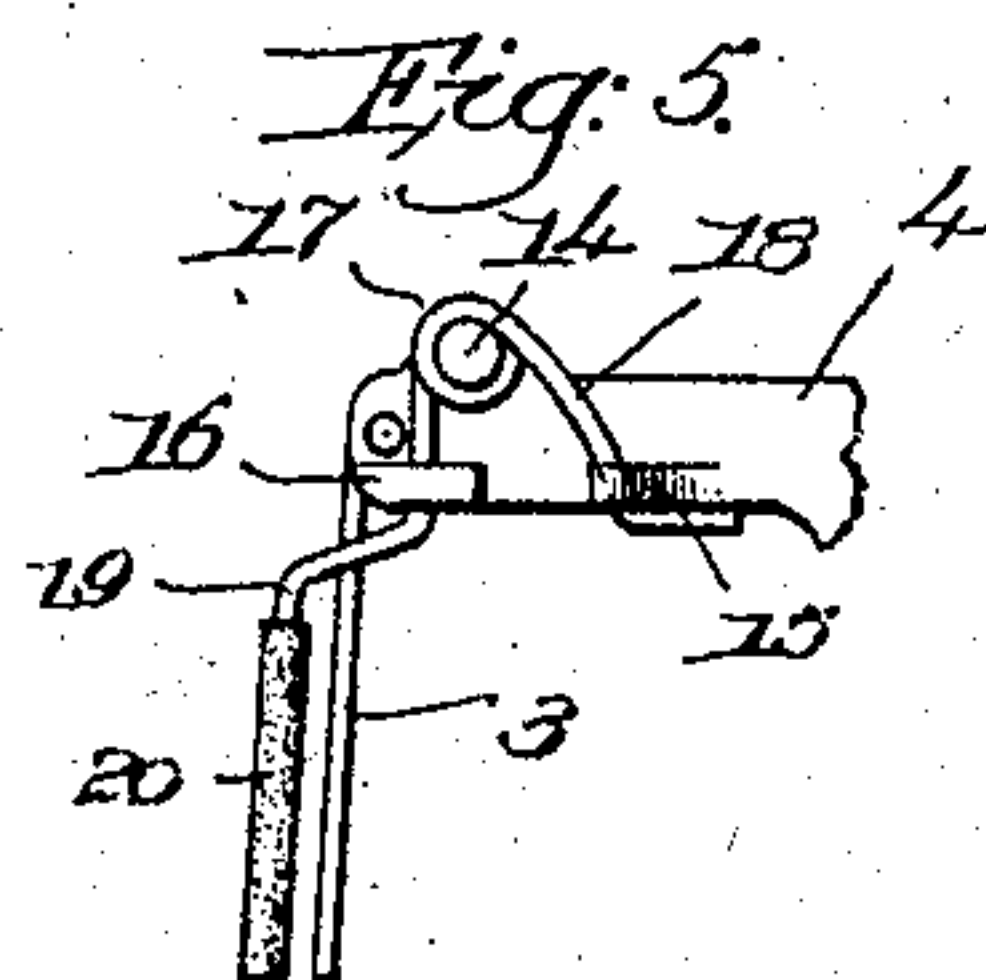
