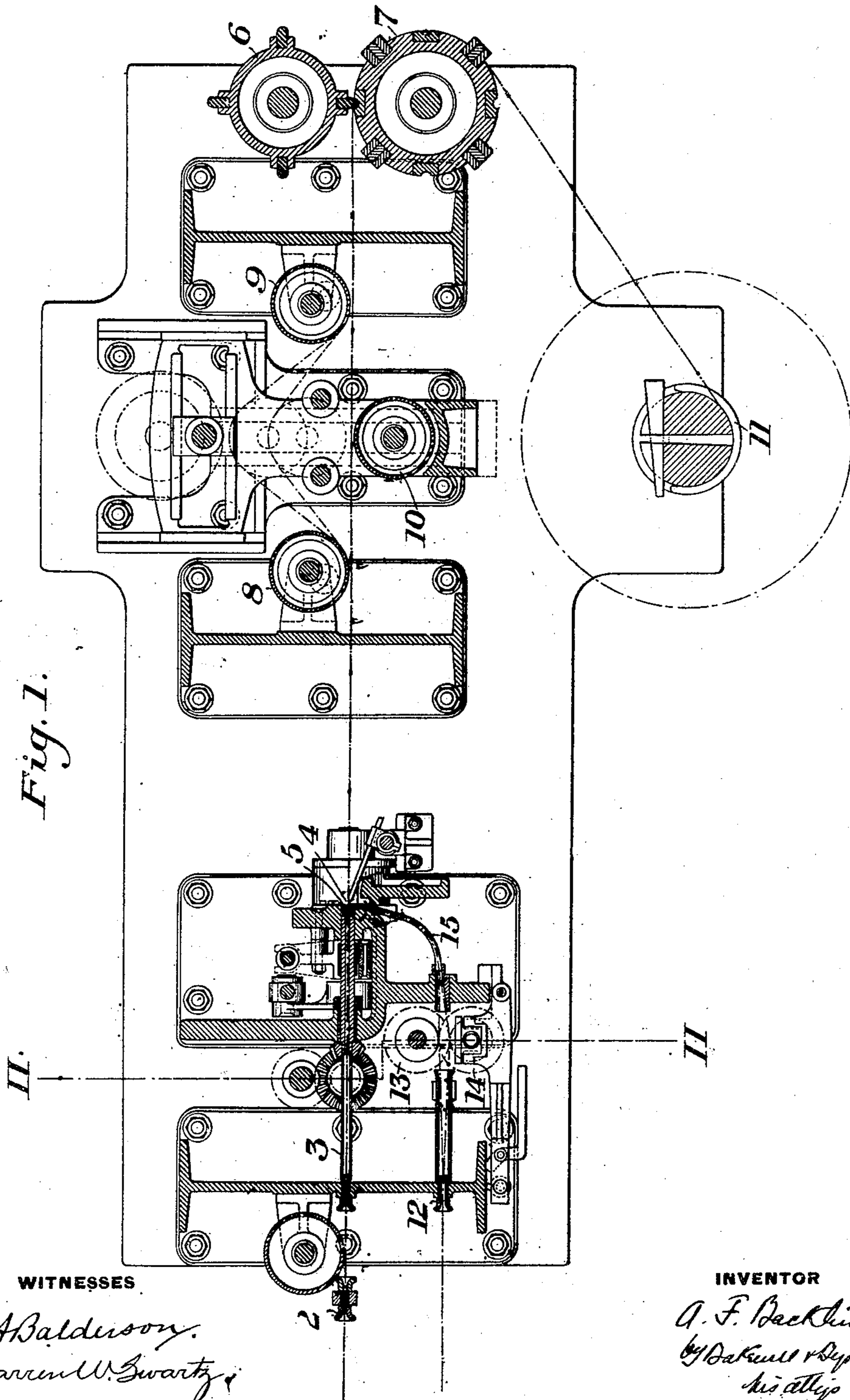


No. 848,526.

PATENTED MAR. 26, 1907.

