No. 811,579. PATENTED FEB. 6, 1906.

C. PEDERSEN.

LOOP SPREADER FOR SEWING MACHINES.

APPLICATION FILED AUG. 14, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

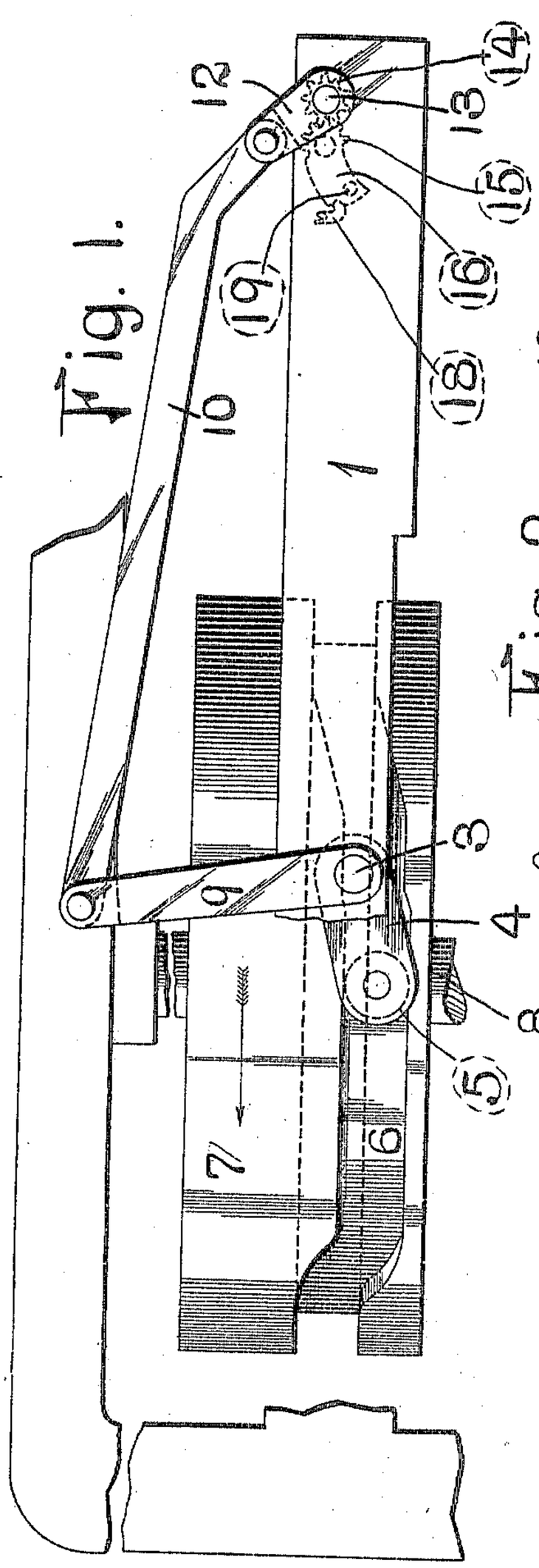


Fig. 2.

