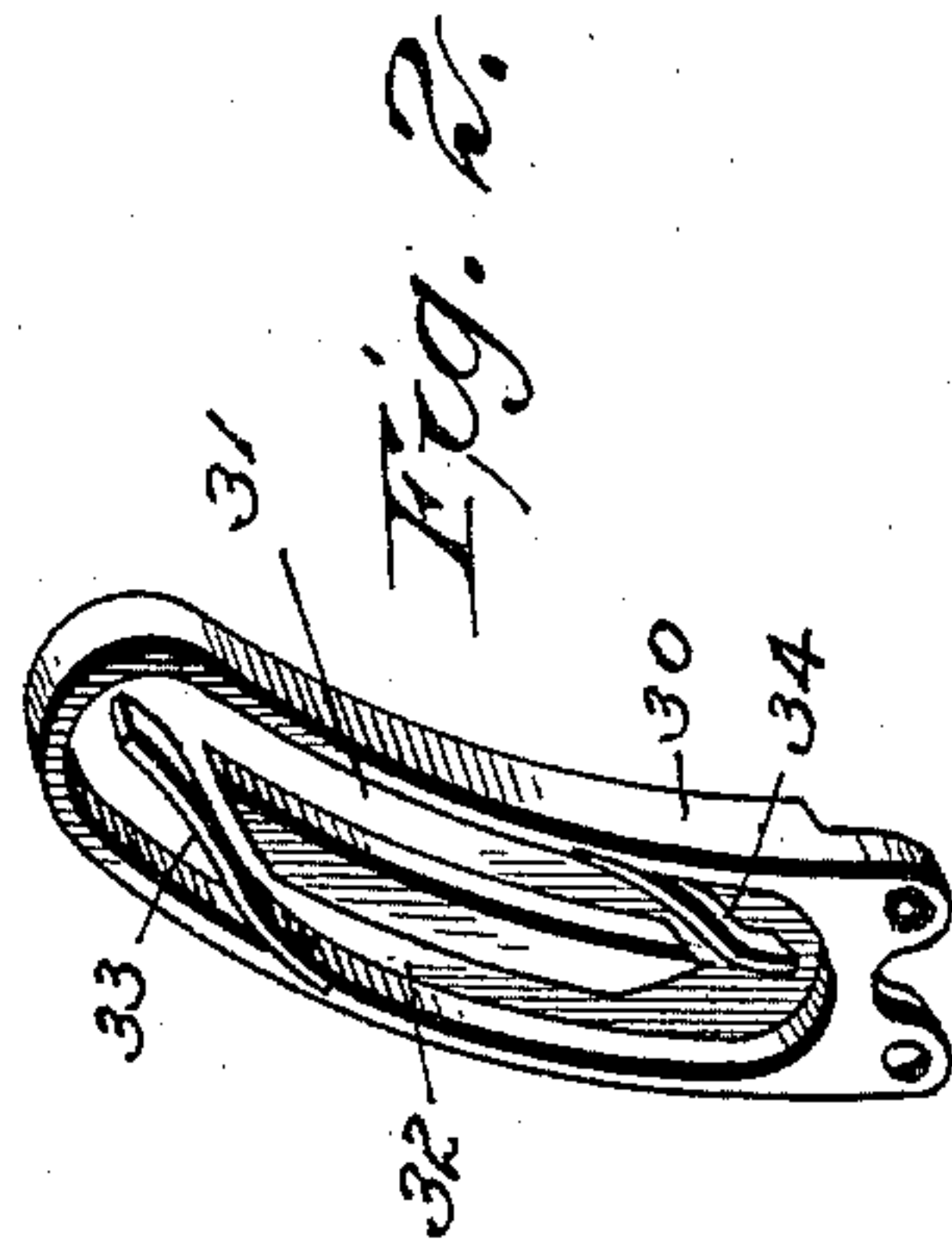
