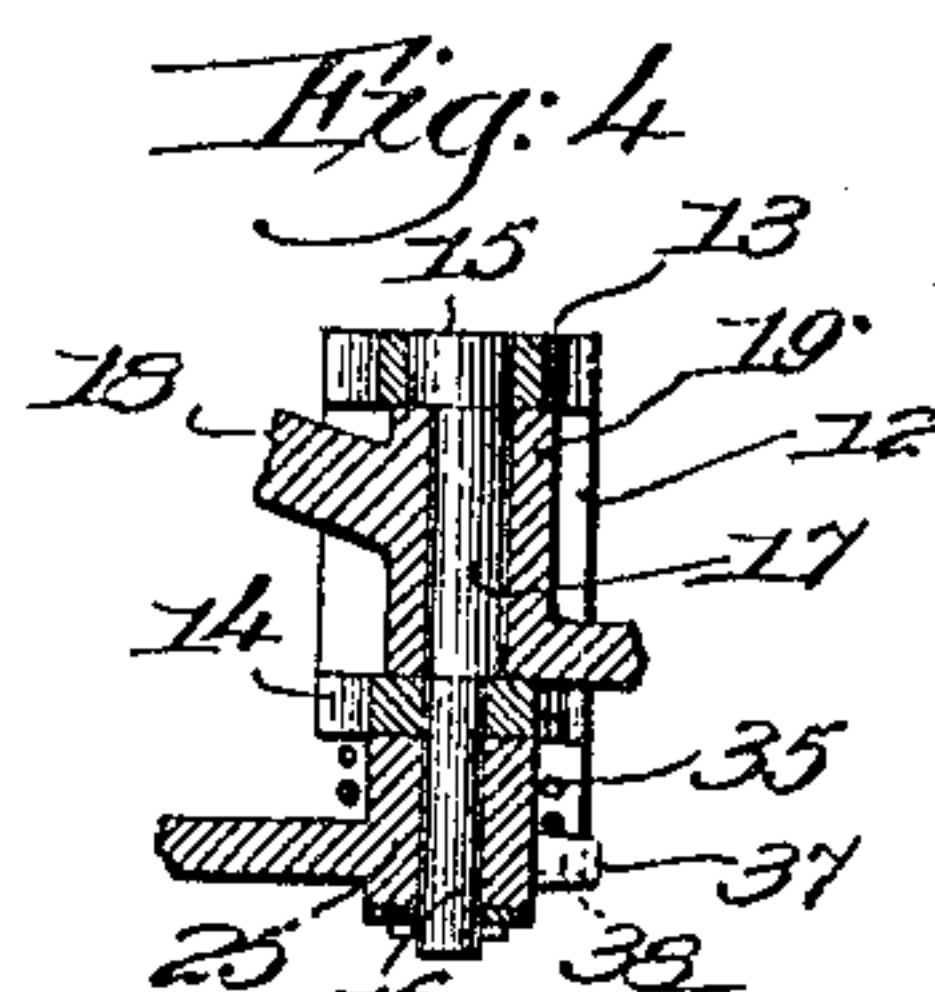
