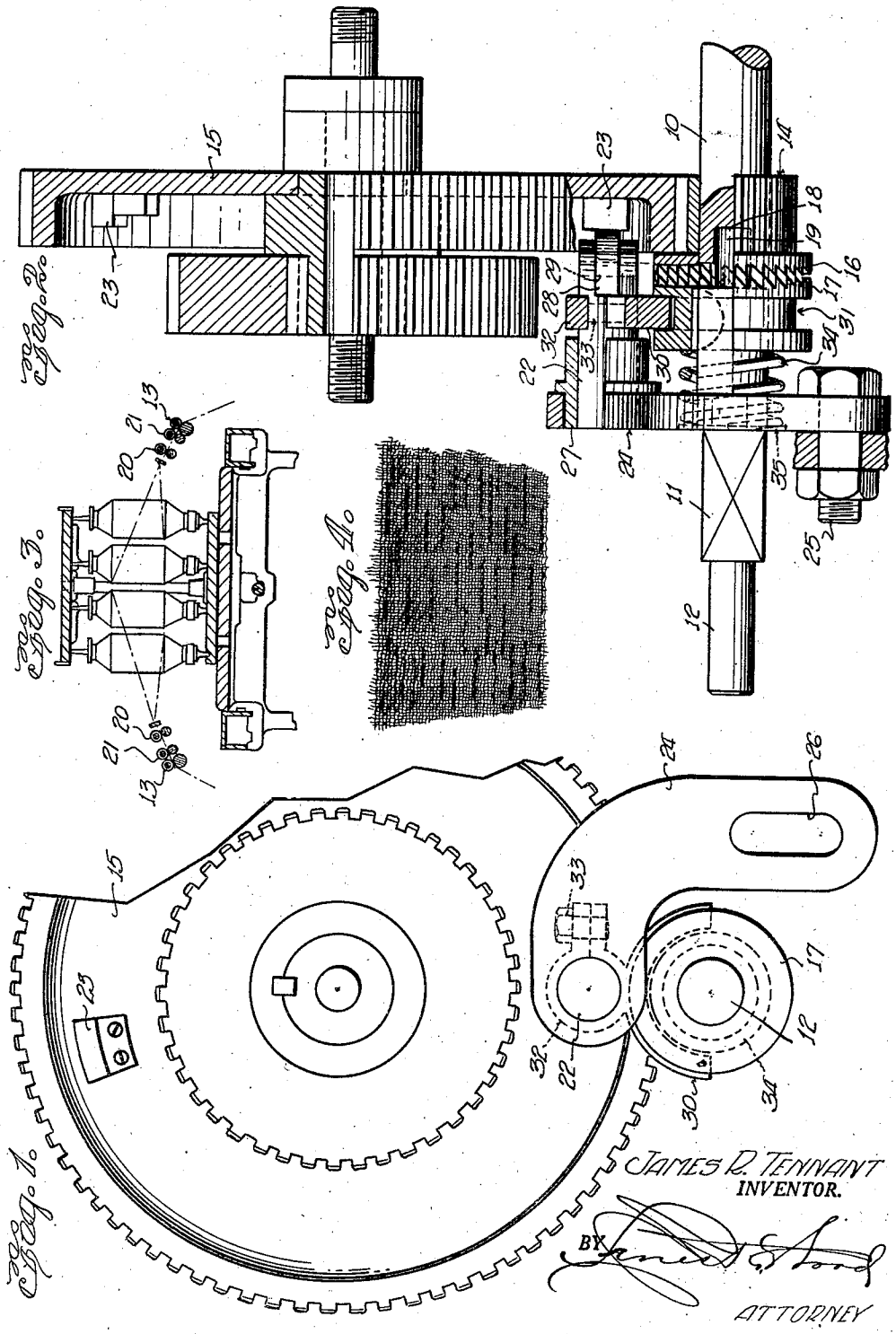
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SLUBBING DEVICE FOR SPINNING FRAMES

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SLUBBING DEVICE FOR SPINNING FRAMES

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2 Claims. (Cl. 57—38)

This invention relates to spinning frames and it has particular reference to slubbing attachments therefor.

The principal object of the invention is to provide a slubbing device of simple and economical construction which will produce a smoother and stronger yarn than heretofore possible and further, a finer gauge yarn can be produced by the present invention without the "cork-screw" effects and irregular diameter of the yarn manufactured through the medium of other and well known slubbing devices.

Another object of the invention is to provide a slubbing device or attachment for spinning frames which is both right and left; has few working parts; is easy to install and operate; requires a minimum amount of attention in operation and is adjustable to take up wear as well as to predetermine the relative spacing of the lumps or slubs produced in the yarn.

With the foregoing objects as paramount, the invention has further reference to certain features of accomplishment which will become apparent as the description proceeds, taken in connection with the accompanying drawing wherein:

Figure 1 is a front elevational view of a slubbing device constructed according to the present invention.

Figure 2 is a side view thereof, partly in vertical section.

Figure 3 is a diagrammatic view of a single roving creel, and

Figure 4 shows a swatch of fabric produced from slubbed yarn.