A. F. BACKLIN.  
WIRE FENCE MACHINE.  
APPLICATION FILED FEB. 20, 1906.

6 SHEETS—SHEET 1.

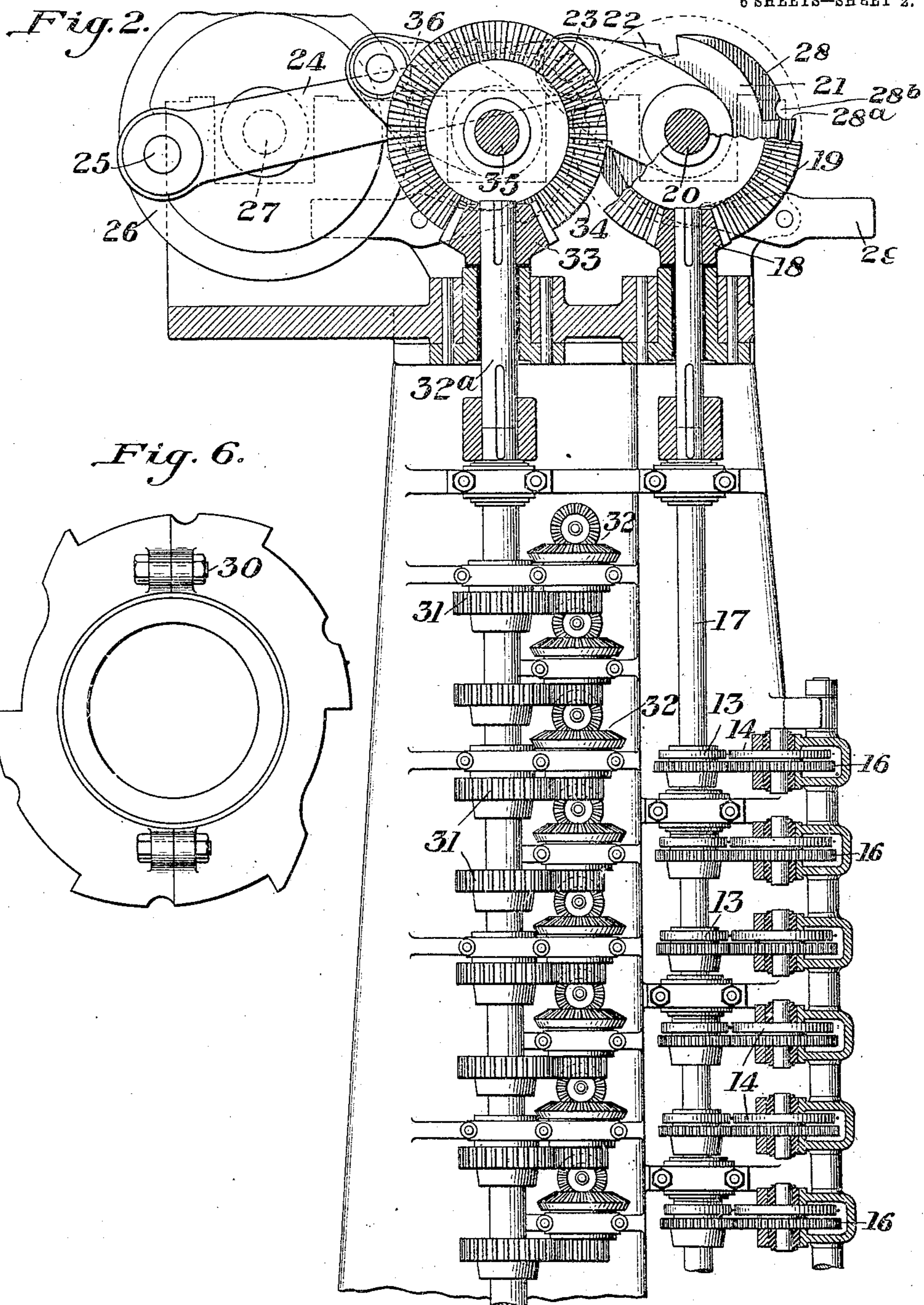


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6 SHEETS—SHEET 2.



