

Feb. 14, 1956

P. T. BODELL

2,734,232

APPARATUS FOR DRAFTING TEXTILE FIBERS

Filed July 10, 1952

2 Sheets-Sheet 1

FIG. 1.

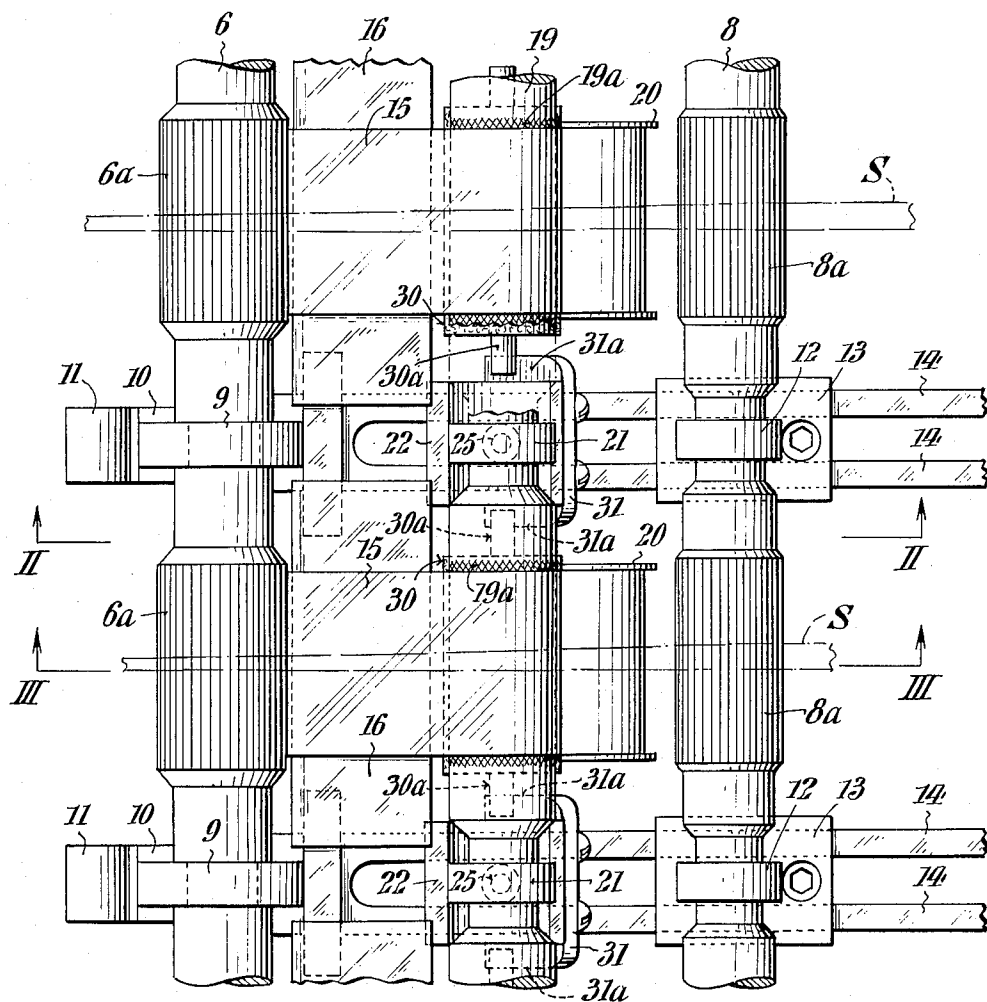
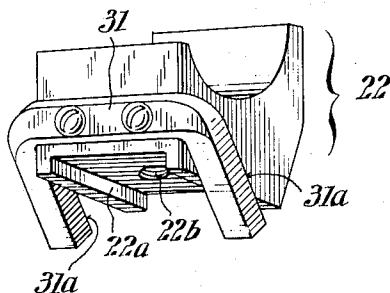


FIG. 4.



INVENTOR.
Philip T. Bodell,
 BY *Paul & Paul*
 ATTORNEYS.

