

950,695.

5 SHEETS—SHEET 1.

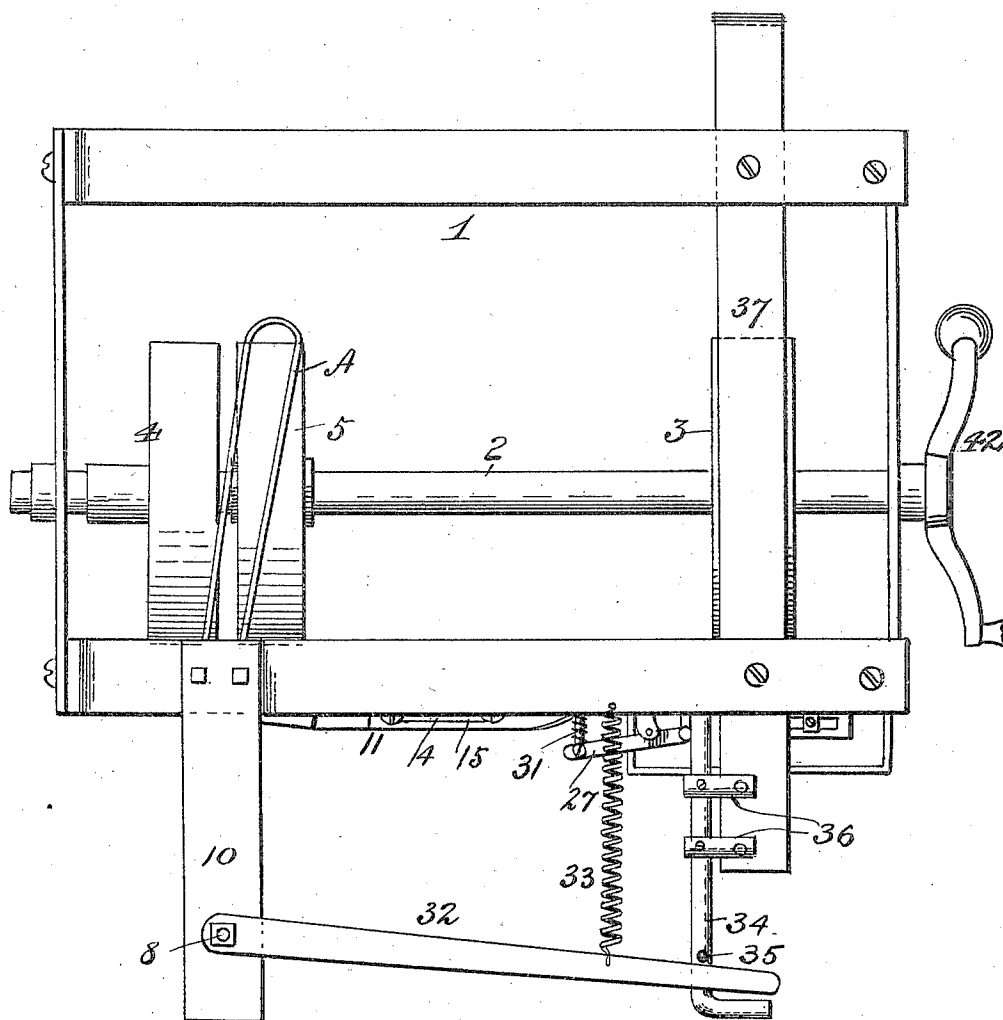


Fig. 1.

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 STOP MOTION FOR KNITTING MACHINES.
 APPLICATION FILED APR. 26, 1906.

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Patented Mar. 1. 1910.

