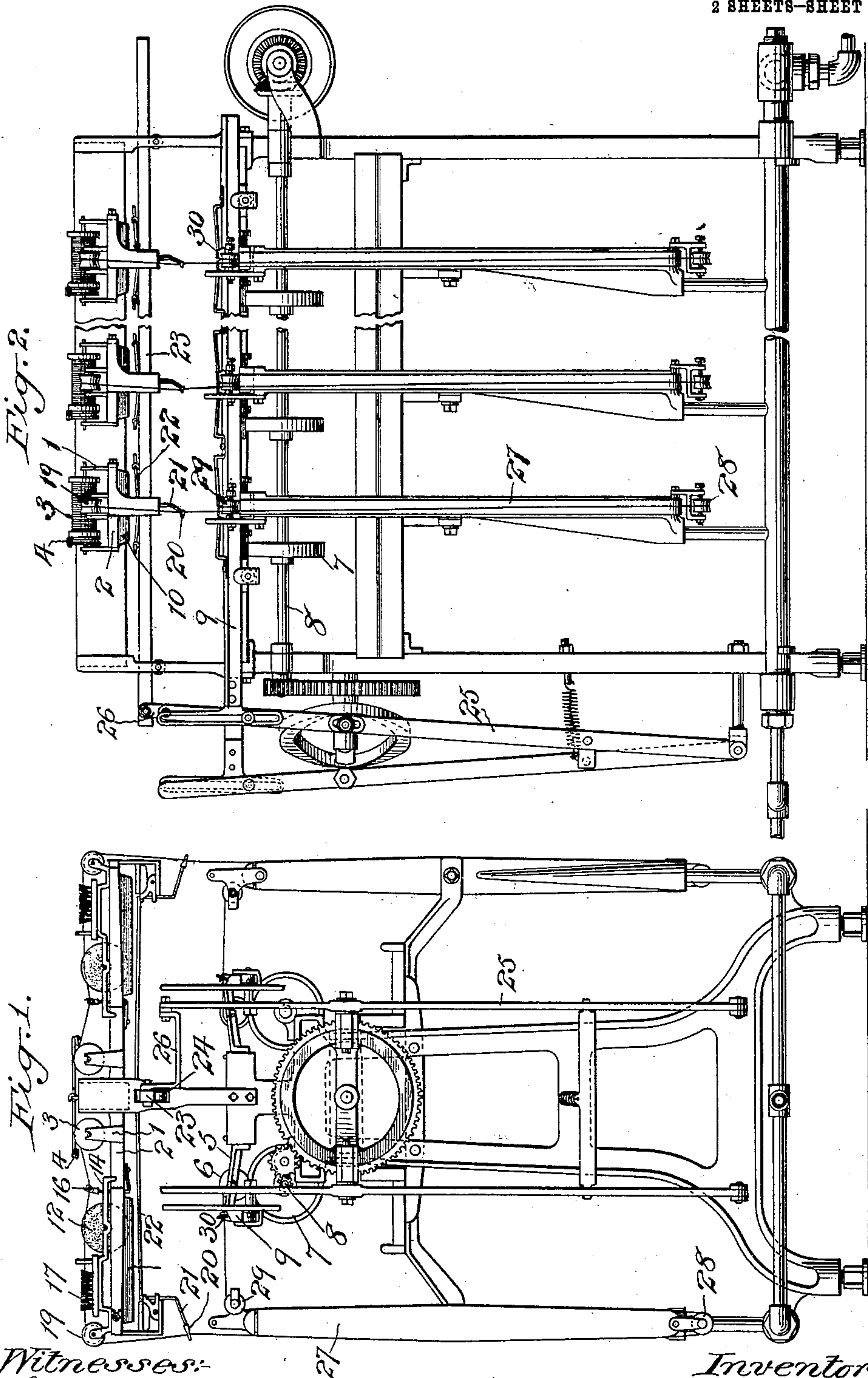


W. C. KEYWORTH.
 THREAD FINISHING MACHINE.
 APPLICATION FILED SEPT. 17, 1907.

991,856.

Patented May 9, 1911.

2 SHEETS—SHEET 1.



Witnesses:
 J. George Barry
 Otto W. Holmgren.