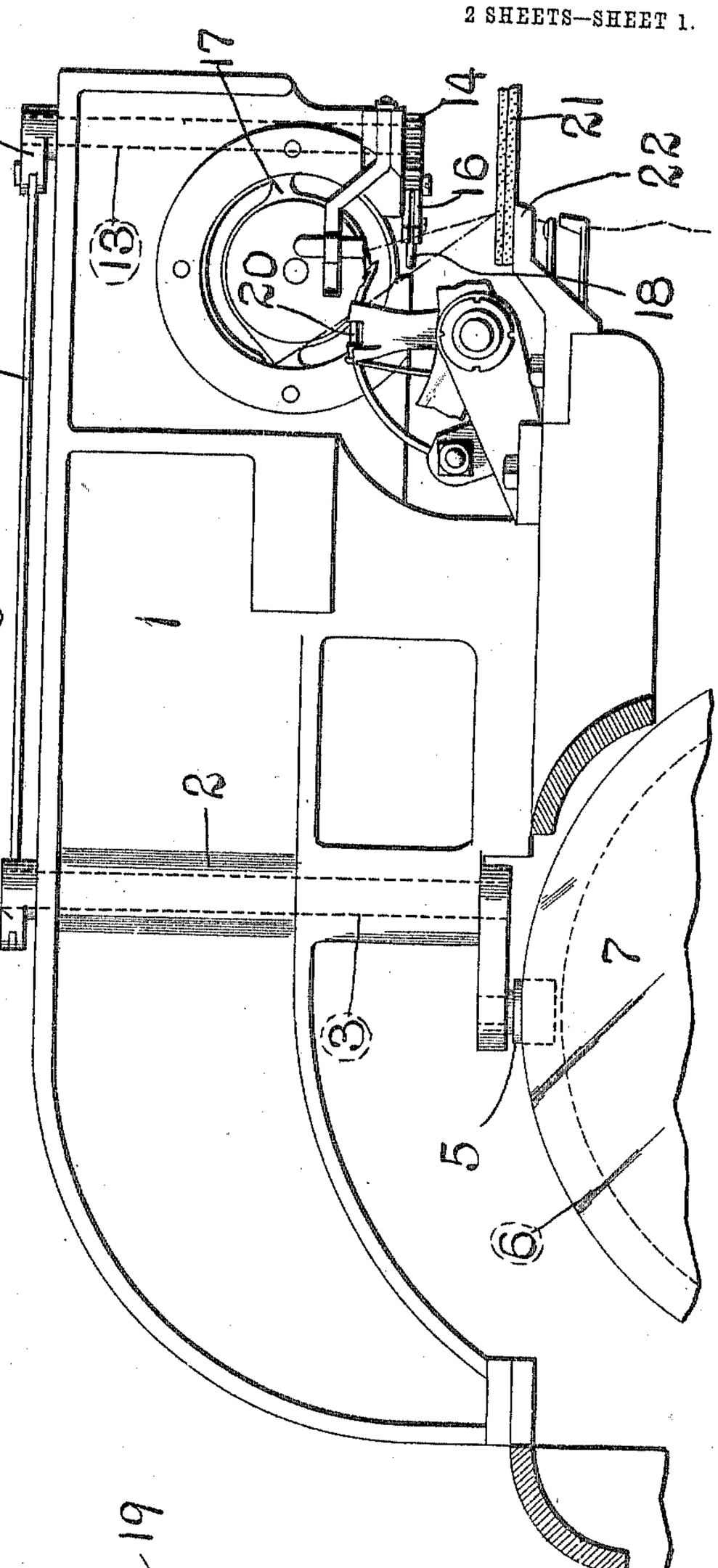
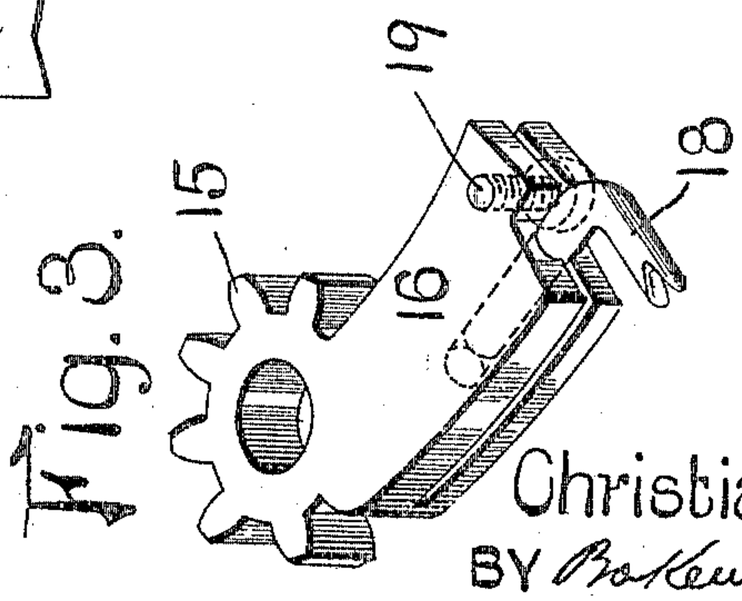


Fig. 3.



Witnesses

a. J. McCauley.

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Fig. 4.