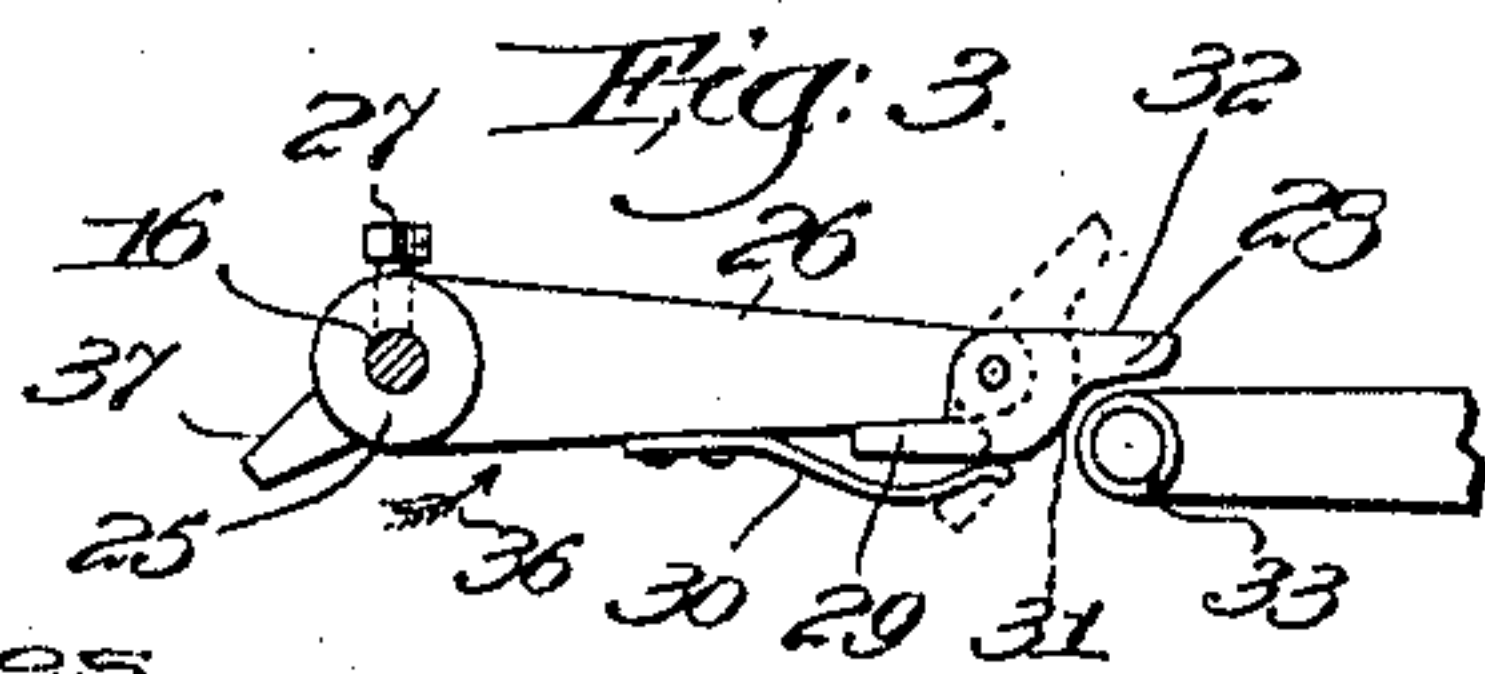
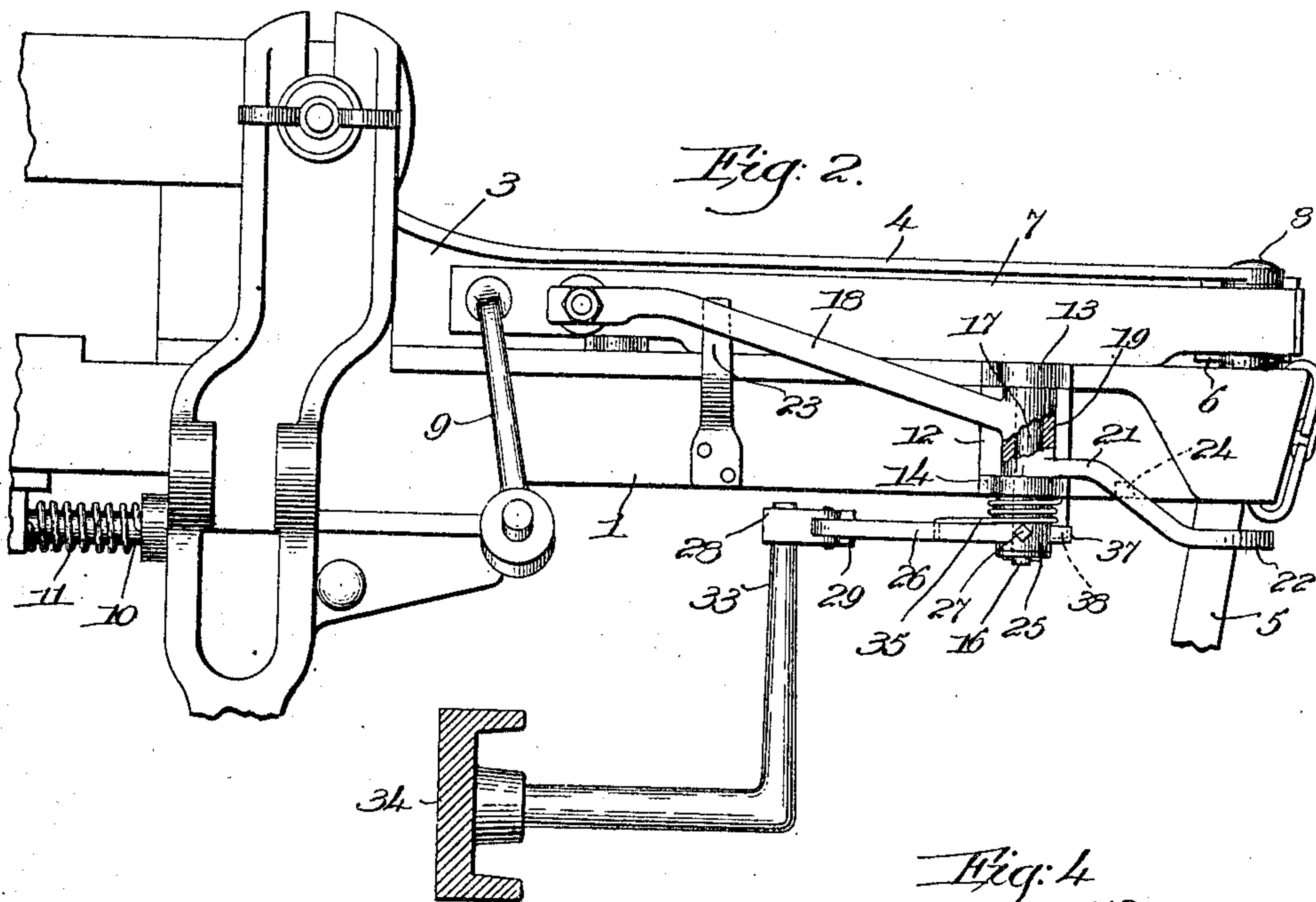
