

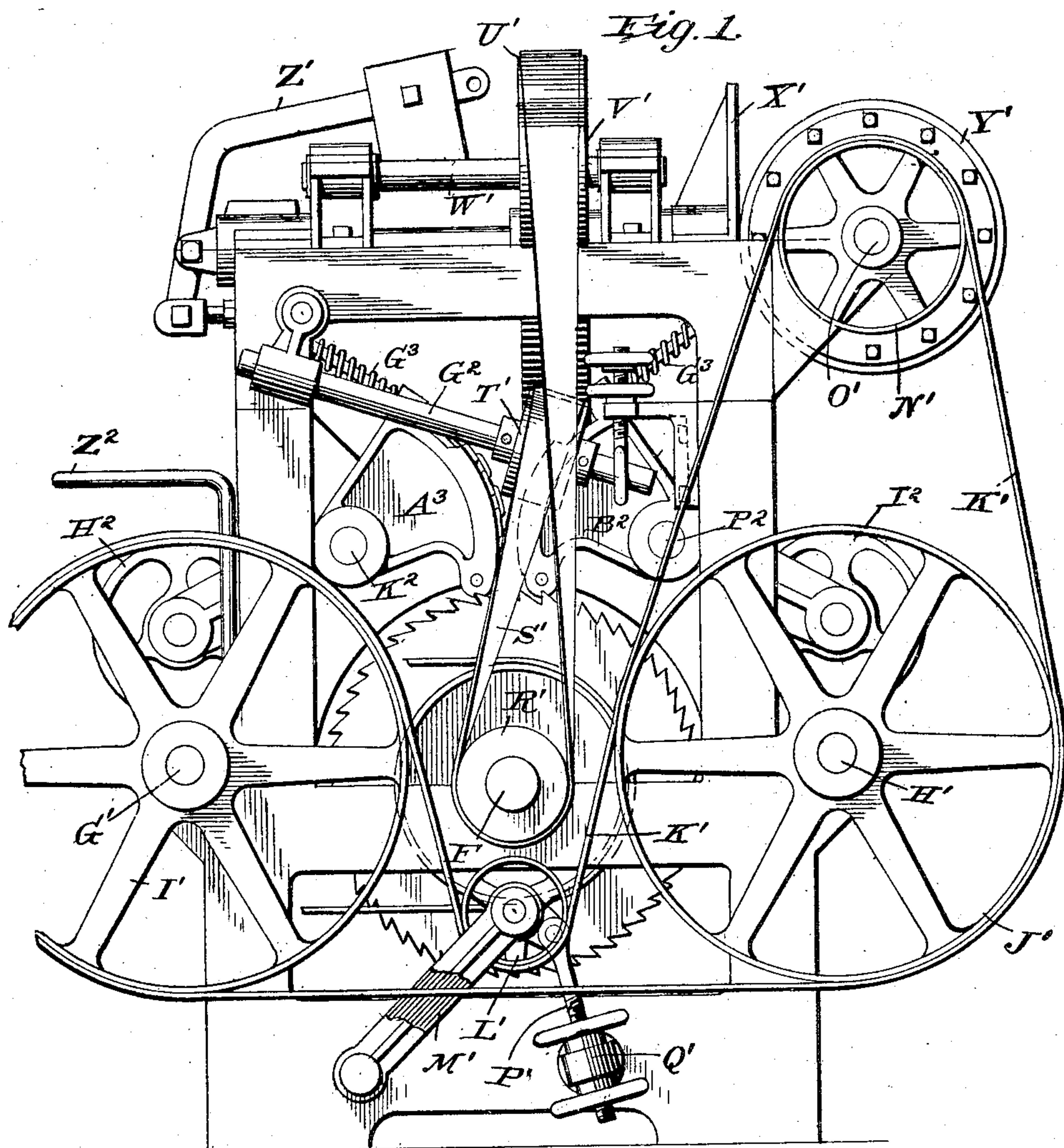
No. 877,878.

PATENTED JAN. 28, 1908.

U. ANDERSON.
GANG EDGER.

APPLICATION FILED AUG. 2, 1907.

