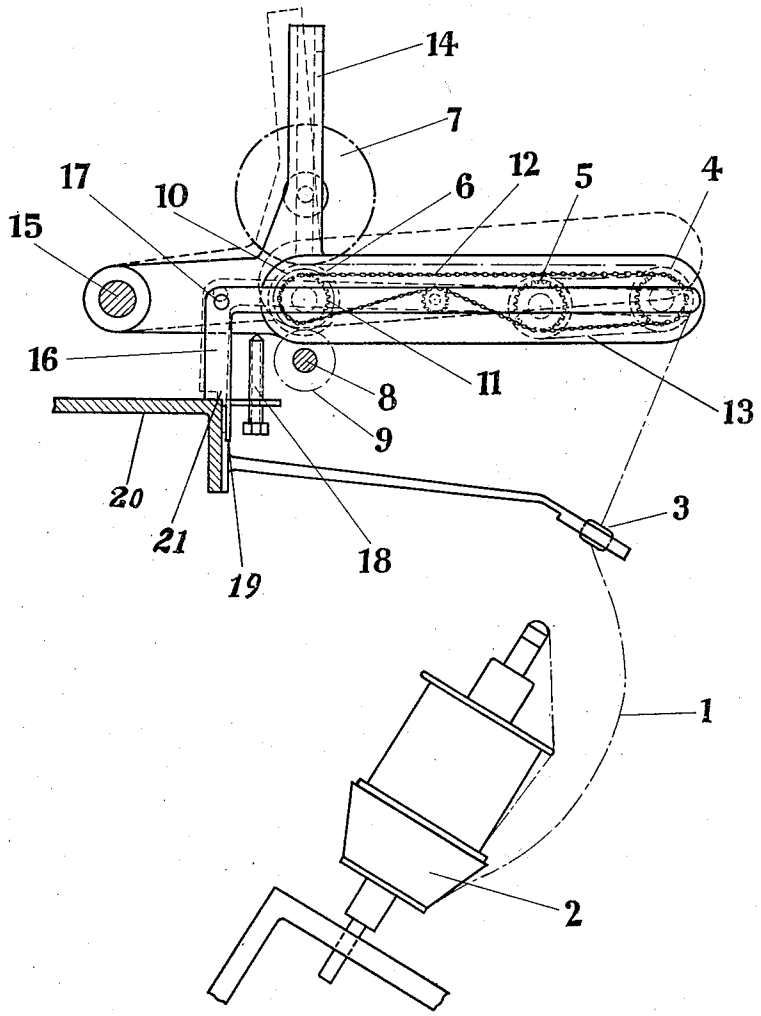
May 16, 1939. O. BOCHMANN 2,158,607

THREAD DRAWING OFF DEVICE ON DOUBLE TWIST TWISTING MACHINES

Filed Feb. 25, 1938 2 Sheets-Sheet 1

Fig.1



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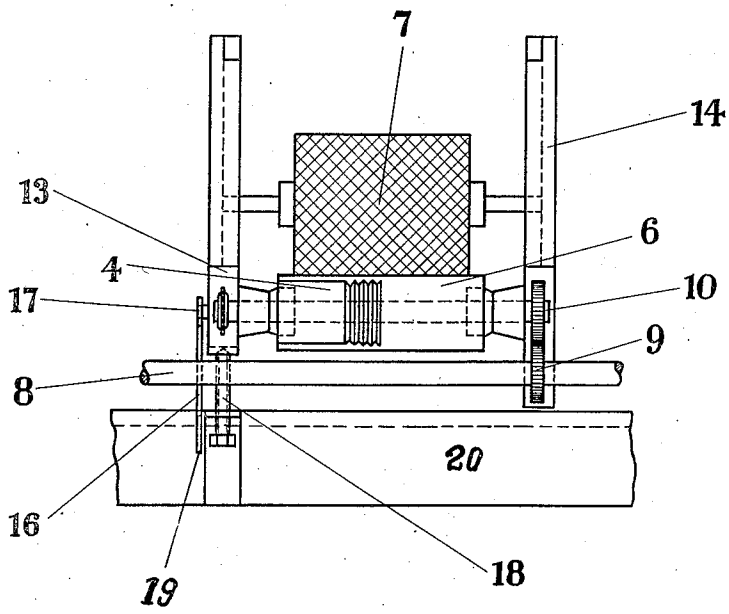
his Attorney

