

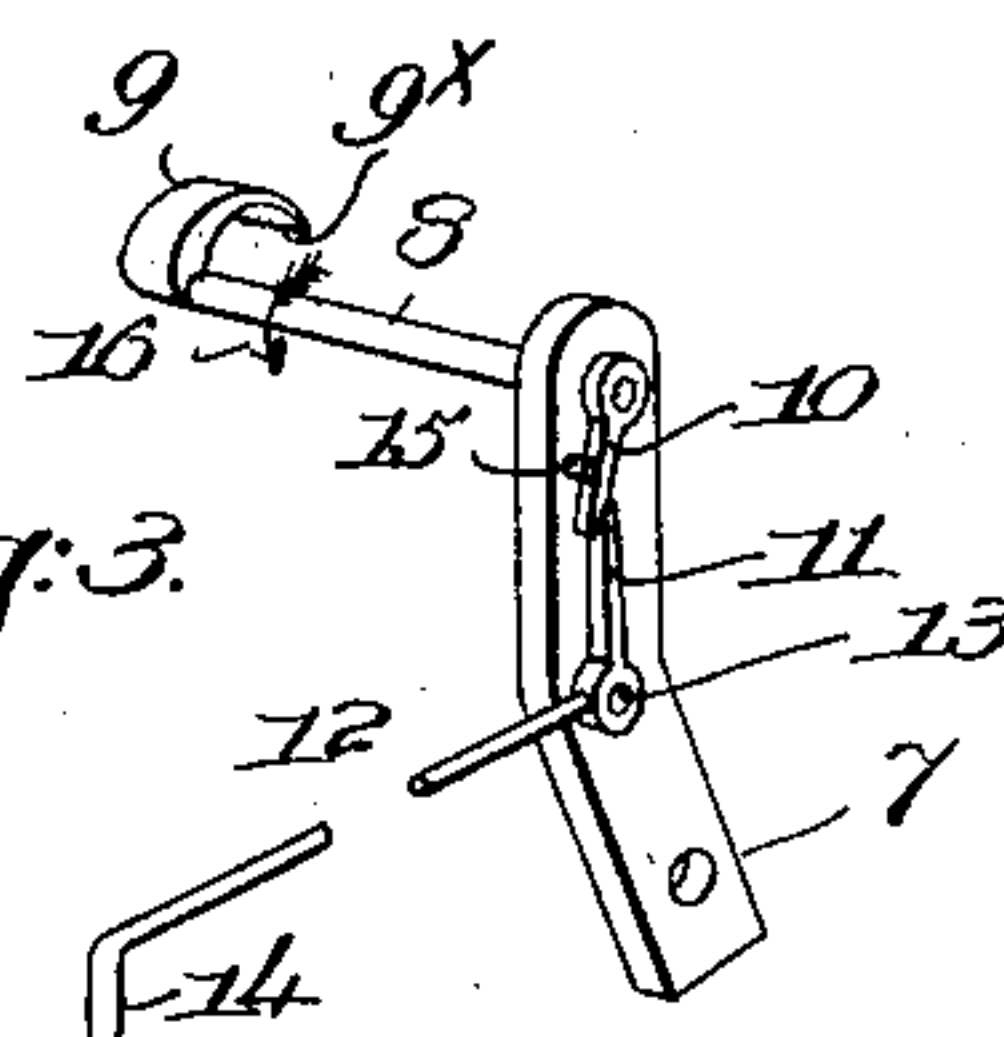
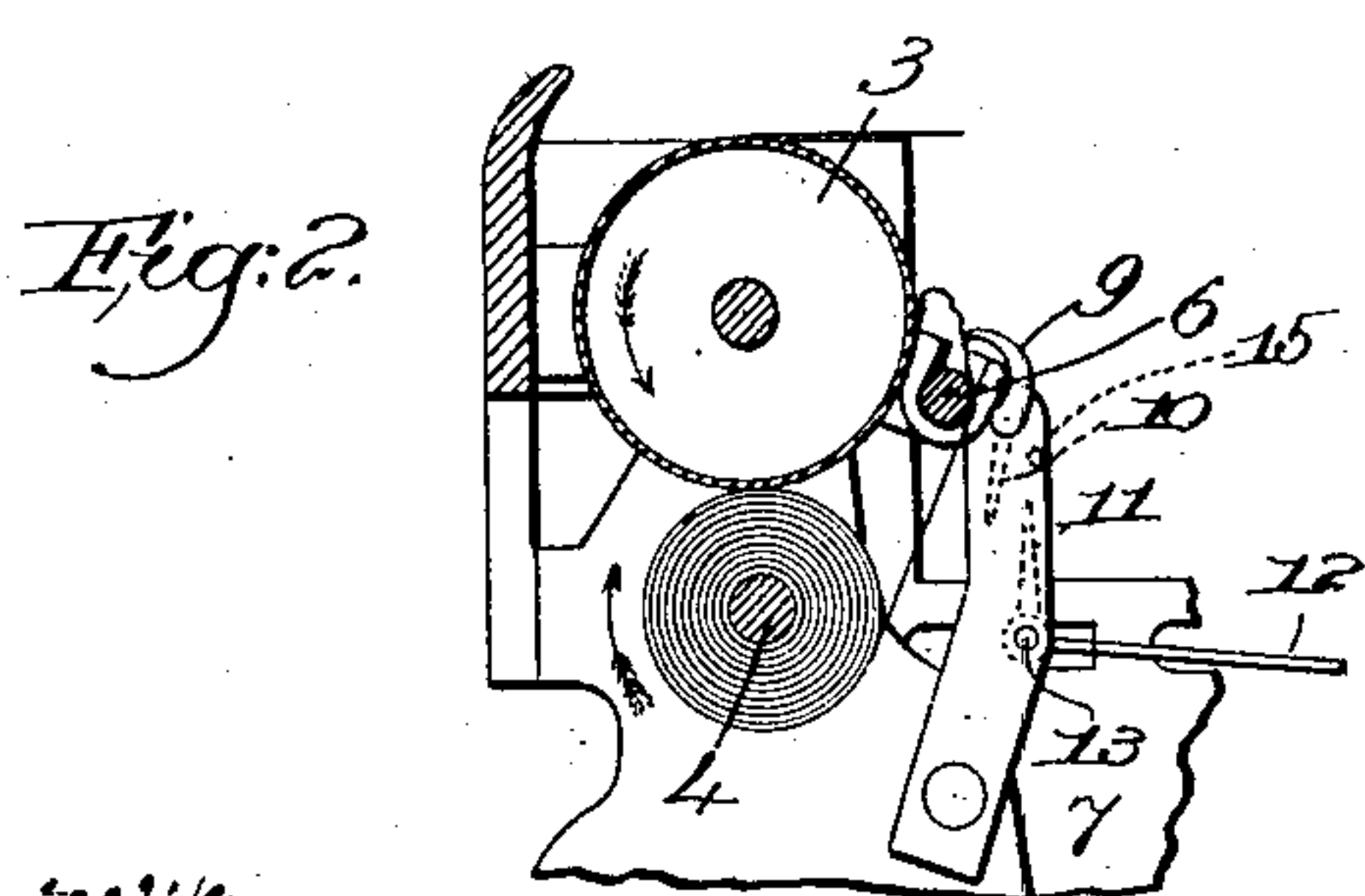
