(No Model.) 2 Sheets—Sheet 1.

P. ENSLING.

WEFT FORK FOR LOOMS.

No. 446,094. Patented Feb. 10, 1891.

Fig. 1.

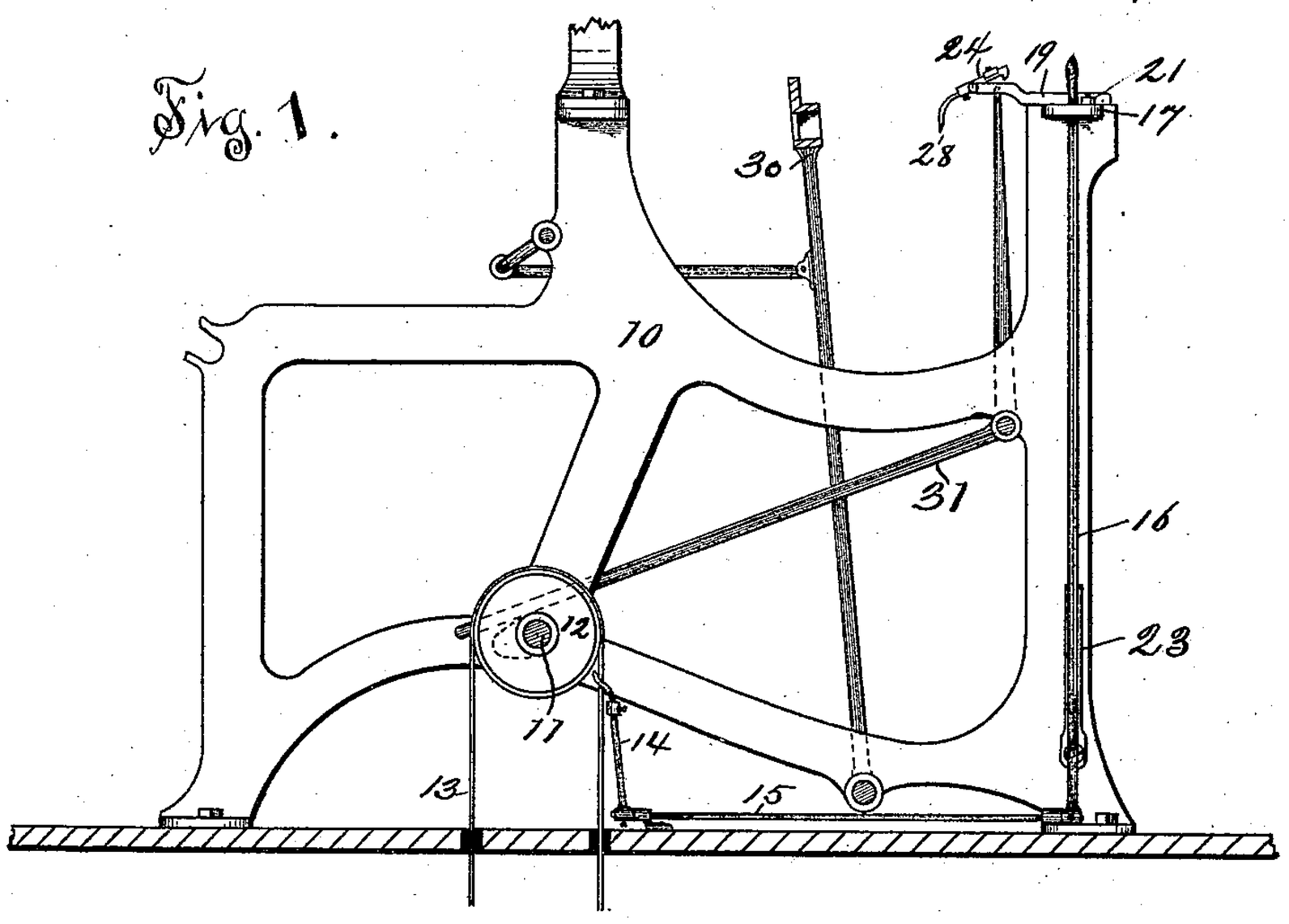
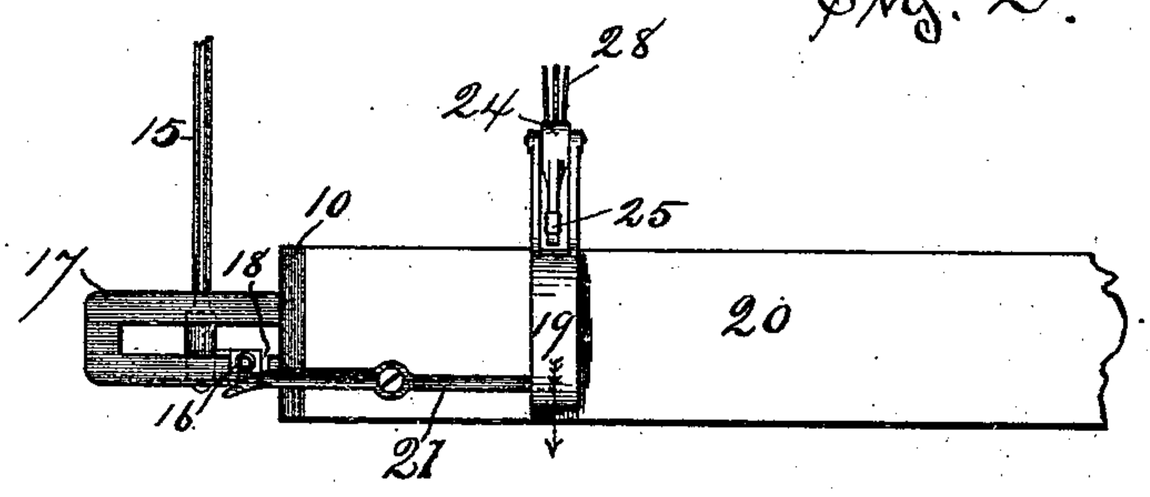


