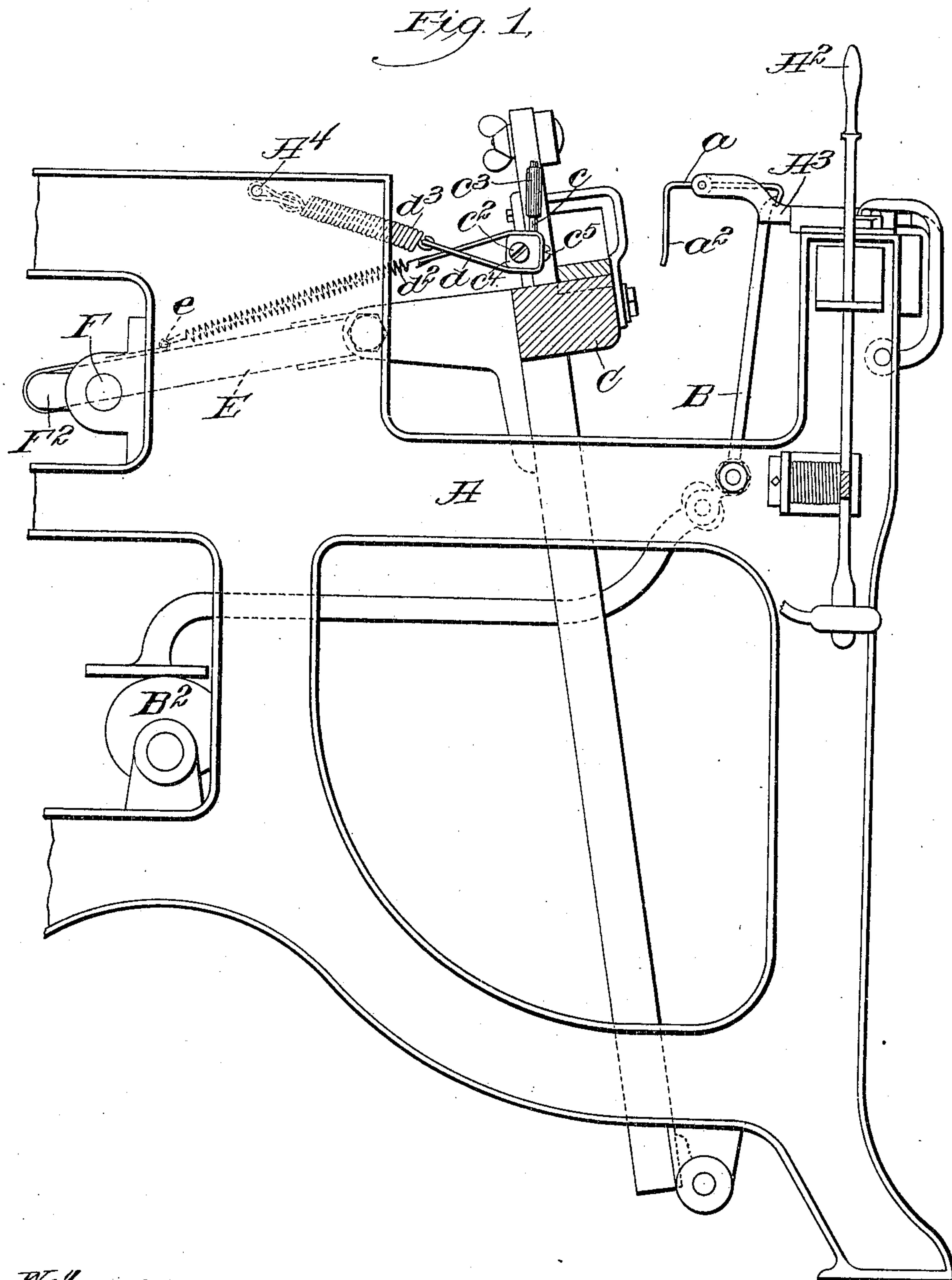


No. 837,110.

PATENTED NOV. 27, 1906.

H. W. OWEN.
STOP MOTION FOR LOOMS.
APPLICATION FILED JAN. 12, 1906.

2 SHEETS—SHEET 1.



Witnesses:
Jas. J. Maloney.
Margaret E. Owen.

Inventor:
Herbert W. Owen,
by J. P. and H. J. Swann,
Attys.

