No. 864,310. PATENTED AUG. 27, 1907.

J. KNOTT.

THREAD DRYING FRAME.

APPLICATION FILED MAY 31, 1907.

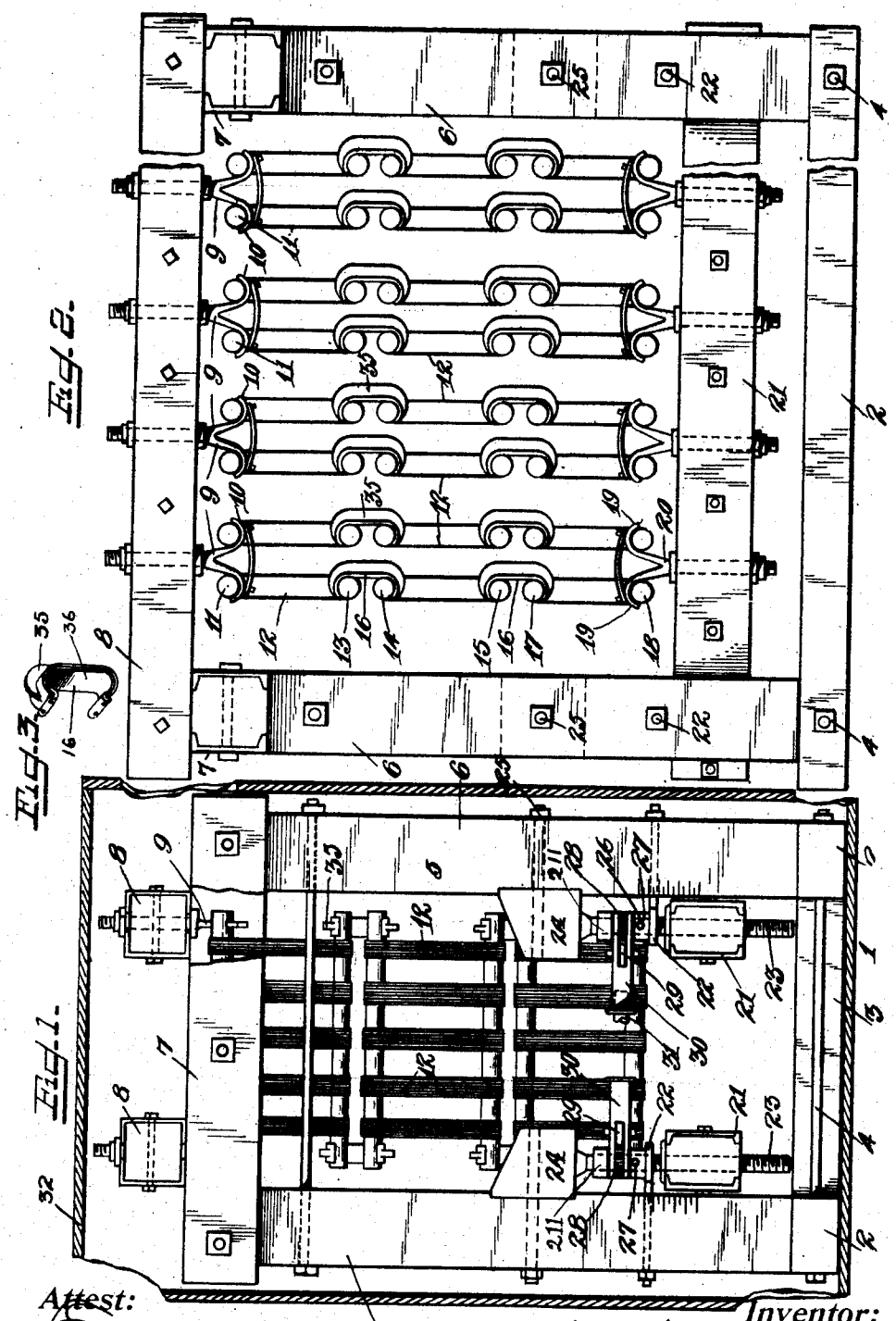


Fig. 2.

Fig. 3.

Fig. 1.

Attest:

S. Mitchell

Leo F. Matty.

Inventor:

Jacob Knott

by

Dickerson, Brown + Raegener Attys.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JACOB KNOTT, OF PATERSON, NEW JERSEY.

THREAD-DRYING FRAME.

No. 864,310. Specification of Letters Patent. Patented Aug. 27, 1907.

Application filed May 31, 1907. Serial No. 376,586.

To all whom it may concern:

Be it known that I, JACOB KNOTT, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Thread-Drying Frames, of which the following is a specification, accompanied by drawings.

My invention relates to apparatus for stretching and drying skeins of silk and like materials and comprises a series of racks or stretching frames so constructed as to keep the skeins under uniform tension to expose the same for the efficient circulation of air and to make exceedingly easy and rapid the stringing and removal of the skeins.

The apparatus herein described is further adapted by its construction to permit its being inclosed completely for the purpose of circulating therethrough hot or dry air.

The objects of my invention are to improve the construction of drying apparatus of the class described, to facilitate the threading and removal of the skeins without snarling or tangling of the threads thereof, to provide for the ready inclosure of the apparatus for the circulation of heated gases therethrough, and to make the apparatus compact, strong, simple and easy to construct.

I will now proceed to describe my invention with reference to the accompanving drawings in which one form of apparatus embodying my invention is illustrated, and will then point out the novel features in claims.

In said drawings: Figure 1 shows an end elevation of the apparatus, a portion of the frame work having been broken away; and Fig. 2 shows a side elevation of the apparatus, and Fig. 3 is a detail of one of the yokes.

