

No. 778,698.

PATENTED DEC. 27, 1904.

E. NEILD & H. MARSH.

MACHINE FOR SPINNING AND WINDING YARN.

APPLICATION FILED APR. 19, 1902.

2 SHEETS—SHEET 1.

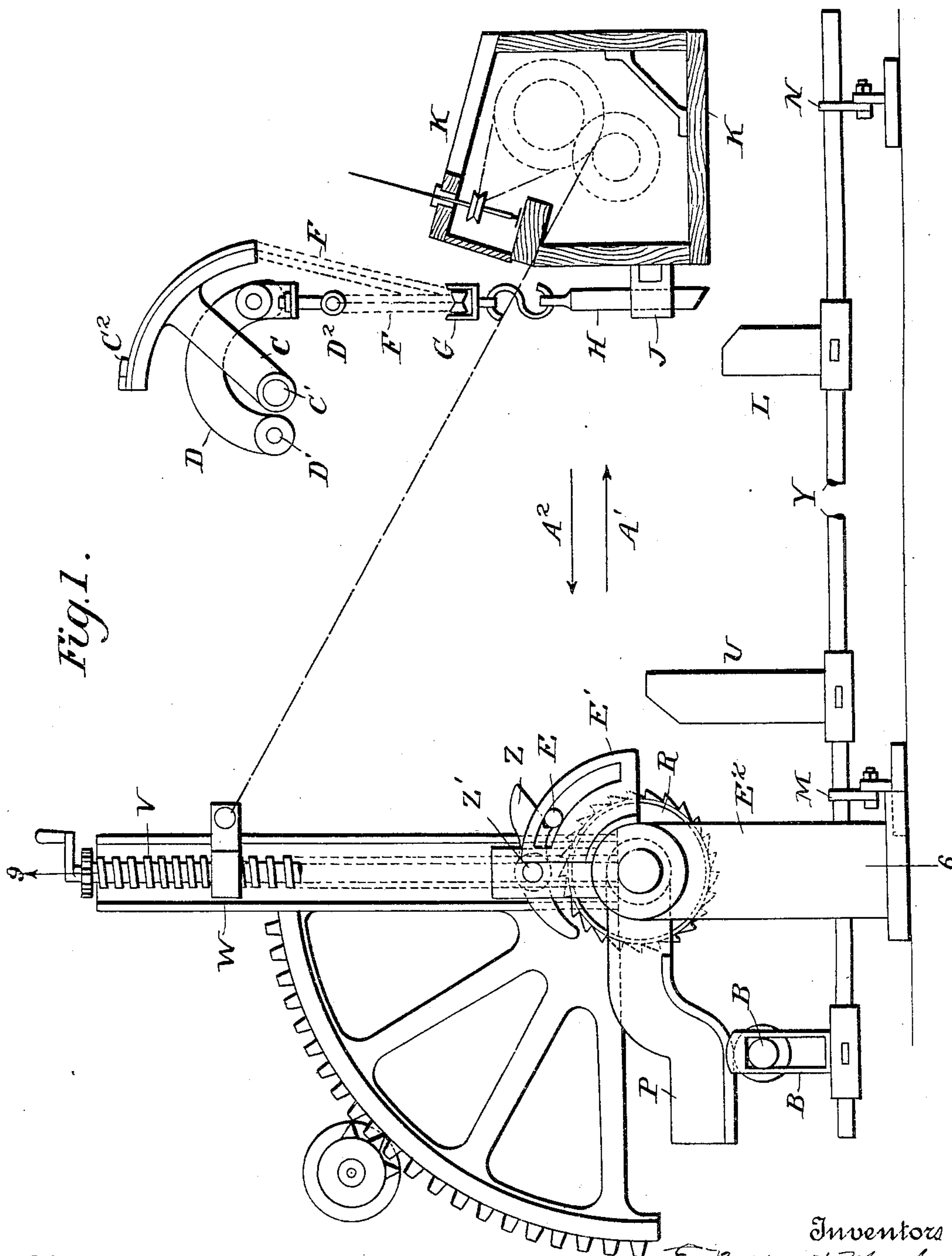



Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

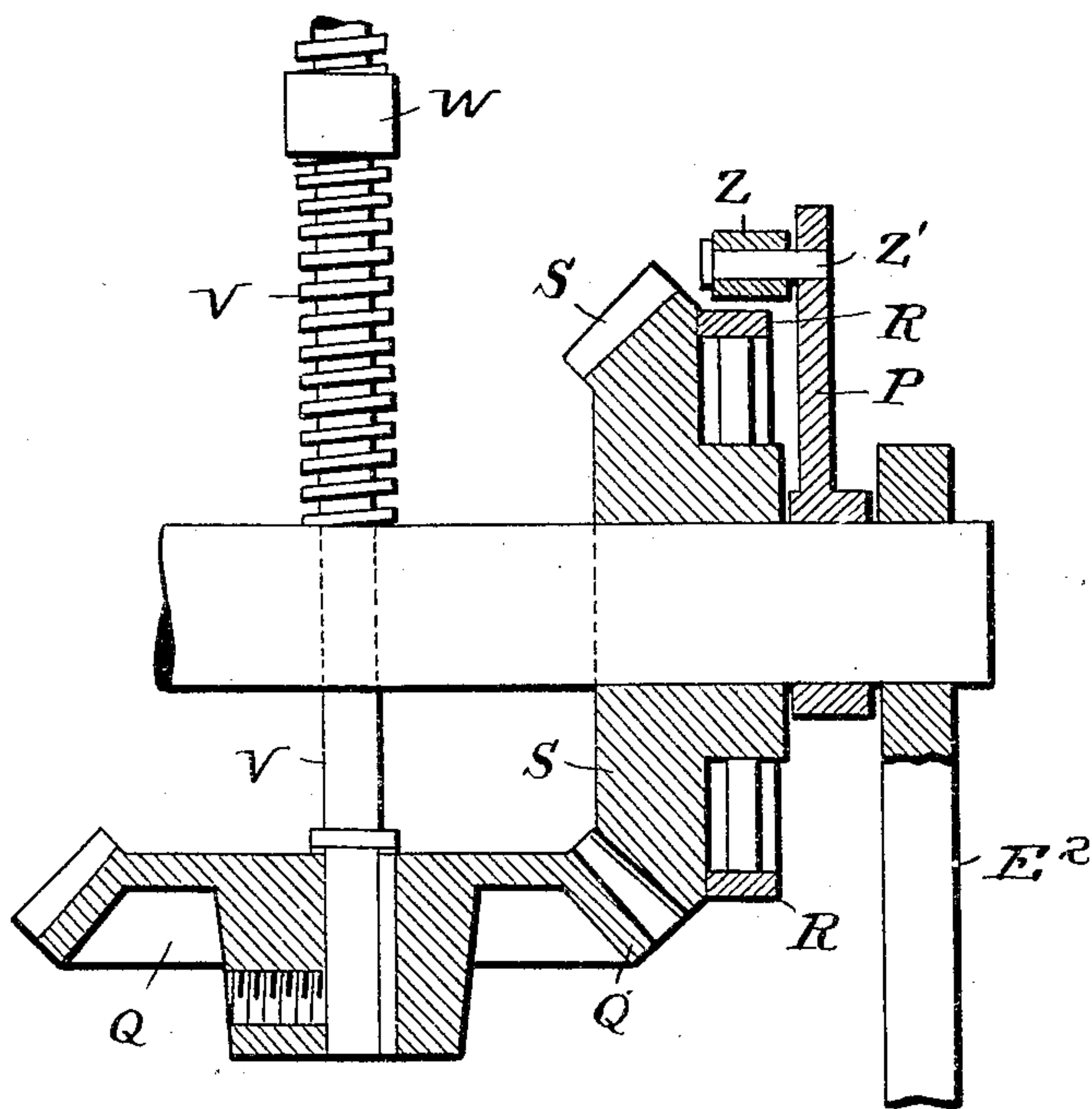


Fig. 3.

