

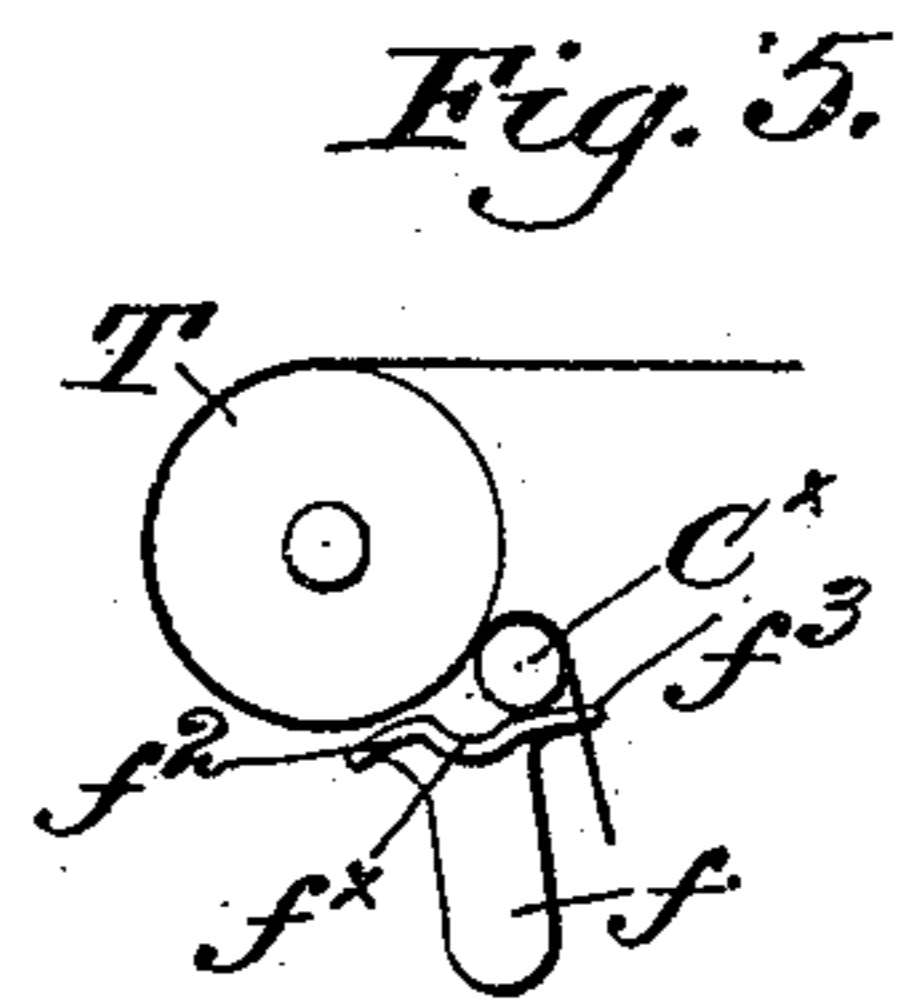
