

No. 763,556.

PATENTED JUNE 28, 1904.

J. M. GREY.
STOP MOTION FOR LOOMS.
APPLICATION FILED NOV. 24, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

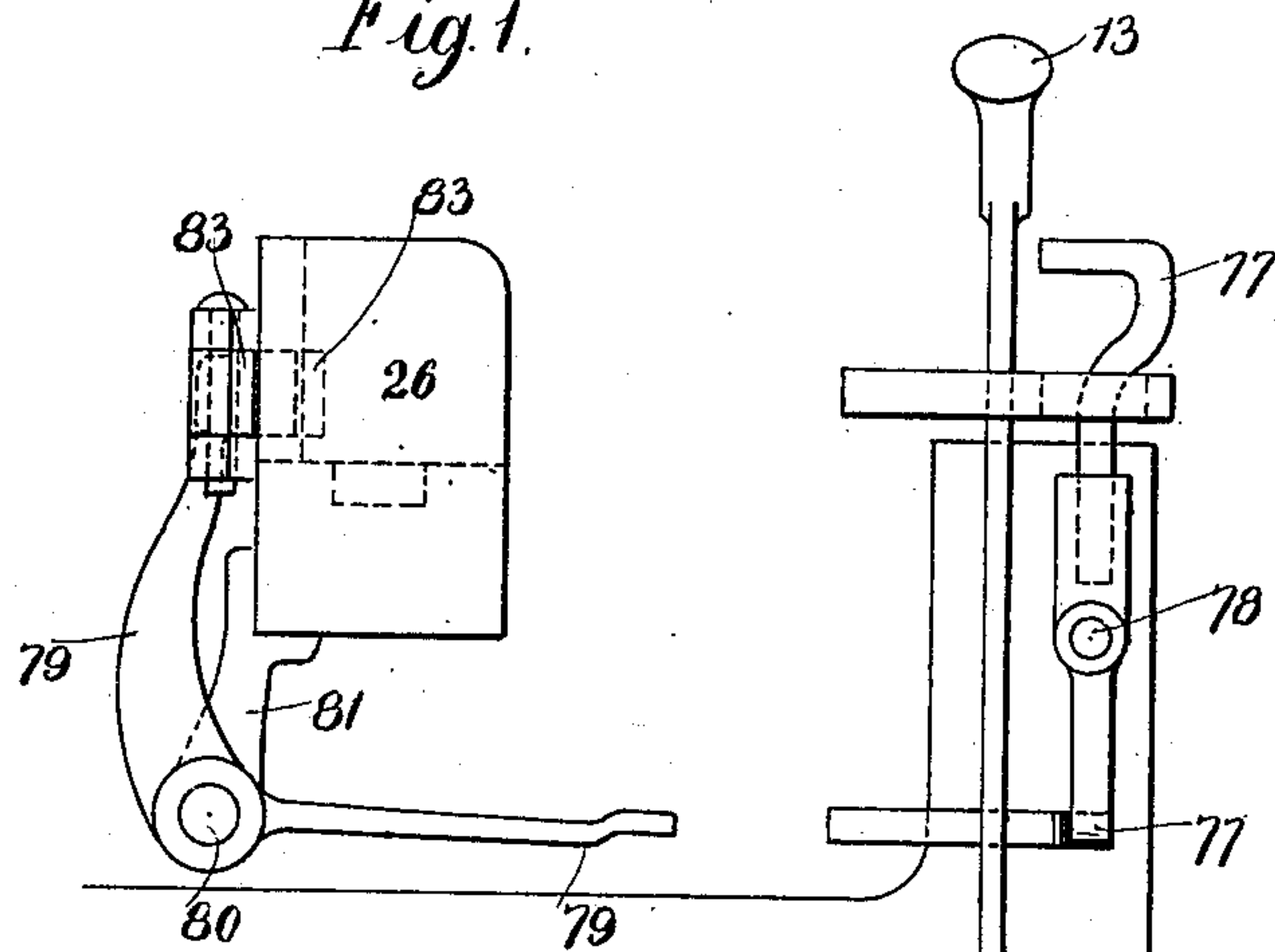
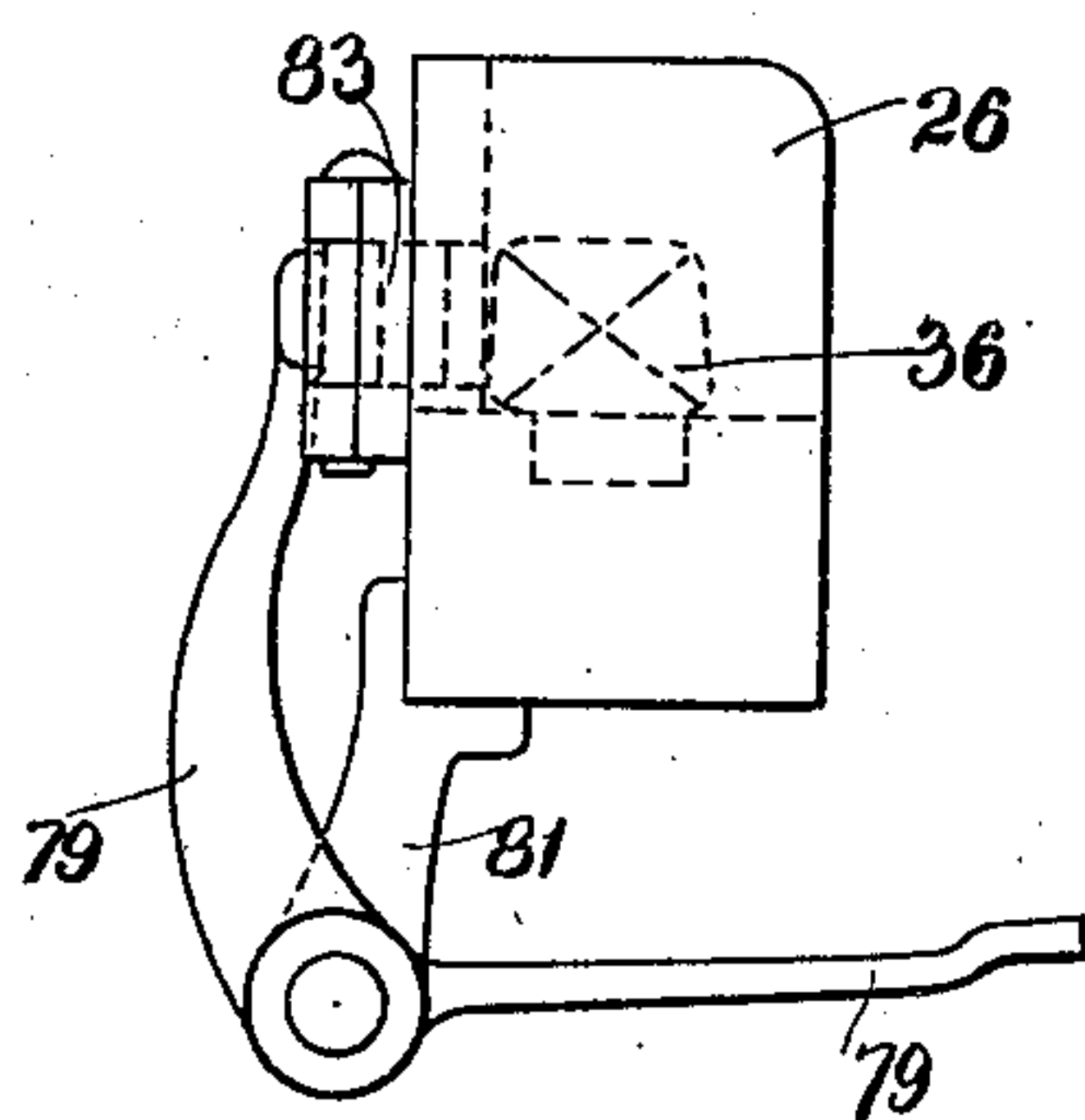


Fig. 2



WITNESSES

Wm. Kuehne
John A. Percival.

