

No. 765,398.

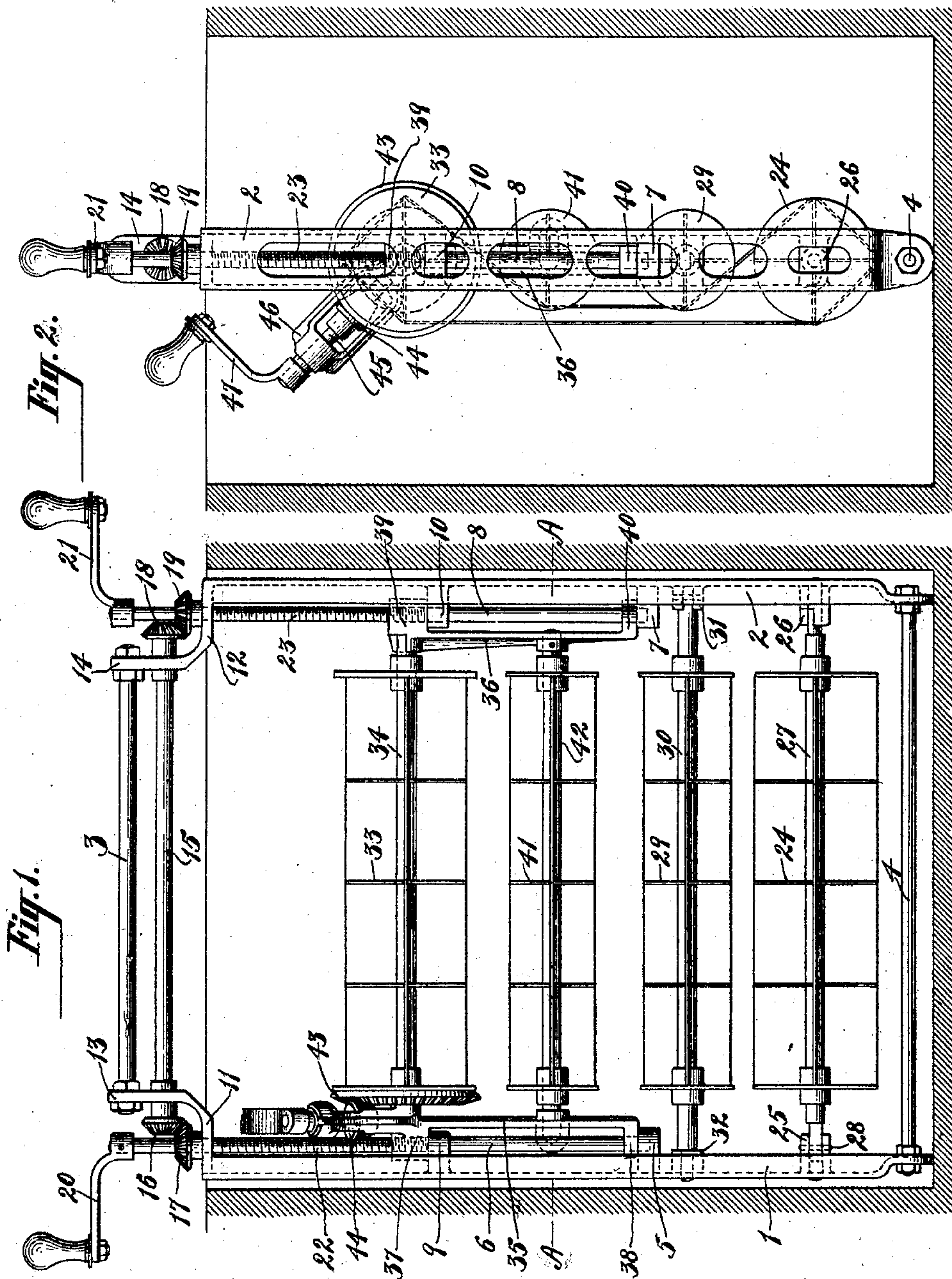
PATENTED JULY 19, 1904.

