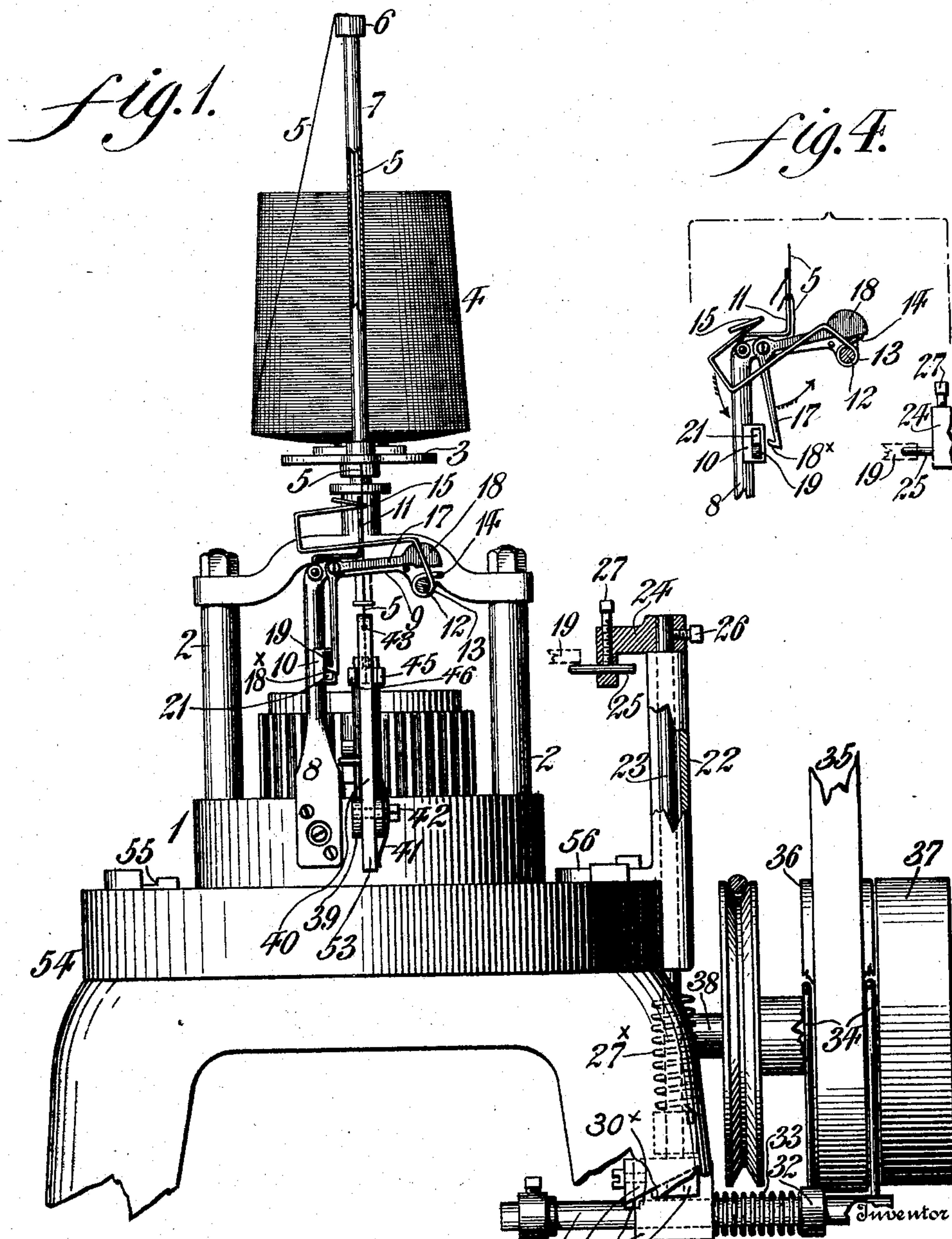


D. T. BERLIZHEIMER.
STOP MECHANISM FOR KNITTING MACHINES.
APPLICATION FILED MAR. 14, 1904.

916,094.

Patented Mar. 23, 1909.

2 SHEETS—SHEET 1.



Witnesses

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30 29/28
29+31

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Fig. 2.