5 SHEETS—SHEET 1.



Inventor

Ulrich Anderson

Witnesses

J. Stewart Rice.
Fannie Rice

By

Douglas

Attorneys

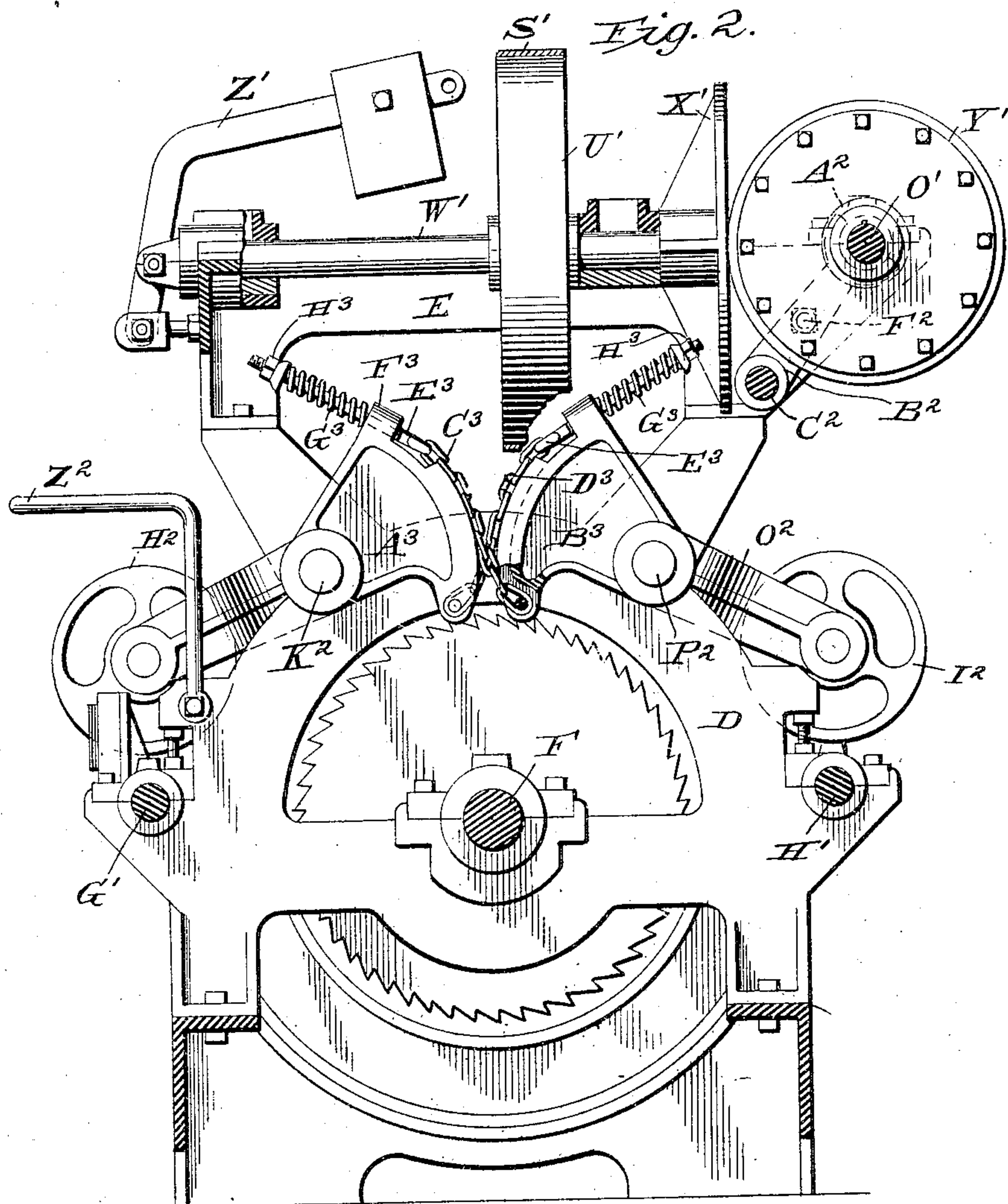
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Inventor:

Ulrich Anderson,
Dodger & Sons,

Attorneys.