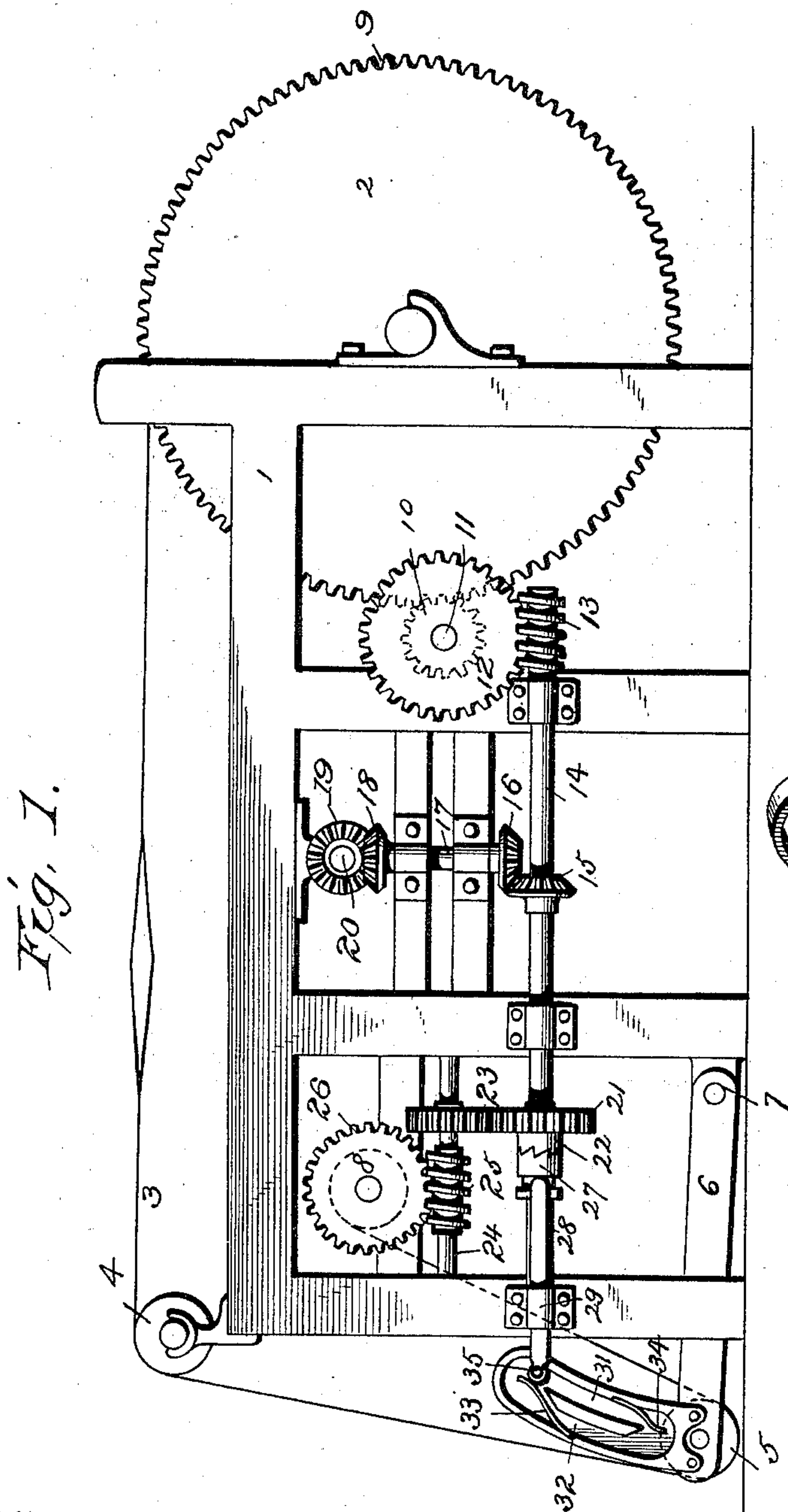