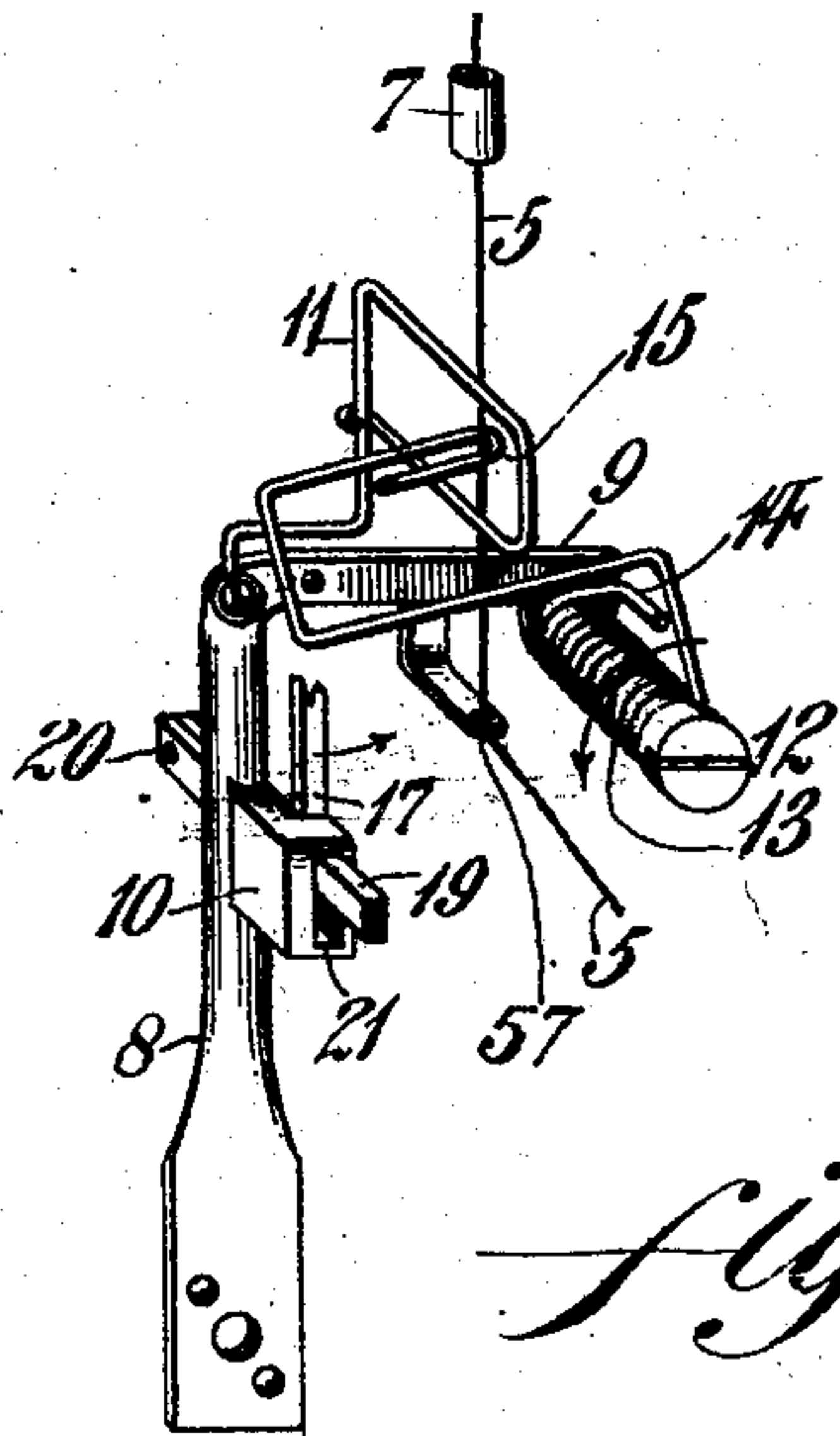