5 SHEETS—SHEET 2.

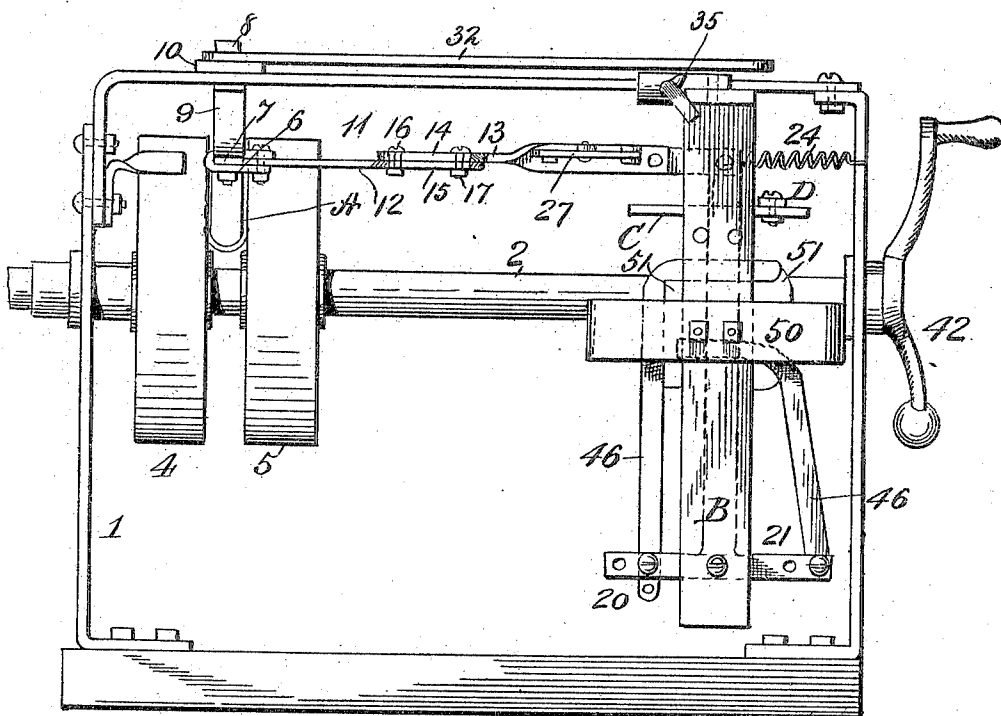


Fig. 2.

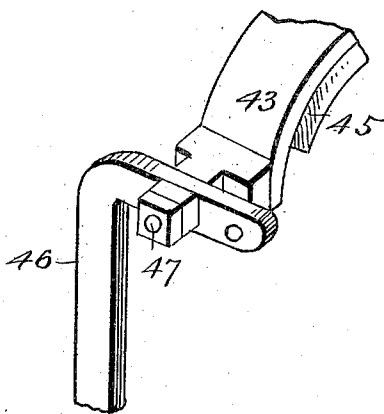


Fig. 3.

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Fig. 3.

