

April 5, 1932.

E. D. RHODES

1,852,027

CREEL

Filed Dec. 19, 1927

3 Sheets-Sheet 1

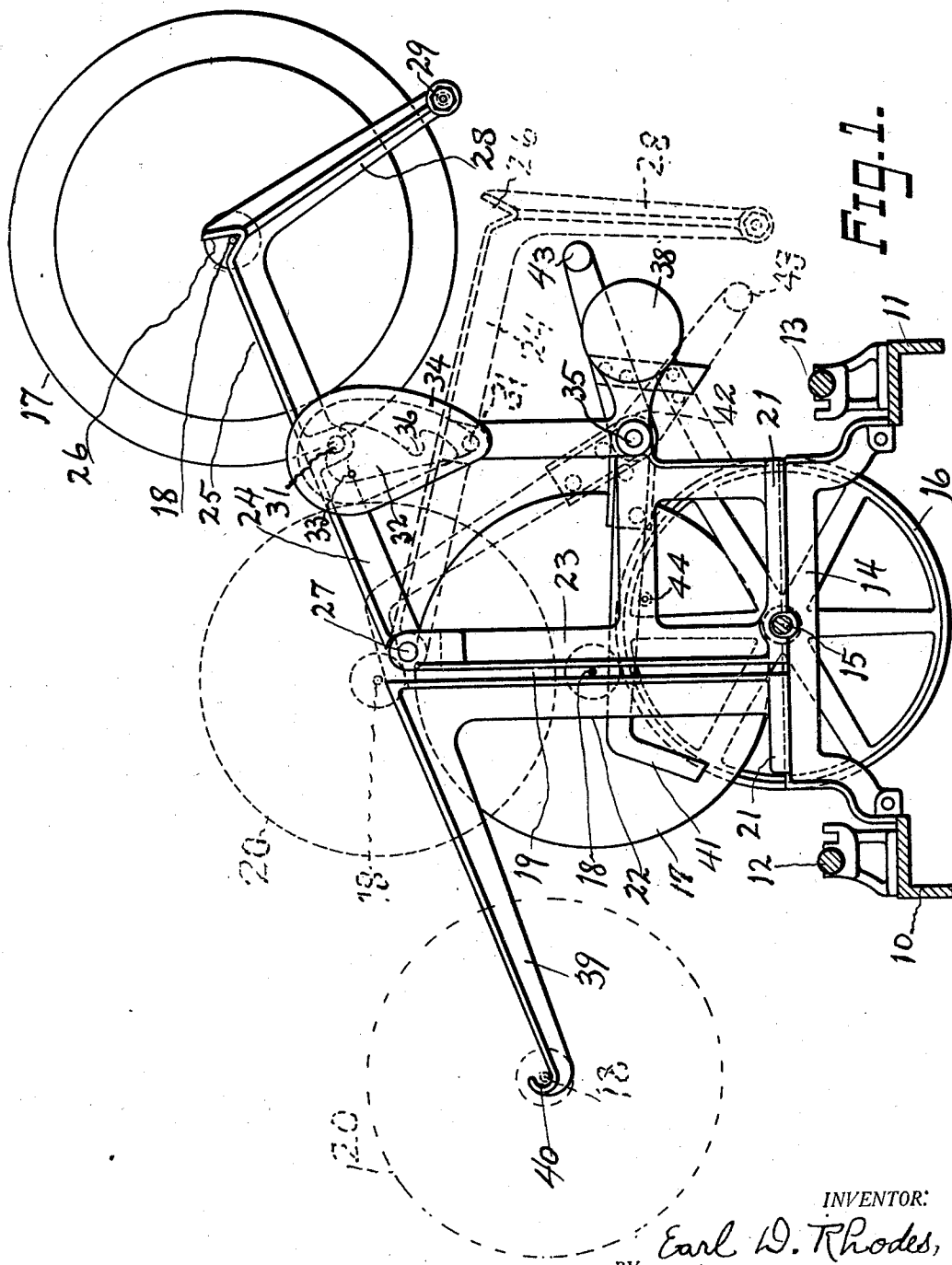


Fig. 1.

