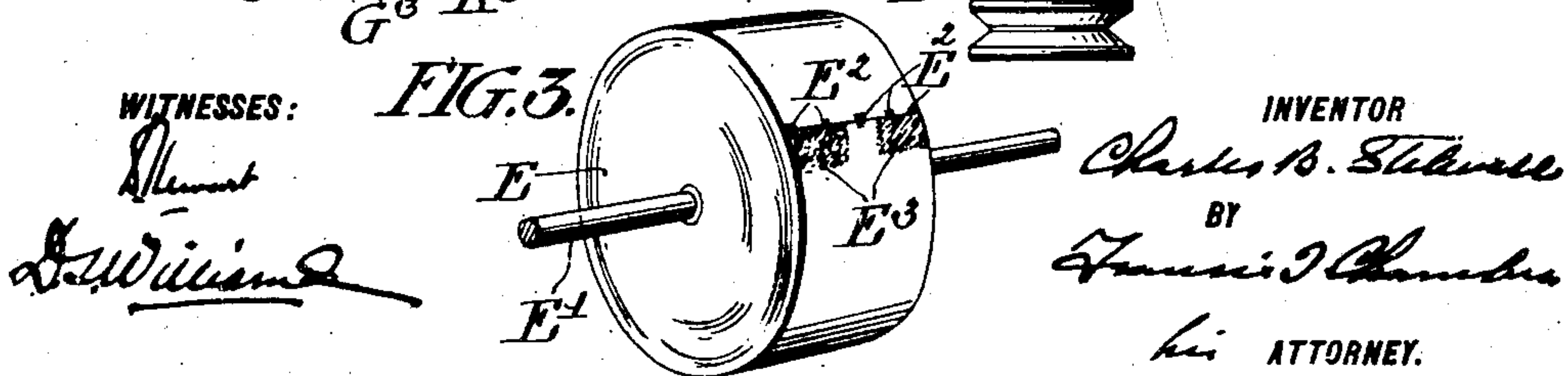
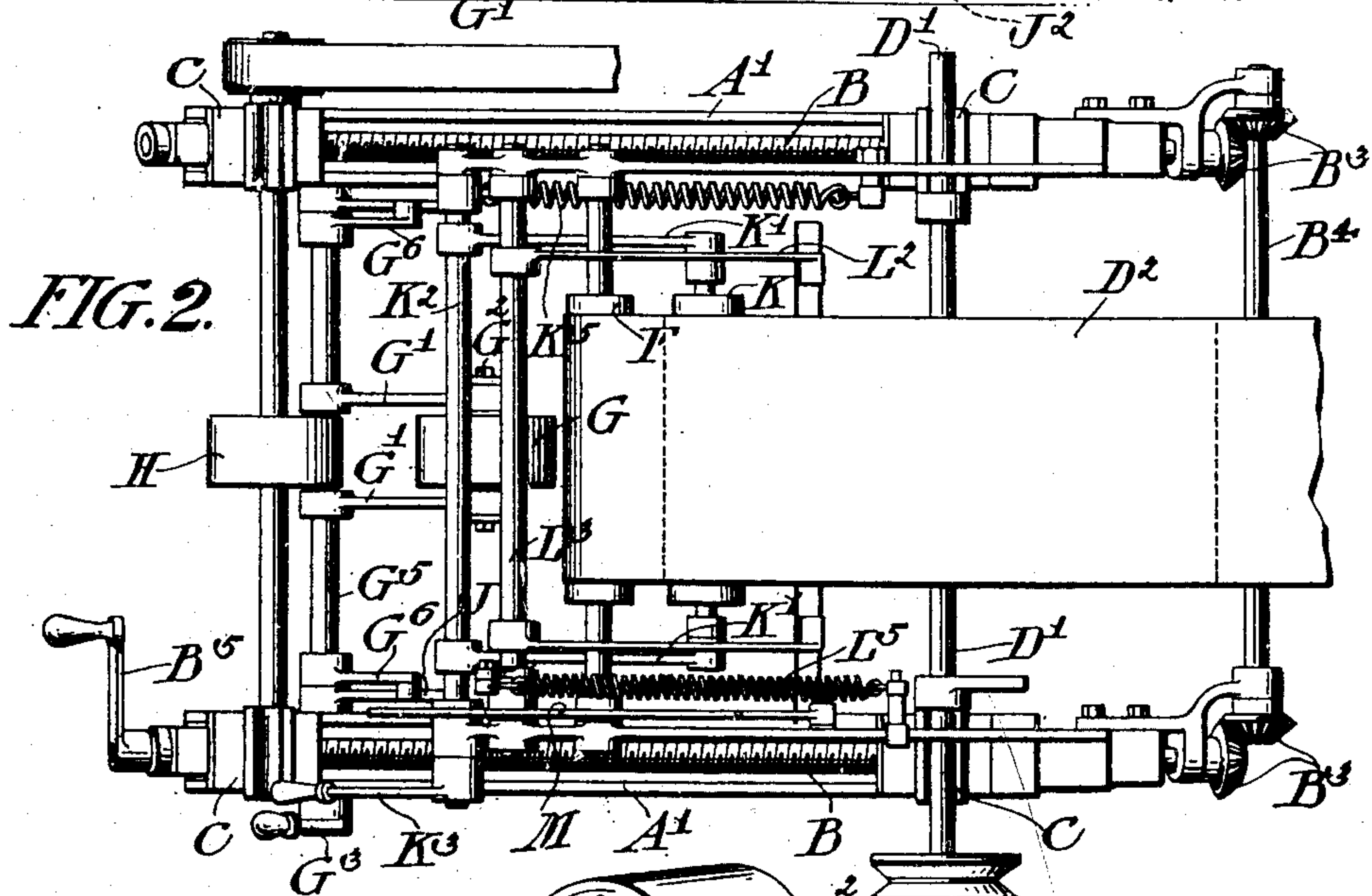
