

Jan. 17, 1928.

O. LAMBERT

1,656,860

SPINNING OR TWISTING FRAME

Filed Aug. 19, 1926

3 Sheets-Sheet 1

FIG. 3.

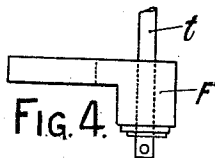
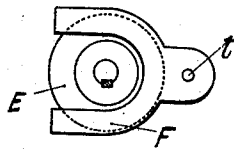


FIG. 5.

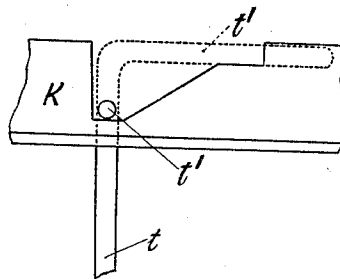


FIG. 1.

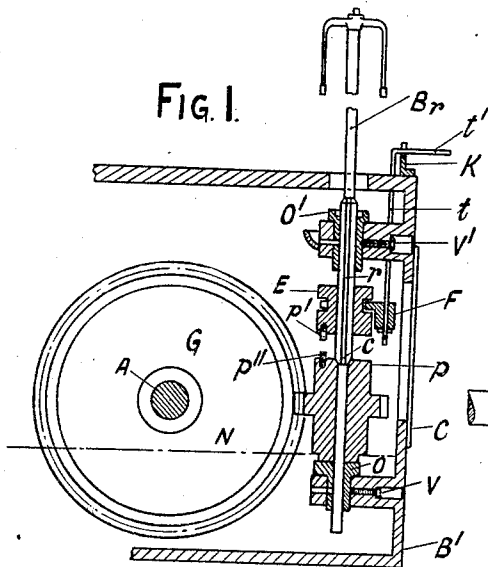
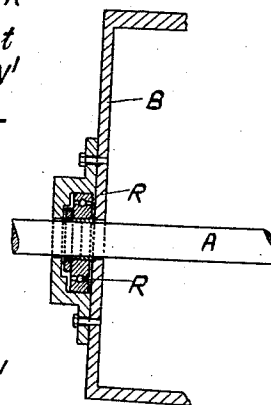


FIG. 2.



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Jan. 17, 1928.

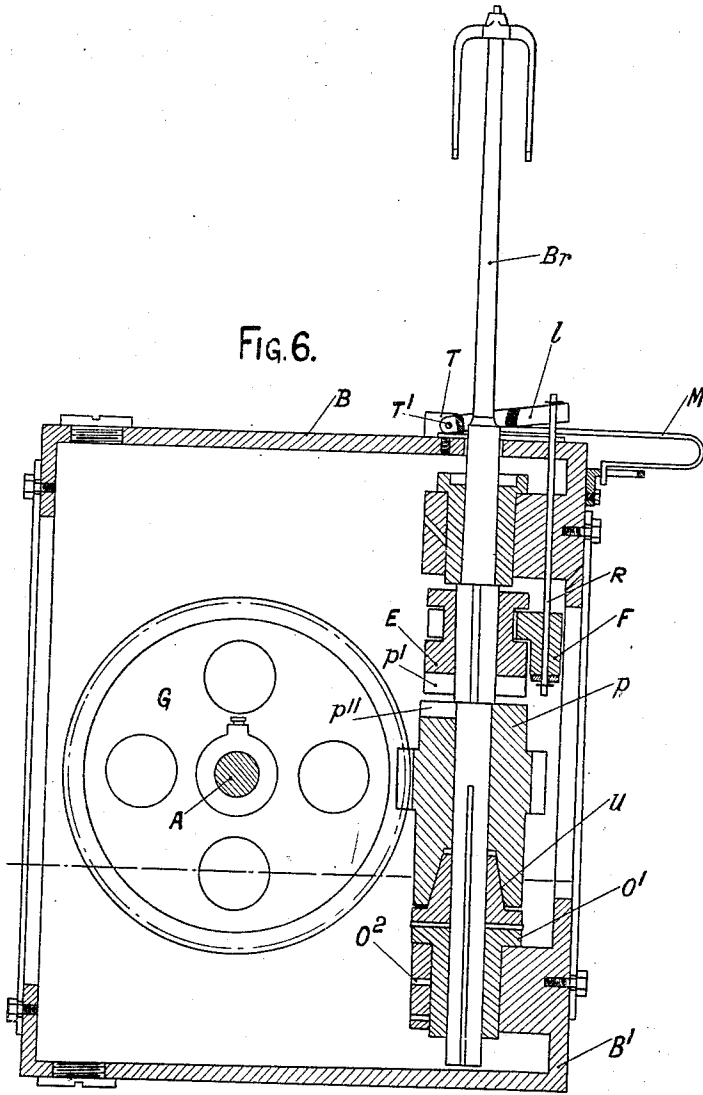
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SPINNING OR TWISTING FRAME