Referring to the drawings, 1 represents a foundation frame which consists of the longitudinal members 2 and the transverse members 3 which are suitably joined at their ends and held securely in position by means of the through bolts 4. At each end of the foundation frame 1 are secured the upright frames 5 each of which consists of the upright members 6 and the transverse members 7 which are supported upon the upper ends of the members 6 and suitably secured thereto in any desired manner. Supported upon the transverse member 7 are cross-members 8 which are each provided with a plurality of hangers 9. The hangers 9 are preferably made of metal and provided with bent portions 10 which are adapted to hold the ends of the rods 11. From the rods 11 are hung skeins 12 of silk or other material to be dried; and from these skeins are hung other skeins 12 by means of rods 13 passed through the first row of skeins, rods 14 passed through the second row of skeins and open yokes 16 by which said rods 14 are suspended from said rods 13. In like manner I may suspend a third row of skeins from the second row by means of other rods 15 and 17 and yokes 16; and so on. The bottom row of skeins have threaded through and supported by them rods 18 over which fit hooked portions 19 of stretching bolts 20 substantially similar in construction to the hangers 9 previously mentioned. These stretching bolts 20 pass through and are secured to stretching frames 21, and for applying tension to the skeins in addition to that due to the weight of the parts previously mentioned, I provide screw jacks 211 held in position and guided by eyebolts 22 passed through the uprights 6 and the screws 23 of which pass through the stretching frames 21, the latter therefore forming nuts for said screws. The upper or butt ends of these jacks bear against abutments 24 secured to the uprights 6 by means of the bolts 25.

For operating the jacks to force the stretching frames 21 downward and apply tension to the skeins, I provide collars 26 fast on said screws and provided with sockets 27 in which turning bars may be inserted and I further provide ratchet arms 30 carrying pawls 29 engaging ratchet wheels 28 on the screws; said ratchet arms having in their ends sockets adapted to receive turning bars 31, one of which broken away, is shown in Fig. 1. I may turn the screws either by the collars 26 or by the ratchet arms 30 or by both, the two turning devices permitting several more to work simultaneously in operating the jacks. The collars 26 further serve, by resting upon the eyebolts 22, to support the jacks in proper position when there is no tension on the skeins.

The yokes 16 are preferably open at one side and provided with a rib 35 to give the necessary amount of strength to the same as they have to resist a great deal of strain when the silk is being stretched. The object in making the yokes 16 open at one side is to facilitate the insertion of the rods carrying the skeins of silk without getting the same snarled or tangled, which was often the case when continuous yokes or rings were provided for suspending the rods upon which the skeins of silk were carefully arranged. By providing the yokes 16 so that the same is open at one side, will be seen that after the silk has been dried and the tension of the screws has been released, one person can easily remove the skeins of silk, by taking hold of each end of the rod 17 and simply raising the same to remove the bar from the yokes 16 without disengaging the skeins of silk. In this manner all the different skeins of silk supported upon the different rods can be removed one after the other without in any way interfering with the arrangement of the silk. It is also to be noted that the silk can be set up just as easily as the same can be taken down which is a great advantage of this construction.

It is highly important that the horizontal members 7, 8 and 21 shall remain perfectly straight and shall not warp or bend materially or take a permanent set under the influence of heat and moisture and changes of temperature. Neither metal beams nor wooden beams are by themselves satisfactory in this respect, the wooden beams being extremely likely to warp or take a permanent set and the iron beams lacking stiffness unless of excessive dimensions; but I have found that the conditions are satisfactorily met by armored or incased wooden beams as shown, the wooden forming the center portion of these members being incased in channel iron side members bolted together by through bolts as shown; these channel irons giving great strength and serving in great measure to protect the wooden center pieces from the effects of moisture, while said wooden pieces in turn give the entire structure a stiffness and strength which it would otherwise lack. It is exceedingly important that these members 7, 8 and 21 shall remain straight, as otherwise there can be no certainty that tension is applied uniformly to all of the skeins.

The means for varying the tension of the adjustable members 21 is preferably placed upon the inside of the upright members 6 so that the frame will take up less room than has heretofore been the case when the tightening device has been placed upon the outside of the members 6. This permits the apparatus to be inclosed in a casing 32 shown in section in Fig. 1, whereby hot dry air may be passed through the apparatus to add in drying the silk or other material.

As shown in Fig. 3 the yokes 16 are preferably provided on the inside with a strip of leather or other similar material 36 which is suitably fastened to the inside of the yoke in any desired manner. The yokes 16 are each provided with a leather strip 36 so that the yokes will not mar or scratch the ends of the rods upon which the skeins of silk are suspended, it being necessary that the ends of the rods be kept smooth so that the skeins of silk will not catch when the same are being put on or removed from the rods.

What I claim is:—

1. Drying apparatus comprising in combination a supporting framework provided with hangers for carrying skein bars, and with stretching beams provided with stretching bolts likewise adapted to receive skeins bars, tension applying means located inside the framework of the apparatus for moving said stretching beams and a casing inclosing said frame work and fitting closely thereto.

2. Drying apparatus comprising in combination a supporting framework provided with hangers for carrying skein bars, and with stretching beams provided with stretching bolts likewise adapted to receive skein bars, and a plurality of skein bars between said hangers and stretching bolts supported by the skeins themselves and open sided yokes connecting adjacent pairs of skein bars.

3. Drying apparatus comprising in combination a supporting framework comprising uprights, transverse and longitudinal members and stretching means, said longitudinal frame members and stretching beams provided with means for suspending the material to be dried between them, said longitudinal members and stretching beams being of armored construction comprising timber center portions and metal side plates inclosing the timbers and secured thereto and to each other.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JACOB KNOTT.

Witnesses:
SYDNEY W. FRY,
LEO J. MATTY.