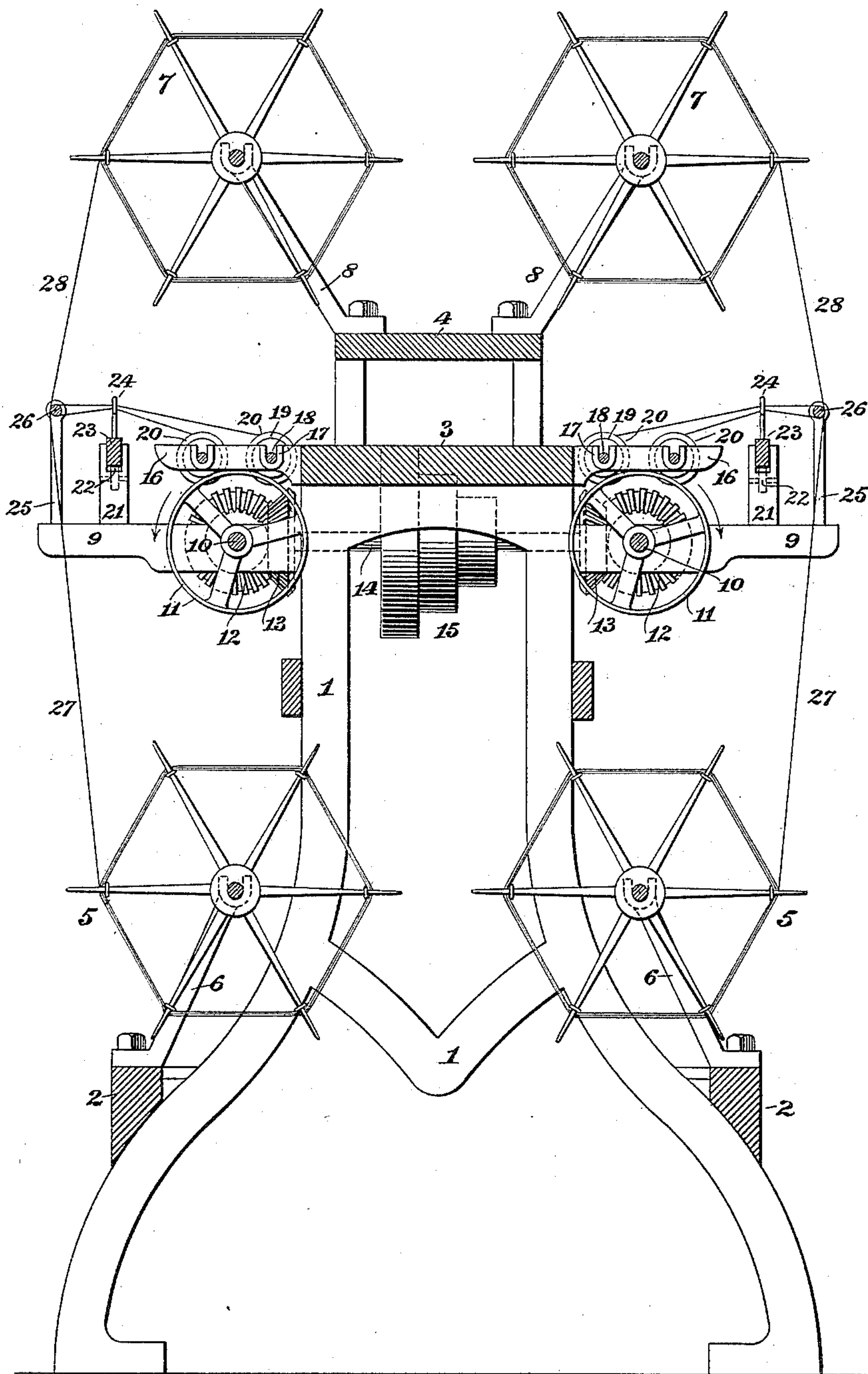


(No Model.)