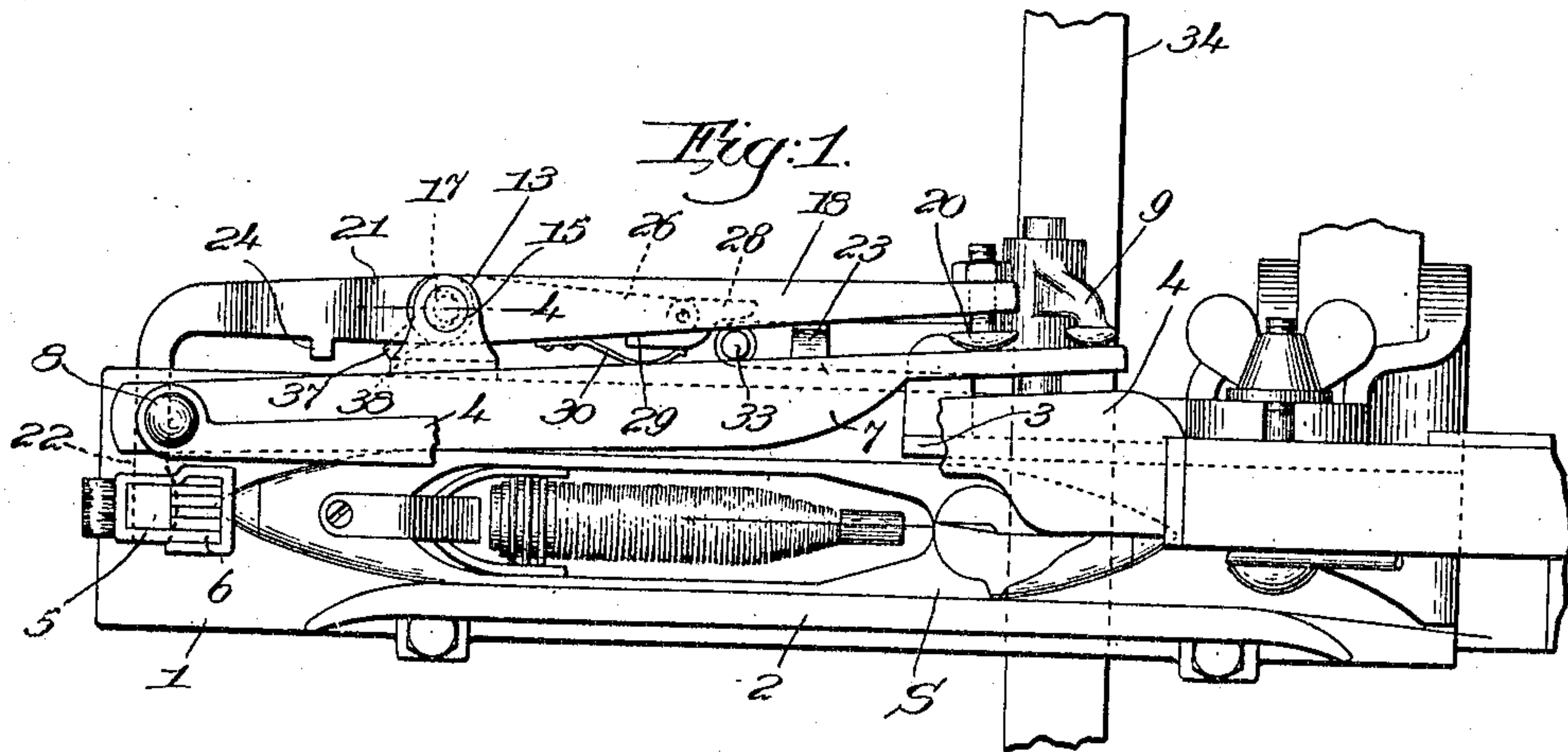