INVENTOR

James Mitchell Grey
By *Richardson*
ATTORNEYS

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2 SHEETS—SHEET 2.

Fig. 3.

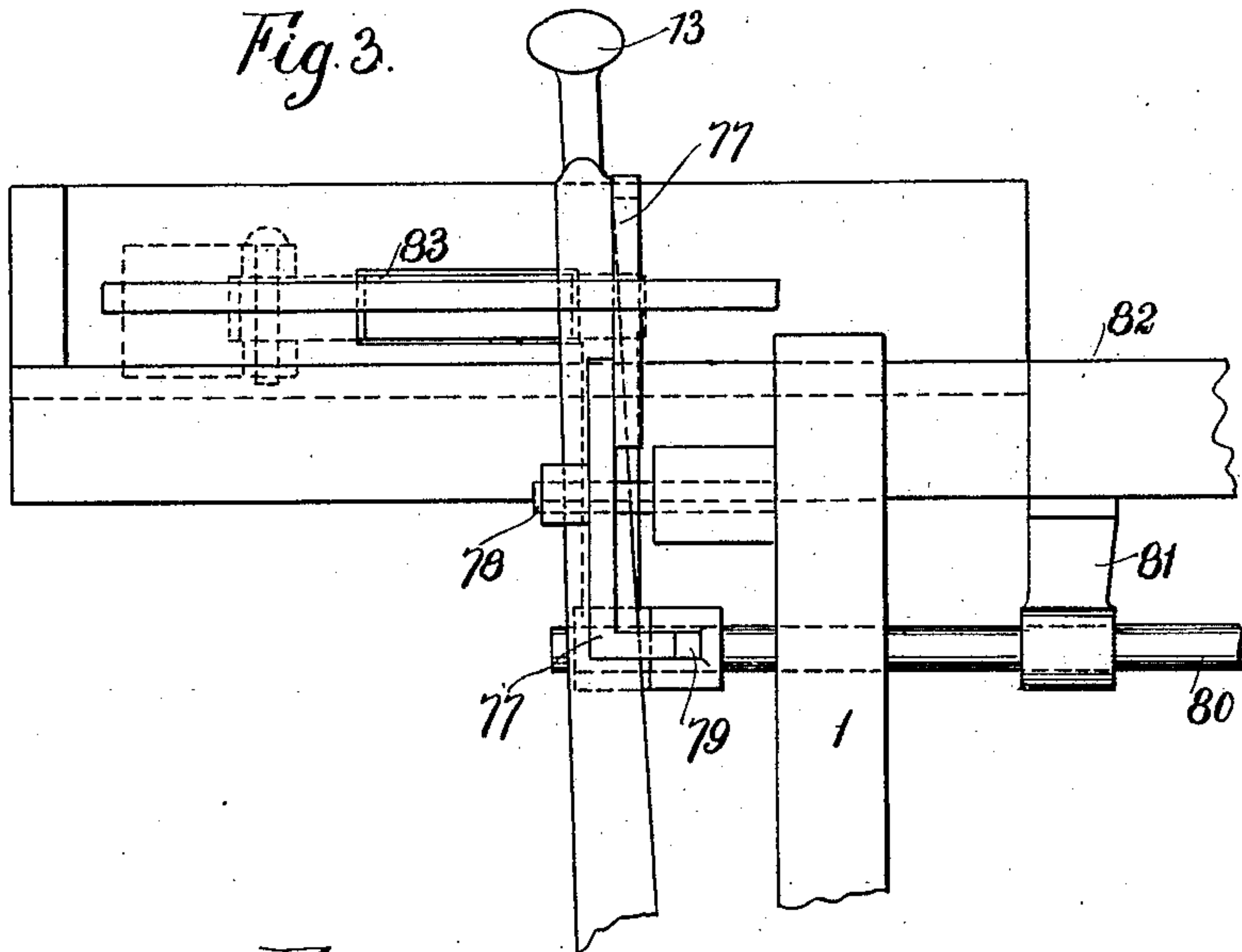


Fig. 4.

