

W. LANCASTER & J. BULLOUGH.
Machines for Sizing and Dressing Yarn.
 No. 150,058. Patented April 21, 1874.

FIG 1

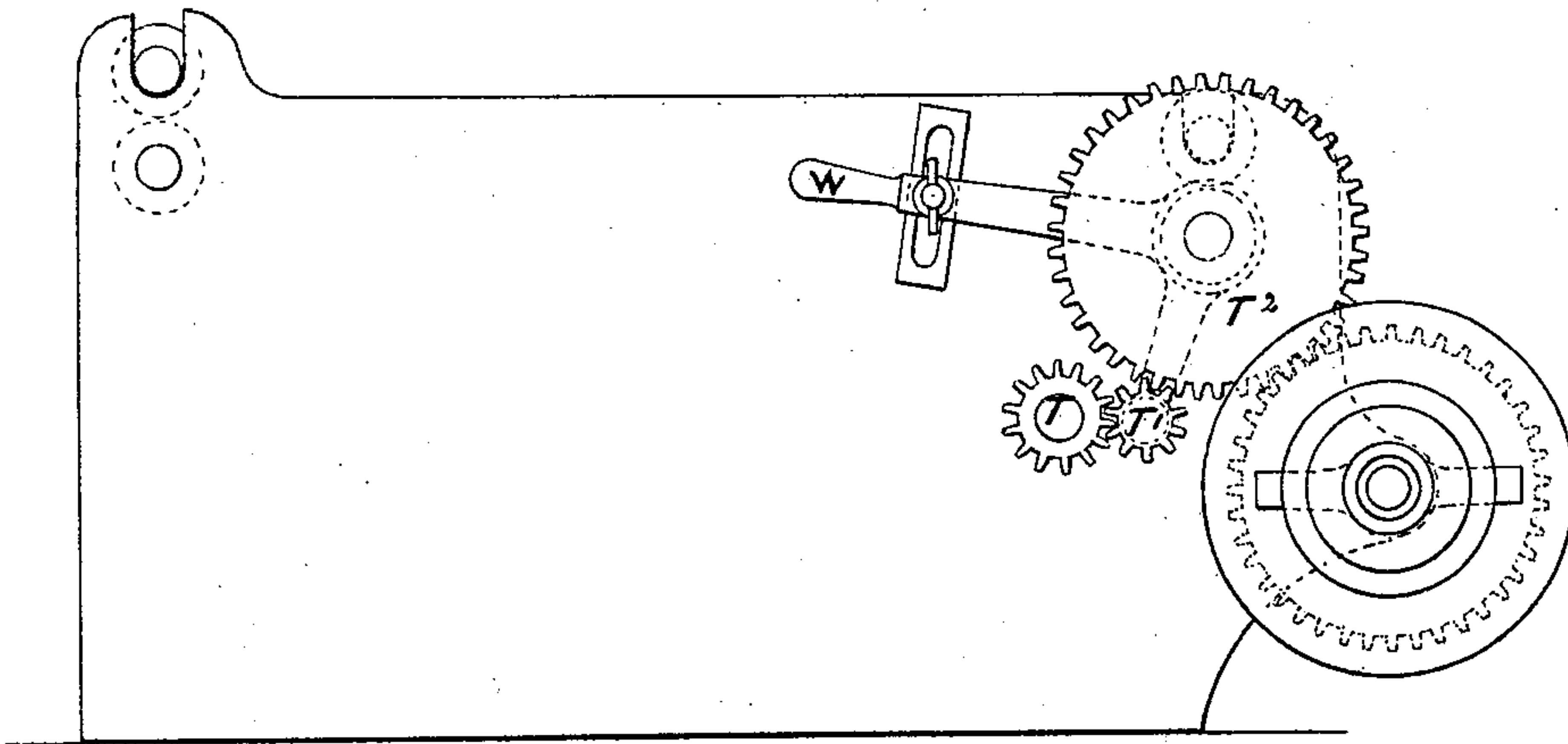
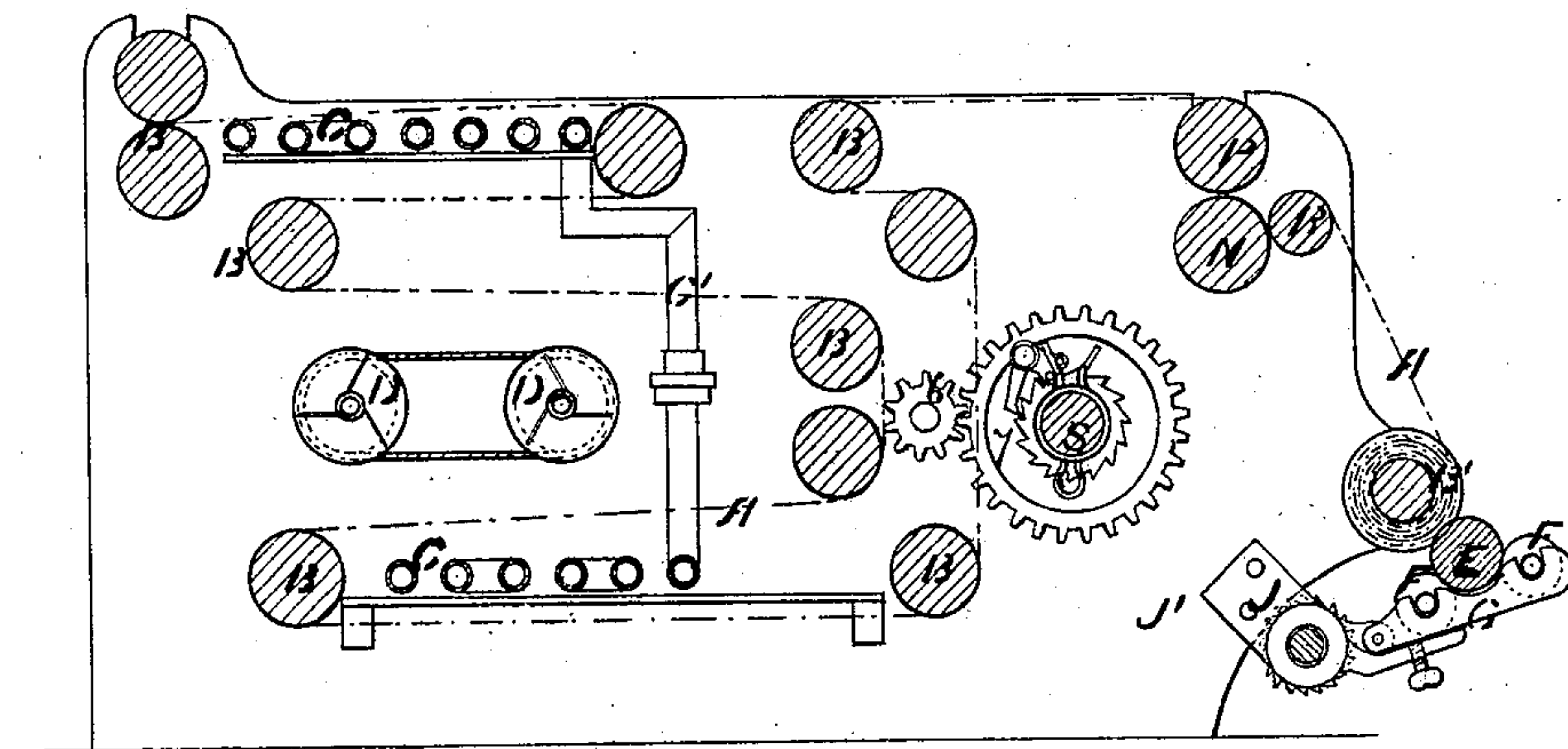


