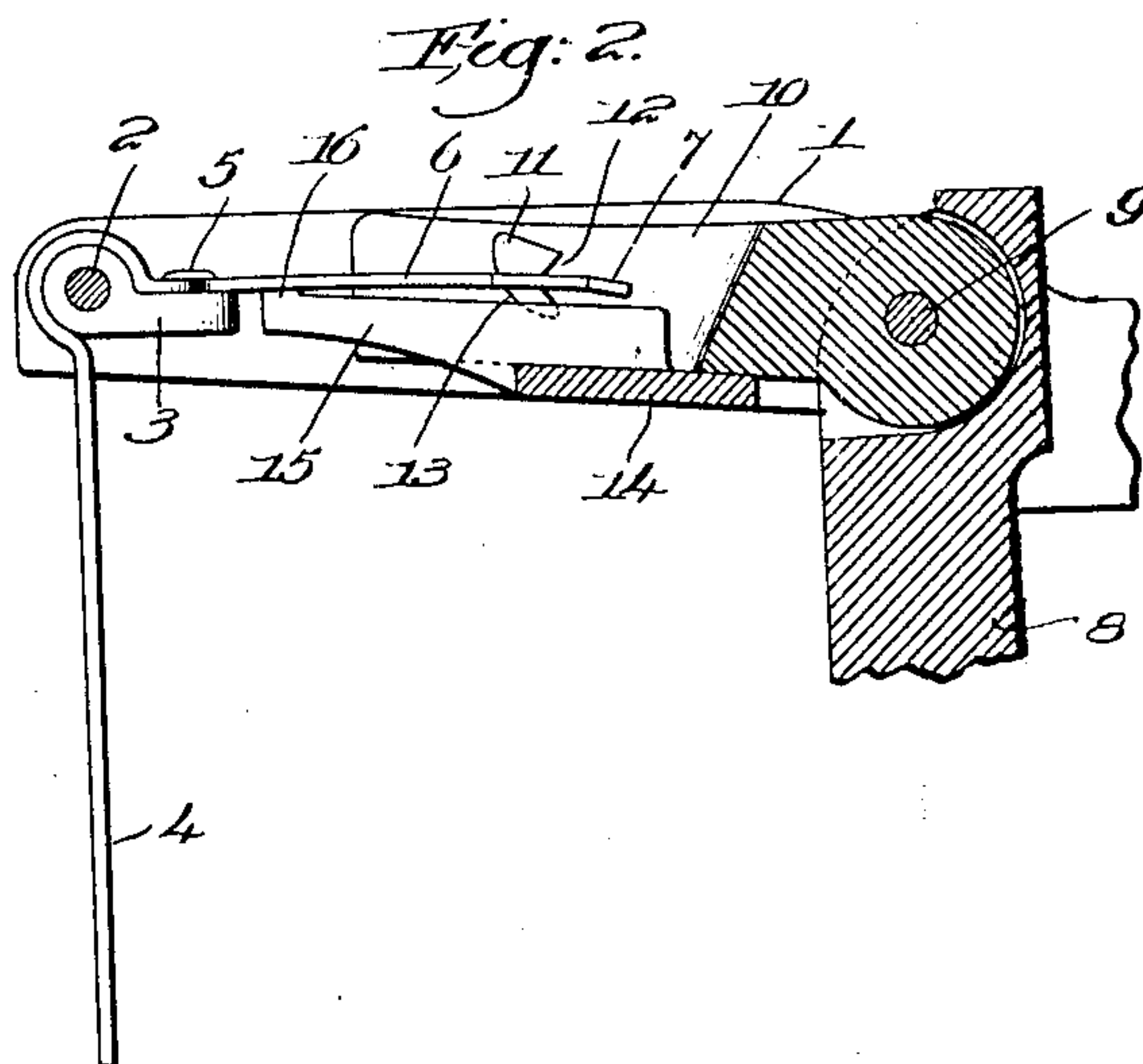
