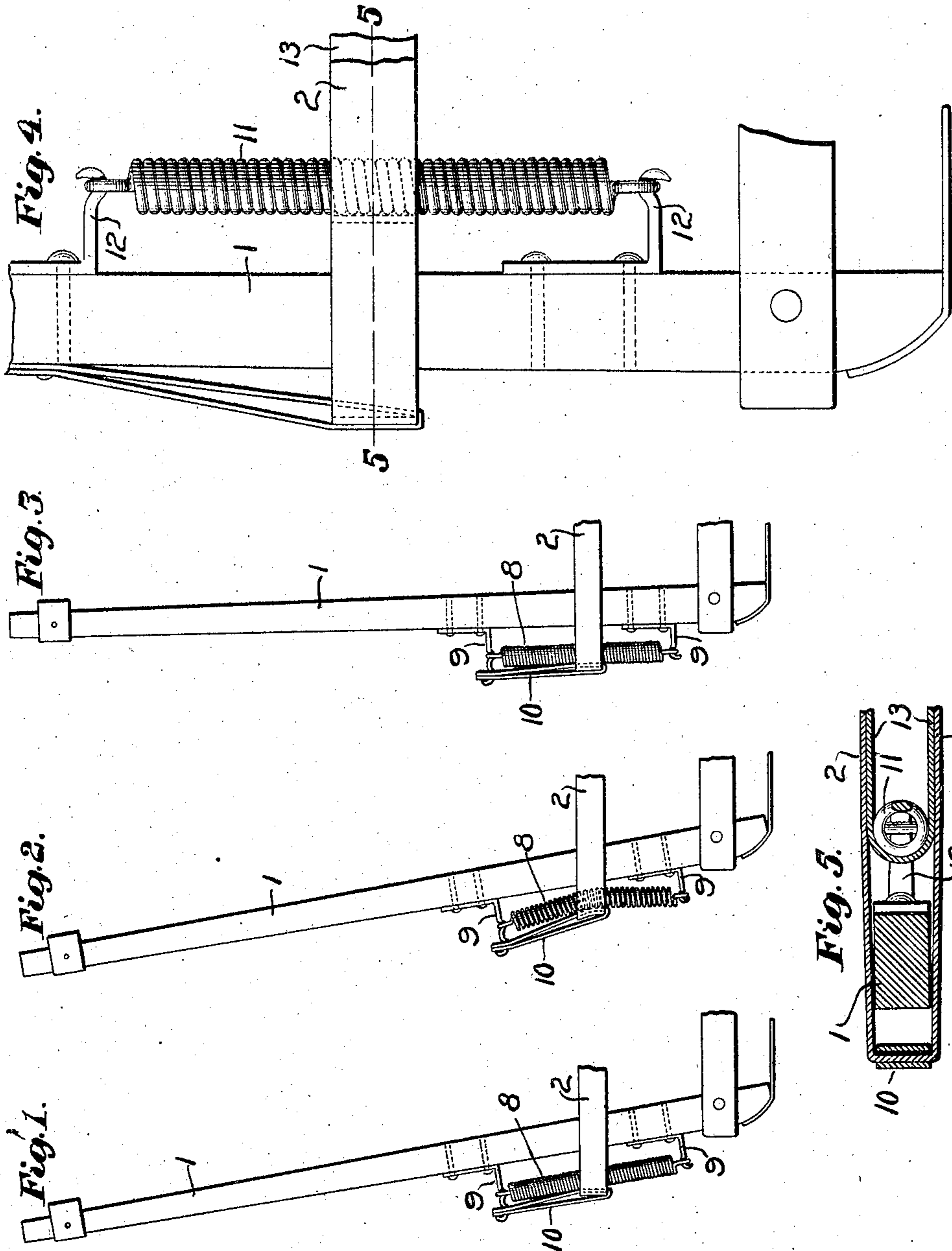


I. E. PALMER.
SHUTTLE PICKING MECHANISM FOR LOOMS.
APPLICATION FILED SEPT. 21, 1908.

938,785.

Patented Nov. 2, 1909.
3 SHEETS—SHEET 1.