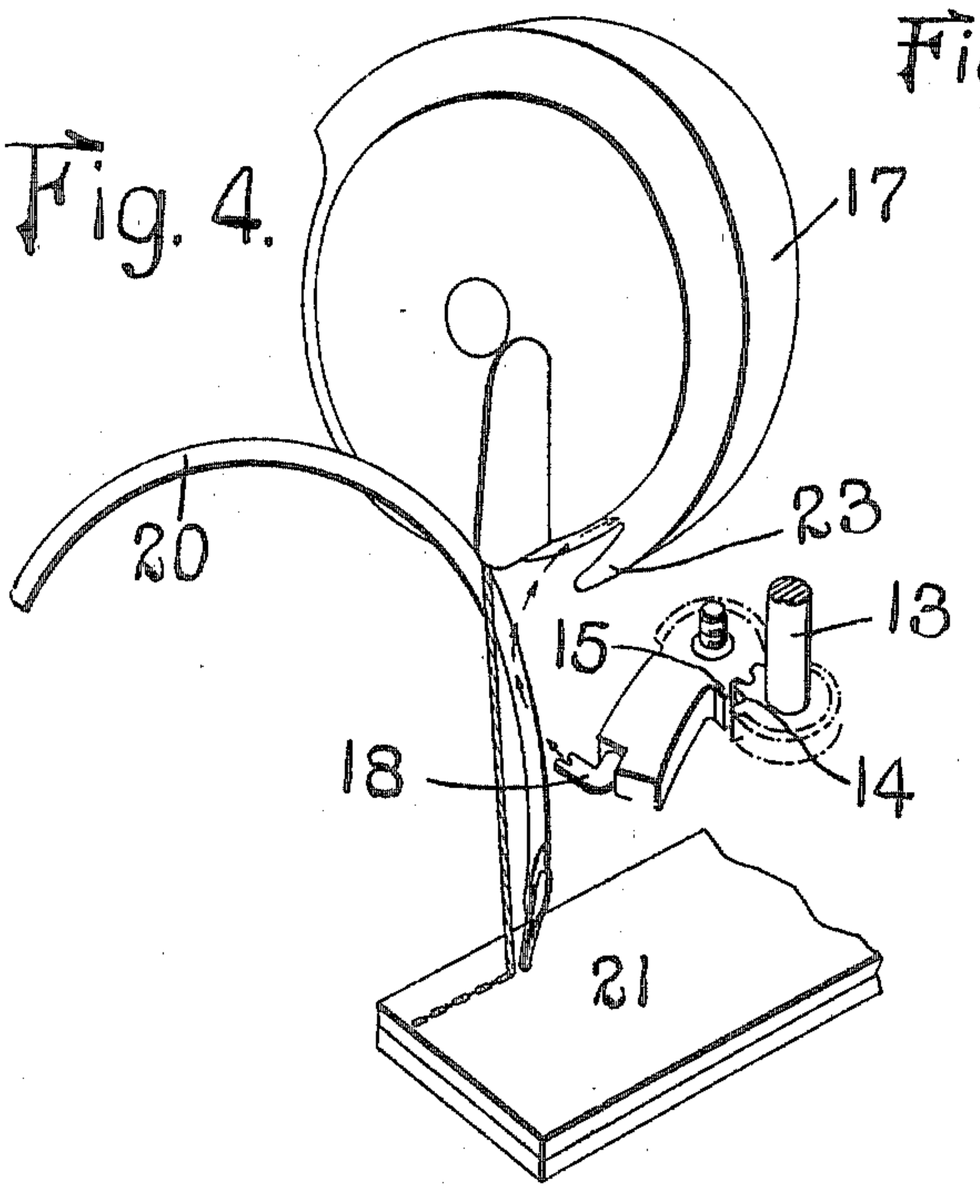


Fig. 7.

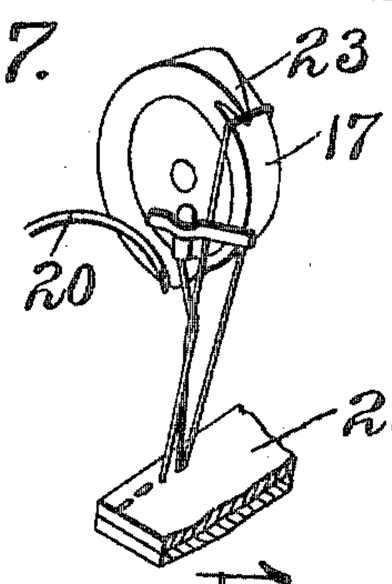


Fig. 5.

