

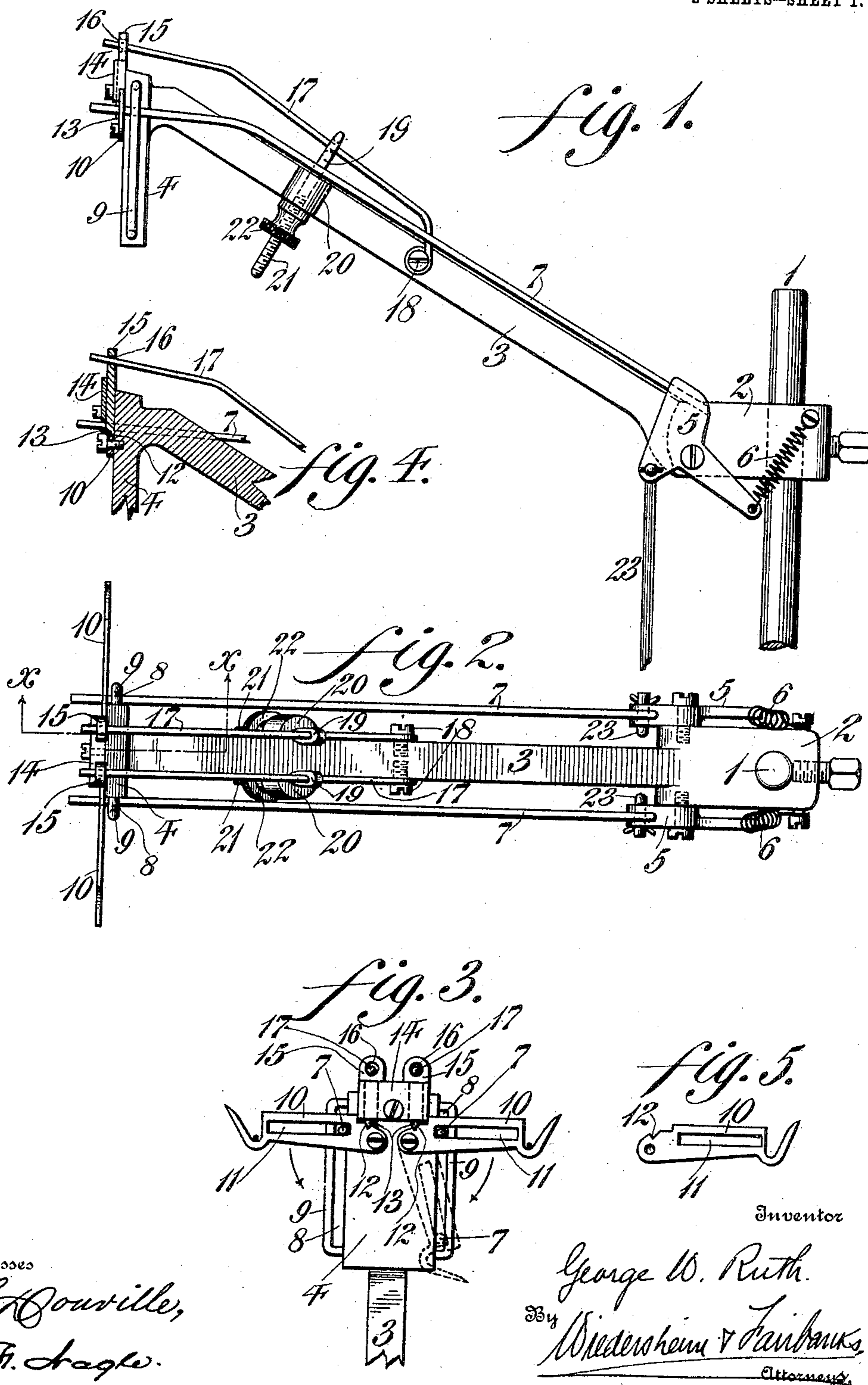
No. 813,240.

PATENTED FEB. 20, 1906.

G. W. RUTH.
STOP MOTION FOR KNITTING MACHINES

APPLICATION FILED JAN. 18, 1905.

2 SHEETS—SHEET 1.



Witnesses
L. Houville,
P. F. Hagle.

