

(No Model.)

E. C. DUFFY.
YARN REEL.

No. 409,940.

Patented Aug. 27, 1889.

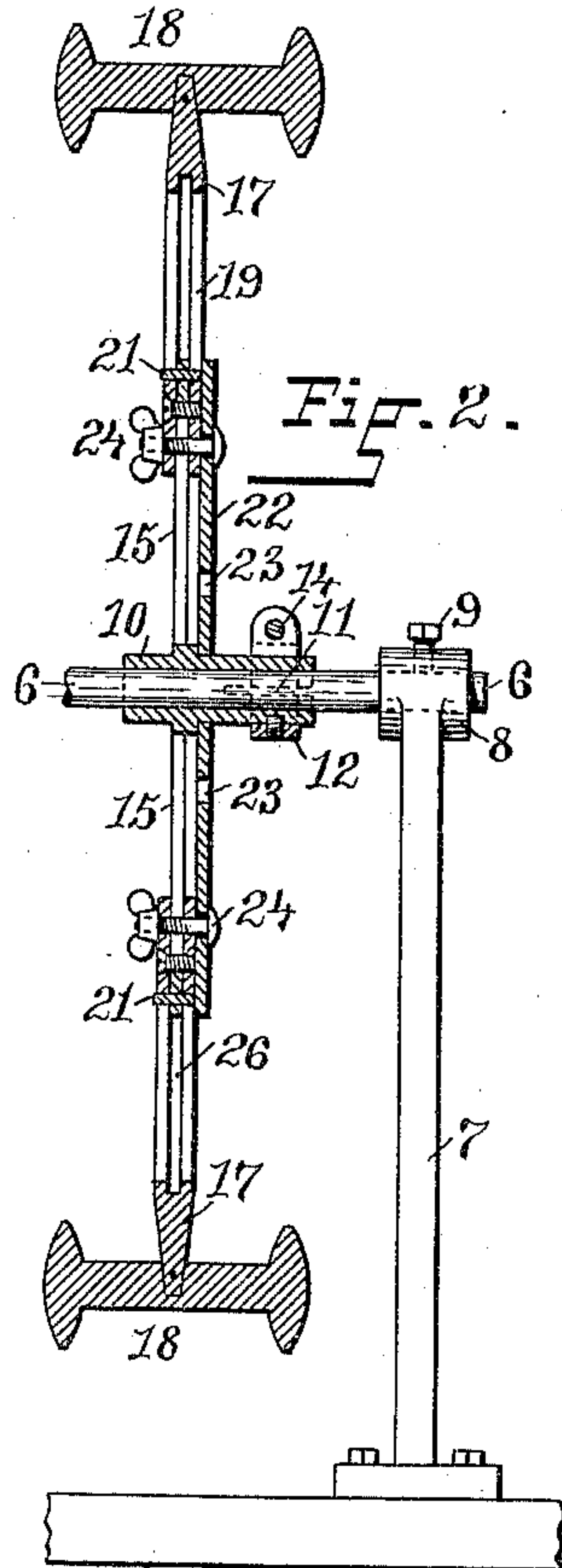
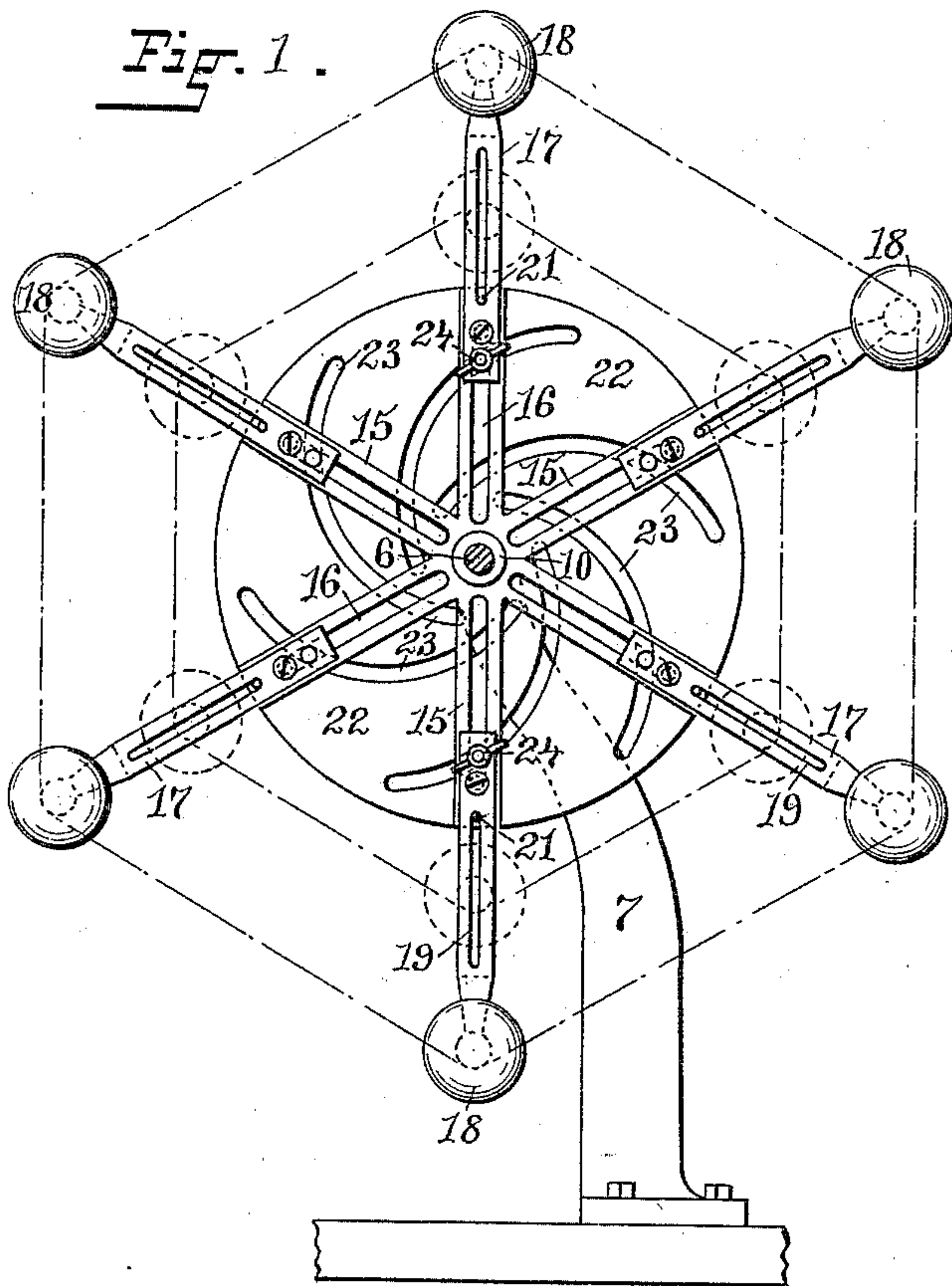