WITNESSES

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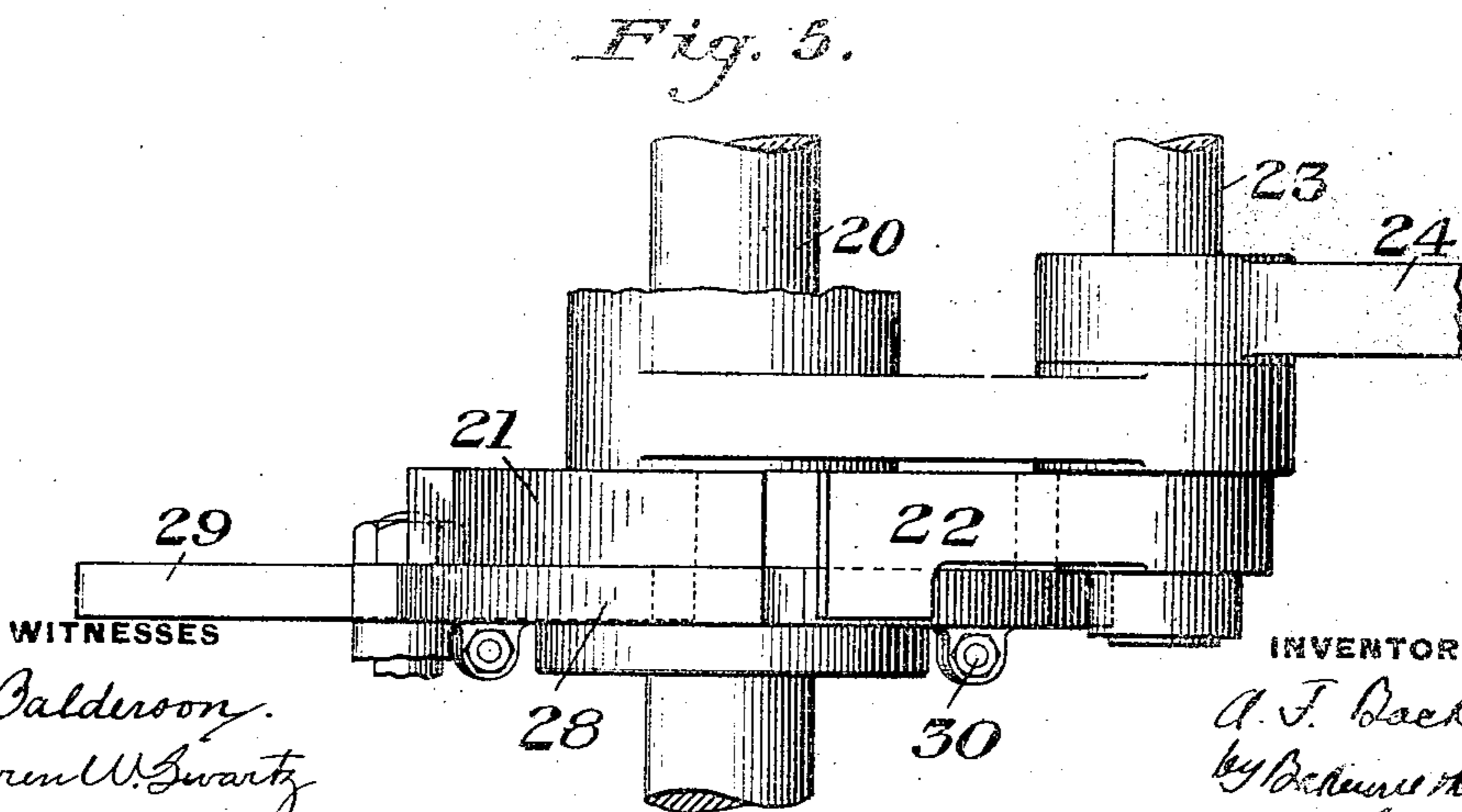
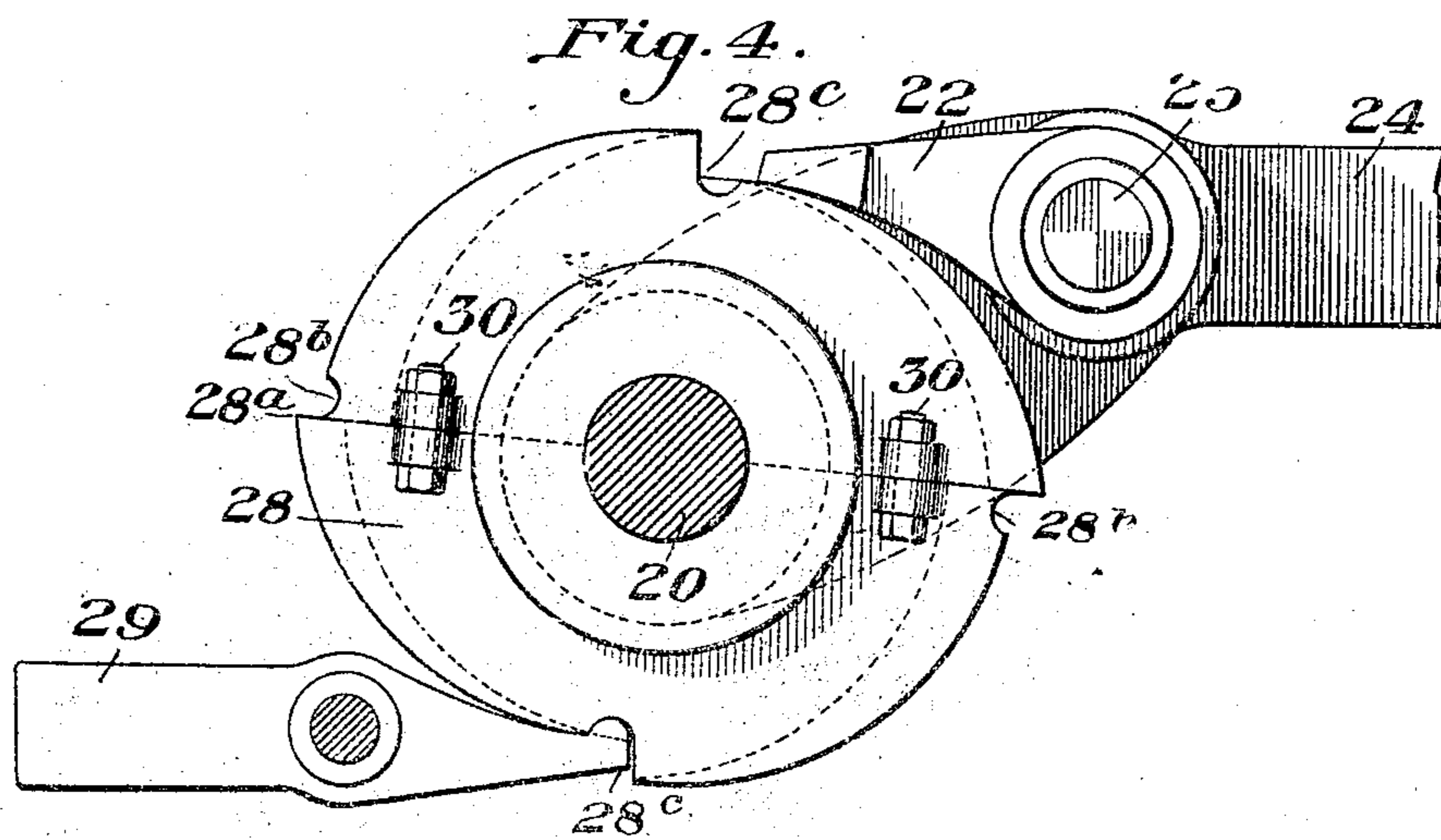