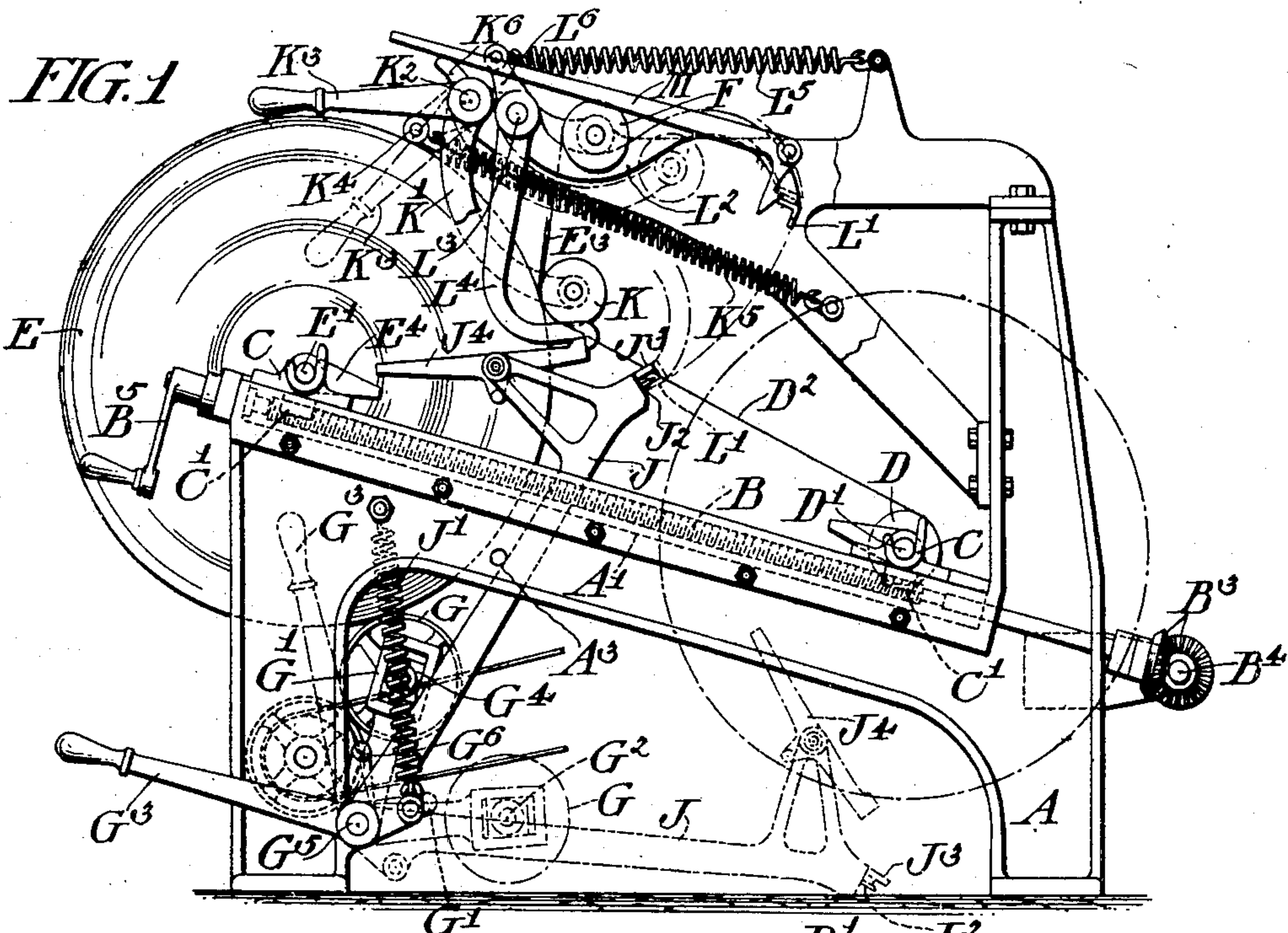