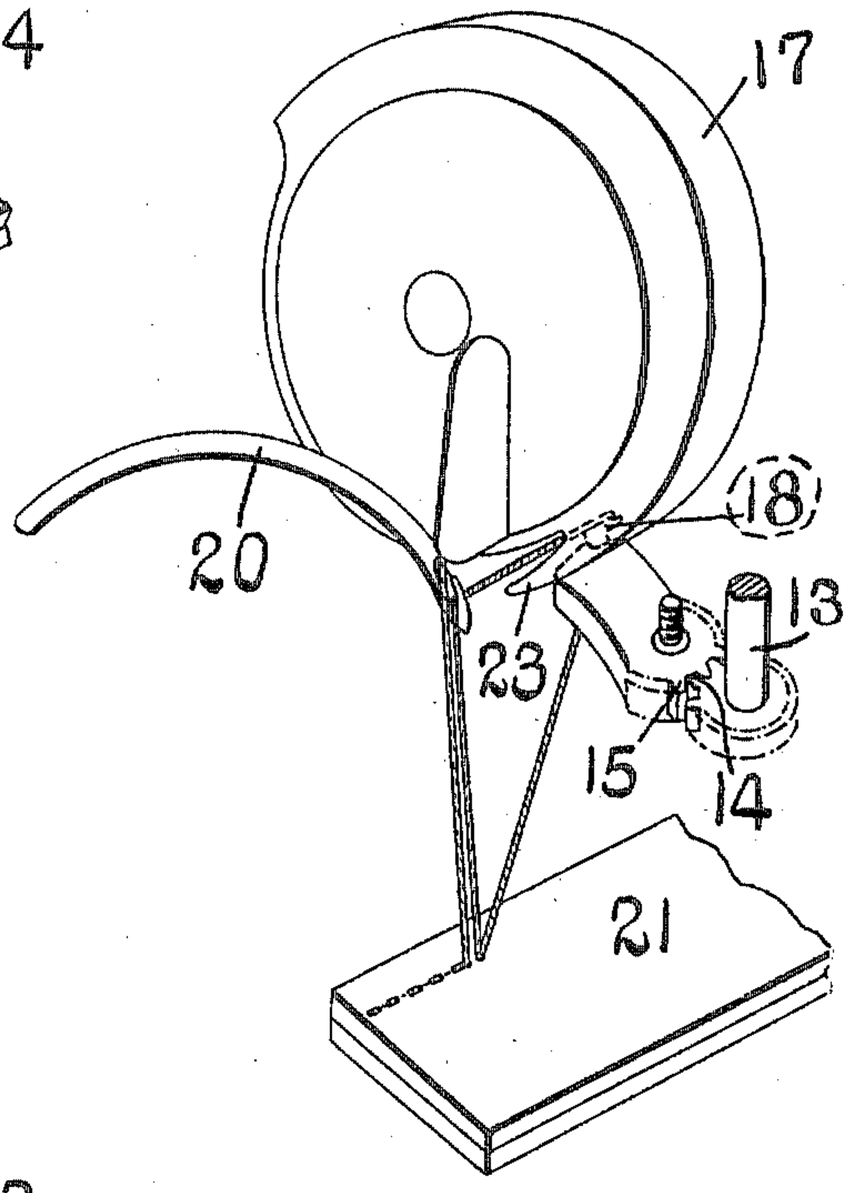