H. D. KLOTS & H. NIGHTINGALE.  
SILK WINDING MACHINE.

No. 427,696.

Patented May 13, 1890.



Witnesses

Geo. W. Breech.  
Edward Thorpe.

Inventors

H. Nightingale,  
H. D. Klotz.

By their Attorneys

Fowler & Fowler.



# UNITED STATES PATENT OFFICE.

HENRY D. KLOTS AND HARRY NIGHTINGALE, OF NEW YORK, N. Y., ASSIGNORS  
OF ONE-THIRD TO JOHN NIGHTINGALE, OF SAME PLACE.

## SILK-WINDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 427,696, dated May 13, 1890.

Application filed April 17, 1888 Serial No. 270,964. (No model.)

*To all whom it may concern:*

Be it known that we, HENRY D. KLOTS and HARRY NIGHTINGALE, citizens of the United States, both residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Silk-Winding Machines, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, forming part of this specification.

Our invention relates to machines for transferring or winding silk or other fibrous material from swifts onto rotating winding spools or bobbins.

It is a great advantage in mill machinery to have the same compact in arrangement, so as to occupy the minimum of floor-space. So important a feature is this that preference is invariably given the more compact forms.

The chief objects of our invention are to double the winding capacity of the silk-winders heretofore used without in any way increasing the floor-space occupied thereby, and to make certain parts of the machine perform double functions.

To the aforesaid purposes our invention, briefly stated, consists in what we term a "double-deck winding-machine," having an upper swift and a lower swift disposed adjacent thereto, with a suitably-driven winding spool or bobbin co-operating one with each of said swifts, each spool acting to wind thereon the silk delivered by its co-operating swift, and in a stationary thread-guide and a traversing guide, each common to both of said swifts, and a driving friction-drum common to both of said spools for rotating the same.

The accompanying drawing is a vertical transverse sectional view of our so-called "double-deck winding-machine" constructed in accordance with our invention.

Referring to the drawing, the machine frame-work comprises a set of the vertically-arranged frames or uprights 1, preferably made of cast-iron, and the side rails 2 2, which are secured to the sides of the frames 1, near the bases thereof, and run longitudinally of the machine. Upon the tops of the frames is securely set a table 3, extending the length of

the machine, and the stand 4 is fixed rigidly upon the table. The lower swifts 5 5 are correspondingly disposed at the lower part of the machine and turn idly in the half journal-boxes formed in the upper ends of the swift-supports 6 6, which have their lower ends bolted to the rails 2 2 and are inclined inwardly, so as to bring the swifts within the basal lines of the machine. The upper swifts 7 7 are arranged similarly upon each side of the machine, and are preferably sustained in operative positions by the swift-supports 8 8, (like those described for the lower swifts,) which are bolted to the stand 4. We have shown the upper and lower sets of swifts disposed in pairs, one directly above the other, with their axes in the same vertical plane. However, this arrangement may be varied, if preferred, by setting the upper swifts farther in toward the center of the machine, so that they will just clear each other in their revolutions, or they may be placed farther out; but the requirement always to be observed is that the upper and lower swifts shall be arranged in pairs, one substantially over the other. The brackets 9 9 are fixed to the sides of the machine and project laterally therefrom at right angles, and serve to support the rotatable friction-drum shafts 10 10, which extend lengthwise the machine, and upon these shafts are keyed the friction drums or wheels 11 11, which are rotated in opposite directions by means of the bevel-gears 12 12, fixed at the ends of the shafts 10 10, gearing with the bevel-pinions 13 13, which are fast upon the respective ends of the main shaft 14, mounted suitably at one end of the machine and provided with the stepped belt-pulley 15, which may be driven in any desired manner.

