

P. SARACCO.
 APPARATUS FOR REWINDING SILK.
 APPLICATION FILED JUNE 26, 1909.

Patented Jan. 3, 1911.

2 SHEETS—SHEET 1.

980,682.

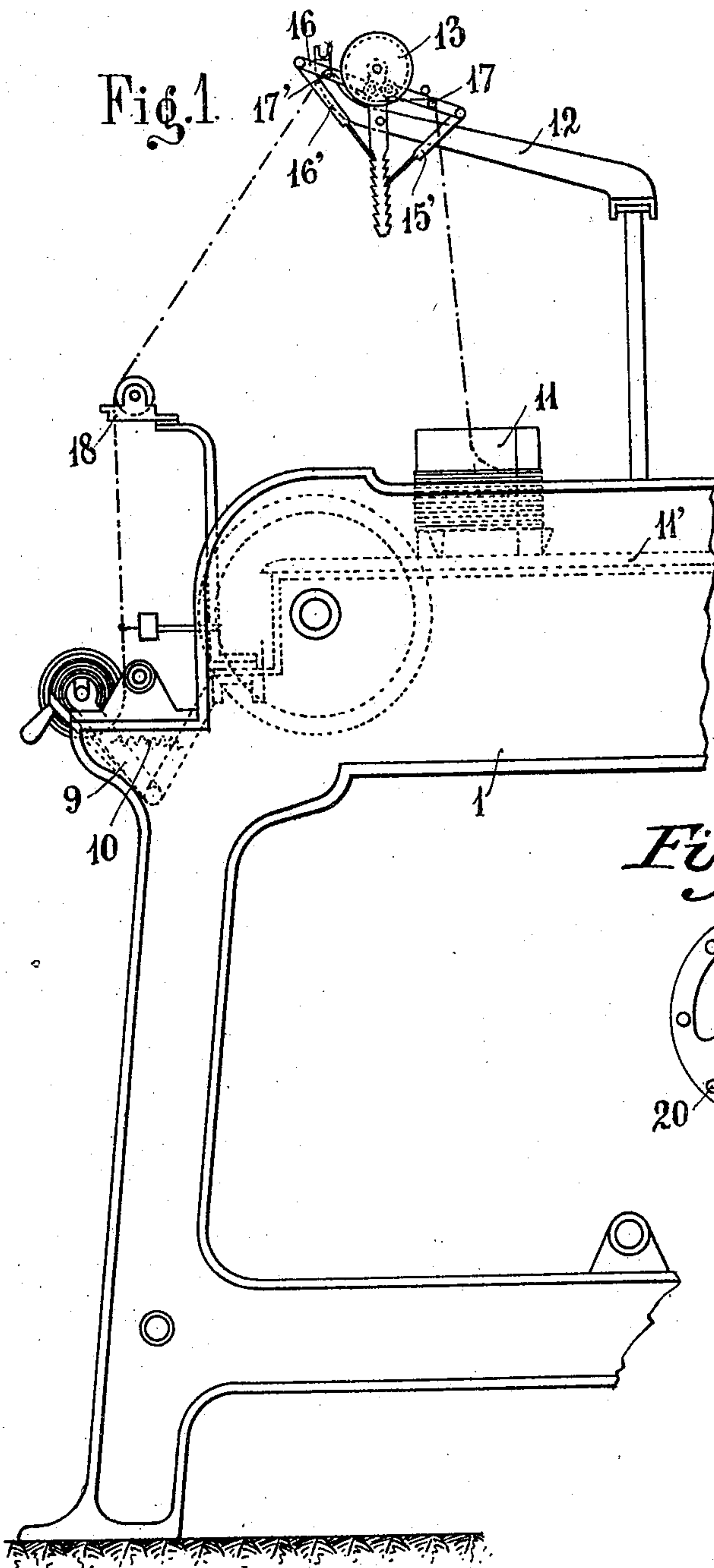


Fig. 6

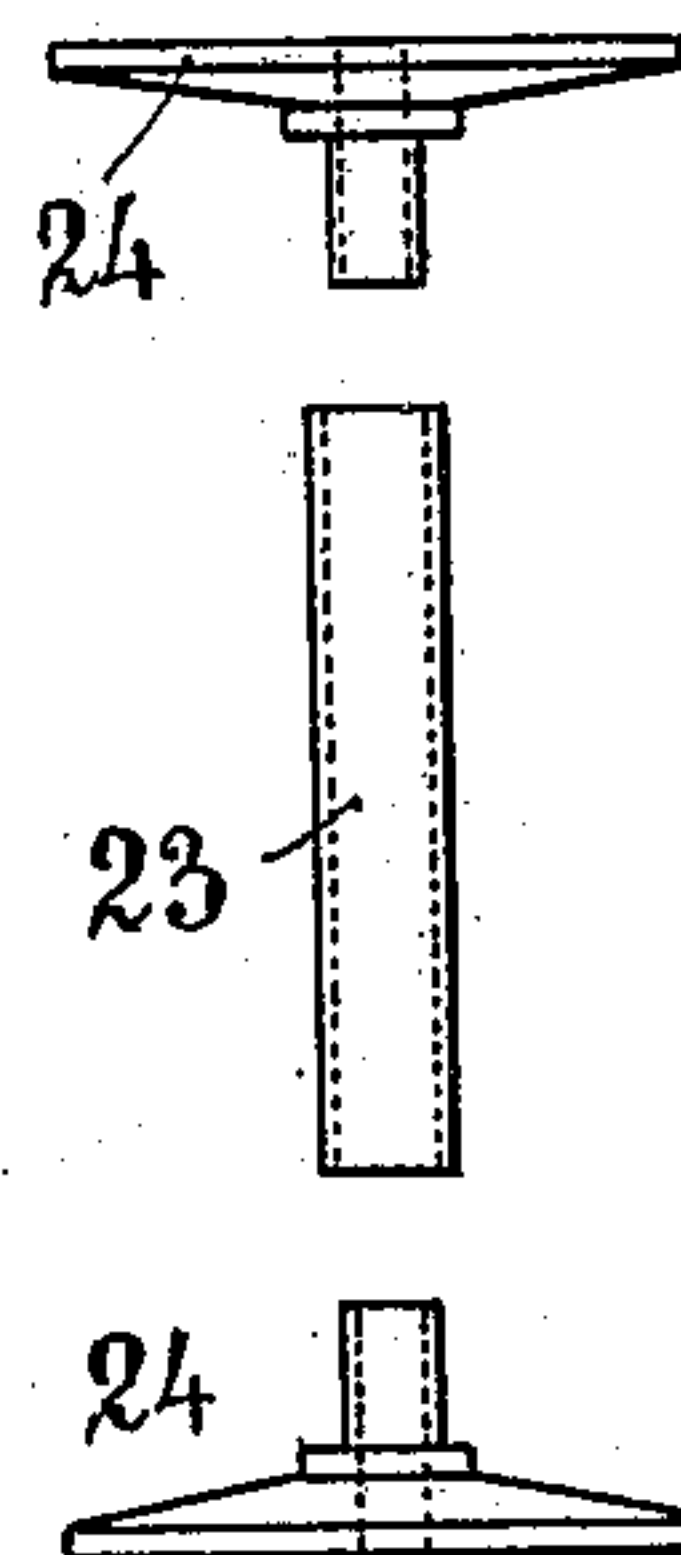