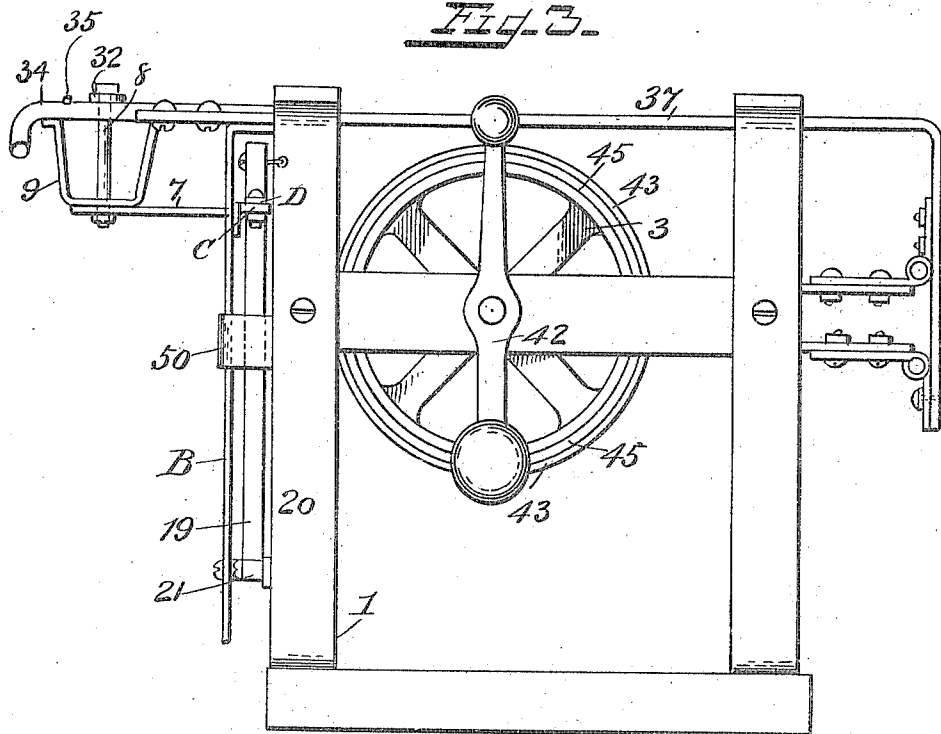
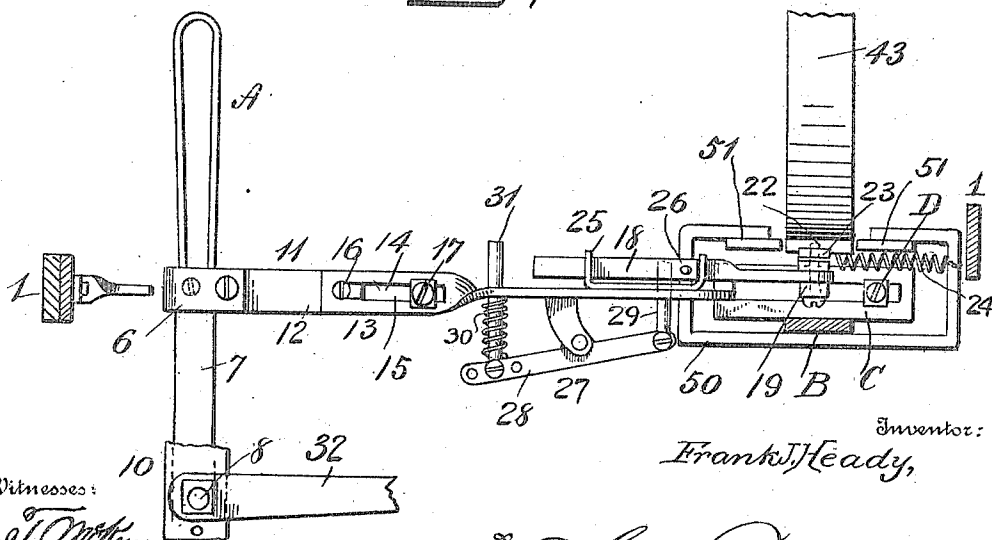


Fig. 7.



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5 SHEETS—SHEET 4.

Fig. 4.

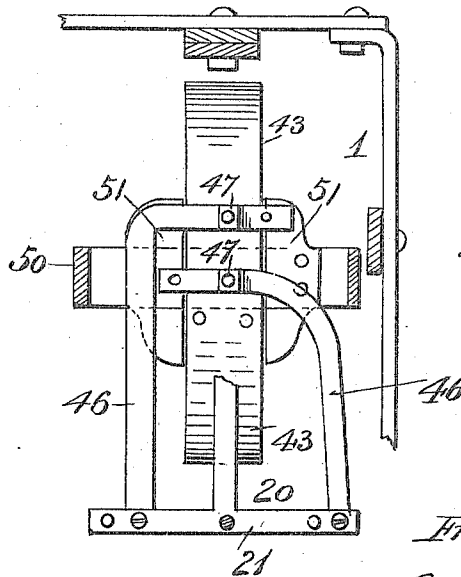
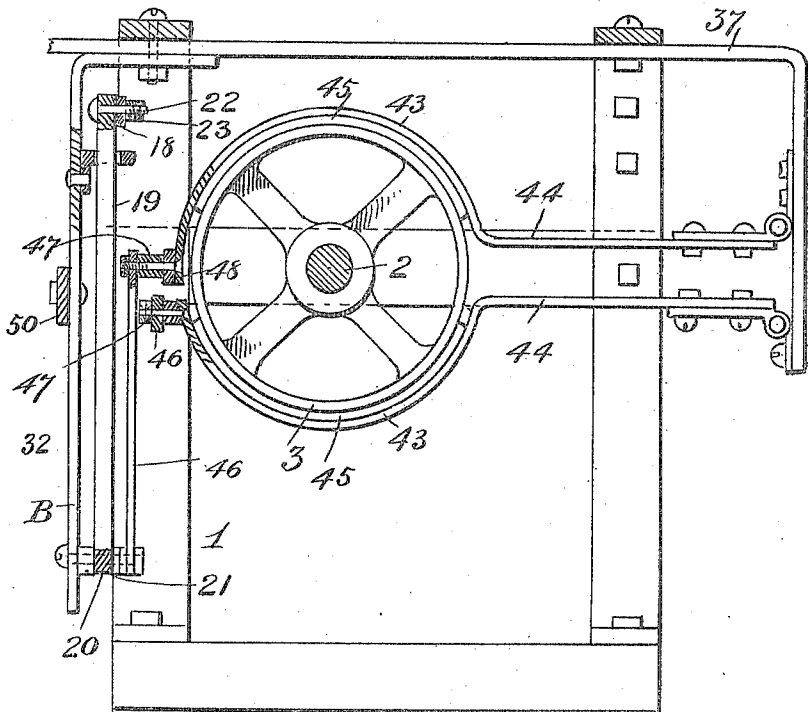


