P. B. WHITEHEAD.

DOUBLING FRAME.

APPLICATION FILED APR. 25, 1910.

976,761.

Patented Nov. 22, 1910.

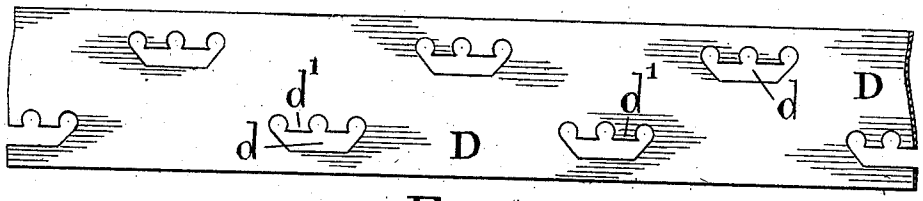


Fig. 4.

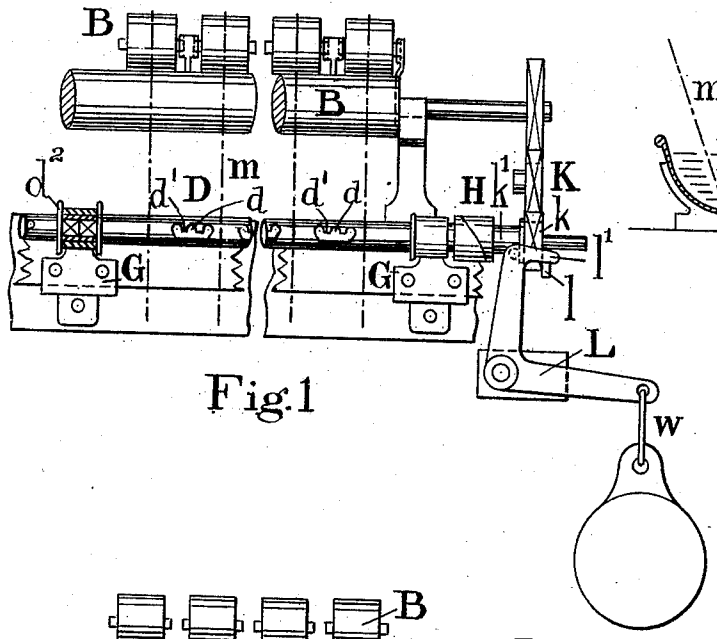


Fig. 1

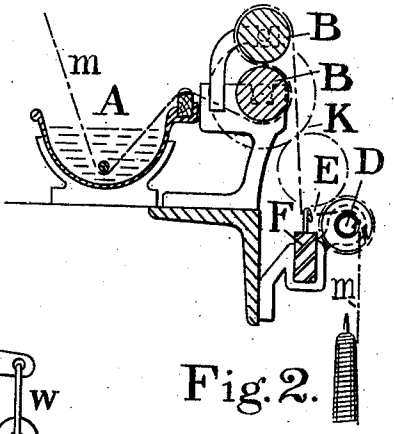


Fig. 2.

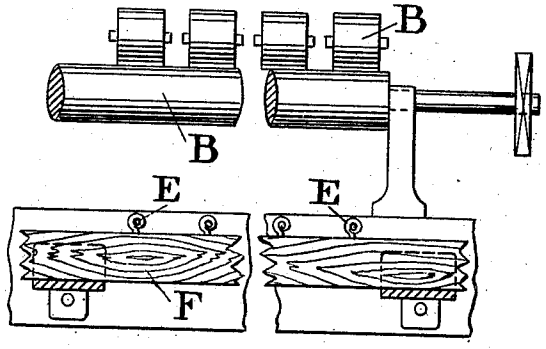


Fig. 3.

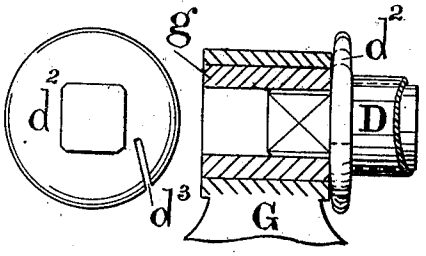


Fig. 5.

WITNESSES.

INVENTOR

Philip B. Whitehead

By James L. Norris & Atty

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

PHILIP BRUCE WHITEHEAD, OF STOCKPORT, ENGLAND, ASSIGNOR OF ONE-HALF TO THE FINE COTTON SPINNERS AND DOUBLERS ASSOCIATION LIMITED, OF MANCHESTER, ENGLAND.

DOUBLING-FRAME.

976,761. Specification of Letters Patent. Patented Nov. 22, 1910.

Application filed April 25, 1910. Serial No. 557,497.