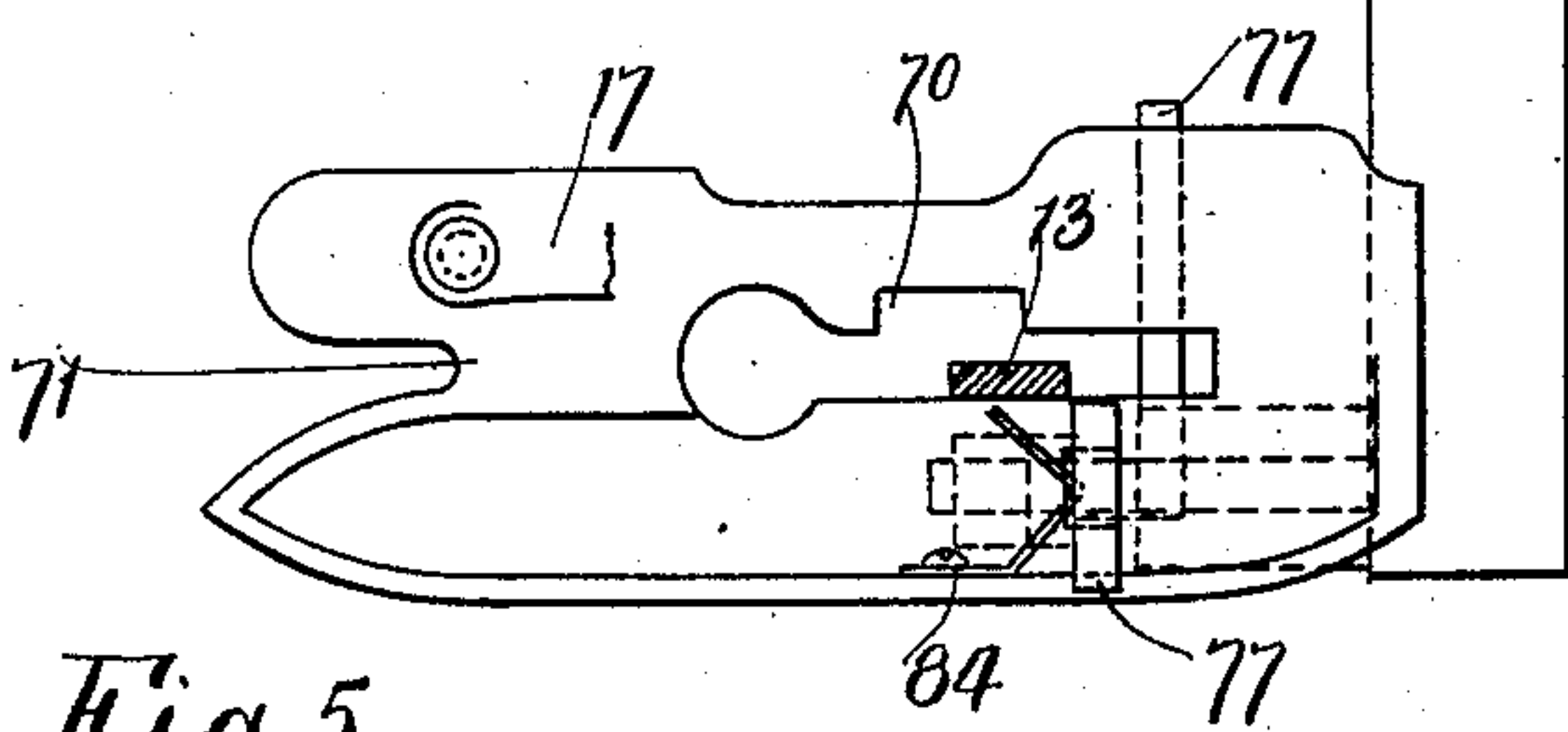
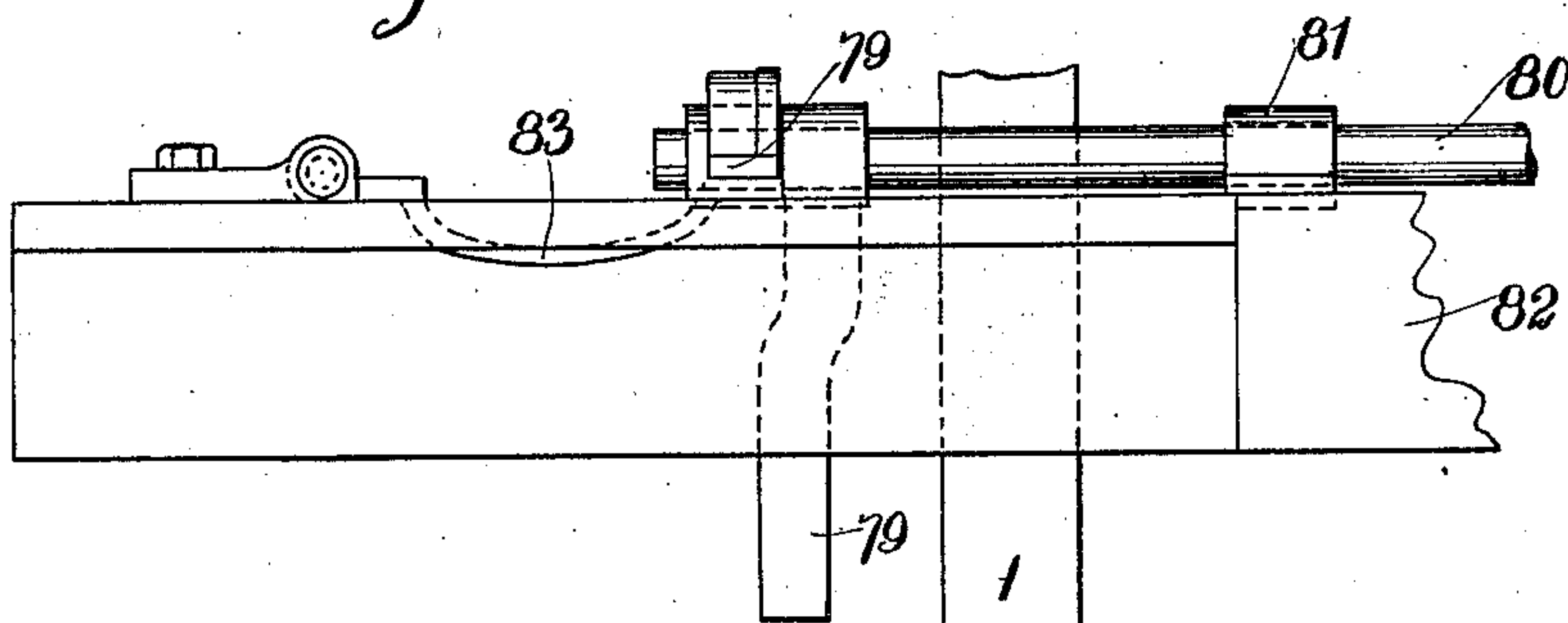
