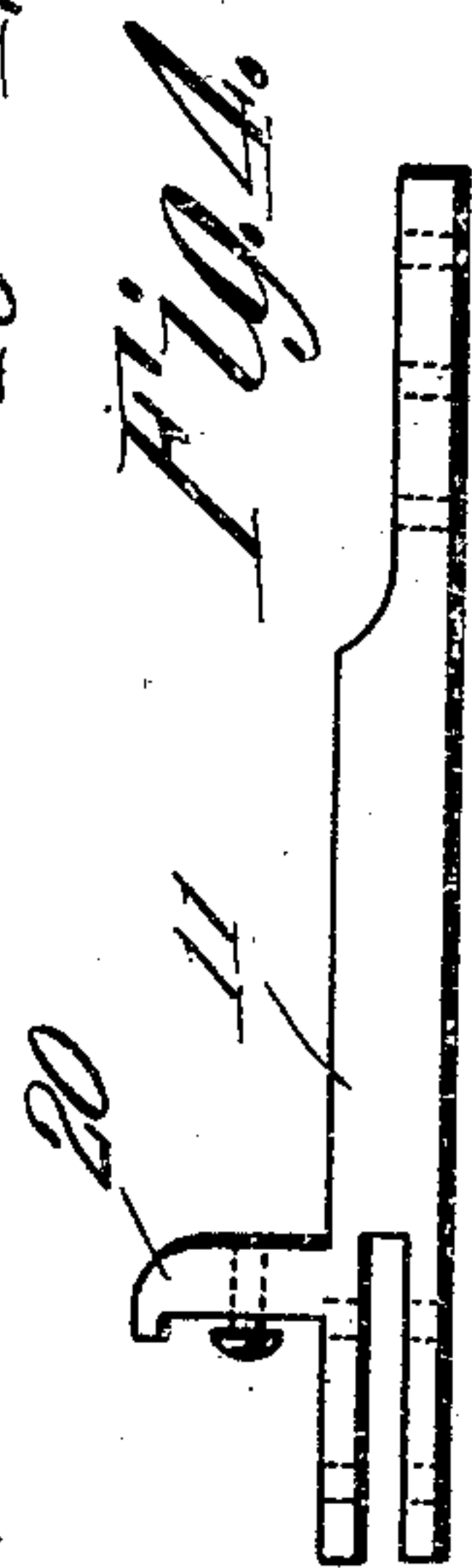