Fig. 3.

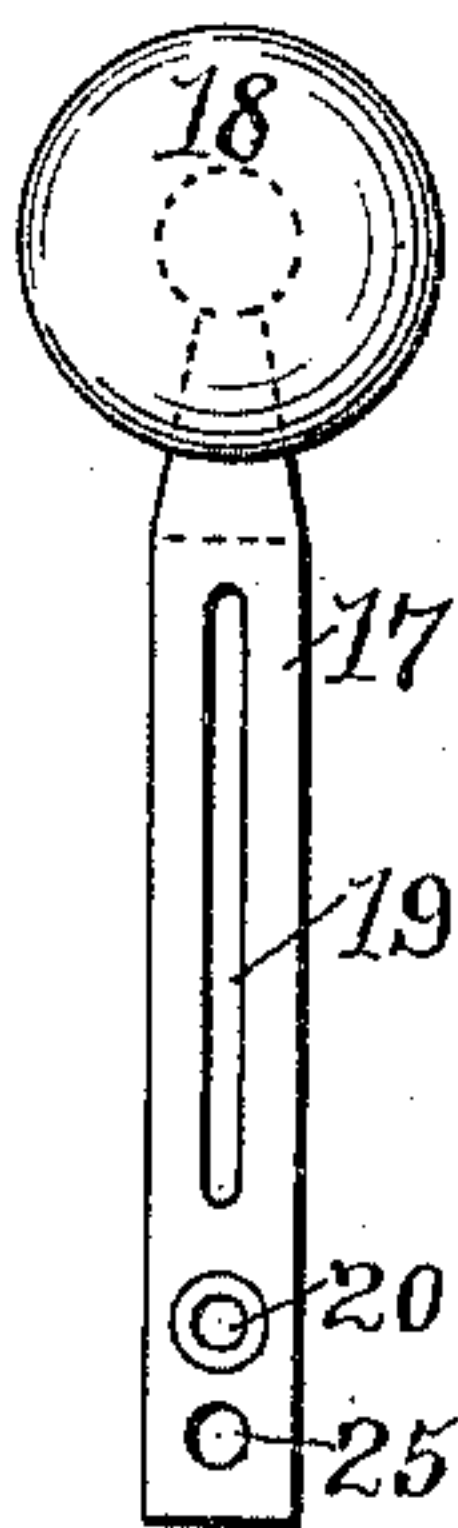


Fig. 4.

