

No. 712,468.

Patented Oct. 28, 1902.

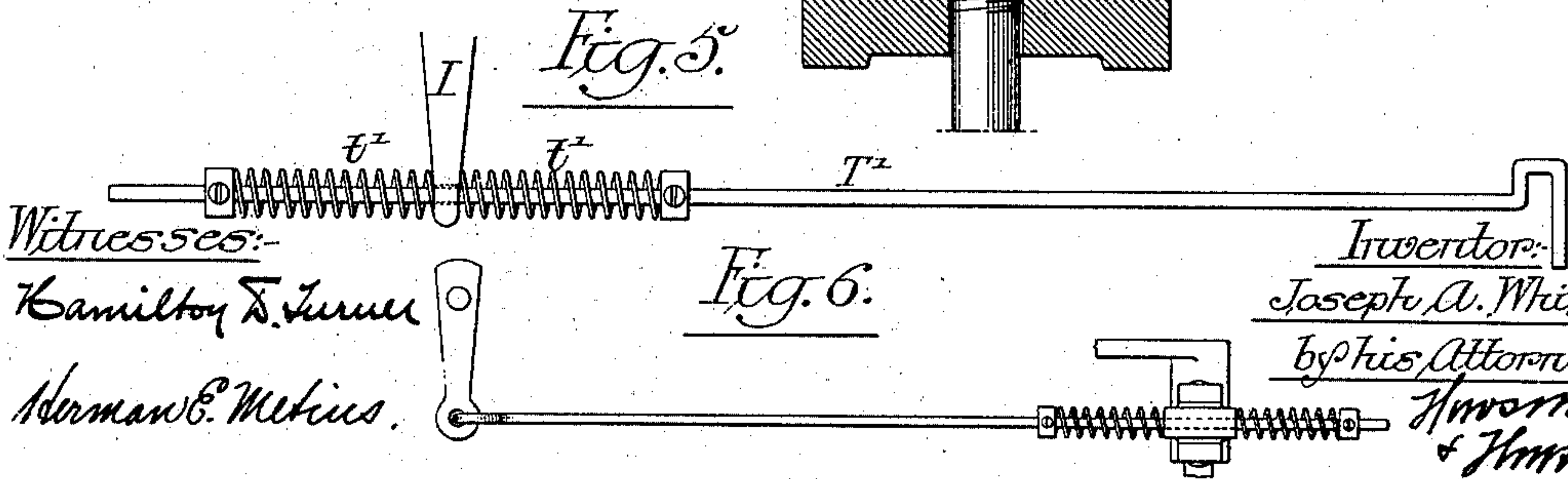