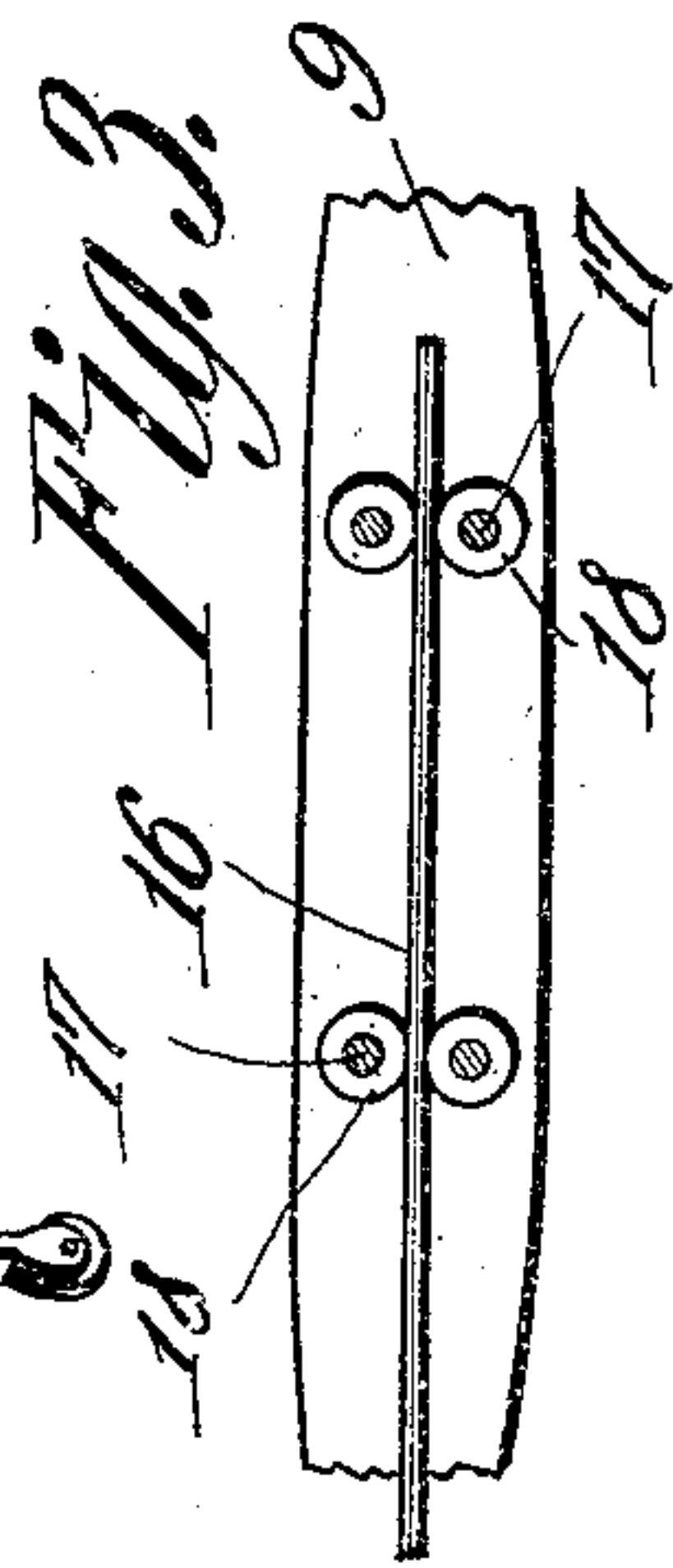
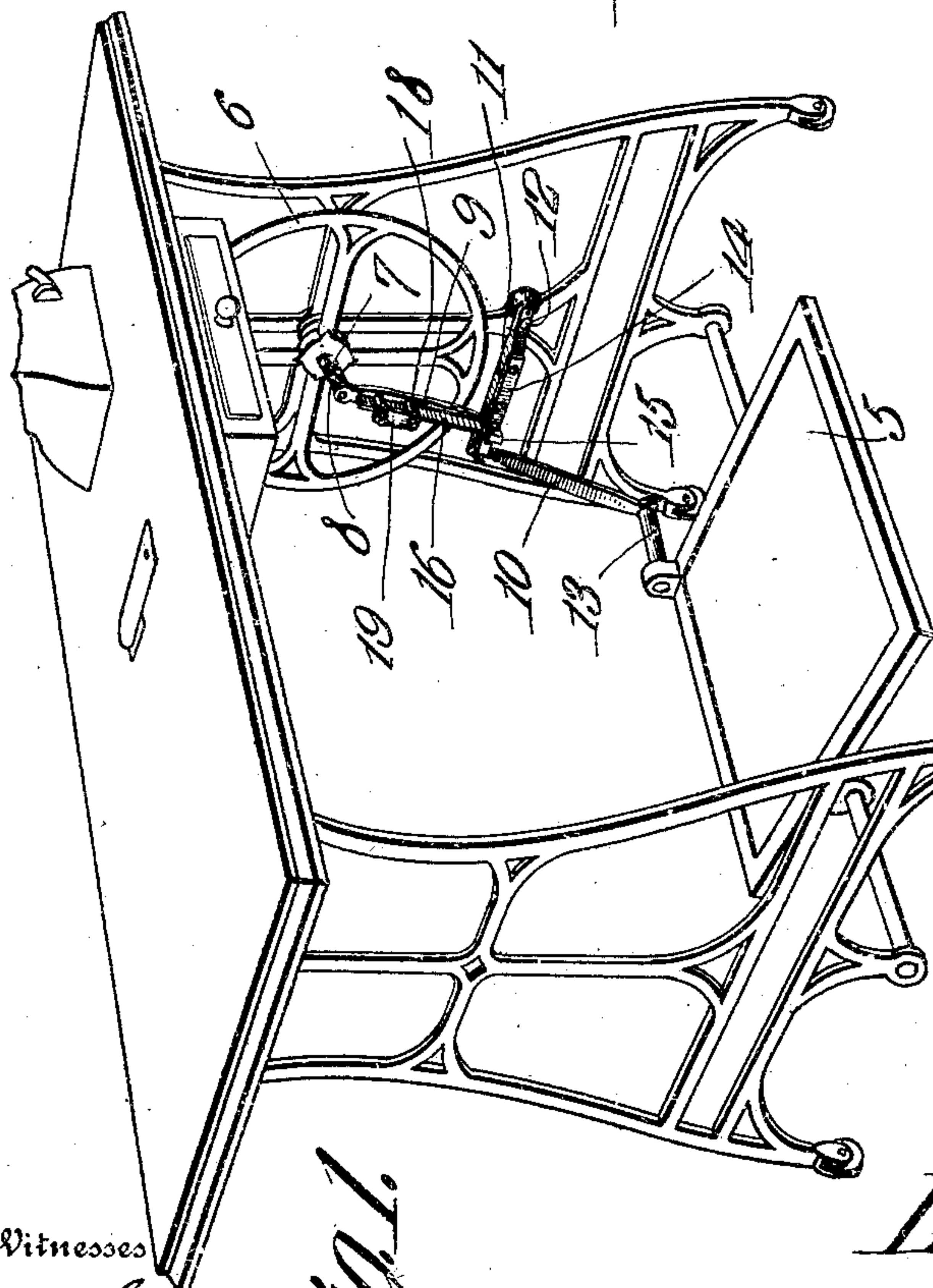