Fig. 3. Fig. 3a

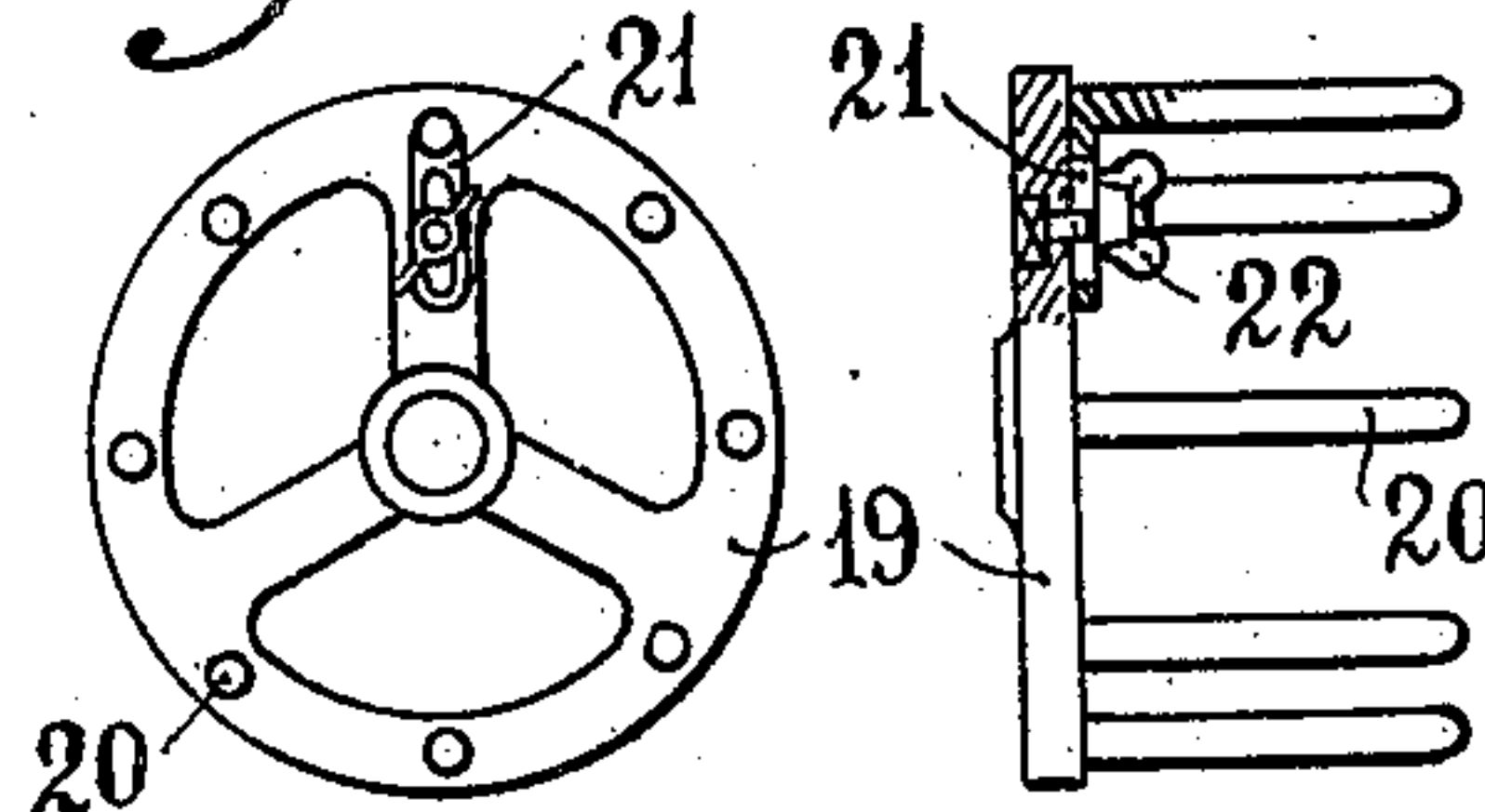
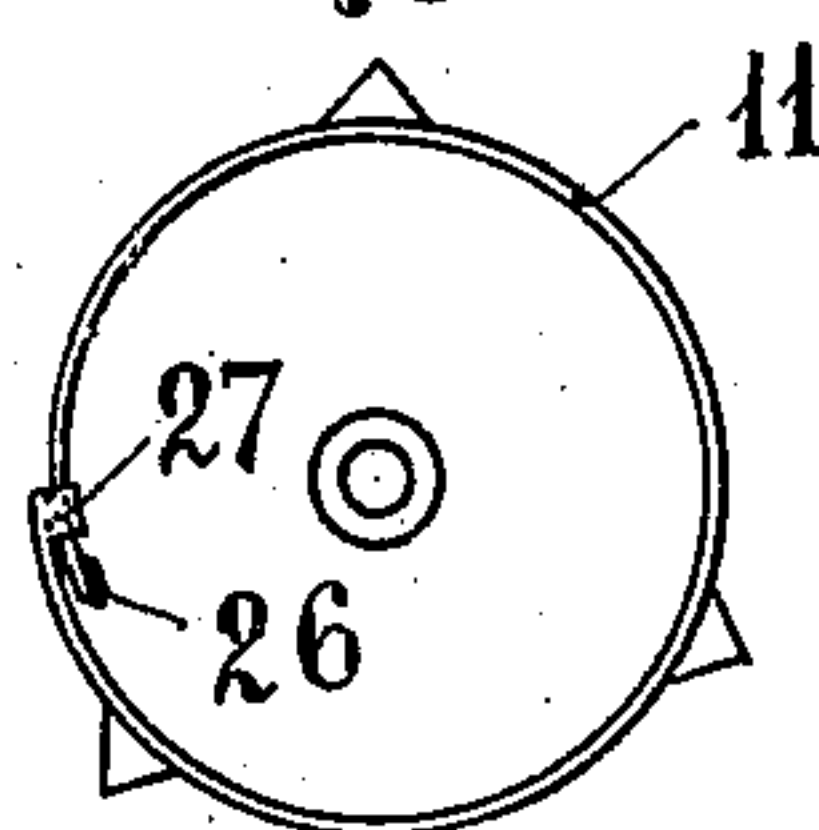