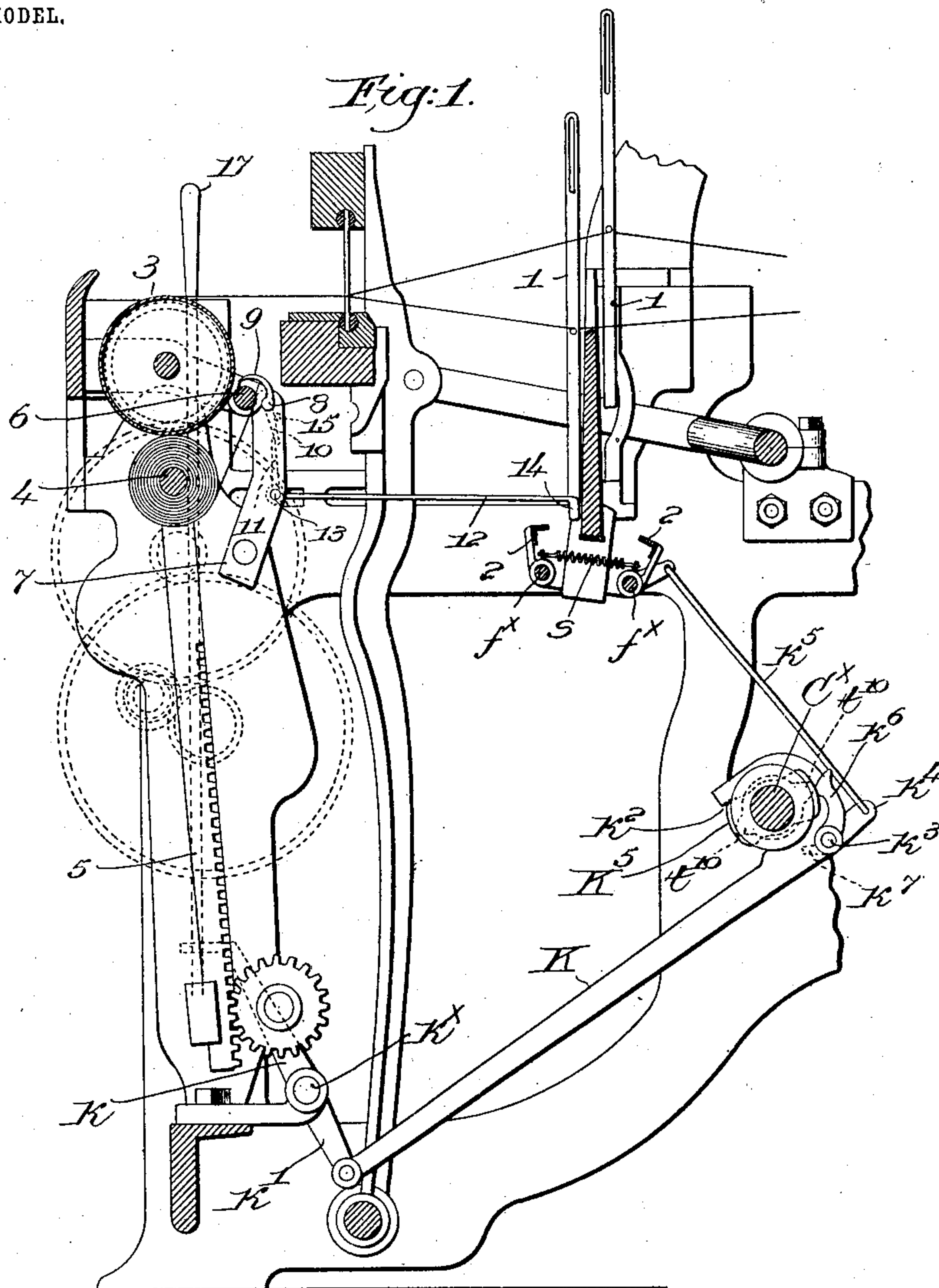
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TAKE-UP STOP MOTION FOR LOOMS.

