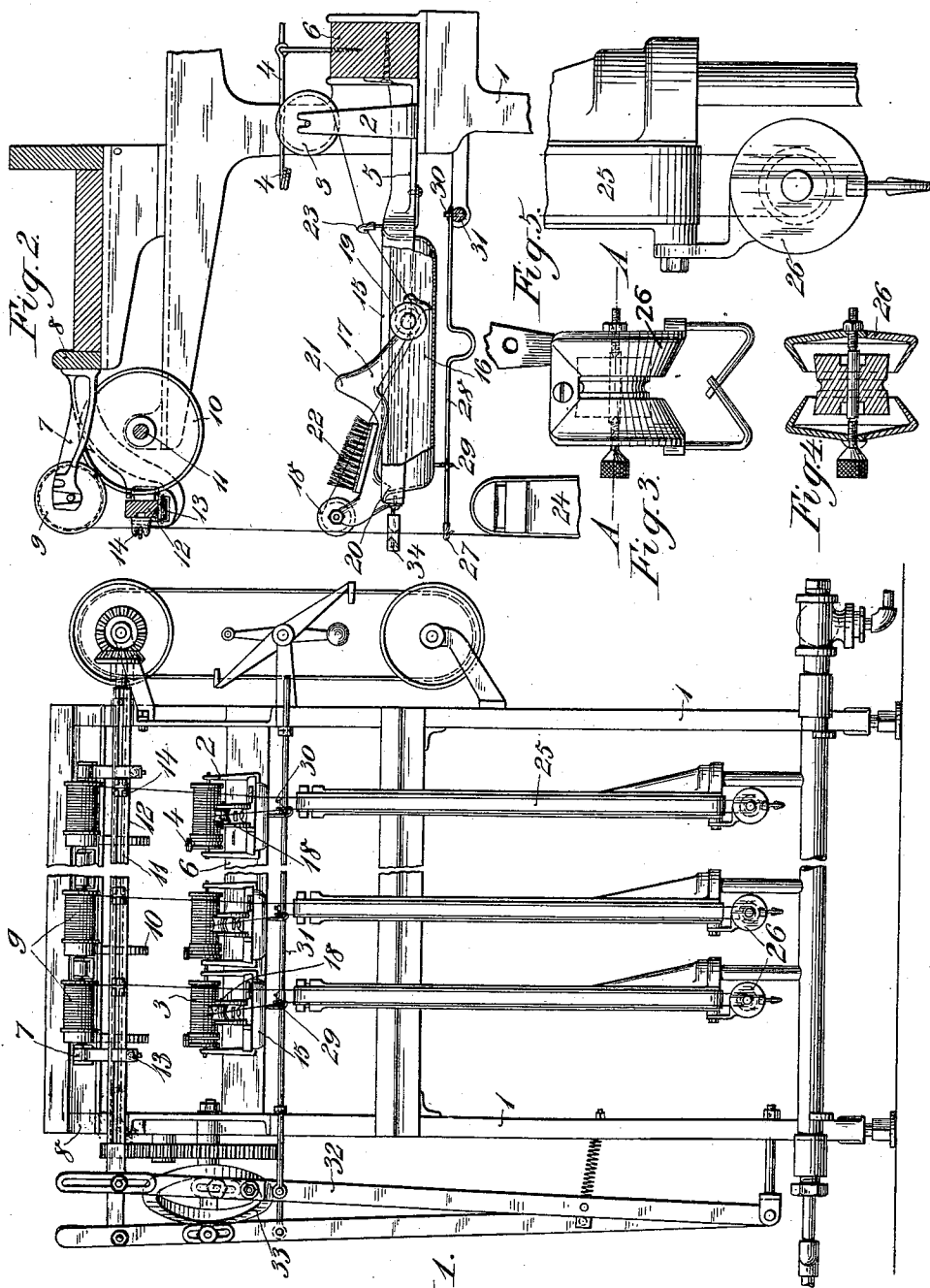


W. C. KEYWORTH.
 THREAD FINISHING MACHINE.
 APPLICATION FILED MAR. 24, 1909.

990,564.

Patented Apr. 25, 1911.



Witnesses:
W. C. Keyworth
J. George Barry

Fig. 1.

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 by his attorneys
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UNITED STATES PATENT OFFICE.

WILLIAM C. KEYWORTH, OF PATERSON, NEW JERSEY.

THREAD-FINISHING MACHINE.

990,564.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed March 24, 1909. Serial No. 485,410.

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 thread finishing machine, such, for instance, as a silk thread finishing machine, whereby the individual treatment of the threads is facilitated; in which a more complete and even lustering of the threads is insured, and in which the thread finishing mechanisms may be placed much closer together than has heretofore been possible where the threads were passed along the transverse surfaces or the front and back surfaces of the several vertical heaters.

The object of my invention is to so locate the several parts of the machine as to permit a very convenient handling of the individual threads and by which the surfaces of the heaters over which the threads are caused to pass are all arranged in an exposed position so as to facilitate the cleaning of the said surfaces from time to time as becomes necessary.

This invention furthermore consists in improvements on the machine for winding, lustering and finishing silk, etc., upon which United States Letters Patent No. 872734, dated December 3, 1907, were issued to me, and upon which applications for United States Letters Patent were made by me September 17, 1907, Serial No. 393373; March 12, 1908, Serial No. 420556; and July 13, 1908, Serial No. 443282.