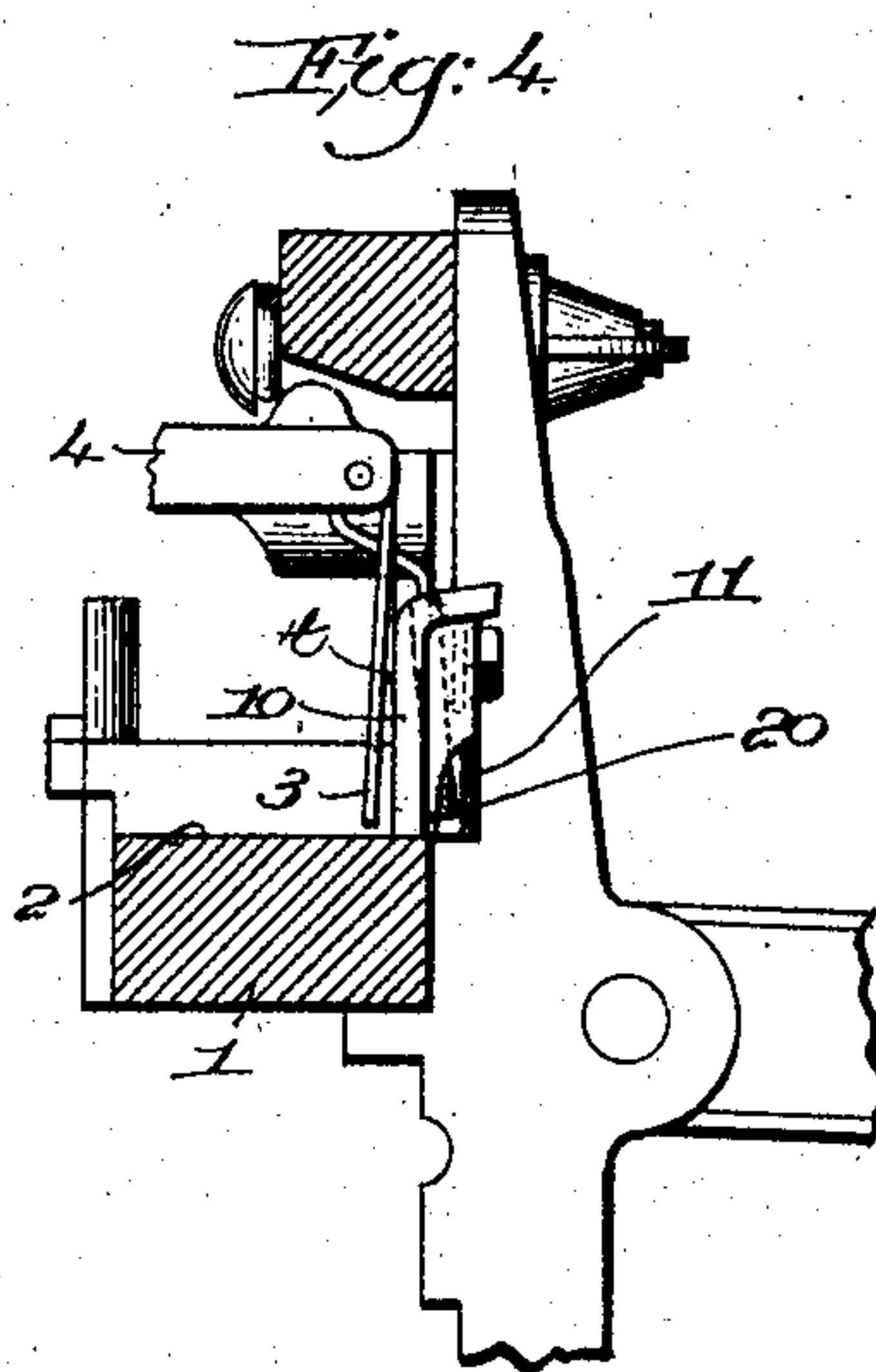
