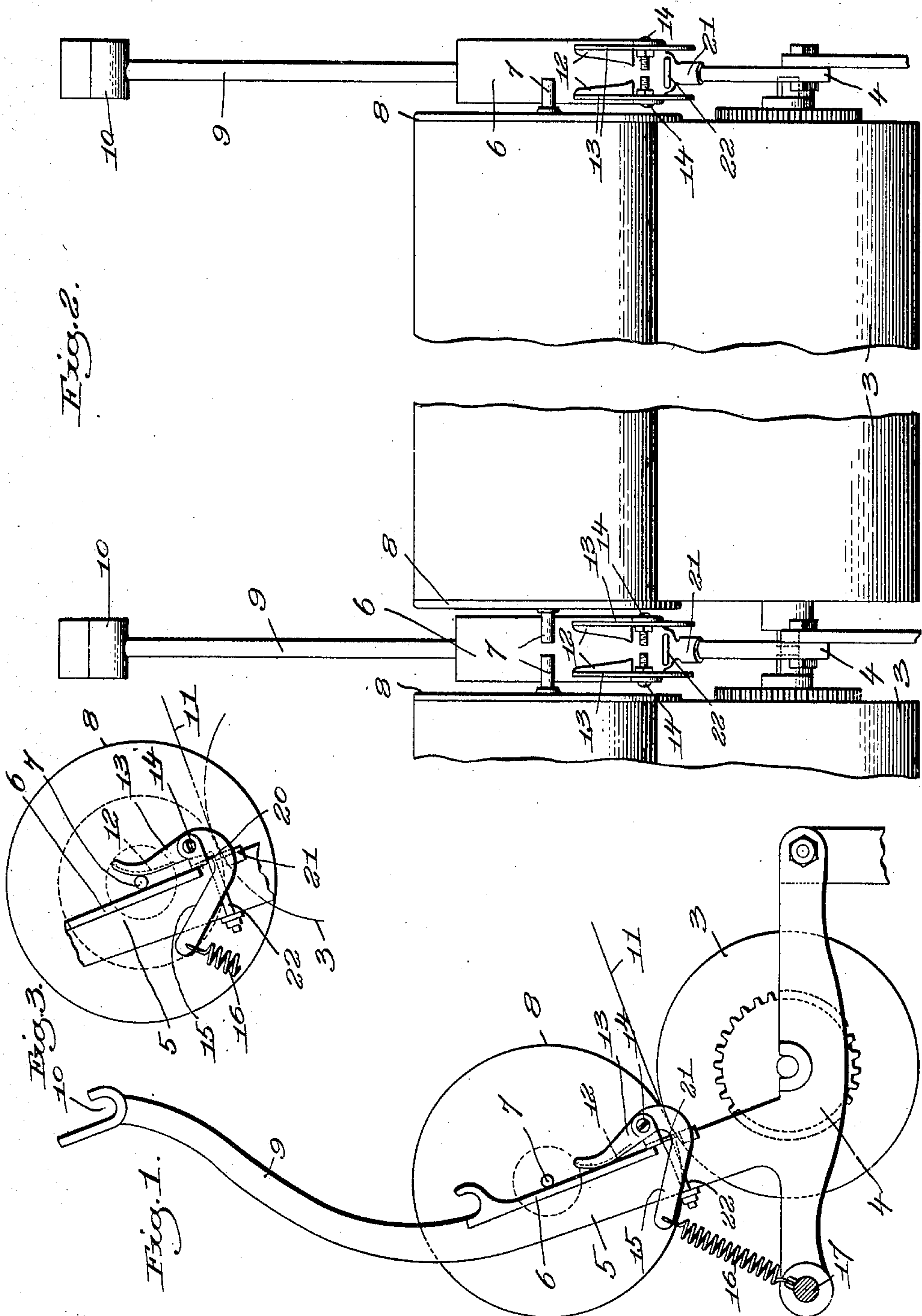


L. T. HOUGHTON.
HOLDING MEANS FOR JACK SPOOLS.
APPLICATION FILED JAN. 2, 1909.

925,811.

Patented June 22, 1909.



Witnesses:
Fred. S. Grumbaf.
Joseph M. Ward.

Inventor.
Lewis T. Houghton,
by Lemly & Mayou attys.

UNITED STATES PATENT OFFICE.

LEWIS T. HOUGHTON, OF WORCESTER, MASSACHUSETTS.

HOLDING MEANS FOR JACK-SPOOLS.

No. 925,811.

Specification of Letters Patent.

Patented June 22, 1909.

Application filed January 2, 1909. Serial No. 470,426.

To all whom it may concern:

Be it known that I, LEWIS T. HOUGHTON, a citizen of the United States, residing at Worcester, county of Worcester, State of Massachusetts, have invented an Improvement in Holding Means for Jack-Spools, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention relates to jacks for spinning and twisting, and particularly to that portion of the jack which sustains the jack spool containing the roving.

Jack spools for jacks are usually provided with spindles or trunnions at their ends which rest on inclined bearing faces formed on the jack and the weight of the spool is taken by a drum which is situated beneath the spool and on which the mass of roving of the spool rests. This drum is positively rotated a certain number of revolutions at each operation of the jack thereby to rotate the jack spool and cause to be delivered therefrom a certain definite length of roving. As the roving is withdrawn from the spool, its diameter diminishes, of course, and when the spool is nearly empty, it will of necessity require a greater number of revolutions of the spool to deliver a certain length of roving than when the spool is filled. As a consequence, whenever a length of roving is drawn off from spools that are nearly empty, such spools rotate at a much higher rate of speed than when the spools are filled. It frequently happens that the speed of rotation of the spools when nearly empty is such that when the desired length of roving is withdrawn therefrom, they will continue rotation and over-run, thus giving up an extra length of roving which is detrimental to the proper spinning of the yarn. It often happens too that when the spool is nearly empty, the operation of drawing roving therefrom dislodges it from its proper position on the drum.