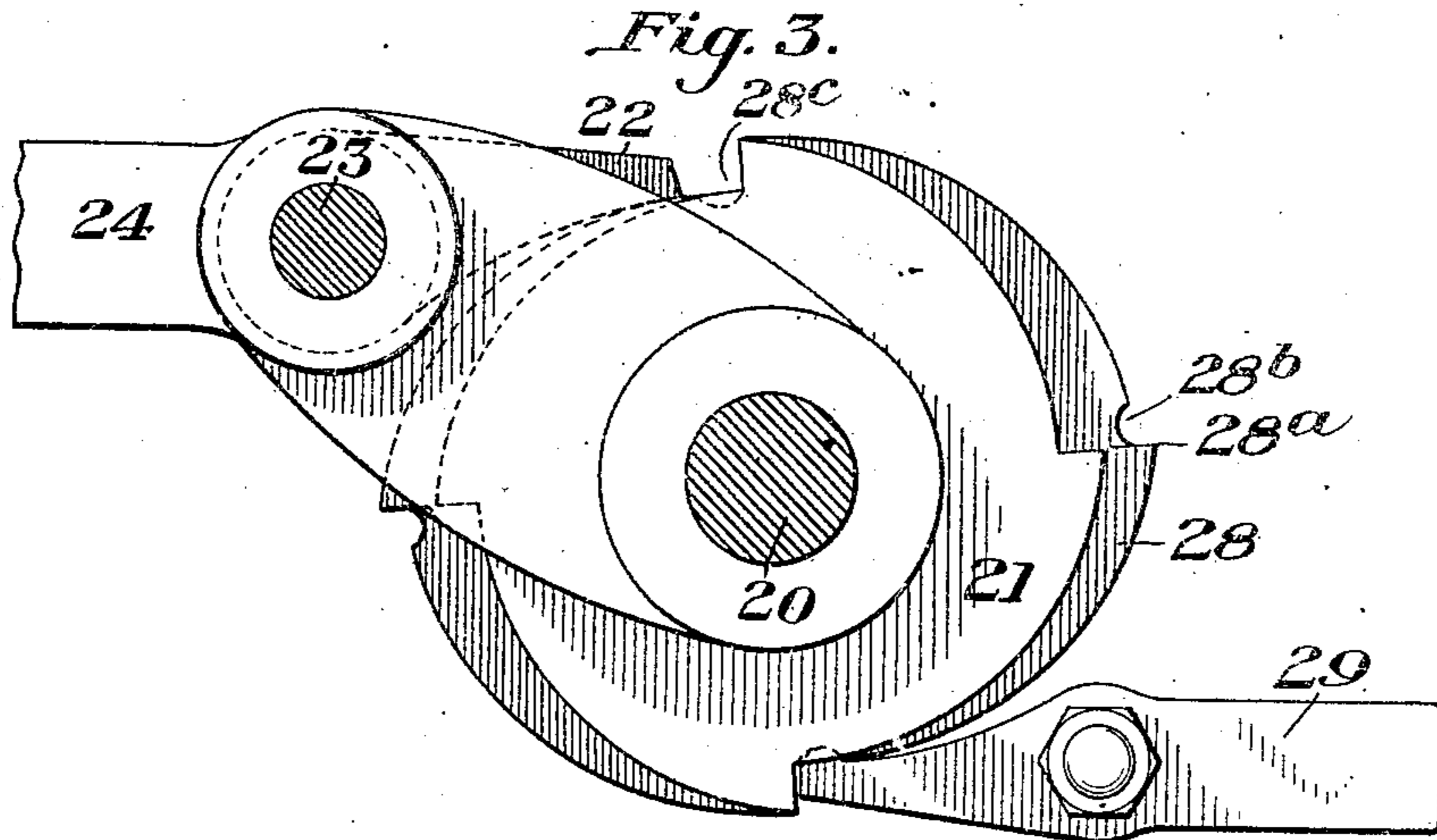
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6 SHEETS—SHEET 3.