Overhanging the friction-drum shafts are a set of spool-bearing arms 16 16, which are rigidly attached, preferably, to the edges of table 3 and extend at right angles therefrom. These bearing-arms are each provided with two suitable journal-bearings 17 17, made, preferably, open at the top, so that the spool-spindles 18 18, upon which the spools 20 20 are mounted, may be readily dismounted in doffing and replacing the spools. Motion is given the spools by virtue of the spindle-hubs 19 19 of the spool-spindles being in



frictional contact with the peripheries of the friction-drums 11 11 at corresponding points to the right and left of the high part of the drums, as clearly indicated in the drawing.

5 Upon the upper sides of the brackets 9 9 are fixed the standards 21 21, having forked heads provided with anti-friction rolls 22 22, coming in contact with the under sides of the traverse-rails 23 23, which are provided  
10 with ordinary thread-guide eyes 24 24, located at suitable intervals thereon, and preferably we employ one traversing guide for and in common with two spools, which are driven by one drum. At the ends of the brackets 9 9  
15 are secured the vertical posts 25 25, through the eyes in the heads of which pass the stationary thread-guide bars 26 26, which extend lengthwise the machine parallel with the traverse-rails.

20 We have considered it unnecessary to describe or illustrate more in detail the driving mechanism for the spools and the construction of the traversing means, since these features are well known to those familiar with  
25 textile machinery. However, for the more thorough understanding of the same, reference may be had to United States Patent No. 257,269, granted May 2, 1882, and Patent No. 373,486, granted November 22, 1887.

30 The drawing illustrates a winder having our invention duplicated upon each of the opposite long sides thereof, as is usual in this class of machines. In the operation of the winder the silk thread or filament 27 runs  
35 from a lower swift 5 over a stationary thread-guide bar 26, through a traversing guide 24, thence, preferably, to an inner rotating spool or bobbin 20, which serves to wind the same thereon from its co-operating lower swift.  
40 The thread 28 passes from an upper swift 7, under the guide-bar 23, thence through a traversing guide 24, preferably, to an outer spool 20, which acts to wind thereon the thread from its co-operating upper swift.  
45 For the sake of clearness the threads 27 and 28 are shown as running quite an appreciable distance apart on their way through the traversing guides; but in actual operation they generally run in contact at these points. Of  
50 course it will be optional in regard to em-

ploying an inner spool in co-operation with a lower swift or an outer one in co-operation with an upper swift, or vice versa.

In our construction we cause the friction-drum to act in common with two spools, the  
55 traverse-guide and the stationary guide to act each in common with a pair of swifts and their co-operating pairs of spools, thereby utilizing these parts in double capacities.

Besides the important advantage of doubling the capacity of the winder without increasing the floor-space occupied thereby, our winder provides a set of overhead or upper  
60 swifts conveniently located both for manipulation and inspection by the operative. 65

Having thus described our improvements in silk-winding machines, what we claim as our invention, and desire to secure by Letters Patent, is—

1. In a silk-winding machine, the combination, with a pair of oppositely-arranged swifts, a spindle carrying a rotating winding-spool for each of said swifts, rotating means for the  
70 spindles, and a stationary thread-guide common to both of said swifts, of a traversing guide common to both of said swifts and imparting the requisite lateral motion to the threads in building the load on the spools, substantially as described. 75

2. In a silk-winding machine, the combination, with a pair of oppositely-arranged  
80 swifts, such as 7 and 5, suitably mounted spool-spindles, such as 18, arranged one for each swift and carrying a winding-on spool 20, and means for rotating such spindles, of a  
85 single traverse-guide, such as 24, and a single stationary thread-guide, such as 26, the traverse-guide and the thread-guide each acting in common with both of said swifts and winding-on means, respectively, substantially  
90 as and for the purpose set forth.

In testimony whereof we have hereunto set our hands and seals, this 6th day of April, 1888, in the presence of the two subscribing witnesses.

HENRY D. KLOTS. [L. S.]

HARRY NIGHTINGALE. [L. S.]

Witnesses:

PAUL F. C. TUCKER,  
WILLIS FOWLER.