Witnesses

Stewart Rice.
Fannie Wise

By

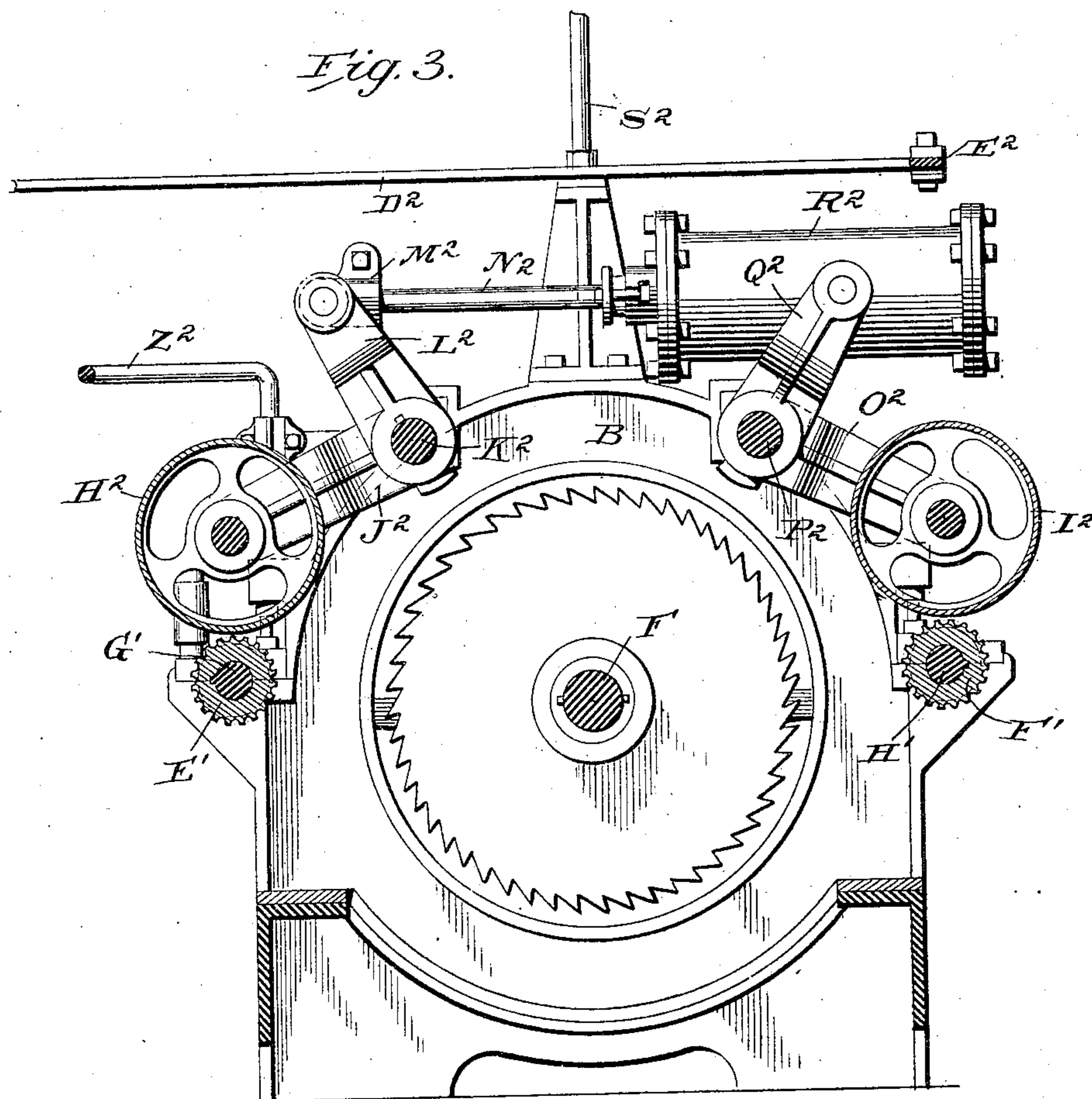
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5 SHEETS--SHEET 3.



