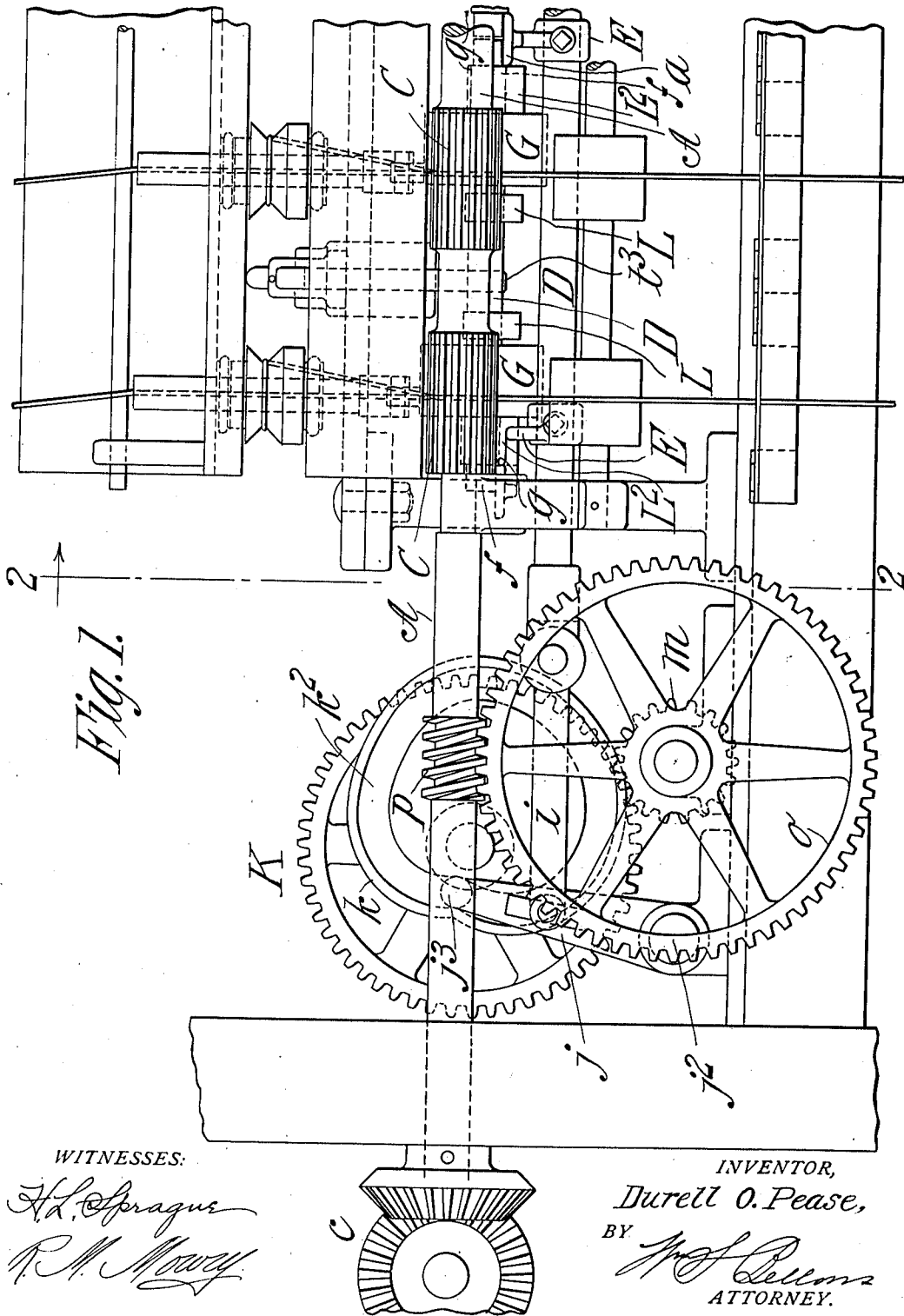


1,031,464.

D. O. PEASE.
SPINNING MACHINE.
APPLICATION FILED DEC. 14, 1909.

Patented July 2, 1912.

