C. HERTEL AND J. SIMPSON.

MACHINE FOR TWISTING AND SETTING THREADS.

APPLICATION FILED MAR. 25, 1919.

1,330,534.

Patented Feb. 10, 1920.

3 SHEETS—SHEET 1.

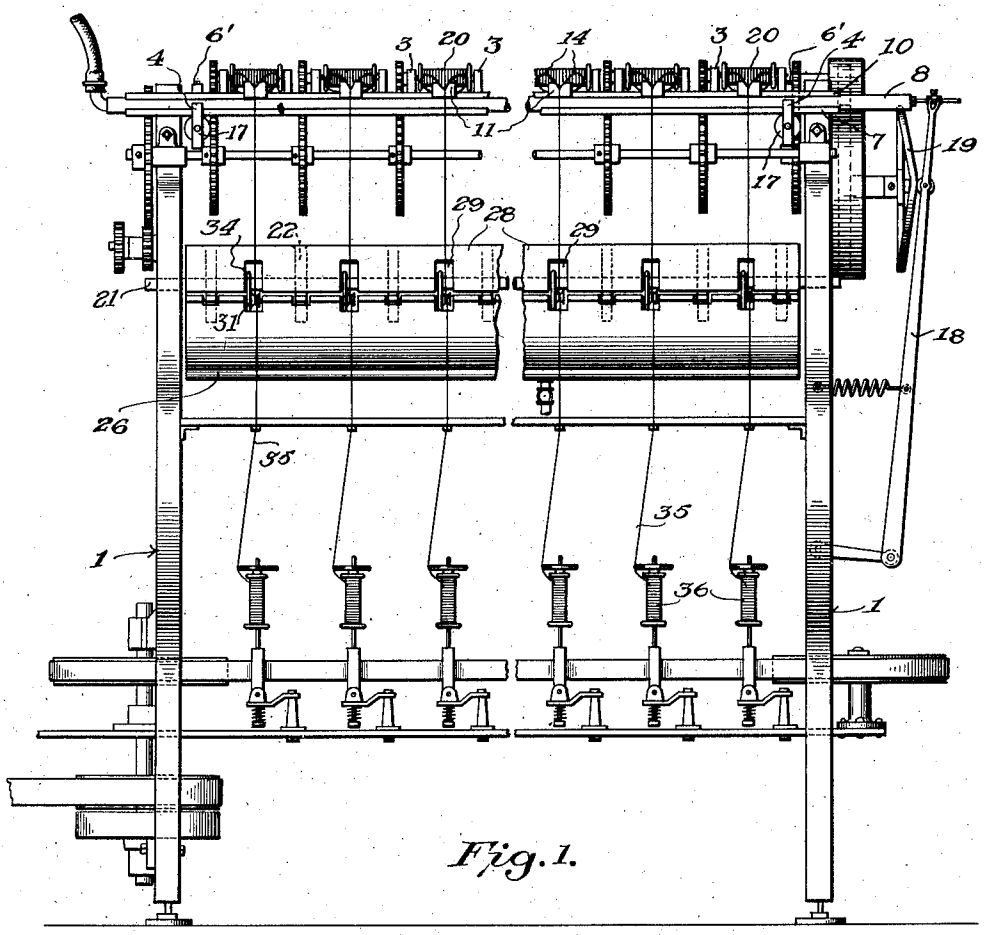

Fig. 1.