Inventor:

Ulrich Anderson,
Dodgetts,

Witnesses

J. Stewart Rice,
Fannie Hise

By

Attorneys

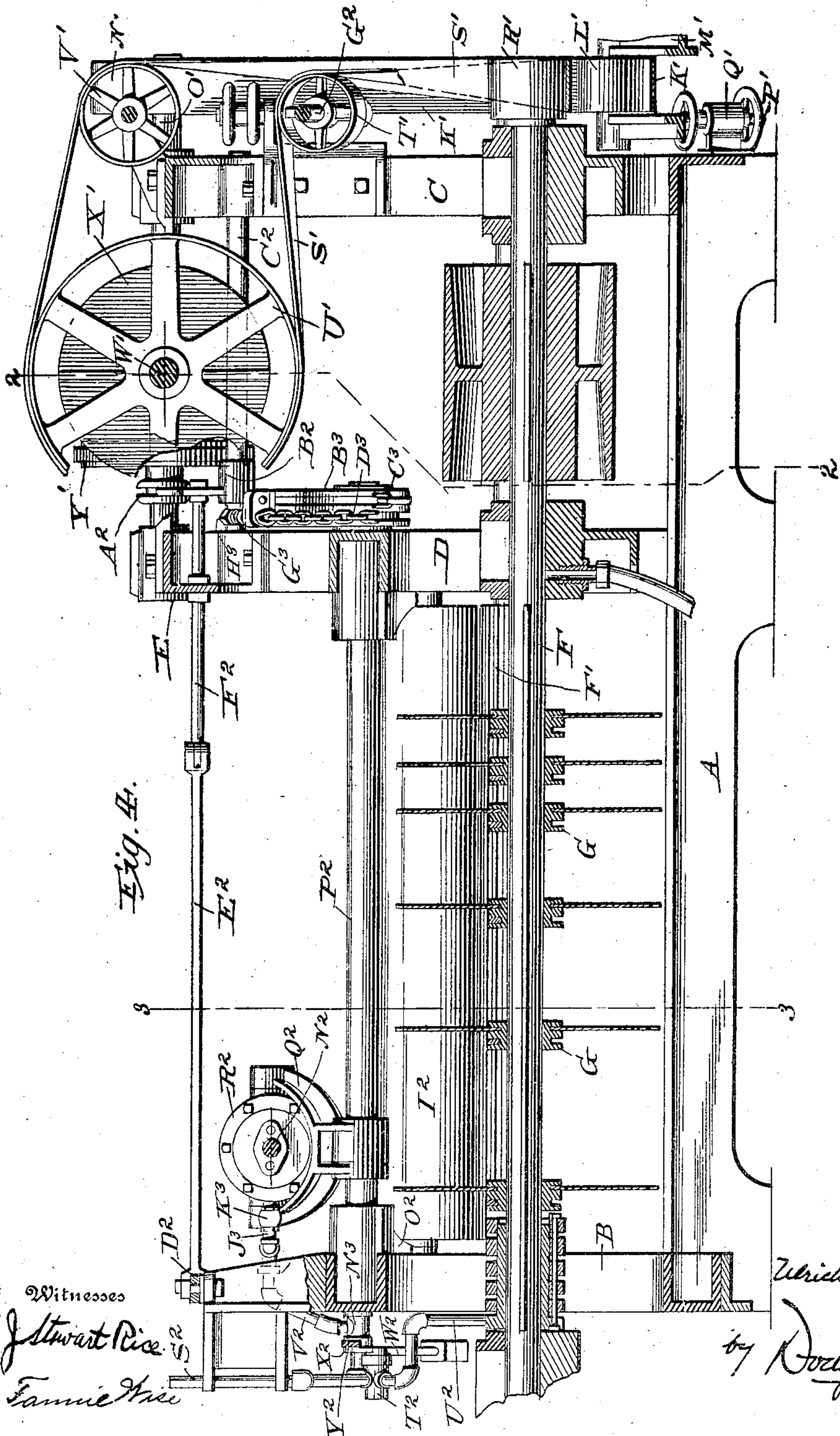