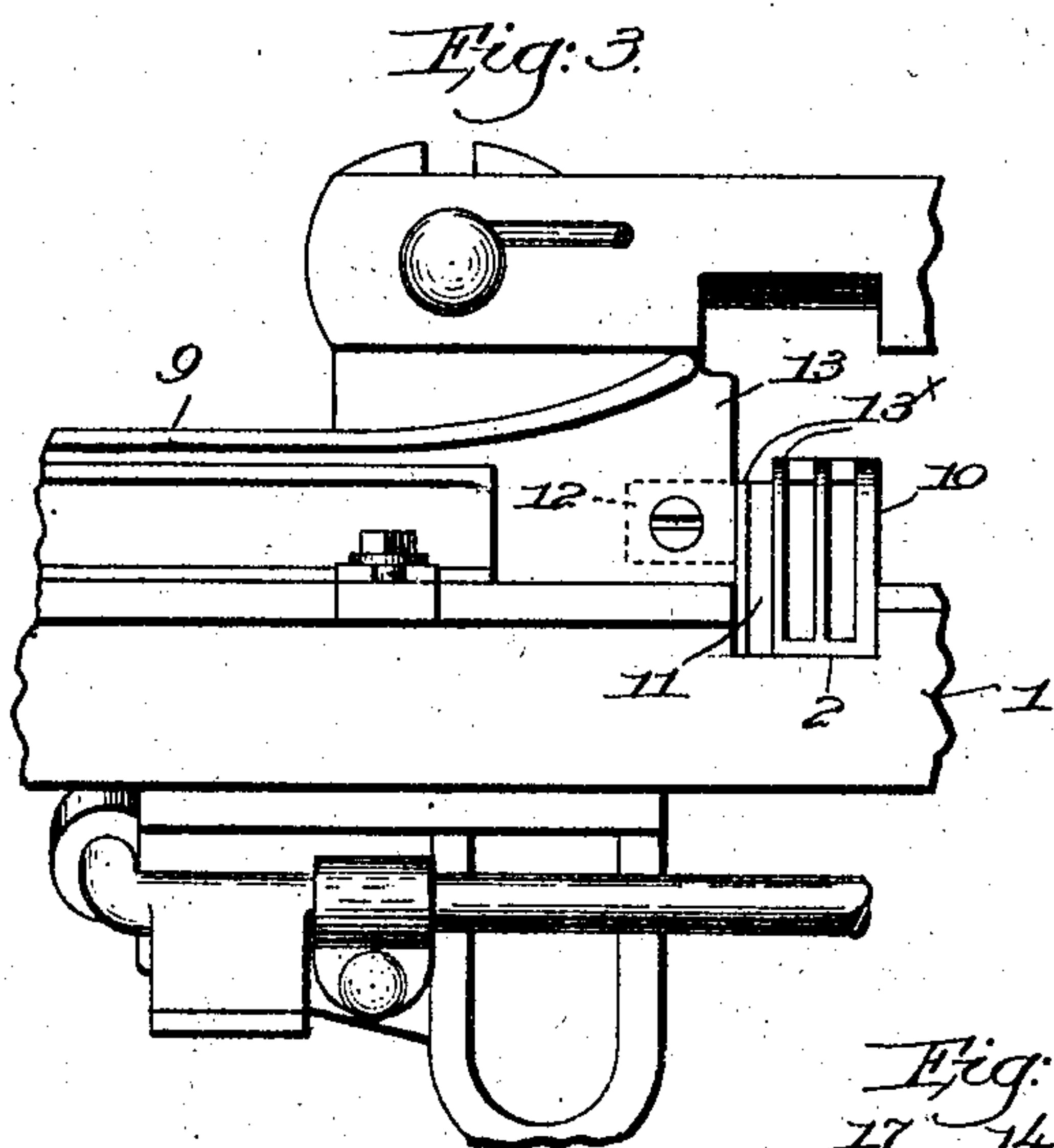