Fig. 5.

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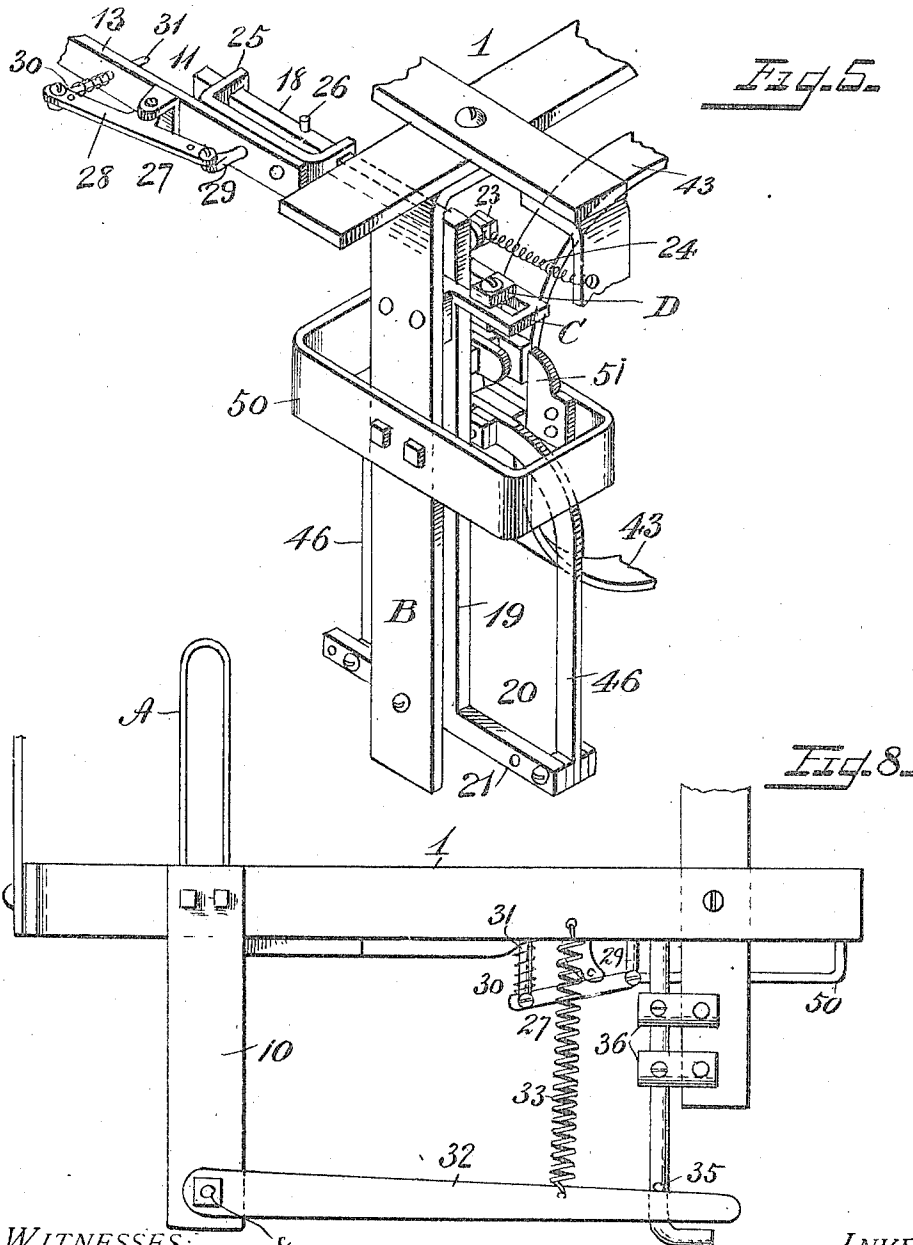
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5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