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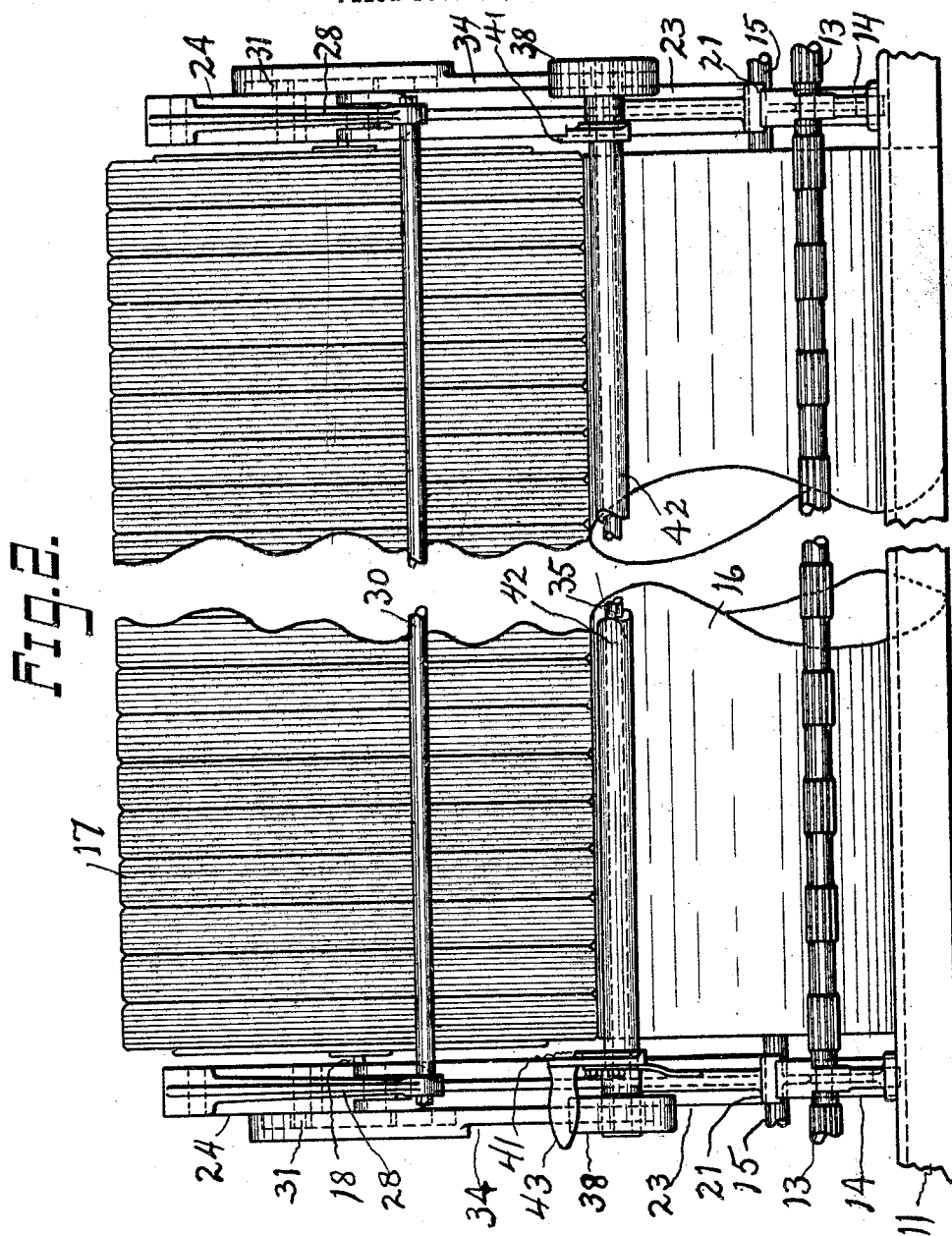
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3 Sheets-Sheet 2