Fig. 2.



Witnesses
Allen Tenney,
Alonzo M. Luther.

Inventor
Phillipp Ensling,
By his Attorney
Frank H. Allen.

(No Model.) 2 Sheets—Sheet 2.

P. ENSLING.

WEFT FORK FOR LOOMS.

No. 446,094. Patented Feb. 10, 1891.

Fig. 3.

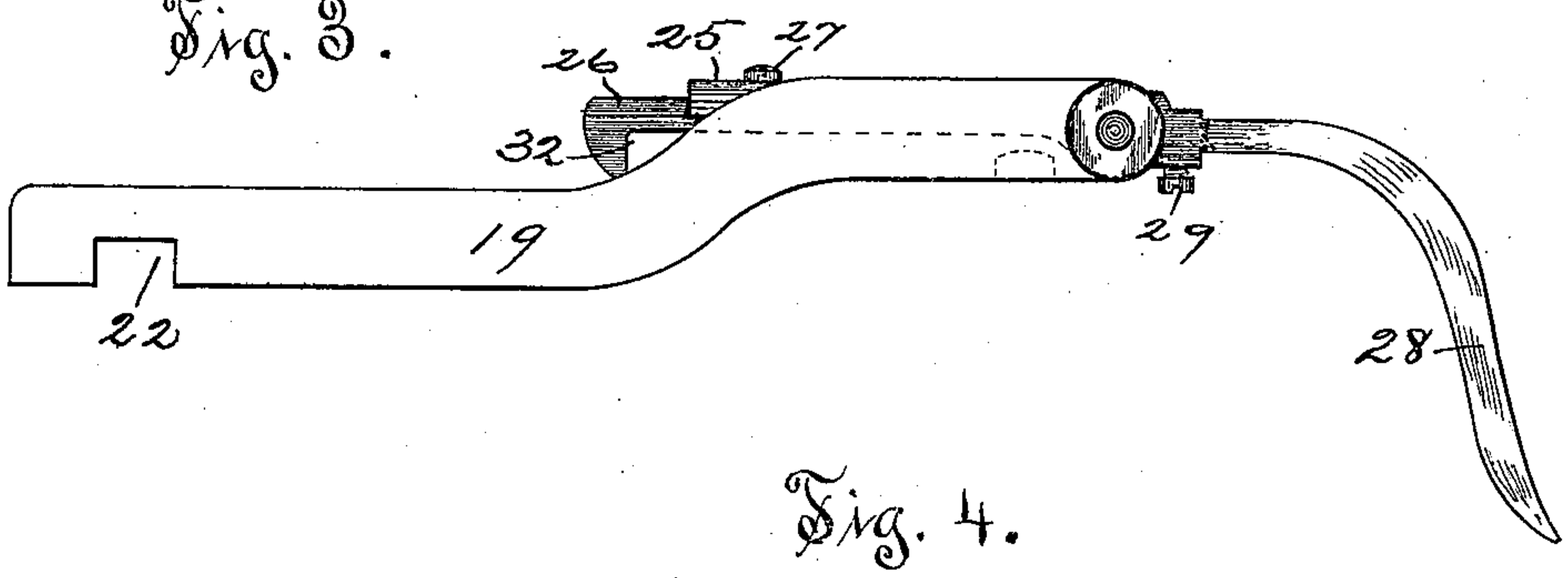


Fig. 4.

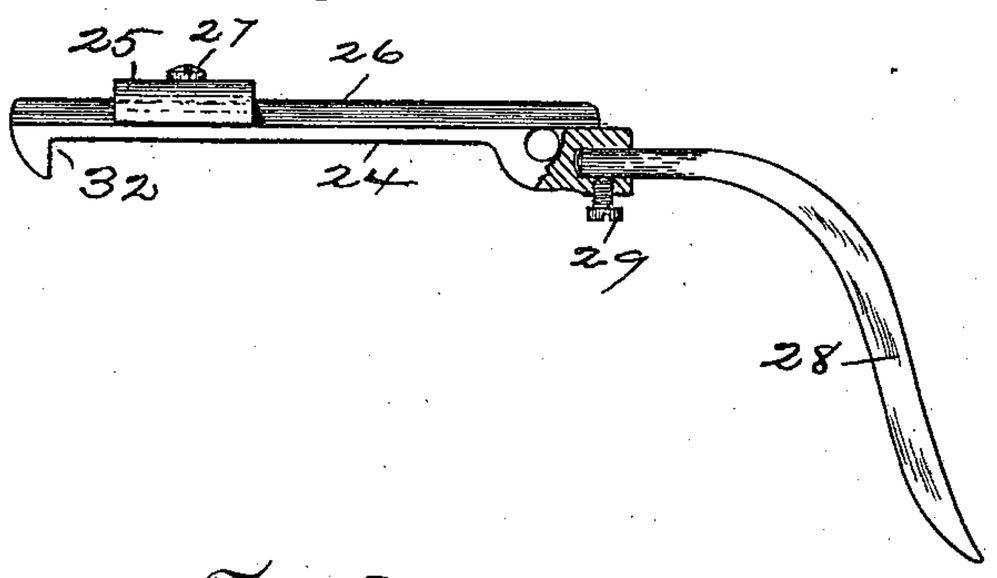


Fig. 6.

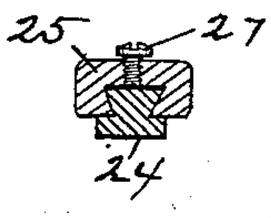


Fig. 5.