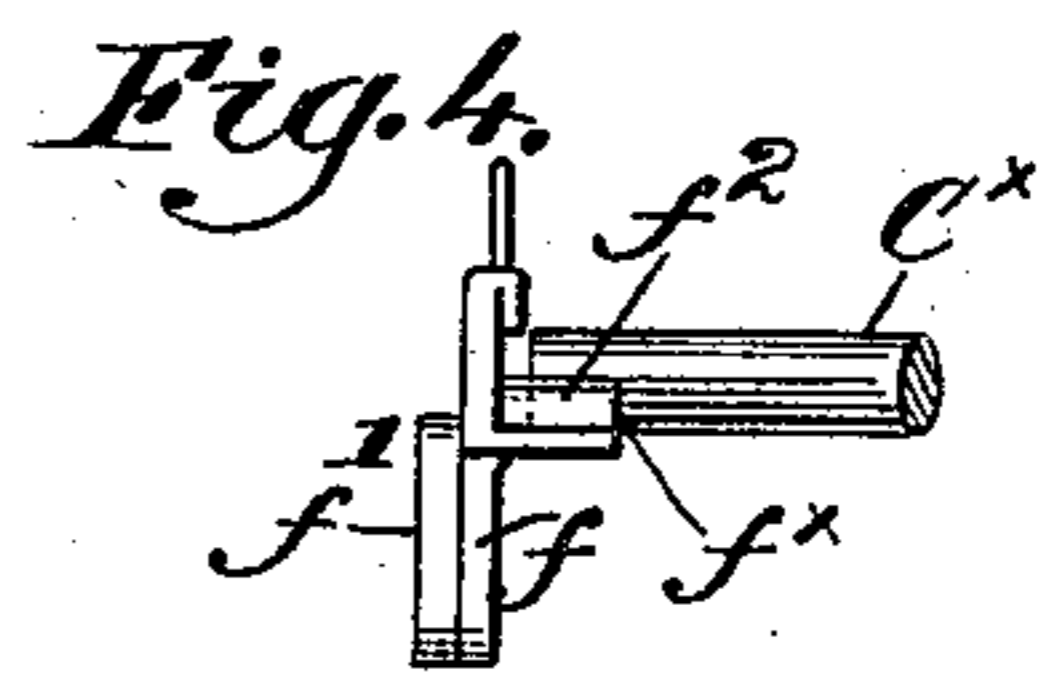
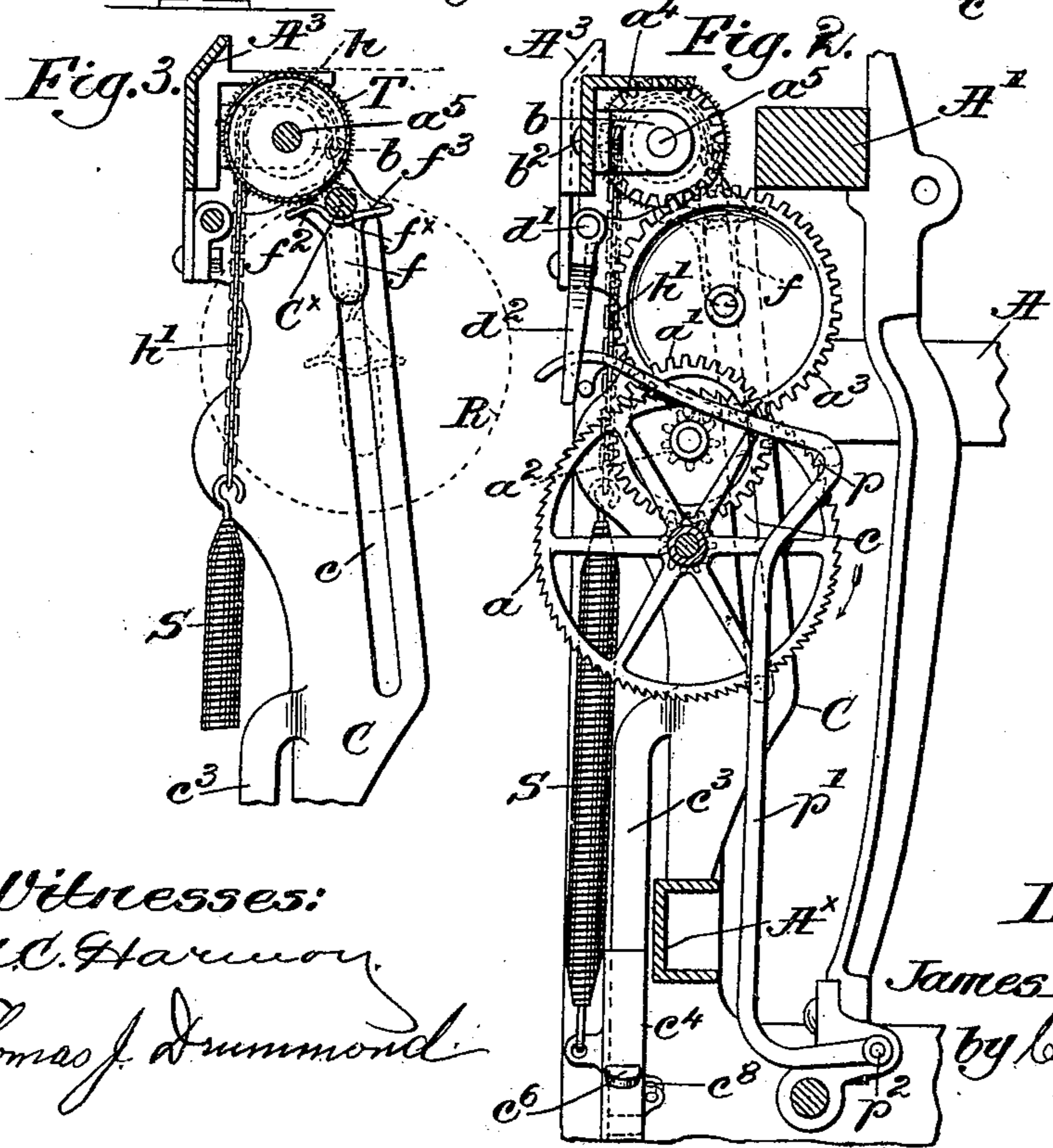