No. 871,429.

PATENTED NOV. 19, 1907.

M. MOREY.  
SHUTTLE CHECKING MEANS FOR LOOMS.  
APPLICATION FILED MAR. 11, 1907.



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# UNITED STATES PATENT OFFICE.

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## SHUTTLE-CHECKING MEANS FOR LOOMS.

No. 871,429.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed March 11, 1907. Serial No. 361,677.

*To all whom it may concern:*

Be it known that I, MYRON MOREY, a citizen of the United States, and resident of Milford, county of Worcester, State of Massachusetts, have invented an Improvement in Shuttle-Checking Means for Looms, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention has for its object the production of novel and efficient means for checking the movement of and stopping the shuttle of a loom at the proper point in the shuttle-box, so that the position of the shuttle when stopped may be substantially the same pick after pick, the invention comprehending means for exerting a final stopping pressure upon the incoming shuttle, which pressure is thrown off before the shuttle is picked from the box.

The desirability of bringing the shuttle to a stop in the same place, or practically the same place, each time it enters the shuttle-box, is manifest, and this is particularly desirable in looms wherein the filling is replenished automatically by the insertion of a fresh filling-carrier into the running shuttle. Such a loom is shown in United States Patent No. 529940, granted to Northrop November 27, 1894 and in other patents of later date, and the more accurately the shuttle is positioned in the box the less the wear and tear when filling replenishment is effected.

When the shuttle is to be picked from the box it is desirable to have the pressure thereon diminished, in order that the picking action may be easier and the shuttle be more free to be thrown from the box by the action of the picker.

In the present embodiment of my invention the final or increased pressure is brought upon the incoming shuttle by or through the impact of the shuttle upon the picker, and by separate and positively acting means such pressure is thrown off before the shuttle is picked from the box.

The various novel features of my invention as comprehended in one practical embodiment thereof will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a top plan view of one end of a loom lay with a shuttle-box thereon and the

shuttle in properly boxed position, with one embodiment of my present invention applied thereto, the lay being supposed to be nearing front center; Fig. 2 is a rear elevation of the mechanism shown in Fig. 1, and partly broken out to show details of construction; Fig. 3 is a detail in plan of a portion of the means for releasing the pressure upon the shuttle prior to the picking of the shuttle from the box; Fig. 4 is a vertical sectional detail on the line 4—4, Fig. 1, of the eccentric support for the pressure member, to be referred to.

The lay 1, shuttle-box thereon having a front wall 2, back wall 3 and cover-plate 4, the picker-stick 5 and the picker 6 carried thereby, the binder 7 pivoted on the lay at 8, and acted upon by the binder-finger 9, and the protector rock-shaft 10 on which said finger is mounted, with a controlling spring 11 for the said rock-shaft 10, (see Fig. 2) may be and are all of substantially well-known or usual construction.