FRANK J. HEADY, OF SHERBURNE, NEW YORK.

STOP-MOTION FOR KNITTING-MACHINES.

950,695.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed April 26, 1906. Serial No. 313,852.

To all whom it may concern:

Be it known that I, FRANK J. HEADY, a citizen of the United States, residing at Sherburne, in the county of Chenango and State of New York, have invented certain new and useful Improvements in Stop-Motions for Knitting-Machines, of which the following is a specification.

My invention relates to improvements in what may be technically termed "stop-motions," especially designed for knitting machines. Its object is principally to provide for arresting automatically the motion of the operative mechanism in an emergency, or under other conditions, according as the circumstances of the case may require, or it may be desired, as for an example, the occurring of a defect in the knitting operation to guard against the incorporation of such defect in the resulting product of the machine; and to accomplish said end in a simple and effective manner and with celerity and certainty and yet be unattended with any accidental operation of the parts.

Said invention therefore consists of certain features substantially as hereinafter fully disclosed and specifically pointed out by the claims.

In the accompanying drawings, illustrating the preferred embodiment of my invention—Figure 1 is a plan view of said invention. Fig. 2 is a front or side elevation thereof. Fig. 3 is an end elevation of the same. Fig. 4 is an enlarged detailed view, disclosing more particularly the brake or stopping contrivance proper together with the brake-wheel or pulley for the direct action thereof, with the pulley-shaft in section. Fig. 5 is a detailed perspective view of portions of the aforesaid stopping contrivance, with portions of its support broken away. Fig. 6 is a vertical section produced through said stopping contrivance in line with the brake pulley or wheel. Fig. 7 is an enlarged detailed view more fully disclosing the lever and releasing device adjunctive thereof, between the belt-shipper and tripping finger or device. Fig. 8 is a still further detailed view showing more especially said tripping device or finger and adjunctive parts. Fig. 9 is a broken detail perspective view of one of the brake-bands and adjunctive parts.

In carrying out my invention, I suitably mount or support upon a frame 1, the various parts thereof, together with a shaft 2,

in practice geared or otherwise connected to the "head" of the knitting machine (not shown) and which shaft bears or carries what may be termed a brake-pulley or wheel 3 and a loose pulley 4 and a fast pulley 5, whose belt (not shown) provides for driving said shaft and accordingly transmitting motion to the knitting machine. A belt-shipper A, for controlling said belt, and arranged contiguous to, and adapted to be moved with relation to said fast and loose pulleys in effecting the shipping of said belt, is clamped and held between the upper and lower arms of a clip or keeper 6 screwed or otherwise suitably secured to one end of a pivoted bar or arm 7. The pivoting in position of said bar or arm is effected by passing vertically therethrough, near its outer end and fixing thereto a headed and nut-equipped pivot bolt 8 also inserted through, and held in position in a pendent frame or stirrup like bracket 9 fixed to the underside of an outstanding arm or bar 10 in turn fixed or secured to the frame 1.