Fig. 4



Witnesses
 C. Schallinger
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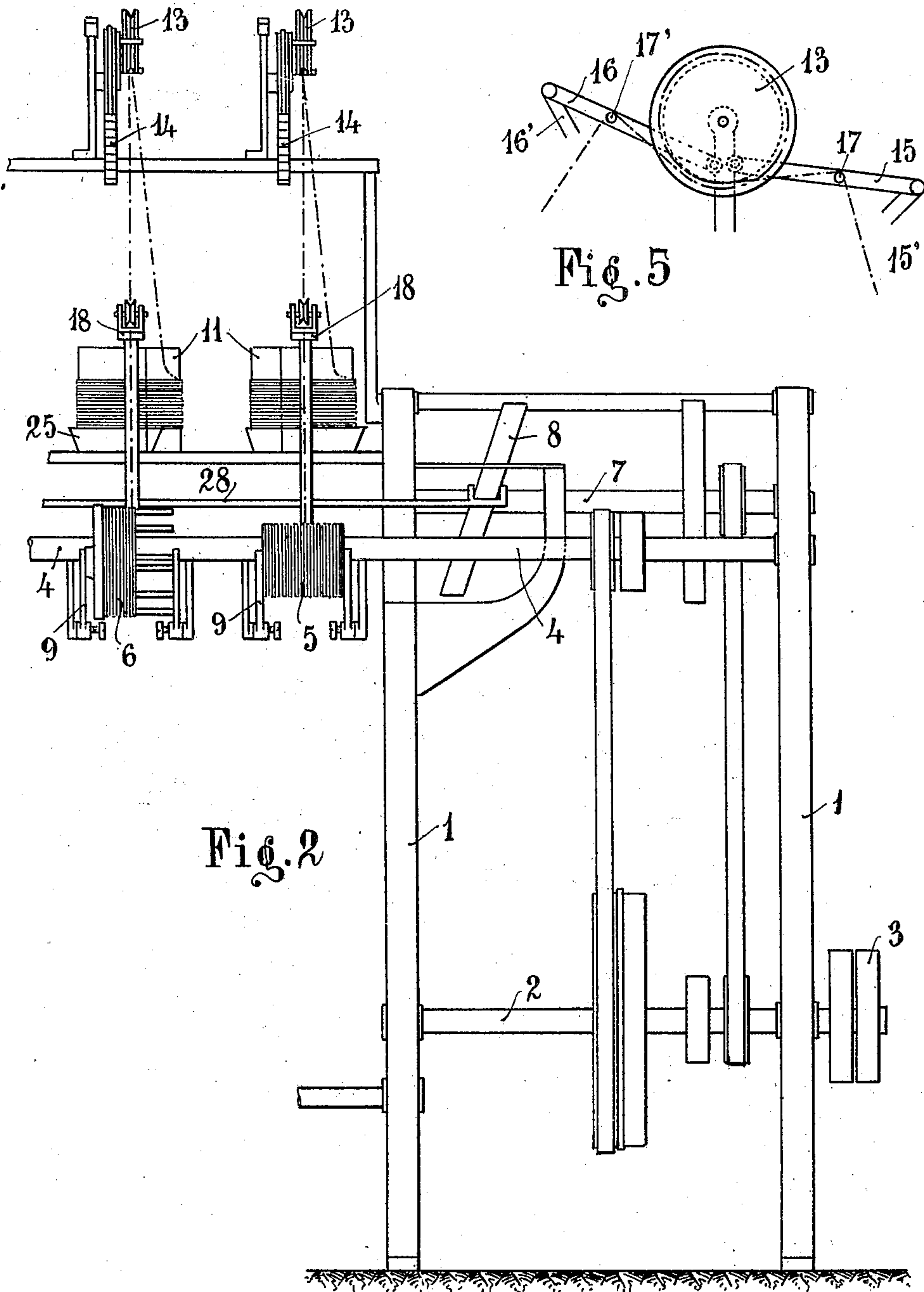
Inventor
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