FIG 2



WITNESSES

E. Ponke
E. Correll

INVENTORS

William Lancaster
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3 Sheets--Sheet 2.

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FIG 3

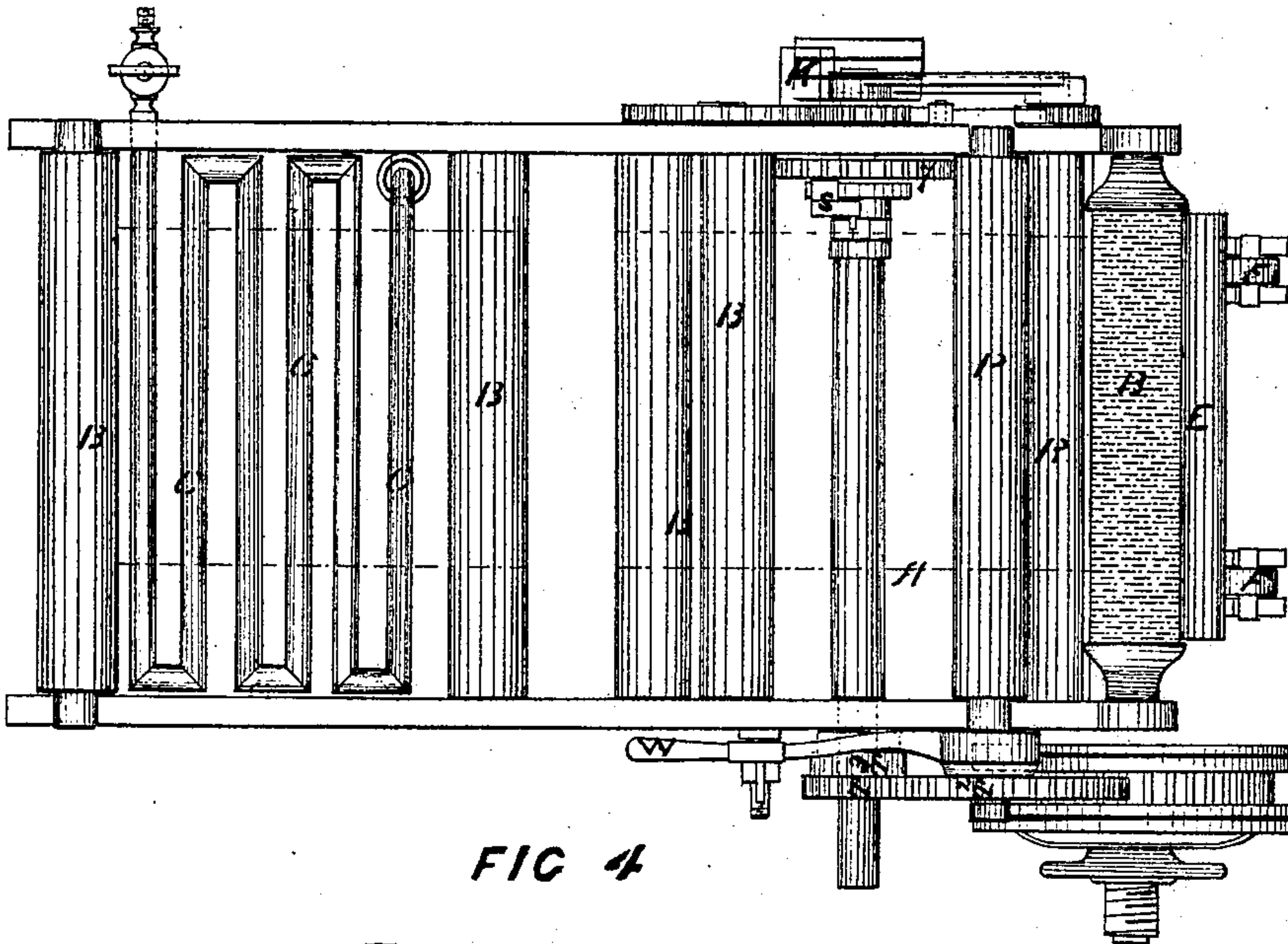
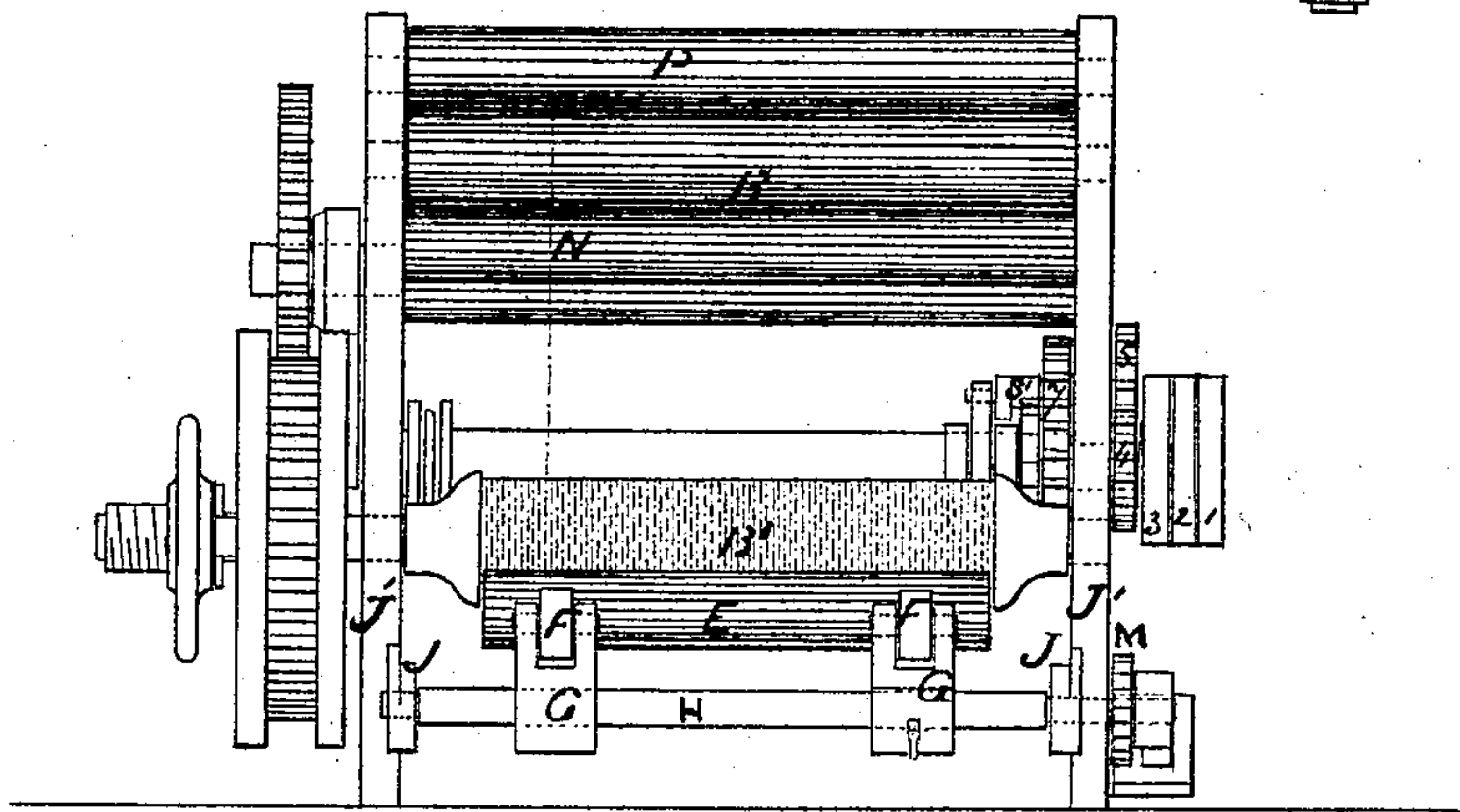