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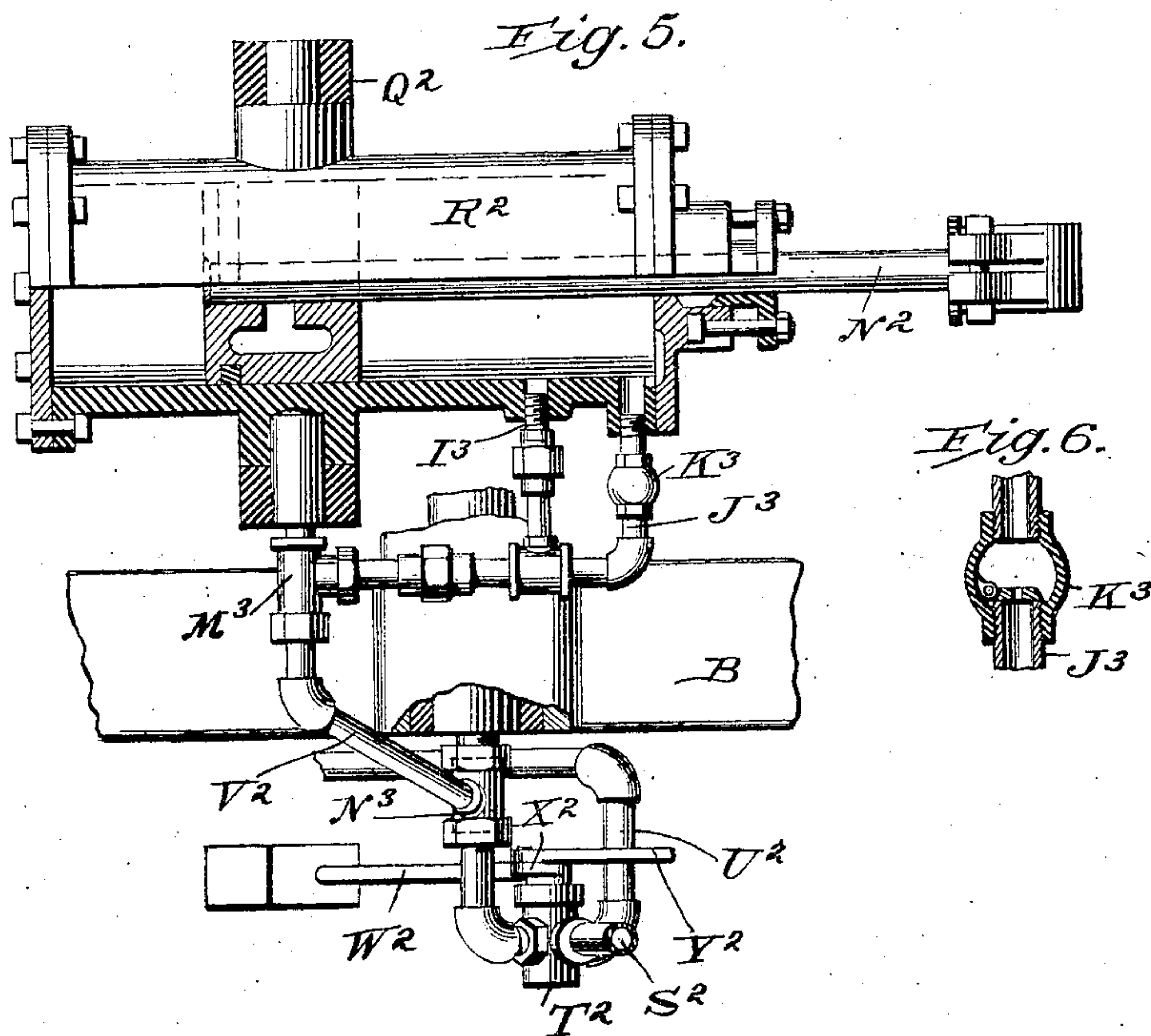
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5 SHEETS—SHEET 5.



