No. 693,501. Patented Feb. 18, 1902.

D. W. DENNY.

WEFT FORK CLEARER FOR LOOMS.

(Application filed Sept. 12, 1901.)

(No Model.)

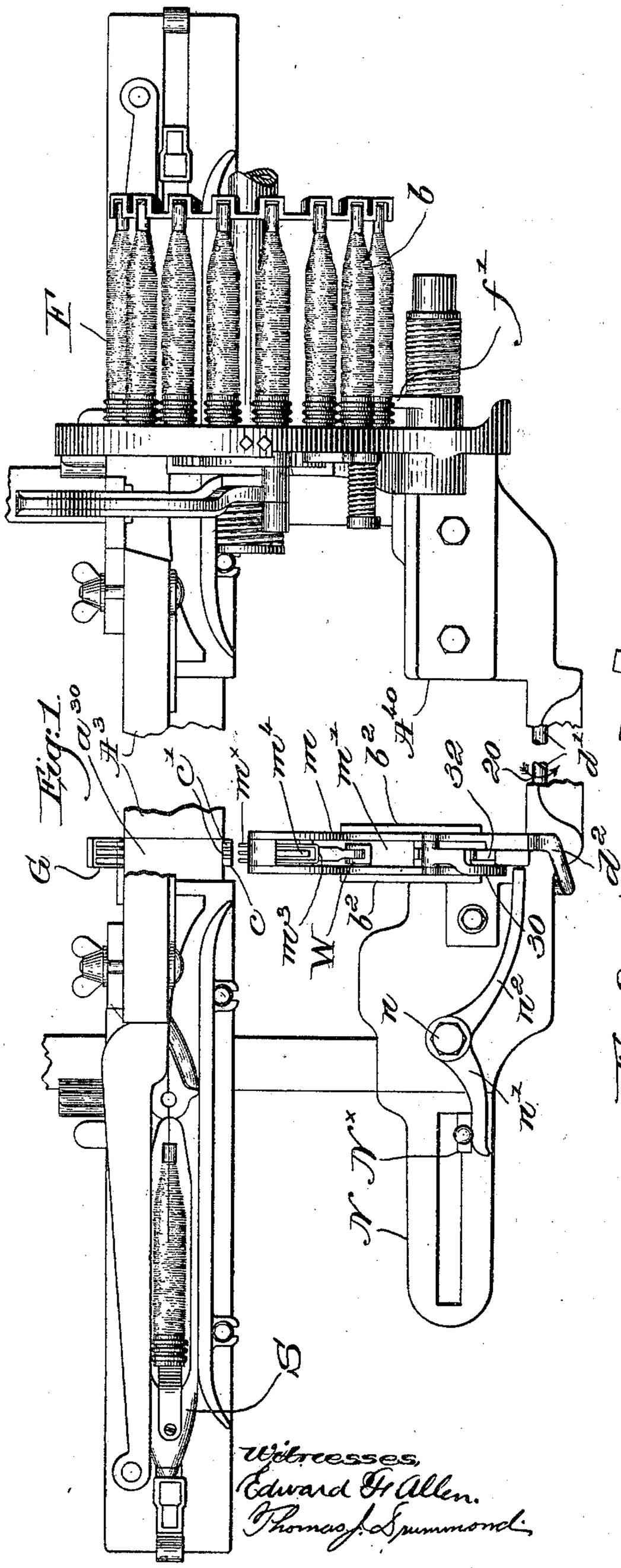

Fig. 1.

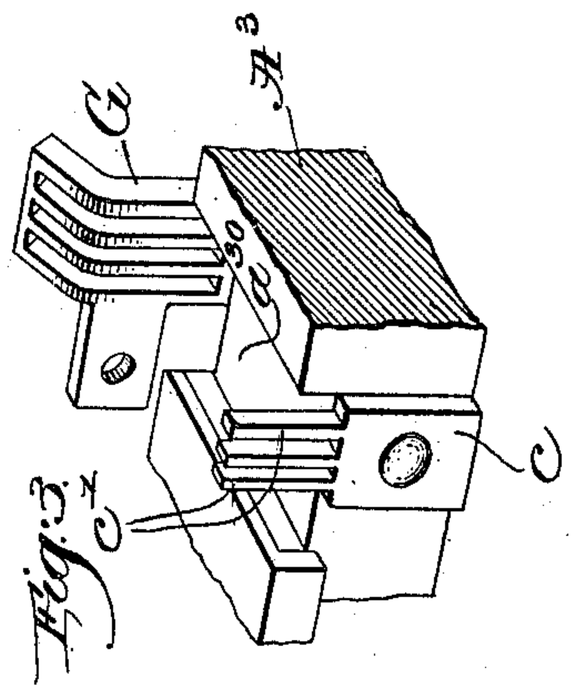

Fig. 3.