FIG 4



Witnesses

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FIG 5^a

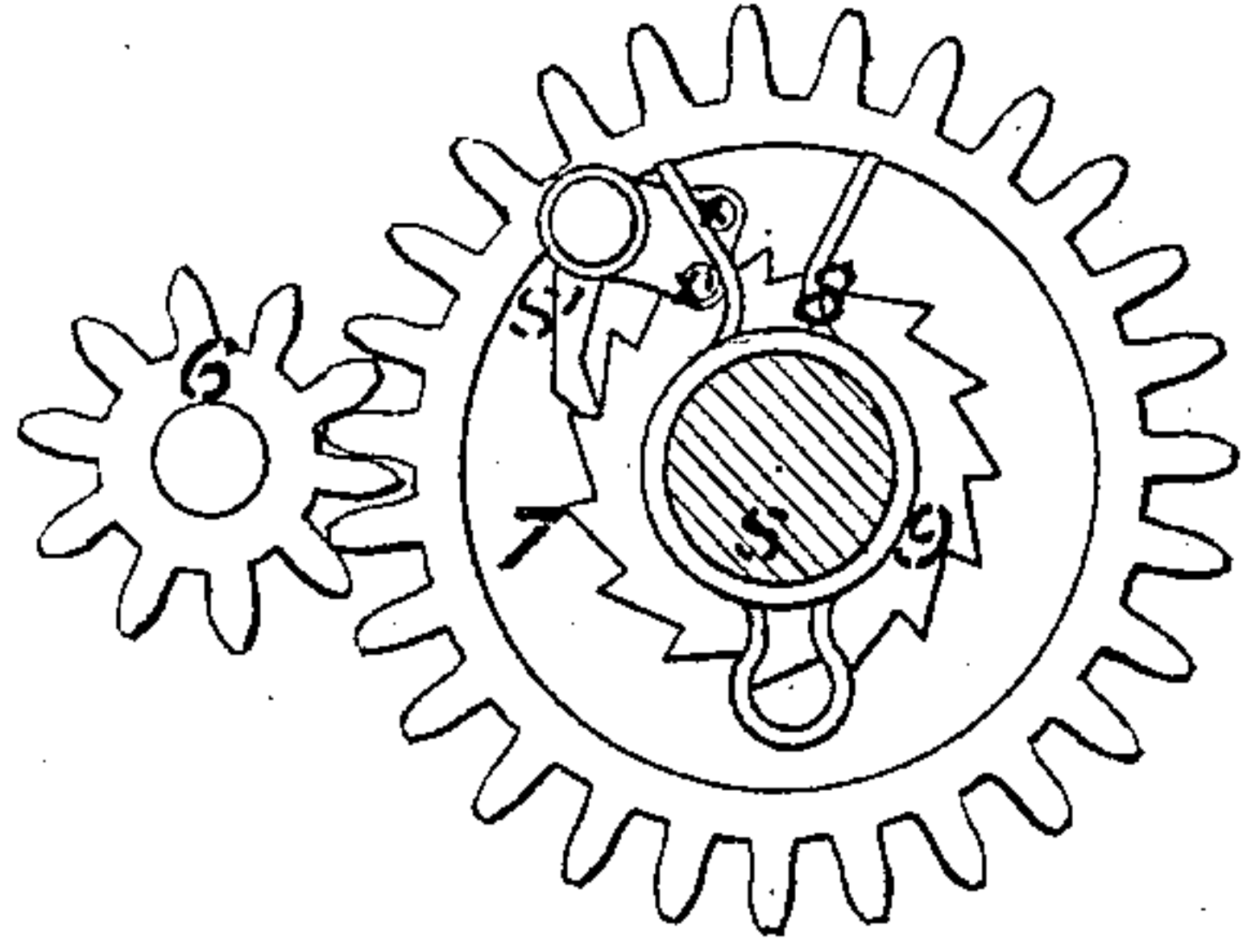