I. E. PALMER.
APPARATUS FOR MERCERIZING.

APPLICATION FILED APR. 19, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:

F. G. Hachenberg.

Henry Thiele.

Inventor:

Iraac E. Palmer
by attorneys
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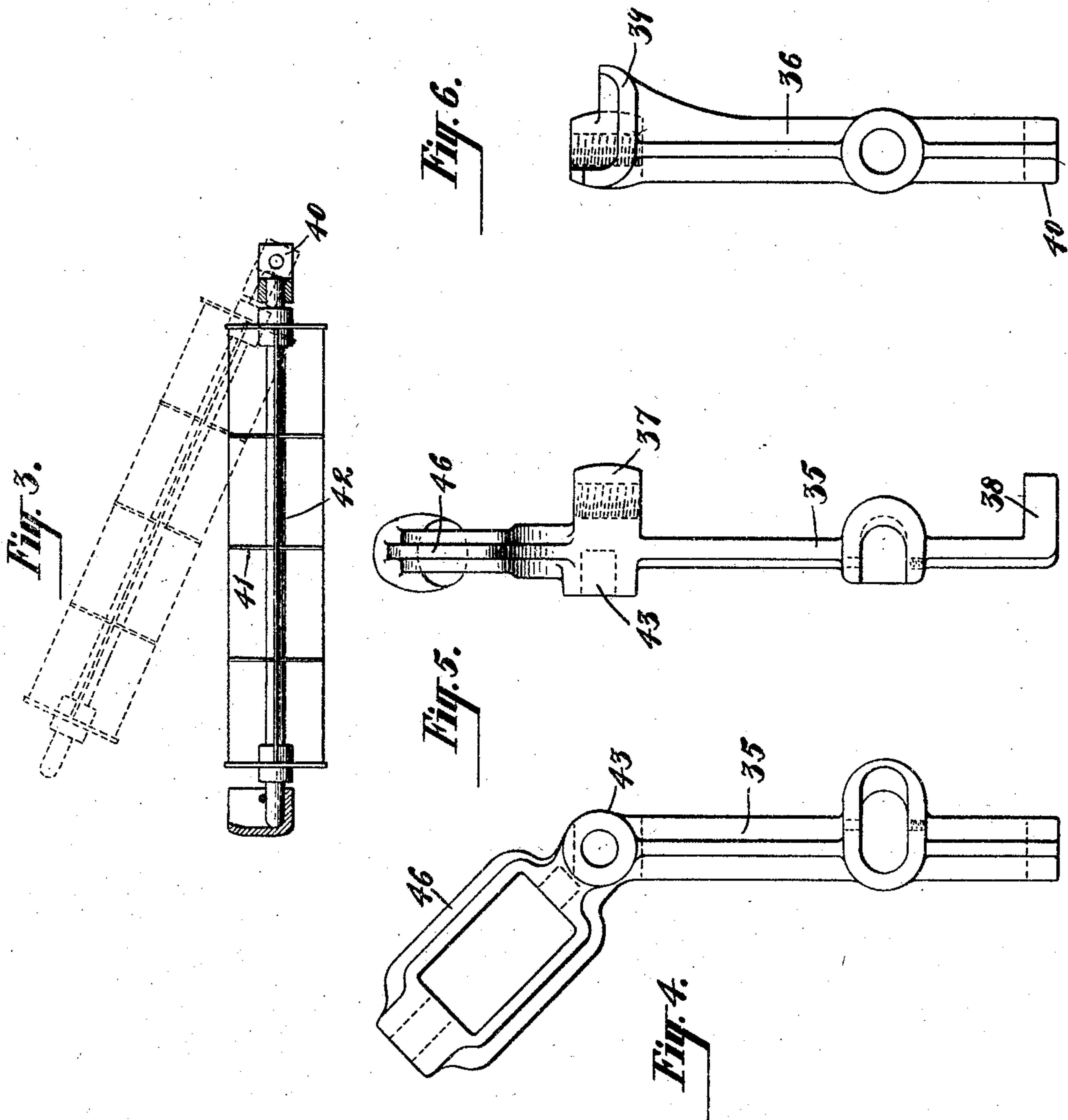
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2 SHEETS—SHEET 2.



