

(No Model.)

2 Sheets—Sheet 1.

W. P. CANNING.

SLASHER FOR SIZING AND DRYING YARN.

No. 346,639.

Patented Aug. 3, 1886.

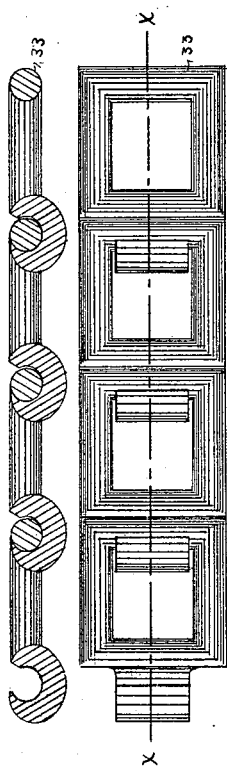


Fig. 4-

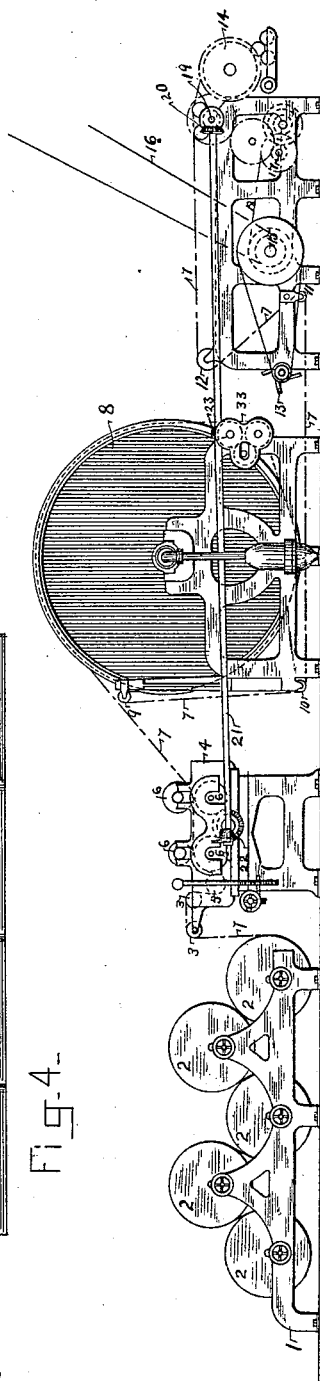


Fig. 1-

WITNESSES:

Charles H. Fisher.
H. L. Allen.

INVENTOR:

W. P. Canning.

(No Model.)