(No Model.)

W. F. KINTZING.
TAKE-UP MECHANISM FOR LOOMS.

No. 537,893.

Patented Apr. 23, 1895.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM F. KINTZING, OF GLEN ROCK, PENNSYLVANIA.

TAKE-UP MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 537,893, dated April 23, 1895.

Application filed April 30, 1894. Serial No. 509,566. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. KINTZING, a citizen of the United States, residing at Glen Rock, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Take-Up Mechanisms for Looms; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to let-off and take-up mechanism for looms, more particularly for looms for weaving wire cloth, and it has for its object to provide simplified means for maintaining an even tension on the wire cloth as it is woven and for automatically winding the cloth upon the winding drum as a given quantity of the cloth is formed as will be hereinafter more particularly described and then sought to be specifically defined by the claims, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a side elevation of a wire cloth loom frame having my invention applied thereto. Fig. 2 is a perspective of the casting formed with the cam ways for automatically throwing a clutch into and out of engagement so as to automatically wind the cloth upon a cloth winding drum as a given quantity of cloth is formed and then automatically throwing the winding drum out of operation until another given quantity of cloth is formed.

In the drawings, the numeral 1 designates the loom frame, and 2 the warp reel or drum from which the wire 3 is fed, the warp wire passing through the heddles of the harness as customary in wire cloth looms, (which harness and heddles it is not necessary to illustrate as the same does not form a part of this invention and it is well known) and then over a guide roller 4 mounted in suitable bearings on the loom frame and from thence over a roller 5 mounted in one end of a swinging frame 6 which is suitably pivoted at its rear end as for instance at 7 so as to be free to rise and fall, the wire cloth passing from

the roller 5 up to the winding drum 8 journaled in suitable bearings on the loom frame. The warp drum 2 is provided with cog-teeth 9 with which mesh a spur wheel 10 mounted upon a shaft 11 supported in suitable bearings on the loom frame, which shaft also carries a worm wheel 12 with which engages a worm 13 on the shaft 14 mounted in suitable bearings which shaft also carries a beveled pinion 15 with which meshes a beveled pinion 16 on a shaft 17 mounted in suitable bearings. This shaft also carries a beveled pinion 18 with which meshes a beveled pinion 19 mounted upon a shaft 20 journaled in suitable bearings and deriving motion from a suitable part of the loom mechanism which it is not necessary to illustrate as the same is not novel so that motion will be transmitted through the several parts mentioned to the warp drum 2. The shaft 14 also carries a spur wheel 21 loosely mounted thereon and formed with a clutch hub 22, which spur-wheel meshes with another spur wheel 23 keyed to a shaft 24 so as to turn therewith which shaft also carries a worm 25 meshing with a worm wheel 26 carried by the shaft of the winding drum 8.

A clutch 27 is feathered to the shaft 14 so as to slide thereon and turn therewith and is operated automatically so that when a given quantity of cloth is formed and is to be wound upon the winding drum the clutch is thrown in to engagement with the hub of the loose spur wheel 21 thereby causing that wheel to turn and transmit motion to the spur wheel 23 and through the worm 25 and worm wheel 26 to the winding drum so as to wind thereon the cloth, said clutch being automatically thrown out of engagement with the hub 22 after the given quantity of cloth has been wound upon the winding drum so that said drum will remain stationary until the next given quantity of cloth is to be wound thereon. The clutch 27 is thrown into and out of engagement with the hub 22 by means of an arm 28 engaging said clutch and sliding in a suitable keeper 29, the outer end of said arm being actuated by a cam so formed that at the proper time it will throw the arm inward so as to cause the clutch to engage the hub of the loose spur wheel 21, and again at the proper time draw said arm outward so as

to disengage the clutch from said hub and thus throw the winding drum out of operation by the latter movement.