A bar or link 11, in two adjustable lengths or sections 12, 13 is yieldingly held by a pivot-bolt between the free end-portions of the arms of the clip or keeper 6, the arm or bar 7 thus carrying said link and permitting the actuation thereof as the belt-shipper is operated, the purpose of which will presently appear. The adjustability of the sections or members 12, 13 of the bar or link 11 is effected by providing registering longitudinal slots 14, 15 therein respectively and oppositely fixing nut-equipped bolts 16, 17 in said sections or members and passing them through said slots respectively, the purpose of which adjustment will appear hereinafter. Said lever 11 is equipped at its practically free end with a slidable member or section 18 which is suitably connected to the upper end of the upright arm or member 19 of an inverted T lever 20, pivoted about centrally of its transverse member 21 to a preferably pendent plate-like bar or adjunctive part B of the frame 1. An elongated slotted keeper C fixed to the upright B receives, and provides for controlling the movement of the lever 20, and has arranged in connection therewith an adjustable stop D, to limit said movement, in the form of a bolt passing through the slot of said keeper and equipped with nuts arranged above and below said keeper, the manipulation of which

for its intended purpose is apparent. The connection between the slidable member or section 18 and the arm 19 of the lever 20 is effected by a nut-equipped bolt 22 passed therethrough; and having one end connected to a jam-nut 23 upon said bolt, is a helical or other suitable spring 24, in turn having its opposite end connected to the frame 1, the purpose of which is to draw the slidable member or section 18 outwardly when the holding dog or latch 27 releases it. Said slidable member or piece 18 is upheld or slides within the apertured outstanding end-
 10 portions of a keeper 25 suitably held or fixed to the edgewise twisted portion of one of the sections of the link or bar 11, said slide or member being controlled in its movement by a stop or projection 26 thereon engaging, when said slide is released, one of said out-
 15 standing ends of said keeper. A holding dog or latch 27 for the proper retention of said slidable member 18 in fixed relation to the lever 11 normally, comprises a lever 28 about centrally fulcrumed in suitable man-
 20 ner upon one of the lever-members and at one end having an articulated pin or detent 29 passing through registering apertures in said lever-member and slidable member. The opposite end of the lever 28 receives the
 25 outward thrust of a spring 30 for the normal retention of the detent 29 in its effective position or engagement with the slidable member 18, said spring being arranged be-
 30 tween said end of the lever 28 and one of the sections of lever 11, and upon a guiding pin 31 articulated adjustably to said lever and passing through said lever-section.

A manually-set lever 32 has one end fixed to the pivot-bolt 8 of the part 7 carrying the belt-shipper and the lever 11, and said
 40 lever 32 has spring-connection 33 with the frame 1 and is arranged to rest near its free end upon a tripping bar or device 34 having a beveled stud or pin 35, which said lever
 45 32 normally engages as when set. Said tripping bar or finger 34 in practice operated by some well known form of defective device working in connection with the fabric
 50 for intercepting a defect or knot in the latter is suitably held and adapted to have the requisite movement to that end in aper-
 55 tured parallel studs or arms 36 suitably secured to an extension of a bar 37 secured to the frame 1. Said tripping finger or device
 60 has its engaging or effective end preferably bent or curved laterally or at a right-angle as shown, and is adapted to be so engaged as to present, as it is actuated, the beveled
 65 or reduced surface of the stud or pin 35 toward the setting lever 32 in effecting the tripping operation.

Upon the shaft 2, incidentally hereinbefore referred to, are carried the fast-pulley 5 and the loose pulley 4 and a brake-pulley 3 and which shaft is suitably equipped with

a counterbalanced handle 42 for the convenient actuation of said shaft manually, when desired.

Arcuate or semi-circular brake-members 43, 43 are opposed to the periphery of the brake-pulley 3 at points above and below the same, said brake-members having in con-
 70 tinuation thereof parallel arms 44, 44 suitably articulated or hinged to a pendent or downward-extended portion of the bar 37 to permit of the requisite movement of said
 75 brake-members in applying and releasing the same, as presently seen. These brake-members are suitably equipped upon their inner concaved surfaces with leather-pieces 80
 45, 45, or other suitable friction-producing material for effectiveness in applying the brake-members. To the relatively free ends of said brake-members are respectively con-
 85 nected or pivoted the upper ends or terminals of link-connections 46, 46, having their opposite ends connected or pivoted adjust-
 21 of the rocking lever 20, respectively. Said upper-end terminals are about at right-
 90 angles to their vertical or main portions and the connections therebetween and the brake-members are adjustably effected by nut-
 equipped pivot bolts 47 passing through reg-
 95 istering openings or apertures produced through said lateral terminals and prefer-
 ably transverse pieces or strips 48, 49 riv-
 eted or otherwise fixed to said brake-mem-
 100 bers, at their ends especially as disclosed by Fig. 9.