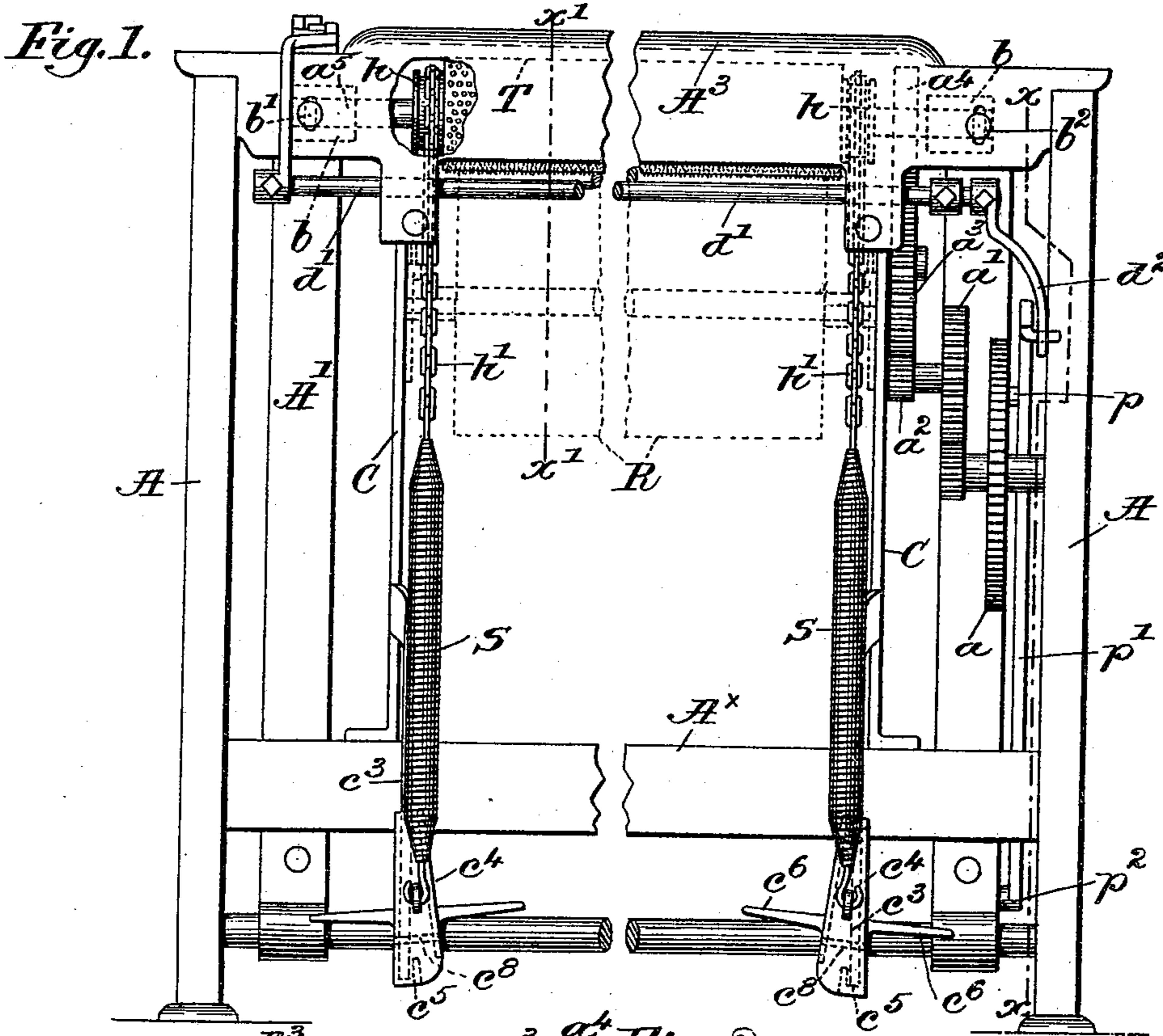
No. 616,064.