To all whom it may concern:

Be it known that I, PHILIP BRUCE WHITEHEAD, a British subject, residing at Stockport, county of Chester, England, have invented certain new and useful Improvements in Doubling-Frames, of which the following is a specification.

This invention relates to certain improvements in doubling frames to prevent "fourfold" or "doubles."

The invention consists essentially in dispensing with the ordinary thread board and substituting therefor a roller placed along the front of the frame constructed with gaps therein, over which the yarn passes to the spindles in conjunction with hooks placed behind the roller to maintain the yarn in intimate contact therewith as such travels from the rollers to the spindles.

The invention will be fully described with reference to the accompanying drawings forming part of the specification.

Figure 1. front elevation of part of doubling frame. Fig. 2. end elevation of same. Fig. 3. transverse sectional elevation. Fig. 4. extended blank of rollers D. Fig. 5. details of end rollers D.

The doubling frame is of any ordinary construction with or without a damping trough A and rollers B, but without a thread board such as is ordinarily employed. In front of the rollers B an additional front roller D is mounted extending the length of the frame with the front in line with and directly over the tops of the spindles. Behind the roller D and at a lower level a glass or metal hook or guide eye E is provided for each thread of yarn to bring the yarn into contact with a considerable portion of the periphery of the roller D. The roller D is constructed of sheet metal or tubing with a number of gaps d cut therein each equidistant between the threads of yarn. Each gap d is formed around one, two or more tongues of metal d' projecting toward the center of the gap and preferably of a fishtail shape as shown. The tongue d' while projecting toward the center of the gap d is bent or curved to correspond with the periphery of the roller but does not project above the peripheral surface.

The guide hooks or eyes E are fitted into a rail F and while maintaining the thread of yarn in contact with the roller D keep the ends apart behind the said roller, and if "fourfold" or "doubles" is made prevent the twist running up to the top roller. The guide hooks or eyes E also keep the threads when running, close to the nip of the top and bottom rollers, so that on one breaking it runs around the top roller into the nip almost instantaneously tending to prevent the loose end lashing with neighboring ends, and saving breakage.

The roller D is made in sectional lengths mounted in bearing brackets G the ends of each roller being made with a square spigot to fit into a sleeve or socket g which rotates in the bracket G. A flange d^2 on the end of each sectional length of the roller G is provided with a nick d^3 to catch and prevent any thread over riding and lapping in the bearing or making "fourfold" with the end on the other side of the bearing. The bearing brackets G also carry a rail F to which the guide hooks or eyes E are affixed.

The roller D is driven by a clutch or catch box H from a train of wheels K so as to rotate at the same surface speed as the rollers B. The clutch H is held in normal position for driving the roller D by a weighted lever L the end l' of which rests upon and is held in position by a latch lever l which abuts against the wheel k mounted upon a sleeve k' on the roller shaft thereby holding the clutch H in the driving position. Should the rotation of the roller D be impeded such as by the clothing of the operative catching upon one of the tongues d' in the gaps d the clutch member and with it the wheel is pushed back and with them the latch lever l from beneath the end l' of the lever L thereby releasing the lever L which is drawn down by a weight on the wire W and holds the clutch out of action until reset by the operative.

In operation the thread of yarn m is passed around the bottom and top rollers B, through the guide hook or guide E and over the roller D and thence to the ring traveler and bobbin. Should an end break and lash into a neighboring end, the end that broke is drawn to one side into the gap d of the roller D and under the tongue d' which as the roller revolves immediately breaks down one or both ends thereby preventing the making of any "fourfold" or "doubles" in the yarn.

What I claim as my invention and desire to protect by Letters Patent is:—

1. In a doubling frame dispensing with the thread board, the combination with the top and bottom rollers B, of a roller substituted for the thread board having gaps, tongues projecting into said gaps, and a guide means behind the roller to direct the yarn from the said top and bottom rollers B, the tongues operating to catch the thread of yarn.

2. In a doubling frame dispensing with the thread board, a rotating roller substituted for the thread board and having gaps and coöperating means to catch a thread of yarn, and a guide means placed behind the roller to direct the yarn thereto.

3. In a doubling frame dispensing with the use of a thread board, a roller having a smooth surface and provided with gaps at intervals, and tongues projecting into said gaps, the roller with the gaps and tongues being substituted for the thread board.

4. In a doubling frame wherein the use of a thread board is dispensed with, a roller with a smooth surface and constructed with gaps at intervals, each gap being provided with tongue means of fish tail shape to catch the yarn when drawn over the gaps, the said roller with the gaps and tongue means serving as a substitute for the thread board.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

PHILIP BRUCE WHITEHEAD.

Witnesses:

B. Tatham Woodhead,

Harry Barnfather.