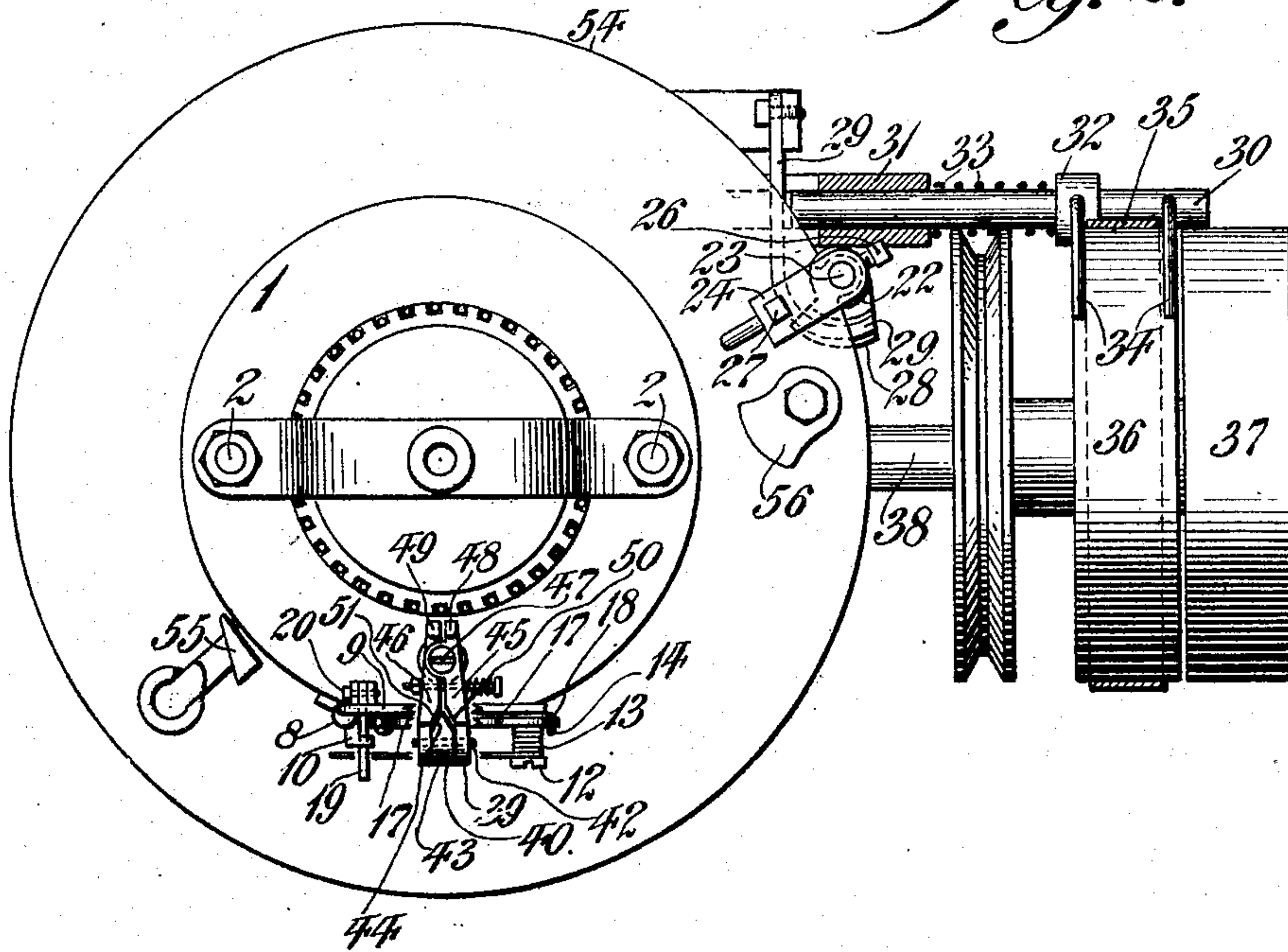