Patented Dec. 13, 1898.

J. H. NORTHROP.  
TAKE-UP MECHANISM FOR LOOMS.

(Application filed June 18, 1897.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## TAKE-UP MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 616,064, dated December 13, 1898.

Application filed June 18, 1897. Serial No. 641,269. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES H. NORTHROP, of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Take-Up Mechanism for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention relates to take-up mechanism for looms; and it has for its object the production of means whereby various objectionable features hereinbefore found in such mechanism may be obviated and whereby improved results in operation may be attained.

15 It has been found that with the usual take-up roll located at some distance from the fell the cloth will contract or shrink, changing its width, and by leaving too much freedom to contract it may also wrinkle. The slightest change in the tension, due to variations in temperature or other causes, may immediately affect the width of the cloth.

25 In the present invention the take-up roll is placed as near as possible to the lay, the cloth passing directly to the said roll, which latter is provided with means for vertically adjusting it, whereby certain changes in the face of the cloth may be effected. The breast-beam is so constructed as to form a guard for the take-up roll, preventing the weaver from leaning on and soiling or otherwise injuring the cloth. After passing around the take-up roll and between it and the breast-beam the cloth is wound upon a suitable core or bar mounted in movable spring-controlled bearings, the range of movement of the bearings being such that when desired a very large roll of cloth may be wound as readily as a small one. 30 By a simple and convenient releasing device the roll of cloth is released when desired, permitting it to descend and be taken out of the loom.

45 Figure 1, in front elevation and centrally broken out to save space, represents a sufficient portion of a loom to be understood with my invention applied thereto. Fig. 2 is a sectional view thereof on the irregular line  $x x$ , Fig. 1. Fig. 3 is a sectional detail on the line  $x' x'$ , Fig. 1, looking toward the left. Fig. 4 is a detail view of one of the movable bear-

ings for the cloth-winding bar or core, and Fig. 5 is a detail to be described.

The loom-frame A, cross-girth  $A^x$ , lay  $A'$ , the ratchet-wheel  $a$ , and train of gears  $a' a^2 a^3$  between it and the gear  $a^4$  on the shaft  $a^5$  of the take-up roll are and may be of usual construction in looms. A pawl-carrier  $p'$ , mounted at  $p^2$  on the lay-sword, Fig. 2, is provided with an actuating-pawl  $p$  for the ratchet-wheel  $a$ , the usual operating-shaft  $d'$ , controlled by the filling-fork, being provided with an arm  $d^2$  to throw the pawl out of engagement with the ratchet-wheel upon failure of the filling.

60 The shaft  $a^5$  of the take-up roll T is mounted in bracket-like bearings  $b$ , vertically slotted at  $b'$  to receive suitable bolts  $b^2$ , by which the bearings are clamped in adjusted vertical position on the breast-beam  $A^3$ , as herein shown, said take-up roll being located as near the lay as possible, the cloth passing from the latter directly to the take-up roll.