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3 Sheets-Sheet 2



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SPINNING OR TWISTING FRAME

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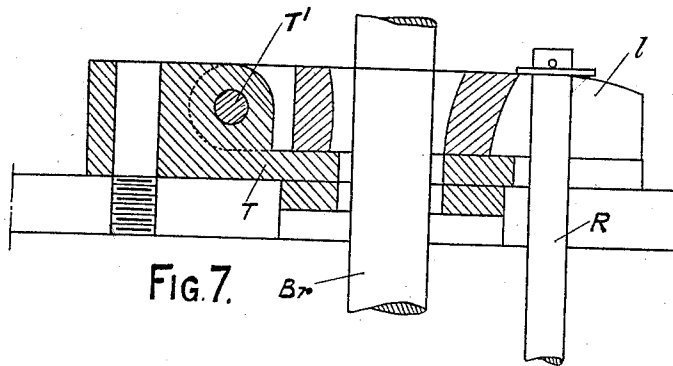


Fig. 7.

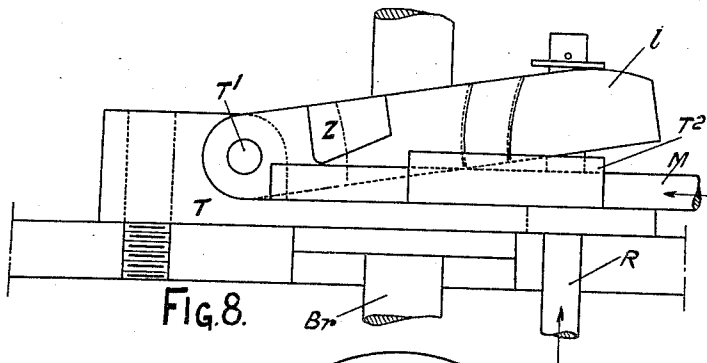


Fig. 8.

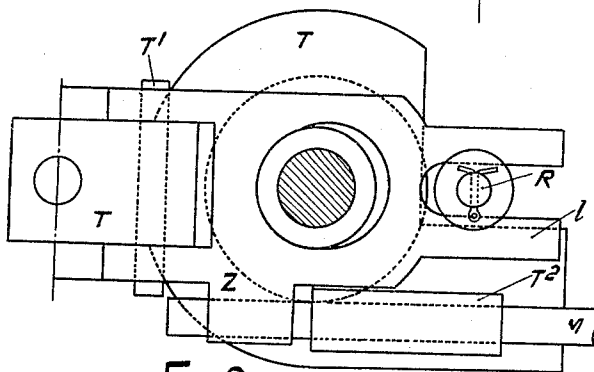


Fig. 9.

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Patented Jan. 17, 1928.

1,656,860

UNITED STATES PATENT OFFICE.

OSWALD LAMBERT, OF TAMISE, BELGIUM.

SPINNING OR TWISTING FRAME.

Application filed August 19, 1926, Serial No. 130,317, and in Belgium October 30, 1925.

This invention relates to spinning, twisting and like frames, more particularly to frames for spinning or twisting yarns of jute, hemp, flax and the like, and comprises improved spindle-driving mechanism housed in an oil box or casing and including means for driving the spindle frictionally as well as positively, thus rendering it practicable to start and stop the spindle without jar, besides ensuring continuous lubrication of the parts with elimination of wear and silence in running.

In the accompanying drawing Fig. 1 is a vertical section showing the spindle of a spinning frame with associated transmission mechanism housed within an oil box or casing; Fig. 2 is a fragmentary section at right angles to Fig. 1 showing one of the bearings for the driving shaft; Figs. 3, 4 and 5 are detail views of the clutch operating device. Fig. 6 is a view corresponding to Fig. 1 illustrating a modification; Figs. 7, 8 and 9 show details of this modification.

