

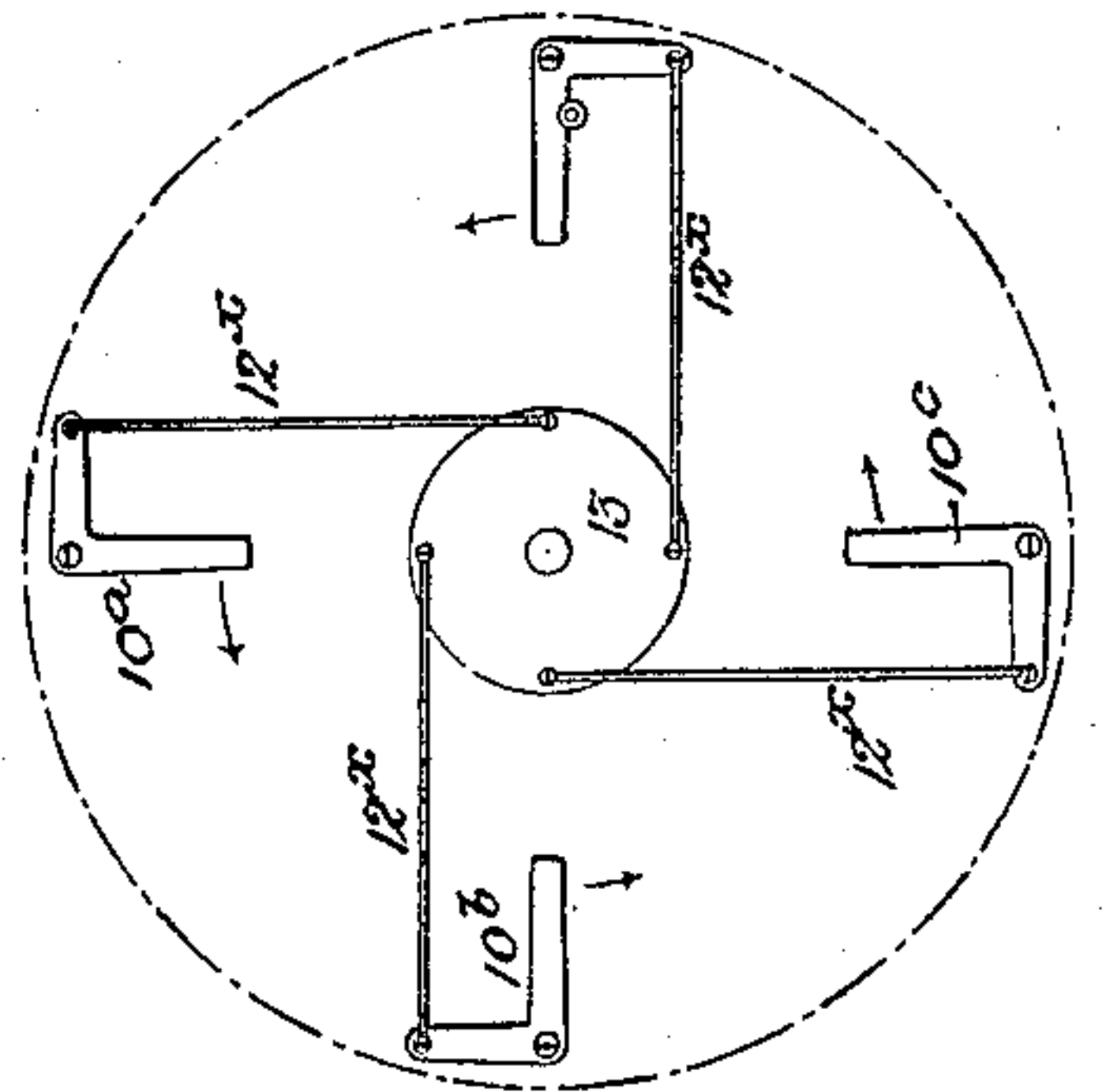