Inventor:

Ulrich Anderson,

Witnesses

Alward Rice.
Frank Hise

By

Rodgers & Sons,

Attorneys.

UNITED STATES PATENT OFFICE.

ULRICH ANDERSON, OF FOND DU LAC, WISCONSIN, ASSIGNOR TO GIDDINGS & LEWIS MANUFACTURING COMPANY, OF FOND DU LAC, WISCONSIN, A CORPORATION OF WISCONSIN.

GANG-EDGER.

No. 877,878.

Specification of Letters Patent.

Patented Jan. 28, 1908.

Original application filed January 29, 1907, Serial No. 354,762. Divided and this application filed August 2, 1907. Serial No. 386,752.

To all whom it may concern:

Be it known that I, ULRICH ANDERSON, a citizen of the United States, residing at Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented certain new and useful Improvements in Gang-Edgers, of which the following in a specification.

My present invention pertains to improvements in gang-edgers, and more particularly to the feed-roll mechanism thereof, the construction and advantages of which will be hereinafter set forth, reference being had to the annexed drawings, wherein:

Figure 1 is an end elevation of the machine; Fig. 2 a like view of the opposite end of the structure; Fig. 3 a transverse vertical sectional view, taken on the line 3—3 of Fig. 4; Fig. 4 a longitudinal sectional view of the machine; Fig. 5 a sectional plan view of the power cylinder, its piston and the pipe connection; and Fig. 6 a detail view of the check-valve employed in conjunction with the cylinder.

The main object of the present invention is to provide a simple and positive actuating mechanism for the upper feed-rolls, whereby said rolls will move toward and from the lower positively-driven rolls in unison.

A further object of the invention is to provide a belt-drive for the feed-rolls which, while being noiseless, is positive in its action and superior to the ordinary sprocket-chain drives now commonly employed.

Referring to the drawings, A denotes the base or bed of the machine, surmounted at one end of the structure by a frame or casting B, and at the opposite end by a frame or casting C, Fig. 4, while a third frame or casting D is secured to the base A. Mounted upon the upper end of the frames C and D is a cross frame or table E, which serves as a support for a portion of the roll-driving mechanism.

A saw-arbor F is mounted in suitable bearings carried by or formed in the frames B, C and D, the arbor carrying a number of collars G upon which the saws are mounted. The slides and other parts which are employed in conjunction with the saws for adjusting the same are omitted, as such matter forms the basis of the parent application filed on or about January 29th, 1907, Serial No. 354,762, of which this is a division.

The lower positively-driven feed rolls are designated by E' and F', the former being

mounted upon and rotating with a shaft G', and the latter secured to and rotating with shaft H'. These shafts find their bearings in the frame D, a large band-wheel I' being mounted upon the outer end of shaft G' and band-wheel J' upon the outer end of shaft H'. An endless belt K', passes around the band-wheels, beneath a pulley L' carried upon the upper end of a bracket M' which latter is pivotally secured to the bed of the machine. The belt also passes around a band-wheel N', mounted upon a shaft O'. Proper tension for the belt is secured by adjusting the bracket M', such adjustment being effected through adjustment of a rod P' which is connected to the outer end of the bracket M' and to a block or casting Q' extending outward from the bed of the machine.

A belt-pulley R' is secured to the outer end of the saw-arbor F and an endless belt S' passes about said pulley, over a pulley T', a band-wheel U' and a pulley V'. Pulleys T' and V' are idlers. The band-wheel U' is mounted upon a shaft W', carried in boxes mounted upon the table or frame E. To one end of said shaft is secured a face plate or disk X' which coacts with a paper friction wheel Y' mounted upon the shaft O'. A weighted lever Z' is connected to the shaft W' and acts to move the same longitudinally through its bearings and thus urge the disk X' into contact with the face of the wheel Y'. By shifting said wheel toward or from the center of the driving disk X' the speed of the rolls may be varied. To effect such adjustment I provide the hub of the wheel Y' with a collar A² into which extends an arm of the slide B² mounted upon a shaft C², see Fig. 4. The slide B² is actuated by a hand-lever D², which extends to the forward portion of the machine and is connected by a suitable link E² and rod F² with the slide.

As will be readily appreciated, motion imparted to the wheel U' from the pulley R', through belt S', will be transmitted to the shaft W', thence through disk X' to the friction driving wheel Y', from said wheel to the shaft O', and thence to the endless belt K', which passes about the relatively large band-wheels I' and J' that serve to drive the lower feed rolls. The shaft G², upon which the pulley T' is mounted, may be adjusted so as to take up any slack in the belt S'.

