Aug. 19, 1924. 1,505,432

S. P. RUFF, JR

MEANS FOR WAXING YARNS

Filed April 3, 1923 4 Sheets-Sheet 1

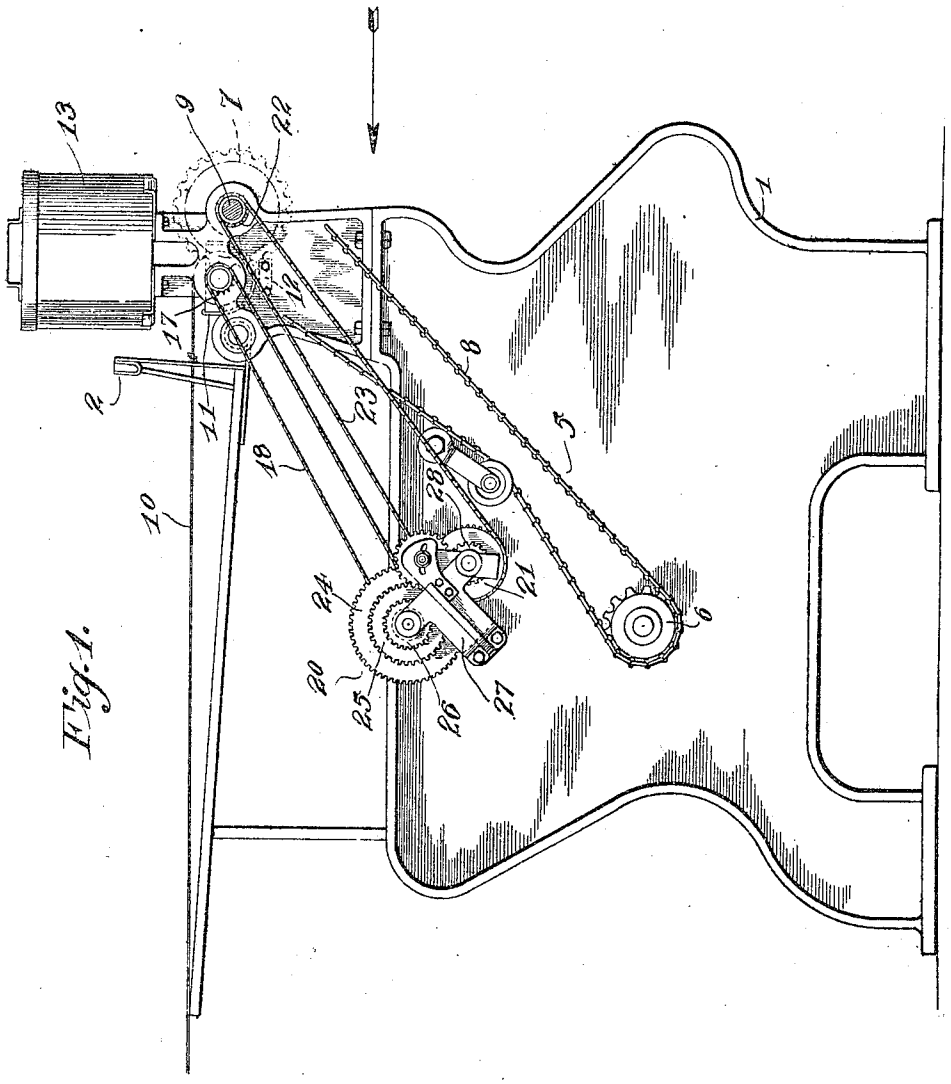


Fig. 1.

Witnesses
V. E. Mayes
George A. Gruss

Inventor
Samuel P. Ruff, Jr.
By Joshua R. H. Potts
His Attorney

Aug. 19, 1924. 1,505,432

S. P. RUFF, JR

MEANS FOR WAXING YARNS

Filed April 3, 1923 4 Sheets-Sheet 2

Fig. 3.