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METHOD OF FEEDING WEB MATERIAL.
APPLICATION FILED JUNE 7, 1907.

912,330.

Patented Feb. 16, 1909.



UNITED STATES PATENT OFFICE.

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METHOD OF FEEDING WEB MATERIAL.

No. 912,330.

Specification of Letters Patent.

Patented Feb. 16, 1909.

Application filed June 7, 1907. Serial No. 377,679.

To all whom it may concern:

Be it known that I, CHARLES B. STILWELL, a citizen of the United States, residing in Wayne, county of Delaware, State of Pennsylvania, have invented a certain new and useful Improvement in Methods of Feeding Web Material, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

The present invention relates to the art of feeding web material drawn from rolls.

In connection with many modern high speed newspaper or other printing presses, paper bag machines and the like, the paper or other material printed or otherwise worked upon is supplied in the form of a continuous constantly advancing web drawn from a roll.

The object of my invention is to simplify and improve the process of so attaching the outer end of a spare roll to the web being drawn from the roll in use that the supply from the last mentioned roll may stop, as from exhaustion of the roll, without interfering with the continuous advancement of a continuous web.

In carrying out my invention, I first attach the flap or outer end of the spare roll to the body of the roll by a bond strong enough to hold the web in place when the roll is rapidly rotated in the direction in which the roll tends to unwind. After the end of the roll is anchored in place, I set the roll in rotation gradually bringing its peripheral speed up to a parity with the speed at which the web fed from the roll in use travels. I then bring the periphery of the rotating spare roll and the advancing web from the roll in use into contact with sufficient pressure so that a bond of suitably supplied paste will be formed between the end of the spare roll and the advancing web from the other roll which will cause the end of the spare roll to be detached from the body of the roll and fed forward by the web from the roll in use. I attach the two webs before the roll in use is entirely exhausted and by bringing the spare roll up to speed before attaching it to the web from the roll in use I avoid the shock and disruptive strains which would occur if it were attempted to set the heavy spare roll in rotation with the proper speed at the instant at which the two webs are connected together.

Usually I sever the web from the roll in use or stub roll just back of the point of attachment to the other roll at or about the time at which the webs from the two rolls are connected together.

The paste for connecting the two webs may be applied to the proper portions of either or both webs before the joint forming contact occurs. In practice I prefer to apply the paste to a considerable portion of the outer surface of the flap end of the spare roll before the roll is set to rotating.

In the accompanying drawings and descriptive matter, I have shown and described the construction and operation of one form of mechanism which may advantageously be employed in carrying out my invention. The simple but effective mechanism employed is new with me and forms the subject of my application for patent, Serial Number 377,678 filed of even date herewith.

Of the drawings, Figure 1 is an elevation with parts broken away of a machine particularly designed for feeding paper to printing presses, paper bag making machines or the like. Fig. 2 is a plan view, with parts broken away, of the mechanism shown in Fig. 1 and Fig. 3 is a perspective view of a spare roll prepared for use.

In the drawings, A represents the framework of the machine, having two inclined parallel trough-like guideways A¹ in each of which is located a feed screw B, the feed screws being connected by gears B³ and a connecting shaft B⁴. The screws may be simultaneously rotated by a crank B⁵ secured to the upper end of one of them. Roll shaft bearing boxes C are mounted on the guideways and have depending portions C¹ threaded for engagement with the threads on the feed screws B. The normal position of the roll in use D is at the right hand end of the guideways as seen in Fig. 1, its supporting shaft D¹ being journaled in a corresponding pair of boxes C. The initial position of the spare roll E is at the left hand or upper end of the guideways as seen in Fig. 1. Its supporting shaft E¹ is journaled in another pair of boxes C. The web D² from the roll in use is fed from the roll D in any suitable manner over the guide roll F carried by the framework A.