Referring to Figs. 1 to 5, B_r denotes the spindle rotatable in bearings O , O^1 secured by screws V , V^1 in internal lugs of one side wall B^1 of the box or casing B , which latter is partly filled with lubricant up to the level N . Loose on the spindle is a helical pinion p meshing with a helical gear G on the driving shaft A journalled for rotation in ball-bearings R fitted to the side walls of the oil box or casing B in which latter the intermeshing helical gear elements revolve, the gear G being partly immersed in lubricant.

A removable cover C applied to the wall B^1 of the box or casing B affords convenient access to the interior of the box or casing when required.

The pinion p comprises one element of a positive clutch having at its upper end a driving pin or tooth p'' cooperative with a pin or tooth p^1 on the lower end of a clutch element E feathered as at r to be rotatable with, but movable endwise of, the spindle B_r .

The spindle B_r is formed with a coned portion c engageable in a conical recess in the pinion-clutch-element p , providing a frictional driving connection between the pinion and the spindle.

Manually operable means is provided for controlling the clutch as follows:—

On the top of the box or casing B is an angle iron or rail K having a cam edge engageable by the cranked upper end t^1 of a

rod t supporting at its lower end by means of a split pin and washer a clutch fork F engageable with the clutch element E . It will be seen that when the cranked upper end t^1 of the rod is turned so that it rides up the cam edge the rod t is wedged upwards and lifts the clutch element E out of engagement with the element p . Conversely, when the cranked rod is restored to initial position, the clutch element E is lowered into engagement with the element p whereupon the spindle B_r may be driven through the intermediary of the clutch.

It is important to note that as the spindle receives a frictional drive transmitted through the cone c when the clutch element E is disengaged from the element p , the positive drive through the clutch is initiated without shock.

Should it be desired to stop the spindle, as when the yarn breaks and the broken ends are to be joined, the operator disengages the clutch and applies hand pressure to the top of the flyer. The broken ends having been joined, the operator releases the flyer, so that the friction drive is restored and the spindle quickly picks up speed. The operator then manipulates the cranked rod so that the clutch is re-engaged and the spindle is driven through the clutch.

As clearly shown in Fig. 5, the cam edge of the rail K terminates in horizontal portions or ledges whereby the cranked upper end t^1 of the rod t is supported in its limiting positions.

Referring to Figs. 6 to 9, it will be seen that in the modification therein illustrated there is feathered on the spindle B_r a cone U slidable on the spindle. This cone U rests on a bush flange O^1 which in turn rests on the lower bearing O^2 .

The arrangement of the gearing G , p and clutch devices E , p^1 , p'' is the same as in the construction of Fig. 1; the clutch operating device of Figs. 6 to 9 differs however from that of Figs. 1 to 5 as will appear from the following explanation.

Bolted to the upper wall of the casing B is a block T pivoted to which at T^1 is an arm l having a laterally projecting tooth Z . Suspended from the arm l by means of a washer and split pin is the rod R by which in turn is supported by means of a washer and split pin the clutch fork F .

M denotes a slidable operating handle of U-shape having an arm slidable in a bush

T² integral with the block T and engageable with the under side of the tooth Z.

When the handle M is pushed inwardly it engages the tooth and lifts the arm Z which in turn lifts the rod R and effects disengagement of the clutch.

When the clutch is disengaged, the spindle B_r continues to be driven due to the frictional engagement with the cone U. If resistance is offered to rotation, the spindle B_r is brought to rest.

What I claim is:—

In a spinning, twisting or like frame, in combination, an oil box, a spindle having bearings in said oil box, a pinion having a permanent frictional driving connection with said spindle and presenting one ele-

ment of a positive clutch, a driving gear supported within said oil box and meshing with said pinion, a second positive clutch element rotatable with and movable endwise of said spindle, a clutch-fork engageable with said second positive clutch element, a rod parallel to said spindle, said rod extending from said fork through said box, and means external to said box and co-operating with said rod for effecting endwise movement of said rod and thereby effecting engagement and disengagement of said clutch elements.

In testimony whereof I have signed my name to this specification.

OSWALD LAMBERT.