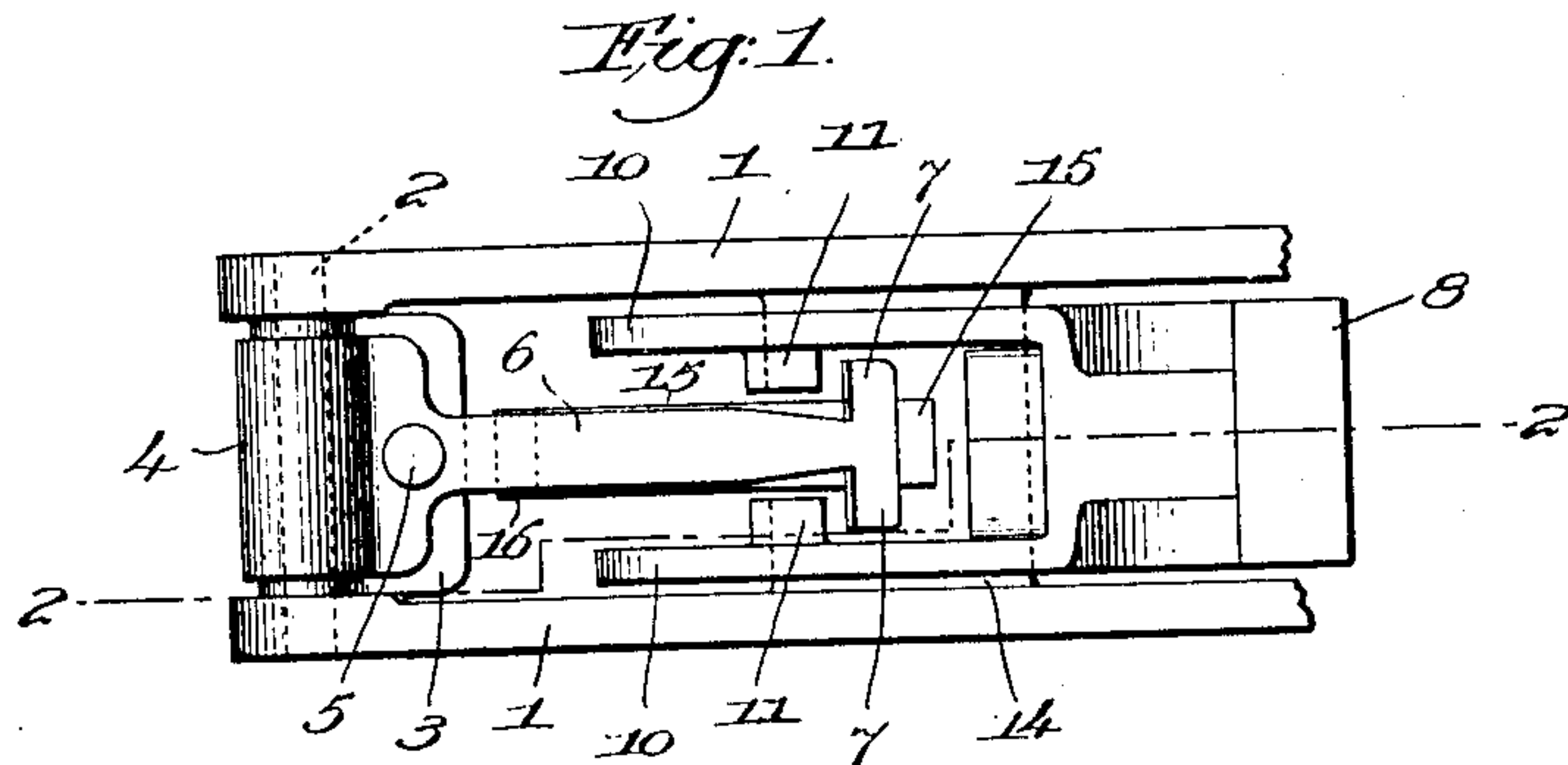