PIETRO SARACCO, OF SALUZZO, ITALY.

APPARATUS FOR REWINDING SILK.

980,682.

Specification of Letters Patent.

Patented Jan. 3, 1911.

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To all whom it may concern:

Be it known that I, PIETRO SARACCO, a subject of the King of Italy, residing at Saluzzo, in Italy, have invented certain new and useful Improvements in Apparatus for Rewinding Silk, of which the following is a specification.

This invention relates to an apparatus for performing the operation which follows the reeling of silk and consists in re-winding the skein to form another skein or a bobbin destined for use on the spinning or weaving machine.

The invention also provides a brake of special construction for the purpose of eliminating slime and thin places, and a polisher consisting of metal jaws which removes adhering impurities.

In existing practice the skeins from the reeling machine, that is to say, the throwing operation, are conveyed to the winding machine and placed on reels whence they are wound on to other reels or bobbins, the unwinding from the first reels being performed by tension on the silk causing these reels to rotate. This method necessitates low speed in order that the tension may not rupture the thread; moreover, should there be a rupture it is difficult to find the broken end because the reel remains in rotation owing to its inertia.

According to the present invention these two troubles are avoided by mounting the skein which is to be re-wound on a stationary drum from which the thread is simply lifted as it is wound up on the reel or bobbin that is to carry it; thus the re-winding can be conducted at a high speed. The drum on which the skein is mounted may consist of a strip of metal, wood or cardboard, rolled up to form a cylinder and sufficiently elastic to keep the skein lightly stretched. This stationary drum will be placed with its axis perpendicular to the axis of the reel or bobbin. Thus when the thread breaks the end will generally fall into the drum, where it is easily found. In any case the operation of seeking the end is considerably facilitated by the fact that the skein is on a stationary drum and may be handled easily. The greater speed of operation and the ease with which broken ends can be found lead to considerable economy by diminishing manual operation and losses of silk.

The apparatus may also be advantageously adopted for winding trams and dyed

organzines, for it permits of high speed notwithstanding the tendering of the thread due to dyeing.

The accompanying drawings illustrate an apparatus according to this invention.

Figure 1 is a side elevation; Fig. 2 is a front elevation; Fig. 3 is a plan of a reel on which the silk thread is wound if a skein is to be formed; Fig. 3^a is an elevation of the same, partly in section. Fig. 4 is a plan of a drum suitable for holding the skein which is to be re-wound; Fig. 5 is a detail of the brake which serves to eliminate slime and thin places; and Fig. 6 is an elevation of a device used in forming a bobbin. Figs. 3—6 are drawn to an enlarged scale compared with Figs. 1 and 2.

The machine comprises a frame 1 with a driving shaft 2 for transmitting the power from the pulley 3 to the shaft 4, which drives the bobbins 5 or the reels 6, and to the shaft 7, which, through the cam wheel 8 and the rod 28, operate the eyes, not shown in the drawing, which guide the thread on the bobbins.

The reels 6 are rotated by frictional contact between their peripheries and the shaft 4, and the bobbins 5 by contact between the wound silk and the shaft 4. The pressure necessary for maintaining the reels or the bobbins against shaft 4 may be produced in any suitable manner such as by mounting them in frames 9 subject to the action of springs 10.