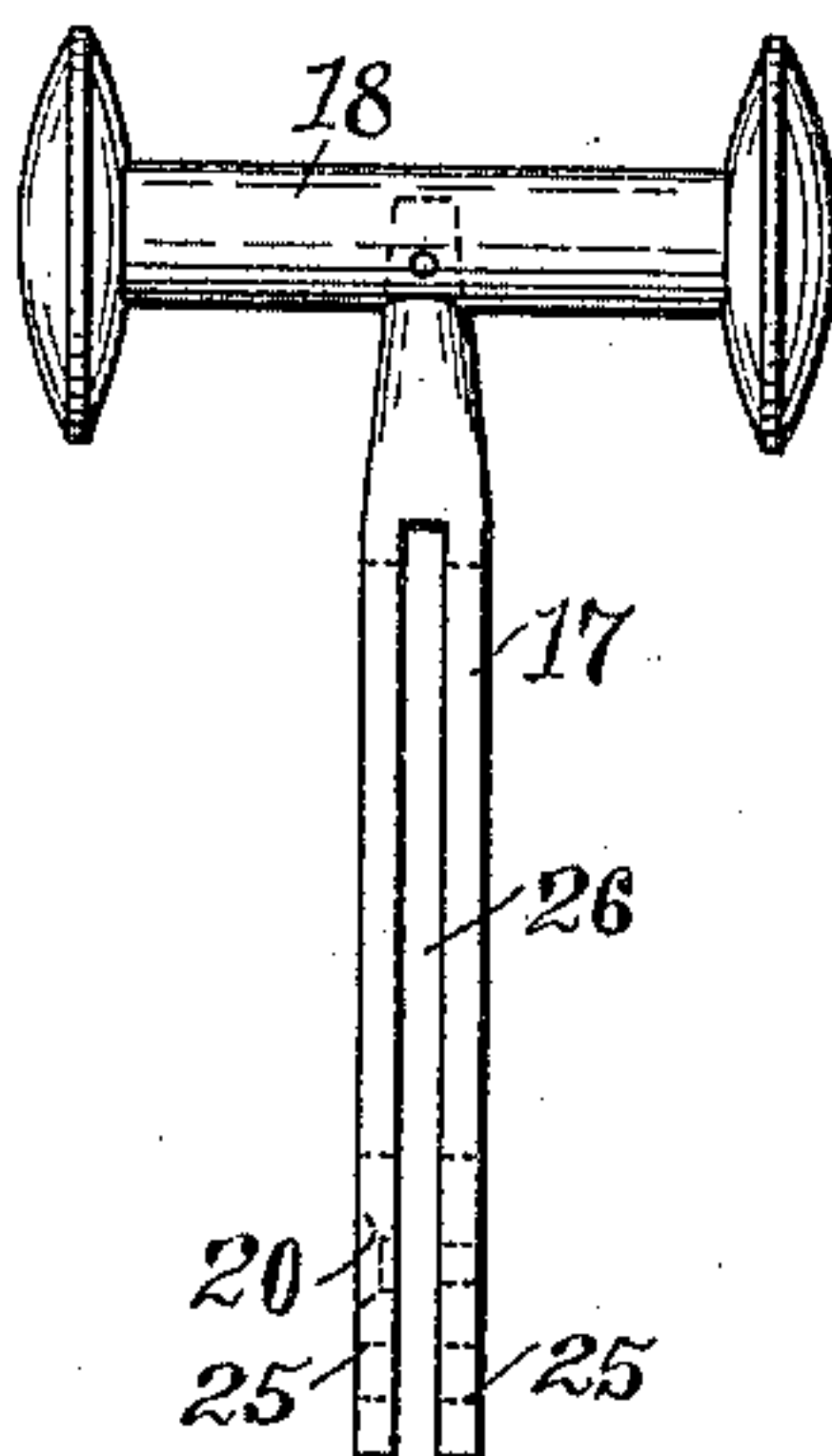
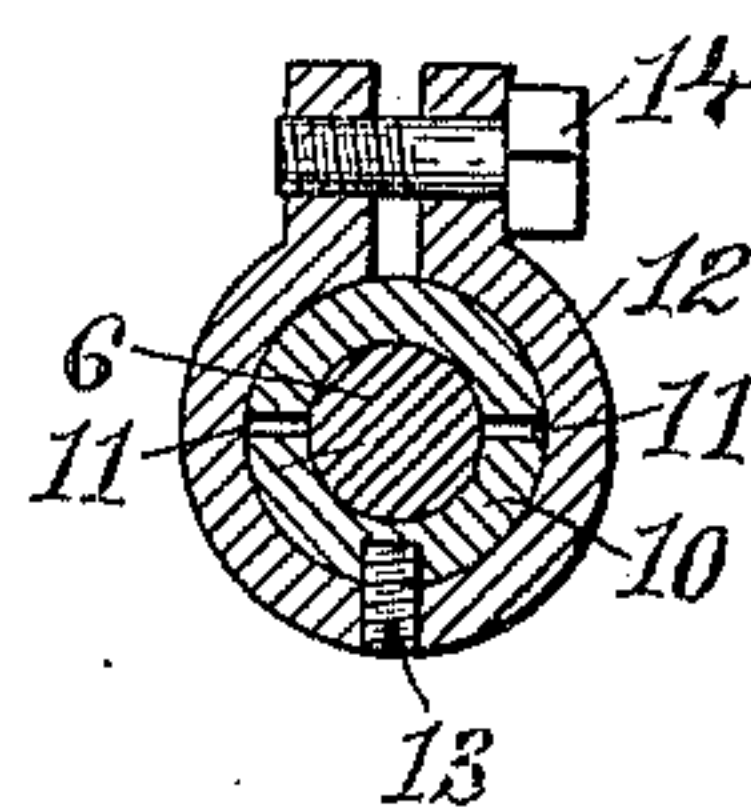