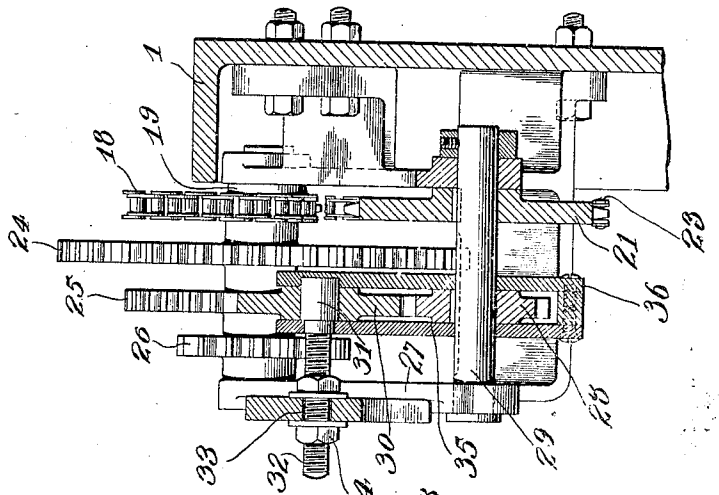
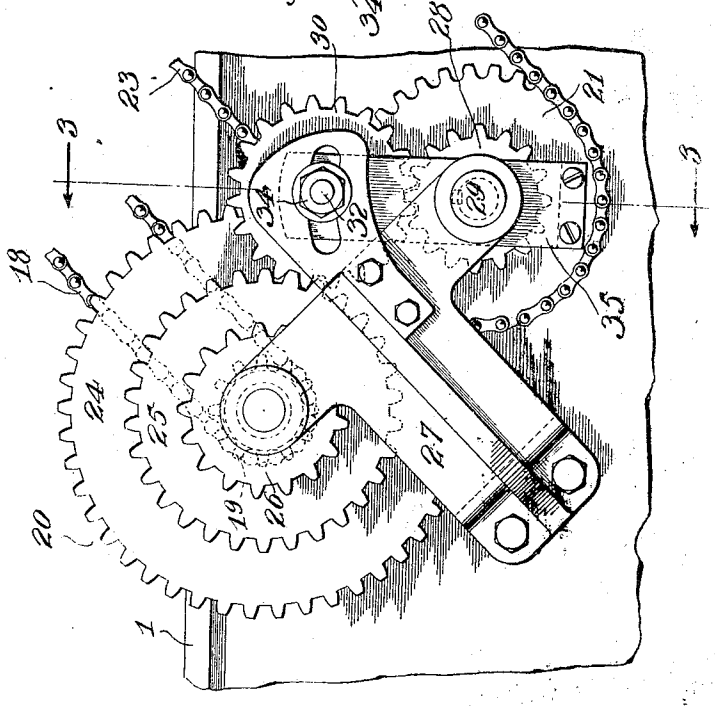


Fig. 2.