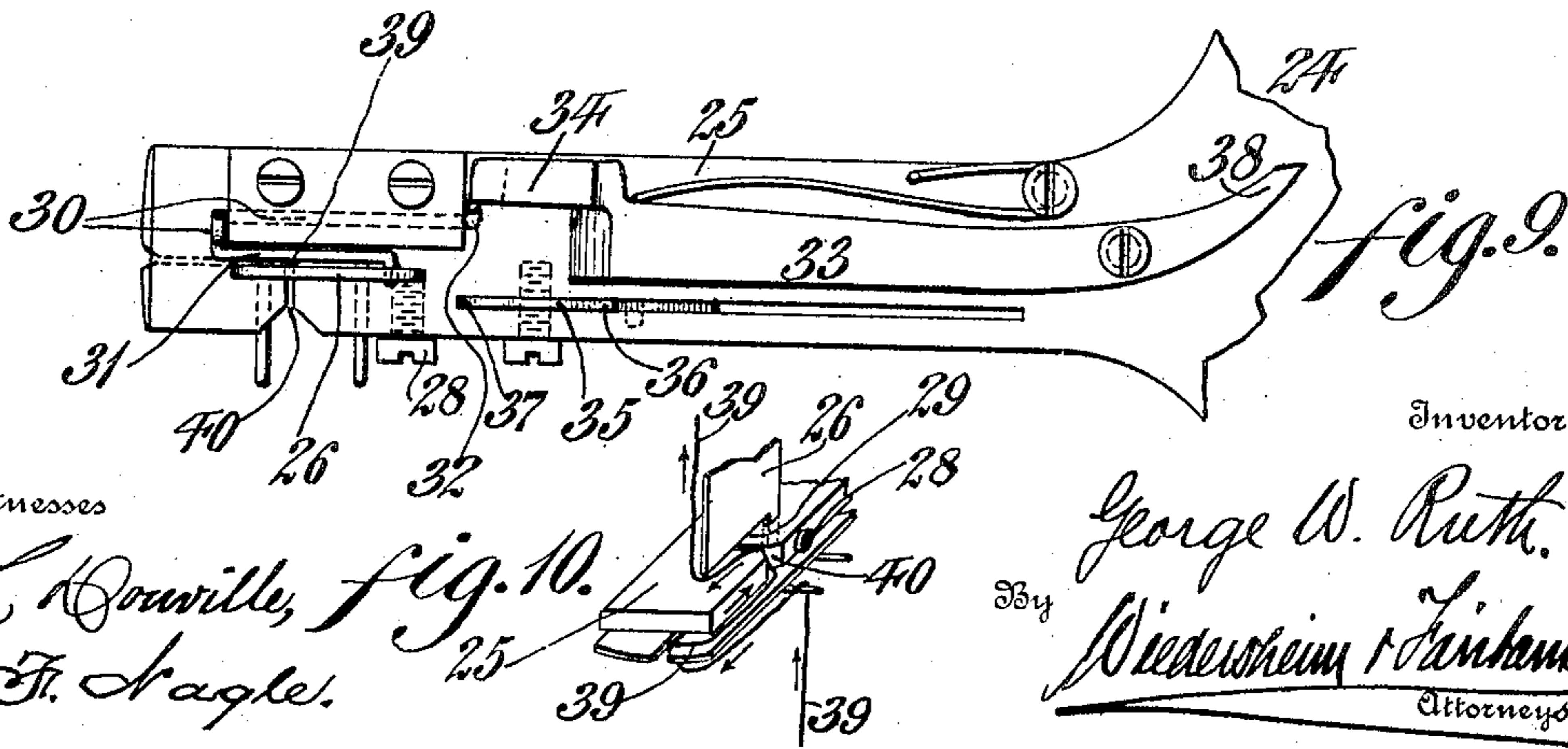
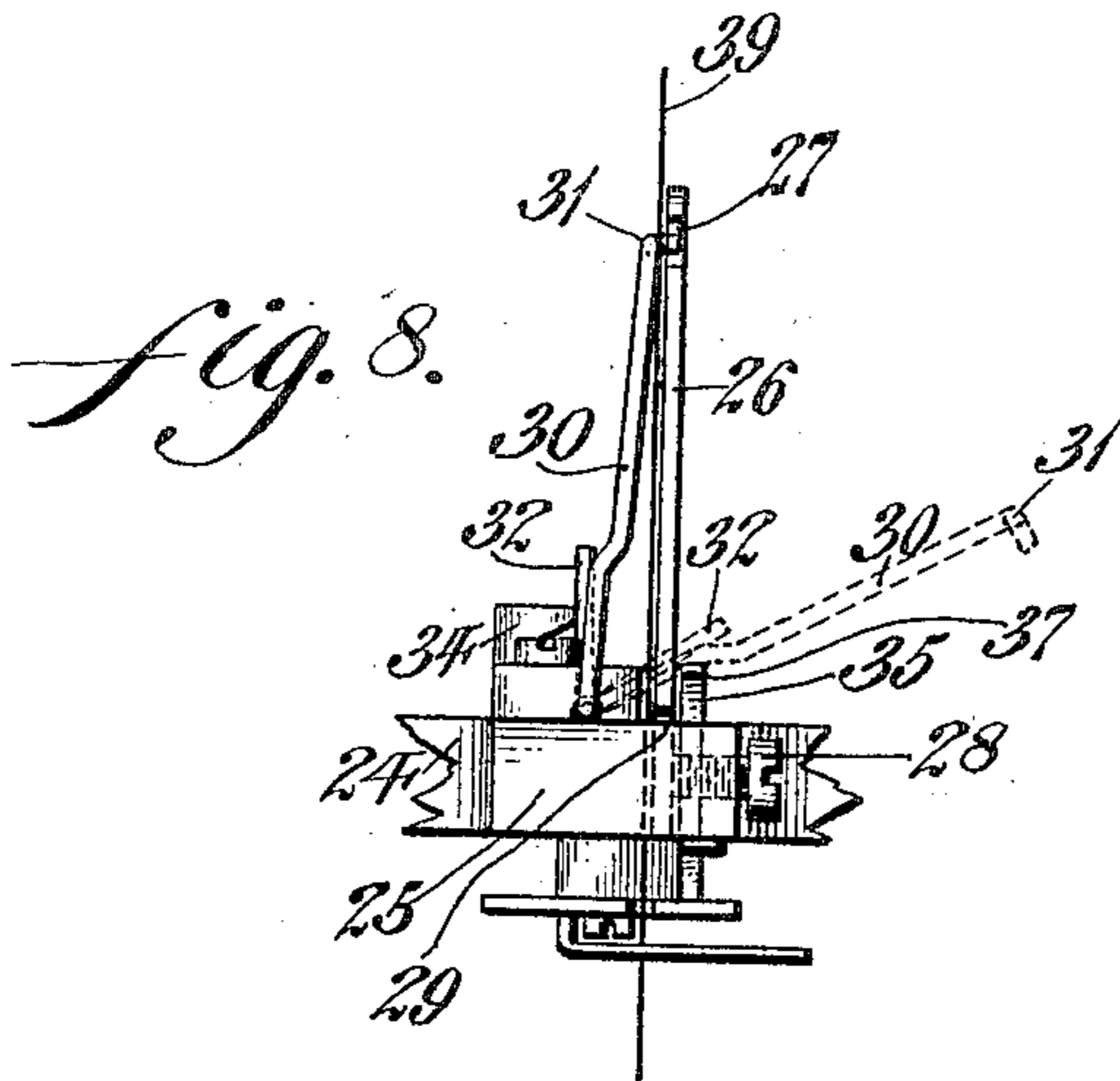
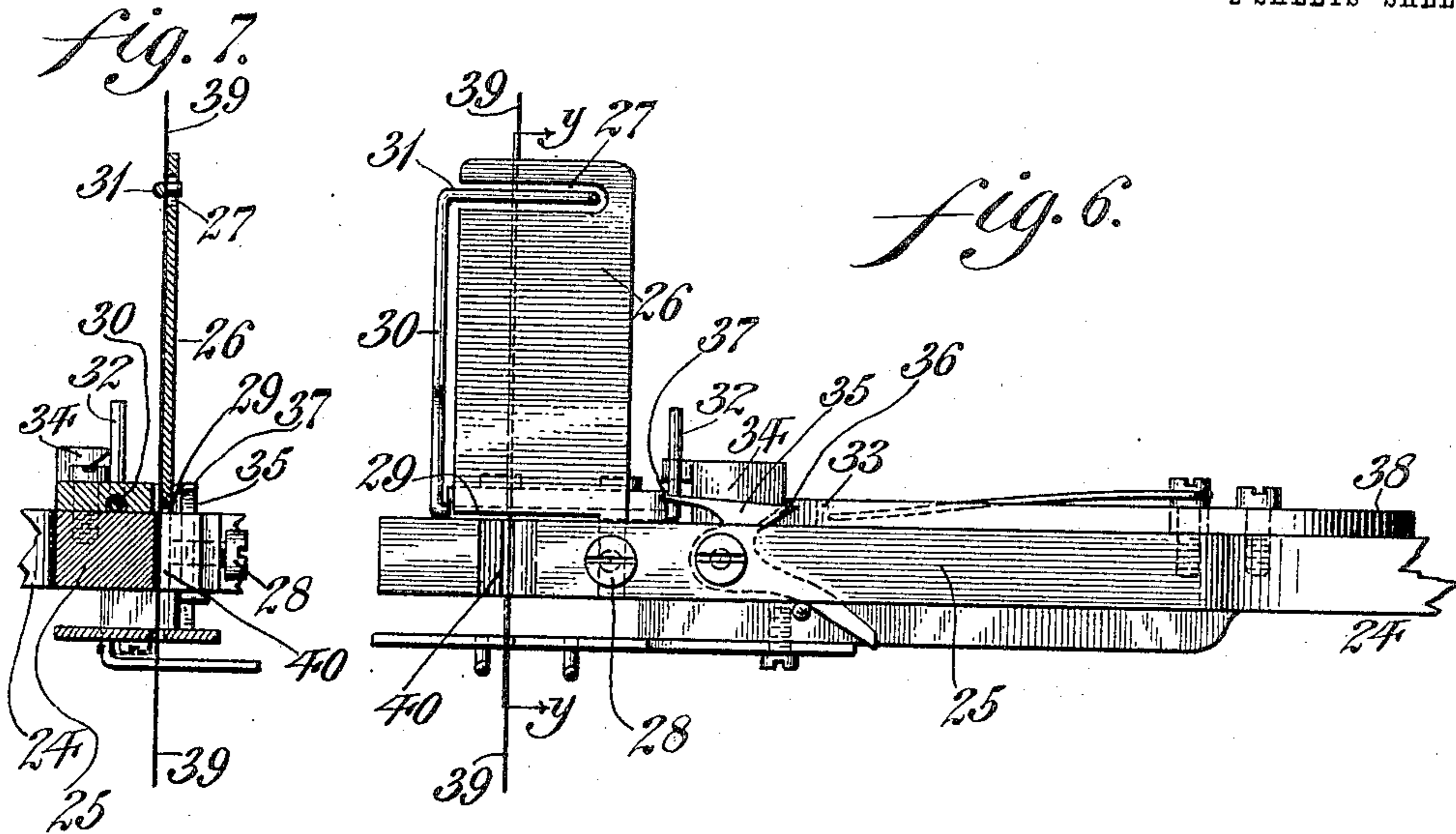
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UNITED STATES PATENT OFFICE.