WITNESSES  
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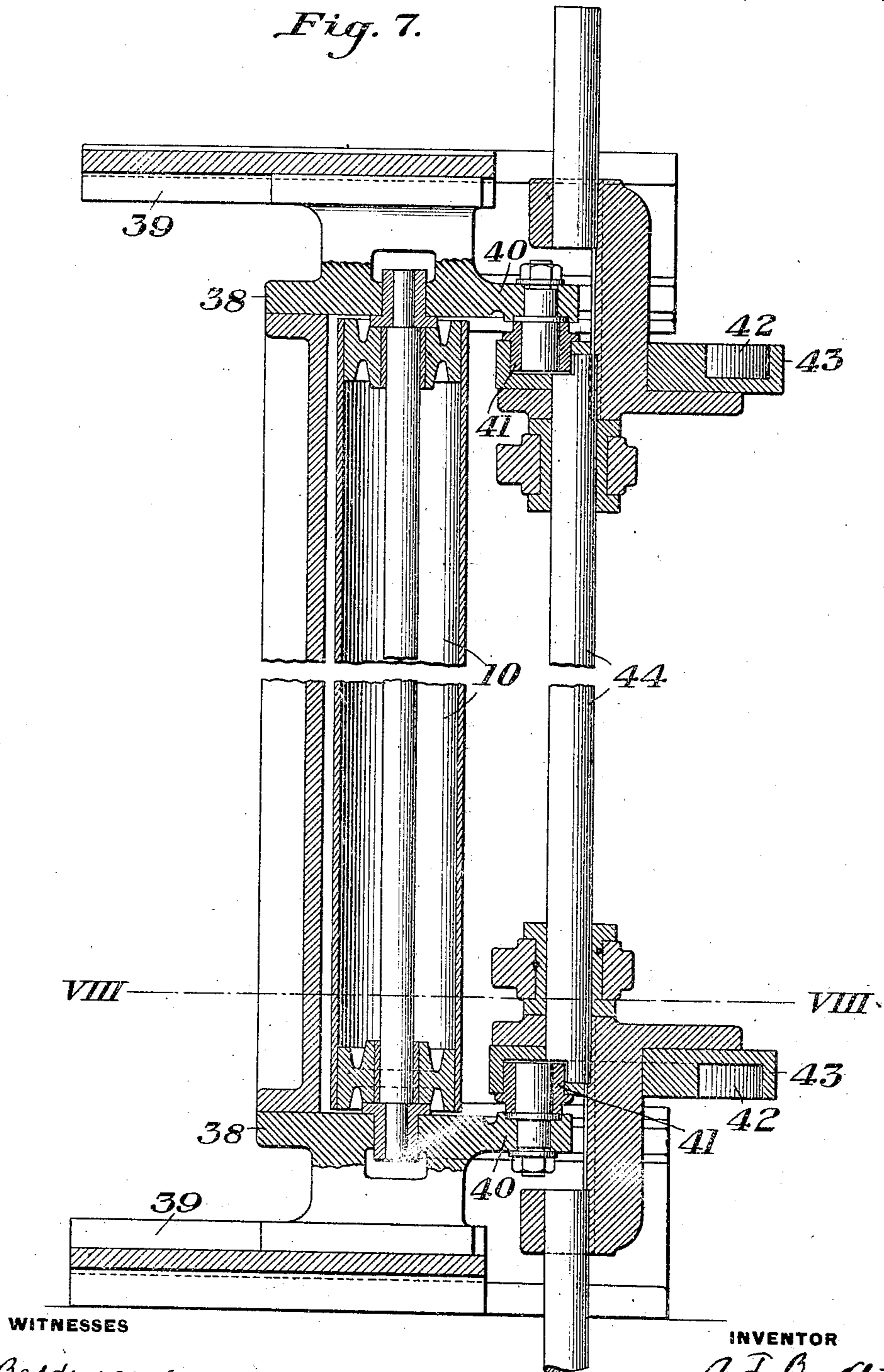
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6 SHEETS—SHEET 4.