Inventor:
 William C. Keyworth
 by attorneys
 Brown & Woodward

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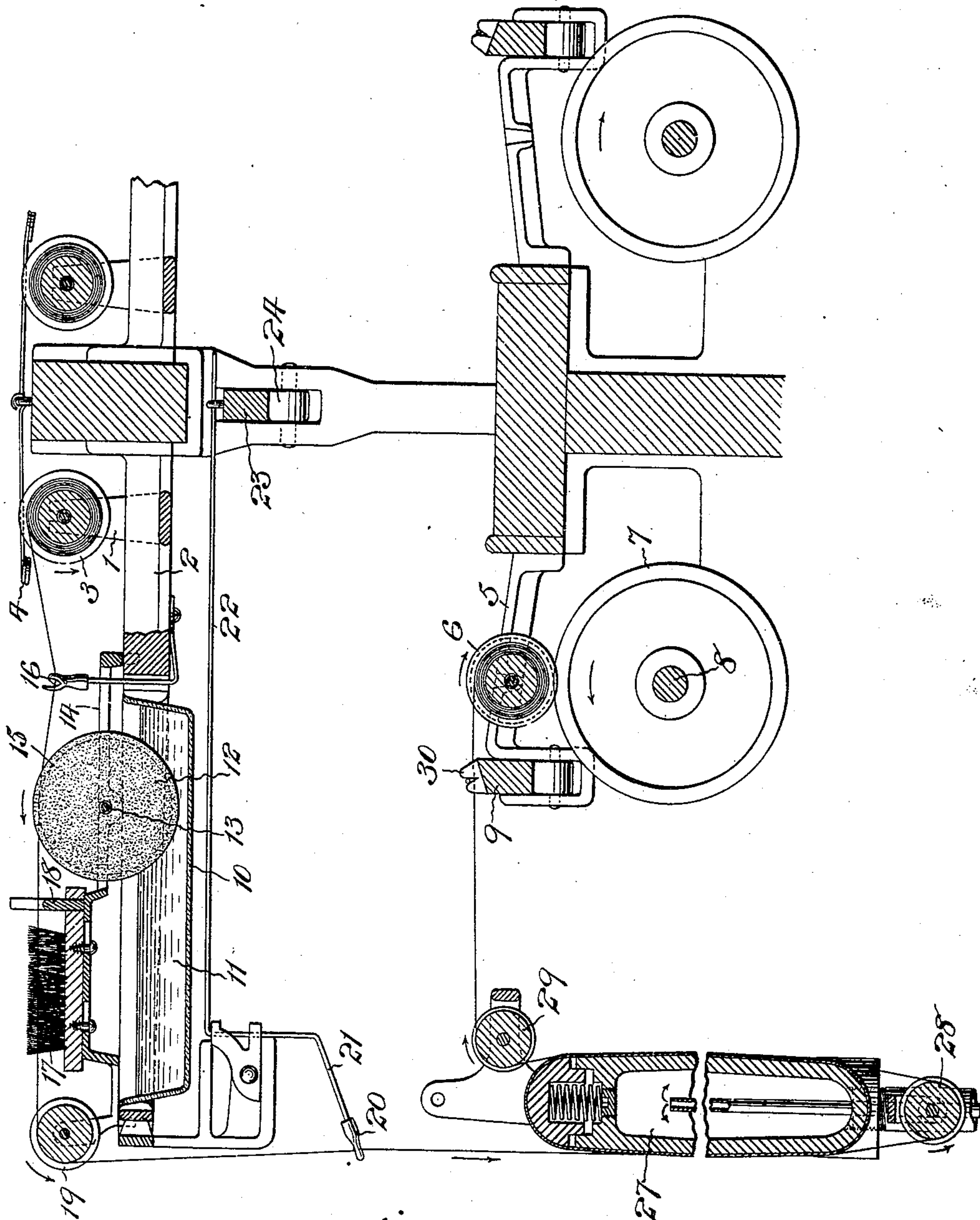


Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIAM C. KEYWORTH, OF PATERSON, NEW JERSEY.

THREAD-FINISHING MACHINE.

991,856.

Specification of Letters Patent.

Patented May 9, 1911.

Application filed September 17, 1907. Serial No. 393,373.

To all whom it may concern:

Be it known that I, WILLIAM C. KEYWORTH, a citizen of the United States, and resident of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Improvement in Thread-Finishing Machines, of which the following is a specification.

This invention consists in certain novel features in the construction, form and arrangement of the several parts of a silk finishing machine whereby the individual treatment of the threads is facilitated and in which a more complete and even lustering of the threads is insured.

The above objects are accomplished by providing means for moistening the threads instead of immersing them in their liquid bath as heretofore, thus permitting the threads to be more easily and quickly dried. Means are also provided for rolling the individual threads back and forth on their heaters as they pass along the same so that the threads are lustered all over and not on one side as in table drying machines.

This invention contains improvements on the machine for winding, lustering and finishing silk etc. upon which application for Letters Patent of the United States was made by me March 1, 1906, Serial No. 303,601, which application resulted in Patent No. 872,734, dated December 3, 1907.

A practical embodiment of my invention is represented in the accompanying drawings in which—

Figure 1 represents a silk thread finishing machine in end elevation with my improvements embodied therein. Fig. 2 is a view in side elevation of the machine with a portion intermediate its ends broken away, and Fig. 3 is an enlarged detail section illustrating more fully the improvements which form the subject-matter of this present application.

Each thread delivery mechanism comprises a support 1 carried by the main frame 2 for the thread delivery spool or bobbin 3, which spool or bobbin is held under the required frictional tension by the arm 4. Each thread winding mechanism comprises a support 5 carried by the machine main frame 2 for the winding spool or bobbin 6, which spool or bobbin is engaged by a drum 7 carried by a rotary shaft 8. A traverse bar 9 is carried by the machine as usual for

guiding the thread as it is wound upon its spool or bobbin.