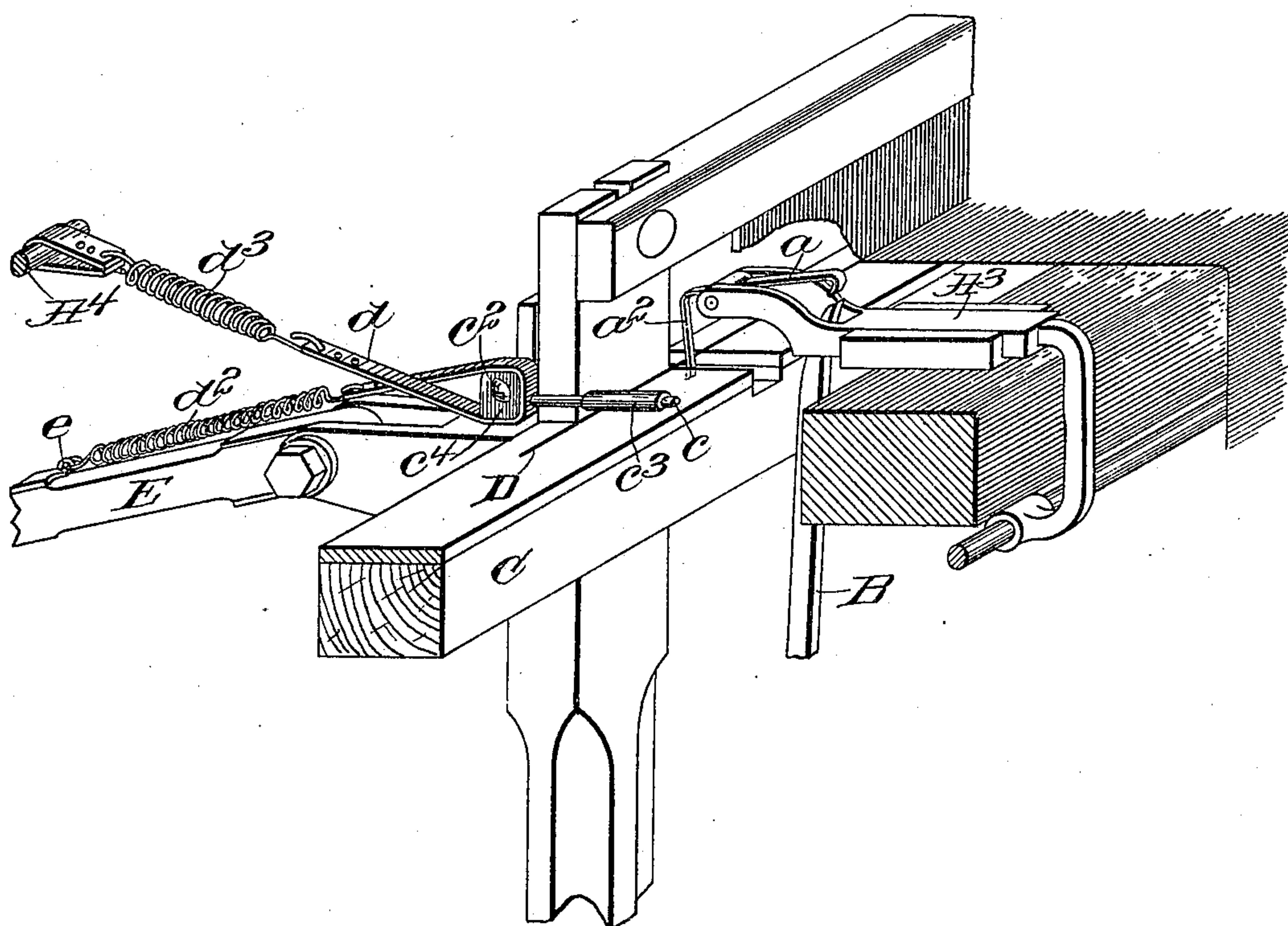
No. 837,110.

PATENTED NOV. 27, 1906.

H. W. OWEN.
STOP MOTION FOR LOOMS.
APPLICATION FILED JAN. 12, 1905.

2 SHEETS—SHEET 2.

Fig. 2,



Witnesses:
Jas J Maloney.
Margaret Conroy.

Traveler:
Herbert W. Owen,
by J. P. and H. Swenson,
Attys.

UNITED STATES PATENT OFFICE.