Witnesses:
A. D. Mares
George A. Gruso

Inventor
Samuel P. Ruff, Jr.
By Joshua R. H. Potts
His Attorney

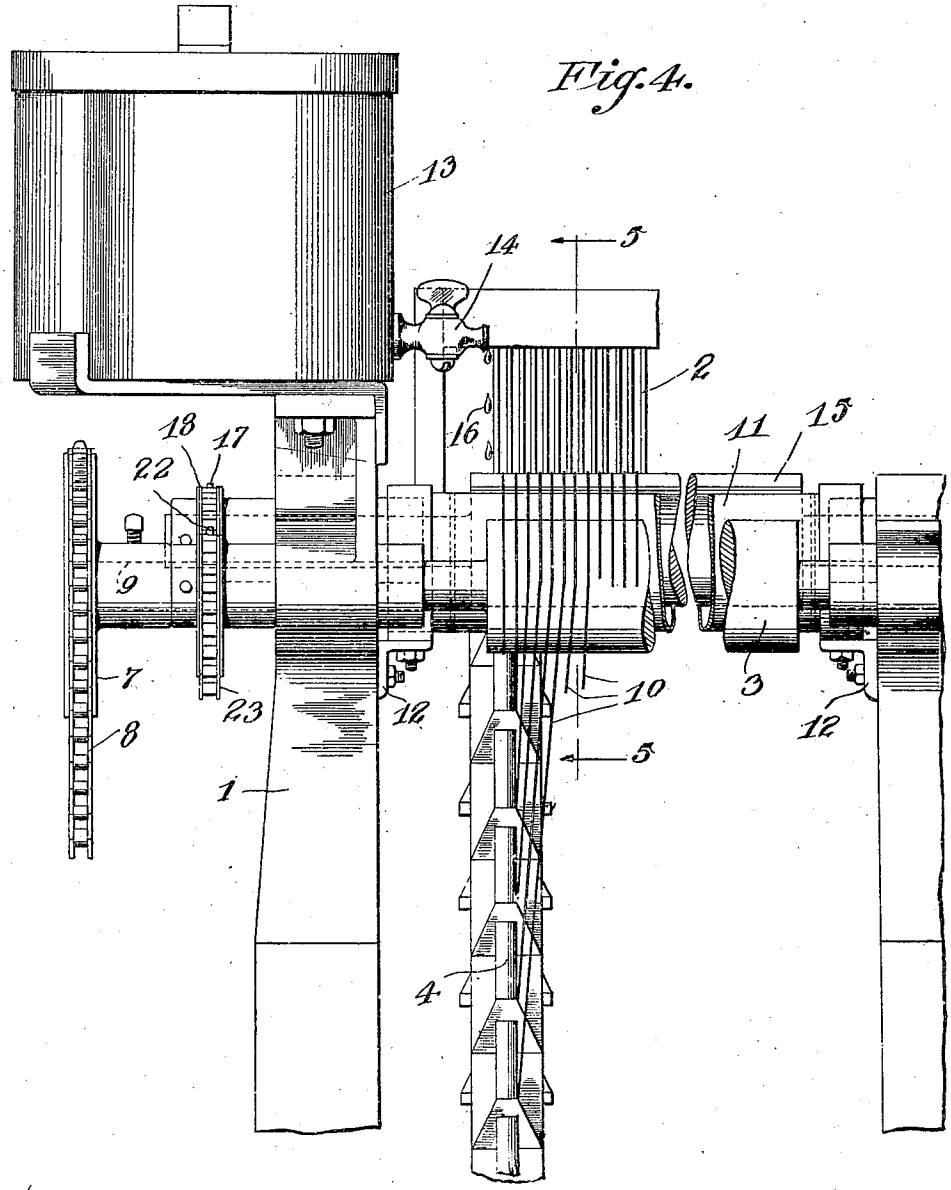
Aug. 19, 1924. 1,505,432

S. P. RUFF, JR

MEANS FOR WAXING YARNS

Filed April 3, 1923 4 Sheets-Sheet 3

Fig. 4.