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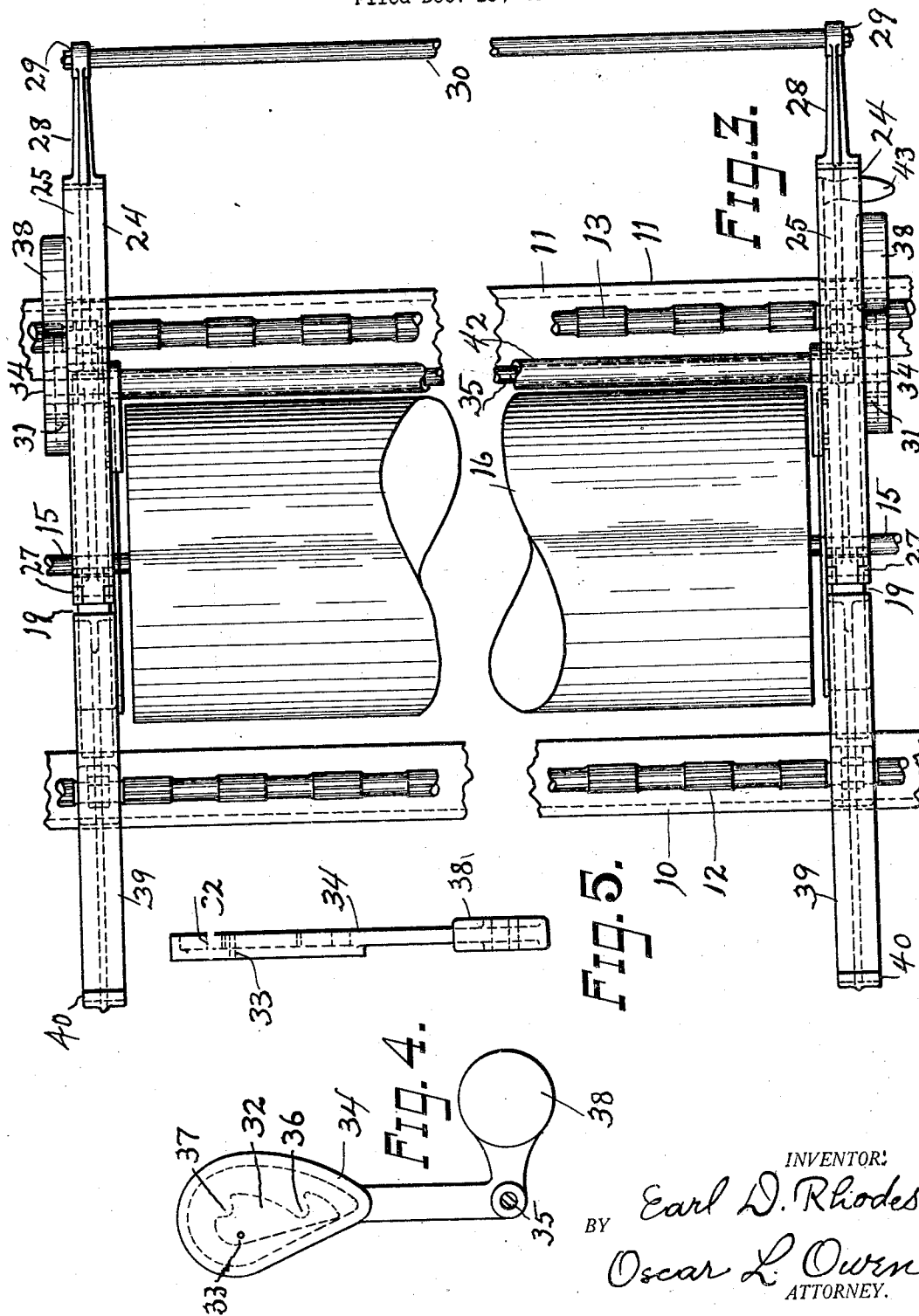
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UNITED STATES PATENT OFFICE

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CREEL

Application filed December 19, 1927. Serial No. 240,947.

My invention relates to creels used on spinning machines, in which the roving that is to be spun into yarn is contained on large spools or beams. These spools, when full of roving, are so long and cumbersome that it requires considerable exertion on the part of the operator to properly place a spool in its normal operative position in the supporting creels above the driving drum of the machine.

It is one of the objects of the invention to provide means for readily removing an empty spool from its position on the driving drum and for depositing it in holders, whence it may subsequently be removed by the operator.

Another object of the invention is to provide means for placing a full spool in its usual operative position on the driving drum, with a minimum amount of exertion on the part of the operator.

These objects are attained by the construction that is illustrated in the accompanying drawings, in which:

Figure 1 is a sectional end elevation of a portion of the upper part of a spinning machine, showing the roll beams and driving drum, an empty roving spool in position on the drum, and a full spool supported by my improved creel construction;

Fig. 2 is a side elevation of one section of a spinning machine showing the driving drum and a full spool mounted thereon between two creel stands;

Fig. 3 is a plan view of the mechanism shown in Fig. 1, with the spools removed;

Fig. 4 is an end elevation of the spool latch holder and its counterbalance arm; and

Fig. 5 is a side view of the same.

It is to be understood that in the type of spinning machine to which my invention is particularly adapted there are a plurality of driving drums, one for each roving spool, said spools having heads which overhang the ends of the drum, and the periphery of the drum being in contact with the roving. For the purpose of explaining my invention only one drum or section is shown in the drawings.

Referring to the drawings, 10 and 11 (Fig.

1) are oppositely disposed frame members or beams, on which are mounted the stands supporting the delivery rolls 12 and 13 of the machine. The beams also support bridge stands 14 on which are mounted the bearings in which the journals 15 of a driving drum 16 are rotatable. A roving spool 17 is maintained in operative position on top of the drum 16 by means of trunnions 18 projecting from both ends of the spool and co-acting with vertical guideways 19 formed in creel stands 21, the bases of which are fixedly mounted on the top of the bridge stands 14 at each end of the drum 16.