J. W. BOUNDS & J. R. BURTON.
FILLING DETECTING MECHANISM FOR LOOMS.
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UNITED STATES PATENT OFFICE.

JOHN W. BOUNDS AND JOHN R. BURTON, OF CHARLOTTE, NORTH CAROLINA, ASSIGNORS TO
DRAPER COMPANY, OF HOPEDALE, MASSACHUSETTS, A CORPORATION OF MAINE.

FILLING-DETECTING MECHANISM FOR LOOMS.

No. 906,683.

Specification of Letters Patent.

Patented Dec. 15, 1908.

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To all whom it may concern:

Be it known that we, JOHN W. BOUNDS and JOHN R. BURTON, citizens of the United States, and residents of Charlotte, county of Mecklenburg, State of North Carolina, have invented an Improvement in Filling-Detecting Mechanism for Looms, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention relates to filling-detecting mechanism for looms, and it has for its object the production of means to prevent bending of the coupling member or tail of the fork out of range of cooperating portions of a vibrating actuating member or hook.

The present embodiment of our invention in certain features is very similar to the filling-detecting mechanism forming the subject-matter of United States Patent No. 834549, granted to E. S. Wood October 30, 1906 and the novel structure devised by us is necessary on account of certain changes in the construction of the patented mechanism referred to. In said patent the coupling member or tail of the fork is formed of a piece of wire having a transverse bar secured rigidly to its free end, said bar being engaged between an abutment on the slide and enlargements or shoulders on a vibrating actuating member or hook whenever filling absence is detected, to thereby effect operative movement of the slide. The shoulders or enlargements are so shaped that on the return or inactive stroke of the hook they will ride up and over the bar of the fork-tail, thereby preventing movement of the fork at such time.

In the present embodiment of our invention we make the coupling member or fork-tail of sheet metal, and substantially T-shaped, and the shoulders on the hook engage the transverse extension at the free end of said member when filling absence is detected, the abutment on the fork-slide being eliminated.

In practice it has been found difficult to harden the particular fork and its tail herein illustrated, the said parts being preferably made from a single piece of metal, and consequently the tail or coupling member can be and frequently is bent by manipulation while the fork is in place on the loom, so that the actuating member or hook cannot co-

operate therewith. This is liable to make thin places in the cloth, and when the trouble is located and the tail is bent back to proper position breakage will occur, after a few bendings, and sometimes after the first one. We have provided means whereby the initial bending is prevented, so that the coupling member cannot be displaced from operative position relatively to the actuating member, and as the initial bending is prevented there is no bending back required, hence the breakage above noted is obviated.

The various novel features of our invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a top plan view of a portion of the filling-detecting mechanism of a loom, with one embodiment of our invention applied thereto; Fig. 2 is a side elevation and partial section on the irregular line 2—2, Fig. 1.

The bifurcated slide 1 is provided at its rear end with a transverse pin 2 which forms the fulcrum on which the filling-fork is mounted to rock or tilt in usual manner, a cast metal bearing portion 3 receiving the pin, and the fork is secured to said portion 3.

In the present embodiment of our invention the fork and attached coupling member or tail are made integral, and of sheet metal, the fork 4 being bent at its upper end around the bearing portion 3 and fixedly secured thereto, as by a rivet 5, and the coupling member is made as a T-shaped prolongation comprising a shank 6 and a transverse extension 7 at its free end. The vibrating actuating member or weft-hammer 8 has pivotally connected with it at 9 a hook bifurcated at its rear end to present parallel cheeks which have on their inner faces enlargements or shoulders 11, preferably notched on their front faces at 12; Fig. 2, substantially as in the Wood patent, the under sides of the shoulders being convexed or cam-shaped at 13. When filling absence is detected the shoulders engage the transverse extension 7 on the operative stroke of the vibrating actuator and act through the coupling member or fork-tail to move the slide outward in well known manner. When the fork is tilted, the shoulders are moved forward beneath the extension 7 as the vibrating actuator makes its outward stroke, and on the return stroke the cam faces 13 ride up over the