FIG 6

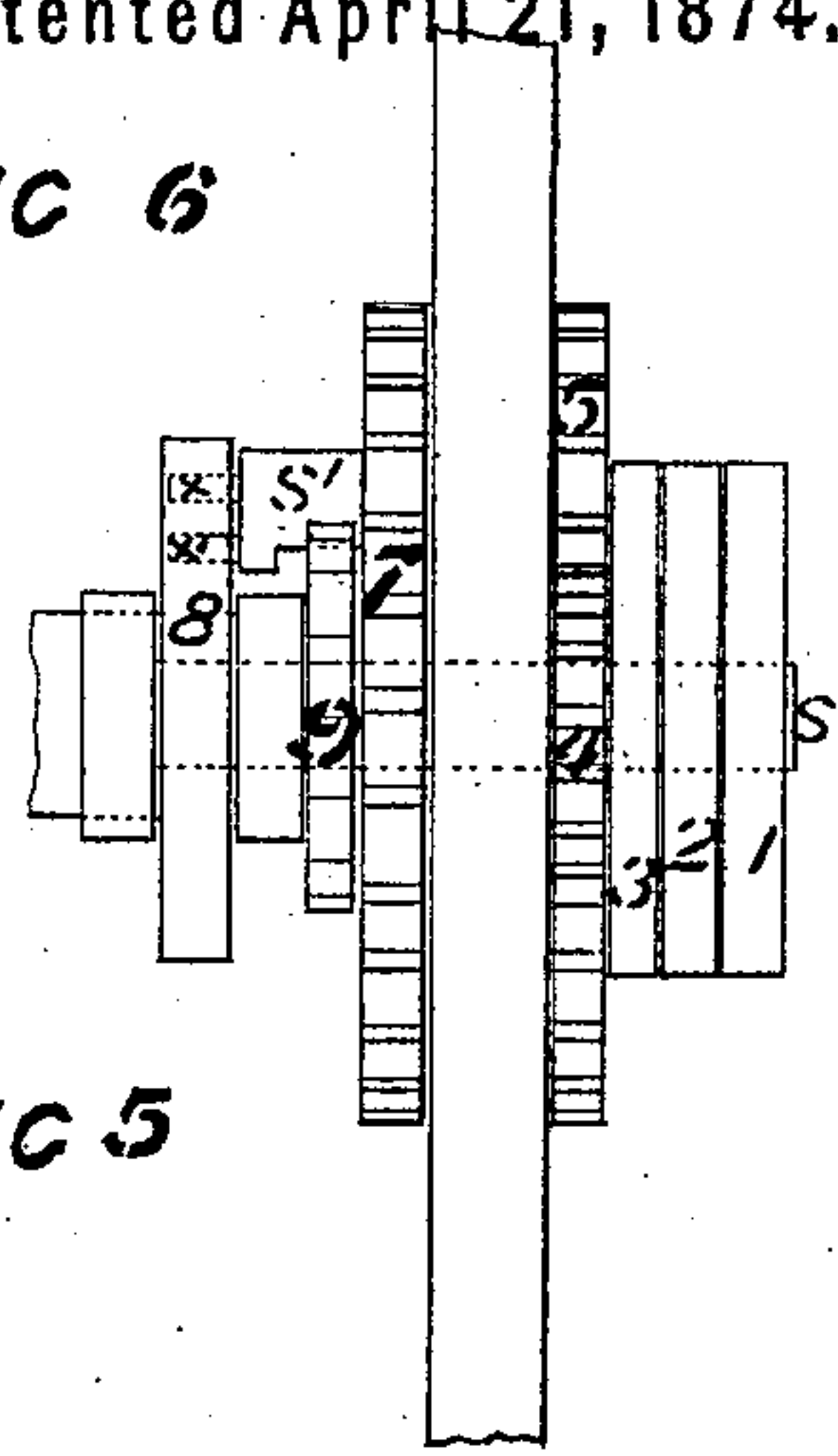
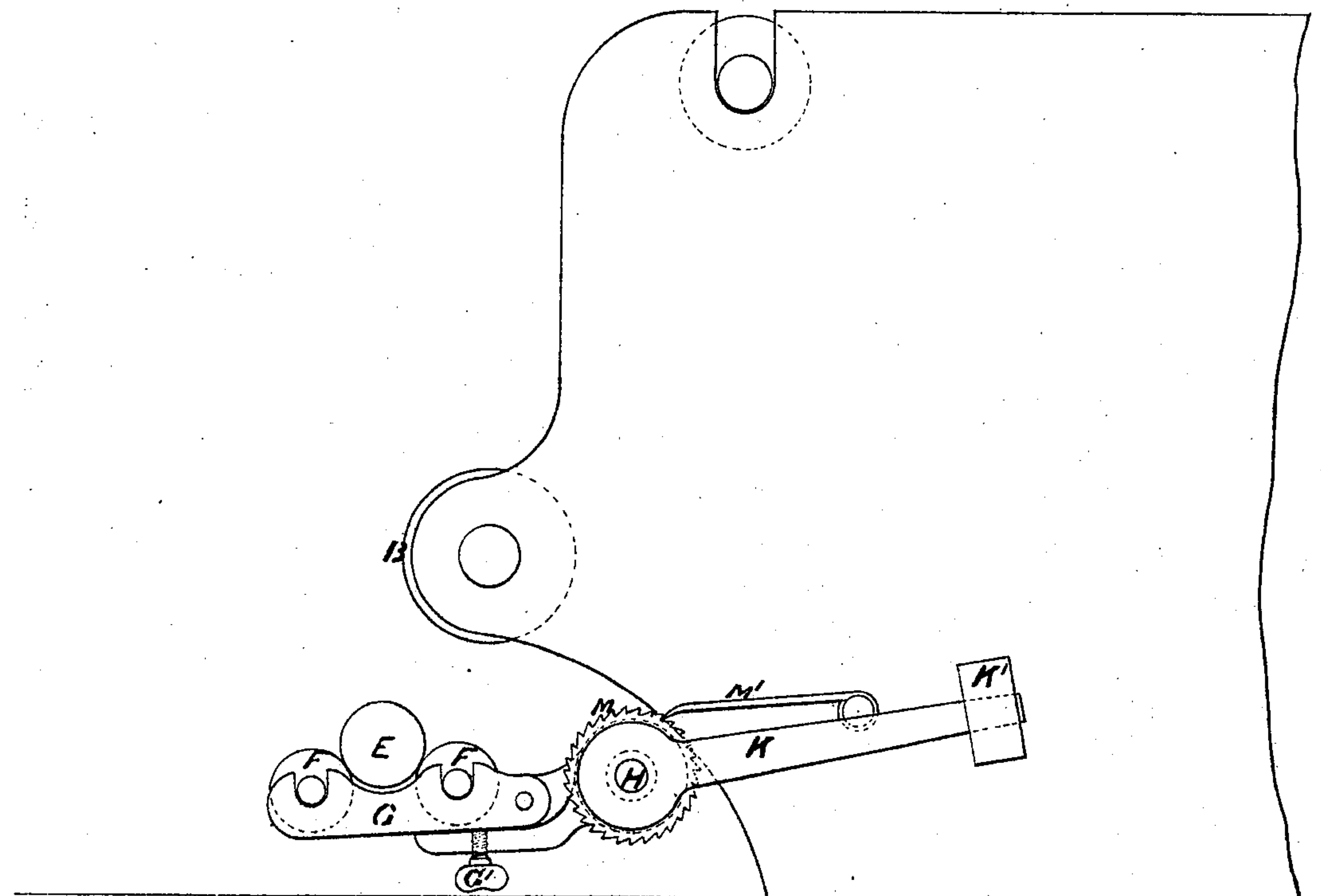