APPLICATION FILED APR. 6, 1904.

NO MODEL.



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UNITED STATES PATENT OFFICE.

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TAKE-UP STOP-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 762,426, dated June 14, 1904.

Application filed April 6, 1904. Serial No. 201,798. (No model.)

To all whom it may concern:

Be it known that I, ALIDA M. MARCOUX, a citizen of the United States, and a resident of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Take-Up Stop-Motions 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 for effecting automatically the stoppage of a loom by or through the take-up when the proper operation of the latter is interrupted, as by the winding of the cloth around the take-up or sand roll instead of on the cloth-roll. Sometimes the cloth-roll may stick in its bearings, or the cloth may cling to and wind upon the take-up roll, and if this fault is not quickly detected and the loom stopped the cloth will be damaged and parts of the loom are liable to be unduly strained or broken. In my present invention I have devised simple means whereby the occurrence of such a fault as described will cause the operation of a stopping instrumentality to at once and automatically stop the loom before any damage can be effected, and in the present embodiment of my invention I have utilized a portion of the warp stop-motion of the loom to effect the desired result.

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 transverse sectional view of a portion of a loom equipped with a so-called "steel" harness and cooperating warp stop-motion with one embodiment of my invention in operative connection therewith and in normal condition. Fig. 2 is a detail showing a portion of the mechanism in position to effect loom stoppage, and Fig. 3 is a perspective detail of the means whereby the stop-motion is caused to operate upon the occurrence of a fault in the taking up of the cloth.

The thin flat metal heddles 1, which serve also as warp stop-motion-controlling detec-

tors, the normally vibrating feelers 2 to cooperate with and be arrested by a heddle-detector released by failure of its warp-thread, the take-up or sand roll 3, the cloth-roll 4, rotatably mounted in bearings in the sliding racks 5, and the guide-roll 6 (see Fig. 1) may be and are all of well-known construction and operate in usual manner familiar to those skilled in the art.

As shown in Fig. 1, the cloth passes from the fell forward over and around the take-up roll 3, thence over the guide-roll 6, and down to and around the cloth-roll, the cloth being wound thereon by or through surface friction with the take-up roll, the gradually-increasing roll of cloth causing the racks 5 to descend in well-known manner. If the cloth-roll 4 should stick in its bearings or the cloth should for any other reason cling to and wind upon the take-up roll, the cloth would be damaged and parts of the loom would very probably be broken. To prevent such a contingency, I have herein provided an arresting device to cooperate with and arrest the feeler of the warp-stop-motion mechanism if the cloth accumulates or winds upon the take-up roll.

An upright bracket 7 is attached to the support F for the rack 5 and has mounted in it an inwardly-extended rock-shaft 8, (clearly shown in Fig. 3 located just back of the guide-roll 6,) and a curved finger or controller 9 is secured to the rock-shaft. The controller overhangs the said guide-roll, and its tip is located close to the surface of the take-up roll 3 just above the cloth as it passes therefrom to the guide-roll. At its outer end the rock-shaft has secured to it a depending detent 10, which is adapted to engage the upturned short arm 11 of an arresting device, shown as a bell-crank 11 12, fulcrumed at 13 on the bracket 7, the long arm 12 of said device extending rearwardly and overhanging the front one of the two vibrating members or feelers 2, Fig. 1. The rear end of the arm 12 is downturned and preferably thickened, as at 14, and when the loom is running properly the said portion 14 is held up out of the path of the feeler by the detent 10, as clearly shown in Fig. 1. At

such time the weight of the arm 12 acts through the short arm 11 to press the detent against a stop 15 on the bracket and with the controller 9 in its operative position. If now the cloth sticks to the take-up roll and begins to wind upon or accumulate thereon, it engages the tip of the controller and lifts it, rocking the shaft 8 in the direction of arrow 16, Fig. 3, causing the detent to swing forward and wipe past the end of the arm 11, as in Fig. 2, thereby releasing the arresting device, so that the downturned end 14 thereof drops into the path of and arrests the feeler 2 on its inward or feeling stroke. Such arrest of the feeler is made operative by intervening means to release the shipper 17 from its usual notched holding-plate to shift the belt or other device by or through which power is transmitted to the loom and the latter is stopped. In order to insure the operation of the controller, its tip end may be roughened or provided with fine teeth, as 9^x, Fig. 2, to positively engage the cloth when bunched or wound on the take-up roll to thereby tilt or rock the controller, as has been described. The feelers are vibrated in opposite directions by usual intermeshing segment-gears forming no part of my invention, a spring s, Fig. 1, drawing the feelers inward on their inward stroke.

A brief description of the means whereby the arrest of a feeler releases the shipper 17, and thus causes the operation of a stopping instrumentality, will be given.

Referring to Fig. 1, a knock-off arm k , adapted to engage the lower end of the shipper, is fast on a rock-shaft k^x , supported on the loom-frame and having a depending arm k' pivotally connected with the lower end of a link K. The upper end of the latter is hooked at k^2 to embrace the cam-shaft C^x , and a short rock-shaft k^3 is mounted on the link, the rock-shaft having an arm k^4 connected by a rod k^5 with an arm on one of the feeler rock-shafts f^x . A follower k^6 and a bunter k^7 are rigidly attached to the rock-shaft k^3 , the follower coöperating with a feeler-actuating cam K^5 , fast on the shaft C^x , said cam being a double-throw cam and acting through the follower and intermediate parts to effect the outward or non-feeling stroke of the feelers 2. The bunter k^7 is located in the path of oppositely-located tappets t^{10} , and normally cam K^5 will act, through the follower, to elevate the bunter and depress it without engagement by either tappet. When, however, a feeler is arrested, the bunter remains in the path of and is engaged by a tappet and the link K will be moved longitudinally to turn the shaft k^x and act, through the knock-off arm k , to release the shipper 17. This mechanism is simple and effective and substantially that shown in United States Patent No. 744,910; but any other suitable mechanism of this general character may be employed, as it is immaterial to

my present invention how the normal vibration of the feeler is effected.