Each creel stand 21 comprises a base, an empty spool supporting upright 22, and a full spool supporting upright 23, with the spool retaining guideways 19 formed between them. A spool replenishing arm 24, having a flat upper surface 25 terminating in a V shaped notch 26, is swingably mounted on a fulcrum pin 27, at the top of each full spool supporting upright 23. These arms 24 are spaced apart a sufficient distance to allow a spool inserted between them to freely rotate on its trunnions when held in the notches 26. Extending downwardly from the notched portion of each of these arms 24 is an extension 28, the lower end of which is provided with a hole 29 in which a cross rod 30 is fixed. The two arms 24 are thus rigidly held together, whereby the operator can swing the arms, with a full spool 17 thereon, to any predetermined position, as indicated by full and dotted lines in Fig. 1.

Projecting from the outer side of each replenishing arm 24, intermediate the trunnion notch 26 and fulcrum pin 27, is a stud 31 co-operating with a latch 32 swingably mounted on a stud 33, said stud being fixed to the inner side of a supporting lever 34, which in turn is fixed to a shaft 35, swingable in bearings on the creel uprights 23. The latches 32 are provided with notches 36 and 37 for the reception of the studs 31 in the various positions of the replenishing arms. The latches are maintained against the studs by the counterbalancing weights 38.

Projecting from the top of each upright 22 is an inclined arm 39, terminating in a hook

40, said hooks serving as holders for the trunnions of an empty spool before its final removal from the machine.

In order to facilitate the removal of an empty spool 20 from its position on the drum, I provide spool lifting arms 41 mounted at each end of a shaft that is in a swingable relation with the creel uprights. Preferably these arms 41 are attached to a hollow shaft 42 (see Fig. 2), loosely pivoted on the latch holder shaft 35. The free ends of the arms 41 extend beneath the spool trunnions 18 and rest on stop pins 44. The operator swings the arms 41 by means of a handle 43 fixed to the shaft 42, so that the empty spool is lifted up and the trunnions 18 are raised out of their guideways 19 in the creel, whereupon the spool rolls by gravity down the inclined ways 39 into the receiving hooks 40.

In the operation of removing an empty spool and replacing with a full one, the operator first places the trunnions of a full spool in the notches of the replenishing arms 24 when at their lowest position (shown in dotted lines in Fig. 1). He then swings the arms upward till the pins 31 catch in the upper notches 37 of the latches 32. Then he actuates the empty spool remover until the trunnions 18 leave the guideways 19 and roll down to the hooks 40 on the arms 39. Then he pushes the trunnions of the full spool out of the V-shaped notches 26 and the full spool rolls or slides by gravity down the inclined surfaces 25 to the guideways 19.

By this construction, the removal of an empty spool and its replacement by a full one is easily accomplished by one operator, whereas in machines as at present constructed, this work often requires the services of two operators. In order to return the arms 24 to their initial lower position, the operator merely raises the arms until the studs 30 pass above the pawls 32 which then swing outward with the weighted levers 34, permitting the studs 31 to pass downward at the rear of the pawls 32.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:—

1. In a spinning frame, a driving drum, a yarn spool, means to rotate said yarn spool in operative relation to said drum, said retaining means and said yarn spool being relatively movable to permit a gravity-actuated movement of said spool toward said drum as the yarn is unwound from said spool, and a supporting structure movably mounted on said spinning frame and effective to receive and support a full yarn spool as it is presented and elevated to reserve position and also effective to retain said elevated yarn spool in reserve position and to guide said

elevated yarn spool to operative position on said driving drum.

2. In a spinning frame, a driving drum, a yarn spool, means to retain said yarn spool in operative relation to said drum, said retaining means and said yarn spool being relatively movable to permit a gravity-actuated movement of said spool toward said drum as the yarn is unwound from said spool, a support for a full yarn spool, manually movable to raised position with said spool, and means to hold said support in such raised position after manual elevation thereof, said support having guiding portions along which said spool is movable by gravity to operative relation with said drum.

3. The combination in a spinning frame as set forth in claim 2, in which the means for holding the support in raised position is releasable by further upward movement of said support.

4. A spinning frame, a driving drum, a yarn spool having projecting trunnions, frame members having substantially vertical guideways for said trunnions, said frame members and said trunnions being relatively movable to permit gravity-actuated movement of said yarn spool toward said drum as the yarn is unwound therefrom, guiding members associated with said guideways and pivoted to said spinning frame, said guiding members being manually movable to raised position after a full yarn spool has been placed thereon, and means to hold said members in raised position, said guiding members being inclined downwardly toward said guideways when in such raised position so that a full yarn spool may be advanced by gravity to said guideways along said guiding members.

5. The combination in a spinning frame as set forth in claim 4, in which means is provided for releasing said guiding members by further upward movement thereof.

6. The combination in a spinning frame as set forth in claim 4, in which latches are provided to hold said guiding members in raised position, said latches being releasable by further upward movement of said members.

In testimony whereof I have signed this specification.

EARL D. RHODES.