75 By the adjustment of the cloth-roll it may be raised or lowered relatively to the fell of the cloth in order that the face of the goods may be varied, due to the change in the angle of the divisions of the warp forming the shed with relation to each other.

80 If more strain is brought on the lower division of the warp, the filling will be more prominent in the cloth than if the strain be equally divided between the upper and lower divisions of the warp, it being obvious that the filling will wind itself with the greatest curves around the warps most tightly stretched, requiring more filling, and thereby making it more prominent in the finished fabric.

85 By locating the take-up roll T very close to the fell of the cloth the latter cannot shrink and change its width, but will be wound upon the core or bar in a stretched condition and substantially of the width at the fell without wrinkles or creases.

90 I have herein shown the breast-beam  $A^3$  as extended above the top and down in front of the take-up roll to form a guard therefor, protecting the cloth from injury or from being soiled by the weaver leaning against it as it passes around the take-up roll.

95 Suitable like stands C are secured to the loom-frame, one near each side, between the breast-beam and cross-girth  $A^x$ , as herein

shown, said stands having long forwardly-inclined slots  $c$  therein, in which move the travelers  $f$ , having open bearings  $f^x$  for the bar or core  $C^x$  of the roll of cloth  $R$ . (See dotted lines, Figs. 1 and 3.) Each traveler has a rib or fin  $f'$  to enter and be guided by the slot  $c$ , while the open bearing  $f^x$  is shaped to form a stop  $f^2$  at its end toward the front of the loom and a rearwardly-extended lip  $f^3$  at its other end for a purpose to be described. The inclination of the slots  $c$  is such that when the travelers  $f$  are at or near the upper ends thereof of the core  $C^x$  or the cloth wound thereupon will bear against the take-up roll  $T$  at the proper point, the travelers moving down the slots as the diameter of the roll of cloth increases. These slots are simply inclined to save room, as they could be vertical, if necessary.

It will be seen from an inspection of Figs. 2 and 3 that practically the size of the roll of cloth is herein limited only by the distance between the take-up roll and the lower girth of the loom-frame, so that I am enabled to wind very long rolls of cloth with the mechanism herein shown.

Sheaves or rolls  $h$  are mounted on the take-up-roll shaft  $a^5$ , and over said sheaves chains or other suitable flexible connections  $h'$  are passed, attached at one end to strong spiral springs  $S$  and at their other ends detachably connected with the cloth-roll travelers  $f$ , the tension of the springs normally holding the roll of cloth pressed tightly against the take-up roll  $T$ .

Fixed guides  $c^3$  are secured to or form part of the stands  $C$ , said guides receiving thereon movable locking members  $c^4$ , to which the lower ends of the springs  $S$  are attached, as shown in Figs. 1 and 2. The locking members are flanged to embrace the guides  $c^3$ , and each is provided with an interior, preferably notched, shoulder  $c^5$ , (see dotted lines, Fig. 1,) to abut against the lower end of its guide when the loom is in operation. Foot-plates  $c^6$  are extended laterally from opposite sides of the locking members, so that when it is desired to release the roll of cloth the operator will place his foot on the inner foot-plate, depressing the locking member  $c^4$  to disengage the shoulder  $c^5$  from the end of the guide. Upon moving the said locking member laterally and removing the pressure it will be lifted as the roll of the cloth moves away. Thereafter movement of the locking member laterally with removal of pressure will permit the said locking member to rise along the guide as the roll of cloth moves away from the take-up roll. The roll of cloth can then be readily removed from the open bearings, the core  $C^x$ , the ends of which form the roll-journals, being moved forward over the lips  $f^2$  of the travelers.

The construction herein shown is very convenient when starting the roll of cloth. The locking members  $c^4$  are first depressed into operative position and the end of the cloth is

brought around the take-up roll and pulled taut by the attendant, after which the core  $C^x$  is placed in position from the back, as shown in Fig. 5. Then with the parts in position in Fig. 5 the end of the web is pulled tight, forcing the core into place. The free end is then tucked in between the core and the take-up roll.