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Fig. 2



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UNITED STATES PATENT OFFICE

2,158,607

THREAD DRAWING OFF DEVICE ON DOUBLE TWIST TWISTING MACHINES

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4 Claims. (Cl. 242—128)

This invention relates to a thread drawing off device on double twist twisting machines, in which the drawing of the thread from the bobbins is effected by drawing off cylinders and the drive of the winding bobbins by a driving cylinder. The known constructions of this type are open to the objection, that the stopping of the drawing off device is extremely complicated and, what is more important, can only be carried out by experienced operators. In most instances it is necessary to first stop the drawing off cylinders and then to lift off by hand the winding bobbins from the driving cylinder. If these manipulations are not carried out simultaneously coils are formed in the thread lapped several times around the drawing off cylinders or the thread becomes entangled, so that it is necessary to break the thread which will result in a knotting. Consequently not only the attendance is extremely complicated but objections arise which cannot be tolerated for the finished thread.

Thread drawing off devices are known on ordinary bobbin-winding machines, in which the winding bobbin, driven by a driving cylinder, is lifted off the cylinder for stopping, or the driving cylinder itself is removed from its driving element. In the generally known twisting machines it is also not new, to arrange the drawing off cylinders so that they can be lifted off the driving wheel. These arrangements have nothing in common with the present invention, as here it is a question of stopping the drawing off cylinders on the one hand and of stopping the winding bobbin on the other hand. The invention, however, relates to double-twist twisting machines, in which the drawing off of the thread is effected by drawing off cylinders and the drive of the winding bobbin by a driving cylinder.

The object of the invention is to obviate the above mentioned objections in double-twist twisting machines. According to the invention the drawing off cylinders and the driving cylinder are journalled in a common oscillatable one-armed lever and jointly driven by a spur wheel mounted on a continuous shaft so that, by lifting the oscillatable lever the spur wheel is disengaged from a spur wheel on the driving cylinder and the driving cylinder and drawing off cylinders are stopped at the same time. The elements serving for the drive transmission from the driving cylinder to the drawing off cylinders are mounted in the one-armed lever. Furthermore this one-armed lever is supported in operative position by means of a set screw mounted on the machine frame so that the weight of the arm is not borne by the intermeshing spur wheels.

This construction presents the advantage that the operation of the double twist twisting machine is considerably simplified and can be carried out by any one, especially as it is no longer necessary to lift the winding bobbin off the driving cylinder. Another advantage is that, when the oscillatable lever is swung upwards the drawing off cylinders and the driving cylinder are stopped at the same time so that the thread does not form coils nor get entangled. For stopping only a single manipulation is required so that, owing to this simultaneous stoppage, the running on thread is always kept taut and formation of coils is prevented.

Consequently the present invention ensures the production of a perfect thread free from knots. This construction is likewise characterized by its great simplicity and very cheap production.

An embodiment of the invention is illustrated by way of example in the accompanying drawings, in which:

Fig. 1 shows in side elevation the drawing off device with a double twist twisting spindle,

Fig. 2 is a front elevation of Fig. 1 but without twisting spindle.

The thread 1 runs off the double twist twisting spindle 2, passes through a thread guide eye 3 and is drawn off by the drawing-off cylinders 4 and 5. The thread then passes over the driving cylinder 6 to the winding bobbin 7. The driving cylinder 6 is driven by a spur wheel 9 mounted on a continuous shaft 8 and meshing with a spur wheel 10 of the driving cylinder. On the other side the driving cylinder carries a sprocket wheel 11 from which the driving of the drawing off cylinders 4 and 5 is derived by means of a chain 12. The driving cylinder and the drawing off cylinders are journalled in a common one-armed lever 13, in which the straight guides 14 for the building up of the winding bobbin are arranged. The lever 13 is oscillatable about a bolt 15. At the side of lever 13 a two-armed lever 16 is mounted on a pin 17.