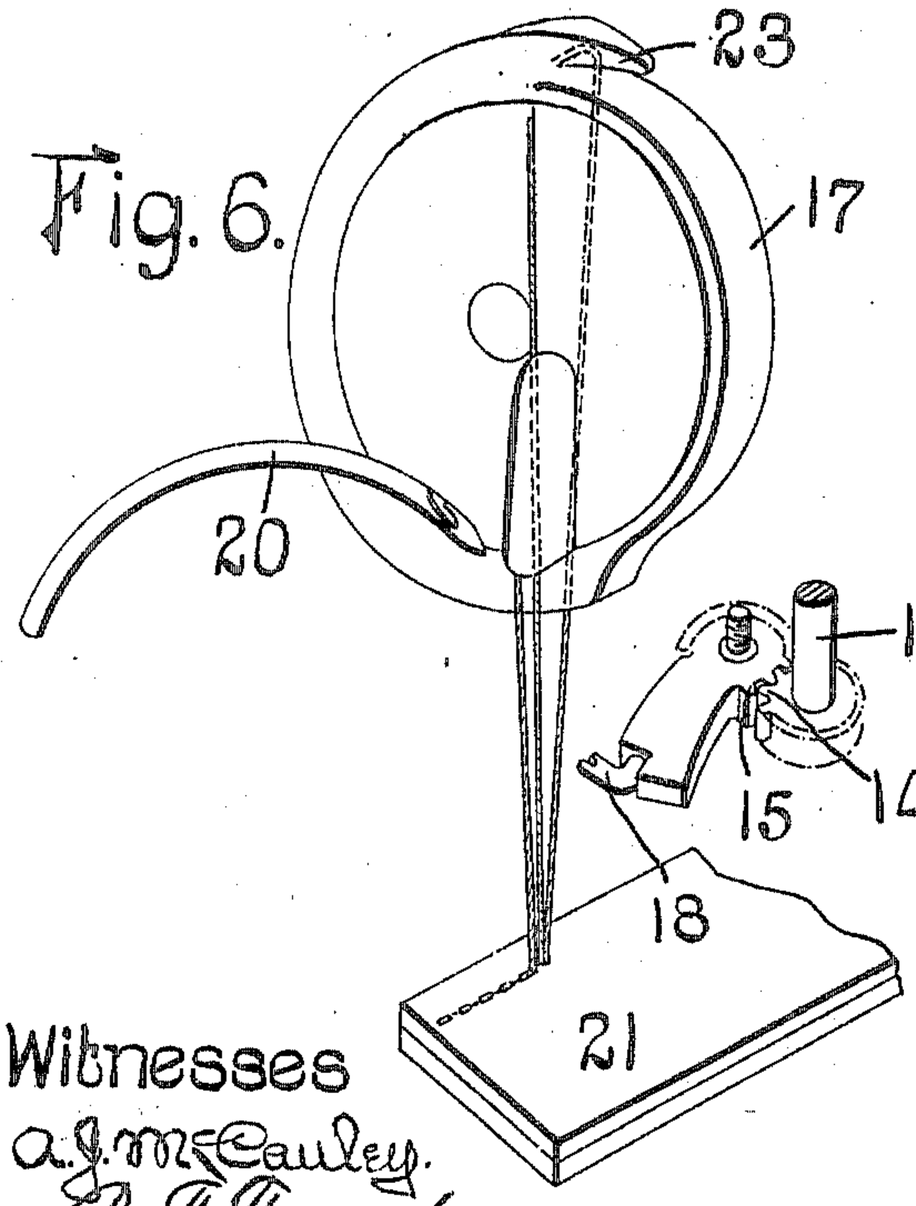