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F. G. Hachenberg,

Newry Thiney.

Inventor:

Isaac E. Palmer

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UNITED STATES PATENT OFFICE.

ISAAC E. PALMER, OF MIDDLETOWN, CONNECTICUT.

APPARATUS FOR MERCERIZING.

SPECIFICATION forming part of Letters Patent No. 765,398, dated July 19, 1904.

Application filed April 19, 1904. Serial No. 203,857. (No model.)

To all whom it may concern:

Be it known that I, ISAAC E. PALMER, a citizen of the United States, and a resident of Middletown, in the county of Middlesex and State of Connecticut, have invented a new and useful Apparatus for Mercerizing Yarn, of which the following is a specification.

My invention relates to an improvement in apparatus for mercerizing yarn, and more particularly to the frame for stretching and moving the yarn during its dipping process.

The object of my invention is to provide a frame which will stretch the yarn on the inside of the skein as well as on the outside thereof, so as to obtain a more even stretching of the yarn than in the frames heretofore in use, in which the outside of the skein has been stretched to a greater degree than the inside owing to the outside of the skein being farther from the reel than the inside of the skein.

A further object is to provide certain improvements in the construction, form, and arrangement of the several parts of the stretching-frame.

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

Figure 1 is a view of the yarn-stretching frame in side elevation in the position which it assumes when inserted in a vat, the vat being indicated in section. Fig. 2 is an edge view of the same. Fig. 3 is a horizontal section in the plane of the line A A of Fig. 1, the traveling intermediate skein-reel being shown in full lines in its operative position and in dotted lines swung out of its operative position and into position to permit the skein of yarn to be placed in the frame. Fig. 4 is a view in side elevation of the bar which supports one end of the top or driving reel. Fig. 5 is an edge view of the same, and Fig. 6 is a view in side elevation of the bar which supports the other end of the top or driving-reel.

The side bars of the frame are denoted by 1 and 2 and are preferably made of U shape or channel form in cross-section. These side bars are spaced apart by cross-bars 3 and 4. The side bar 1 is provided with a step 5 for

the bottom of a vertical rotary shaft 6, and the side bar 2 is provided with a similar step 7 for the bottom of a vertical rotary shaft 8. Guides 9 and 10 are provided on the side bars 1 and 2, through which the shafts 6 and 8 extend. The upper ends of the side bars 1 and 2 are turned inwardly, as shown at 11 and 12, and the shafts 6 and 8 also extend through these turned-in portions. These side bars 1 and 2 are also turned upwardly at their upper ends, as shown at 13 and 14, in which upturned portions a cross rotary shaft 15 is mounted. This cross-shaft 15 is provided with bevel-gear connections 16 17 with the shaft 6 and 18 19 with the shaft 8. The shafts 6 and 8 may be provided with suitable crank-handles 20 21 at their upper ends for the purpose of rotating the shafts. The shafts 6 and 8 are provided with screw-threaded portions 22 23 between the guides 9 and 10 and the inturned portions 11 and 12 of the side bars.

The bottom yarn-reel is denoted by 24, and it is mounted to rotate in a stationary spindle 27, one end of which is hinged at 28 in a lug 25 on the side bar 1 and the other end of which is temporarily held in a lug 26 on the side bar 2. This permits the reel and spindle to be swung laterally for permitting the insertion of a skein of yarn thereon. An intermediate reel 29 is mounted to rotate on a spindle 30, having one end hinged in a lug 31, carried by the side bar 2 and its other end removably secured in a lug 32 on the side bar 1. This permits the intermediate reel and its spindle to be swung laterally in the reverse direction to the bottom reel 24. The top reel is denoted by 33, and it is mounted to rotate on a spindle 34, one end of which is secured within a vertically-traveling bar 35 and the other end of which is removably held by the vertically-traveling bar 36. This vertically-traveling bar 35 is provided with a screw-threaded lug 37, engaged with the screw-threaded portion 22 of the shaft 6, and a guide-lug 38, engaged with the plain portion of the said shaft. The traveling bar 36 is similarly provided with a screw-threaded lug 39, engaging the screw-threaded portion 23 of the shaft 8 and a lug 40, engaging the plain portion of said shaft.