Continuing with a more detailed description of the drawing, reference is primarily made to Figure 2 wherein 10 denotes the prime mover shaft for operating the draft gearing of a spinning frame. On the inner shaft 11 is formed a spindle 12 which engages and operates the front roll 13 (see Fig. 3), and which is the only one of the roll assembly affected to produce the results sought by the invention, to become manifest presently.

Mounted on the prime mover shaft 10 is a pinion 14 whose teeth engage those of a crown gear 15 to drive the same. The pinion 14 has a clutch element 16 affixed thereto or formed integrally thereon, which cooperates with a companion clutch element 17. The prime mover shaft 10 is provided with an axial bore 18, adapted to receive the reduced end 19 of the inner shaft 11 so that the shaft 10 may rotate independently of the shaft 11.

There are several types of slubbing devices in use, some of which produce the slubbing effect in the yarn by speeding up the rear roll 20 (Fig. 3). It has been found that this practice imposes a tensional stress upon the yarn to such degree that it is not only drawn out and materially weakened thereby, destroying its uniform diameter but also a twist is produced therein which manifests itself in the ultimate fabric product, of necessarily coarser texture, due to these characteristics in slubbing.

The present invention obviates the foregoing objectionable characteristics by intermittently starting and stopping the front roll 13 at predetermined intervals, which imposes no strain on the yarn. During the momentary inactive intervals of the roller 13, a slackening in the normal tension of the yarn is permitted between this roller and the intermediate roller 21. When the roller 13 resumes rotation, the slackened length of yarn, in proceeding between the front roller and the companion bottom roller, is formed into a lump or slub which produces the novel effect sought in the filler of the finished fabric.

In order to start and stop the front roller 13 with precision, the sliding clutch element 17 is caused to move into and out of engagement with the companion element 16 which is driven by shaft 10. Preferred among many possible arrangements for so actuating the clutch is a plunger 22, operated by lugs 23 affixed to the face of the crown gear 15 and spaced apart.

To support the plunger 22, an arm or bracket 24 is provided, which is secured at some suitable stationary point on the frame of the machine by means of a bolt 25. Provision is made for adjustment of the position of the arm 25 in the slot 26 through which the bolt 25 passes. A bronze bushing 27 is secured in the head of the arm 24, serving as a bearing for the plunger and in which the latter reciprocates. The inner end of the plunger carries a roller bearing 28, operating on a pivot shaft 29 and against which the lugs 23 engage as the crown gear 15 rotates.

Obviously, as the lugs strike the roller 28 on the plunger, the latter is constrained to yield longitudinally, and in so doing, causes the sliding clutch element 17 to retract from the companion element 16 with which it is engaged. This action is brought about through the yoke 30, reposing in an annular groove 31 about the clutch element 17, and provided with a split collar 32 by which it is secured, by means of a screw 33, to the plunger 27.

Resisting movement of the clutch element 17,

as above explained, is a coil spring 34, surrounding the inner shaft 11. This spring is disposed between the clutch element 17 and a shoulder 35 on the shaft 11.

Should any fatigue occur in the spring 34 after a long period of operation, the arm 24 may be moved on its mounting to impose greater tension thereon from time to time with little effort. Moreover a change in the number and spacing of the lugs on the crown gear will be effective to change the starting and stopping intervals of the roller 13 and the effects thereof will be reflected in the finished product.

The device shown is adapted for operation on the left side of a spinning frame and the same device, equipped to function on the right side of such machine would differ only to the extent that the pitch of the clutch teeth would be reversed and the arm 24 would be on the side of the shaft 11 from that shown.

It is believed that the foregoing includes sufficient reference to the mode of operation of the invention and the result as to render a separate description of operation unnecessary.

Manifestly, the construction as shown and described is capable of some modification and such modification as may be construed to fall within the scope and meaning of the appended claims is also considered to be within the spirit and intent of the invention.

What is claimed is:

1. In a yarn slubbing attachment for a spinning frame, the combination comprising a prime mover shaft, roll assembly and draft gear, a pinion on said shaft engaging said draft gear and carrying a clutch element, an arcuate arm adjustably mounted adjacent to and overreaching said shaft, a companion clutch element reciprocably mounted on said shaft, a compression spring normally holding said latter clutch element in engagement with said first clutch element, a plunger supported by said arm at right angles to said draft gear, a fork carried by said plunger for actuating said reciprocable clutch element against the resistance of said spring, a roller on an end of said plunger and means carried adjustably by said draft gear, periodically engaging said roller to actuate said plunger to effect reciprocation and consequent disengagement of said latter clutch element with said first element.

2. In a yarn slubbing device for spring frames, the combination comprising a prime mover shaft operating the roll assembly of said frame, a pinion on said shaft, a draft gear driven by said pinion, a clutch element affixed to said pinion, a companion clutch element on said shaft, a spring urging said companion element into engagement with said first clutch element, a plunger parallel with said prime mover shaft, a fork carried thereby and engaging said companion clutch element, a roller on the inner end of said plunger and means adjustably mounted on said draft gear, periodically engaging and reciprocating said plunger to correspondingly actuate said companion clutch element to periodically suspend rotation of one roll of said roll assembly.

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