Fig. 5.



WITNESSES:

Chas. H. Luther Jr.
M. F. Bligh.

INVENTOR:

Edward C. Duffy
by Joseph A. Miller & Co
Attys

UNITED STATES PATENT OFFICE.

EDWARD C. DUFFY, OF PAWTUCKET, RHODE ISLAND.

YARN-REEL.

SPECIFICATION forming part of Letters Patent No. 409,940, dated August 27, 1889.

Application filed May 4, 1889. Serial No. 309,636. (No model.)

To all whom it may concern:

Be it known that I, EDWARD C. DUFFY, of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Yarn-Reels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

10 This invention has reference to an improvement in a yarn-reel, by which the adjusting of the skein on the reel is facilitated and the resistance to the revolution of the reel regulated.

15 The invention consists in the peculiar and novel construction of the radial arms forming the reel, the disk by which the outer ends of the arms are simultaneously extended to stretch the skein, and the clamping device by which the rotation of the reel is retarded, as will be more fully set forth hereinafter.

20 Figure 1 is a view of my improved yarn-reel, showing the spools on the ends of the extended radial arms in solid lines, and the position of the spools when the arms are contracted in broken lines. Fig. 2 is a sectional view on a vertical line through the center of the radial arms. Fig. 3 is a front view of one of the extension spool-arms, and Fig. 4 is a side view of the same. Fig. 5 is a sectional view of the clamping device by which the frictional resistance to prevent the too free unwinding of the yarn from the reel is regulated.