The objects of my present invention are to provide a novel construction whereby a braking effect may be applied to the spool when it is nearly empty so as to prevent over-running thereof, and also to provide such a construction that there will be no danger of the spool becoming dislodged as the roving is withdrawn therefrom.

I have not attempted to illustrate a complete jack in the drawings, but have only

shown that portion thereof with which my invention is concerned.

In the drawings Figure 1 is a side view of a portion of a jack sustaining the feed drum 60 and jack spool; Fig. 2 is a front view of Fig. 1; Fig. 3 is a detail view showing the position of the jack spool when the roving is partially withdrawn therefrom.

The feed drum on which the jack spool 65 rests is shown at 3, and it may be positively driven at proper intervals in any usual manner. It is sustained by the portion 4 of the jack frame in usual manner, and this portion 4 has rising therefrom an arm 5 provided 70 with a bearing surface 6 against which the trunnions 7 of the jack spool 8 rest. The arm 5 is shown as extended above the bearing surface 6, as at 9, and is provided at its upper end with a recess 10 by which an extra 75 jack spool can be supported. The features thus far described are such as are commonly found in jacks and form no part of my present invention.

When a jack is being used the weight of a 80 jack spool is taken by the feed drum 3 and the spool is held in proper position by the engagement of the trunnions 7 with the bearing faces 6. As the roving 11 is withdrawn from the spool during the operation 85 of the jack, the spool, of course, decreases in diameter, and the trunnions 7 will gradually work down the faces 6, as shown in Fig. 3. My invention comprehends the provision of means whereby when the spool is partially exhausted, a retarding influence will be exerted on the jack spool to prevent over-running thereof as the roving is drawn therefrom. This retarding influence or braking effect may be applied to the spool in a variety 95 of ways without departing from the invention. I have herein shown it as applied on the trunnions 7 of the spool, although it is not essential to the invention that it should be applied to this portion of the spool. In 100 the present embodiment of my invention this braking effect is secured by friction members 12 which are adapted to engage the trunnions of the jack spool when the roving is partially exhausted therefrom, said 105 friction members preferably being so arranged that they do not act on the trunnions of a filled spool. I have herein shown these friction members as sustained by fingers 13 pivoted to fixed supports as at 14, 110 each finger having an extension 15 which is acted upon by suitable means, such as a

spring or a weight, that tends to move the friction surface toward the bearing surface 6. Herein I have shown a spring 16 for this purpose, which spring is fastened at one end to the extension 15 and at the other end to a fixed support at 17. I will preferably employ a friction surface 12 and its finger 13 for each trunnion of each spool, although this number is not essential to the invention.

10 In the operation of a jack embodying my invention when a filled spool is placed in the jack it occupies substantially the position shown in Figs. 1 and 2 with the trunnions situated above the friction surfaces 12. As the spool becomes exhausted it moves down the bearing surfaces 6 until the trunnions 7 pass in behind the fingers 13 and engage the friction surfaces 12, as shown in Fig. 3. The spring 16 normally keeps the friction surface 12 against the bearing surface 6, but as the spool descends its weight crowds the friction surface 12 away from the surface 6 sufficiently to admit of the trunnion between said surfaces. When this occurs, the friction surface will be held against the trunnion with a force due to the tension of the spring 16, and thus sufficient friction is applied to the trunnion to prevent the over running of the spool. Another advantage of this construction is that the fingers 13 constitute guards that prevent the spools from being pulled or thrown forwardly away from the bearing surfaces 6 due to a sudden strain or pull on the roving or from any other cause.

The pivots 14 for the fingers 13 may be secured to the arms 5 in any suitable way, either by making the pivots in projections integral with the arms, or by making said pivots in stands 20 which are detachably secured to the arms. It is the latter construction which I have herein shown, these stands each having the base portion 21 which overlies the surface of the arm and which is held thereto by the clip 22. This construction is of especial advantage because it provides for applying the friction devices to jacks already in use.

While I have herein illustrated one embodiment of the invention only, I do not wish to be confined to the construction herein shown.

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

1. In a jack, the combination with a jack frame having an inclined bearing surface for receiving the trunnions, of a jack spool and a feed drum on which said spool rests, whereby the vertical position of the spool varies depending on the amount thereon, and means rendered operative automatically when the spool reaches the position it occupies when partially empty to apply a braking effect on the spool.
2. In a jack, the combination with a jack frame having a bearing surface for guiding the trunnions, of a jack spool and a drum on which said spool rests whereby the vertical position of the spool varies depending on the amount thereon, and means rendered operative when the spool comes into the position it occupies when partially empty to apply friction to the trunnions.
3. In a jack, the combination with a jack frame having an inclined arm provided with a bearing surface for the trunnions, of a jack spool and a drum on which the jack spool rests, of a friction device situated below the position of the trunnions of the spool when said spool is filled but in position to be engaged by the trunnions when the spool is partially empty whereby a braking effect is produced.
4. In a jack, the combination with a jack frame having an arm provided with an inclined bearing surface for a jack spool, a jack spool provided with a trunnion resting on said surface and a drum on which said jack spool rests, of a spring-pressed finger pivoted to said arm and provided with a friction surface to engage the trunnion of the jack spool, said finger being situated below the position occupied by the trunnion when the spool is full but adapted to be engaged by the trunnion as the spool becomes partially empty.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

LEWIS T. HOUGHTON.

Witnesses:

LOUIS C. SMITH,
THOMAS J. DRUMMOND.