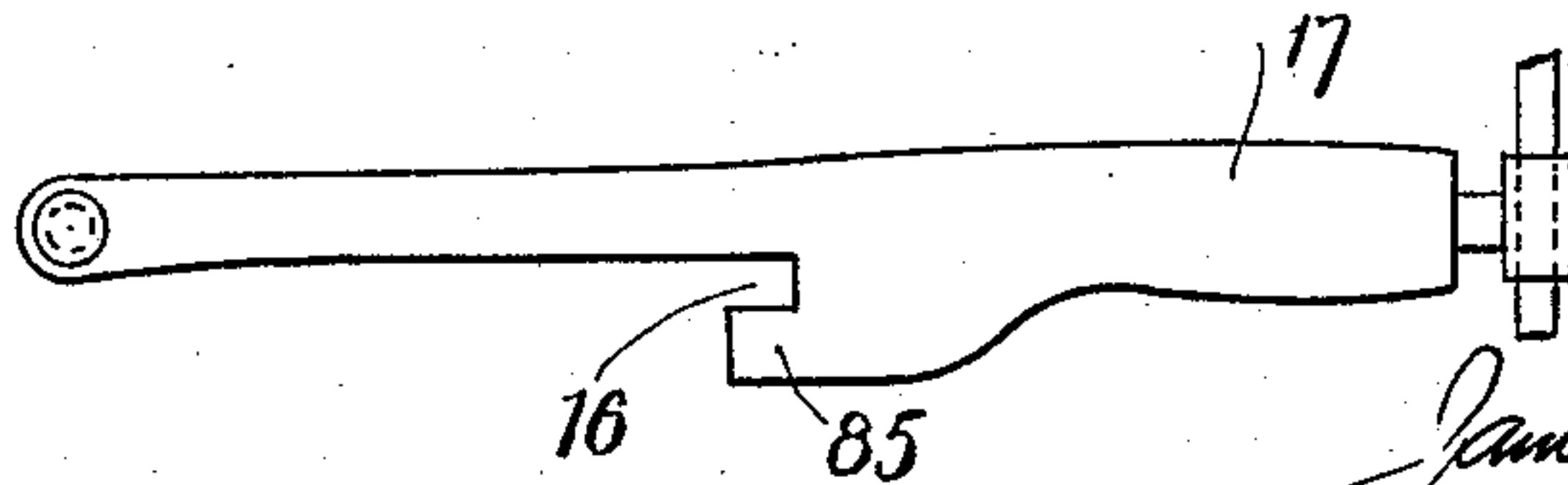