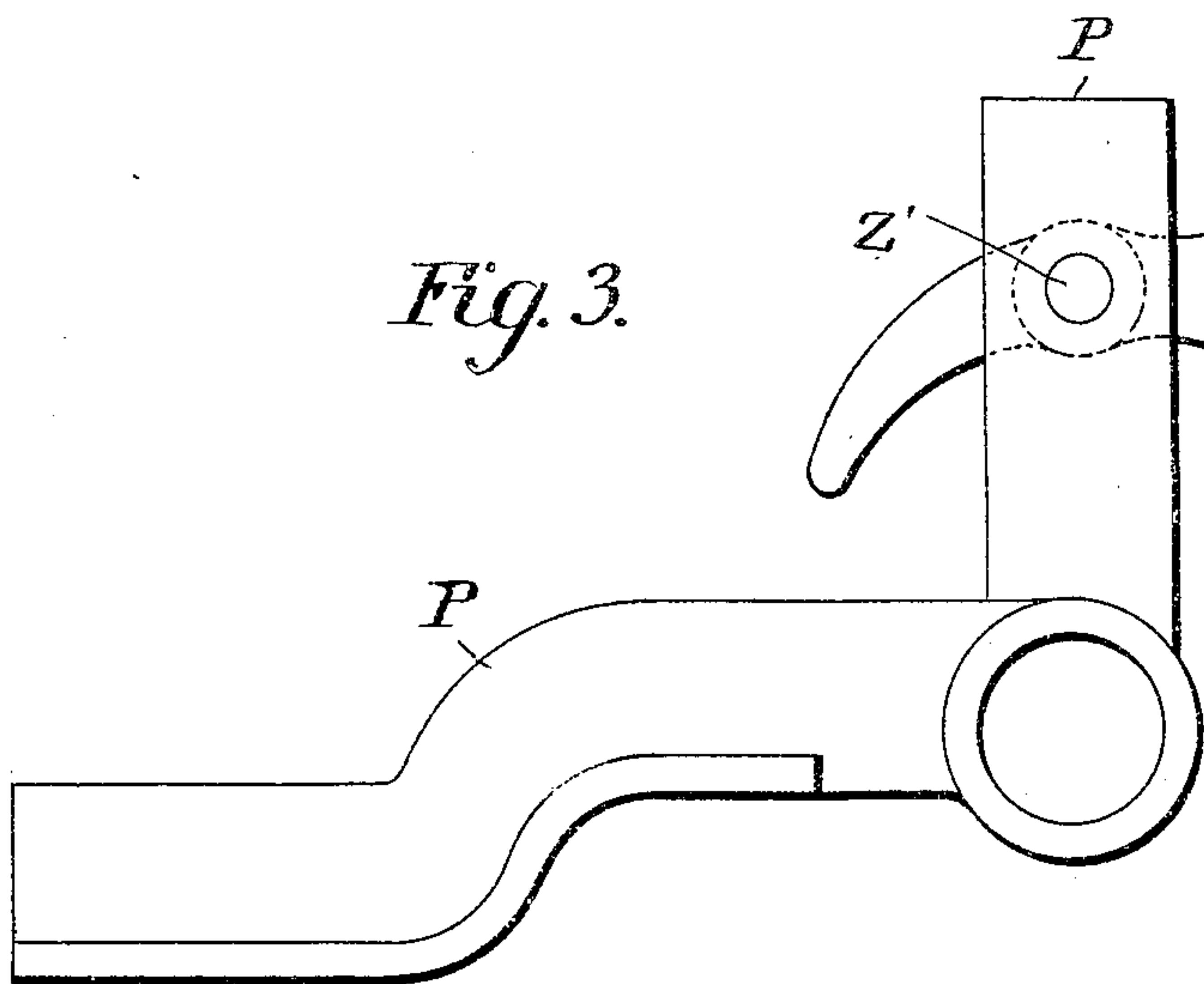