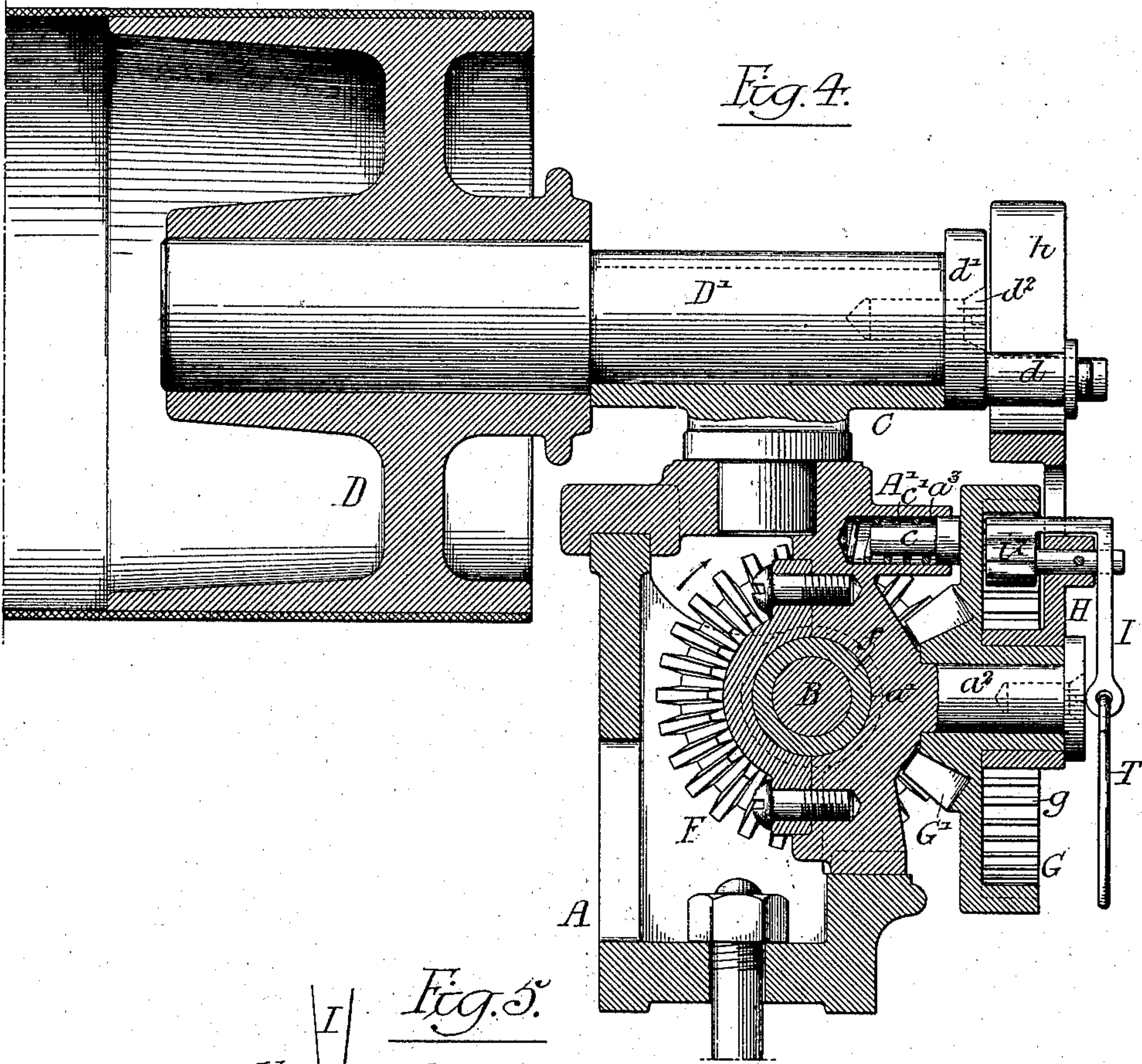
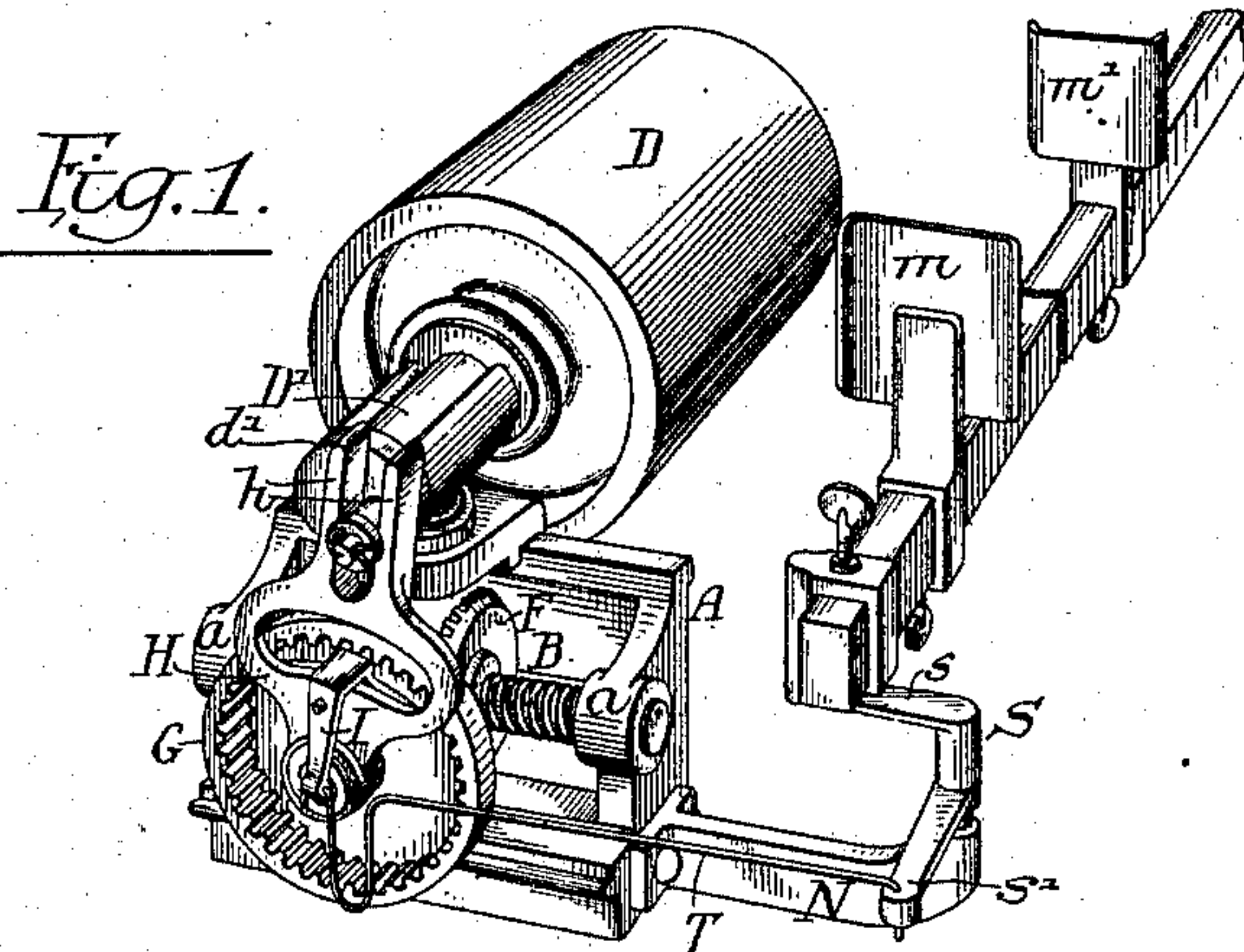
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WIRE GUIDE FOR PAPER MAKING MACHINES.