Fig. 5.

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UNITED STATES PATENT OFFICE.

JAMES MITCHELL GREY, OF BURNLEY, ENGLAND.

STOP-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 763,556, dated June 28, 1904.

Original application filed September 4, 1903, Serial No. 171,937. Divided and this application filed November 24, 1903. Serial No. 182,527. (No model.)

To all whom it may concern:

Be it known that I, JAMES MITCHELL GREY, cotton manufacturer, of 1 Colne road, Burnley, in the county of Lancaster, England, have invented certain new and useful Improvements in Automatic Stop-Motions for Looms, of which the following is a specification.

My invention relates to an improved automatic stop-motion essential for loose-reed looms and advantageous also for fast-reed looms, in which the automatic shuttle-changing mechanism described in my United States application for patent, Serial No. 171,937, and of which this case is a division, and this automatic stop-motion is designed to prevent the change taking place should the shuttle become trapped in the shed, and also to stop the loom should the shuttle-magazine become empty. In my aforesaid automatic shuttle-changing mechanism three pulleys are employed, the inner pulley having a cannon-pinion to drive the shuttle-changing mechanism, the center pulley being a loose pulley, and the outside pulley being the fast pulley for running the loom. In connection with this arrangement of pulleys is a specially-constructed weft-fork slide. The weft-fork slide, or a plate attached to it, is made with an open notch or slot longitudinally, so that when the weft-fork is drawn back by engagement with the hammer the spring-handle will pass into this slot or notch, and thereby put in motion the shuttle-changing mechanism through the medium of the inside pulley, and when the change has been effected mechanical means are brought into play to move the spring-handle forward into a notch in the church, which retains the spring-handle, and the driving-belt now turns the outside or fast driving-pulley; but when the loom is required to be stopped by the weaver the spring-handle is withdrawn by hand, when it falls against a projection on the fork-slide.