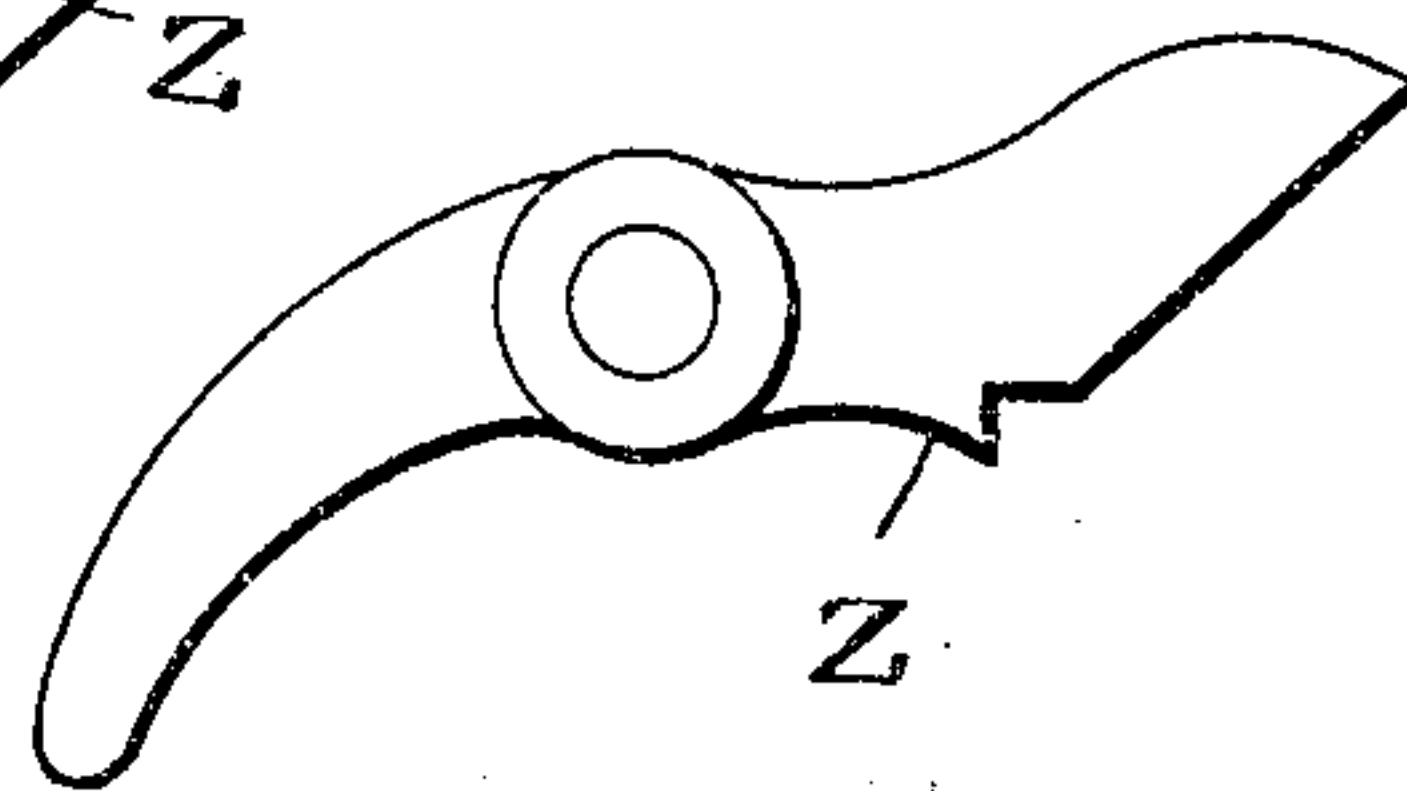