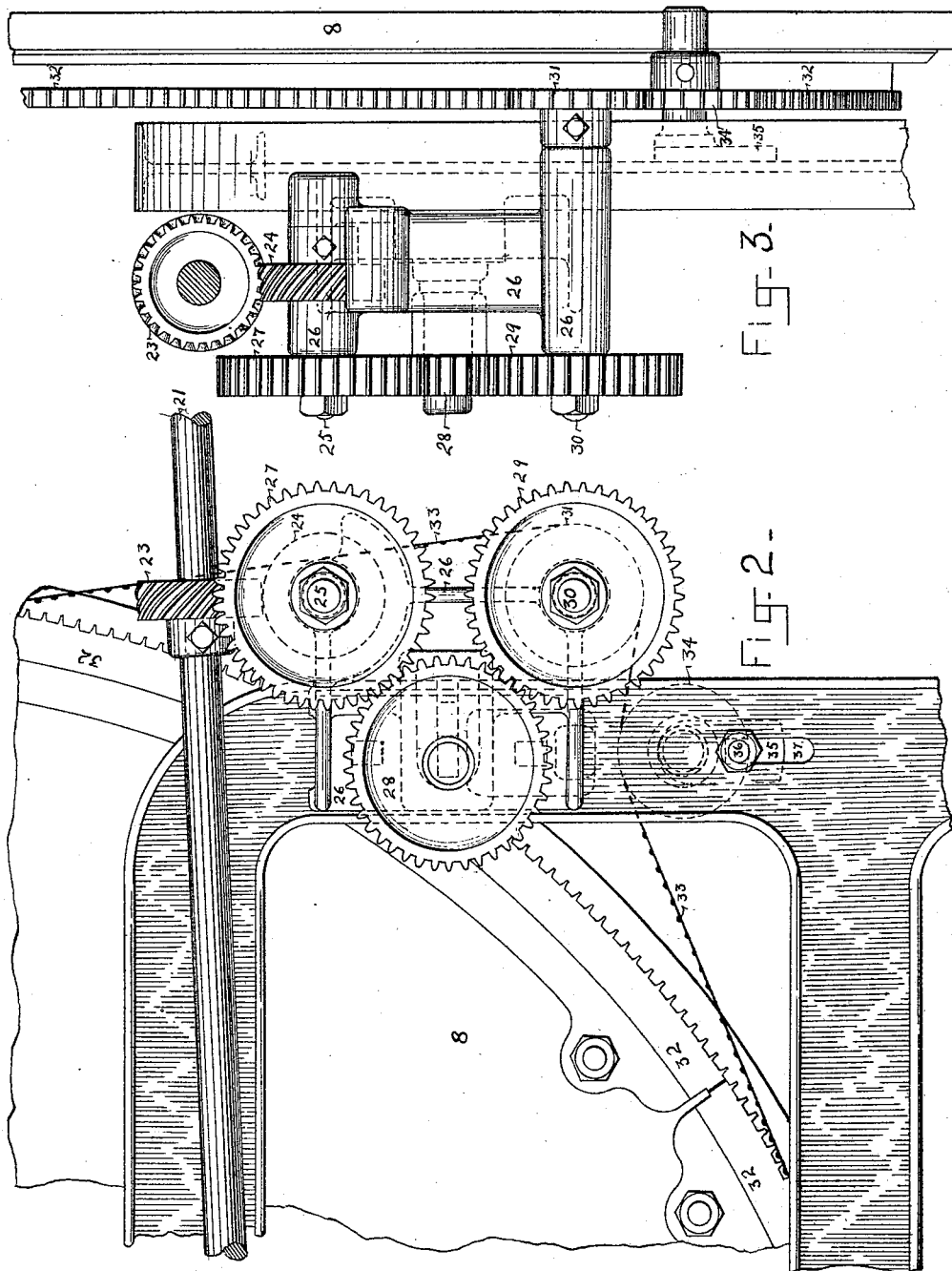
2 Sheets—Sheet 2.

W. P. CANNING.

SLASHER FOR SIZING AND DRYING YARN.

No. 346,639.

Patented Aug. 3, 1886.



WITNESSES:

Charles H. Fisher.
M. L. Allen.

INVENTOR:

Wm. P. Canning.

UNITED STATES PATENT OFFICE.

WILLIAM P. CANNING, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO THE
LOWELL MACHINE SHOP, OF SAME PLACE.

SLASHER FOR SIZING AND DRYING YARN.

SPECIFICATION forming part of Letters Patent No. 346,639, dated August 3, 1886.

Application filed May 8, 1886. Serial No. 201,516. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. CANNING, a citizen of the United States, residing at Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Slashers for Sizing and Drying Yarn or other Material, of which the following is a specification.

My invention relates to means of driving the drying-cylinders of slashers independently of the yarn or material being sized; and it has for its object the prevention of injury to the said material by stretching or breaking during the process of sizing.

My invention is illustrated in the accompanying drawings of a slasher, in which Figure 1 is a side elevation of a slasher used for sizing warps, showing a set of section-beams, a size-vat, a drying-cylinder, and a warp-winding mechanism. Fig. 2 is a partial and enlarged side elevation of a portion of the drying-cylinder-driving mechanism. Fig. 3 is a partial and enlarged end elevation of the mechanism shown in Fig. 2; and Fig. 4 is a plan and an elevation of the latter, partly in section at the line *xx* of the plan, of a portion of a drive-chain by which I drive the said drying-cylinder, and drawn upon a much larger scale than any of the other drawings.

Similar reference-numbers refer to similar parts in all of the views.

In the drawings, 1 represents a section-beam stand, upon which a number of section-beams, 2, are supported. The yarn passes, as shown by the line 7, from these section-beams over the guide-rolls 3 of the size-vat 4, and then under the immersing-roll 5 and between the pairs of squeeze-rolls 6, by which means the liquid size is applied to the yarn. The wet yarn then passes almost completely around the hollow steam-heated drying-cylinder 8 and around the rolls 9, 10, 11, and 12, being fanned on its way by the fan 13, and is then wound upon the warp-beam 14. The whole apparatus is driven by a belt, 16, which runs upon a pulley upon the shaft 15. Motion is communicated from the shaft 15 to the shaft 17 by the belt 18, and from the shaft 17 to the shaft 19 by a train of gears, which are shown in Fig. 1 by dotted lines. By means of the pair of

bevel-gears 20 the side shaft, 21, the pair of bevel-gears 22, and spur-wheels connected therewith the pairs of squeeze-rolls 6 are driven positively and at the desired speed, the yarn being drawn from the section-beams by the said squeeze-rolls.