Witnesses:
A. Phares
George A. Gruss

Inventor
Samuel P. Ruff, Jr.
By Joshua R. H. Potts
His Attorney

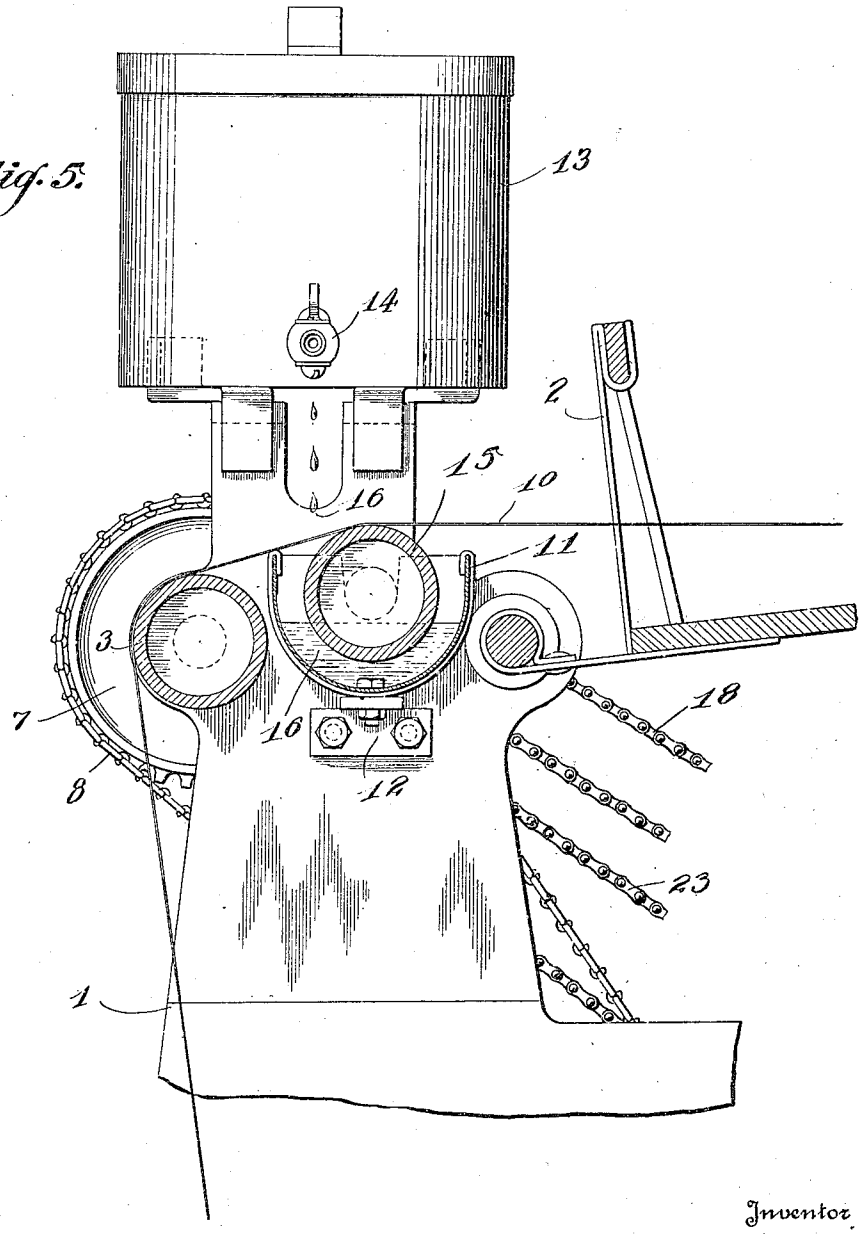
Aug. 19, 1924. 1,505,432

S. P. RUFF, JR

MEANS FOR WAXING YARNS

Filed April 3, 1923 4 Sheets-Sheet 4

Fig. 5.



Witnesses:
H. K. Mares
George A. Gruss

Inventor
Samuel P. Ruff, Jr.
By Joshua R. H. Potts
His Attorney

Patented Aug. 19, 1924. 1,505,432

UNITED STATES PATENT OFFICE.

SAMUEL P. RUFF, JR., OF CHESTER, PENNSYLVANIA.

MEANS FOR WAXING YARNS.

Application filed April 3, 1923. Serial No. 629,576.

To all whom it may concern:

Be it known that I, SAMUEL P. RUFF, JR., a citizen of the United States, residing at Chester, in the county of Delaware and State of Pennsylvania, have invented certain new and useful Improvements in Means for Waxing Yarns, of which the following is a specification.

My invention relates to means for waxing yarns and is particularly adapted for use in connection with quilling machines.

The fibrous surfaces of the yarns as they come from the bale or ball involve too much friction in the subsequent operations for successful mechanical knitting and it has been found pratically essential to smooth or soften these surfaces before the yarns enter the knitting machines. This is usually effected by means of a bar of wax which engages the yarn as it is wound on the cones or after it leaves the cones. The perfection of the knitting and consequently the proportion of firsts and seconds produced depends in large degree upon the smoothness imparted to the yarns and in large degree upon the perfection with which the coning is accomplished. In waxing by the usual method, the yarns may be well waxed in a part of their circumferences, slightly waxed on other parts and not waxed on another part. This not only involves imperfect coning but leads to trouble in the knitting.

The objects of my invention are to provide means for more effectively waxing or smoothing the yarns, and to provide means for applying the wax or other smoothing material to the yarns before they reach the quills, thereby reducing the friction of the yarns in the winding stage and insuring more even tension in both winding and knitting.

These objects, and other advantageous ends which will be described hereinafter, I attain in the following manner, reference being had to the accompanying drawings in which—

Figure 1 is a side elevation of a quilling machine having my invention applied thereto,

Figure 2 an enlarged view of the change-speed mechanism illustrated in Figure 1,

Figure 3 a section on line 3—3 of Figure 2,

Figure 4 an enlarged fragmentary front view in the direction of the arrow of Figure 1, and

Figure 5 a section on line 5—5 of Figure 4.