The end of the short arm of this two-armed lever 16 has an extension 19 with a step 21 at the point where the extension 19 begins. A set screw 18 is mounted on the machine frame and supports the oscillatable one-armed lever 13 in operative position.

The drawing off device operates in the following manner:

The drive for the drawing off cylinders 4 and 5 is derived from the spur wheel 9 which drives the driving cylinder 6 by the spur wheel 10. If the

one-armed lever 13 is raised, the spur wheels 9 and 10 are disengaged so that both the driving cylinder and also the drawing-off cylinders are simultaneously stopped.

The two-armed lever 16 is normally maintained in the position shown in full lines in the drawings with its long arm in horizontal and its short arm in vertical position by the step 21 bearing against the vertical face of a girder 20 extending through the machine. When the one-armed lever 13 is raised, it lifts the two-armed lever 16 by its pin 17 until the step 21 is clear of the upper edge of the girder 20, whereupon the two-armed lever 16 swings about its pin 17 under the action of gravity which movement is limited by the extension 19 coming into contact with the vertical face of the girder 20. If the lever 13 is then released, it will be supported in raised or inoperative position by the step 21 resting on the horizontal face of the girder 20, and preventing its pin 17 from descending. To lower the lever 13 for the reengagement of the spur wheels 9 and 10 the long arm of the lever 16 is lifted, causing the step 21 to slide off the edge of the girder 20, thereby removing the support of the short arm 16 of the lever and allowing this arm and consequently the one-armed lever 13 to swing downwards about the bolt 15 into its initial position under the action of gravity, this downward movement being limited by the end of the set screw 18 coming into contact with the underside of the lever 13 and the end of the short arm of the lever 16 coming into contact with the horizontal face of the girder 20. The set screw 18 is set so that, when the lever 13 bears thereon, the spur wheels 9 and 10 are in mesh without, however, the spur wheel 9 having to carry the weight of the one-armed lever 13.

I claim:

1. A thread drawing off device on double twist twisting machines, comprising in combination thread drawing off cylinders, a winding bobbin, a driving cylinder for said winding bobbin, a one-armed lever carrying said thread drawing off cylinders and said driving cylinder, a spur wheel on said driving cylinder, transmission elements for transmitting the movement of said driving cylinder to said drawing off cylinders, a continuously driven shaft, a spur wheel on said shaft adapted to mesh with said first mentioned spur wheel to drive said driving cylinder, a fixed bolt about which said one-armed lever is oscillatable to bring said spur wheels into mesh to drive said driving cylinder and said drawing-off cylinders through the intermediary of said transmission elements, and out of mesh to stop simultaneously said driving cylinder and said drawing off cylinders.

2. A thread drawing off device as specified in claim 1, in which the elements for transmitting the drive from the driving cylinder to the drawing off cylinders when the spur wheels are brought into mesh are mounted in the one-armed lever.

3. In a thread drawing off device as specified in claim 1, a stationary set screw adapted to support the one-armed lever in operative position with the spur wheels in mesh.

4. In a thread drawing off device as specified in claim 1 means for supporting the one-armed lever in inoperative position with the spur wheels out of mesh, comprising in combination a girder extending through the machine and having a horizontal and a vertical face, a pivot pin projecting from one side of said one-armed lever, a two-armed lever mounted on said pin and having a long substantially horizontal arm and a short substantially vertical arm, an extension on the short arm of said two-armed lever, and a step at the junction between said short arm and said extension adapted to bear against the vertical face of said girder to maintain the long arm of said two-armed lever in horizontal position when the one-armed lever is in its lowered operative position with the spur wheels in mesh and against the horizontal face of said girder to support said one-armed lever in its raised inoperative position with the spur wheels out of mesh and the drive to the driving cylinder and drawing off cylinders interrupted.

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