A traveling intermediate reel 41 is mounted to rotate on a spindle 42, one end of which is fixed to the traveling bar 36 and the other end of which is removably held in the traveling bar 35. It will thus be seen that the top and bottom reels may be swung laterally in one direction to permit the insertion of the skein of yarn, and the intermediate reels may be swung laterally in the opposite direction for permitting the ready insertion of the skein onto the top and bottom reels.

The means which I have shown for driving the top reel for causing the skein of yarn to travel around the top and bottom reels is as follows: The reel 33 is provided with a bevel-gear 43, which meshes with a pinion 44, carried by a rotary shaft 45, mounted in an angular extension 46 of the traveling bar 35. This shaft 45 is provided with a crank-handle 47 for use in rotating the pinion 44, and thereby the reel 33.

In operation the reels 33 and 24 are swung outwardly to permit the skein of yarn to be inserted around the same. The reels are then swung inwardly into operative position. The intermediate reels, which have been swung outwardly in the other direction to permit the insertion of the yarn, may now be swung inwardly into operative position, thus causing the intermediate reels to engage the outside of the skein, while the top and bottom reels engage the inside thereof. Either one of the handles 20 21 may then be operated to rotate the shafts 6 and 8 simultaneously by reason of the cross-shaft 15 in a direction to cause the top reel 33 to move upwardly until the yarn has been brought to the required tension. The crank-handle 47 is then operated for causing the skein to travel around the reels.

From the above description it will be seen that the inside and outside of the skein of yarn are stretched in a very simple and effective manner.

It is evident that other forms might be employed than that shown and described herein. Hence I do not wish to limit myself strictly to the structure herein set forth; but

What I claim as my invention is—

1. In an apparatus for mercerizing yarn, skein-reels and means for stretching the yarn on the inside and outside of the skein.

2. In an apparatus for mercerizing yarn,

skein-reels engaging the skein on its inside and outside.

3. In an apparatus for mercerizing yarn, reels fitted to engage the inside of the skein and an intermediate reel fitted to engage the outside of the skein.

4. In an apparatus for mercerizing yarn, reels engaging the inside of the skein, one reel mounted in stationary bearings and the other in movable bearings and an intermediate reel engaging the outside of the skein.

5. In an apparatus for mercerizing yarn, reels engaging the inside of the skein, one reel mounted in stationary bearings and the other reel in movable bearings and an intermediate reel engaging the outside of the skein mounted in stationary bearings.

6. In an apparatus for mercerizing yarn, reels engaging the inside of the skein, one reel mounted in stationary bearings and the other in movable bearings, and an intermediate reel engaging the outside of the skein mounted in movable bearings.

7. In an apparatus for mercerizing yarn, reels engaging the inside of the skein, one reel mounted in stationary bearings and the other reel in movable bearings, and a plurality of intermediate reels engaging the outside of the skein.

8. In an apparatus for mercerizing yarn, reels engaging the inside of the skein, one reel mounted in stationary bearings and the other reel in movable bearings and two intermediate reels engaging the outside of the skein, one reel mounted in stationary bearings and the other reel in movable bearings.

9. In an apparatus for mercerizing yarn, a stretching-frame, reels mounted therein for engaging the inside of the skein, said reels being fitted to swing laterally for inserting and removing the skein and an intermediate reel for engaging the outside of the skein, said intermediate reel also being fitted to swing laterally into and out of operative position.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 15th day of April, 1904.

ISAAC E PALMER.

Witnesses:

CHAS. M. SAUER,
PAUL S. CARRIER.