extension 7 and drop back behind it into the position shown in the drawing, as in the Wood patent. The hook 10 is slidably supported on a cross-bar or support 14 extended from one to the other part of the slide and forming a part of the casting, and herein we have shown said cross-bar as provided with a central, elongated extension 15 extended beneath the coupling member and closely adjacent thereto for the major part of its length, see Fig. 2, when the fork is quiescent.

From an inspection of Fig. 2 it will be apparent that no appreciable downward bending of the tail or coupling member can be effected, for the elongated stop or rest 15 prevents it, so that there is no possibility of the extension 7 being bent out of the path of the notched faces 12 of the shoulders 11. By eliminating the downward bending of the shank 6 we do away with any occasion for bending it upward for the purpose of straightening it, so that the breakage hereinbefore noted is done away with. In order to position the fork when quiescent we make the rear end of the stop 15 slightly higher than the rest of the stop, as at 16, the shank 6 resting upon such elevation, as shown in Fig. 2. By this engagement of the tail with the part 16 of the stop at a point near the fulcrum of the fork any chance of the fork vibrating when it returns to rest after being tilted is materially lessened. It will be noted that the top of the stop 15 is so close to the coupling member when the fork is at rest that it is practically impossible to bend said member to any appreciable or injurious extent, and that being so the said coupling member is always properly positioned for coöperation with the shoulders of the hook when the fork detects filling absence.

Having fully described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. The combination, with a filling-fork having a tail provided with a transverse extension at its free end, a slide on which the fork is fulcrumed, and a vibrating member having shoulders to engage the extension at opposite sides of the tail upon detection of filling absence, to effect operative movement of the slide, of a transverse support on the slide to sustain the vibrating member, and a central, elongated stop on said support extended beneath the tail of the fork and closely adjacent thereto the major portion of its length when the fork is in normal posi-

tion, to prevent bending and displacement of the fork tail at any point above the stop.

2. The combination, with a tilting filling-fork having a T-shaped coupling member connected therewith, and a slide on which the fork is fulcrumed, of a vibrating hook to engage the transverse free end of said coupling member upon detection of filling absence and effect operative movement of the slide, and an elongated stop rigidly mounted on the slide and extended beneath the coupling member the major portion of its length and closely adjacent thereto when the fork is untilted, to prevent displacement of the coupling member by bending at any point above the stop, the end of the stop nearest the fork fulcrum engaging the coupling member thereat to limit its normal descent.

3. The combination, with a tilting filling-fork having a T-shaped sheet-metal tail, and a slide on which the fork is fulcrumed, of a vibrating hook having laterally separated shoulders to engage the transverse free end of the tail when filling absence is detected and effect operative movement of the slide, a cross-bar on the latter upon which the hook travels, and a central safety stop on the cross-bar extended under the fork tail for the major portion of its length, the tip of the stop being elevated slightly to engage the tail near the fork fulcrum and limit its descent, the stop preventing bending of the tail out of the path of the hook shoulders.

4. The combination, with a sheet-metal filling-fork and an integral, T-shaped tail, and a slide on which the fork is fulcrumed, of a vibrating hook having shoulders to engage the transverse extension at the free end of the tail when filling absence is detected, said shoulders riding up over said extension on the return stroke of the hook, and a cross-bar on the slide to support the hook, said cross-bar having an integral central safety stop extended beneath and close to the fork tail for the major portion of its length when the fork is quiescent, to prevent bending down of the tail and its displacement relatively to the hook shoulders.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses.

JOHN W. BOUNDS.
JOHN R. BURTON.

Witnesses:

ARTHUR J. DRAPER.
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