Fig. 3.

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UNITED STATES PATENT OFFICE.

DAVID T. BERLIZHEIMER, OF PHILADELPHIA, PENNSYLVANIA.

STOP MECHANISM FOR KNITTING-MACHINES.

No. 916,094.

Specification of Letters Patent.

Patented March 23, 1909.

Application filed March 14, 1904. Serial No. 198,043.

To all whom it may concern:

Be it known that I, DAVID T. BERLIZHEIMER, a citizen of the United States, residing in the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Stop Mechanisms for Knitting-Machines, of which the following is a specification.

My invention relates to circular knitting machines in which an extra cop or the like is used to carry a yarn for reinforcing the article produced, as where double knees are made in stockings or the like.

It provides means for operating a belt shifting or braking device in case the reinforcing yarn breaks or is not threaded into the machine as required.

It further consists of novel features of construction, all as will be hereinafter fully set forth.

Figure 1 of the drawings represents in rear elevation, so much of a knitting machine as is necessary to show my invention.

Fig. 2 is a top plan view of the same, part of the mechanism being removed for clearness of illustration. Fig. 3 represents parts of the device detached from the knitting machine. Fig. 4 represents the yarn engaging portions of the device shown in Fig. 3 in another position.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings: 1 designates the rotary head of a knitting machine from which rise standards 2 supporting a cop or cone plate 3 on which is mounted a cop 4. From the cop 4 a yarn 5 is led upward to a guide 6 which forms the upper end of a tube 7 through which the yarn 5 passes downward. Detachably secured to the rotary head 1 is a bracket 8 having arms 9 and 10 extending laterally therefrom. Also secured to the bracket 8 is a substantially rectangular frame 11 shown as of wire. From the arm 9 projects a rod 12, or the like, on which freely rotates a wire coil 13, one end of which is bent outward forming a lug 14 and the other bent as shown in Fig. 3 of the drawings to form a U-shaped portion 15 adapted to pass between the sides of the frame 11. Pivotally mounted on the arm 9 is an L-shaped lever 17, the weighted end 18 of which projects above the lug 14 of the coil 13. At the other end of the lever 17 is a hook 18^x normally adapted to support a bar 19 piv-

oted at 20 to the arm 10. A slot or rectangular aperture 21 in the arm 10 serves as a guide to the bar 19, restraining it from other than pivotal motion in a vertical plane.

Firmly secured to the base 54 of the machine is a vertical tubular guide 22 through which passes a rod 23. Secured to the upper end of the rod 23 is a head 24 carrying a pin 25 which projects inward toward the center of the machine. Suitable set screws 26, 27 secure the head 24 and the pin 25 in their respective positions. At the lower end of the rod 23 is a torsion spring 27^x. At the lower end of the rod 23 is a cam 28 which bears against a second cam plate 29 which is operatively connected through a latch, 29^x to the longitudinally movable rod 30. Mounted on the shaft 30 between the bearing 31 in which the rod is supported and a collar 32 on the rod is a thrust spring 33. Secured to the rod 30 are arms 34, forming a fork adapted to engage with the sides of a belt 35 and to shift said belt from the fast pulley 36 to the loose pulley 37. It is understood that the pulleys 36 and 37 are mounted on the shaft 38 through which power is supplied to the machine.

Attached to the rotary head 1 of the machine adjacent the point of attachment of the bracket 8 is a lug 39 on which is pivotally mounted a lever 40. A spring 41 bears against the lever 40 and opposes frictional resistance to its motion on its pivot 42. At the upper end of the lever 40 is an eye or guide 43 through which the yarn 5 passes. Adjacent its upper end the inner edge of the lever 40 is beveled to form an edge 44 shown in Fig. 2 of the drawings. A pair of suitably supported jaws 45, 46 having a common pivot 47 are provided at their forward ends with upturned nose portions 48, 49 and at their rear ends with beveled faces 50, 51 located at each side of the beveled portions 44 of the lever 40. A suitable guide 52 shown as a wire annulus loosely surrounds the jaws 45, 46 and serves to retain the yarn 5 therebetween. The lower end 53 of the pivoted lever 40 is supported a short distance above the standard or base 54 of the machine and is adapted to contact with cam plate 55, 56 thereon for a purpose which will be hereafter explained.

The operation is as follows:—It will be understood that for clearness of illustration many of the well known working parts of the knitting machine are omitted from the

drawings, including the needles and the cops ordinarily used in producing the stocking or other article to be made. The cop 4 shown is composed of the yarn intended to be knitted in at the knee or other point of a stocking or like article where reinforcing is required. When the machine is used for work where reinforcing is unnecessary the bracket 8 and its working parts may be detached from the rotary head 1 of the machine. When in operation, the yarn 5 is led from the cop 4 through the guide 6 and through the tubular post 7, in front of the frame 11 through the hook 15 and through an eye 57 on the bracket 8, thence it passes through the guide or eye 43 on the lever 40 and between the noses 48, 49 of the jaws 45, 46 through the yarn carrier (not shown) to the needles. It is obvious that if the yarn 5 parts, the hook 15 will be no longer supported thereby and that the coil 13 will turn in the direction of the arrow, Fig. 3. The movement of the lug 14 will raise the weighted end 18 of the lever 17, as shown in Fig. 4, thereby disengaging the hook 18^x from beneath the bar 19, permitting the bar to drop to the bottom of the slot 21. As shown in dotted lines Fig. 1, the bar 19 normally rotates in a plane immediately above the pin 25 carried by the vertical rod 23, as shown in Fig. 4 the bar when released by the hook 18^x drops into the path of the pin 25 and thereby acts to give the rod 23 a partial rotation. The cam 28 at the foot of the rod 23 then acts through the lever 29 to release any well known latch mechanism. The latch 29^x coacts with the slot 30^x which latter is suitably located on the rod 30. The rod 30 is released so that by the force of the spring 33 the belt 35 is shifted to the loose pulley 37 thereby stopping the machine.

