

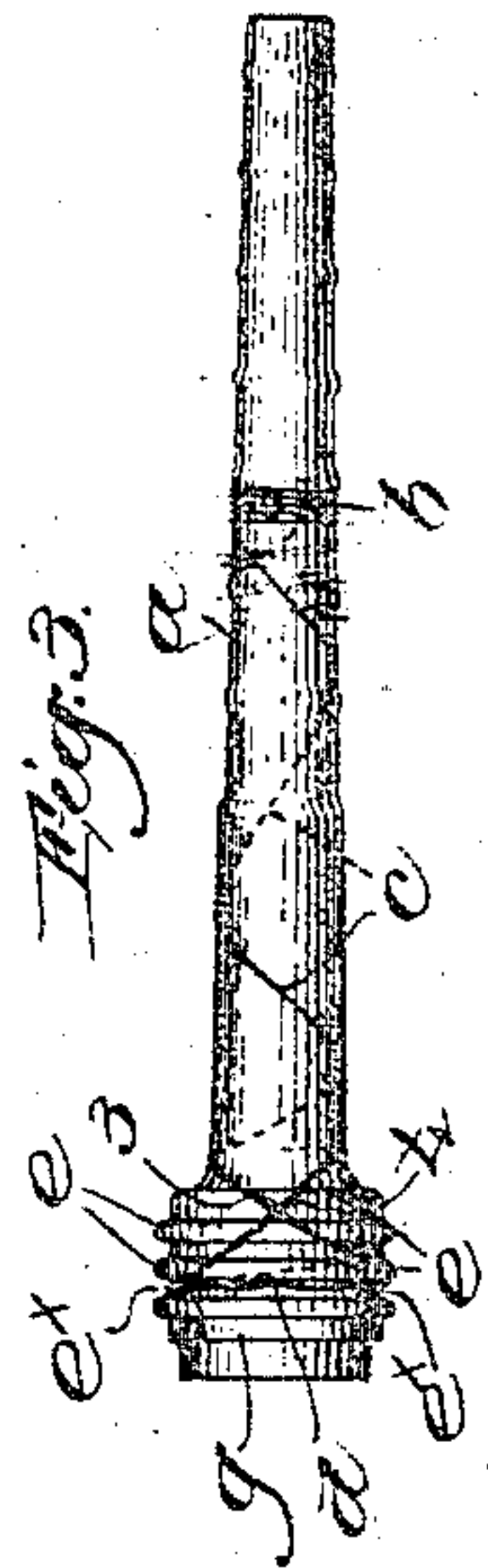
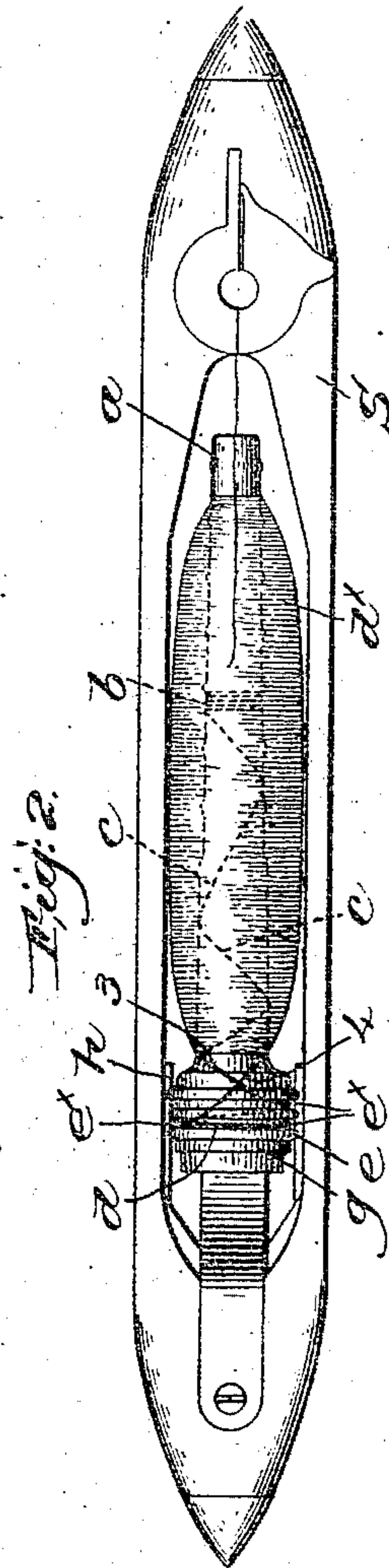