Hitherto it has usually been the practice to drive the drying-cylinder 8 by means of the yarn itself, which was being wound upon the warp-beam 14. The beam 14 was usually driven by gears and a friction-clutch from the shaft 19, or in some other equivalent manner. I have found that this former practice has a tendency to injure the yarn by breaking and stretching it, since the resistance to the turning of the cylinder 8 is sometimes very great. This tendency to injure the yarn is very great when there are but few threads in the warp, as is the case when warps for some classes of cloths are made, and it is sometimes impossible to size warps by this method, because of the breaking of the threads. This difficulty is overcome with my invention by positively driving the drying-cylinder of a slasher at the proper speed by means other than the yarn itself, and this method of driving is illustrated in the drawings.

The shaft 25 is supported by the stand 26, which is in turn supported by the frame which supports the drying-cylinder 8, and it is driven from the side shaft, 21, by the pair of spiral gears 23 and 24, or by equivalent means. Motion is transferred from the shaft 25 by means of the spur-gear 27, the intermediate spur-gear, 28, the spur-gear 29, and the shaft 30 to the sprocket-wheel 31, the shaft 30 being supported by the stand 26. To the drying-cylinder 8 are affixed segments 32 around its whole circumference. These segments are furnished with teeth having the same pitch as the teeth of the sprocket-wheel 31. The drying-cylinder 8 is rotated from the sprocket-wheel 31 by means of an ordinary drive-chain, 33, which engages with the teeth of the segments 32 and the teeth of the said sprocket-wheel, and is represented in Fig. 1 by a dotted line.

The chain 33 is omitted from Fig. 3 for the sake of clearness in the drawings.

In order that the drive-chain may be kept properly tight, the sprocket binding-wheel 34

is usually provided, and so supported that it can be moved up against the drive-chain until the chain is tight. This is effected by supporting the wheel 34 upon a stud, that is carried by the adjustable stand 35. The stand 35 is clamped to the frame which supports the drying-cylinder by means of the stud 36 in the slot 37.

I have found that, on account of the effect of the size upon the yarn, it is sometimes desirable to drive the drying-cylinder at such a speed that its surface shall move at a speed which, although proportional to, is slightly different from that at which the surfaces of the squeeze-rolls move, and that the relation between the speed of the said rolls and that of the said cylinder should be capable of being varied at will. To this end the gear-wheels 27 and 29 are sometimes made removable, and the axis of the wheel 28 movable, so that the wheels 27 and 29, or either of them, may be exchanged for wheels having different numbers of teeth; or, in other words, there are sometimes "change-gears" in the train between the side shaft, 21, and the sprocket-wheel 31, although it is not always necessary that this changeability should exist.

The section stand and beams, the size-vat and its accessories, the drying-cylinder, and the warp-winding mechanism may be of any of the ordinary constructions which are well known to sizers of yarn.

What I claim as new, and desire to secure by Letters Patent, is—

1. The mechanism for drying yarn, which

consists of the drying-cylinder and its supporting-frame, the side shaft and means of rotating the same, the pair of spiral gears, the first of which is supported upon the said side shaft and the second upon a shaft at right angles thereto, the shaft 25, supporting the said second spiral gear, and the stand supporting the said shaft, means of supporting the said stand, the shaft 30, supported by the said stand, a sprocket-wheel carried by the shaft 30, gears for driving the shaft 30 from the shaft 25, toothed segments fastened to the drying-cylinder, and a drive-chain working upon the said sprocket-wheel and the said toothed segments, substantially as described, and for the purposes set forth.

2. The side shaft and means of rotating the same, combined with the size-vat, the squeeze-rolls working in the said vat, means of driving the said rolls positively from the said side shaft, the spiral gears 23 and 24, the shaft 25, the stand 26, the shaft 30, and the sprocket-wheel thereon, change-gears for driving the shaft 30 from the shaft 25, the drying-cylinder, the frame supporting the said cylinder and the said stand 26, the toothed segments fastened to the drying-cylinder, and the drive-chain working upon the said sprocket-wheel and the said toothed segments, substantially as described, and for the purposes set forth.

WM. P. CANNING.

Witnesses:

CHARLES H. FISHER,
M. L. ALLEN.