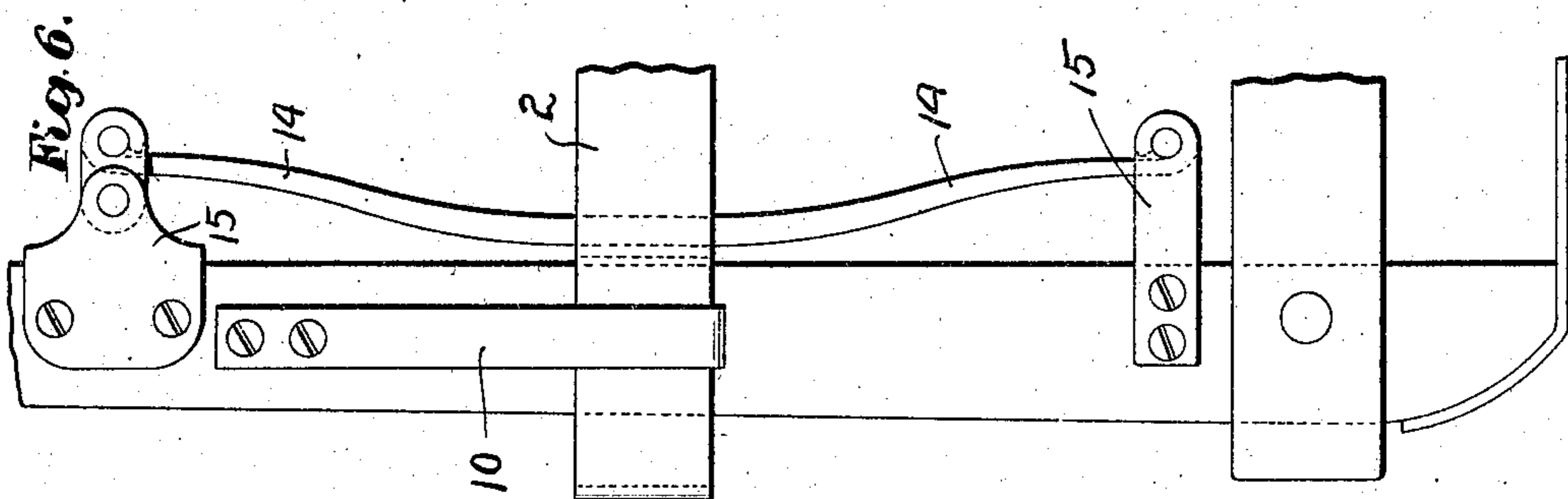
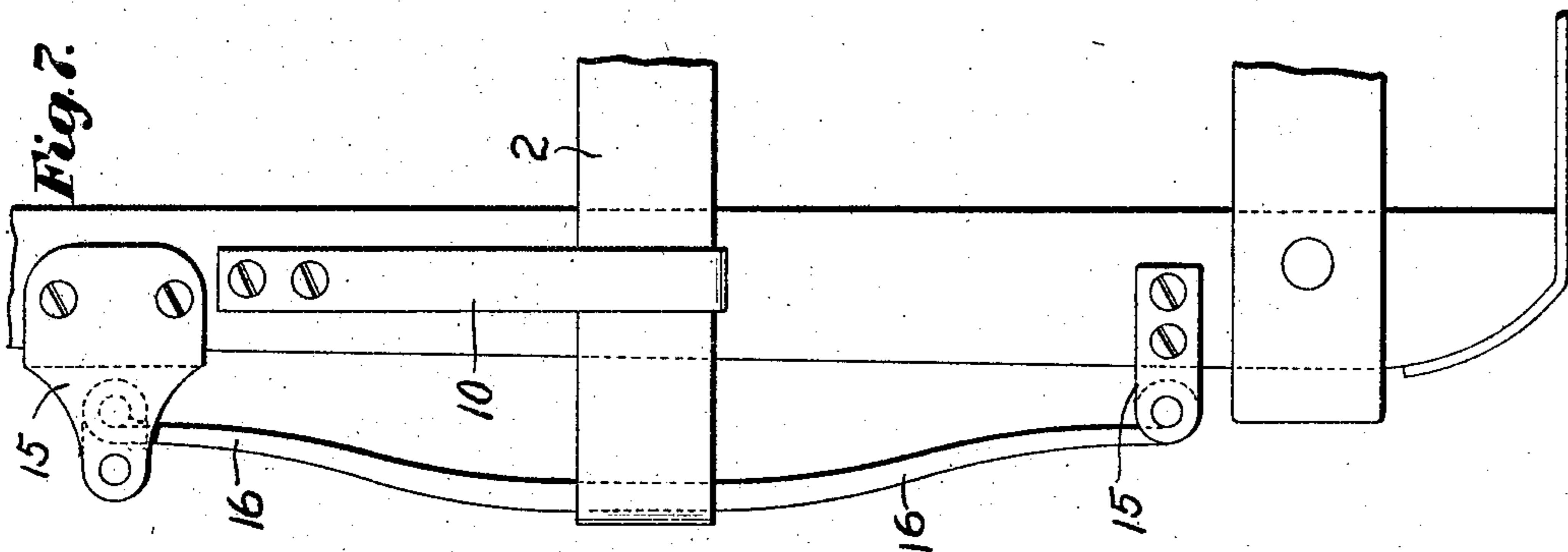
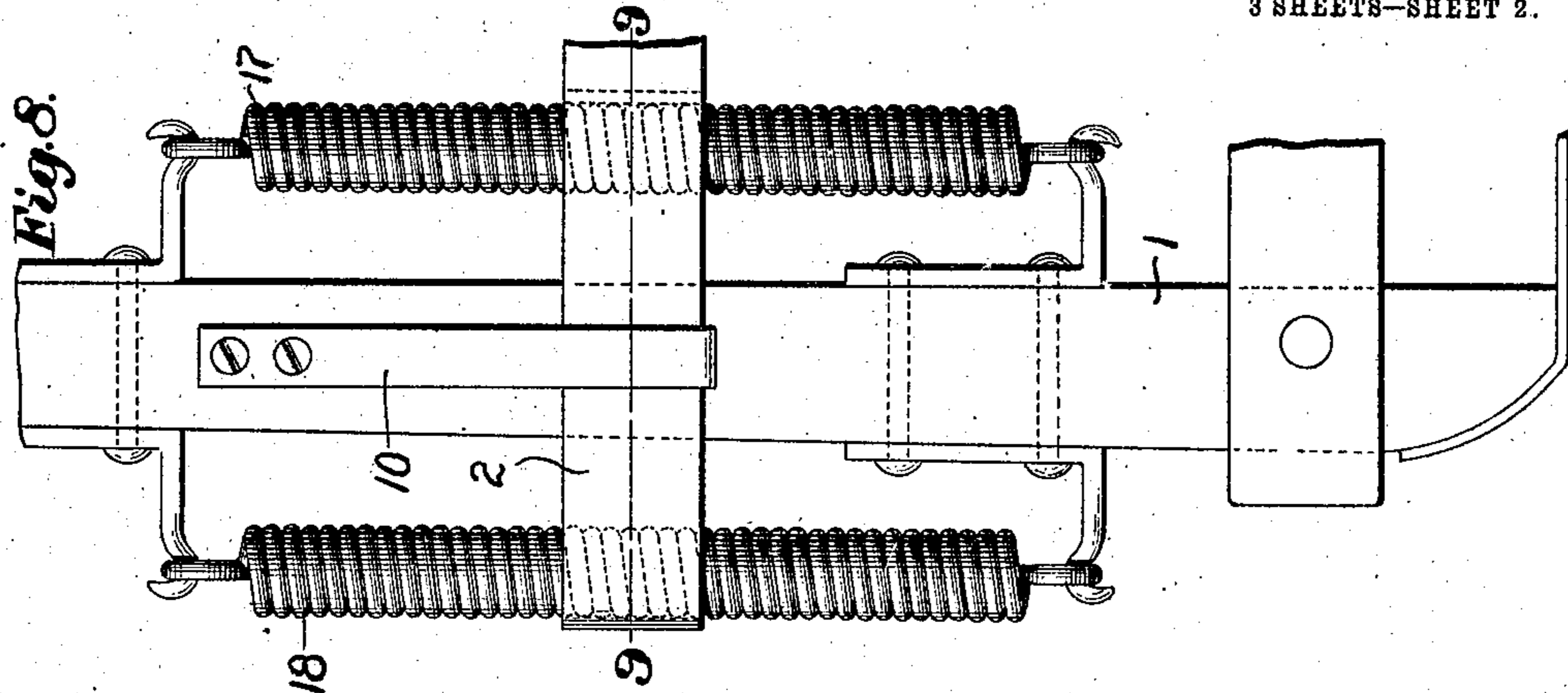