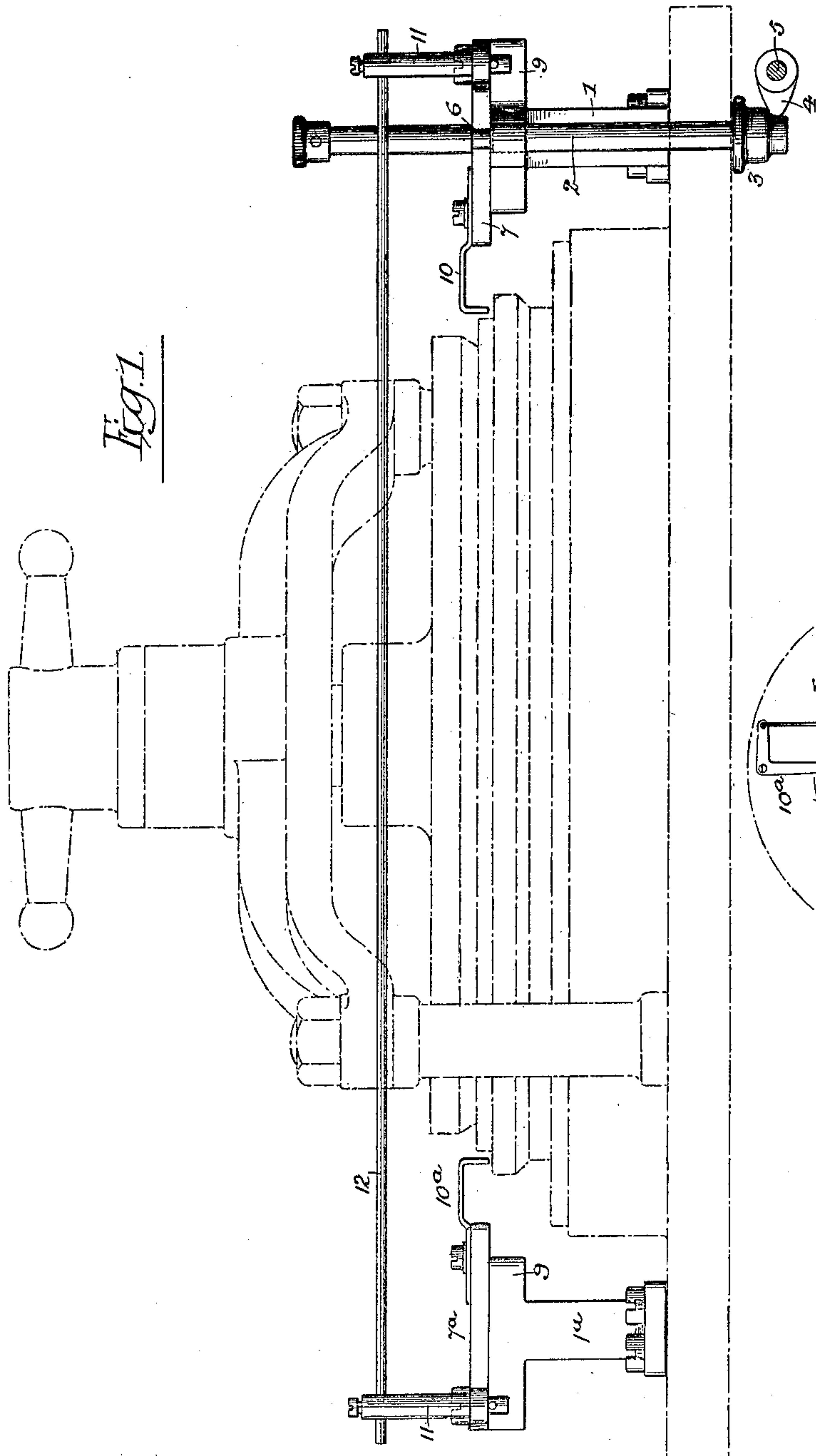
No. 821,969.