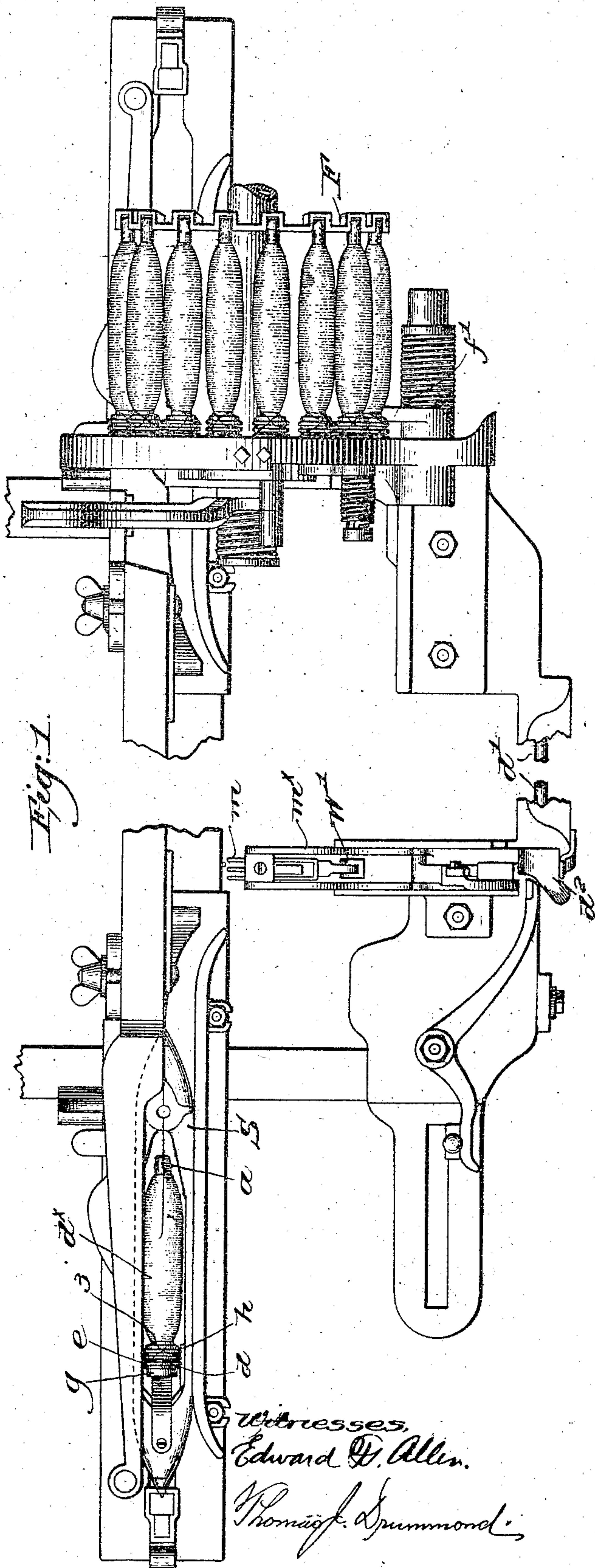
No. 679,941.