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Inventor:
Isaac E. Palmer,
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Witnesses:
Edwin Luce
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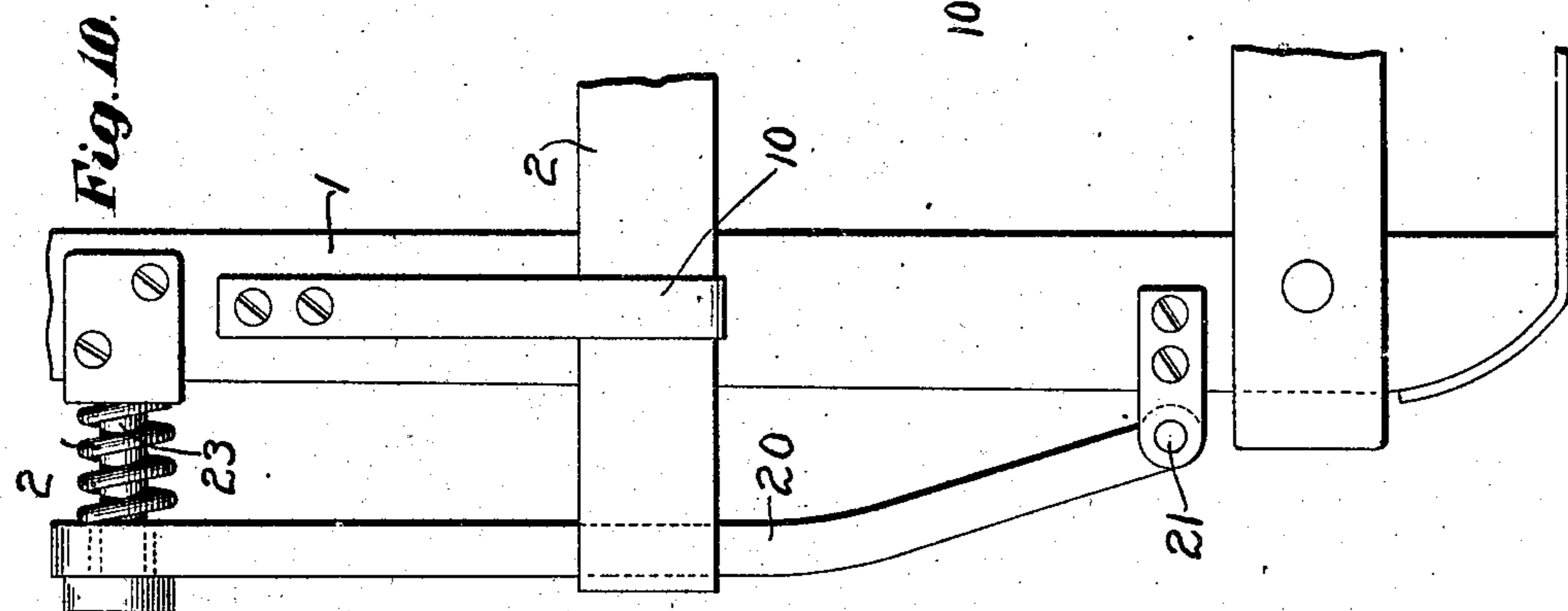
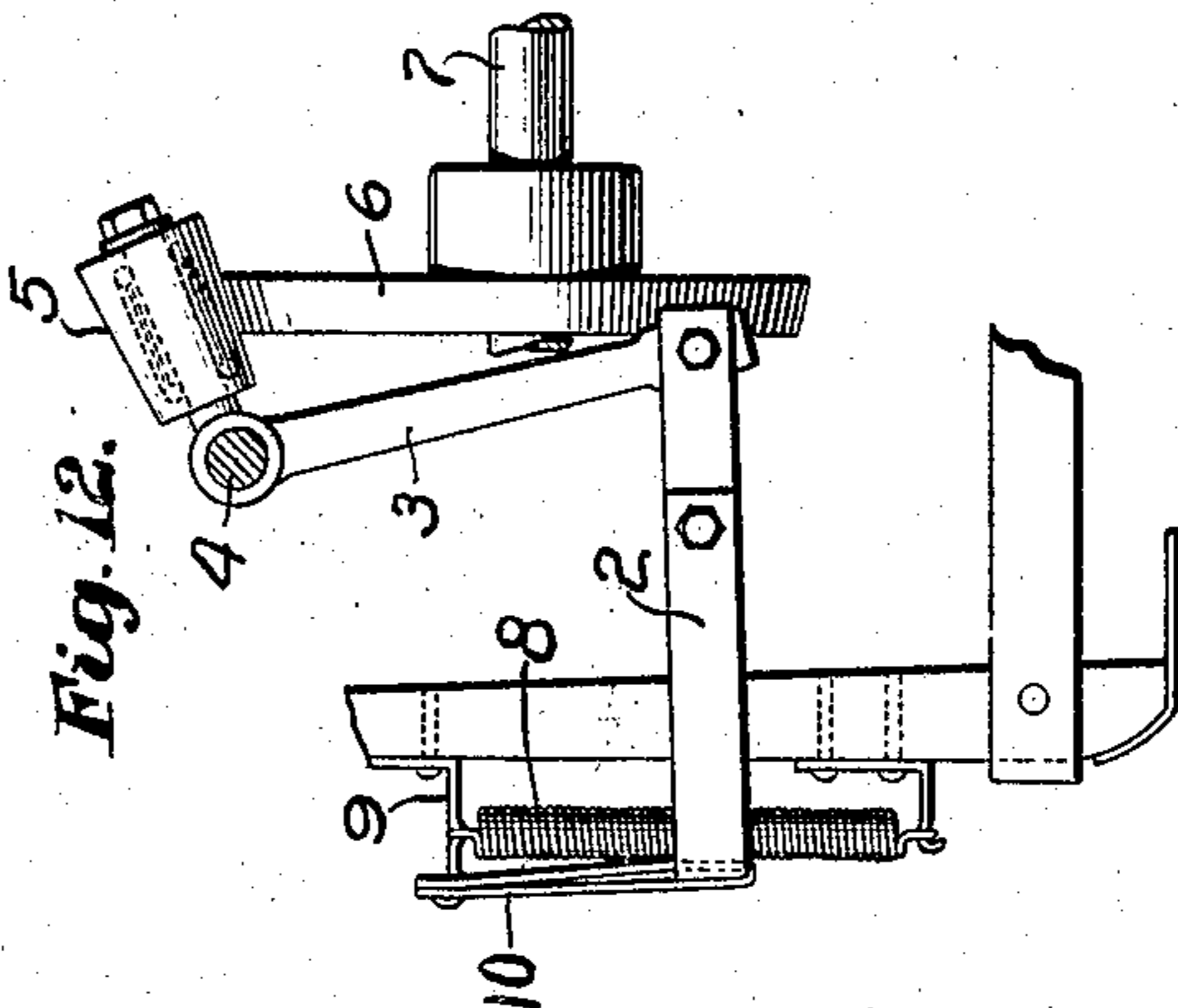
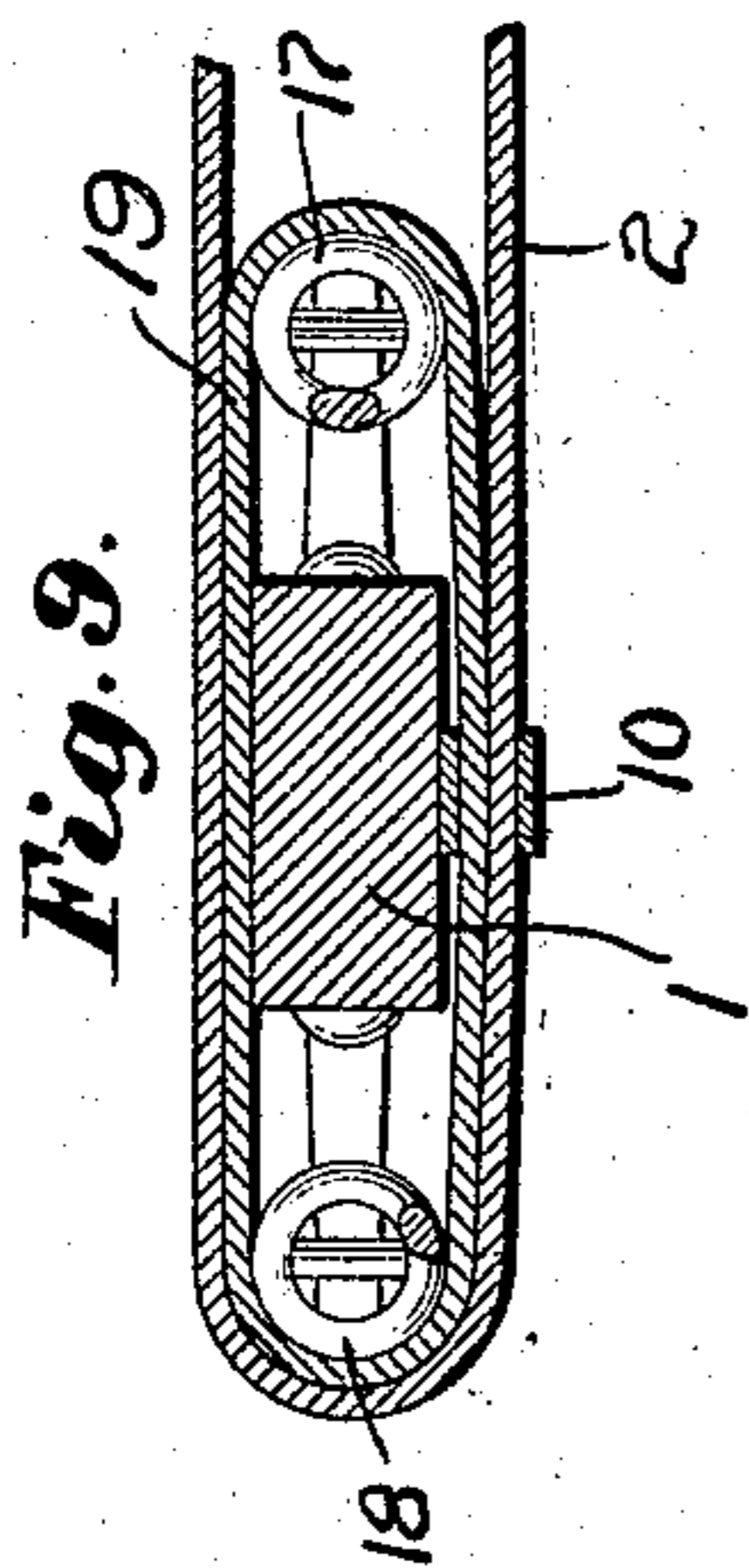