PATENTED MAY 29, 1906.

L. N. D. WILLIAMS.  
STOP MOTION DEVICE FOR KNITTING MACHINES.

APPLICATION FILED MAY 20, 1902.

2 SHEETS—SHEET 1.



*Witnesses:-*  
*Hamilton D. Turner*  
*Herman E. Metcalf.*

*Inventor:-*  
*Louis N. D. Williams,*  
*by His Attorneys;*  
*Howell & Howell*

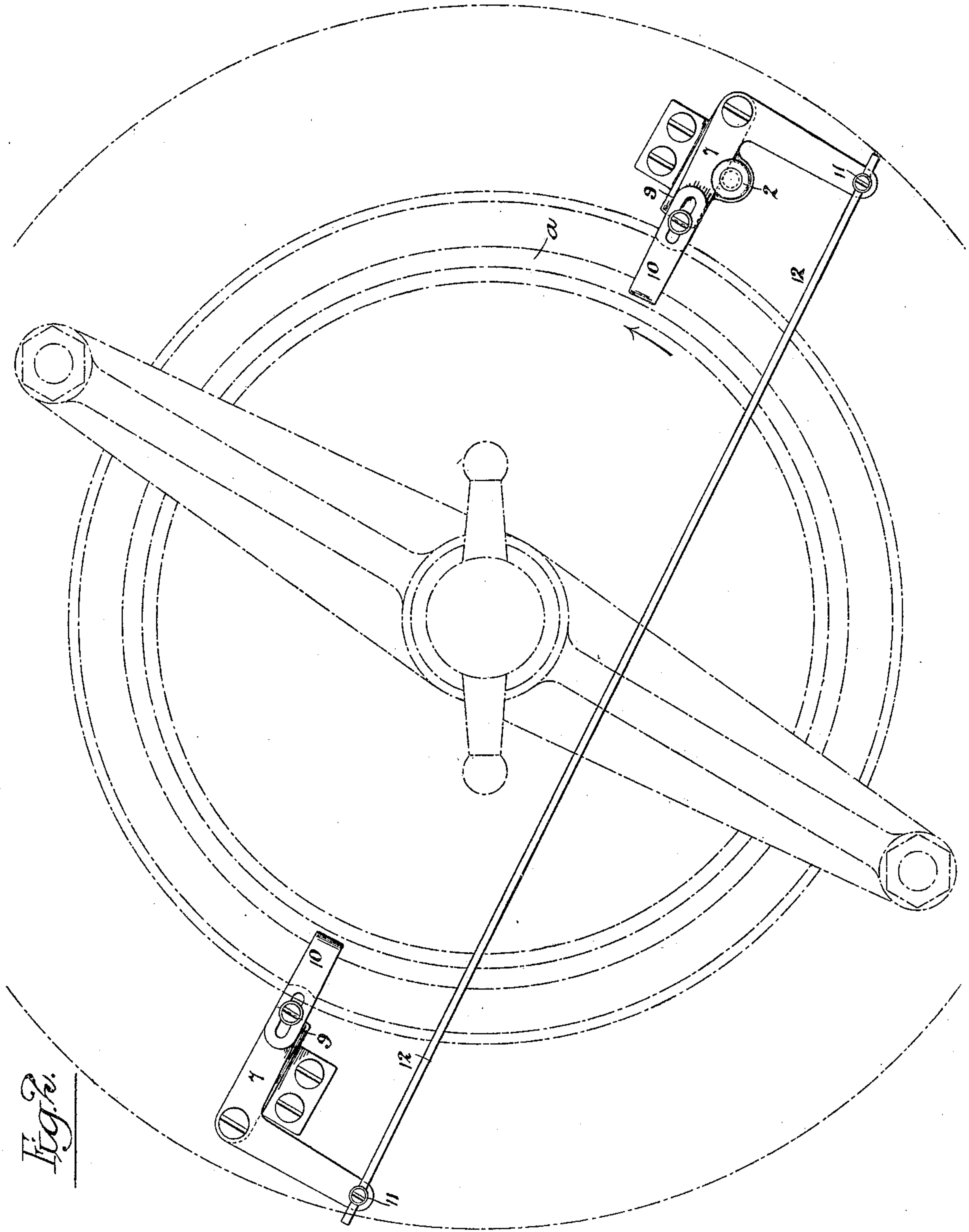
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*Fig. 2.*

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Herman E. Metcalf.

Inventor:

Louis N. D. Williams  
by his Attorneys:  
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# UNITED STATES PATENT OFFICE.

LOUIS N. D. WILLIAMS, OF ASHBOURNE, PENNSYLVANIA, ASSIGNOR  
OF ONE-HALF TO ROBERT W. SCOTT, OF PHILADELPHIA, PENN-  
SYLVANIA.

## STOP-MOTION DEVICE FOR KNITTING-MACHINES.

No. 821,969.

Specification of Letters Patent.

Patented May 29, 1906.

Application filed May 20, 1902. Serial No. 108,188.

*To all whom it may concern:*

Be it known that I, LOUIS N. D. WILLIAMS, a citizen of the United States, residing in Ashbourne, Montgomery county, Pennsylvania, have invented certain Improvements in Stop-Motion Devices for Knitting-Machines, of which the following is a specification.

My invention relates to that class of stop-motion devices for knitting-machines known as "needle-protectors," which operate to stop the motion of the machine when stitches begin to accumulate upon any of the needles before such accumulation reaches such a stage as to cause injury to the machine, the object of my invention being to increase the protection afforded by such device without unduly increasing the number of parts employed for the attainment of this result.

In the accompanying drawings, Figure 1 is a side view illustrating the application of my invention to a machine having two needle-protecting stop-motion devices. Fig. 2 is a plan view of the same, and Fig. 3 is a diagram illustrating the application of the invention to a machine having four of said stop-motion devices.