My improved automatic stop-motion is devised to stop the loom by shifting the driving-belt onto the loose pulley instead of putting in motion the automatic change should a shuttle become trapped in the shed, which would otherwise be the case were not my im-

proved automatic stop-motion brought into action.

In the accompanying sheet of drawings, Figure 1 is an elevation of my improved automatic stop-motion particularly applicable for use in conjunction with my improved automatic shuttle-changing mechanism described in my aforesaid United States application for patent, Serial No. 171,937. Fig. 2 is a similar view of portion of Fig. 1, but showing the parts in different positions. Fig. 3 is a front view of Fig. 1. Fig. 4 is a plan view of the same. Fig. 5 is a detail view of the weft-fork lever.

On the frame 1 of the loom near the spring-handle 13 I mount a lever 77, which is fulcrumed at 78 and has one end shaped to meet the forward movement of one end of an elbow-lever 79, which is fixed on a shaft 80, carried in brackets 81, secured to the slay 82 of the loom. The other end of the elbow-lever 79 is held by its own weight or by a spring pressed against the ordinary swell or side spring 83 of the shuttle-box 26. When a shuttle 36 enters the box 26 and presses the swell 83 outward, as shown in Fig. 2, the elbow-lever 79 is tilted back, and its front end being raised it misses (when the slay moves forward and "beats up") the lower end of the double lever 77; but when there is no shuttle in the box and the slay moves forward the elbow-lever 79 remains in the position shown in Fig. 1, and meeting the lower end of the lever 77 it moves its upper end forward into the path of the spring-handle 13, which, owing to the failure of weft, is released or knocked off in the ordinary way and unless blocked by the end of the lever 77 would fly into the notch 16 in the weft-fork lever 17, and so start the automatic shuttle-changing motion, as described in my aforesaid specification; but the movement of the spring-handle 13 being checked by the lever 77, as herein described, the driving-belt is only moved from the fast pulley to the loose pulley and the loom is stopped. A V-shaped or other suitable spring 84 (see Fig. 4) is employed to lock the lever 77 and prevent it from moving too freely out of its vertical position.

It will be readily understood that the weaver can at any time place and set the upper end of the lever 77 in the path of the spring-handle 13, so as to prevent the automatic shuttling motion from coming into action, and under these conditions the loom can be worked as an ordinary loom.

From the foregoing description it will be obvious that when the spring-handle 13 is in the notch 70 in the church or notched plate 71 the loom is weaving; but when the spring-handle 13 is in the notch 16 in the weft-fork lever 17 the working parts of the loom are stopped, while the automatic motion is in operation changing a shuttle. Again, when the spring-handle 13 is obstructed by the lever 77 the automatic shuttle-changing motion is prevented from coming into action; but the ordinary parts are working and the loom weaving if the spring-handle 13 is latched in the notch 70; but are stopped and everything stands if the spring-handle is bearing against the lever 77. Further, it should be stated that when the path of the spring-handle 13 is clear and unobstructed by the lever 77 the weaver can at any time stop the loom and all its motions by releasing the spring-handle 13

from the notch 70 and letting it fly back against the face of the projection 85 on the weft-fork lever 17.

What I claim, and desire to secure by Letters Patent of the United States, is, in automatic shuttle-changing mechanism of the type indicated—

1. In a stop-motion for automatic shuttle-changing looms the combination with the spring-handle 13, of a knock-off lever, and means carried thereby for holding the spring-handle in loom-stopping position, substantially as described.

2. In combination, the spring-handle 13, the bent lever 77 and the locking-spring 84, all substantially as and for the purposes herein set forth.

3. In combination, the spring-handle 13; the bent lever 77, locking-spring 84; elbow-lever 79 and swell 83, all substantially as and for the purposes herein set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JAMES MITCHELL GREY.

Witnesses:

HERBERT ROWLAND ABBEY,
JOSEPH ALFRED WALKER.