HERBERT W. OWEN, OF DOVER, NEW HAMPSHIRE, ASSIGNOR OF ONE-HALF TO CHARLES H. FISH, OF DOVER, NEW HAMPSHIRE.

STOP-MOTION FOR LOOMS.

No. 837,110.

Specification of Letters Patent.

Patented Nov. 27, 1906.

Application filed January 12, 1905. Serial No. 240,674.

To all whom it may concern:

Be it known that I, HERBERT W. OWEN, of Dover, county of Strafford, and State of New Hampshire, have invented an Improvement in Stop-Motions for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The present invention relates to a loom, and is embodied in a novel stop-motion device for stopping the loom when the filling or weft breaks or the supply thereof becomes exhausted.

The purpose of the invention is to obtain a filling-detector which can be manufactured at less expense than the so-called "filling-forks" heretofore commonly used, a further purpose of the invention being to lessen the liability of accidental operation of the filling-detector when the thread is not present.

In the construction now commonly employed the filling-fork is provided with a plurality of fingers which are arranged to register with the openings in a grating or rack carried by the lay, the members of the grating serving to hold the thread substantially taut, so that said thread will tip the filling-fork when it engages the fingers thereof. In this case the tension of the thread depends wholly upon the friction between the thread and the members of the grating, and it is necessary, therefore, that there should be a number of such members, four or five being commonly employed, and also that the said members should be close together. Similarly the filling-fork must be supplied with a finger or prong corresponding to each space between the grate-bars, and as the spaces are necessarily narrow it is obvious that if any one of the fingers becomes slightly bent it may engage one of the bars, so that the detector will be operated when the lay beats up, whether the thread is present or not. Since these fingers are necessarily light, being commonly made of fine wire, it frequently happens that a finger becomes bent so as to engage a grate-bar, in which case the loom will continue running after the filling-thread has become broken or exhausted.

In accordance with the present invention it is not necessary to provide the detector with more than one finger, the construction, therefore, having the advantage not only of

lessening the cost of the detector, but also of making the same lighter and more easily operated. Furthermore, the grating or rack is dispensed with, and no preliminary adjustment of the fork is necessary to insure the proper operation of the stop-motion.

To accomplish the purposes above set forth and to obviate the necessity of using the grate, the loom is provided with means for holding the thread stationary between the shed and the shuttle as the lay beats up, so that the said thread will be under sufficient tension to tip the detector and prevent the operation of the stop-motion device. This may be accomplished by providing the lay with what may be termed a "nipper" member to come into contact with the surface of the lay, nipping or pinching the thread behind the shuttle as the lay beats up. In the construction shown to illustrate the invention the said nipper member consists of a finger pivotally supported upon the lay and located between the end of the reed and the shuttle-box, the said finger being provided with actuating mechanism operated in response to the backward-and-forward movement of the lay to carry the said finger alternately out of the path of the shuttle as the lay moves back and into contact with the surface of the lay as the lay moves forward, so as to nip the thread after the shuttle has carried the said thread across. The lay is provided, as in the ordinary construction, with a transverse recess to receive the engaging member or finger of a filling-detector pivoted upon the head of the machine to control the stop-motion, it being unnecessary, however that the said filling-detector in this instance should be provided with a plurality of fingers or that a grating should be used, since the thread is held under tension between the shed and the shuttle by means of the nipper above described. It is obvious, therefore, that a very light detector member provided with a single finger may be employed and that the entire space ordinarily cut across the surface of the lay to accommodate the ordinary filling-fork which has a plurality of fingers may be left, as usual, thus allowing sufficient space to prevent accidental operation of the stop-motion in case the detector-finger becomes bent laterally.

Figure 1 is a side elevation of a sufficient portion of the loom-frame to illustrate the in-

vention, the end of the lay being shown in section; and Fig. 2 is a perspective view of a portion of the loom-head and lay, showing the parts in the position in which they stand at the end of the beating-up movement of the lay.

The invention is herein shown as applied to a loom of a well-known type in which the shipper-lever A^2 is pivotally supported upon the frame A and arranged to be tripped to stop the loom, through the agency of a slide A^3 , upon which the filling-detector is pivotally supported. The filling-detector coöperates in the usual way with the lever B, operated by a cam B^2 upon the cam-shaft, so as to move the slide A^3 and stop the loom if the filling-detector has not been engaged by the filling-thread and moved out of the path of the lever B.