Sufficient of a knitting-machine is shown by dotted lines in the drawings to illustrate the application of my invention thereto.

1 represents a post or standard mounted upon the base-plate of the machine and serving to vertically guide a rod 2, which has at the lower end a head 3, the latter acting upon an arm 4 on a rock-shaft 5, which constitutes one of the elements of the belt-shipping mechanism of the machine, whereby on the descent of the rod 2 said belt will be shifted from the fast pulley to the loose pulley of the machine, and the operation of the same will be arrested.

The rod 2 has a notch 6 formed therein, and said rod is normally held in the elevated position by reason of the fact that said notch 6 receives one arm of a bell-crank lever 7, pivoted to a bar 9 at the top of the post 1, said lever carrying a bent finger 10, whose inner end is in close proximity to the hooks of the needles and to the work hanging thereon, so that any bunching of stitches or like abnormal projection which would tend to cause injury to the needles or other adjacent parts of the machine will engage the projecting end of the finger 10, and as the machine

is rotating in the direction of the arrow, Fig. 2, said finger will be moved so as to withdraw the lever 7 from the notch 6 of the rod 2, and thus permit the latter to descend and operate the belt-shipping mechanism, or the finger 10 may be constructed to engage with and be moved by the fabric when there is a gap therein such as would be caused by a number of the needles slipping their stitches.

In a machine of large diameter having a number of feeds a single protecting device of this character sometimes fails to perform its intended function. For instance, suppose the abnormal condition had occurred at the point *a* just beyond the needle-protector 10, the stoppage of the machine would not be effected until the point *a* had made nearly a complete revolution.

My invention, therefore, has for its object to increase the efficiency of the protector without undue multiplication of the parts of the same and to so connect the various units of the multiple protector that operation of either of the same will effect the release of the shipper-controlling rod 2 and the stoppage of the machine.

In Figs. 1 and 2 I have illustrated a double protector in accordance with my invention.

On the bed-plate of the machine opposite to the post 1 is a similar post 1<sup>a</sup>, with top bar 9<sup>a</sup>, to which is pivoted a bell-crank lever 7<sup>a</sup>, carrying a bent finger 10<sup>a</sup> and corresponding arms of the two bell-crank levers 7 and 7<sup>a</sup> are provided with upwardly-projecting posts 11, which are connected by a transverse rod 12. Hence releasing movement of the primary lever 7 can be effected by engagement of the work with either of the fingers 10 or 10<sup>a</sup>.

In the diagram Fig. 3 I have illustrated how my invention may be applied to a machine having four protector-levers, numbered, respectively, 10, 10<sup>a</sup>, 10<sup>b</sup>, and 10<sup>c</sup>, the lever 10 engaging the shipper-controlling rod 2, as before. In this case a corresponding arm of each of the protector-levers is connected by a rod 12<sup>x</sup> to a disk 13, mounted on the hub of the dial-cam plate or other axial portion of the machine, so that movement in either direction of either of the levers will effect corresponding movement of all of the others. It will be evident, therefore, that the construction shown in Fig. 2 doubles the protection afforded by the usual single pro-



tector, and the construction shown in Fig. 3 quadruples such protection, the connecting devices whereby the different units of the multiple protector are caused to act in unison  
5 being of the simplest and cheapest character.

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

1. The combination in a stop-motion device for circular-knitting machines, of a shipper-controlling rod or tripper, with a multiple protector, having a plurality of connected units disposed around the machine, one of said units engaging the shipper-controlling  
15 rod, and each of said units being disposed so as to be engaged by the fabric under abnormal conditions, substantially as specified.

2. The combination in a stop-motion device for circular-knitting machines, of a shipper-controlling rod or tripper, with a multiple protector, having a plurality of units disposed around the machine, one of said units engaging the shipper-controlling rod, and each of said units being disposed so as to be

engaged by the fabric under abnormal conditions, and means for connecting corresponding members of each of said units, substantially as specified. 25

3. The combination in a stop-motion device for circular-knitting machines, of a shipper-controlling rod or tripper, with a multiple protector, having a plurality of units disposed around the machine, one of said units engaging the shipper-controlling rod, and each of said units being disposed so as to be engaged by the fabric under abnormal conditions, and a rod extending transversely across the machine and directly connecting corresponding members of each of said units, substantially as specified. 35 40

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

LOUIS N. D. WILLIAMS.

Witnesses:

ROY RAUDENBUSH,  
JOS. H. KLEIN.