Feb. 14, 1956

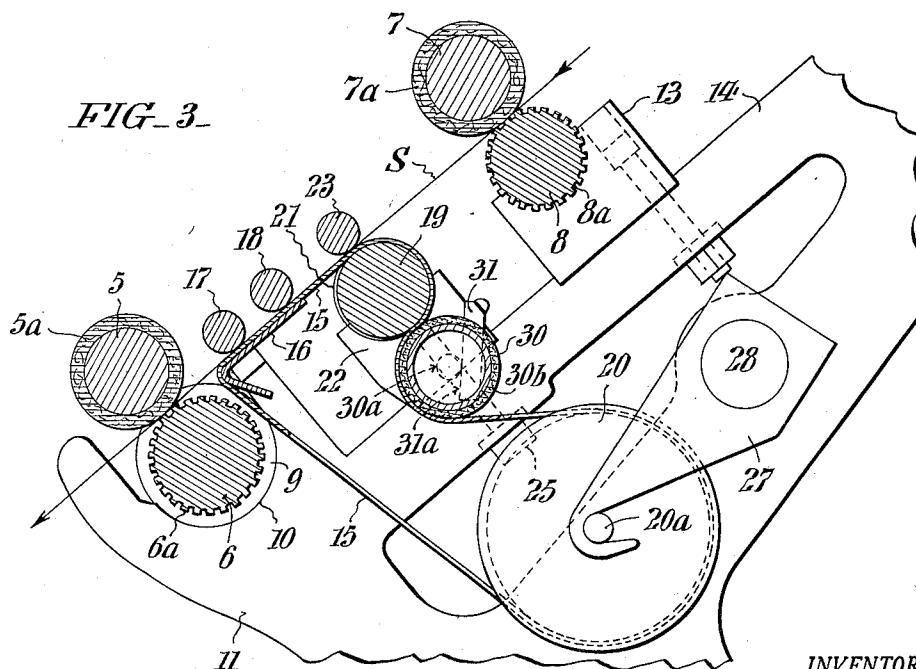
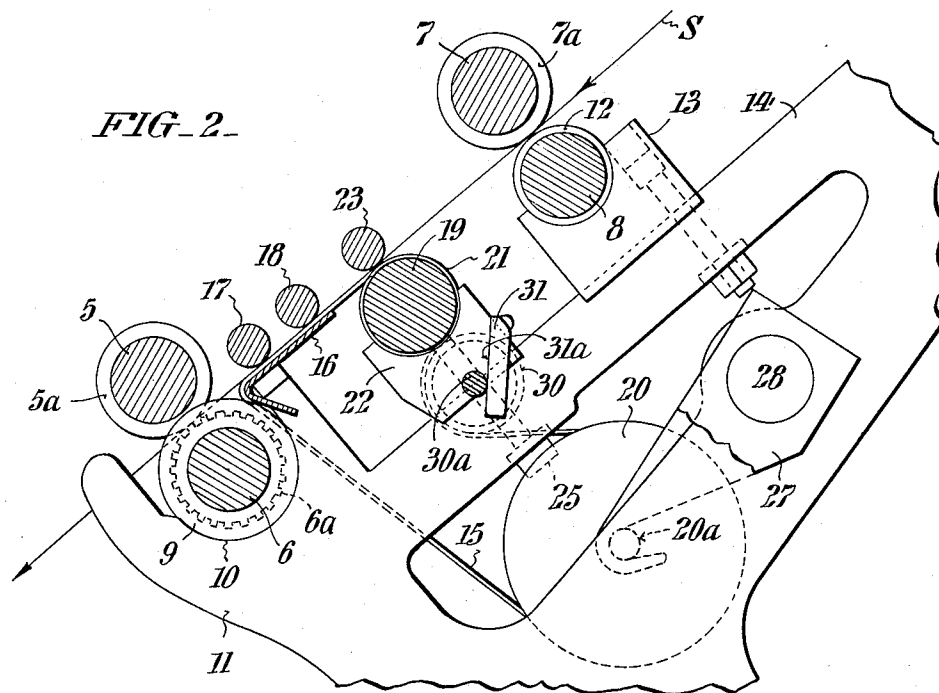
P. T. BODELL

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2 Sheets-Sheet 2



INVENTOR.
Philip T. Bodell,
BY *Gaul & Gaul*
ATTORNEYS.

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APPARATUS FOR DRAFTING TEXTILE FIBERS

Philip T. Bodell, Bristol, R. I., assignor to Collins & Aikman Corporation, Philadelphia, Pa., a corporation of Delaware

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3 Claims. (Cl. 19—131)

This invention relates to apparatus for use in spinning frames, roving frames and the like. More particularly, it is concerned with drafting apparatus of the general type disclosed in U. S. Patent 2,471,059 granted to W. F. Bird on May 24, 1949, wherein the fiber stock is advanced in the interval between a pair of back feed rolls and a pair of front draft rolls rotating at a higher speed, by aid of a "short" endless belt or apron which passes over a nose bar, and which is trained about a positively-driven roll and a weight and guide roll freely supported in suspension in a drop loop of the belt or apron.

In connection with drafting apparatus of the kind referred to, I aim to provide simple and reliable means for maintaining the belt or apron in effective contact with the driven roll, so as to prevent the same from slipping and thereby insuring uniform drafting of the fibers.

Other objects and attendant advantages will appear from the following detailed description of the attached drawings, wherein:

Fig. 1 is a fragmentary view, in top plan, of a textile fiber drafting apparatus conveniently embodying my invention, with the upper feed and draft rolls and the slip or control rolls associated with the belt or apron removed.

