

May 28, 1957

E. B. KEMPE

2,793,400

DRAFTING MECHANISM FOR TEXTILE MACHINES

Filed July 14, 1953

FIG. 1

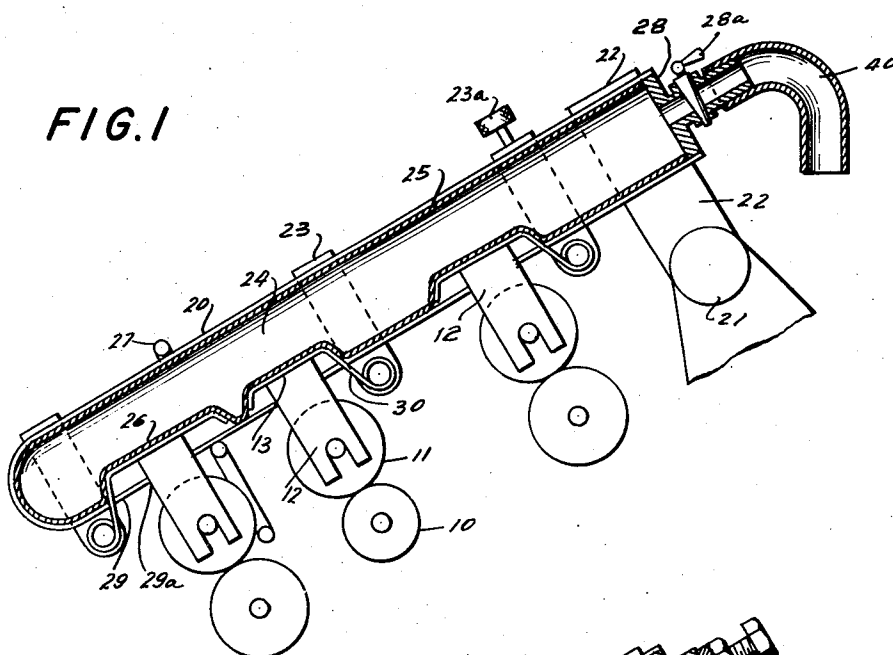
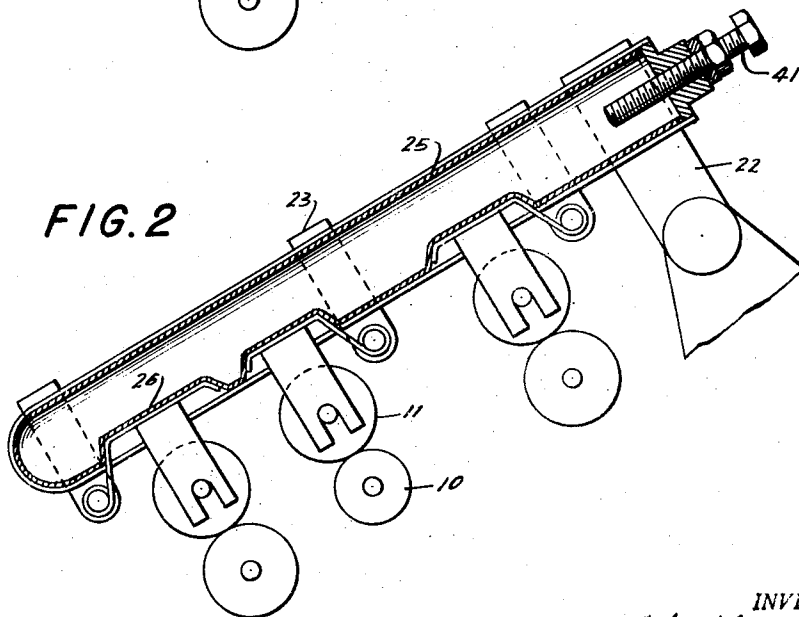


FIG. 2



INVENTOR.
Erhard Baldwin Kempe
BY Michael S. Sticker
agt.