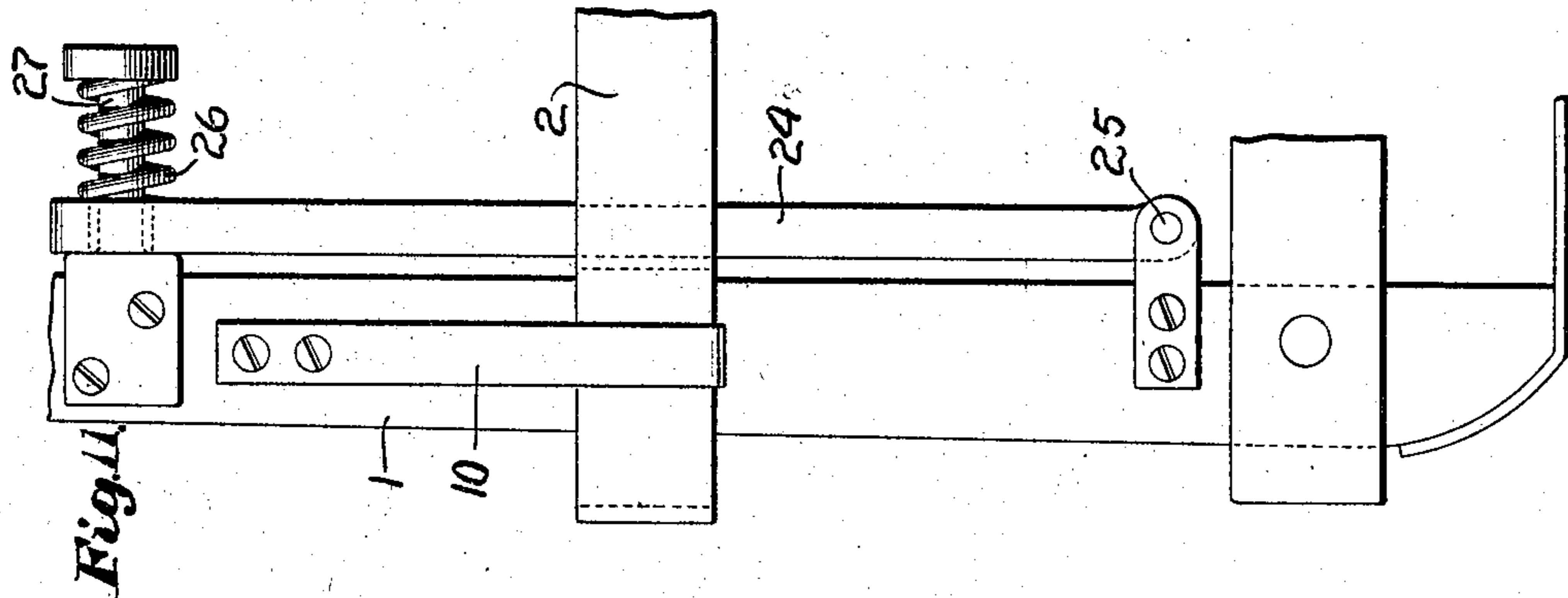
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