Referring to the drawings, 1 indicates the frame of a quilling machine having the usual reed 2, yarn roller 3, bobbins or quills 4 and driving means 5. The driving means are composed of a driving sprocket wheel 6 connected to another sprocket wheel 7 by a chain 8. Sprocket wheel 7 is fixed to a shaft 9 which carries yarn roller 3. The yarn 10 in passing from the bale or ball (not shown) travels through reed 2 and over yarn roller 3, then down through the guiding frame which guides the yarn onto the quills or bobbins as they rotate.

My invention, as applied to this quilling machine, includes a trough 11 disposed between the reed and yarn roller and having its ends supported by the opposite sides of the frame 1 as shown at 12. A liquid-feeding tank 13 is mounted on frame 1 in any suitable manner and is provided with a valve 14 through which the liquid may pass and drop into the trough. A liquid-feeding roller 15 is rotatably mounted in frame 1 and disposed within the trough with its under side immersed in the waxing or smoothing liquid 16 and the upper side engaging the yarn. The waxing or smoothing element, sometimes called the "softening" agent consists of a liquid including a vegetable oil or a fluid wax. A sprocket wheel 17 is fixed to the end of the liquid-feeding roller and is connected by a chain 18 to sprocket wheel 19 which is the driven element of the change-speed mechanism 20. The change-speed mechanism is provided with a driving sprocket wheel 21 connected to a sprocket wheel 22, fixed on shaft 9, by a chain 23. The change-speed mechanism may be of any suitable type. I have shown a simple mechanism which includes change-speed gears 24, 25 and 26 fixed to sprocket wheel 20 in any suitable manner and bearing in a bracket 27 secured to the frame. A pinion 28, is slidably mounted on a shaft 29 which is rotatably mounted in bracket 27 and carries the driving sprocket wheel 21. Pinion 28 meshes with a tumbler gear 30 rotatably mounted on a stud 31 having a screw threaded end 32 extending through a slot 33 and secured to the bracket by nuts 34. The tumbler gear and pinion are held in alignment by side plates 35 and 36 secured to each other by any suitable means.

When my waxing or smoothing means

are in operation, the liquid-feeding roller maintains a coating of the smoothing liquid over its surface by rotating with its lower side continually immersed in the liquid. The yarn passing from reed 2 to yarn roller 3 will travel over liquid-feeding roller 15 and absorb this coating of the smoothing liquid on its surface. If it is desired to feed more liquid to the yarn the change-speed mechanism is set to increase the speed of the liquid-feeding roller and thus deliver more liquid coated surface to the yarn and cause it to absorb more liquid. It is apparent that, to feed any desired amount of liquid to the yarn, it is merely necessary to manipulate the change-speed mechanism.

While I have described my invention as taking a particular form, it will be understood that the various parts of my invention may be changed without departing from the spirit thereof, and hence I do not limit myself to the precise construction set forth, but consider that I am at liberty to make such changes and alterations as fairly come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a yarn winding machine; a reed; a yarn roller; a trough for smoothing liquid between the reed and roller; a roller mounted in the trough for feeding the liquid to the yarn as it passes from the reed to the yarn roller, and means for actuating the liquid-feeding-roller.

2. In a yarn winding machine; a reed; a yarn roller; a trough for smoothing liquid between the reed and roller; a liquid-feeding-roller mounted in the trough and engaging the yarn, and a shaft carrying the yarn roller and operatively connected to the liquid-feeding-roller.

3. In a yarn winding machine; a reed; a yarn roller; a trough for smoothing liquid between the reed and roller; a liquid-feeding-roller mounted in the trough and engaging the yarn; change-speed mechanism operatively connected to the liquid-feeding-roller, and means for operating the change-speed mechanism.

4. In a yarn winding machine; a reed; a yarn roller; a trough for smoothing liquid between the reed and roller; a liquid-feeding-roller mounted in the trough and engaging the yarn; change-speed mechanism operatively connected to the liquid-feeding-roller, and a shaft carrying the yarn roller and operatively connected to the change-speed mechanism.

5. In a yarn winding machine; a reed; a yarn roller; a trough for smoothing liquid between the reed and roller; means for feeding liquid to the trough; a roller rotatably mounted in the trough for feeding liquid to the yarn, and means for rotating the liquid-feeding-roller.

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

SAMUEL P. RUFF, Jr.

Witnesses:
Thos. P. Boyle,
F. W. Herrick, Jr.