

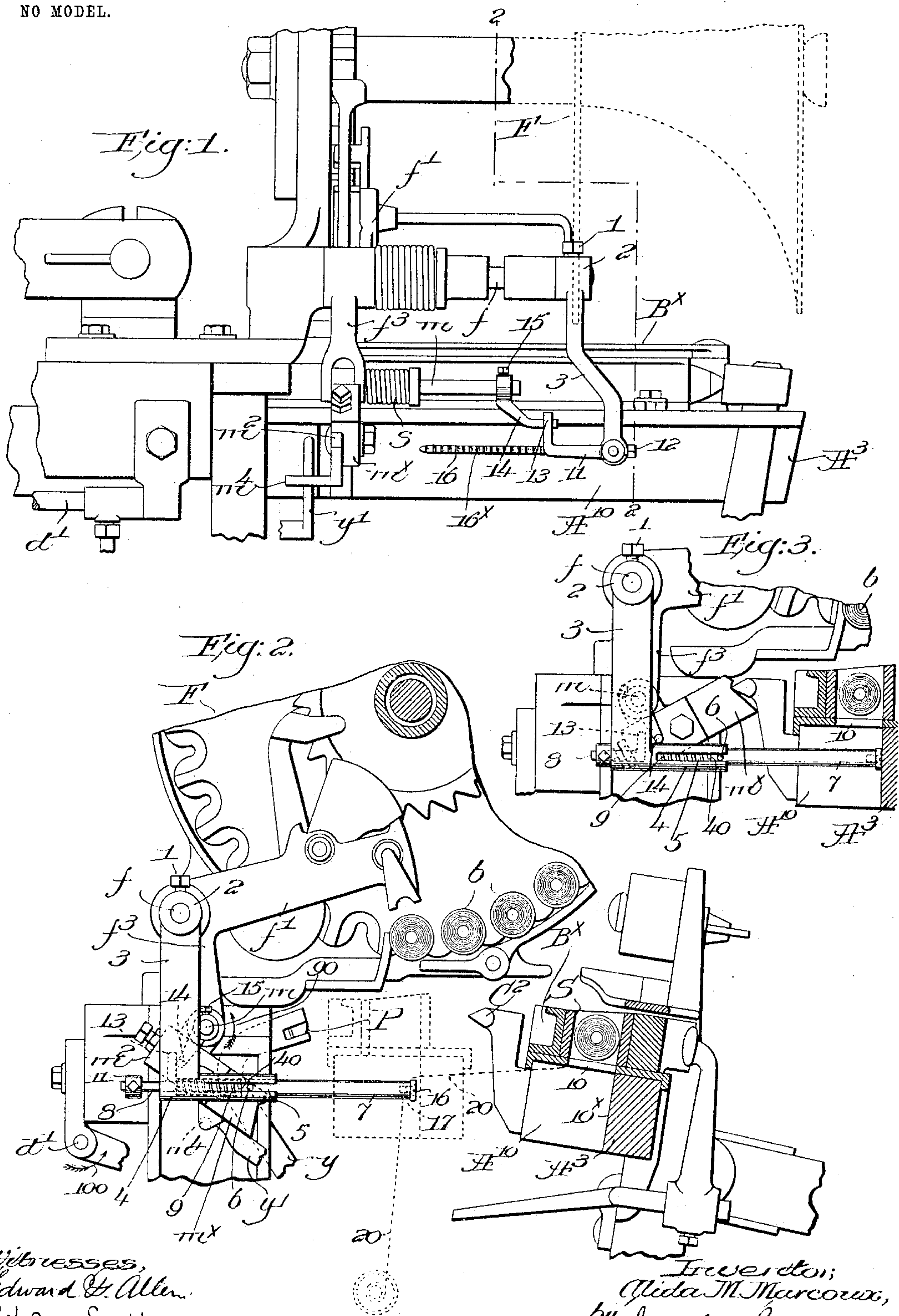
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PATENTED JULY 26, 1904.

A. M. MARCOUX.
FILLING REPLENISHING LOOM.

APPLICATION FILED MAY 11, 1904.

NO MODEL.



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FILLING-REPLENISHING LOOM.

SPECIFICATION forming part of Letters Patent No. 766,151, dated July 26, 1904.