ISAAC E. PALMER, OF MIDDLETOWN, CONNECTICUT.

SHUTTLE-PICKING MECHANISM FOR LOOMS.

938,785.

Specification of Letters Patent.

Patented Nov. 2, 1909.

Application filed September 21, 1908. Serial No. 454,040.

To all whom it may concern:

Be it known that I, ISAAC E. PALMER, a citizen of the United States, and a resident of Middletown, in the county of Middlesex and State of Connecticut, have invented an Improvement in Shuttle-Picking Mechanism for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

This invention relates to shuttle picking mechanism for looms, and it has among its objects to impart an even, smooth, shuttle actuating movement to the picker stick; to supplement the action of the picker cam upon the stick so as to maintain the picker stick in contact with the shuttle during the shuttle actuating movement of the picker stick; and to impart an initial, elastic, gradually accelerated shuttle actuating movement to said stick.

In order that the principles of the invention may be readily understood, I have disclosed certain types or embodiments of the invention in the accompanying drawings, wherein—

Figure 1 is a side elevation of a picker stick and a portion of the operating mechanism therefor representing the position of the parts prior to the commencement of the shuttle actuating throw of the picker stick; Fig. 2 is a view of the same parts, but representing the position assumed during the initial, yielding, shuttle actuating movement of the picker stick; Fig. 3 is a similar view representing the position assumed by said parts toward the completion of the shuttle actuating throw of the picker stick. In the remaining figures of the drawings, for convenience of illustration and to save space, the actual construction of parts is represented without indicating the inclined position of the picker stick and parts connected thereto. Fig. 4 is a side elevation of a modified form of my invention; Fig. 5 is a horizontal section of the construction shown in Fig. 4 upon the dotted line 5—5 thereof; Figs. 6, 7 and 8 are side elevations of further forms of my invention; Fig. 9 is a horizontal, sectional view upon the dotted line 9—9 of Fig. 8; Figs. 10 and 11 are side elevations of further forms of my invention; and Fig. 12 is a side elevation representing a form of my invention in its relation to the usual picker cam.

Difficulty has been experienced heretofore

in rendering smooth and even the action of the picker cam upon the picker stick. In constructions heretofore employed so far as I am aware, the picker stick has been abruptly moved from a position of rest to its maximum speed with the result that the shuttle is thrown by a sharp jerk, and does not therefore make a satisfactory flight. In order properly to throw the shuttle, and more particularly in looms exceeding a yard or more in width, not only should the picker stick be kept in contact with the shuttle during the shuttle actuating movement of the stick so as to "follow up" the action of the cam upon the stick, but the picker stick should start from a position of rest by an initial, yielding movement which is gradually accelerated until the movement of the picker cam acts upon the picker stick itself. By imparting an elastic throw to the shuttle, not only are jars and shocks absorbed, thereby rendering the action of the picker stick smooth and even, but the action of the picker cam is supplemented, and in the event that the cam be of defective contour the imperfect throw ordinarily resulting therefrom is largely if not wholly overcome. The wider the loom to which my invention is applied, the more beneficial are the results obtained therefrom.

Referring more particularly to the form of the invention disclosed in Figs. 1 to 3 inclusive, the picker stick, which may be of usual construction, is represented at 1, it being preferably pivotally mounted in the usual manner not herein necessary to refer to. The picker strap 2 or other suitable device is operatively connected in any desired manner to the picker cam or other operating means. For example, in Fig. 12, the strap 2 is connected to an arm 3 fast upon a rock shaft 4 from which extends a picker roll 5 contacting with the periphery of the picker cam 6 fast upon the cam shaft 7, to which motion is imparted in the usual manner. The said picker cam 6 or other actuator and the strap 2 or other suitable connecting device constitutes the main shuttle operating means.

In order to accomplish the results previously referred to and to overcome the defects mentioned, I interpose between the picker stick and the picker cam a resilient or yielding member which preferably is preliminarily engaged by the picker strap 2. It is apparent that this feature of my inven-

tion may be variously embodied. In said Figs. 1 to 3, I have represented a coiled spring 8, the ends whereof are connected to hooks 9—9 secured to the picker stick.

5 If desired, a loop 10 may support the outer end of the picker strap 2 to position the same properly with respect to the spring 8. In said figures, the spring 8 is shown as extending from the outer face of the picker stick 1.

10 Viewing Fig. 1, prior to the picker actuating movement of the picker cam the parts assume the position represented in Fig. 1, wherein the spring 8 is in a normal or non-distorted condition. When, however, the picker cam 6 is operated, it draws upon the strap 2 with the result that the spring 8 is distended. The tension of said spring may be such that the result is to distend the said spring until it contacts with the face of the picker stick 1, or it may be such as to prevent such contact. The described distention of said spring effects an initial yielding movement of the picker stick which moves gradually from its position of rest until the spring is fully distended, whereupon the full movement of the picker strap is conveyed to said picker stick 1, which thereupon completes its movement. It will be apparent that the tendency of the spring 8 is to return to its normal position. If, therefore, the contour of the picker cam 6 be imperfect, that is, if the periphery of the cam have nicks or depressions, the picker stick 35 is maintained in contact with the cam, owing to the straightening of the spring into the position shown in Fig. 3. If means were not provided for accomplishing this result, the referred to imperfection in the cam would result in the separation of the picker stick from the shuttle, which therefore would not be properly thrown. The spring 8 absorbs substantially all jar, so that a smooth and even pick results. It will be apparent that by the employment of a spring the throw of the picker stick is rendered more snappy and that the resiliency of the wood of the picker stick need not be relied upon as heretofore.