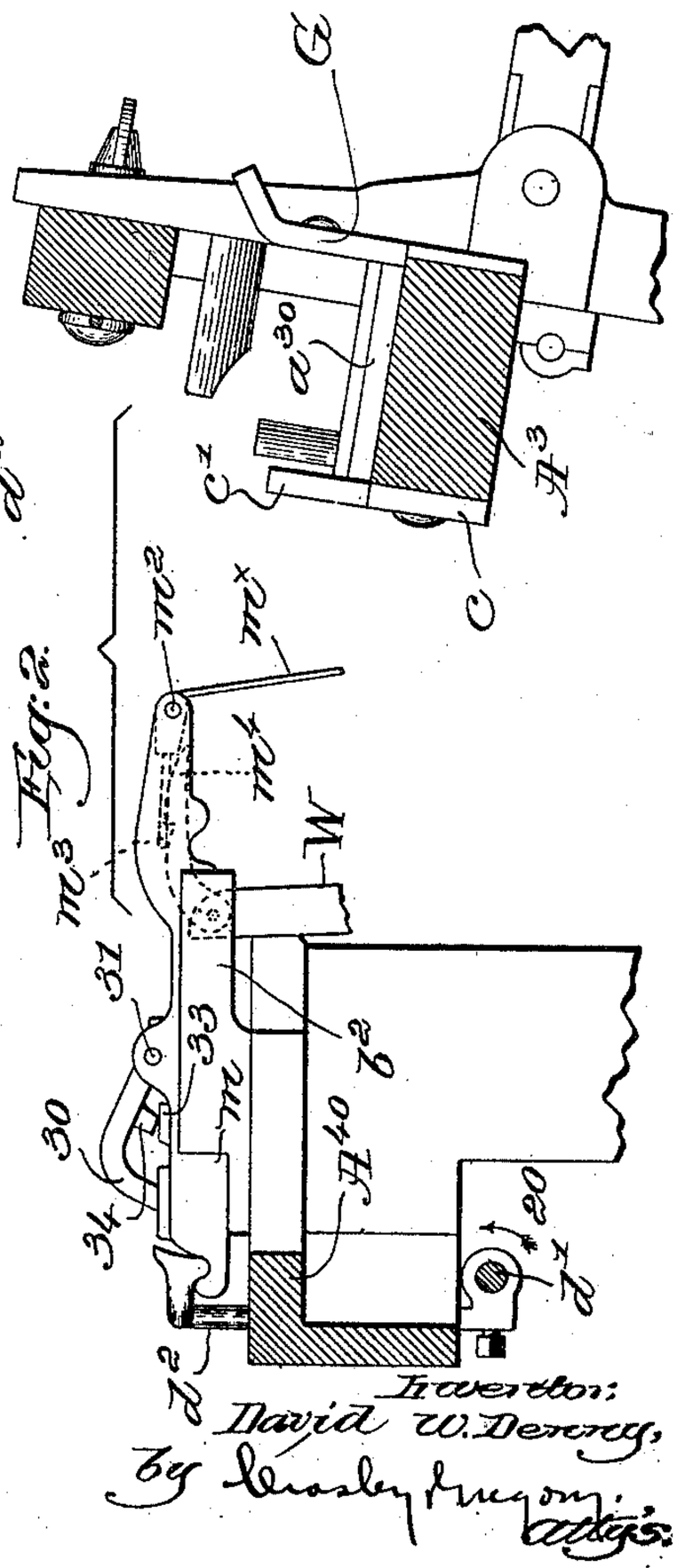

Fig. 2.

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UNITED STATES PATENT OFFICE.

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WEFT-FORK CLEARER FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 693,501, dated February 18, 1902.

Application filed September 12, 1901. Serial No. 75,145. (No model.)

To all whom it may concern:

Be it known that I, DAVID WHITFIELD DENNY, a citizen of the United States, and a resident of Warrenville, county of Aiken, State of South Carolina, have invented an Improvement in Looms, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

Thin places are sometimes made in weaving cloth by failure of the weft-fork to act promptly upon failure of the filling to effect either the stoppage of the loom or the automatic replenishment of filling if the loom be provided with filling-replenishing mechanism. Such failure of the weft-fork to operate properly is sometimes caused by the filling looping or tangling around the tines of the fork, due to undue slackness of filling or "whipping-off" from the filling-carrier, the fork being so held by the filling that subsequent breakage or exhaustion thereof will not be detected. As a consequence the loom will not be stopped nor will fresh filling be supplied, either or both of such operations being performed automatically upon failure or exhaustion of the filling when the fork is free to properly perform its detecting function.