By reference to Fig. 1 it will be manifest that the loom cannot be set in motion unless the arresting device is set or placed in normal position, (shown in Fig. 1,) and to accomplish this it is only necessary to lift the long arm 12 and throw the short arm forward past and in front of the detent 11. Thereupon the weight of the device holds the detent against the stop 15 and the detent maintains the part 14 out of the path of the feeler. It is thus requisite that the take-up roll be clear and in proper condition before the loom can be started, for the curved finger 9 cannot be returned to its normal position if the cloth be bunched or wound upon the take-up roll.

My invention is not restricted to the construction and arrangement shown and described, as the same may be changed or modified in various particulars without departing from the spirit and scope of my invention.

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

1. In a loom, take-up mechanism, including a take-up roll, means to effect the operation of a stopping instrumentality, said means including a normally vibrating feeler, and a device rendered operative by or through winding of the cloth upon the take-up roll to arrest the feeler and thereby render said means active to cause stoppage of the loom.

2. In a loom, take-up mechanism, including a take-up roll, means to effect the operation of a stopping instrumentality, said means including a normally vibrating feeler, an arresting device, and means to normally maintain said device out of the feeler path, said means permitting the arresting device to engage and arrest the feeler by or through accumulation of cloth upon the take-up roll, to thereby effect the operation of the stopping instrumentality.

3. In a loom, take-up mechanism, means operative upon failure of a warp-thread to effect the operation of a stopping instrumentality, and a device to cause the actuation of said means upon the occurrence of a fault in the operation of the take-up mechanism.

4. In a loom, take-up mechanism, including a take-up roll, warp-stop-motion mechanism, including a shipper, a normally vibrating feeler, and means to release the shipper upon arrest of the feeler, combined with independent feeler-arresting means rendered operative by or through accumulation of cloth upon the take-up roll.

5. In a loom, take-up mechanism, including a take-up roll, warp-stop-motion mechanism, including a shipper, stop-motion-controlling detectors, and a feeler adapted to coöperate with and be arrested by a detector released by failure of its warp-thread, and means to release the shipper upon arrest of the feeler,

combined with a normally inoperative feeler-arresting device rendered operative by or through winding of the cloth upon the take-up roll.

5 6. In a loom, in combination, a shipper, means to release it, said means including a normally vibrating member, take-up mechanism including a take-up roll, an arresting device to cooperate at times with and arrest said
10 vibrating member, to thereby effect release of the shipper, and means to normally maintain said device inoperative and render it operative upon accumulation of cloth on the take-up roll.

15 7. In a loom, in combination, a shipper, means to release it, said means including a normally vibrating member, take-up mechanism including a take-up roll, an arresting device to cooperate at times with and arrest said
20 vibrating member, to thereby effect release of the shipper, a detent to maintain said device inoperative, and a controller connected with the detent and located adjacent the surface of the take-up roll, accumulation of cloth there-

upon acting upon the controller to move the de- 25
tent and release the arresting device to cause its cooperation with the vibrating member.

8. In a loom, in combination, means, including a normally vibrating member, to effect the operation of a stopping instrumentality, 30
take-up mechanism, including a take-up roll, a rocking finger adjacent thereto and having an attached detent, a stop for the latter, and an arresting device for said vibrating member, normally in engagement with the detent 35
and thereby maintained inoperative, an accumulation of cloth on the take-up roll acting to rock the controller and move the detent away from its stop to thereby release the arresting device and permit its cooperation 40
with the vibrating member to arrest the same.

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

ALIDA M. MARCOUX.

Witnesses:

GEORGE OTIS DRAPER,
ERNEST WARREN WOOD.