While the operation of the jaws 45, 46 embody no novel details, it will be understood that the cam plate 55 is elevated at the proper time in order to engage with the lower end 53 of the lever 40 and force the same radially outward; the outward movement of the blade 44 thus caused, forcing apart the ends 50, 51 of the jaws, causing the opposite ends or nose 48, 49 of said jaws to grip the reinforcing yarn and prevent the same from being fed into the machine. Again at the proper time the cam 56 is elevated, and contacting with the lower end 53 of the lever 40 removes the blade 44 from contact with the outer ends 50, 51 of the jaws thus opening the noses 48, 49, and releasing the yarn 5 and the same is fed into the machine forming the reinforcing part of the stocking. In order to permit this feeding of the yarn to be properly done I have provided a novel mode of forming a slack in the yarn by first feeding the yarn through the eye 57 in a suitable arm which is secured in any desired manner, in the present instance on the member 8, said eye being so

situated with respect to the end of the lever 40 that when the same is at its outer throw there is a certain amount of free yarn, therebetween, so that when the lever is forced out, there is sufficient slack in the yarn 5 to allow the same to be drawn into the needles.

In the construction shown, the arm 40 is located radially outward from the guide 57 and is movable radially inward, so that the movement of the rod acts to slacken the yarn, as above described.

It is evident that instead of the belt shifting device shown any other well known form of power arresting means including a brake may be used as desired. It is also evident that various changes may be made by those skilled in the art which will come within the scope of my invention, and I do not, therefore, desire to be limited in every instance to the exact construction shown and described.

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

1. In a knitting machine, the combination with the rotary head, of a bracket thereon having arms extending laterally therefrom in different planes and at an angle to each other, a vertically disposed open frame mounted on said bracket, a rod projecting from one of said arms, a coil freely rotatable on said rod and having at one end a lug rigid therewith and at the other end a portion projecting through said frame to engage the yarn, pivotally mounted means on the other arm, means restraining the same against other than pivotal movement in a vertical plane, and pivotally mounted weighted means on the first-mentioned arm for cooperation with said lug and carrying a hook to engage beneath said pivotally mounted means and means actuated by the pivotally-mounted means to stop the machine.

2. In a knitting machine, arms in different planes and at an angle to each other, a yarn-guiding eye in a member projecting from one of said arms, a vertically disposed frame extending over said eye, a rod projecting from one of said arms substantially parallel with the member in which said eye is formed, means freely rotatable on said rod and having an outwardly extended lug, and an extension parallel with said arm and having a portion projected through said frame to engage the yarn above said eye, a pivotally mounted member, means restraining the same against other than pivotal movement in a vertical plane, and means pivotally mounted on the first-mentioned arm with one end disposed normally out of contact with but over said lug and the other end constructed to engage beneath said first-mentioned pivotally mounted means.

3. The combination with the rotary head, of a bracket thereon, a rod supported from said bracket, a coil rotatable on said rod and

having at one end a yarn-guiding loop and a lug at the other, an elbow lever pivoted on said bracket, with one end weighted and lying over said lug, the other arm having a hook, a pin in the path of said bar and a rotatable rod carrying said pin and a bar pivoted on said bracket and movable in a vertical aperture and adapted to be normally held elevated by said hook.

4. In a knitting machine, a detachable bracket having arms extending laterally therefrom in different planes and at an angle to each other, a yarn guiding eye on one of said arms, a vertically disposed rectangular frame mounted on said bracket and extending over said eye, a rod projecting from one of said arms parallel with said guide eye, a coil freely rotatable on said rod and having

one end bent outwardly to form a lug and the other end extended parallel with said arm and having a U-shaped portion projecting through said rectangular frame to engage the yarn above said guide eye, a pivotally mounted bar on the other arm, means restraining the same against other than pivotal movement in a vertical plane, and an angle lever pivotally mounted on the first mentioned arm with one end weighted and disposed in a vertical plane over said lug and the other end having a hook to engage beneath said bar.

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Witnesses:

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