The upper feed rolls are designated by H², I². The shaft which supports roll H² is car-

ried in arms J^2 , which in turn are splined or otherwise secured to a shaft K^2 , said shaft finding its bearings in the frames B and D. An arm L^2 is secured to the shaft K^2 at substantially right angles to the arms J^2 , said arm L^2 carrying at its upper end a pivoted block M^2 connected to the outer end of a piston-rod N^2 . Roller I^2 is mounted upon a shaft which is supported at the outer lower ends of arms O^2 , which are splined or otherwise secured to a shaft P^2 . A yoke or frame Q^2 , is mounted upon shaft P^2 and a cylinder R^2 is swiveled in the upper end of said yoke, the piston of the cylinder being connected to the piston-rod N^2 .

The steam-inlet for the cylinder is designated by S^2 , the inlet of the steam being controlled by a valve mounted in a valve-casing T^2 from which leads the exhaust pipe U^2 , the supply pipe V^2 passing to the cylinder, said pipe also acting, when the rolls H^2 , I^2 are lowered, as an exhaust pipe, the steam supply at such time being cut off.

The valve is normally held in its closed position by a weighted lever W^2 . In order that the valve may be readily opened by the operator, who stands at the front of the machine, the valve is provided with a rocker-arm X^2 , to which is connected a link Y^2 that extends forward and is in turn connected to the swiveled frame or bail Z^2 which runs entirely across the front of the machine, so that no matter what may be the position of the operator he may readily grasp the bail and thus open the valve if occasion require, in order to raise the rolls. Suitable swivels M^3 and N^3 (Fig. 5) are provided so as to permit the cylinder and its frame to rock or swing with reference to the fixed portion of the piping. To prevent one roll from dropping in advance of the other, owing to differences in their weight, I prefer to connect the rolls in such manner as to make them move in unison. To accomplish this I secure to the shafts K^2 and P^2 sectors A^3 , B^3 , which are in turn connected to each other by chains C^3 , D^3 , the chains being attached at the lower ends of the sectors and passing up against the face of the opposite sector, the upper ends of the chains being secured to the lower ends of rods E^3 , each of said rods passing through a lug F^3 formed in the upper portion of a sector member. A spring G^3 encircles the upwardly-projecting end of each rod, and is held in place by a nut H^3 , secured to the upper end of said rod. By this connection the shafts K^2 and P^2 are caused to rock in unison and as a consequence the rolls H^2 , I^2 must of necessity move toward and from their companion positively-driven roll to the same extent. By the use of the springs G^3 a certain flexibility is, however, imparted to the roll system. The springs will remain neutral unless two different thicknesses of lumber are passed into the machine, in which case they will yield to com-

pensate for such difference. This is quite essential in case the timber being edged is not of uniform thickness, for it insures both the presser rolls H^2 , I^2 passing over the uneven surface and, therefore, pressing down firmly on the stock, so that the same is fed through the edger in a perfectly straight line.

The steam passing from the pipe V^2 into the cylinder passes through two pipes I^3 and J^3 . As it is exhausted from the cylinder it may pass freely through the pipe I^3 , but a valve K^3 is located in the pipe J^3 , said valve serving to hold the steam and water in the cylinder after the piston closes the mouth of the pipe I^3 and thus form a cushion for the piston. The check valve, as will be noted upon reference to Fig. 6, is provided with a small or restricted opening, so as to permit the water and steam to gradually pass out of the cylinder. The cushion thus formed will, however, prevent the rolls from dropping down and injuring the piston and cylinder.

As will be noted from the foregoing description, the steam cylinder is carried directly by an arm or yoke attached to one of the rock-shafts, by which construction I am enabled to use a relatively small cylinder and the rolls are substantially balanced. The arrangement is such that there is no dead center and the piston will act immediately upon the introduction of steam into the cylinder.

Having thus described my invention, what I claim is:

1. In a gang-edger, the combination of a saw-arbor; a positively-driven feed roll upon each side of said arbor; a pair of rocker-shafts located above the arbor; a roll connected to each of said rocker-shafts by downwardly-extending arms, said rolls standing in line with the positively driven feed rolls; an arm extending upwardly from each of the rocker-shafts and positively connected thereto; a cylinder mounted upon one of said arms; and a piston-rod connected to the opposite arm.