(Application filed June 7, 1902.)

(No Model.)

2 Sheets—Sheet 1.



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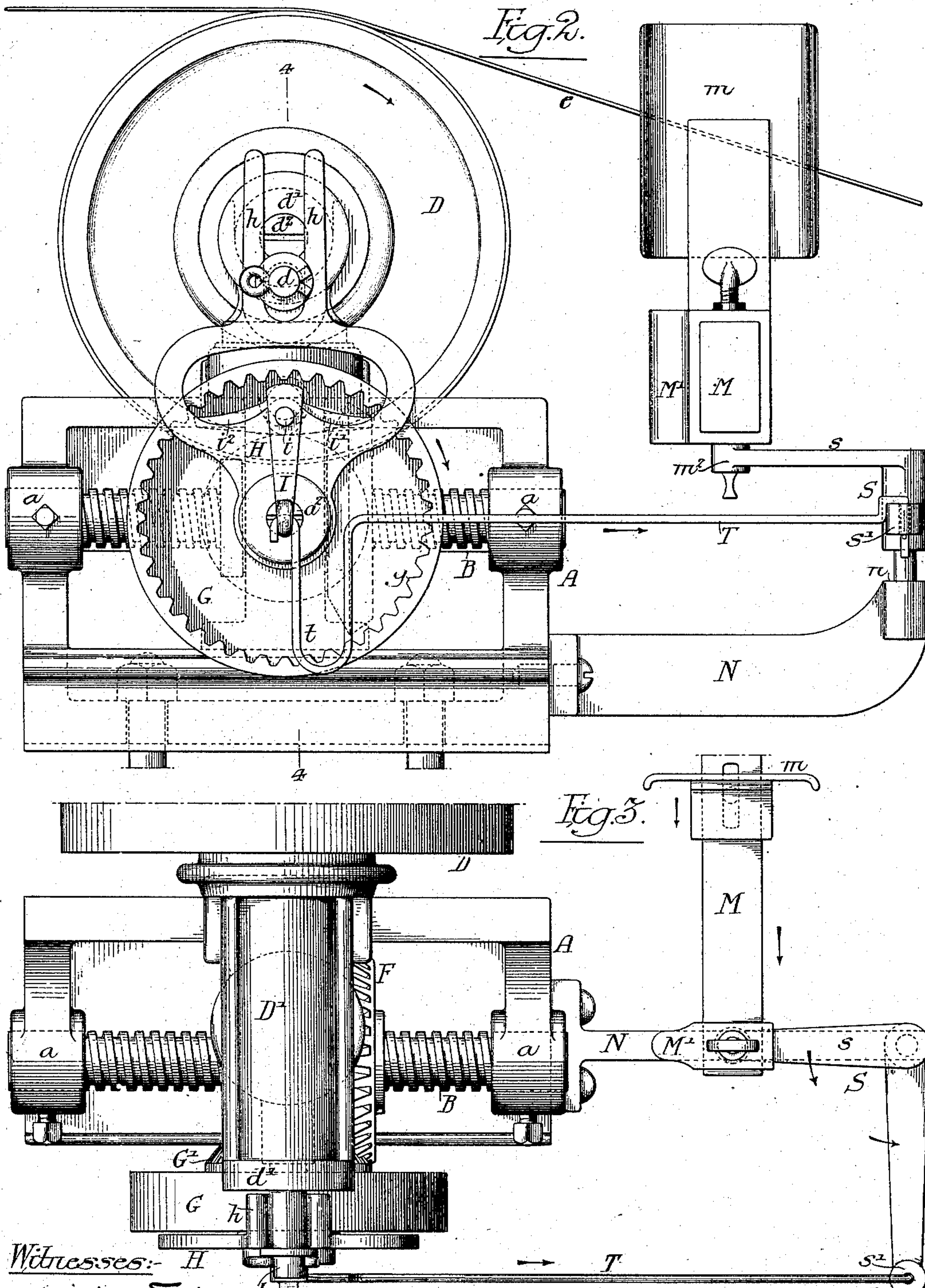
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

JOSEPH ATWOOD WHITE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR
OF ONE-HALF TO JOHN W. MOORE, OF PHILADELPHIA, PENNSYLVANIA.

WIRE-GUIDE FOR PAPER-MAKING MACHINES.

SPECIFICATION forming part of Letters Patent No. 712,468, dated October 28, 1902.

Application filed June 7, 1902. Serial No. 110,690. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH ATWOOD WHITE, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Wire-Guides for Paper-Making Machines, of which the following is a specification.

The main object of my invention is to construct an automatic wire-guide for the making-wire of a paper-making machine in which the pawl for operating the mechanism will have a full bearing and in which the pawls can work over the teeth without transmitting motion to the guides.

A further object of the invention is to so construct the device that the mechanism will be thrown out of gear after the wire is properly in line.

In the accompanying drawings, Figure 1 is a perspective view illustrating my invention. Fig. 2 is a side view. Fig. 3 is a plan view. Fig. 4 is a section on the line 4-4, Fig. 2; and Figs. 5 and 6 are views of modifications.

A is a frame secured to the main frame of a paper-making machine, and secured to this frame at a is a fixed screw-shaft B. Arranged to slide on the frame A is a bearing-bracket A', and mounted in the upper part of this bearing-bracket is a swiveled bearing-block C, in which is mounted the spindle D' of the guide-roll D, over which the making-wire x (shown in Fig. 2) passes.