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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 Automatic Filling - Replenishing Looms, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

In automatic looms of the "Northrop" type (see United States Patent No. 529,940) the running filling is replenished from time to time by automatically inserting a fresh filling-carrier into the running shuttle, and thereby causing the ejection of the more or less exhausted filling-carrier from the shuttle, the ejected filling-carrier dropping into a suitable receptacle.

Means have been provided (see United States Patents Nos. 641,763 and 677,096) to part the old filling end between the edge of the cloth and the shuttle when filling replenishment is effected, the ejected filling-carrier as it drops acting to pull the parted and trailing filling end out of the shuttle-eye to clear the same and prevent fouling of the fresh filling and also to prevent the parted end from being carried back by the shuttle into the cloth. Sometimes this fouling would occur, and it was found in practice that if a tall box or receptacle was provided for the ejected filling-carriers the parted filling end would pull over the upper edge of the receptacle as the lay receded after replenishment and materially aid in clearing the shuttle-eye of the old filling. In actual practice, however, there are some objections attendant upon the use of such tall receptacles, their tops reaching very close to the lay when forward. For instance, if the weaver inserted his hands into the receptacle to remove a filling-carrier his knuckles were apt to be struck and injured by the lay, owing to the small clearance-space, yet with a low receptacle, which was free from this trouble, the old filling end would at times be left in the shuttle-eye after replenishment.

My present invention has for its object the production of means whereby in an automatic loom of the character specified the parted filling end is engaged and caught between the shuttle and the ejected filling-carrier, so that as the lay recedes after filling replenishment the parted filling end will be effectually drawn out of the shuttle-eye.

By my invention fouling of the shuttle and the fresh filling is obviated, the old filling end cannot be drawn into the cloth, and a receptacle for the spent filling-carriers or bobbins may be made of such height that there will be no interference if the weaver wishes to remove any of the filling-carriers therefrom.

The various 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 partial front elevation of the replenishing side of an automatic loom of the type referred to with one embodiment of my invention applied thereto, only a portion of the filling-feeder being shown. Fig. 2 is a transverse sectional detail thereof on the line 2 2, Fig. 1, showing the replenishing mechanism and the novel features embodying my present invention in normal position; and Fig. 3 is a detail similar to Fig. 2, but showing the transferring devices ready to operate to effect filling replenishment and with the device for catching the old filling end in readiness to act.

The filling-feeder *F* to hold the reserve filling-carriers *b*, the transferrer *f'*, mounted to rock on the horizontal stud *f* and to remove the filling-carriers one by one from the feeder to the shuttle *S*, (which latter is of the automatically-self-threading type,) the controlling rock-shaft *d'*, and the lay *A*³, cut away at *A*¹⁰ below the shuttle-box *B*^x at the replenishing side of the loom, said shuttle-box being slotted in its bottom at 10, Fig. 2, to permit the discharge of a filling-carrier ejected from the shuttle at the time of filling replenishment, are and may be of well-known construction and operation and require no further detailed description.

Suitable means are provided for rotating the filling-feeder intermittingly and form no part of my present invention.

The downturned end f^3 of the transferrer 5 has a rotatable spring-controlled stud m thereon, on which is mounted an arm m^2 , having an attached notched dog m^x to cooperate with the bunter C^2 on the lay when filling replenishment is to be effected, the arm m^2 having 10 a lateral lug m^4 thereon to be engaged by a branch y' of a pivotally-mounted yoke, all substantially as in United States Patent No. 641,792, hereinbefore referred to. As in said patent the other branch y of the yoke (see 15 Fig. 2) forms a shuttle-feeler and is provided with means (indicated at P) to part the old filling end between the cloth and the shuttle when replenishment takes place; but any other similar thread-parting means may be 20 used, so far as my present invention is concerned.

It will be understood that when the rock-shaft d' is turned in the direction of arrow 100, Fig. 2, the yoke $y y'$ will rock rearwardly, 25 and thereby the parting means P will be positioned, and at the same time the spring s turns the stud m to place the dog m^x in the path of the bunter C^2 , as shown in Fig. 3, and the transferrer will be operated as the lay 30 beats up into dotted-line position, Fig. 2.