2 SHEETS—SHEET 1.



WITNESSES:

H. L. Sprague
R. M. Moway

INVENTOR,

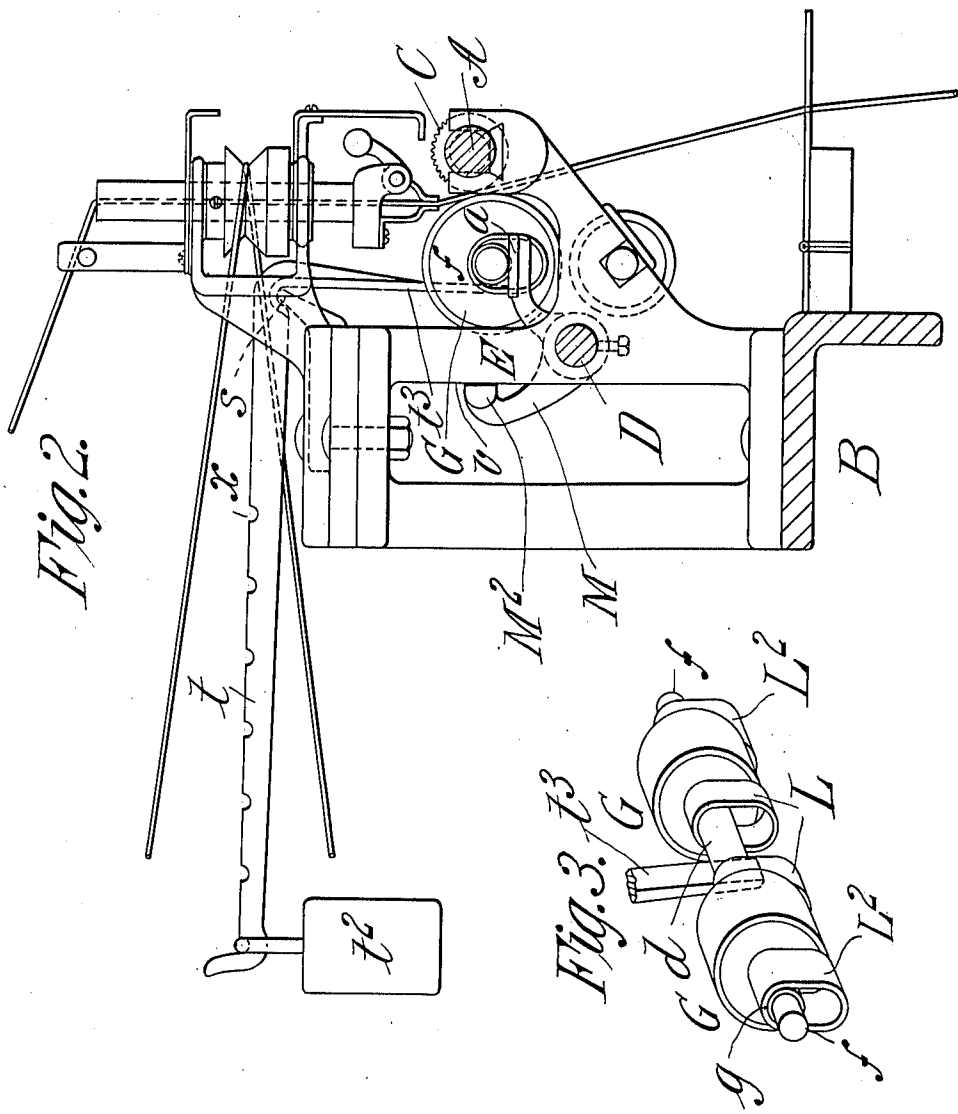
Durell O. Pease,

BY

J. J. Deane
ATTORNEY.

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WITNESSES:
H. L. Sprague
R. M. Mowry

INVENTOR,
Durell O. Pease,
 BY *M. J. Bellom*
 ATTORNEY.

UNITED STATES PATENT OFFICE.

DURELL O. PEASE, OF HAMPDEN, MASSACHUSETTS.

SPINNING-MACHINE.

1,031,464.

Specification of Letters Patent.

Patented July 2, 1912.

Application filed December 14, 1909. Serial No. 533,020.

To all whom it may concern:

Be it known that I, DURELL O. PEASE, a citizen of the United States of America, and resident of Hampden, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Spinning-Machines, of which the following is a full, clear, and exact description.

This invention for improvements in spinning machinery, more particularly pertains to the portion thereof comprising the drawing rolls.

One object of the invention is to so mount or support and actuate one set of the drawing rolls which is companion to the driven set of drawing rolls as to insure a gradual reciprocatory movement of the companion drawing rolls on the line of its axis so that the roving or yarn brought between the rolls on fixed lines will be without capability of causing a wearing or grooving at one part of the peripheral face of such rolls, which latter usually are "topped" or leather covered.

Another object is to provide particular improved means whereby the drawing rolls, which are companion to the driven rolls, may be most advantageously mounted so that they not only have capabilities for their freest possible rotation, but are also capable of bodily movement transversely of their axes with and against the resistance of a yielding pressure member,—such rolls being also necessarily endwise moved in unison with their supports for their "traverses" in relation to the drawing rolls which are positively driven, and furthermore having the capability of being readily removed from their relations to the driven rolls as necessity or convenience in the management of the spinning machine may require.