35 In the drawings similar numbers of reference designate corresponding parts throughout.

40 The yarn-reel is shown in the drawings supported on the shaft 6, projecting from the upper part of the standard 7. In a hole formed in the boss 8 the shaft is secured and is held against rotation by the clamp-screw 9. The hub 10 is bored out to fit the shaft 6 and turn on the same, the rear portion of the hub 10 being extended beyond the reel and split into two parts by the slit or cut 11. Around this split part of the hub 10 the clamp 12 is placed, and is secured to the hub 10 by the screw 13, so as to rotate with the same. The clamp encircles the split part of the hub and is provided with two projecting ends, through one of which ends the clamp-screw 14 passes and is screw-threaded into the other. By turning the clamp-screw 14 so as to bring the two ends nearer together the split hub is contracted and forced against the shaft 6, so as to bind on the same and cause resistance to the turning of the reel on the shaft, which resistance can be regulated so as to be just equal to the required tension on the yarn.

55 The radial arms 15 extend from the hub 10 and rotate with the same. These arms 15 are each provided with the central slot 16. The extension-arms 17 are provided at their outer ends with the spools 18. As shown in Fig. 4, these extension-arms 17 are bifurcated, so as to allow the radial arms 15 to enter the slots 26. Both of the sides of the arms 17 are provided with the slots 19.

60 The extension-arms 17 are secured to the radial arms 15 by placing the radial arms into the slots 26, passing a screw through each of the countersunk holes 20 and the slots 16 in the radial arms 15, and screwing the same into the threaded holes in the opposite limbs of the bifurcated arms 17, and fixing the pins 21 into the radial arms 15, near their outer ends, so as to extend from the same into the slots 19, thus securing the extension-arms to the radial arms and allowing the same to slide on each other, the pins 21, secured in the radial arms, sliding in the slots 19, and the screws secured in the extension-arms sliding in the slots 16 of the radial arms.

85 Mounted loose on the hub 10 is the circular plate 22, provided with the curved slots or ways 23. The bolts 24 are each provided with a head that bears against the rear face of the plate 22. They pass through the curved ways 23, through the hole 25 in each one of the limbs of the extension-arms 17, through the slots or ways 16 in the radial arms 15, thence through the outer hole 25 in each of the other limbs of the extension-arms 17, and have the outer threaded ends each provided with a thumb-nut, as is shown in Fig. 2. Each of the bolts 24 may be provided with a thumb-nut, so that all the arms may be secured firmly to the plate 22. In practical use I find that if one or two of these bolts 24 are each provided with a thumb-nut, the arms may be secured firmly to the plate 22.

vided with a thumb-nut the rest may be screwed into the outer holes 25 in the extension-arms 17, which holes are threaded for this purpose. The curved slots or ways 23 act as
5 cams against the bolts 24, and as these bolts are secured in the extension-arms 17 the said arms are made to slide outward or inward simultaneously when the plate 22 is turned in
10 one or the other direction, and when any one of the arms is clamped to the plate 22 by the thumb-nut on one of the bolts 24 the plate 22 is held against rotation independently of the radial arms 15. All the bolts 24 are therefore supported in the curved ways 23 at the
15 same distance from the hub.

The operation is as follows: When the skein or skeins of yarn are placed on the spools or bobbins 18 and the spools or bobbins are to be extended so as to exert a strain on the
20 yarn, the plate 22 is turned to the left, while the radial arms are held stationary. By this motion of the plate the curved ways force the bolts 24, and with the same the extension-arms 17, outward, until the desired strain is
25 on the skein, when one or more of the radial arms 15 are clamped to the plate 22 by the thumb-nuts on one or more of the bolts 24. In running the yarn off from the reel it is desirable to have the least possible strain on

the yarn and to have the yarn-reel revolve 30 exactly as fast as the yarn is taken from the same, but under no circumstances faster. By adjusting the clamp 12 on the hub 10 so as to secure the desired frictional resistance the strain on the yarn in unreeling can be ad- 35 justed with great nicety.

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

1. The combination, with the stand 7, shaft 6, the hub 10, and the radial arms 15, provided 40 with the slots 16, of the bifurcated extension-arms 17, adjustably secured to the radial arms, the plate 22, provided with the ways 23, and the bolts 24, one or more of which are provided with thumb-nuts constructed to clamp 45 the arms to the plate, as described.

2. In a yarn-reel, the combination, with the standard and the shaft on which the reel revolves, of the hub of the reel provided with a tubular extension, having the cut 11, clamp 50 12, and regulating-screw 14, the whole constructed to regulate the unwinding of the yarn from the reel, as described.

EDWARD C. DUFFY.

Witnesses:

JOSEPH A. MILLER, Jr.,
M. F. BLIGH.