Patented Aug. 6, 1901.

R. BURGESS.  
LOOM AND FILLING CARRIER THEREFOR.

(Application filed Apr. 22, 1901.)

(No Model.)



In witness whereof  
Robert Burgess  
by Crosby & Gregory  
attys.



# UNITED STATES PATENT OFFICE.

ROBERT BURGESS, OF NEW BEDFORD, MASSACHUSETTS.

## LOOM AND FILLING-CARRIER THEREFOR.

SPECIFICATION forming part of Letters Patent No. 679,941, dated August 8, 1901.

Application filed April 22, 1901. Serial No. 56,832. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT BURGESS, a citizen of the United States, and a resident of New Bedford, county of Bristol, State of Massachusetts, have invented an Improvement in Looms and Filling-Carriers Therefor, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

Looms provided with automatic filling-replenishing mechanism comprise two classes—viz., the one wherein breakage of the filling and weaving out of filling from the shuttle is detected by the filling-fork and a fresh supply of filling is automatically inserted in the shuttle after a loss of from one to three picks in the cloth, the other class wherein filling-replenishing is automatically effected with no loss of picks upon exhaustion of the filling in the shuttle to a predetermined extent by or through the agency of a feeler to feel the filling in the shuttle. My present invention partakes of some of the characteristics of both classes, as it is employed in connection with a loom of the first above-mentioned class, but with means whereby when the filling has been exhausted to a predetermined extent, a fresh supply will be provided automatically after a loss of from one to three picks, but without the employment of a feeler to feel the filling in the shuttle. The absence of filling in the shed is discovered by the usual filling-fork in well-known manner and filling change is effected; but a practically empty filling-carrier is ejected instead of one which is in condition to continue weaving, as is frequently the case with the so-called “feeler” class of looms. The filling-carrier or bobbin is ordinarily wound so that the last portion to weave off, and which of course is the first portion wound thereupon in the spinning operation, will come off in a bunch, and considerable time and care are necessary to pick it out from the cloth, in which it forms a defect.

It will be manifest that in a plain loom provided with automatic filling-replenishing mechanism it is very essential to obviate the tendency of the last portion of the yarn on the filling-carrier to come off in a bunch or “curl,” as it is termed, as the weaver is sel-

dom at hand the instant a change of filling is effected, and as a consequence many defects are made in the cloth. My present invention provides means for not only preventing the so-called “curl” from being drawn off the filling-carrier and woven into the cloth, but it also provides for effecting a change of filling in a non-feeler loom when the shuttle-filling is exhausted to a predetermined extent.

The novel features of my invention will be hereinafter described, and particularly pointed out in the following claims.

Figure 1 is a top or plan view, centrally broken out, of a non-feeler loom provided with automatic filling-replenishing mechanism with one embodiment of my invention applied thereto. Fig. 2 is an enlarged plan view of a shuttle and a filling-supply therein embodying a portion of my invention, and Fig. 3 is a side elevation of the filling-carrier or bobbin with the initial or preliminary winding of filling thereupon.

The general structure of the loom shown in Fig. 1 is of well-known and usual character, and the filling-replenishing mechanism, comprising, essentially, the rotatable feeder *F* for the filling-carriers, the transferrer *f'*, by or through which the filling-carriers are transferred singly from the feeder to the self-threading shuttle *S*, and the controlling rock-shaft *d'*, having an arm *d<sup>2</sup>* fast thereon, may be substantially as shown in United States Patent No. 529,940, dated November 27, 1894.

The filling-fork *m*, mounted on the slide *m<sup>x</sup>*, is engaged by the weft-hammer *W* if the filling is absent from the shed, and the slide is moved outward in well-known manner to engage and swing the arm *d<sup>2</sup>* and rock the shaft *d'*.

The filling-carrier or bobbin comprises a barrel *a*, having its base or head *g* provided with a plurality of metallic rings *e* to be engaged by the holding-jaws *h* of the shuttle *S*, Figs. 1 and 2, in well-known manner, an annular space *e<sup>x</sup>* being formed between two adjacent rings *e*.