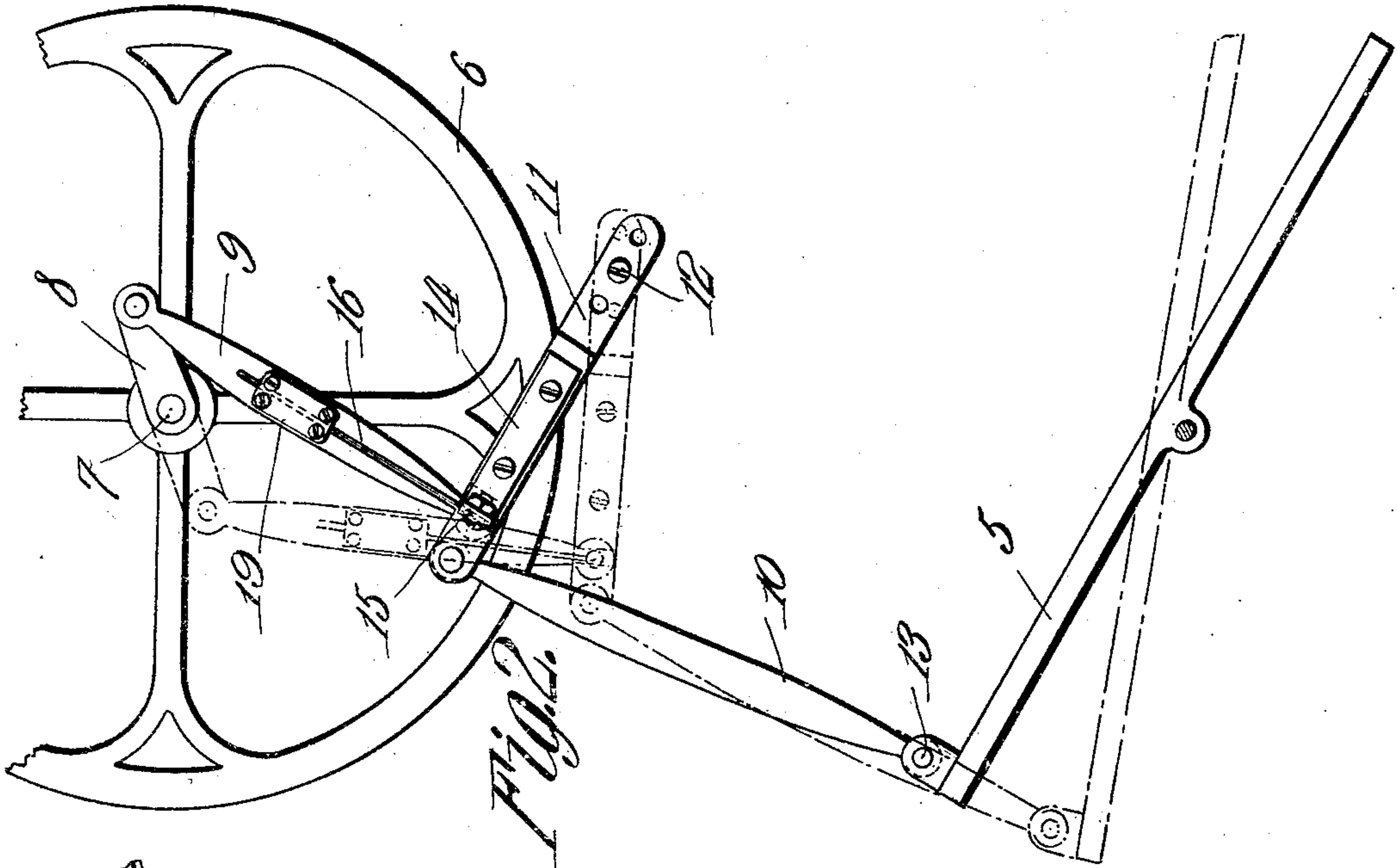