Figs. 2 and 3 are fragmentary views in longitudinal section, taken as indicated respectively by the angled arrows II—II and III—III in Fig. 1; and

Fig. 4 is a perspective view of one of the component parts of the apparatus drawn to a larger scale.

With more detailed reference to these illustrations, the numerals 5, 6 and 7, 8 respectively designate the front and back pairs of draft and feed rolls of my improved textile fiber processing apparatus, said rolls being spaced by a distance in excess of the length of the fibers being drafted. As shown, the upper rolls 5 and 7 have friction coverings 5a and 7a which may be of leather or the like, and the lower rolls 6 and 8 have spaced sections 6a and 8a which are fluted for positive engagement between them and said upper rolls, of the fiber strands S. Surrounding lower draft roll 6 medially of the intervals between its fluted sections 6a, are ball bearings 9 whereof the outer races rest respectively within recesses 10 of laterally-spaced supporting frames 11. Similarly surrounding the lower feed roll 8, medially of the intervals between its fluted sections 8a, are ball bearings 12 the outer races of which rest in arcuate depressions of saddle blocks 13 capable of adjustment longitudinally of horizontal guide extensions 14 of the frames 11.

The endless fiber stock supporting belts or aprons designated 15, overtravel transversely-arranged nose bars 16 which, in this instance, are individually fashioned from stiff sheet metal, and which are fixedly supported at opposite ends by the frames 11, the moving fiber stock being held to said aprons by two slip or control rolls 17 and 18. As shown, the aprons 15 are individually trained about rolls 19 and 20, the former of these rolls being rotated positively at a rate intermediate that of the draft and feed rolls 6 and 8, and being surrounded in the intervals between their spaced knurled portions 19a, by frictionless bearings 21 of the ball or roller pin type whereof the outer races rest in arcuate depressions of

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saddle blocks 22 which are adjustably set on the guide extensions 14 of the frames 11 in the interval between the rolls 5, 6 and 7, 8. Cooperative with roll 19 is a superimposed slip or control roll 23 like the rolls 17 and 18 previously mentioned.

From Fig. 4, it will be noted that each saddle block 22 is grooved at the bottom, as at 22a, to straddle the guideway 14 of the corresponding bracket 11, and provided centrally with a tapped hole 22b to receive the threaded shank of a securing screw bolt 25 as in Figs. 2 and 3. Roll 20 (of which there is one for each belt) is in the form of a flanged spool for capacity to guide apron 15, the gudgeons 20a of said roll being engaged in the hooked ends of arms 27 fulcrumed about fixed studs 28 on the respective frames 11. The rolls 20 are thus freely suspended in the drop loops of the aprons 15 and, by their weight, serve to keep them properly tensioned. However, their action is not sufficient to prevent slippage at the surface of drive roll 19.

Arranged to cooperate with the belt driving rolls are subadjacently-located press rolls 30 for the individual aprons 15 whereof the gudgeons 30a rest upon inclined surfaces 31a afforded by U-shaped pieces 31 which are attached by means of screws to the backs of the saddle blocks 22 on adjacent frames. As shown, the rolls 30 are provided with coverings 30b of felt or the like as shown. By reason of sloping downwardly toward belt driving roll 19, the inclines 31a act after the manner of wedges to urge the floatingly-supported press rolls 30 individually into positive nip relation to the said belt driving rolls 19. As a consequence of this construction and arrangement, it will be seen that the aprons 15 are maintained taut in effective contact with driven roll 19 and thus prevented from slipping. Accordingly, through my invention, uniform drafting of the fibers of the respective strands S is definitely assured.

Having thus described my invention, I claim:

1. In textile fiber drafting apparatus having spaced pairs of draft rolls, a driven roll and a nose bar arranged between the pairs of draft rolls; an endless apron overtravelling the driven roll and the nose bar; a weight roll suspended within the apron below the driven roll; a floating press roll bearing upon the apron from the outside in the interval between the driven roll and the weight roll so as to be urged upwardly through tensioning of the belt by the weight roll; and fixedly-positioned wedge means adjacent the press roll providing inclined surfaces for cooperation with gudgeons on the press roll to urge said press roll into effective nip relation to said driven roll.

2. Textile fiber drafting apparatus according to claim 1, wherein the driven roll is journaled in ball bearings; wherein the ball bearings rest in recesses of fixed saddle blocks; and wherein the inclined surfaces with which the gudgeons of the press roll cooperate are provided by wedge elements affixed to said saddle blocks.

3. The invention according to claim 1 wherein the surfaces of the wedge means are inclined at an acute angle to the plane through the axes of the lower draft rolls of the front and rear pairs.

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