The invention is described in conjunction with the accompanying drawings and set forth in the claims.

In the drawings:—Figure 1 is an elevation of a portion of the front of a spinning machine in which the present improvements are comprised; Fig. 2 is a transverse section and sectional elevation as shown on the line 2—2, Fig. 1; Fig. 3 is a perspective view of an arbor-united pair of the drawing rolls and certain other parts in engagement therewith.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, A represents a shaft ranging horizontally along the front of the frame B of the spinning machine, the same being mounted in suitable supports and bearings to be rotated by any suitable means, as by gearing *c*, said shaft having drawing rolls C C formed as one therewith or rigidly affixed thereto, these rolls being preferably longitudinally grooved or fluted.

Behind and somewhat below the shaft for the drawing rolls C C is a bar D understood as ranging, usually, across the entire front of the spinning machine, horizontally and parallel with the drawing roll shaft A; and this bar is endwise movable in the bearings in which it is horizontally supported. This bar here represented as round in cross section is also capable of a degree of rocking movements. The said bar D is provided with suitable intervals with brackets E E rigidly affixed thereto, such brackets extending upwardly and forwardly and having flat top portions *a* near the level of and just behind the axis of the roll carrying shaft A.

G G represent separated drawing rolls, in pairs, each pair thereof being united by an arbor *d* and having outside thereof oppositely projecting journals *f* with shoulders *g* between their ends and the outer faces of the rolls, said journals *f* having supporting bearings on the tops of the brackets E E,—so that they may both rotate and also roll on the brackets toward, and rearwardly away from, the drawing rolls C C to which they are respectively provided as companions. The shoulders *g g* have engagements against the sides of the brackets so that any axial motion of the arbor-united pair of the drawing rolls G G is prevented. The length of the portions of the journals between their outer end and the shoulders is equal to one-half, or a little less than one-half, of the width of the supporting top portion of the bracket; and the journal constituting end portions of the arbors of two of the drawing rolls G G have transverse extensions across one half, or a little less than one half, of the supporting tops of two of the brackets; and it will, of course, be understood that the endwise reciprocation or "traverse" of the bracket carrying bar D will cause correspondingly a bodily reciprocation of the

arbor-united pairs of the drawing rolls G G which are supported on and have the shoulder engagements as above described with the upper supporting portions of the brackets which are unitary with said bar.

As a means for imparting the suitably slow reciprocatory movement to the bracket provided and drawing roll supporting bar D, the said bar at its end, and adjacent one end of the machine, has a link i connected thereto and also to a lever j which at one end is fulcrumed on a pivot j^2 while its other end is provided with a stud or roller j^3 which engages in the groove k^2 of a cam k which is made as one with a spur gear wheel K; the said gear wheel K is driven by a pinion m connected with a worm wheel o in mesh with which is a worm p mounted on any suitable driven rotary shaft of the machine as, for instance, the one A carrying the fluted drawing rolls C C.

The bracket supported arbor united drawing rolls G G are yieldingly forced forwardly against the drawing rolls C C or against the stock to be drawn passing between companion sets of rolls by means as follows: Angular levers are provided having a fulcrum s for the support thereof at their elbows, the approximately horizontal arm t of each lever having a weight t^2 adjustable thereon while the depending member t^3 of each lever has a forcing engagement behind and against the uniting arbor for two of the rolls at an intermediate point in the length of the arbor.

A pair of endless bands or belts, L L which may be of leather, metal, or any suitable material, are suspended from the uniting arbor of each pair of the rolls G G, as represented in Fig. 3. These have their locations between the inner faces of the rolls and the depending lever member t^3 in bearing against the arbor, and so as to be engaged by, or to be brought to engagement with, the depending lever member in case they should creep away from the inner faces of the rolls by reason of the relative movements which the arbor united traverse rolls have relatively to the lever member t^3 , and thus the said endless bands will practically always be in close relation to the inner perpendicular sides of the rolls G to efficiently serve as guards not only to prevent the broken ends of the sliver or roving from coming in contact with the arbor to be wound up therearound but also to prevent the stock from becoming oiled or greased by reason of more or less material of lubricating character which cannot practicably be prevented from having a presence on the roll uniting arbor. It may be stated that incidentally the endless band will have a slow creeping motion around the arbor in the direction of its rotation, but this motion is not of sufficient rapidity as to impair the ac-

tion of the bands for their service as guards. Endless bands L^2 , L^2 , similar to those L, are also provided in suspension on the portions of the roll journals between the outer faces of the rolls and the shoulder g , their retention in their positions as guards next to, but outside of, the rolls, being insured by their edgewise engagements with the rolls, and the lateral edges of the bracket tops.