Fig. 4.



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UNITED STATES PATENT OFFICE.

ELI NEILD AND HENRY MARSH, OF NEW BEDFORD, MASSACHUSETTS.

MACHINE FOR SPINNING AND WINDING YARN.

SPECIFICATION forming part of Letters Patent No. 778,698, dated December 27, 1904.

Application filed April 19, 1902. Serial No. 103,801.

To all whom it may concern:

Be it known that we, ELI NEILD, overseer, a citizen of the United States, residing at No. 12 Bentley street, and HENRY MARSH, machinist, a subject of Edward VII, King of Great Britain, &c., residing at No. 25 Crapo street, New Bedford, in the county of Bristol and Commonwealth of Massachusetts, have invented Improvements in Self-Acting Mules; and we do hereby declare the nature of said invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement and accompanying drawings.

Our invention is to be applied to self-acting mules for the purpose of automatically decreasing the tension on yarn when the same becomes necessary.

When the tension on yarn is too great, the counter faller and lever is depressed, allowing a drop-lever attached to the faller-shafts by a chain to come into contact with a bracket on rod or shaft, carrying the rod or shaft forward as the carriage is making its inward run. The tumbler and catch or pawl thus lose their support, fall back and into action with a ratchet bevel-gear. Said ratchet bevel-gear is in gear with a bevel-gear fastened to bottom of quadrant-screw. The outward movement of carriage in combination with the first-mentioned bracket and stud carry the tumbler and catch or pawl back to their original position. The tumbler and catch or pawl thus impart a rotary motion through ratchet bevel-gear and gear on quadrant-screw, moving nut on quadrant-screw higher, thus decreasing tension on yarn. This is repeated as often as the tension of the yarn requires it.

The nature of our invention will be fully understood on reference to the following specification and drawings.

Figure 1 is a side elevation of as much of a mule-carriage and our invention as is necessary to show the working of same. Fig. 2 is a sectional elevation taken at 6: 9 on Fig. 1. Fig. 3 is a side elevation of tumbler and catch or pawl. Fig. 4 is a side elevation of catch or pawl.

To the faller-shafts D' and C' are connected two levers D and C. In the end of each lever

are fastened studs D² and C². To these studs is connected a chain F, carried round a bowl in a small frame G, which is in turn hooked onto a drop-lever H, which slides in a bracket J, fixed on carriage K. When the tension of the yarn is too great, the counter-faller D' and lever D are depressed, which lowers the drop-lever H, bringing same into contact with finger L, and the inward movement of carriage K takes the rod or shaft Y forward on its slides M and N in the direction of arrow A'. This inward movement of carriage K carries bracket B and stud B' away from tumbler P, allowing tumbler P to fall, thus allowing catch Z to fall away from its supporting-stud E. Stud E is attached to a small bracket E', which is in turn fastened to the quadrant-shaft foot-step E². The stud E holds catch Z out of action with ratchet bevel-gear R S, as shown in Fig. 2. Catch Z is attached to top of tumbler P by a small stud Z'. The catch Z thus falls into gear with ratchet-gear R, which is attached to bevel-gear S. The carriage K in its outward movement strikes finger U, bringing rod or shaft Y back to its original position on its slide M and N in the direction of arrow A² and in combination with bracket B and stud B', tumbler P, and catch Z, with ratchet bevel-gear R S and bevel-gear Q, imparting a rotary motion to quadrant-screw V, thus moving nut W on same higher and decreasing tension on yarn. This operation is repeated as often as the tension of the yarn requires it.

Having now particularly described and ascertained the nature of our invention and in what manner the same is to be performed, we declare that what we claim is—

1. In a machine for spinning and winding yarn, the combination with the mule-carriage, the quadrant-screw, and the nut on said screw, of a ratchet connected with said screw, a pawl for turning said ratchet, means for normally holding said pawl out of engagement with the ratchet, and means controlled by the tension of the yarn for causing said pawl to engage the ratchet and turn the screw as the carriage reciprocates.

2. In a machine for spinning and winding yarn, the combination with the mule-carriage,

the quadrant-screw, and the nut on said screw, of a pivotally-mounted tumbler carrying a pawl adapted to engage the ratchet, a projection on the carriage adapted to normally engage said tumbler and hold the pawl out of engagement with the ratchet, and means controlled by the tension of the yarn for moving said projection to and from engagement with the tumbler during a reciprocation of the carriage to cause said pawl to engage the ratchet and turn the screw.

3. In a machine for spinning and winding yarn, the combination with the mule-carriage, the quadrant-screw, and the nut on said screw, of a pivotally-mounted tumbler P carrying the pawl Z adapted to engage the ratchet, the longitudinally-movable rod carrying the stud B' normally engaging the tumbler and hold-

ing the pawl thereon out of engagement with the ratchet, said rod being provided with two projecting fingers L, U, a drop-lever H and means for normally supporting said drop-lever out of the path of the fingers L, U, and adapted to be automatically moved into the path of such fingers as the tension on the yarn increases, substantially as and for the purpose described.

In testimony whereof we have signed our names to this specification in the presence of two witnesses.

ELI NEILD.
HENRY MARSH.

Witnesses:

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