L. F. DAHL.
 DEVICE FOR OVERCOMING DEAD CENTERS.
 APPLICATION FILED NOV. 30, 1908.

929,919.

Patented Aug. 3, 1909.



Witnesses

E. H. Stewart
J. G. Smith

Fig. 1

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Inventor

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 Attorneys

UNITED STATES PATENT OFFICE.

LENDIS FREDRICK DAHL, OF SNOHOMISH, WASHINGTON, ASSIGNOR OF ONE-FOURTH TO
C. JOHN HENRY DAHL, OF BLAINE, WASHINGTON.

DEVICE FOR OVERCOMING DEAD-CENTERS.

No. 929,919.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed November 30, 1908. Serial No. 465,129.

To all whom it may concern:

Be it known that I, LENDIS FREDRICK DAHL, a citizen of the United States, residing at Snohomish, in the county of Snohomish and State of Washington, have invented a new and useful Device for Overcoming Dead-Centers, of which the following is a specification.

It is the object of the present invention to provide, in mechanism for converting oscillatory or reciprocatory movement into rotary movement, novel and simple means for overcoming dead center.

The invention, broadly speaking, contemplates the provision of a pitman which is formed in sections so connected as to permit of relative angular movement, and the interposition between the sections of a means for moving one section past the line of dead center so as to obviate stopping of the sections on the said line.

In the accompanying drawings, Figure 1 is a perspective view of the invention showing the manner in which the same may be applied to an ordinary sewing machine. Fig. 2 is a side elevation in detail of the mechanism showing in full and dotted lines the two positions of rest which the parts assume. Fig. 3 is a detail sectional view showing the arrangement of the rollers between which the free ends of the springs are confined, and Fig. 4 is a view showing a slightly modified construction of arm for the connection of the springs.

In the drawings, the numeral 5 indicates the treadle and 6 the fly wheel which is to be driven by oscillating the treadle, the shaft 7 upon which the fly wheel 6 is mounted being provided with a crank arm 8 to which and the treadle 5 is connected the pitman for transmitting power from the treadle to the said fly wheel and the shaft.

As heretofore stated, the pitman just mentioned is comprised of a plurality of sections which are connected together in such manner as to permit of relative angular movement, and one of these sections is indicated by the numeral 9 and the other by the numeral 10. The connection between the sections is not direct but is had through the instrumentality of an arm 11 which is pivoted as at 12 to the frame of the sewing machine. The section 10 of the pitman is pivoted at its lower end as at 13 to one corner

of the treadle 5 and at its upper end to the outer end of the arm 11. The section 9 of the pitman is connected at its lower end pivotally to the arm 11 inwardly of the outer end thereof and at its upper end is connected in a similar manner to the crank arm 8, and this arrangement of the two sections permits of relative angular movement of the sections as will be readily understood and observed from an inspection of Fig. 2 of the drawings.