The mechanism so far described operates in the usual way, the incoming shuttle S, Fig. 1, striking the binder 7 and forcing it to swing rearwardly against the action of the spring 11, checking the movement of the shuttle as its leading end engages and forces outward the picker 6.

I have provided means to exert additional or increased pressure upon the shuttle by or through the final outward movement of the picker, and to release the shuttle from such pressure before it is picked from the box, and such means will now be described.

At the back of the lay is secured a bracket 12 having upper and lower bearing ears 13, 14 in which are respectively mounted the head 15 and stem 16 of an upright eccentric stud 17, which constitutes a shiftable fulcrum for a pressure-producing member 18 having a hub 19 surrounding the stud between the bearings. The said member 18 is upwardly extended to a point near the inner end of the binder 7, and coöperates therewith by means of an adjustable, headed stud 20, Fig. 1, the outer end 21 of the member 18 having a downward and laterally bent extension 22 across the path of the picker-stick when moved outward by impact of the shuttle on the picker 6.

A suitable spring 23 acts upon the member 18 to swing it rearward and move the exten-



sion 22 inward when the shuttle is out of the box, a stop lug 24 on the part 21 limiting such movement.

When the incoming shuttle enters the box it engages and is first checked by the binder 7 in usual manner, and the impact of the shuttle upon the picker throws outward the picker-stick 5 as the shuttle nears the end of its stroke, such movement of the picker-stick acting through the extension 22 to force the inner end of member 18 against the binder. This causes an additional or increased pressure to be exerted upon the shuttle, stopping the latter at the proper point in the box, and preventing rebound.

The harder the blow struck by the shuttle on the picker the greater the additional force exerted by the pressure-producing member 18, so that the additional pressure is thus varied automatically in accordance with the speed of the shuttle.

As the shuttle is practically locked in the box by the additional pressure thereon it is manifestly desirable to release the shuttle from such pressure before it is picked from the box. This is effected by shifting the fulcrum of the member 18 in such manner that said member is moved slightly, away from the shuttle, thereby instantly relieving the same from the locking pressure. Such shifting of the fulcrum is herein effected by partly rotating the eccentric stud 17.

Below the bearing 14 I secure the hub 25 of an arm 26 fixedly upon the depending stem 16 of the stud, as by a set screw 27, the arm extending inward toward the center of the loom, and having pivoted upon its end a latch 28. This latch has a tail 29, Figs. 2 and 3, normally held against the front face of the arm by a suitable spring 30, as in full lines, Fig. 3, the front face of the latch being preferably concaved, as at 31, and its rear face 32 being flat. An upturned arm 33 fixedly secured to a part of the loom frame, as 34, constitutes a stop, and is located in the path of the latch as the arm and latch are moved back and forth by the swinging movement of the lay, the relative position of the latch and stop being clearly shown in Fig. 1.

Herein I have shown a spring 35 coiled around the hub 25 and fixed at one end, the other end bearing against the arm 26 and normally tending to turn the eccentric stud 17 in the direction of arrow 36, Fig. 3. A stop 37 on the hub limits such movement by engaging an adjacent ear 38 of the bracket 12, see Figs. 1 and 2.

When the lay is beating up the shuttle enters the box and the additional pressure is exerted thereon as has been described just about the instant the latch 28 is about to engage the stop 33, as in Fig. 1, the lay then nearing front center. As the curved face 31 of the latch engages the stop the latch is turned on its pivot on the arm 26, against the

spring 30, and is moved into dotted line position, Fig. 3, said latch wiping past the stop and being immediately restored to normal position by its spring. Now as the lay moves back from front center the flat face 32 of the latch engages the stop 33, but the tail 29 bearing against the arm 26 prevents any relative movement of the latch, and the arm is swung oppositely to the arrow 36, turning with it the eccentric stud 17. Such movement of the stud effects a slight movement of the pressure-producing member 18 away from the shuttle, but amply sufficient to release the shuttle from the pressure induced by said member, thus leaving the shuttle free to be picked from the shuttle-box and subject only to the ordinary or usual binder pressure. As soon as the arm 26 has turned far enough to release the latch 28 from the stop 33 the spring 35 restores the arm and stud to normal position, and the spring 23 acts in a similar manner upon the pressure-producing member, in readiness for the next entrance of the shuttle to the box.