50 If desired, the spring 8 may be positioned upon the inner face of the picker stick 2. Such construction is represented in Fig. 4 wherein the spring 11 is mounted upon hooks 12—12 extending from the inner face of the stick. Any suitable means may be provided to permit the strap 2 to act first upon the spring 11. This may be accomplished by providing a supplemental strap 13 (see Fig. 5) which is passed about the spring 11 and is connected to the main strap 2 in such manner as to permit the described distention of said spring 11 and the initial yielding movement of the picker stick prior to the engagement of the strap 2 with the picker stick 1.

It is apparent that various forms of springs may be employed in the practice of my invention and that they may be connected in any desired manner with the picker stick. In Fig. 6, for instance, I have shown a construction wherein a plate or leaf spring 14 is connected by strips 15—15 or otherwise to the inner face of the picker stick, a supplemental strap, such as shown in Fig. 5, being preferably employed to permit distention of the spring prior to the engagement of the main strap with the picker stick. In Fig. 7, a similar construction of parts is represented, but the plate or leaf spring 16 is connected to the outer face of the picker stick in the manner described with reference to Figs. 1 to 3 inclusive.

If desired, springs of any suitable construction, whether that shown in Fig. 1 or elsewhere may be connected to both the inner and outer faces of the picker stick, in order to insure the effective following up of the shuttle by the picker stick and the effective yielding initial movement of the picker. Such construction is shown in Fig. 8, wherein coiled springs 17, 18 are respectively connected to the inner and outer faces of the picker 1. A supplemental strap 19 (see Fig. 9) tightly encircles said springs and is connected in any suitable manner to the main strap 2.

If desired, a substantially rigid bar or member, such as shown at 20 in Fig. 10, may be pivotally connected as shown at 21 to the outer face of the picker stick and may engage a coiled or other spring 22 suitably mounted upon a pin 23 carried by the picker 1. In the operation of the parts, the spring 22 is compressed by the initial movement of the strap 2 to effect the results already described.

If desired, a rigid bar or member may be connected to the inner face of the picker stick. Such construction is shown in Fig. 11, wherein the substantially rigid bar 24 is pivotally mounted at 25 upon the picker stick and is adapted in the initial movement of the strap 2 to compress the coiled or other spring 26 suitably mounted upon a spring 27 extending from the picker 1.

Having thus described one type or embodiment of my invention, I desire it to be understood that although specific terms are employed, they are used in a generic and descriptive sense and not for purposes of limitation, the scope of the invention being set forth in the following claims.

Claims.

1. Shuttle picking mechanism comprising a picker stick, a picker cam, a lug strap connection between the cam and stick, and a spring operatively connected with the lug strap and picker stick and positioned normally to yield to the initial movement of the lug strap prior to the full effect of the lug

strap upon the picker stick, whereby an initially elastic shuttle actuating movement is imparted to the picker stick.

2. Shuttle picking mechanism comprising
5 a picker stick, a picker actuator, a strap or band connection between said stick and actuator, and a spring operatively connected with the strap or band and stick, and relatively positioned to yield at the initial picking
10 movement of the strap or band, and thereby to impart an initially elastic movement to the picker stick, followed and supplemented by the full effect of the strap or band upon the stick.

15 3. Shuttle picking mechanism comprising a picker stick, a picker actuator, a strap or band connection between said stick and actuator, and a spring directly connected to the picker stick and operatively connected to
20 said strap or band, and acting to yield to the initial picking movement of the strap or band, thereby to impart an initially elastic movement to the picker stick.

25 4. Shuttle picking mechanism comprising a picker stick, a spring arranged in substantial parallelism with the picker stick and having its end parts connected thereto, a picker strap engaging said spring and a cam

operatively connected to said strap to operate the picker stick, the said spring thus providing means for normally imparting to the picker stick an initial elastic movement and for normally supplementing the action of the said cam.

5. Shuttle picking mechanism comprising 35 a picker stick, a picker actuator, a connection between said stick and actuator, said picker actuator and connection constituting the main shuttle actuating means, and a spring operatively connected with the stick 40 and with the said main shuttle operating means, said spring being relatively positioned to yield at the initial picking movement of the said connection prior to the full effect of the said connection upon the picker 45 stick, whereby an initially elastic shuttle actuating movement is imparted to the picker stick.

In testimony whereof, I have signed my name to this specification, in the presence of 50 two subscribing witnesses.

ISAAC E. PALMER.

Witnesses:

F. E. FOWLER,
F. N. COOKE.