1

2,793,400

DRAFTING MECHANISM FOR TEXTILE MACHINES

Erhard Balduin Kempe, Heidelberg-Pfaffengrund, Germany, assignor to SKF Kugellagerfabriken Gesellschaft mit beschränkter Haftung, Schweinfurt, Germany

Application July 14, 1953, Serial No. 367,871

Claims priority, application Germany July 16, 1952

2 Claims. (Cl. 19—135)

The invention relates to a drafting mechanism for textile machines with a bracket arranged above the top weighting rollers and with hydraulic or pneumatic loading of the top weighting rollers.

In the known drafting systems, the loading required for the pressure at the roller nip between the top rollers, as a rule, is obtained by suitable arrangements of weights or springs the power of which generally is transmitted to the top weighting rollers by means of a lever mechanism or the like. In other known drafting systems, hydraulic pressure agents are used for the loading of the top weighting rollers, i. e. an elastic tube containing the pressure transmission agent is arranged in a tubular carrier for the top roll brackets, which tube acts on a lever mechanism transmitting the pressure to the top weighting rollers.

These well-known systems present considerable disadvantages. All of them are rather complicated as well as expensive and subject to troubles. Nor do they meet all the requirements the spinner asks of such an arrangement, or the requirements can only be met with great difficulty and trouble. The spinner expects of such a drafting mechanism that the amount of the pressure at the roller nip can be changed by simplest possible manipulation and that, when changing the roller settings in conformity with the required draft, staple length or the like, this pressure at the roller nip, viz. the loading of the top weighting rollers, remains unchanged. The loading mechanism of the top weighting roller has to be designed so that it will remain constant for a long period of time, and so that there will be no wear of the loading elements during operation. For easy cleaning and control, the arrangement must not be heavy and, from a constructional point of view, should be simple and clear. It would be of particular advantage if either as many as possible or, still better, all drafting mechanisms of a machine could be checked, adjusted or unloaded, respectively, from one and the same control stand.

One of the objects of the present invention is to provide a structure capable of overcoming all of the above drawbacks and meeting all of the above requirements.

A further object of the present invention is to provide an exceedingly simple means for effectively loading top rolls with the force of a fluid under pressure.

Another object of the present invention is to provide a simple means for adjusting the load of the top rolls.

The accompanying drawing shows by way of example several constructions in accordance with the invention.

In these drawings:

Fig. 1 shows a top roll loading device, designed according to the invention, for drafting mechanisms in spinning machines, in which the enclosed space containing the pressure transmitting agent is connected with a not shown power source by means of a feed line, and which is pivotally arranged on a supporting rod, and which can be locked in a certain operating position;

Fig. 2 shows a device similar to Fig. 1 with said en-

2

closed space closed all round, and with an adjusting pin for accurate pressure adjustment.

The same reference numerals are used for corresponding parts in the several views.

In both the embodiments of the invention illustrated in the accompanying drawing 10 are the bottom rollers and 11 the top weighting rollers of a three-line drafting mechanism. 21 is a supporting rod extending over the whole length of the machine, on which, by means of a holding part the brackets 20 are pivotally arranged. Here the holding part 22 is a clamping piece embracing the bracket. The bracket 20 has a U-shaped cross section and is provided with an enclosed space 24 containing the pressure agent, which space is being formed by an elastic tube 25. This tube is embraced by the three sides of the U-shaped cross section of the bracket 20, and bears against the inner surface of the bracket. The open bottom surface of the bracket is closed by the elastically deformable tube. Clamping pieces 23 are adjustably arranged on the bracket 20. On that end of clamping pieces 23 directed towards the top weighting rollers, a shaped part 30 is pivotally arranged, supporting on its one straight side part of the elastic tube, and on its other straight side the top surface 13 of the holding or guide elements of the top weighting roller 12. If now a pressure transmitting agent, e. g. air, oil or the like, is fed under pressure into space 24 extending over all the top weighting rollers parallel to the drafting field, as shown in the drawing, that part of the elastically deformable tube 25 exposed to the outside, under pressure will come to lie against the shaped members 30 and the pressure will be transmitted via the holding parts 12 to the top weighting rollers 11. Due to the fact that the straight part of the shaped member 30 is larger than the top surface 13 of the holding part 12, it will be possible without further ado to adjust holding parts of the top weighting rollers according to the roller setting desired.