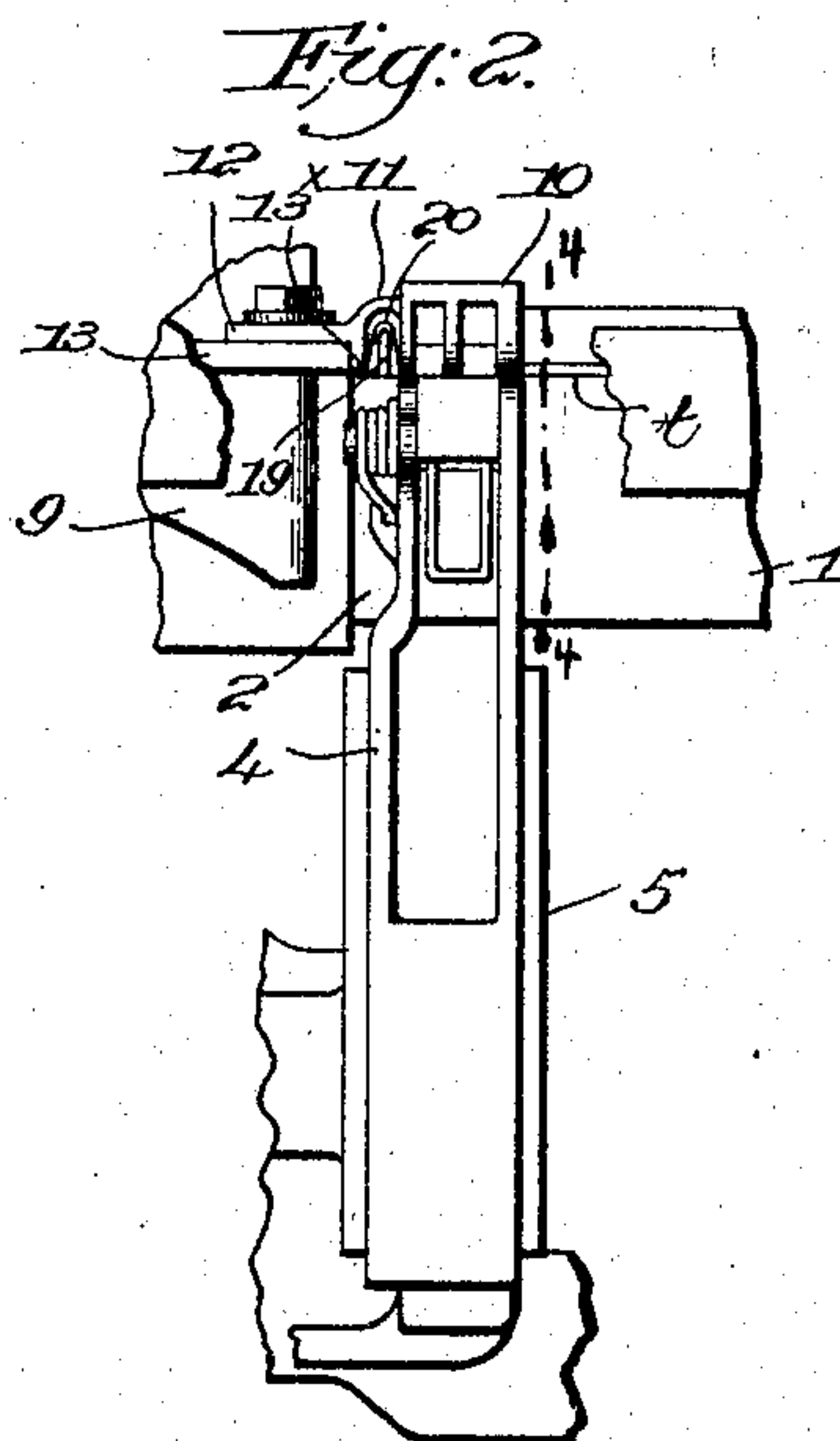