In accordance with the present invention the filling-detector a may be constructed with a single finger a^2 , the thread being provided with sufficient tension to rock or tip the detector by providing the loom with means whereby the thread is held at a point between the reed and the shuttle at the time when the said thread has been beaten up into the shed. For this purpose the lay C is provided with a nipper member c , herein shown as a finger pivotally supported at c^2 between the reed and the shuttle-box, the said finger c preferably being covered with some yielding substance, such as rubber, (herein indicated by the reference-letter c^3), so that the thread D will be nipped between said finger and the surface of the lay, as best indicated in Fig. 2. It is desirable that the said finger c should be operated through a yielding force, as that of a spring, this being especially desirable for the prevention of accidental breakage in case the shuttle should lie in the path of the finger c at the time the lay beats up. While, therefore, in accordance with the invention the finger or nipper member c or the equivalent thereof may be operated in any suitable or usual way, it is herein shown as operated by means of a flexible strap d , which is secured by a screw c^5 to the hub c^4 of the finger c . The said flexible member d is shown as connected at its ends with springs d^2 and d^3 , respectively, the spring d^2 in the construction shown being connected at e with the pitman E, which connects the lay with the crank F^2 upon the crank-shaft F, the said spring d^2 having sufficient tension to hold the finger c normally in the position shown in Fig. 1. The spring d^3 , on the other hand, is connected at A^4 with a portion of the loom-frame A, so that as the lay C beats up the said spring d^3 is brought under tension, as shown in Fig. 2, and the said spring is strong enough to overcome the tension of the spring d^2 , causing the finger c to be brought into contact with the surface of the lay C, so as to nip the thread D and hold the same taut between the shed and

the finger, thereby operating the detector a and moving the same out of the path of the lever B. While the tension of the spring d^3 is sufficient to overcome that of the spring d^2 and operate the finger c under normal conditions, the said spring d^3 is sufficiently yielding to permit the full forward movement of the lay without positively operating the finger c if any solid substance lies in the path of the finger c —as, for example, would be the case if the shuttle were to be retarded so as to come under the finger at the end of the beating-up movement.

When the lay C is in the position shown in Fig. 1, the tension of the spring d^3 is relieved and the finger c is held, as shown, out of the path of the shuttle by means of the spring d^2 , and substantially at this period the shuttle is thrown across, carrying with it the thread. As the lay beats up the spring d^3 is put under tension, causing the finger c to rock forward to the position shown in Fig. 2, thus nipping the thread D at a point between the shuttle-box and the shed, so that the said thread stands taut in the path of the detector-finger a^2 , causing the detector a to be rocked on its pivot, so that the lever B in its movement will produce no corresponding movement of the slide A^3 . As the lay C moves back the tension of the spring d^3 is relieved, and the spring d^2 will act to carry the finger c to the position shown in Fig. 1, so as to be out of the path of the shuttle in its return movement.

It will be seen from the foregoing description that the filling-forks may be much more simply and inexpensively constructed than heretofore and that they may also be made lighter and more sensitive, this being of great advantage in weaving fine yarns, while it is practicable to afford sufficient room for the detector-finger a^2 to obviate the liability of the engagement with said finger of some portion of the lay or parts carried thereby in case the said finger is slightly bent out of shape.

It is not intended to limit the invention to the specific construction herein shown and described, since modifications may obviously be made without departing from the invention, the salient feature of which consists in means for temporarily holding the thread at a point between the shed and the shuttle-box.

What I claim is—

1. In a loom, a lay; a filling-detector pivotally supported on the frame; a finger on the lay to hold the thread when it engages said detector; and means for moving said finger toward and from the lay to prevent interference with the shuttle.

2. In a loom, a lay; a filling-detector in the path of the filling-thread when the lay beats up; and means mounted on the lay for nipping the thread on the lay between the shed and the shuttle, to cause said thread to act on said detector.

3. In a loom, a lay; a filling-detector to be
acted on by the thread; a nipper member
carried by the lay; and means operated by
the lay in the movement thereof for actuat-
5 ing said nipper member to engage and hold
the thread between the shed and the shuttle.

4. The combination with a filling-detector,
of a lay; a finger pivotally supported on the
lay; a spring connected with said finger and
10 with a part movable with the lay to hold said
finger out of the path of the shuttle; and a

second spring also connected with said finger
and connected with the loom-frame to hold
said finger and cause the movement thereof
in the beating-up movement of the lay.

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

HERBERT W. OWEN.

Witnesses:

C. H. FISH,

SARAH C. HAMILTON.