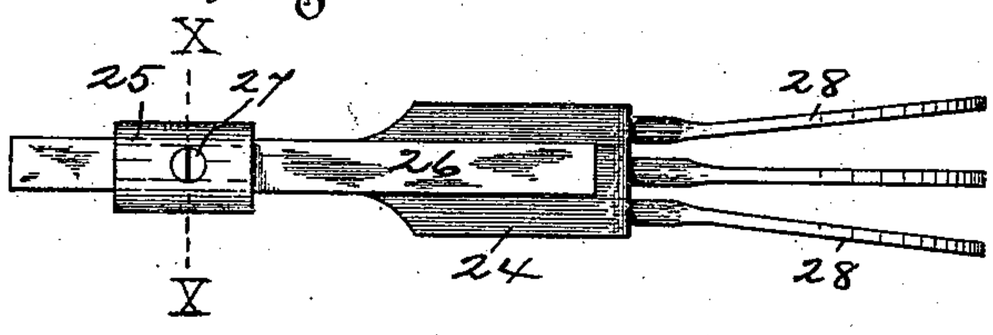
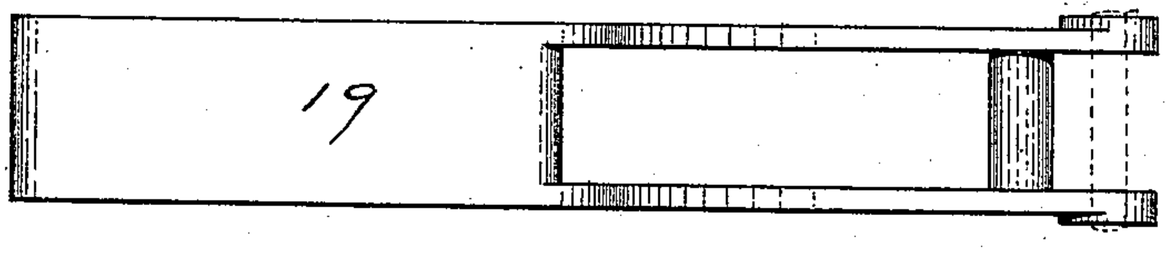


Fig. 7.



Witnesses
Allen Fenny.
Alonzo M. Luther.

Inventor
Phillipp Ensling.
By his Attorney
Frank H. Allen.

UNITED STATES PATENT OFFICE.

PHILLIPP ENSLING, OF NORWICH, CONNECTICUT.

WEFT-FORK FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 446,094, dated February 10, 1891.

Application filed November 18, 1889. Serial No. 330,641. (No model.)

To all whom it may concern:

Be it known that I, PHILLIPP ENSLING, a citizen of the United States, residing at Norwich, in the county of New London and State of Connecticut, have made certain new and useful Improvements in Weft-Forks for Looms, which improvements are fully set forth and described in the following specification, reference being had to the accompanying two sheets of drawings.

This invention relates to the so-called "filling-fork" provided in ordinary cotton-looms to coact with the belt-shipper to stop the loom when the filling-thread breaks or runs out.

The immediate object of my invention is to provide a filling-fork that may be easily counterbalanced.

To explain my invention more clearly I have provided the annexed drawings, in which—

Figure 1 is an end elevation of a loom-frame, showing connected therewith those parts of the loom immediately connected with the filling-fork; and Fig. 2 is a plan view, considerably enlarged, of the filling-fork, its supporting-frame, the shipper-rod, and the lever which connects said shipper-rod with the filling-fork frame. Fig. 3 is an enlarged detached view, in side elevation, of the filling-fork frame having the filling-fork pivoted therein; and Fig. 4 shows the filling-fork removed from the frame and partially cut away to show the manner of securing the tines in place. Fig. 5 is a top or plan view of the filling-fork, and Fig. 6 a cross-section of the same on the line *x x* of Fig. 5. Fig. 7 is a top view of the filling-fork frame.

In the drawings, 10 denotes a loom-frame having a driving-shaft 11 journaled therein, said shaft bearing a fast and a loose pulley of ordinary construction, only the loose pulley 12 being shown in the drawings. 13 denotes a belt running on the said pulleys and moved at the proper time by a shipper 14, projecting upward from the rock-shaft 15, whose other end has connected to it a rod 16, which projects upward through a slotted plate 17, attached to the upper portion of the loom-frame. By moving the free end of rod 16 to the left hand, as shown in Fig. 2, the belt is shifted from the fast to the loose pulley and the loom stops. The slotted plate 17 is provided with a notch 18, in which the rod 16 rests while the loom is in operation.