*Fig. 7.*



WITNESSES

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6 SHEETS—SHEET 5.

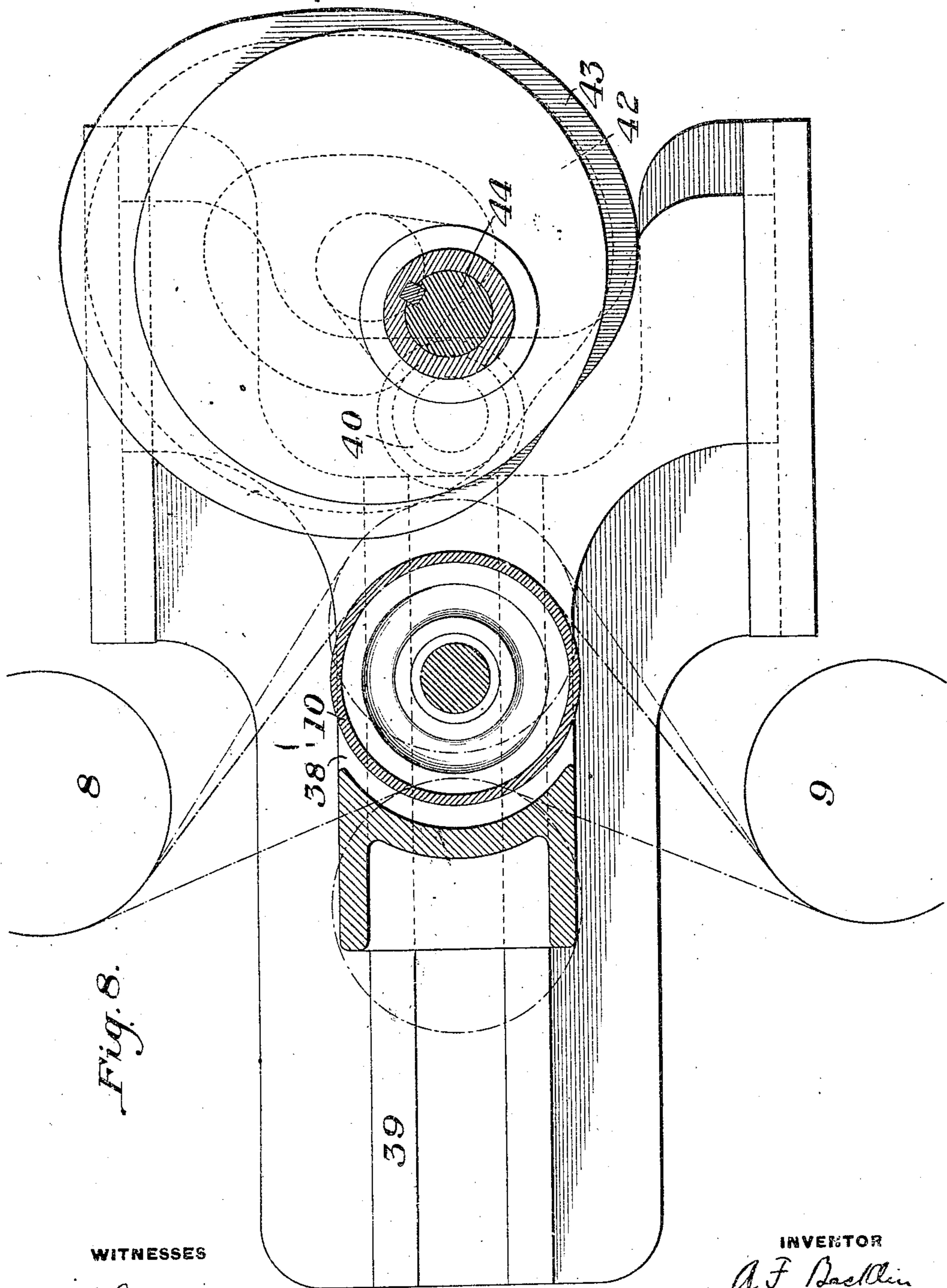


Fig. 8.

WITNESSES

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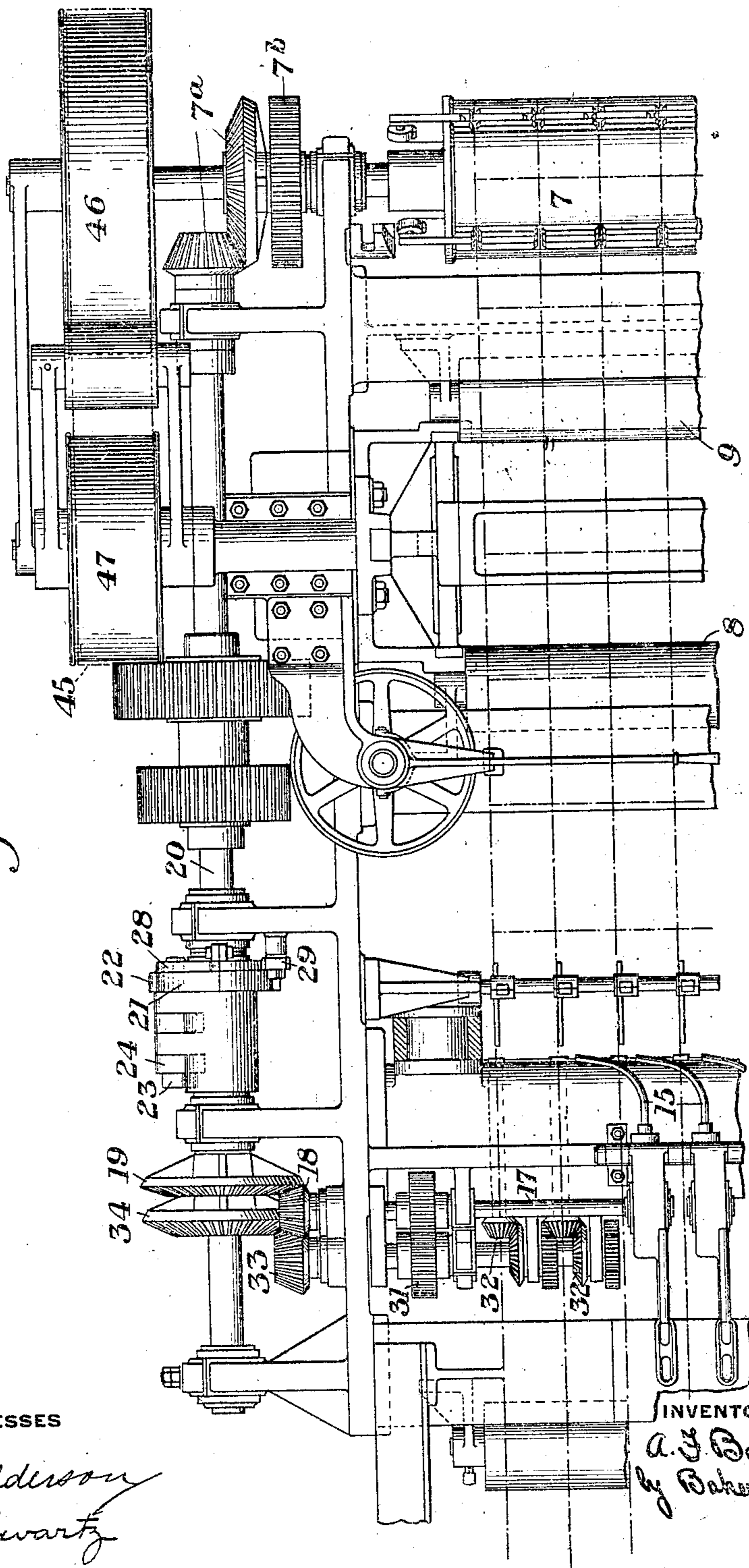
No. 848,526.