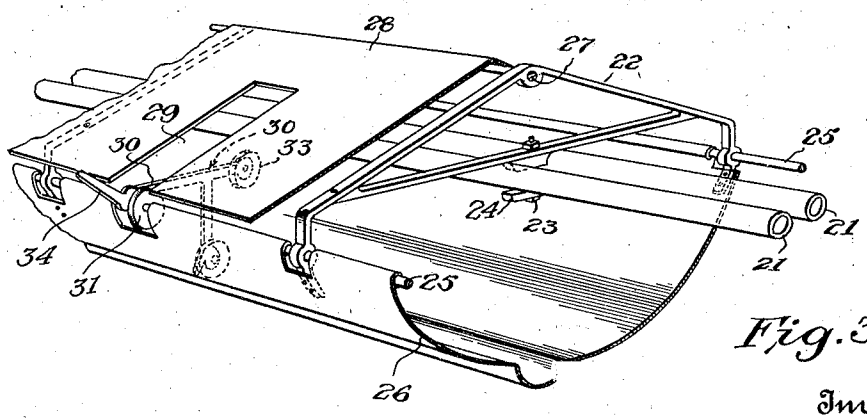

Fig. 3

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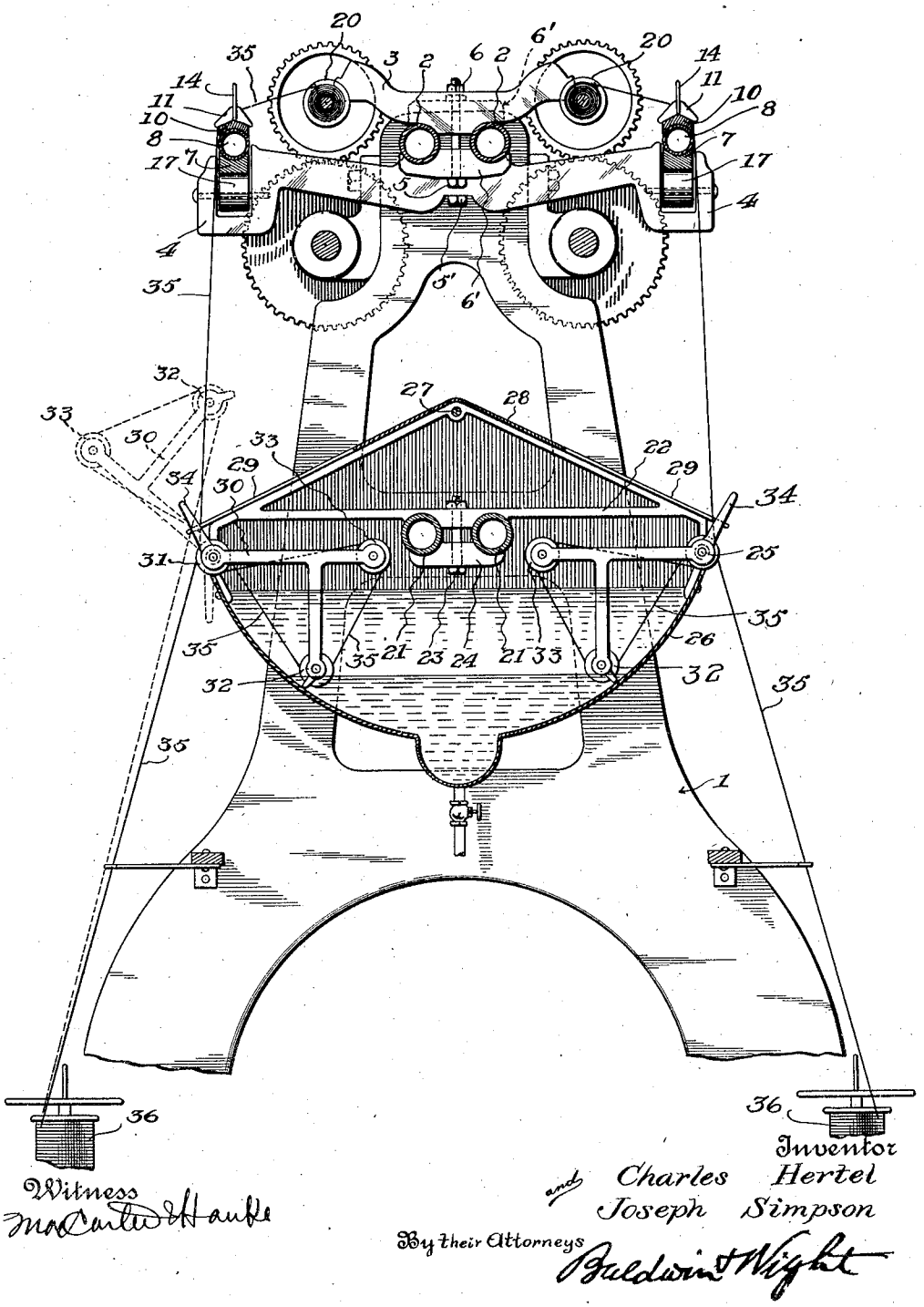
Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 4.