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

Figure 1 is a view in side elevation of a machine with a portion intermediate its ends broken away, Fig. 2 is an enlarged detail section illustrating more fully the thread delivery mechanism, the thread winding mechanism, the thread moistening mechanism, and a portion of the thread heating mechanism, Fig. 3 is an enlarged detail view of the pulley at the bottom of each heater around which the thread is passed, Fig. 4 is a section taken in the plane of the line A—A of Fig. 3, and Fig. 5 is an en-

larged detail view showing the lower portion of one of the heaters and its thread guiding pulley supported therefrom.

The main frame of the machine is denoted by 1.

Each thread delivery mechanism comprises a support 2 for the thread delivery spool or bobbin 3, which spool or bobbin is held under the required frictional tension by the arm 4. This support 2 uprises from a bracket 5 secured to one of the longitudinal beams 6 of the main frame 1.

Each thread winding mechanism comprises a bracket 7 secured to one of the longitudinal beams 8 of the main frame of the machine, which bracket carries the winding spool or bobbin driven by the drum 10 on the lower shaft 11. A traverse bar 12 is supported on anti-friction rollers 13 in the bracket 7 and is provided with the usual thread guides 14 for guiding the thread onto its spool or bobbin.

Each thread winding mechanism comprises a basin 15 carried by the bracket 5, which basin is adapted to contain a thread dressing liquid 16. A holder 17 is provided at its outer and inner ends with pulleys 18, 19, the pulley 19 being immersed within the liquid 16. This holder is provided with a recess 20 near its outer end for receiving the lip of the basin 15 so that the holder is removably supported by its inner end resting upon the bottom of the basin 15 and its outer end supported upon the lip of the basin. A suitable handle 21 is provided for facilitating the insertion and removal of the holder. A brush 22 is mounted on the holder 17 between the outer pulley 18 and the handle 21 exterior to the dressing liquid, which brush serves to remove the superfluous moisture from the thread as it leaves its liquid bath. A stationary guide eye 23 is secured to the bracket 5 in position to direct the thread from its delivery spool or bobbin to the thread immersing pulley 19 on the holder 17.

An individual heater is provided for each of the threads as follows:—A vertically arranged heater 24 is suitably supported from the main frame. The heater 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. The outer surface 25 of the heater is arranged to be engaged by the thread as it passes downwardly and upwardly in engagement with the

heater and the thread engaging surfaces of the several heaters are arranged parallel with the longitudinal axis of the machine and preferably all in the same plane. These surfaces are located on the outer sides of the heaters so that they may be readily wiped off from time to time as is necessary in this type of machine. Furthermore, this arrangement of the thread so that it passes downwardly and upwardly along the outer side of the heater, places the thread where access thereto may be very readily obtained for examination from time to time, thus doing away with the necessity of the operator reaching in between the heaters and thereby obviating the liability of the operator's hands and arms becoming burned. This arrangement also permits the several thread finishing mechanisms to be located close together whereby a greater number of these mechanisms may be provided in a machine of a given length.

The thread passes around a pulley 26 mounted at the bottom of each of the heaters 24, the thread receiving groove of the pulley 26 being substantially in the plane of the outer surface 25 of the heater. Each thread is rolled upon its heating surface for insuring a complete and even lustering of the thread. In the present instance, the thread is rolled as it passes downwardly in contact with the surface of the heater by passing the thread through the eye 27 of a bar 28 pivoted intermediate its ends at 29 on the basin 15. The inner end of this horizontally arranged rock bar 28 is engaged at 30 with a longitudinally reciprocating bar 31 mounted in the frame 1 and connected to a vertical lever 32 which operates the traverse bar 12 and is controlled by a cam 33. The thread, as it passes upwardly, is engaged by a guide 34 on the basin, 15.

It will be seen that a machine constructed and arranged as herein described is very simple and effective and may contain a greater number of thread finishing mechanisms than heretofore and, at the same time, have the threads in position for ready access at all times.

What I claim is:—

1. In a thread finishing machine, a delivery mechanism, a winding mechanism, a vertically arranged heater, and a pulley

mounted at the bottom of the heater with its thread receiving groove substantially in the plane of the outer surface of the heater, whereby a thread may be passed downwardly in contact with the outer surface of the heater around said pulley and upwardly in contact with the same surface of the heater.

2. In a thread finishing machine, a vertically arranged heater, a delivery mechanism and a winding mechanism located above the top thereof with their outer surfaces substantially in the plane of the outer surface of the heater, and a pulley mounted at the bottom of the heater with its thread receiving groove substantially in the plane of the outer surface of the heater, whereby a thread may be passed downwardly in contact with the outer surface of the heater around said pulley and upwardly in contact with the same surface of the heater.

3. In a thread finishing machine, a delivery mechanism, a moistening mechanism, a winding mechanism, a vertically arranged heater and a pulley mounted at the bottom of the heater with its thread receiving groove substantially in the plane of the outer surface of the heater, whereby a thread may be passed downwardly in contact with the outer surface of the heater around said pulley and upwardly in contact with the same surface of the heater.

4. In a thread finishing machine, delivery, moistening, and winding mechanisms, means for passing each individual thread through a moistening mechanism, a series of vertically arranged heaters, and pulleys mounted at the bottoms of the heaters with their thread receiving grooves substantially in the plane of the outer surfaces of the heaters, whereby each thread after leaving its moistening mechanism may be passed downwardly in contact with an outer surface of a heater around its pulley and back upwardly in contact with the same surface of its heater.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this sixteenth day of March, 1909.

WILLIAM C. KEYWORTH.

Witnesses:

F. GEORGE BARRY,
HENRY THIEME.