A horizontal bracket 50, of preferably edgewise-arranged plates, is suitably secured to the pendant or upright B adjunctive of the frame 1 and has at opposite ends there-
 105 of fixed guiding plates 51, 51 arranged laterally of the corresponding edges of the transverse pieces or strips 48, 49 of the brake-members 43, 43 to aid, as indicated, for the
 proper retention in place of said brake-mem-
 110 bers as they are manipulated in performing the braking operation.

It will be noted that, in event of the contact of a knotted or defective portion of the material, being supplied to the knitting machine, with the defective device before noted
 115 for operating the tripping bar 34, the right-angled or lateral terminal of the latter would be caused to yield or turn downward which would accordingly shift the relation of the
 120 pin 35 to the lever 32 and so dispose the beveled surface of said pin thereto as to permit the lever to be instantly pulled by the spring 33 past said pin or stop. The belt-shipper A
 125 would be so actuated as to carry the belt, embraced thereby, from the fast-pulley 5 over upon the loose pulley 4 and the link 11
 be accordingly shifted longitudinally in the direction of the shipping movement of the belt-shipper, which would allow the inverted
 130 T lever 20 to be automatically carried to its

initial position by the recoil action of the spring 33. This movement of parts, of course, would have the effect to cause the link-connections 46 to draw or pull oppositely upon the brake-members 43 and thus provide for the latter engaging or exerting pressure upon the brake pulley 3 and thereby arresting the motion of said pulley and its shaft, and accordingly instantly intercepting the transmission of any movement due to the momentum of said shaft to the intergeared connection therebetween and the head of the knitting machine, thus resulting in instantly stopping the action of the latter for correcting the difficulty aforesaid.

By suitably manipulating the holding dog or latch 27, as will be apparent, the slidable member 18 may be released from its normal position being drawn upon by the action of the spring 24, before described and the brake-members 43 thus be allowed to stand out of effective position or contact with the brake-pulley, even though the setting lever 32 be unapplied. Also, it will be noted that the dog or latch 27 is adapted to be automatically actuated for effecting reengagement between the slidable section or member 18 and the lever 11, after said parts have been disengaged one from the other, as the setting lever 32 is moved to its effective position, since said slidable member 18 and the lever 20, to which it is connected, reach a certain point in their movement by the contact of the lever 20 with the stop D when they become stationary while yet the lever 11 is being moved to its forward position by the action of the setting lever 32 when said dog or latch will become effective for the purpose aforesaid.

I claim—

1. A stop motion for knitting machines, comprising a belt shipper actuating lever, a

brake pulley, brake members encircling the pulley on opposite sides, a T-shaped lever, means for connecting the central arm of said T-shaped lever with the belt shipper actuating lever, said means composed of sections or members adjustably connected together, and link connections extending from the short arms of the T-shaped lever to the free ends of the brake members.

2. A device of the character described, comprising a belt-shipper actuating lever, means for the retention of said lever in effective position, brake-members adapted for application to a brake-pulley, means for actuating said brake-members and a link controlled by said belt-shipper actuating lever, and in turn controlling said brake-member actuating means, said link being equipped with a slidable member or section and releasing dog or latch for said member.

3. A device of the character described, comprising a belt-shipper actuating lever, means for the retention of said lever in effective position, brake-members adapted for application to a brake-pulley, means for actuating said brake-members, and a link controlled by said belt-shipper actuating lever and in turn controlling brake-member actuating means, said link being equipped with a slidable member or section connected to said brake-member actuating means, a stop for said slidable member to limit its movement in one direction, and a dog or latch carried by said link and adapted to reengage said slidable member and link.

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

FRANK J. HEADY.

Witnesses:

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