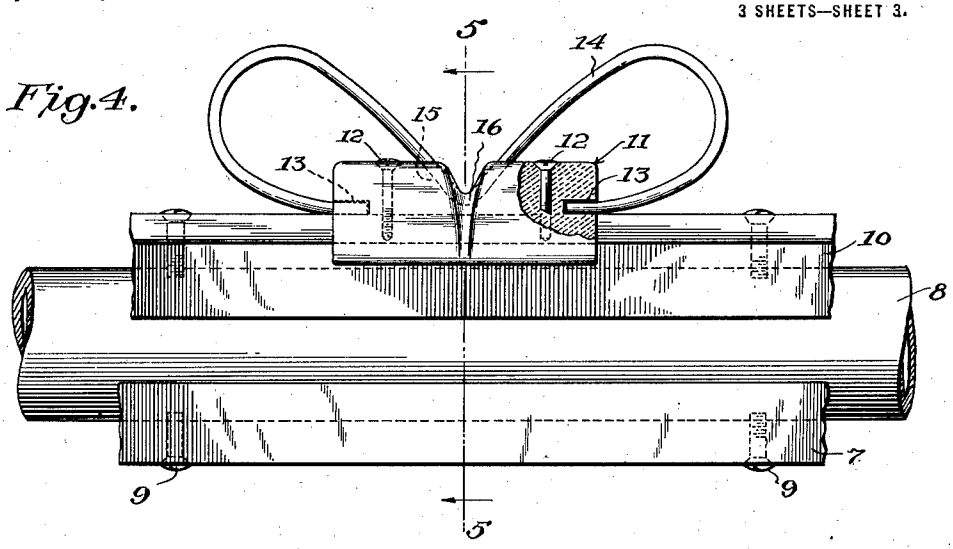
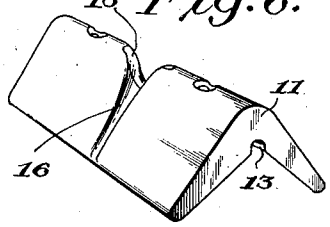


Fig. 6.



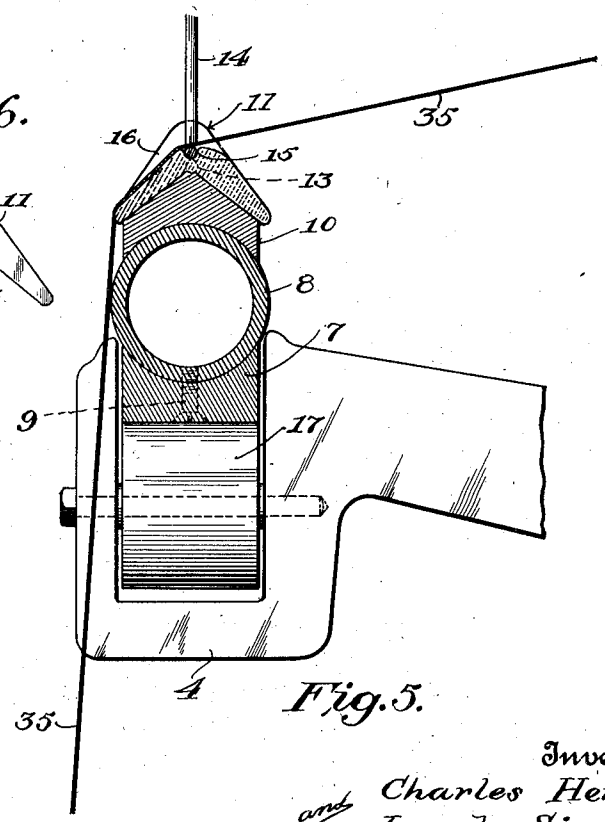


Fig. 5.

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UNITED STATES PATENT OFFICE.

CHARLES HERTEL AND JOSEPH SIMPSON, OF SHAMOKIN, PENNSYLVANIA.

MACHINE FOR TWISTING AND SETTING THREADS.

1,330,534. Specification of Letters Patent. Patented Feb. 10, 1920.

Application filed March 25, 1919. Serial No. 284,984.

To all whom it may concern:

Be it known that we, CHARLES HERTEL and JOSEPH SIMPSON, both citizens of the United States, residing at Shamokin, in the county of Northumberland and State of Pennsylvania, have invented a certain new and useful Improvement in Machines for Twisting and Setting Threads, of which the following is a specification.

Our invention pertains more particularly to means for varying the amount of immersion of each thread in the setting solution and to improvements in the drying of the threads after they leave the solution and before they pass onto the winding spools or bobbins.

An object of the invention is to permit the ends of the thread to be tied instead of laid on the bobbins, and this is attained by providing a roller frame pivotally connected to the bath which is capable of being swung out clear of the sides of the machine.

A further object is to provide a roller frame for the immersion of the threads in the setting solution which is pivotally mounted in such a manner that the roller frame may be held in any position with respect to the surface of the setting solution, without in any way affecting the direction from which the thread passes over the drier to the bobbin. This is of importance as the thread is always in contact with the drier.

A further object is to improve the customary setting and drying means by placing it in close proximity to the guider eyes for the winding bobbins and reciprocating it in the usual manner with the guider eyes.

In the accompanying drawings:—

Figure 1 is a front elevation of a conventional type of machine with our improvements in position.

Fig. 2 is a partial vertical cross section of Fig. 1 showing the relation of the immersion rollers to the drier and setter and disclosing in dotted lines the position of the roller frame when it is swung out of the solution.