FIG 5



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM LANCASTER AND JOHN BULLOUGH, OF ACCRINGTON, ENGLAND.

IMPROVEMENT IN MACHINES FOR SIZING AND DRESSING YARN.

Specification forming part of Letters Patent No. **150,058**, dated April 21, 1874; application filed March 1, 1873.

To all whom it may concern:

Be it known that we, WILLIAM LANCASTER, of Constadt, in the Kingdom of Wurtemberg, Empire of Germany, at present residing in Accrington, in the county of Lancaster, England, machinery agent, and JOHN BULLOUGH, of Accrington aforesaid, machinist, have invented certain Improvements in Machinery for Sizing and Drying Yarn, of which the following is a specification:

Our improvements consist in apparatus for operating a presser for hardening and leveling the weaver's beam. For this purpose we employ a roller, (its length being determined by the length of the weaver's beam, and may readily be replaced without removal of other parts,) applied between the flanges or heads thereof. This roller revolves on anti-friction bowls carried by short arms attached to a cross-shaft below, and parallel to, the weaver's beam. To one end of this shaft a lever is attached, with a sliding adjusting-weight, by means of which the pressure of the said roller against the beam can be regulated as desired. A ratchet-wheel and catch are employed to retain the roller in position clear of the beam when necessary—as, for instance, when doffing.

The following is a full and complete specification of this invention, reference being had to the three sheets of drawings accompanying the same.

Figure 1 is a side elevation of machinery for the purposes above referred to. Fig. 2 is a transverse section of the same. Fig. 3 is a plan view, and Fig. 4 is an end elevation; and Figs. 5^a and 6 are detail views of gearing for reducing the speed of the machine, similar letters referring to the same parts in the various views or figures.

The dotted line represents the yarn, which, by means of the guide-rollers B B B, is diverted and turned in its course, so as to form several separate layers or sheets during its passage from the ordinary "size-box" to the weaver's beam B'. Between the layers or sheets of yarn so formed are a number or series of longitudinal or cross-traversing or coiled pipes, C, (or steam-chests may be employed,) these being heated by a supply of steam through the upright pipes C'. At D D are fans driven by cords or belts and pulleys. The fans agitate and so

increase the circulation of air against, along, and through the various layers or sheets of yarn. The heated pipes C, by being placed, as stated above, between the layers of yarn, are most effective, because acting on more than one layer at a time, and pipes so arranged support the yarn, and prevent its being disordered by the action of the fans. But clusters of pipes may be placed in the space between one fan and another, either to eke out the drying in cases of strong sorts, or to dispense with the other pipes in cases of light sorts.