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6 SHEETS—SHEET 6.

Fig. 9.



WITNESSES

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# UNITED STATES PATENT OFFICE.

AXEL F. BACKLIN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO AMERICAN STEEL & WIRE COMPANY, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF NEW JERSEY.

## WIRE-FENCE MACHINE.

No. 848,526.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed February 20, 1906. Serial No. 302,149.

*To all whom it may concern:*

Be it known that I, AXEL F. BACKLIN, of Worcester, Worcester county, Massachusetts, have invented a new and useful Improvement in Wire-Fence Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a horizontal section of one form of fence-machine to which my invention is applicable. Fig. 2 is a vertical section on the line II II of Fig. 1. Fig. 3 is a detail view of the pawl-and-ratchet mechanism for actuating the stay-wire-feeding devices. Fig. 4 is a similar view taken from the opposite side. Fig. 5 is a plan view of the same. Fig. 6 is a view of a modified form of false ratchet. Fig. 7 is a sectional elevation of the take-up device or vibrator. Fig. 8 is a section on the line VIII VIII of Fig. 7, and Fig. 9 is a side elevation of the upper portion of the machine with the take-up roll removed.

My invention has relation to that class of wire-fence machines in which a series of longitudinal or strand wires are fed longitudinally through the machine and a series of transverse or stay wires are fed thereto at intervals and are secured to the strand-wires by the action of twisting or looping devices.

An object of the invention is to provide means whereby the spacing of the stay-wires may be varied as desired, the change from one spacing to another being capable of being quickly and readily made.

My invention consists, broadly, in the provision of means for preventing the operation of the stay-wire-feeding devices except at proper intervals, the other parts of the machine being arranged to perform continuously their proper cycles of operation. By thus preventing the operation of the stay-wire-feeding devices except at the predetermined intervals the distance to which the longitudinal strand-wires are advanced between the times of feeding the stay-wires may be varied as desired.

Referring first to Fig. 1, the longitudinal or strand wires are fed into the machine through the guides 2 and 3 to the point 4, where they receive the sectional stay-wires, which are applied thereto by means of suitable coiling or twisting devices, (indicated at 5.) These

devices may be of the character employed in the well-known Bates machine, as shown and described in patents to A. J. Bates, Nos. 577,639, dated February 23, 1897, and 591,996, dated October 19, 1897, and need not be specifically described herein, as they constitute no part of the present invention.

6 and 7 designate the usual crimping-rolls, which are continuously driven through the gearing 7<sup>a</sup> and 7<sup>b</sup> from the shaft 20, hereinafter further referred to, and 8 and 9 are two fixed guide-rolls which are located between the crimping-rolls and the looping or coiling devices 5.

10 designates the vibrator or take-up roll, which is arranged intermittently of the fixed guide-rolls 8 and 9 and which is arranged to reciprocate toward and away from the same and transversely of the line of movement of the fence fabric in order to form a loop or bight therein as it comes from the coilers to provide an extra length of fabric stored up between the coilers and the take-up roll 11, so that the latter may be driven continuously irrespective of the intermittent movement of the strand-wires through the coilers. This take-up device or vibrator is in general of the form and arrangement shown in the patent to Backlin and Eklund, No. 807,652, of December 19, 1905, to which reference may be had for a full description, with certain slight mechanical modifications hereinafter described.

The sectional stay-wires are fed in the usual manner through the guides 12 and the feed rollers or wheels 13 and 14 and thence through the guides 15 to the point 4, where they are acted upon by the coilers 5. The feed-rollers 13 and 14 are actuated by means of the gears 16 (shown in Fig. 2) from a vertical shaft 17, which carries at its upper end a bevel-pinion 18, meshing with a bevel gear-wheel 19 on the longitudinal shaft 20. This shaft 20 has fixed thereto a ratchet-wheel 21 and is actuated by means of a pawl 22, pivoted on the center 23 and moved by a pitman 24, connected to a crank-pin 25 of a crank-wheel 26, mounted on a shaft 27, which is parallel with the shaft 20 and which is driven from the main driving-shaft of the machine (not shown) in any suitable manner.

Placed on the shaft 20 adjacent to the ratchet-wheel 21 is a false ratchet 28, which

is provided with a series of teeth 28<sup>a</sup>, shallow depressions 28<sup>b</sup>, and deeper depressions 28<sup>c</sup>, the latter registering with the teeth of the ratchet 21. The purpose of this false ratchet 5 is to hold the pawl 22 out of engagement with the ratchet 21 except at those teeth of the latter which register with the deeper depressions 28<sup>c</sup> of the false ratchet, so that the shaft 20, and thereby the shaft 17 and the 10 stay-wire-feeding rollers driven thereby, will be actuated only at these times. The pawl 22 has its engaging end sufficiently broad to cover the peripheries of the ratchet 21 and the false ratchet 28. 29 is a pawl which en- 15 gages the false ratchet 28 for the purpose of preventing back movement or lash thereof.