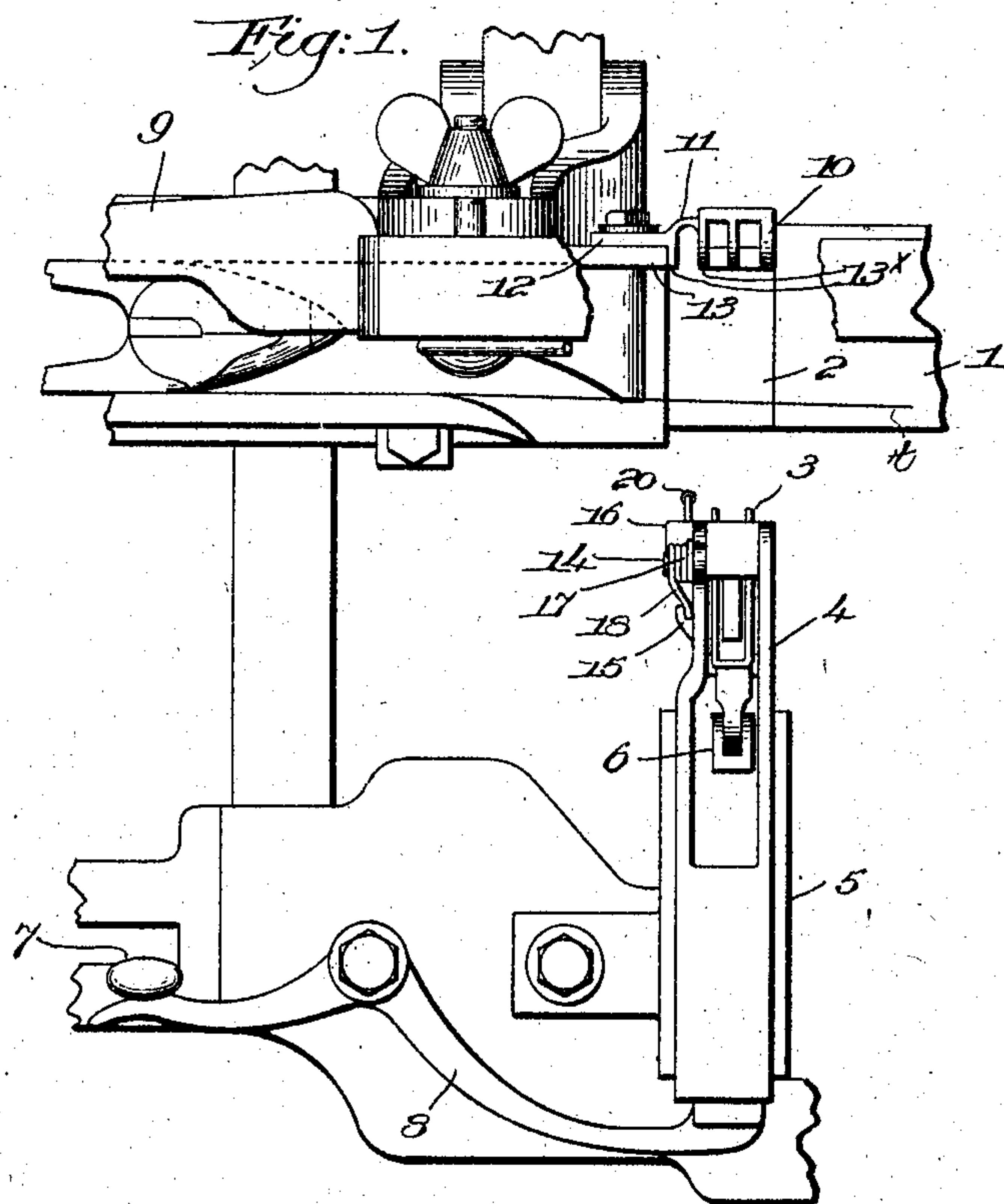