Fig. 3 is a perspective view of the bath or trough for the solution, partly broken away.

Fig. 4 is an enlarged detail of the drier and setter showing its relation to a guider eye.

Fig. 5 is a vertical cross section taken on the line 5—5 of Fig. 4 with a showing in elevation of the supporting means therefor, and

Fig. 6 is a perspective view of the porcelain guider eye.

The machine comprises vertical upright members 1 connected at their upper extremities with two horizontal supporting pipes 2 to which are connected the bobbin supports 3 by means of bolts 5, nuts 6, and clamps 6′. The drier and setter supports 4 are fastened to the pipes 2 by means of bolts 5′ and clamps 6′. The drier and setter element comprises a bar 7 having a concave surface, adapted to receive the drier and setter pipe 8 which may be heated in any approved manner, either by steam or electricity, and which is connected to the bar 7 by means of screws 9. On the upper surface of the drier and setter 8 a bar 10 is located having an angular face upon which are mounted the porcelain guiders 11. These guiders are fastened to the arm 10 by means of screws 12 and have slots 13 in the ends of their under surface which are adapted to receive the spring eyes 14. The central portion of the spring eyes are resiliently held in a longitudinal groove 15 at right angles to the thread groove 16. At the ends of the drier and setter supports 4 are mounted the rollers 17 which carry the drier and setter and which are adapted to be reciprocated in a conventional way, as by means of pivoted lever 18 and cam 19. It will be seen that the guider eyes and drier and setter are reciprocated together so as to guide the thread onto the winding bobbins 20. The winding bobbins are actuated in the usual manner.

To the supporting bars 21, mounted in the frames 1, are clamped the triangular bath frame elements 22 by means of bolts 23 and clamp 24. The ends of the elements 22 are slotted to receive rods 25 to which is fastened the bath trough 26. A rod 27 joins the apices of the triangular elements and supports the trough cover 28 which is provided with slots 29. Pivotally mounted on the rods 25 are the roller or guide carrying frames 30 carrying the porcelain rollers or guides 31, 32, and 33. A handle 34 is provided to permit the manual operation of the roller frame. The threads 35 leave the delivery spools 36 and pass over the roller 31 down over roller 32, into the solution, and up over roller 33, thence preferably back to roller 31 from which they pass by the drier and setter 8 through the thread groove 16 in the guider eyes and onto the winding bobbin 20.

By this arrangement it will be seen that we are enabled to vary the amount of immer-

sion of the thread by manipulation of the handles 34 of the roller frame and the depth of the solution and, further, that the position of the roller frame will not affect the direction of the thread to the drier and setter as is shown in Fig. 2 and the tension on the thread will in no wise tend to force the roller frame either into or out of the solution, no matter what its position, while in operation.

We claim as our invention:—

1. The combination with a drier and setter, guider eyes connected therewith, and means for reciprocating said drier and setter and guider eyes.

2. The combination with a drier and setter, means for reciprocating said drier and setter, and guider eyes comprising a porcelain element having grooves and a resilient wire fitting in said grooves, said guider eyes connected with said drier and setter in position to be reciprocated therewith.

3. The combination with a bar having a concavity, a drier and setter, a second bar superposed on said drier and setter, a vitreous guider element mounted on said second bar and provided with grooves and slots, and a resilient wire frictionally held in said grooves and slots, rollers upon which said first bar is mounted, and means for reciprocating said bar.

4. The combination with a drier and setter, of a guide connected therewith, and means for reciprocating said drier and setter and guide.

5. In a machine for drying and twisting threads, the combination with a bath of a guide-carrying frame pivotally mounted at the edge thereof, means for swinging said frame completely out of the bath, guides on the frame, one of the guides having an axis coincident with the pivotal axis of said frame and mounted to extend beyond the outer edge of the bath and over which a thread passes both in entering and leaving the bath, a drying and setting element to which the thread directly passes at a certain angle after leaving said last-mentioned guide, the thread leaving said guide and passing directly by said drying and setting element at the same angle regardless of the position of the frame with respect to said bath.

6. In a machine for drying and twisting threads, the combination with a bath of a guide-carrying frame pivotally mounted thereon, means for swinging the frame completely out of said bath, guides on the frame, one of the guides having an axis coincident with the pivotal axis of said frame and over which a thread passes both in entering and leaving the bath, a drying and setting element by which the thread directly passes after leaving said last-mentioned guide, the arrangement of the guides and frame being such that the tension of the thread does not tend to move said frame about its pivotal axis regardless of the position of the frame with respect to said bath.

In testimony whereof, we have hereunto subscribed our names.

CHARLES HERTEL.
JOSEPH SIMPSON.