The filling-fork frame (indicated by the reference-figure 19) rests on the breast-beam 20, that extends from the loom-frame 10 to the companion frame at the other end of the loom, and said filling-fork frame is free to move longitudinally across said beam.

21 denotes a lever pivoted on beam 20 and having one end extending into a slot 22 in the filling-fork frame. The opposite end of said lever rests against the back side of the shipper-rod 16, and it will be understood that if the filling-fork frame be moved in the direction of the arrow, Fig. 2, the said shipper-rod 16 will be released from its retaining-notch 18, and may then move laterally in the slot in the plate 17 a distance sufficient to ship the belt from the fast to the loose pulley. To cause the shipper-rod to thus move laterally, a spring, as at 23, may be secured to the loom-frame, having its free end bearing against said rod 16, or any of the several other well-known spring devices may be used to move said rod at the proper time.

24 denotes the filling-fork pivoted in the frame 19.

Heretofore when it became necessary to vary the counter-balance of the fork it has generally been a common practice to either file away and thus reduce the weight of the rear end of the fork, or to increase its weight by building it up with solder.

In my present invention I provide a small weight 25, which is dovetailed on a rib 26, extending along the top of the body of the fork. This weight 25 may be moved along said rib until the proper adjustment is attained, and may then be securely fastened in place by a binding-screw 27, whose point impinges said rib. This means for counterbalancing or varying the balance of the filling-fork results not only in a saving of time, but also allows such filling-fork to be used continuously as long as the loom lasts, whereas in the old form the body of the fork became after a time so reduced by filing that it had to be thrown away and a new fork put to work in its place.

I have described and shown my fork as being formed with a dovetailed rib to receive

the weight 25; but any other form of rib which would permit said weight to be moved along the body of the fork for the purpose of varying the counter-balance and clamped in position would come within the scope and intent of my invention.

The body of my improved fork may be drilled at the end opposite the counter-balance to receive the shanks of the tines 28, which may be clamped in place by screws 29, that are tapped into the body of the fork, as plainly illustrated in Fig. 4. This construction allows a forged or punched tine to be used with a cast-metal body portion, and it is only necessary to partially unscrew the screw 29 when it is desired or necessary to substitute a new tine for an old or broken one. When in use, the so-called "lathe" or "batten" 30 of the loom, as it reciprocates forward and backward, brings the filling-thread from the shuttle into contact with the tines 28, which are so nicely counterbalanced that they give way to the pressure of the thread, thus throwing the rear or weighted end of the fork upward.

Referring now to Fig. 1, 31 denotes a lever pivoted in frame 10, having a long arm that rests on a cam on shaft 11, said cam being indicated by dotted lines in said Fig. 1. The short arm of said lever extends upward into the slotted frame 19, in which is pivoted the filling-fork. As the cam on shaft 11 rotates, said cam rocks the described lever on its fulcrum, and thus causes the short arm of said lever to move backward and forward a short distance in the slot in the filling-fork frame.

By referring to Figs. 1, 3, and 4 of the drawings, it will be seen that the weighted end of the filling-fork is formed as a hook 32, which is immediately over the end of the short arm of the lever 31. So long as the filling-thread remains intact said hook is kept at its elevated position out of the path of the oscillating end of said lever; but should the filling-thread break or run out, the weighted end of said fork is allowed to drop and immediately comes in contact with the oscillating lever, when the filling-fork, together with its supporting-frame 19, is forced in the direction of the arrow in Fig. 2 and the belt is shifted to stop the loom.

Having thus described my invention, I claim—

A filling-fork of the class referred to having the body portion provided with a rib extending along its top and a grooved weight adjustable thereon, as set forth, and means for clamping said weight in desired position.

PHILLIPP ENSLING.

Witnesses:
FRANK H. ALLEN,
ALONZO M. LUTHER.