Figs. 2, 3, 4, and 5 show the presser or roller and the mechanism for operating the same so as to harden and level the yarn on the weaver's beam. E is the presser or roller, applied to the yarn A on the weaver's beam between its flanges, and the said roller is free to revolve on the anti-friction bowls F F, carried by the arms G G, attached to the cross-shaft H, the latter being supported by the fixings J J, bolted to the end frames J'. To one end of this shaft is attached the lever K, having an adjustable weight, K', so that the pressure of the presser-roller E on the beamed yarn can be regulated as desired. The ratchet-wheel M and catch M' are employed to retain the presser-roller away from the beam when doffing or removing the same. (See Fig. 5.) Underneath the arm 5, carrying the anti-friction bowls, is a screw, G', by means of which the pressure of the friction-bowls F is increased or diminished on the roller E and the beam, and in this way the pressure is regulated, and made equal all along the surface of the beam.

To doff or remove the weaver's beam without stopping the machine, and so prevent the damage or injury to a portion of the yarn through overheating, (more particularly that portion which is on the surface of the hot rollers in the size-box,) it is necessary, while the change of beam is being made, that the yarn should continue to be delivered, but at a much-reduced speed, and at a point near to the beam, but entirely independent of any aid or pull therefrom, because such aid or pull does not exist in the interval between the severing or cutting the yarn of the full beam from the yarn in the machine, and while attaching the severed threads to the replaced or empty beam. This necessary continuous but slow draw or

progress of the yarn through the machine is effected by means of the rollers N P R. The roller N is driven, from the first-motion shaft S, by means of the wheels T, T¹, and T². The yarn A is passed over the top roller P, then under and over the driven roller N, then over the roller R to the weaver's beam. The hold or tensional gripe which these rollers have on the yarn, when so passed about them, is effective to continue the necessary and required delivery of yarn to the empty or replaced beam, it only being necessary to put the machine on the slow speed, which is effected by means of the following devices: On the first-motion or driving shaft S are three pulleys, 1 2 3. Pulley 1 is the ordinary fast or driving pulley. Pulley 2 works loose on the shaft, as also pulley 3, on the boss of which is a pinion-wheel, 4, gearing with the plate-wheel 5. On the other end of the stud of this plate-wheel is another pinion, 6, gearing with a second plate-wheel, 7, working loose on the shaft S. The spring-catch S', attached to the plate-wheel 7, is, by the revolution thereof, and by the ear 1 of the spring 8 (see detail) acting on the pin X on the catch, put in gear with the catch-wheel 9, which thus becomes the driver, and so the speed of the driving-shaft S is reduced, there being a consequent and like reduced speed of the draw-rollers N P R.

On the driving-strap being moved to the pulley 1, the pin X' will be acted on by the other ear of the spring, and the catch will be raised thereby out of gear with the catch-wheel, and the higher or working speed of the machine be resumed.

The rollers N P R fulfill another object, namely, they equalize the tension on the threads com-

ing through the opening-rods. Were it not for these rollers, the tension of the yarn from the surface of the weaver's beam to the opening-rods would vary in accordance with the irregularity of that surface, those threads forming the edges of the beam being the tightest, and those forming the hollows being the slackest. By the interposition of these rollers, however, with their true surfaces, the state of the yarn from them to the opening-rods is independent of the surface of the weaver's beam, and so regularity of tension is obtained, "slack sides" are avoided, and the breakage of yarn is much reduced.

In order to change or vary the working speed of the machine, the bell-crank lever W will be depressed, removing the intermediate wheel T¹ out of gear with the pinions T T², &c., until said pinions are slid along the shaft S, on which is a key entering the groove or key-bed cut in the boss of the said pinions, when the crank-lever W will again be raised, and secured by the nut W', bringing the intermediate wheel T¹ in gear with one of the pinions, according to the speed the machine is required to run.

We claim—

The presser-roller E, working on the anti-friction bowls F F, supported by the arms G G, attached to the cross-shaft H, together with the lever K, adjustable weight K', and ratchet-wheel M, catch M¹, and the regulating-screw M², as described and illustrated.

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JOHN BULLOUGH.

Witnesses:

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