GEORGE W. RUTH, OF YORK, PENNSYLVANIA, ASSIGNOR TO RUTH
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STOP-MOTION FOR KNITTING-MACHINES.

No. 813,240.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed January 18, 1905. Serial No. 241,532.

To all whom it may concern:

Be it known that I, GEORGE W. RUTH, a citizen of the United States, residing in the city and county of York, State of Pennsylvania, have invented a new and useful Stop-Motion for Knitting-Machines, of which the following is a specification.

My invention relates to knitting-machines; and it consists of new and novel means for releasing the yarn in order to give increased slack thereto when the machine is stopped, and further consists in providing tension-adjusting devices for said means. It also embodies a novel construction of guard and finger. In a separate application filed by me on April 16, 1904, Serial No. 203,465, I have shown a device for a similar purpose; but the present invention is an improvement thereon and designed to provide tension-adjusting means therefor.

Figure 1 represents a side elevation of the device embodying my invention. Fig. 2 represents a top plan view thereof. Fig. 3 represents an end elevation. Fig. 4 represents a sectional view on line $x x$, Fig. 2. Fig. 5 represents an elevation of one of the hooks employed. Fig. 6 represents a side elevation of a portion of a knitting-machine, showing a novel guard and finger employed. Fig. 7 represents a sectional view on line $y y$, Fig. 6. Fig. 8 represents an end elevation of the parts shown in Fig. 6. Fig. 9 represents a plan view thereof. Fig. 10 represents a perspective view showing the course of threading the yarn.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates a standard which is suitably supported with respect to the machine and upon the upper portion of which is mounted a head 2, which has a forwardly and upwardly projecting arm 3, which carries a block 4 at its forward or outer end. Pivoted at each side of said head 2 are plates 5, each of which is connected with pull-strings 6, which are also connected with said head. Passing forwardly from said plates are the rods 7, the forward end of each of which moves in a slot 8, which may be formed in the block 4 or, as in the present instance, are formed by arms 9, connected at each side of said block. Pivoted to said block are the hooks 10, which are provided with a longitudinal slot 11 in their bodies