My present invention has for its object the production of means for clearing the weft-fork of filling which may catch thereupon, so that the proper operation of the fork is assured.

Figure 1 is a top or plan view, broken out centrally, of a portion of a loom with one embodiment of my invention applied thereto. Fig. 2 is an enlarged transverse section on the line 2 2, Fig. 1, looking toward the left; and Fig. 3 is a perspective detail, also enlarged, of the means for clearing the weft-fork.

I have herein shown the lay A^3, breast-beam A^{40}, with a notched holding-plate N for the shipper $N^\times$, the only member illustrated of the usual stopping means for the loom, a knock-off arm $n'n^2$, fulcrumed at n, and a self-threading shuttle S, all substantially as shown in United States Patent No. 662,320, and the loom is shown in Fig. 1 as provided with filling-replenishing mechanism comprising, essentially, a filling-feeder F for the filling-carriers b, a transferrer f', and a controlling or operating rock-shaft d', adapted to be rotated in the direction of arrow 20 to effect a change of filling, as in said patent.

The slide m, slotted at m' for the upper end of the vibrating weft-hammer W and having a filling or weft fork $m^\times$ pivotally mounted thereon at m^2, is mounted in the stand b^2, secured to the breast-beam, the weft-fork having the usual tail m^3 to be engaged by the hook m^4 of the weft-hammer when the fork is not tilted in well-known manner. An upturned arm d^2, secured to the rock-shaft d', is operatively connected with the outer end of the slide m to be moved when said slide is moved outward by the weft-hammer, thereby turning the rock-shaft to effect a replenishment of filling. The end n^2 is extended in the path of the outer end of a dog 30, fulcrumed at 31 on the slide m, and a longitudinally-movable trip 32 is mounted on the slide, having a lump 33 on its upper side to normally engage a depending cam 34 on the dog and holding the outer end of the latter above the end n^2 of the knock-off arm, all substantially as in said patent, a second outward movement of the slide m causing the dog, which has dropped behind the part n^2, to engage and swing the knock-off arm, and thereby release the shipper $N^\times$ to effect stoppage of the loom.

The weft-fork is located at the left-hand side of the loom, as herein illustrated, the raceway of the lay having a transverse recess a^{30}, through which the tines of the weft-fork sweep on the beat-up of the lay, and at the rear end of the recess the usual grid G is secured to the lay. It is manifest that the fork must be entirely free to rock on its fulcrum m^2 in order to properly perform its functions, for should it be held in such position that its tail cannot be engaged by the hook of the weft-hammer absence of filling will not be detected and neither the stopping means for the loom nor the filling-replenishing mechanism will be operated, and as the loom continues to run without any filling laid in the shed a thin place will be made in the cloth.

Sometimes the weft or filling will break and the loose end will wrap around the tines of

the fork or undue slackness of the weft or whipping-off of the same from the weft-carrier in the shuttle will cause the weft to wrap around the fork-tines and prevent proper action of the fork. I have herein provided simple and effective means to clear the weft from the fork in such cases or to break or slacken the weft to thereby release the fork and permit it to return to normal operative condition, and to this end a block *c*, having, preferably, a series of upturned fingers *c'*, separated at their upper ends, is secured to the front of the lay at the outer end of the transverse recess a^{30}, as clearly shown in the drawings, opposite the grid G. The fingers are separated sufficiently to permit the passage between them of the tines of the weft-fork as the lay beats up, so that the fork can feel the weft on every other pick. Should the weft for any reason wrap around or become entangled in the fork, the fingers *c'* will clear the same on the backward beat of the lay, as said fingers will sweep between the tines of the fork at such time and the fork will be restored to its normal condition of freedom. The clearer operates in such a manner and at such time that the weft will not be broken if such breakage would result in the transfer of a fresh supply of weft—that is, viewing Fig. 1, supposing the shuttle in moving from right to left has laid the weft in such a way that it becomes entangled with the fork, then at such time the lay must be beating up the weft just laid. On the next backward stroke of the lay the clearer will not operate to break the weft or slacken it until the shuttle has been shot from left to right, thereby laying a weft-thread, which on the next change of shed and pick will be bound in the fabric, as usual, and the breaking of the weft thereafter by the clearer will not interfere with the weft so laid, but the weft-fork will be free to operate at the next detecting-pick.

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

In a loom, the lay, a weft-fork, and a clearer mounted on the front of the lay opposite the weft-fork, said clearer comprising a plurality of upturned fingers separated at their upper ends and adapted to pass between the tines of the fork, to clear the latter of weft as the lay moves back.

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

DAVID WHITFIELD DENNY.

Witnesses:

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