No. 796,004.

PATENTED AUG. 1, 1905.

J. NORTROP.
FILLING TENSION DEVICE FOR LOOMS.

APPLICATION FILED APR. 19, 1905.



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FILLING-TENSION DEVICE FOR LOOMS.

No. 796,004.

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed April 19, 1905. Serial No. 256,357.

To all whom it may concern:

Be it known that I, JONAS NORTHROP, a citizen of the United States, and a resident of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Filling-Tension Devices for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention has for its object the production of novel means to render certain and accurate the operation of the filling detector or fork of a loom when it engages properly-laid filling.

The lay of a loom is usually provided with a grate or grid adjacent the mouth of one of the shuttle-boxes to sustain the filling against the action of the fork-tines on the detecting beat of the lay, so that when the filling is properly laid the fork will be tilted. If the filling is slack at the time the fork engages it, there is a tendency to push or bend the filling back between the bars of the grid, so that the fork will not be tilted when it should be, and an unnecessary change in the operation of the loom will be caused. It is objectionable to modify such filling slackness by putting more tension on the filling in the shuttle, as such increased tension causes the filling to pull too hard on the selvage when the shuttle is picked.

In my present invention I have provided means to take up any slackness of filling and draw the same taut in front of the fork, and this I accomplish by deflecting the filling between the shuttle and the cloth on the detecting beat of the lay, such deflection serving to draw the filling taut, so that the fork will be properly tilted. Inasmuch as the filling is drawn taut, I am enabled to use a much lighter fork than is ordinarily employed, and I can also set the fork so that it will not extend into the grid as far as is now general. This latter feature is advantageous for several reasons, as the filling is not so apt to be broken by the fork and also because a trailing end extending from the shuttle nearly to the cloth will not tilt the fork, the latter not entering the grid far enough to enable the end to tilt the fork.

The novel features of my invention will be fully described in the subjoined specification,

and particularly pointed out in the following claims.

Figure 1 is a partial top plan view of a sufficient portion of a loom to be understood with my present invention applied thereto, the lay being shown as back. Fig. 2 is a similar view of a portion of the apparatus shown in Fig. 1, but with the lay forward on the detecting beat. Fig. 3 is a front elevation of a portion of the lay, showing the inner end or mouth of the shuttle-box and the grid adjacent thereto. Fig. 4 is a transverse section on the line 4 4, Fig. 2, looking toward the left, the wall of the pocket at the side of the grid being broken out; and Fig. 5 is an outer side elevation of the fork-slide, showing the filling-engaging means mounted thereon.

The lay 1, transversely recessed at 2 opposite the filling detector or fork 3, the slide 4, on which the fork is pivotally mounted, the fixed stand 5 for the slide, the weft-hammer 6, shipper 7, and knock-off lever 8, Fig. 1, may be and are all of well-known construction and operate in usual manner, the lay having at each end a shuttle-box, a portion of one of the shuttle-boxes being shown at 9.

In accordance with my present invention the grid 10, located at the rear end of the recess 2, adjacent the mouth of the shuttle-box 9, acts as usual to sustain the filling in front of the fork at a plurality of points.

Herein I have shown the grid extended laterally and bent rearwardly at the box side to present an upright substantially U-shaped pocket 11, having a wing 12, by which the grid is bolted to the back wall 13 of the shuttle-box, the pocket facing the front of the loom, its sides presenting upright abutments 13^x.

On the outer side of the slide 4, near its rear end, I provide a lateral stud 14, and below the stud two oppositely-turned hooked lugs 15 and 16. (Shown clearly in Fig. 5.) A resilient piece of wire, preferably of spring-wire, is spirally coiled at 17 around the stud 14, and one end of the wire, as 18, is carried down under the lug 15. The other end of the wire is turned down below the lug 16, and it is then bent rearward and downward at 19 to form a resilient finger, on which is secured an elongated deflector or pad 20, of leather, felt, or other preferably non-metallic mate-

rial and conveniently made as a knitted tube of cotton.

As will be seen from Fig. 5, the resilient finger and the deflector 20 normally project ahead of the plane of the fork 3, at one side thereof and directly in front of the pocket 11.

When the shuttle is in the box 9, the filling *t* extends from the shuttle inward, Fig. 1, to the selvage of the cloth, and as the lay beats up the deflector 20 engages the filling in front of the pocket 11, and as the lay approaches the detecting-point the deflector pushes a portion of the filling into the pocket, as shown in Figs. 2 and 4, around the abutments 13^x. This deflection of the filling takes up any slack and draws the filling taut across the grid in front of the fork, so that the latter will be tilted accurately and with certainty.

There is no wedging or pushing action as the deflector 20 enters the pocket 11, as such action would tend to fray or break the filling, but there is an easy entrance for the deflector, its function being to deflect the filling between the grid and the shuttle to thereby take up slack.