and in which the forward end of said rods 7 are adapted to move. 12 designates nicks or V-shaped depressions in said hooks, in which are adapted to be seated the ends of the dogs 13, which are movably supported with respect to said head by a plate 14, the upper end of said dogs being provided with heads 15, forming shoulders which limit the downward movement thereof and being also provided with the openings 16, in which are adapted to be seated the forward end of the spring-arms 17. These latter are secured to the arm 3 by screws 18. Between the dogs 13 and the point of attachment of said spring-arms 17 are the pins 19, which pass freely through the arm 3. In the present instance the latter is formed with the bosses 20, said pin being suitably connected at one end with said spring-arms 17 and the opposite ends of said pins being screw-threaded, as at 21, and are engaged by thumb-screws 22, which bear against the arm 3, so that the tension of the arms may be varied, said spring-arms being adapted to normally hold said dogs in depressed position, but permit yielding movement thereof. 23 designates rods which are suitably connected with said plates and which are in operative connection with suitable mechanism (not shown) for arresting the motion of the machine, it being understood that the movement of said plates carries with them said rods 23.

Suitably supported—as, for example, upon the standard 1—is a plate 24, which has projecting arms 25 extending from each side thereon, and in Figs. 6, 7, 8, and 9 I have shown one side thereof, as I deem this all that is necessary to show the improved guard and finger employed. Carried on the projecting arms 25 at each end is a stationary guard 26, which is formed of a plate having a slot 27 adjacent its upper end, said plate being secured to the arms 25 by means of a set-screw 28, engaging with a suitable portion of said guard and held in such a manner that a space 29 is formed between the upper portion of the arm 25 and said guard. 30 designates a movable finger, which is mounted upon each end of said arms 25 in any suitable manner and has the extending arm 31 thereon so situated as to be adapted to pass through the slot 27 of the guard 26, said finger being also provided with a lug 32, which moves with said finger.

33 designates a spring-actuated lever, which is provided with a head 34, adapted to engage with the lug 32 of the finger 30.

35 designates a dog, the nose 36 of which is adapted to engage with the spring-actuated lever 33, as shown in Fig. 9, while the tip 37 thereof lies in the path of the lug 32 when the finger 30 drops forward, as shown in Fig. 8. The nose 38 of each of the spring-actuated levers is adapted to bear against suitable mechanism (not shown) for actuating a drop-rod, the latter being adapted to actuate the power-arresting mechanism of the machine. (Not shown.)

39 designates the yarn or thread which is fed through a suitable slot 40 in the projecting arm 25 and is passed between the guard 26 in the upper portion of the arm 25 through the space 29, as best shown in Fig. 10, then upwardly and between the arm 31 of the finger and said guard 26, as shown in Figs. 6, 7, and 8, preventing the said finger from falling or dropping until there is a break in said thread or yarn, so that the support for the finger being removed the arm 31 will pass through the recess 27 and the finger assumes the position seen in dotted lines in Fig. 8.

The operation will be readily seen. As shown in my previous application, the hooks 10 are adapted to support the thread or yarn, from which it is passed downwardly to the cam-cylinder, (not shown,) and should a knot or imperfection be found in the yarn or in case of a "tight cop" an extra strain is brought on the yarn, which will suffice to depress the hooks 10 to release the yarn or provide slack, and at the same time suitable mechanism is operated (not shown) for arresting the motion of the machine. The dogs 13, engaging with the nicks or depressions in the hooks, serve to support the same when in their operative position, and I have found it is essential to be able to adjust the tension on these dogs in order to vary the engagement thereof with the nicks 12 for supporting the hooks, so that the said hooks can be made to support a considerable amount of strain or but a slight amount in order to cause same to fall, and thus stop the machine. As the arresting means and the parts therefor form no part of the present invention, I have not deemed it necessary to show same in detail. As above stated with respect to the guard and finger, when the yarn breaks the finger 30 will no longer be supported and will fall, this being positively caused by reason of the pressure of the head 34 against the lug 32 of the finger, and the lug 32 will strike the tip 37 of the dog 35 and lower the same, it being seen from the drawings that until this operation takes place the lever 33 is held in suitable position by said dog 35. As soon as the lever 33 is released the action of the spring moves the same, which operates the nose 38 of said lever, so that the drop-rod is permitted to fall and