The bearing-bracket A' has a bearing a' , in which is mounted a hub f of a bevel gear-wheel F. The hub of this bevel gear-wheel has an internal screw-thread, forming a nut, which meshes with the thread of the screw-shaft B, so that when the nut is turned it will travel on the screw-shaft, which is fixed, and move the bearing-slide A'.

Projecting from the bearing-slide is a stud a^2 , on which is mounted the ratchet-wheel G, having internal ratchet-teeth g , (shown clearly in Fig. 2,) and on the hub of this ratchet-wheel is a bevel-pinion g' , the teeth of which mesh with the teeth of the bevel-wheel F, so that the bevel-wheel F will turn with the ratchet-wheel G.

In the present instance pivoted to the hub of the ratchet-wheel G is an arm H, having prongs h h at the upper end, forming a slot, in which the crank-pin d travels. This crank-pin is secured to the end of the spindle D' of the guide-roll D, as indicated in Fig. 4. In the present instance the pin is secured to a disk d' , which is in turn secured to the end of the spindle D' by means of a screw d^2 .

Pivoted at i to the arm H is a lever I, terminating at the center of rotation of the ratchet-wheel G. On this lever are two pawls i' i^2 , either of which can be thrown into engagement with the teeth g of the ratchet-wheel G when the lever I is moved in one direction or the other.

Mounted in a socket a^3 in the bearing-bracket A' is a plug c , back of which is a spring c' . This plug bears against the ratchet-wheel G to produce sufficient friction so that the ratchet-wheel will not overrun the ratchet when moved.

M is a guide-bar mounted in suitable bearings in the frame of the paper-making machine slightly in advance of the roll D, as shown clearly in Figs. 1 and 2. This bar M has two guide-plates m m' , mounted on each side of the making-wire x . These guide-plates are adjustable on the bar M. Secured to the end of the bar M is a box M', having a pivot m^2 .

Secured to the end of the frame A is a bracket N, and pivoted at n to this bracket N is a lever S. One arm s of this lever is attached to the box M' by the pivot-pin m^2 , while the other arm s' is attached to a rod T, secured to the lever I on a line even with the center of rotation of the ratchet-wheel G. As shown in Fig. 2, this rod T has a hook at one end, engaging the lever S', and has a loop t at the opposite end, forming a spring connection, so that there will be a certain amount of spring in the rod T for the purpose of allowing the rod to give when the bearing-bracket A' is moved to one side or the other; also, of allowing the pawls to engage full depth without imparting motion to the rod or other parts. This construction may be modified—as, for instance, instead of the spring-loop t the con-

struction shown in Fig. 5 may be used, in which T' is a bar having coiled springs t' , mounted on each side of the lever I, or the construction shown in Fig. 6 may be used, when the springs may be mounted on each side of the arm s' of the lever S.

The operation of the device is as follows: In paper-making machines, especially of the Fourdrinier type, where an endless making-wire is used, it is necessary to keep the wire properly in line in the machine, and should it move laterally to one side or the other this movement must be immediately corrected, so as to keep the wire as near the central position as possible. Therefore the guide-roll D is used, one end of which can be moved so as to bring it out of line with a line at right angles to the line of movement of the wire, and to move this roll the above-described device is utilized. The two guide-plates m m' are adjusted on the guide-bar M so that they will rest near each edge of the wire when the wire is running true; but should the wire shift so as to bear against the plate m then the guide-bar M would be moved in the direction of the arrow, Fig. 3, causing the lever S to move in the direction of its arrow, and a corresponding movement would be imparted to the rod T, throwing the pawl i' toward the teeth of the ratchet-wheel G. Immediately as this occurs the lever I is thrown off the center a^2 , and as a continuous motion is imparted to the arm H by the crank d on the roll D motion will be imparted to the pawl, which will rotate the ratchet-wheel in the direction indicated by the arrow, and as this ratchet-wheel G is geared to the bevel-wheel F, the nut of which is mounted on the screw B, it will cause the bevel-wheel to move on the screw, carrying with it the bearing-bracket A', on which is mounted the ratchet-wheel G and the bearing C for the roll D. Consequently the roll will be shifted to one side. This shifting of the roll to one side immediately corrects the travel of the making-wire, which will move over to its normal position. As soon as the bearing-bracket is moved the lever I will assume its normal position in line with the center a^2 and the pawls will cease to operate, and if the wire moves toward the opposite side the other pawl i^2 is immediately thrown into gear and the travel of the wire is corrected, so that the wire is kept normally in its central position.