The locking members are provided with stops  $c^8$ , which engage the upper ends of the guide and prevent removal of the locking members from the guide.

The pressure exerted by the tension of the controlling-springs  $S$  acts through the flexible connections  $h'$  on the sheaves or rolls  $h$  to brake or somewhat retard the rotative movement of the take-up roll, so that the latter cannot overrun, and the effect of any lost motion between the roll and its actuating train of gearing is prevented.

The locking members for the controlling-springs are located near the loom side, it will be observed, and consequently said members must be operated one at a time, so that one end of the roll of cloth will be released before the other end. This does not result in the roll of cloth dropping, however, until the travelers rest in the bottoms of the slots in the standard  $C$ , for in practice a truck or other suitable frame is run under the loom to receive the roll of cloth as soon as it is released and removed from the travelers. When the travelers  $f$  are in such position that the core in which the cloth is to be wound is nearest the take-up roll, the springs will exert only sufficient tension to hold the roll of cloth as it forms firmly against the surface of the take-up roll; but as the roll of cloth increases in diameter and weight the springs will be stretched more and more, and they will exert a greater pressure on the cloth as it is wound. Thus the roll of cloth will not be as compact, hard, or dense at or near the center as it will a little farther away therefrom, and the core can be withdrawn from the roll of cloth.

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

1. In a loom, the lay, a positively-actuated, continuous take-up roll over which the cloth passes directly from the lay, and means to vertically adjust said take-up roll, substantially as described.

2. In a loom, the lay, a take-up roll located near the fell, the cloth passing directly from the lay over the said roll, and between the latter and the breast-beam, the breast-beam acting as a guard for the front of the roll, and means to vertically adjust the latter, substantially as described.

3. In a loom, a take-up roll, the core or bar upon which the cloth is wound, traveling bearings for said core, coiled springs, flexible connections between said bearings and the upper ends of the springs, whereby the core or bar is yieldingly supported, and manually-controlled locking means to normally retain

the other ends of the springs fixed, unlocking of the said means relieving the core or bar from the action of the springs, substantially as described.

5 4. In a loom, a take-up roll, traveling bearings for the journals of the roll of cloth, guides for said bearings, spring-controlled means to act upon said bearings and normally press the roll of cloth against the take-up roll, and  
10 sliding locking members for said spring-controlled means, to normally retain the latter operative, substantially as described.

15 5. In a loom, the take-up roll, inclined side guides, open bearings movable thereon and adapted to support the journals of the roll of cloth, spiral springs, normally fixed at their lower ends, flexible connections between the upper ends of the springs and the bearings, guide-rolls over which said connections pass,  
20 and means to release the lower ends of the springs and permit them to relax, substantially as described.

25 6. In a loom, the take-up roll, the core or bar for the roll of cloth, springs to normally maintain the roll of cloth pressed yieldingly against the take-up roll, and means to release the normally-fixed ends of said springs and permit removal of the roll of cloth, substantially as described.

30 7. In a loom, a take-up roll, the core or bar upon which the cloth is wound, traveling

bearings therefor, springs, flexible connections between said bearings and the springs at one end of the latter, to normally support the bearings, and means to normally hold in  
35 fixed position the other ends of the springs, release of the said means permitting the roll of cloth to move away from the take-up roll as the springs relax, substantially as described.

40 8. In a loom, the take-up roll, the core or bar for the roll of cloth, springs to normally maintain the roll of cloth pressed yieldingly against the take-up roll, fixed guides, and movable locking members normally main-  
45 tained in operative position on said guides and attached to the springs, to provide a fixed point of attachment of the latter at one end, release of said locking members from the guides permitting them to move thereover  
50 and relax the springs, whereby the roll of cloth may be removed from the take-up roll while the springs are relaxed, substantially as described.

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

JAMES H. NORTHROP.

Witnesses:

HERBERT S. MANLEY,  
GEO. OTIS DRAPER.