Ordinarily the yarn is spun or wound upon the filling-carrier at *b*, Figs. 2 and 3, at the beginning of the operation, at which point a considerable number of turns are wound practically overlapping or upon each other,



and it is some of these turns which are liable to come off in a bunch or curl and be woven into the cloth. In order to overcome this difficulty, I cause the yarn after a few turns around the barrel at *b* to wind downward toward the head of the filling-carrier, as at *c*, and I then form what I term an "anchor-winding" by taking several turns of the yarn about the head in one of the annular recesses *e*<sup>x</sup>, the anchor-winding being shown clearly at *d*, Figs. 2 and 3, after which the yarn is wound upon the barrel in the ordinary way to form the main or service winding *d*<sup>x</sup>. It will be noticed that the filling traversed from the anchor-winding to the service-winding is exposed and accessible, as at 3 4, and this may be utilized, as will be described hereinafter. When the filling is wound off during the weaving, the service-winding is gradually used up, and when the anchor-winding is reached the yarn will always break, because, as will be manifest, the holding-jaws of the shuttle grasp the head of the filling-carrier and prevent the yarn from unwinding, so that it must of necessity part. Thus none of the winding at *b* or the curl will be drawn off from the filling-carrier, and detection of the absence of filling by the filling-fork operates in well-known manner to effect the actuation of the filling-replenishing mechanism and a fresh supply of filling is inserted in the shuttle. The filling is also parted when the supply in the shuttle has been exhausted to a predetermined extent and with a very small percentage of waste, for very little filling is involved in the winding at *b c* and the "anchor-winding," which I have so designated because it serves to anchor the curl upon the filling-carrier and also determines the break-point of the filling. The yarn is wound in the manner described by manipulating the ring-rail of the spinning-frame at the proper time to give the desired result. Instead of permitting the anchor-winding to effect the breakage of the filling at the proper time, as has been described, it will be manifest that precisely the same results will be obtained, so far as time of filling change and retention of the curl upon the filling-carrier are concerned, by breaking the filling where it is exposed and accessible between the anchor and service windings—viz., at 3 4—the weaver or attendant breaking the filling thereat as he puts each filling-carrier in the feeder of the replenishing mechanism. The loose end of filling-thread thus left and the small number of turns of the filling immediately preceding it will not make a bunch, as the turns are not wound tightly one upon the other, as is the case in the formation of the curl. Either automatic or manual severing of the filling can therefore be effected

with like results in the subsequent operation of weaving, and in either case change of filling will also be effected through the action of the filling-fork should the filling break accidentally before the service-winding is exhausted. In the use of cop-filling the same system can be used by carrying the anchor-winding down on the mule-spindle below the regular traverse. This would be broken in the doffing or left exposed, so that when the cop was put on the cop-skewer for use in the loom-hopper it could be broken there by hand. This cop-skewer would then be the "filling-carrier," and in using this latter term I mean to include skewer as well as bobbins.

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

1. In a loom provided with automatic filling-replenishing mechanism, a shuttle adapted to contain a supply of filling, means to part the filling when exhausted to a predetermined extent, and means to effect the actuation of the filling-replenishing mechanism upon parting of the filling.

2. A filling-carrier for looms, having a mass of filling wound thereupon, and means to effect breakage of the filling when exhausted to a predetermined extent.

3. A filling-carrier for loom-shuttles, having a filling mass thereon having at or near its inner end an anchor-winding, and a service-winding, the portion of filling traversed from the former to the latter winding being exposed and externally accessible.

4. A filling-carrier for loom-shuttles, having a filling mass thereon having at or near its inner end an anchor-winding, upon the head of the carrier and a service-winding upon the barrel, the portion of filling traversed from the former to the latter winding being exposed.

5. A filling-carrier for loom-shuttles, having a filling mass thereon having an anchor-winding at or near its inner end, and a main or service winding, the portion of filling leading from the anchor-winding being readily parted without releasing the said winding.

6. A filling-carrier having an annular recess in its head, and having a filling mass having at or near its inner end an anchor-winding in said recess and a main or service winding upon the barrel of the carrier, the filling traversed from one to the other winding being externally accessible.

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

ROBERT BURGESS.

Witnesses:

OTIS P. COOK,  
J. W. WEBSTER.