The false ratchet is made in two separable parts secured together by bolts 30, as shown in Fig. 4, so that it can be quickly removed 20 from the shaft 20 and another ratchet of a different pattern—such, for instance, as that shown in Fig. 6—be substituted therefor for the purpose of varying the intervals at which the stay-wire-feeding devices are actuated.

31 and 32 designate suitable gearing for 25 operating the coilers or loopers. These gears are actuated by a shaft 32<sup>a</sup>, carrying a gear 33, driven by a bevel-gear 34 on a shaft 35, which is parallel with the shaft 20. The 30 shaft 35 is actuated by a pawl-and-ratchet movement 36. (Shown in dotted lines in Fig. 2.)

The vibrator or take-up roll 10 is journaled at its ends in heads 38, which are arranged to 35 slide on the guides 39, as shown in Fig. 7. Each of these heads is provided with an arm 40, which carries a roller 41, which engages a cam-groove 42 of a cam 43, secured to the actuating-shaft 44. This shaft carries two 40 of the cams 43, and the cam-grooves 42 are of such character that as the shaft 44 is rotated the heads 38 will be reciprocated on the guides 39 toward and away from the guide-rolls 8 and 9, thereby carrying the 45 fabric back between said rolls in the manner shown by the dotted lines of Fig. 1 to form a bight or loop therein. As above stated, this arrangement is substantially that of the Patent No. 807,652, cams being substituted 50 for cranks in the actuating-shaft.

As will be readily understood, the take-up roll 11 is driven continuously, as by a belt 45, passing from a band-wheel 46 on the shaft of the drum 7 around a pulley 47 on the shaft of 55 the take-up roll, the vibrator acting to provide the necessary slack in the fabric to enable the take-up device to continue to operate while the coilers are acting to secure the stay-wires. The action of these coilers is in 60 all respects the same as in prior machines, and, in fact, all the parts of the machine operate in their usual and regular cycles, the operation of the stay-wire-feeding devices being varied, as above described, to vary the 65 spacing of the stay-wires.

It will be readily understood that the interruption in the operation of the stay-wire-feeding devices may be accomplished in various ways, as by providing means whereby the two series of feed rollers or wheels 13 and 14 may be separated at intervals to prevent 70 their feeding action upon the stay-wires, also that various arrangements of gearing may be provided to secure this intermittent action of the stay-wire-feeding devices. 75

While I have shown my invention as applied to a machine of the well-known Bates type, as shown in the patents above mentioned, it will be apparent that it may be applied to any field-fence machine, whether or 80 not the crimping and take-up drums have a constant or intermittent motion and whether or not a vibrator is employed.

What I claim is—

1. In a wire-fabric machine, continuously- 85 operating strand-wire-feeding mechanism, and intermittently-operating stay-wire-feeding mechanism having means whereby its periods of operation may be varied without affecting the operation of the strand-wire feed; 90 substantially as described.

2. In a wire-fabric machine, stay-wire-feeding mechanism, gearing for actuating the mechanism, and means for preventing the action of such gearing except at predeter- 95 mined times, said gearing having a removable member; substantially as described.

3. In a wire-fabric machine, the combination with strand-wire-feeding means, stay-wire-feeding devices, and coiling mechanism, 100 of means for preventing the operation of the stay-wire-feeding mechanism except at predetermined intervals, without interfering with the operation of the strand-wire-feeding means and the coiling mechanism, and means 105 whereby the intervals between the times of action of the stay-wire-feeding mechanism may be varied; substantially as described.

4. A wire-fabric machine having a continuously-operating feed-roll, and intermittently- 110 operating coilers, a vibratory take-up device located between the coilers and the feed-roll, stay-wire-feeding mechanism, gearing for actuating the stay-wire-feeding mechanism, means for preventing the operation of such 115 gearing except at predetermined intervals, and means whereby the length of such intervals may be varied; substantially as described.

5. In a wire-fabric machine, strand-wire- 120 feeding mechanism, gearing for operating the same to feed the strand-wires continuously, stay-wire-feeding devices, intermittently-operating gearing for actuating said devices, and means for varying the periods of action 125 of the last-named gearing; substantially as described.

6. In a wire-fabric machine, the combination with continuously-operating strand-wire-feeding mechanism, of a series of stay- 130

5 wire-feeding wheels or rollers, a ratchet for actuating the same, a pawl for engagement with the ratchet, and a secondary or false ratchet arranged to prevent the engagement of said pawl with the first-named ratchet except at intervals determined by the conformation of the false ratchet; substantially as described.

10 7. In a wire-fabric machine, the combination with continuously-operating strand-wire-take-up mechanism, of a series of stay-wire-feeding wheels or rollers, and gearing

for actuating the same intermittently, said gearing having a removable controlling member by changing which the intervals of operation of the gearing and the consequent spacing of the stay-wires may be varied; substantially as described. 15

In testimony whereof I have hereunto set my hand.

AXEL F. BACKLIN.

Witnesses:

H. M. LATHAM,  
THOS. MACDUFF.