In the present embodiment of my invention the outer end of the transferrer-stud f is extended and has secured to it by a set-screw 1 the hub 2 of a downturned arm 3, the arm, 35 as shown in the drawings, being bent or shaped to bring its lower end to a point below the path of movement of the shuttle-race and opposite the cut-away part A^{10} of the lay. Said arm 3 is provided at its lower end with 40 a tubular or sleeve-like bearing 4, provided with a longitudinal slot 5 to receive a pin 6, (see Figs. 2 and 3,) projecting laterally from a carrier (shown as an elongated rod 7) slidably mounted in the bearing 4 and at right 45 angles to the breast-beam.

The carrier at its outer end is reduced in diameter at 8, and a spring 9 is coiled around said reduced portion between the outer end of the bearing 4 and the shoulder 40 on the 50 carrier, the pin 6 preventing any rotative movement of the carrier, while permitting it to slide in the bearing.

At the front end of the part 8 is secured a lateral arm 11, held in place by a suitable set-screw 12 and having an upturned end 13, 55 (best shown in Fig. 1,) adapted to cooperate with a depending and outwardly-turned finger 14, secured by a set-screw 15 on the extended end of the stud m .

60 The finger and the cooperating upturned part 13 of the arm 11 are shown in dotted lines in Fig. 2 in their normal position. At such time the finger acts through the arm to retract the carrier 7 against the expansive

65 action of the spring 9 in the position illustrated in Fig. 2, and at such time when the lay beats up the back wall 10^x of the cut-away part of the lay will not hit the said carrier or the attached filling end or thread-catcher, to be hereinafter described. When, however, 70 filling replenishment is to be effected, the stud m is turned in the direction of the arrow 90, Fig. 2, to elevate the notched dog m^x into the path of the bunter C^2 in a manner well understood. The finger 14 is swung toward the 75 rear of the loom by such rotative movement of the stud m , and thereby the spring 9 is permitted to move the carrier 7 rearwardly, so that as the lay beats up the wall 10^x will engage the carrier and move it forward slightly 80 when the lay reaches front center.

The thread-catcher is herein shown as an elongated bar or rod 16, rigidly secured to the rear end of the carrier 7, as by a screw 17, (see dotted lines, Fig. 2,) the catcher having its 85 front face roughened or notched, as at 16^x , Fig. 1. When the carrier 7 is released, as has been described, and the lay beats up, the thread-catcher 16, which is intumed and in parallelism with the wall 10^x on the lay, will 90 assume a position beneath the replenishing shuttle-box B^x and behind the path of the filling-carrier, to be ejected at the time of filling replenishment.

The change of filling inserts a fresh filling 95 into the shuttle, and the filling-carrier previously held in the shuttle is ejected through the bottom of the replenishing shuttle-box and is discharged to any suitable receptacle 100 below the loom, and as the ejected filling-carrier drops the filling end which has been parted by the parting device P will pass in front of the catcher 16, such parted filling end 105 leading from the ejected filling-carrier to the shuttle. Now as the lay recedes after filling replenishment has been effected the shuttle-box will of course be moved away from the thread-catcher, and thereby the filling end 110 will be engaged and caught by the catcher, and as the lay moves back the engaged filling end will be pulled out of the shuttle-eye to clear the same. If for any reason the backward movement of the lay should be insufficient for this purpose, it will be manifest that 115 the first shot of the shuttle from the replenishing-box will cause a clearance of the shuttle-eye. Ordinarily, however, the clearance will be completed by or through the action of the thread-catcher 16 upon the backward 120 movement of the lay.

The roughening or notching of the front face of the catcher insures the engagement of the same with the filling end.

In Fig. 2 I have shown by a broken line 20 the path of the filling end when the lay has 125 swung back after filling replenishment, it being supposed that all the parts have returned to their normal position after replenishment.

I prefer to mount the carrier in a spring-controlled or yielding manner, substantially as hereinbefore described, as the thread-catcher is thereby enabled to impinge against the wall 10^x of the lay beneath the replenishing shuttle-box when replenishment is to be effected; but it will be manifest that the spring control of the carrier is not absolutely necessary, for I may rigidly mount the carrier so that the thread-catcher will just escape engagement with the lay when the latter is at front center.