Fig. 6.



Witnesses
A. J. McCauley.
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Inventor:
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UNITED STATES PATENT OFFICE.

CHRISTIAN PEDERSEN, OF ST. LOUIS, MISSOURI, ASSIGNOR TO LANDIS MACHINE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

LOOP-SPREADER FOR SEWING-MACHINES.

No. 811,579. Specification of Letters Patent. Patented Feb. 6, 1906.

Application filed August 14, 1905. Serial No. 274,110.

To all whom it may concern:

Be it known that I, CHRISTIAN PEDERSEN, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Loop-Spreaders for Sewing-Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top plan view of the upper arm of a sewing-machine frame, showing my invention applied, the cam being shown in plan beneath the arm. Fig. 2 is a side elevational view of my invention applied to a sewing-machine. Fig. 3 is a detail perspective view of the loop-spreader. Figs. 4 to 6 are diagrammatical views showing the relative positions of the needle, shuttle, and loop-spreader during different times of operation of the invention; and Fig. 7 is a detail view showing the position of the shuttle as the thread is being drawn therefrom to form a stitch.

This invention relates to sewing-machines, particularly to that class utilizing a wax-thread for sewing leather.

One of the objects of the invention is to provide means for opening a loop in the thread, so that the shuttle may readily engage the thread to complete the stitch.

Other objects and advantages as well as the novel details of construction of this invention will be specifically described hereinafter, it being understood that changes in form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages thereof.

In the drawings illustrating the preferred form of my invention I have illustrated the frame as being provided with a horizontal arm 1, which carries a shuttle mechanism, as well as a loop-opener. A vertical bearing 2 is provided in the arm 1 of the frame and in this bearing is a rock-shaft 3. At the lower end of the vertical rock-shaft 3 is a crank-arm 4, having a roller 5 thereon, which engages with a cam-groove 6 in the cam 7, which is mounted on a shaft 8 and which is adapted to rotate in the direction indicated by the arrow in Fig. 1. Projecting from the top of the shaft 3 in a horizontal direction is a crank-arm 9, connected to a link 10, which link is pivotally connected to a crank-arm 12 on the rock-shaft 13 at the forward end of the arm 1, which rock-shaft 13 is vertically journaled in the arm 1. At the lower extremity of the rock-shaft 13 is a part having gear-teeth 14, which mesh with gear-teeth 15 on a swinging loop-opener 16, adjacent to the shuttle, the body portion of the loop-opener 16 being split, as shown in Fig. 3, and having a notched projection 18 clamped therein by means of a fastening device 19.

20 designates the needle, which is operated by appropriate mechanism to carry the thread through the leather or other material 21 on a work-table 22.

The parts being assembled, the operation of the device is as follows: When the shaft 8 is driven to actuate the cam 7, the pitch of the sides of the cam-groove 6 is such that the arm 4 will be moved to rock the shaft 3, and thereby impart a vibratory movement to the arm 9 on said shaft 3. The rocking of the arm 9 in the direction indicated by the arrow on the cam will pull on the link 10, and thereby impart a rocking movement to the shaft 13, causing the part having the gear-teeth 14 to partially rotate from right to left, and thereby throw the free end of the loop-opener from left to right. The mechanisms are so timed that the needle first enters the work to engage the loop, as shown in Fig. 4. As the loop is pulled up to a point adjacent the shuttle the rocking of the loop-opener begins, so that the projecting portion 18 will engage the thread, as shown in Fig. 5, and spread the loop, so that the hooked portion 23 of the shuttle 17 may engage said loop. The shuttle 17 will continue to oscillate while the loop-spreader returns to its normal position, as shown in Fig. 6, out of engagement with the loop. When the shuttle arrives in the position shown in Fig. 7, the thread will be pulled therefrom by a suitable take-up mechanism to form the stitch and the loop-spreader will be in a position to engage a new loop as it is being formed by the needle 20. The mechanism for driving the shuttle and needle will work in time with the loop mechanism, and as this invention is concerned only with the loop-opener and its coöpera-

tion with the shuttle and needle it is deemed unnecessary to refer to the remaining parts of the machine.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a sewing-machine, a needle, a split loop-opener pivotally mounted in a stationary bearing and having a swinging movement in a horizontal plane approximately at right angles to the path of movement of the needle, gear-teeth formed on said loop-opener, a thread-engaging part adjustably secured in the slotted portion of said loop-opener, a shaft having at its lower end a part provided with gear-teeth which mesh with the gear-teeth on the loop-opener, a cam-actuated rock-shaft, and a connection between said shaft and the first-mentioned shaft whereby movement is imparted to the loop-opener; substantially as described.

2. In a sewing-machine, a needle, a loop-opener pivotally mounted in a stationary bearing and having a swinging movement at right angles to the path of movement of the needle, gear-teeth formed on said loop-opener, a shaft extending parallel to the pivot of said loop-opener and having at its upper end an arm and at its lower end a part provided with gear-teeth which mesh with the gear-teeth on the loop-opener, a second shaft provided with an arm, means for rocking said shaft, and a link for connecting the arms of said shafts whereby movement is imparted to said loop-opener; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 11th day of August, 1905.

CHRISTIAN PEDERSEN.

Witnesses:

B. F. FUNK,

GEORGE BAKEWELL.