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

1. A loom having, in combination, a lay provided with a shuttle-box, a binder, means moved directly and positively by or through impact of the incoming shuttle into engagement with the binder to exert additional pressure upon the shuttle through the binder, and a separate instrumentality operating after the lay has passed front center to release the shuttle from such pressure before its movement is begun when it is picked from the box.

2. In a loom, in combination, a lay provided with a shuttle-box, a binder for the latter, a vibrating picker-stick and a picker thereon, means actuated by impact of the incoming shuttle on the picker to exert additional pressure on the shuttle during final outward movement of the picker, and an instrumentality to release the shuttle from such pressure by backward movement of the lay before the shuttle is picked, said instrumentality including a member mounted on the lay and a cooperating member mounted on a stationary support.

3. A loom having, in combination, a lay, a shuttle-box, a binder, separate means directly and positively moved by impact of the incoming shuttle and into direct engagement with the binder to immediately apply additional pressure to the shuttle, and an instrumentality to act upon said means and release the shuttle from such pressure by or through backward movement of the lay before the shuttle is picked.

4. In a loom, in combination, a lay provided with a shuttle-box, protector mechanism including a binder, a pressure-producing member pivotally mounted on the lay and cooperating with the binder, means to di-



rectly and positively move said member by or through impact of the incoming shuttle and immediately apply additional pressure thereto, and an instrumentality acting automatically upon said member on the backward stroke of the lay to diminish the action of the pressure-producing member upon the binder before the shuttle is moved to be picked.

5. In a loom, in combination, a lay provided with a shuttle-box, and a binder, pressure-producing means including a swinging member to cooperate with the binder and operatively moved by or through the incoming shuttle as it nears the end of its stroke, a shiftable fulcrum for said member, and means to shift said fulcrum on the backward stroke of the lay before the shuttle is picked, to change the position of the swinging member and diminish the pressure exerted thereby upon the shuttle.

6. In a loom, in combination, a lay provided with a shuttle-box, and a binder, a picker-stick and its picker, a pressure-producing member pivotally mounted on the lay and cooperating with the binder, said member having an extension in the path of the picker-stick when moved outward by impact of the shuttle on the picker, to swing the pressure-producing member against the binder and thereby increase the pressure on the shuttle, an eccentric fulcrum for said member, and means to turn the said fulcrum before the shuttle is picked and move the pressure-producing member away from the shuttle.

7. In a loom, in combination, a lay having a shuttle-box, a binder, a picker-stick, an eccentric stud mounted on the lay, a pressure-producing member fulcrumed on said stud and at one end adapted to cooperate with the binder, an extension on the other end of said member to be engaged and moved by the picker-stick when moved outward by the in-

coming shuttle, to exert increased pressure on the shuttle, an arm fast on the eccentric stud and provided with a latch, a fixed stop to cooperate with the latch and swing said arm on the backward stroke of the lay, to turn the stud and move the pressure-producing member away from the shuttle, to release the pressure thereon before it is picked from the box, the latch wiping past the stop on the forward stroke of the lay, and a spring to return the stud to normal position.

8. In a loom, in combination, a lay having a shuttle-box, a binder, a picker-stick, a spring-controlled eccentric stud mounted on the lay, a pressure-producing member mounted on the stud and adapted to cooperate with the binder, means to operate said member by or through the shuttle-induced movement of the picker-stick to exert increased pressure on the shuttle, and means to turn the eccentric stud and move the pressure-producing member away from the shuttle on the backward stroke of the lay before the shuttle is picked, to release the shuttle from the increased pressure.

9. A loom having in combination a lay, a shuttle-box, a binder, means including a pressure-producing member and an eccentric fulcrum therefor, actuated by or through impact of the incoming shuttle to exert additional pressure thereon as the shuttle nears the end of its stroke, and an instrumentality operated by the backward movement of the lay to turn the fulcrum and move said pressure-producing member to release the shuttle from such additional pressure before it is picked.

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

MYRON MOREY.

Witnesses:

FRANK J. DUTCHER,  
EUGENE BEAUDRY.