Due to the fact that the holding parts 23 supporting the shaped members and lying against the outer surface of the bracket 20 can be adjusted along this bracket, a further possibility for regulating the pressure is obtained. This holding part, if necessary, can be fixed by means of set screws 23a.

The pressure at the roller nip can be augmented by increasing the pressure in space 24. For this purpose, a connecting piece 28 is arranged at one end of the oblong space 24, and connected with an elastic tube 40. This tube leads to a compressor, an oil pump or the like, not shown in the drawing, serving to press the pressure transmitting agent into space 24. In the connecting piece, a faucet 28a, preferably a three-way cock, is arranged in order to eventually connect the feed line with the space, or to cut off the feed line, or in order to reduce the space 24 by discharging the pressure agent after removal of the feed line.

The bracket 20 with the space 24, the tube 25, the clamping piece 23 and the shaped members 30 can be held in a fixed position parallel in line with the drafting field by means of a locking device 27 but vaguely shown in Fig. 1.

In the embodiments of the invention illustrated in the accompanying drawing, the bottom part of the bracket 20 is closed by a sheet metal protective cover 29. This protective cover 20 is provided with holes 29a through which the holding elements 12 pass which behind the protective cover bear against the shaped members 30.

The design according to Fig. 2 is essentially the same as that shown in Fig. 1. To simplify matters, the locking device 27 is not shown. In this design, the space 24 at its one end is provided with an inlet closed by a set screw 41 projecting into space 24. By driving this set

3

screw into or out of space 24, respectively, the pressure in the completely enclosed space 24 can be regulated within certain limits. However, a pressure regulating device may also be arranged at some other part of the bracket and the space 24 with the tube 25.

It is also possible to arrange a reduction valve or the like in the feed line 40. This is of particular advantage in case of use of gaseous pressure transmitting agents since this within certain limits makes an additional pressure regulation possible.

I claim:

1. A drafting mechanism for textile machines, comprising in combination spaced bottom rollers; top weighting rollers, paired with said bottom rollers; holder and guide elements for each of said top weighting rollers; a bracket, arranged above said top weighting rollers and provided with a locking device; an enclosure defining an enclosed space containing a pressure transmitting agent for the loading of said top weighting rollers, said enclosure being located between said bracket and said holder and guide elements and said enclosed space being connected by means of a feed pipe with a pressure supply unit suitably arranged without the drafting mechanism; shaped members respectively having straight portions arranged between the surface of said enclosure and the top surfaces of said top roll holder and guide elements, respectively, the top surfaces of said straight portions of said shaped member bearing against an at least in part elastically deformable surface of said enclosure and the bottom sur-

4

face of said straight portions of said shaped members bearing respectively against the corresponding top surfaces of said top roll holder and guide elements.

2. A drafting mechanism for textile machines, comprising in combination spaced bottom rollers; top weighting rollers, paired with said bottom rollers; means including holder and guide elements for said top weighting rollers, respectively, for transmitting a load to the latter; a bracket of substantially U-shaped cross section having an open bottom, arranged above said top weighting rollers and provided with a locking device; an enclosure defining an enclosed space, containing a fluid under pressure for the loading of said top weighting rollers, said enclosure being located between said bracket and said holder and guide elements and said U-shaped bracket embracing said enclosure at least on three sides while the side adjacent to the top rolls is at least in part elastically deformable and bears against said means; and a cover covering the open bottom of said bracket and formed with openings through which said holder and guide elements respectively extend.

References Cited in the file of this patent

UNITED STATES PATENTS

2,315,813	Oettli et al. -----	Apr. 6, 1943
2,384,250	Hafeli -----	Sept. 4, 1945
2,508,964	Naegli -----	May 23, 1950
2,624,077	Winslow -----	Jan. 6, 1953