The improved yarn guard described and shown constitutes the subject matter of a separate application for patent of the United States filed by me May 12, 1910, No. 560,823.

The bracket provided reciprocating bar D which is also susceptible of a degree of rocking movement, has such rocking movement limited to prevent the brackets from swinging forwardly and downwardly to carry the bracket supporting tops out of their truly or approximately horizontal positions by a substantially radial arm M having a transverse stop member M^2 which is always within range for engagement with a suitable upstanding part as the one v of the machine frame.

While the bar D might be of squared formation or splined through its bearing supports, the simple provision of the arm M provided with the frame engaging member M^2 is a simpler and less expensive expedient for the slow endwise strokes of the bar with the utmost freedom.

I claim:—

1. In a spinning machine, in combination, a set of alined drawing rolls, mounted for rotation on a fixed axis, and companion rotatable drawing rolls alongside the first named rolls, supporting means for the second set of rolls on which they are mounted for bodily movements relatively to the rolls of the first set, but relatively to which they are restrained against axial movements, means for yieldingly forcing the rolls of the second set against those of the first set, and means for reciprocating the supporting means for the second set of rolls on the line of axis of such rolls.

2. In a spinning machine, in combination, a set of alined drawing rolls mounted for rotation on a fixed axis, rotatable drawing rolls alongside the first named rolls, a bar endwise movable parallel with the axes of the drawing rolls having brackets affixed thereon on which the rolls of the second set are rotatably mounted in restraint against endwise movements relatively to such brackets, but relatively to which latter they are transversely movable, means for forcing the second named rolls yieldingly against the first named rolls, and means for reciprocating the said bracket carrying bar in a line parallel with the axis of the drawing rolls.

3. In a spinning machine, in combination, a set of alined drawing rolls rotatable on a

fixed axis, a reciprocatory bar axially parallel with said rolls, having affixed upstanding brackets at intervals of its length, spaced drawing rolls in pairs having an arbor between and uniting them and having, outside thereof, oppositely projecting journals with shoulders between their ends and the outer faces of the rolls, said journals having supporting bearings on the tops of the brackets and axial-motion-preventing engagements by their shoulders against the sides of the brackets, means for forcing the bracket supported rolls yieldingly against the first named rolls, and means for reciprocating the bracket provided bar.

4. In a spinning machine, in combination, a set of alined drawing rolls rotatable on a fixed axis, a reciprocatory bar axially parallel with said rolls, having affixed upstanding brackets at intervals of its length, spaced drawing rolls in pairs having an arbor between and uniting them, and having, outside thereof, oppositely projecting journals with shoulders between their ends and the outer faces of the rolls, said journals having supporting bearings on the tops of the brackets and axial-motion-preventing engagements by their shoulders against the sides of the brackets, angular levers having weights on their substantially horizontal members, and having their depending members in forcing engagements against the roll uniting arbors, and means for reciprocating the bracket provided bar.

5. In a spinning machine, in combination, a set of alined drawing rolls mounted for rotation on a fixed axis, rotatable drawing rolls alongside the first named rolls, a bar

endwise movable parallel with the axis of the drawing rolls having brackets affixed thereon on which the rolls of the second set are rotatably mounted in restraint against endwise movements relatively to such brackets, but relatively to which latter they are transversely movable, means for forcing the second named rolls yieldingly against the first named rolls, a rotary cam, a lever engaging and reciprocated by the cam, and a link connecting the lever and the bracket carrying bar.

6. In a spinning machine, in combination, a set of drawing rolls and a driven shaft by which they are carried, rotatable drawing rolls alongside the driven rolls, a bar, endwise movable parallel with the axis of the drawing rolls, having brackets affixed thereon on which the rolls of the second set are rotatably mounted and restrained against endwise movements, means for forcing the second named rolls yieldingly against the driven rolls, a grooved cam having a gear wheel affixed thereto, a worm wheel having a pinion connected thereto and in mesh with the gear wheel of the cam, a worm, on the shaft of the driven drawing rolls, in mesh with the worm wheel, a lever having a stud engaging in the groove of the cam and a link connecting the lever and the bracket carrying bar.

Signed by me at Springfield, Mass., in presence of two subscribing witnesses.

DURELL O. PEASE.

Witnesses:

WM. S. BELLOWES,
G. R. DRISCOLL.