Secured upon the arm 11 is a plate 14 having an upturned end 15 to which is rigidly secured one end of a plurality of thin leaf springs 16, all of the said springs being of the same width and length. Journaled for rotation upon studs 17, preferably arranged in spaced pairs upon the section 9 of the pitman, are sleeve rollers 18 and the rollers of each pair are spaced apart to receive between them the springs 16 clearly shown in Fig. 3 of the drawings. A cap plate 19 is held upon the ends of the studs 17 and serves to prevent disengagement of the free ends of the springs from between the rollers.

From an inspection of Fig. 2 of the drawings, it will be apparent that as the treadle is oscillated and the pitman section 9 and the crank 8 approach the line of dead center, the springs 16 will be placed under tension and consequently as soon as the two elements just mentioned are in alinement and on the line of dead center, the tension of the springs will be exerted to spring the said elements past such position. In the said Fig. 2 of the drawings, the elements of the mechanism are shown in full lines in one position of rest and in dotted lines in the other position and it will be observed that when in either of these positions, the springs are idle or in other words are not under tension. However, when the treadle is operated, the springs are immediately placed under tension and the degree of tension is gradually increased as the crank arm 8 moves from its position at rest toward the line of dead center, the maximum tension being exerted just prior to the time the arm reaches a position in this line. It will be further observed that the positions of rest are such that the line of extent of the crank arm when at these two positions is intermediate or substantially at right angles to the line of dead center so that

but minimum exertion is required to start the machine and after started, operation thereof is rendered very easy.

In the form of arm shown in Fig. 4 of the drawings, the plate to which the springs are attached is dispensed with and a boss 20 is formed upon the arm for the attachment of the springs thereto.

What is claimed is:—

- 10 1. In a mechanism of the class described, a two-part pitman, an oscillatory arm connecting the two parts of the pitman, and resilient means carried by the arm and engaging with the pitman for moving the same
15 past dead center.
2. In a mechanism of the class described a pitman comprised of mutually pivoted sections adapted to have relative angular movement, a member joining the pitman sections
20 and resilient means for moving one of said sections beyond dead center, said resilient means being carried by said last named member.
3. In a mechanism of the class described,
25 an oscillatory arm, a pitman comprising a pair of sections each pivoted to the arm and adapted to have relative angular movement, and means carried by the arm and engaging one of the said sections for exerting a tension thereon at the time of passage of the
30 arm through the line of dead center.
4. In a mechanism of the class described, an oscillatory arm, a pitman comprising a pair of sections each pivotally connected
35 with the arm and adapted to have angular movement with respect to each other and with respect to the arm, the angular movement of one section of the pitman being of greater degree than that of the other, and
40 means carried by the arm and engaging the last mentioned section of the pitman to move the said section past dead center.
5. In a mechanism of the class described, a pitman composed of two members, one member being adapted to be connected at one
45 end to a crank and the other member being adapted to be connected at one end to actuating means, an intermediate member to which the contiguous ends of the two pitman
50 members are pivoted, and a spring connected to the intermediate member and engaging the crank actuating member of the pitman.
6. In a mechanism of the class described, a pitman composed of two members, one
55 member being adapted to be connected at one end to a crank and the other member being adapted to be connected at one end to actuating means, an intermediate member to which the contiguous ends of the two pitman
60 members are pivoted, said intermediate member being pivoted to one side of and at a point between the remote ends of the pitman members, and a spring connected to the intermediate member and engaging the crank
65 actuating member of the pitman.
7. In a mechanism of the class described, a pitman comprised of a plurality of sections having connections of such character as to permit relative angular movement, rollers
70 upon one of the sections, and a spring rigidly connected with the other section and working between said rollers.
8. In a mechanism of the class described, a pitman comprised of a plurality of sections
75 having connections of such character as to permit of relative angular movement, a spring rigidly connected with one section, and means upon a related section confining one end of the spring but permitting relative
80 movement of the spring along said related section.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

LENDIS FREDRICK DAHL.

Witnesses:

LOT WILBUR,
J. A. RUSSELL.