeve-bearings for the beater-shaft may be employed, it being apparent that they may be made to project to any desired length inside of the tubular supports D. Again, by reference to Fig. 5, it will be readily understood that the spur-pinion G and the stop at the other end of the machine serve not only to confine the sleeve-bearings in position relative to the beater-shaft, but also prevent longitudinal movement of both the bearings and the shaft relative to the tubular supports. In all the constructions shown the sleeve-bearings are placed loosely within the tubular supports, and are held in position against lateral play only by the stops, which are affixed to the beater-shaft and engage with the outer ends of said sleeve-bearings.

What I claim is—

1. In a flour-bolt, the combination of a reel having a head provided with a projecting tubular support, a beater-shaft within the tubular support, a sleeve-bearing mounted

loosely in said tubular support, a boxing on the frame supporting both the sleeve-bearing and the tubular support, and a stop attached to the beater-shaft to prevent it from moving longitudinally in the sleeve-bearing, substantially as set forth.

2. In a flour-bolt, the combination of a reel having a head provided with a projecting tubular support, a beater-shaft within the tubular support, a sleeve-bearing surrounding the beater-shaft and having a globe-shaped expanded portion, a boxing on the frame supporting both the sleeve-bearing and the tubular support, and a stop attached to the beater-shaft to prevent it from moving longitudinally in the sleeve-bearing, substantially as set forth.

3. In a flour bolt, the combination of a reel having a head provided with a projecting tubular support, a beater-shaft within the tubular support, a sleeve-bearing surrounding the beater-shaft and mounted loosely in said tubular support, and a pinion, G, attached to the beater-shaft and operating as a stop to prevent longitudinal movement of the beater-shaft, and also to drive the spur-gear G', substantially as set forth.

4. In a flour-bolt, the combination of a reel having a head provided with a projecting tubular support, a beater-shaft within the tubular support, and a sleeve-bearing having a globe-shaped expanded portion and a cylindrical part, E', projecting into the tubular support and toward the reel-head, substantially as set forth.

5. In a flour-bolt, the combination of a reel having a head provided with a projecting tubular support, a beater-shaft arranged within the tubular shaft, a sleeve-bearing having a cylindrical portion of less diameter than the opening in the tubular support and arranged therein, a lug, d, projecting from the sleeve-bearing, and a seat in the inner wall of the tubular support to receive the lug, substantially as set forth.

6. In a flour-bolt, the combination of the reel having two heads, each provided with a projecting tubular support, a beater-shaft within the tubular supports, sleeve-bearings mounted loosely in the tubular supports, a beater-shaft within the sleeve-bearings, and stops rigidly affixed to the shaft and engaging with the outer ends of the sleeve-bearings, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. DICKEY.

Witnesses:

M. HARMON,
GEO. S. BENNETT.