The spare roll E has its outer flap end lightly attached to the body of the roll, as by paste applied at the points E² shown in

Fig. 3. Spaced apart portions E^3 of the outer surface of the flap end have paste applied to them as indicated in Fig. 3.

When it is desired to connect the flap end of the roll E to the web D^2 being drawn from the roll D , the roll E is brought up to speed by means of a driving wheel G carried by the shaft G^2 journaled in boxes G^4 movably supported in arms G^1 pivoted on shaft G^3 and movable from the dotted line position shown in Fig. 1 to the full line operating position by an operating handle G^5 .

In the operating position, the roll E is engaged between the paste portions E^2 by wheel G which then serves as an idler connecting the roll E and a friction wheel H , belt driven with a peripheral velocity equal to the speed at which the web D^2 is advanced. The wheel G thus serves as a frictional driving device for gradually bringing the roll up to the desired speed. When the friction wheel G is swung into the full line position, the arms J pivoted on the shaft G^5 also swing from the dotted position into the full line position of Fig. 1, being moved by the springs J^1 . Normally the arms J are held down by the weight of the roll G and parts carried by it acting through arms G^6 carried by the shaft G^5 and engaging the arms J . The upward movement of the arms J is checked by stop lugs A^3 carried by the framework A . One of the arms J carries at one end of the roll E a trip lever J^4 gravitally held in the position shown in Fig. 1, except when it is momentarily moved out of that position once in each rotation of the roll E by the arm E^4 , carried by the roll shaft E^1 . As the roll E is brought up to speed, the web D^2 drawn from the roll D over the guide roll F is gradually deflected against the periphery of the roll D by an idler roll K journaled in arms K^1 secured to a shaft K^2 pivotally mounted on the framework and adapted to be swung by a handle K^3 from the dotted position in which it is normally held by shaft arm K^4 and spring K^5 to the full line position of Fig. 1. As the idler roll K approaches the periphery of the roll E , a latch or locking device M is actuated as by an arm K^6 carried by shaft K^2 to release a spring actuated striker or severing device. The severing device comprises a blade L^1 carried by arms L^2 secured to a shaft L^3 journaled in the framework and also a rigidly connected arm L^4 . A spring L^5 extending between the framework and an arm L^6 secured to the shaft L^3 urges the striker in the cutting direction when the striker is released by its locking devices. When the latch M is turned to disengage the striker, the arm L^4 first engages the trip lever J^4 when the latter is in its normal gravity held position. When the latter is tripped, however, by the arm E^4

carried by the roll shaft, the striking blade, under the action of its spring, swings down and cuts the tense web D^2 . A cooperating blade or paper support J^2 is preferably carried by the arms J . The downward motion of the striking blade is arrested by its engagement with the arms J or stops J^3 carried thereby.

In the usual method of operation, the idler roll K is gradually swung over into proximity with the periphery of the roll E . After the web of the roll D is brought into proximity with the periphery of the roll E , the operator waits until the arm E^4 passes the trip lever J^4 before bringing the web D^2 into contact with the roll E . Immediately after the arm E^4 passes the lever J^4 he forces the web against the periphery of the roll E and at the same time the lock lever M is tripped. When, thereafter, the rotation of the roll E brings paste portions E^3 into contact with the web D^2 the flap end of the roll E adheres to the web D^2 , breaking the bond between the flap end and the body of the roll E . At the proper instant the trip lever J^4 is engaged by the arm and the cutting off device swings into engagement with the web.

It will be understood that the arm E^4 is initially set relative to the flap end of the roll E so that the severing device works at the right time.

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

The method of attaching the outer end of the web of a spare roll of paper to a rapidly advancing web drawn from a roll of paper in use which consists in securing the outer end of the web of the spare roll to the body of the spare roll by a bond easily broken, but of sufficient strength to hold the end of the web in place when the roll is rapidly rotated about its own axis, applying paste to a considerable portion of the outer surface of said outer end, giving the spare roll a rotative movement about its own axis such that its periphery travels with the same speed as the web drawn from the roll in use while said spare roll is out of contact with said advancing web, and then while said spare roll is so rotating bringing the periphery of the spare roll and the advancing web into contact to cause the paste carried by said outer end of the spare roll to adhere to said advancing web with such strength that the pull of the advancing web will break the bond between the web and body of the spare roll and cause its web to move forward with the web in use.

CHARLES B. STILWELL.

Witnesses:

ARNOLD KATZ,
D. STEWART.