I claim as my invention—

1. The combination in a paper-making machine of the making-wire, a guide-roll therefor, a movable bracket supporting said guide-roll whereby the roll can be shifted into and out of line to properly guide the wire, a guide-bar controlled by the wire, a ratchet-wheel, an arm pivoted thereto, nut-and-screw mechanism operated by the ratchet-wheel and pawls connected to the shifting-bar and carried by said pivoted arm, said pawls being

arranged to be thrown into and out of gear with the ratchet-wheel, substantially as described.

2. The combination in a paper-making machine, of the making-wire, a guide-roll therefor, means for shifting the guide-roll into and out of line for the purpose of directing the travel of the wire, a guide-bar controlled by the wire, and a resilient connection between the guide-bar and the shifting mechanism, substantially as described.

3. The combination in a paper-making machine, of a making-wire, a guide-roll therefor, an adjustable bearing therefor, a guide-bar controlled by the said wire, a fixed screw, a nut on the screw, a ratchet-wheel geared to the nut, an arm operated by the guide-roll, a lever carried by said arm having pawls arranged to engage the ratchet-wheel, and a rod operated by the guide-bar, said rod being connected to the lever at the pivot-point of the arm, substantially as described.

4. The combination in a paper-making machine, of a making-wire, a guide-roll therefor, an adjustable bearing therefor, a guide-bar controlled by the said wire, a fixed screw, a nut on the screw, a ratchet-wheel geared to the nut, an arm operated by the guide-roll, a lever carried by said arm having pawls arranged to engage the ratchet-wheel, and a rod operated by the guide-bar, said rod being connected to the lever at the pivot-point of the arm, with a yielding connection between the guide-bar and the pivoted lever, substantially as described.

5. The combination in a paper-making machine, of a making-wire, a guide-roll therefor, an adjustable bearing in which one journal of the guide-roll is mounted, a frame carrying said adjustable bearing, a fixed screw on said frame, a nut on the adjustable bearing mounted on the screw, a ratchet-wheel having internal teeth carried by the bearing and geared to the nut, an arm pivoted at the center of rotation of the ratchet-wheel and operated by the roll, a lever pivoted to the arm and connected to an operating-rod at the pivot-point of the arm, and two pawls arranged to engage the teeth of the ratchet-wheel when the wire is running out of a true line, substantially as described.

6. The combination in a paper-making machine, of a making-wire, a guide-roll, an adjustable bracket for one end of the guide-roll, a frame upon which the bracket is mounted, a fixed screw, a nut on the screw, a bevel-wheel on the nut, a stud on the bracket, a ratchet-wheel on the stud having a bevel-pinion thereon meshing with the bevel-wheel of the nut, an arm pivoted on the same center as the ratchet-wheel, a crank on the guide-roll operating the said arm, a lever pivoted to the arm and having two pawls arranged to engage the teeth of the ratchet-wheel, a guide-bar controlled by the making-wire, a lever

connected to the guide-bar, and a rod connecting the lever with the pawl-lever, so that when the wire moves the bar in one direction or the other the end of the roll will be moved
5 out of line by the above-described mechanism, substantially as described.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

JOSEPH ATWOOD WHITE.

Witnesses:

WILL. A. BARR,
JOS. H. KLEIN.