actuates the arresting means. (Not shown.) I have found that in the use of the guard 26 and having the same formed of a plate that the yarn or thread is held firmly against the plate, thus preventing vibration of the yarn or thread and holding the finger 30 thereof substantially stationary, thus overcoming the excessive vibration which has heretofore occurred in the use of any of the well-known forms of combs employed. It will be further apparent that I may independently adjust the tension on said dogs, so that one of the hooks may be caused to fall when less pull is exerted thereon than on the other as may be necessary when different yarn is used on each hook.

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

1. In a device of the character described, supporting means for carrying the yarn, means connected with said supporting means for operating a stop-motion, holding means for said supporting means, spring means extending substantially lengthwise of and connected with said holding means, and means at an angle to said spring means for adjusting the tension of the latter.

2. In a device of the character described, yarn-supporting means pivotally mounted, means connected with said supporting means for operating a suitable stop-motion, means engageable with said supporting means for holding same in operative position, springs suitably connected with and extending substantially lengthwise of said holding means and means at right angles to the length of said springs for adjusting the tension of the latter.

3. In a device of the character described, hooks for supporting the yarn, dogs engaging with said hooks for holding the same in operative position, spring-arms extending in the direction of the length of the hook-supporting means engaging with and carrying said dogs for normally depressing same and means at right angles to the length of said spring-arms for independently adjusting the tension of said spring-arms for varying the pressure on said dogs.

4. In a device of the character described, hooks pivotally supported, dogs adapted to engage with said hooks for holding the same in operative position, rods movably connected with said hooks, plates connected with said rods, springs extending in the direction of the length of the hook-supporting means for operating said plates, spring-arms supporting and contacting with said dogs for normally depressing the same, pins disposed at right angles to the length of said springs and engaging with said spring-arms and means for adjusting said pins whereby the tension on said dogs may be varied.

5. In a device of the character described,

a head, plates pivotally attached thereto, springs having one end attached to said head and the other end to said plates, rods projecting from said plates, a block carried by said head, said rods moving in slots in said block, hooks pivoted to said block and having slots in their body portion in which said rods are adapted to move, depressions in said hooks, dogs carried by said block adapted to engage in said depressions, spring-arms suitably supported parallel with the length of said rods and in engagement with said dogs, pins at right angles to and having portions loosely engaging with said spring-arms and independent means for adjusting said pins for varying the tension of said spring-arms on said dogs.

6. In a device of the character described, a stationary slotted guard formed of a plate and a finger having a lateral arm coacting with the slot of said guard and adapted to be sustained by the yarn, said finger being provided with a lug, a spring-actuated lever having a head to engage said lug, and a dog having a nose in the path of said lever.

7. In a device of the character described, a stationary slotted guard formed of a plate and a finger having a lateral arm coacting with the slot of said guard and adapted to be sustained by the yarn, said finger being provided with a lug, a spring-actuated lever having a head to engage said lug, and a dog having a nose in the path of said lever and a tip in the path of said lug.

8. In a device of the character described, a support, slotted hooks pivotally mounted thereon and having depressions adjacent

their pivots, spring-held means adapted to engage said depressions springs extending lengthwise of said support and carrying said means and means movable in guides on said support and in slots of said hooks, and means for adjusting the said springs to vary their tension.

9. In a device of the character described, a support, hooks pivotally mounted thereon and having longitudinal slots, holding means for normally holding said hooks in a horizontal position, vertical guides on said support, pivotally-mounted plates, rods carried thereby with their free ends engaged in the slots of said hooks and in the guides of said support, springs having one end fixed relatively to said rods and disposed lengthwise thereof and operatively engaged with said holding means.

10. In a device of the character described, a support, hooks pivotally mounted thereon and having longitudinal slots, spring-held means for normally holding said hooks in a horizontal position, vertical guides on said support, pivotally-mounted plates, rods carried thereby with their free ends engaged in the slots of said hooks and in the guides of said support, springs having one end fixed relatively to said rods and disposed lengthwise thereof and operatively engaged with said holding means, and means at right angles to said rods and operatively connected with said springs to vary their tension.

GEORGE W. RUTH.

Witnesses:

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