The means which I have shown for moistening each of the threads comprises a basin 10 carried by the main frame 2 of the machine, which basin is adapted to contain the thread dressing liquid 11. A thread moistening wheel 12 of cork or other suitable material is mounted to rotate with the lower portion of the wheel immersed within the thread dressing liquid 11. The axle 13 of this wheel 12 is removably mounted in suitable half bearings in the sides of the frame 14. This wheel is provided with a circumferential groove 15 for receiving the thread as it leaves the delivery mechanism. A suitable guiding eye 16 is provided for the thread, which eye is supported in the plane of the moistening wheel 12 for guiding the thread on to the wheel from its delivery spool or bobbin 3. A brush 17 is provided for removing the superfluous moisture from the thread after it has passed over the top of the moistening wheel 12, which brush is secured to the frame 14. A guide 18 is provided for guiding the thread from the wheel to the brush 17. The thread as it leaves the brush 17, passes around an idler roller 19 mounted in the frame 14 and from thence passes downwardly through a guide eye 20 carried by one arm 21 of an oscillating lever, the other arm 22 of which is engaged by a longitudinally reciprocating bar 23 supported on rollers 24 of the main frame 2 of the machine. The reciprocating movement of the bar 23 is imparted from one of the rocking levers 25 which impart the longitudinally reciprocating movement to the traverse bars 9. In the present instance a connection 26 is provided between one of these levers 25 and the bar 23.

Individual heating surfaces are provided for the threads as follows. The thread as it leaves its eye 20 of the rocking lever 21, 22, passes downwardly along the outer surface of a heater 27, from thence around an idler pulley 28, then upwardly along the inner surface of the said heater and finally around an idler pulley 29, on its way to the thread guide 30 on the traverse bar 9 of the thread winding mechanism. This heater 27 is herein shown as adapted to be heated by steam but it is to be understood that it may be heated in any other manner desired.

It is to be understood that the machine

may be equipped either upon one side or upon both sides with the finishing devices as hereinabove described and also that any number of the devices may be employed to suit different requirements.

From the above description it will be seen that the thread is moistened on its surface by the liquid carried from the basin 10 by the rotary movement of the wheel 12 to the thread, the thread thus being moistened without being immersed in the basin. Moistening of the surface of the thread only, permits it to be more easily and quickly dried than where the thread is immersed in the liquid. As the thread leaves the top of the moistening wheel 12, it passes through the guide 18 and from thence along the brush 17 where superfluous moisture is removed therefrom. As the thread is passed along its heating surface the lever 21, 22, will be rocked, thus rolling the thread back and forth upon its heating surface and thereby insuring a complete and even lustering to the whole surface of the thread. This is a very important feature as it eliminates any liability of the thread becoming lustered upon one side only during its passage along its heating surface.

It is evident that various changes might be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention; hence I do not wish to limit myself strictly to the structure herein set forth, but

What I claim is:

1. In a machine of the character described, thread delivery and winding mechanisms, means for moistening the threads, vertically arranged heaters, means for passing each thread downwardly in contact with one surface and upwardly in contact with another surface of its heater and means for imparting a rolling motion to each thread as it passes downwardly in contact with one of its heating surfaces.

2. In a machine of the character described, thread delivery and winding mechanisms, means for individually moistening each thread each means comprising a basin adapted to contain the thread dressing liquid, a moistening wheel partially immersed in the liquid over which wheel the thread

is caused to pass, a heater along the surface of which the thread is caused to travel and means for imparting a rolling motion to the thread while it is in contact with the surface of its heater.

3. In a machine of the character described, thread delivery and winding mechanisms, means for individually moistening the threads, heating surfaces along which the threads are passed, means for imparting a rolling motion to the threads while they are in contact with their heating surfaces, comprising a plurality of rocking levers carrying eyes through which the threads pass and a common longitudinally reciprocating bar for oscillating all of the said rocking levers and means for reciprocating said bar.

4. In a machine of the character described, thread delivery and winding mechanisms, basins for containing the thread dressing liquid, moistening wheels engaging the liquid and the threads, vertically arranged heaters, means for passing each thread downwardly in contact with one surface and upwardly in contact with another surface of its heater, and means for imparting a rolling motion to each thread as it passes downwardly in contact with one of the heating surfaces.

5. In a machine of the character described, thread delivery and winding mechanisms, means for individually moistening the threads, vertically arranged heaters, means for passing the threads downwardly in contact with one surface and upwardly in contact with another surface of the heaters, means for imparting a rolling motion to the threads as they pass downwardly in contact with one of the heating surfaces of the heaters, said means comprising rocking levers carrying eyes through which the threads pass and a longitudinally reciprocating bar for oscillating the rocking levers and means for reciprocating said bar.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this tenth day of September 1907.

WILLIAM C. KEYWORTH.

Witnesses:

F. GEORGE BARRY,
HENRY THIEME.