The various parts of the thread-catching device are adjustable, as may be necessary or desirable, by means of the set-screw hereinbefore referred to, and it will be observed that the only change in the main construction of the loom to apply my invention thereto consists in elongating the transferrer-stud *f* and the rocking stud *m*.

My invention is not restricted to the precise construction and arrangement herein shown and described, as the same may be modified and rearranged in various particulars by those skilled in the art without departing from the spirit and scope of my invention.

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

1. In a loom in combination, automatic filling-replenishing mechanism, means to part the old filling between the cloth and shuttle upon filling replenishment, and means mounted on the loom to engage the parted filling end between the shuttle and the ejected filling-carrier and cause such filling end to be drawn out of and clear the shuttle-eye.

2. In a loom provided with automatic filling-replenishing mechanism, and with means to part the old filling between the cloth and shuttle upon filling replenishment, the combination of means to clear the shuttle-eye of the parted filling end, said means including a thread-catcher positioned below the shuttle during filling replenishment and behind the path of the ejected filling-carrier, to engage the parted filling end between the shuttle and the filling-carrier from which it leads.

3. In a loom provided with automatic filling-replenishing mechanism, and with means to part the old filling between the cloth and shuttle upon filling replenishment, the combination of means to engage the parted filling end between the shuttle and the ejected filling-carrier and cause such filling end to be drawn out of and clear the shuttle-eye, said means including a fixed support, and an elongated thread-catcher mounted thereon and adapted to pull the parted filling end out of the shuttle-eye as the shuttle moves away from replenishing position.

4. In a loom provided with automatic filling-replenishing mechanism, and with means

to part the old filling between the cloth and shuttle upon filling replenishment, the combination with a lay having a replenishing shuttle-box through which the ejected filling-carrier is discharged, of a device adapted to extend longitudinally beneath said shuttle-box during filling replenishment and behind the path of the ejected filling-carrier, to catch the parted filling end leading therefrom to the shuttle and pull it out of the shuttle-eye as the lay moves back after replenishment.

5. In a loom provided with automatic filling-replenishing mechanism, and with means to part the old filling between the cloth and shuttle upon filling replenishment, a lay having a shuttle-box slotted to permit the discharge of an ejected filling-carrier, a fixed support, a spring-controlled carrier mounted thereon and rearwardly extended, a device to normally retain the carrier retracted, and an elongated thread-catcher rigidly mounted on the rear end of the carrier and extended longitudinally below the path of the shuttle-box, the operation of the filling-replenishing mechanism effecting release of the carrier to permit it to engage the lay below the slotted shuttle-box and behind the path of an ejected filling-carrier, to cause the thread-catcher to engage the parted filling end between its filling-carrier and the shuttle-eye and thereby draw the filling end out of the eye as the lay recedes after filling replenishment.

6. In a loom provided with automatic filling-replenishing mechanism, and having a shuttle-feeler provided with means to part the old filling between the cloth and the shuttle, a lay cut away below the shuttle-box and having a shuttle-box arranged to permit the discharge of the filling-carrier ejected from the shuttle, a rigidly-sustained arm having a tubular bearing, a spring-projected carrier movable therein and rearwardly extended below the path of the said shuttle-box, an intumed, elongated thread-catcher fixed on the rear end of the carrier parallel to the lay, and means to normally retract the carrier and release it when filling replenishment is to be effected, such release permitting the thread-catcher to impinge upon the back of the cut-away part of the lay as the latter beats up, below the replenishing shuttle-box and behind the path of the discharged filling-carrier, to engage the parted filling end between the latter and the shuttle and hold such filling end when the lay recedes to draw the filling end out of the shuttle-eye.

7. In a loom provided with automatic filling-replenishing mechanism, and with means to part the old filling between the cloth and shuttle upon filling replenishment, the combination of means to clear the shuttle-eye of the parted filling end, said means including an elongated toothed or notched thread-catcher adapted to be positioned below the shuttle

during filling replenishment and behind the path of the ejected filling-carrier, to engage and hold the parted filling end between the shuttle and the filling-carrier from which it
5 leads, and thereby to cause said filling end to be drawn out of the shuttle-eye as the shuttle moves away from replenishing position.

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

ALIDA M. MARCOUX.

Witnesses:

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