2. In a gang-edger, the combination of a saw-arbor; a positively-driven feed roll mounted upon the frame of the machine at each side of the arbor; a pair of rocker-shafts mounted in the frame above the arbor; a pair of arms extending outwardly from each of said rocker-shafts; a feed roll journaled in each pair of arms; an arm extending upwardly from one of said rocker-shafts; a yoke projecting upward from the other rocker-shaft; a cylinder swiveled in said yoke; and a piston-rod connected to the piston in the cylinder and to the arm.

3. In a gang-edger, the combination of a saw-arbor; a positively-driven feed roll mounted upon each side of said arbor; a pair of rocker-shafts mounted in the frame above the arbor; a pair of arms extending outwardly from each of said rocker-shafts; a feed

roll journaled in the outer end of each pair of arms, the roll standing in substantial alinement with its companion positively-driven feed roll; an arm extending upward from one of said rocker-shafts; a yoke projecting upward from the other rocker-shaft; a cylinder swiveled in said yoke; a piston-rod connected to the piston of the cylinder and at its outer end to the upwardly-extending arm; and means for causing said rocker-shafts to move in unison.

4. In a gang-edger, the combination of a saw-arbor; positively-driven feed rolls located upon opposite sides of the arbor; a pair of rocker-shafts located in the frame of the machine above the arbor; arms extending outwardly from each of said rocker-shafts; a feed roll carried by the outer ends of said arms; an arm extending upwardly from one rocker-shaft; a supporting member extending upwardly from the other rocker-shaft; a cylinder carried by said supporting member; a piston-rod connected at one end to the piston in the cylinder and at the other end to the arm of the opposite rocker-shaft; and yielding connections between said rocker-shafts for normally causing them to move in unison and permitting one to yield independently of the other, substantially as and for the purpose specified.

5. In a gang-edger, the combination of a saw-arbor; a positively-driven feed roll located upon each side of said arbor; a pair of rocker-shafts mounted in the frame of the machine above the arbor; a pair of arms extending outwardly from each rocker-shaft; a roll carried by each pair of arms; a supporting member extending upwardly from one of said rocker-shafts; a cylinder carried thereby; an arm extending upwardly from the second rocker-shaft; a piston-rod connected to said arm, and to the piston in the cylinder; a pair of sector-shaped members secured to the rocker-shafts; and connections between said sector-shaped members, including a yielding device, whereby said members will, under normal conditions, move in unison but will permit one of the rolls to yield independently of the other, substantially as and for the purpose specified.

6. In a gang-edger, the combination of a saw-arbor; a pair of positively-driven feed

rolls, one upon each side of the arbor; a pair of rocker-shafts mounted in the frame above the arbor; arms extending outwardly from said rocker-shaft; a roll supported by said arms in substantially vertical alinement with the lower feed rolls; a supporting member extending upwardly from one of said rocker-shafts; a cylinder mounted upon said member; an arm extending upward from the opposite rocker-shaft; a piston-rod connected to said arm and to the piston within the cylinder; a pair of sector-shaped members secured, respectively, to said rocker-shafts; a chain attached to the lower end of each of said sector-shaped members; and a spring-sustained rod carried by the upper end of each of said sector-shaped members, the rod of one member being connected to the upper end of the chain of the opposite member, whereby the shafts will be caused to rotate in unison but may yield independently of each other to a slight extent when uneven stock is fed through the edger.

7. In a gang-edger, the combination of a saw-arbor; a positively-driven feed roll located upon each side of said arbor; a pair of rocker-shafts mounted in the frame of the machine above the arbor; arms extending outwardly from said rocker-shafts; a feed roll carried by each pair of arms; a yoke extending upwardly from one of said shafts; a cylinder swiveled in said yoke; an arm extending upwardly from the opposite rocker-shaft; a piston-rod connected to the upper end of said arm and to the piston in the cylinder; a pair of pipes opening into the cylinder adjacent to the inner end thereof, said pipes serving both as a steam inlet and exhaust; and a check-valve located in the pipe nearest the inner end of the cylinder, whereby when the steam is exhausted and the piston approaches the end of the cylinder a cushion will be formed by the trapped steam and water of condensation.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ULRICH ANDERSON.

Witnesses:

ALBERT RIEDER,
BELLE GEARY.