The skein from the reeling machine is placed on the drum 11 which is simply rested with its axis vertical on the table 11' of the machine. The thread which, as already stated, is lifted instead of being unwound from the skein, passes first over a brake where it is freed of slime and thin places. This brake, mounted on an arm 12 of the machine, consists of a stationary drum 13 having its cylindrical surface covered with felt and provided with a rack bar 14. At suitable points on this bar are pivoted two arms 15, 16 to which are pivoted pawls 15', 16' respectively; these latter engage in the teeth of the rack bar 14. The arms 15, 16 carry supports 17, 17' respectively for the thread so that the thread leaving the drum 11 passes over support 17, winds around the drum 13 (Fig. 5) and then passes over support 17'. By this arrangement the friction of the thread on the drum can be modified, by varying the length of the por-

tion in contact with the drum, so as to suit the grade of thread, its elasticity and its tenacity. Thus, in order to increase the friction the arms 17, 17' are raised by engaging pawls 15', 16' in teeth higher up the rack bar 14, so as to make the thread pass completely around the drum or if necessary somewhat more than once around; on the other hand, when pawls 15', 16' are engaged in teeth lower down the rack bar 14 the thread does not pass completely around the drum. When it leaves the brake, the thread passes through a polishing device consisting of metal jaws 18 and is then wound up on the reel 6 or on the bobbin 5 (Fig. 2) set in rotation by shaft 4.

The reel 6 consists of a ring 19 (Fig. 3) carrying pins 20 perpendicular to its plane on which the skein is formed; one of the pins is mounted on a block 21 adapted to be shifted radially on the ring and to be held in position by a thumb-screw 22 accommodated in a slot in the ring. This construction is to facilitate the removal of the skein by allowing it to be slackened by shifting the block 21 toward the center of the ring.

For forming a bobbin there may be used a small tube 23 (Fig. 6), which may be of aluminium for instance, and this may be given the form of a bobbin for subsequent operations by mounting on its ends flanges 24 of wood or metal.

This drum designed for carrying the skein that is to be re-wound consists of a metal sheet rolled into the form of a cylinder and having at one end projections 25 to support the silk. In order that the drum may have a certain spring, the ends of the sheet of metal of which it is composed are only engaged together by folds 26, 27 (Fig. 4) so that by squeezing the drum its diameter may be somewhat reduced to allow the skein to be put on it, after which the drum can expand up to the limit set by the folds, and the skein is kept taut without being ruptured when it has been nearly unwound.

The machine re-winds the silk to form fresh skeins or bobbins with great speed and at the same time improves the thread by clearing it of slime and thin places, due to the brake and to the polisher; thus the spinner has only to attend to the obtainment of uniformity of grade, without troubling himself with the removal of impurities and irregularities.

What I claim as my invention and desire to secure by Letters Patent is:—

1. An apparatus for rewinding silk comprising in combination a stationary drum

carrying the skein to be rewound, a brake wheel disposed above said drum, a reel upon which the thread unwound from said drum is to be wound, the thread engaging said brake wheel on the way from said drum to said reel, arms pivotally connected to said brake wheel, means for guiding the thread on said arms, means for varying the angular position of said arms with respect to each other, and means for imparting rotatory motion to said reel.

2. An apparatus for rewinding silk comprising in combination a stationary drum carrying the skein to be rewound, a brake wheel disposed above said drum, a reel upon which the thread unwound from said drum is to be wound, the thread engaging said brake wheel on its way from said drum to said reel, a rack bar depending from said brake wheel, arms pivotally connected to said wheel and adapted to engage the teeth of said rack bar, means on said arms for guiding the thread over said rack bar, and means for imparting rotatory motion to said reel.

3. An apparatus for rewinding silk, comprising in combination a stationary drum, said drum being provided with thread retaining means at the lower end and being free of such means at the upper end and having a resilient wall adapted to keep the skein wound thereon under tension, a brake disposed above said drum, a reel upon which the silk unwound from said drum is to be wound and means for imparting rotatory motion to said reel, the thread engaging said brake on its way from said drum to said reel.

4. An apparatus for rewinding silk comprising in combination a stationary drum carrying the skein to be rewound, said drum being provided with thread retaining means at the lower end and being free of such means at the upper end and having a resilient wall adapted to keep the skein wound thereon under tension, said wall being provided with means for preventing opening of the same, a brake disposed above said drum, a reel upon which the thread unwound from said drum is to be wound and means for imparting rotatory motion to said reel, the thread engaging the brake on its way from the drum to said reel.

In testimony whereof I have affixed my signature in presence of two witnesses.

PIETRO SARACCO.

Witnesses:

PEIS GIANOLIO,
CARLO CORTA.