By making the deflector of felt, rubber, or some material having a similar friction-surface the hold on the filling is increased and its chance of slipping nullified. As soon as the lay swings back the deflector recedes from the pocket and frees the filling.

The deflector is mounted in a yielding manner to conform to variations in the movement of the lay and to provide an easy action for the parts, the lug 16 acting on the finger 19 to maintain it and the deflector in proper position.

I find in actual practice that my invention takes out kinks in the filling and takes up slackness, drawing the filling smoothly and taut across the grid. As the filling is thus held taut between the cloth and the shuttle the filling-fork can be made very light, and yet it will be tilted with certainty, and the tautness of the filling permits setting the fork so that it will not extend so far in between the bars of the grid as is now the usual practice.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a loom, a lay provided with a shuttle-box, a grid near the mouth of the box, a filling-fork, and means to act upon the filling between the shuttle and the grid and draw the filling taut across the grid in front of the fork on the detecting beat of the lay.

2. In a loom, a lay provided with a shuttle-box, a grid near the mouth of the box, a filling-fork, its slide, a finger mounted on the slide and having its free end depending therefrom at one side of and in advance of the fork, to engage the filling between the shuttle and the grid and draw it taut across the grid

in front of the fork on the detecting beat of the lay.

3. In a loom, a lay provided with a shuttle-box, a grid near the mouth of the box, a filling-fork, its slide, and a depending deflector mounted on the slide to engage and deflect the filling between the shuttle and the grid on the detecting beat of the lay, to draw the filling taut across the grid in front of the filling-fork.

4. In a loom, a lay having a shuttle-box, a grid near the mouth of the box and provided with an upright pocket at the box side, a filling-detector, and means to act upon the filling and deflect it into the pocket, to thereby draw the filling taut across the grid in front of the detector on the detecting beat of the lay.

5. In a loom, a lay having a shuttle-box, a grid near the mouth of the box provided with an upright pocket at the box side, a filling-fork, its slide, and means yieldingly mounted on the slide to act upon the filling and deflect it into the pocket on the detecting beat of the lay, to thereby draw the filling taut across the grid in front of the filling-fork.

6. In a loom, a lay provided with a shuttle-box, a grid near the mouth of the box, a filling-fork, its slide, a finger mounted on the slide and having its free end depending therefrom at one side of and in advance of the fork, and a pad on said free end of the finger to engage the filling between the shuttle and the grid and draw it taut across the grid in front of the fork on the detecting beat of the lay.

7. In a loom, a lay having a shuttle-box, a grid near the mouth of the box provided with an upright pocket at the box side, a filling-detector, and yieldingly-mounted means independent of the lay to act upon the filling and deflect it into the pocket, to thereby draw the filling taut across the grid in front of the detector on the detecting beat of the lay.

8. In a loom, a lay provided with a shuttle-box, a filling-fork, and a deflector to deflect the filling between the shuttle and the cloth on the detecting beat of the lay, to draw the filling taut in front of the filling-fork.

9. In a loom, a lay provided with a shuttle-box, a grid near the mouth of the box, a filling-detector, and means to engage and deflect the filling between the shuttle and the grid on the detecting beat of the lay, to thereby draw the filling taut across the grid in front of the detector.

10. A loom having in combination a lay provided with a shuttle-box, an upright abutment on the lay near the mouth of the box, a filling-fork, and means to engage and deflect the filling around said abutment on the detecting beat of the lay, to draw the filling taut in front of the filling-fork.

11. In a loom, a lay provided with a shuttle-

box, a grid near the mouth of the box, a filling-fork, and yieldingly-mounted means normally projecting beyond the plane of the fork to act upon the filling between the shuttle and the grid and draw the filling taut across the grid in front of the fork on the detecting beat of the lay.

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

JONAS NORTHROP.

Witnesses:

GEORGE OTIS DRAPER,
E. R. MORRISON.