The construction which I have devised for reciprocating the clutch arm 28 consists of a casting 30 secured to the swinging frame 6 and formed with cam ways 31 and 32 which have a curve corresponding to that described by the swinging frame 6 in its upward and downward movement, said cam ways being so formed that when the swinging frame 6 has reached the limit of its downward movement and taken up the slack in the cloth that has been formed the upper portion of the cam way 32 will act on the end of the arm 28 so as to throw the arm 28 inwardly and cause the clutch 27 to engage the hub 22 and thus throw the winding drum into operation. This brings the end of the arm 28 to the cam way 31 and as the winding drum turns so as to wind up the cloth the swinging frame 6 with the casting 30 is drawn upward until the lower end of the cam way 31 is brought to the end of the clutch arm 28 and forces the end of the arm 28 outwardly and into the cam way 32 thus releasing the clutch and throwing the winding drum out of operation. The swinging frame 6 now commences its downward movement by gravity and carries with it the casting 30 and serves to take up the slack in the cloth as the same is formed until the swinging frame has reached the limit of its downward movement when the cam way 32 throws the arm 28 inwardly as before thus causing the winding drum to again operate to wind thereon the cloth as before, and so the operation continues during the entire period of the operation of the machine. I prefer to form one wall of the cam way 32 at its upper end by a spring 33, and one wall of the cam way 31 at its lower end by a spring 34 so that said springs will exert an elastic pressure against the end of the clutch arm 28 at the opposite ends of the two cam ways so that there will be a quick positive motion imparted to the clutch lever as it passes from one cam way to the other. I do not limit myself to this particular construction as it is obvious that said walls may be rigid instead of elastic and in such event it will only be necessary to leave a space or way so that the ends of the clutch arm will pass freely and evenly from one cam way into the other, as is obvious to the ordinary mechanic. In order to reduce the friction between the end of the clutch lever 28 and the cam ways in the casting 30 I prefer to attach a friction roller to the end of the clutch lever, said roller being indicated by the numeral 35. The casting 30 with its cam ways constitute a very simple mechanism for actuating the clutch lever so as to throw the winding drum into and out of operation at the proper time. This not only reduces the cost of making the take up and let off mechanism but also renders fewer parts necessary and correspondingly lessens the wear of the parts of the machine and prolongs the life

thereof, thus affording a very efficient and simple automatic take up.

I have described with particularity what I consider the best construction of the details of the several parts and their arrangement but it is obvious that various changes may be made therein without departing from the essential features of the invention. It is also obvious that the parts of the mechanism described may be duplicated so as to be the same on both sides of the loom frame if necessary or desirable, the same being obvious to the ordinary mechanic.

Having described my invention and set forth its merits, what I claim is—

1. The combination with the loom frame, of the winding drum, the shaft carrying a worm and provided with a spur wheel, the shaft having a spur wheel loosely mounted to rotate thereon and constantly engaging with the first mentioned spur wheel, a clutch for rendering said loosely mounted spur wheel alternately fast and loose, a swinging frame, and a casting carried by said frame and formed with cam ways 31, 32 acting on a portion of the clutch to throw the clutch into locking position with said loosely mounted spur wheel to transmit motion to the winding drum after a given quantity of cloth is formed and is to be wound upon said drum, and out of locking engagement therewith at other times, substantially as and for the purposes described.

2. The combination with the loom frame, a winding drum, and mechanism for actuating said drum, of a clutch and arm for throwing said mechanism into and out of operation, a swinging frame, and a casting carried by said frame, formed with cam ways acting on the clutch arm to move it alternately in opposite directions to throw the clutch into locking position during the upward movement of the swinging frame and out of locking position during the downward movement of said frame, substantially as and for the purposes described.

3. The combination with the loom frame, a winding drum, and mechanism for throwing said drum into and out of operation, of a clutch and arm for actuating said mechanism, a swinging frame actuated by the fabric being woven and carrying a casting formed with cam-ways to actuate the arm to throw the clutch into locking position on the upward movement of the swinging frame and out of locking position on the downward movement of said frame, said cam ways having springs to exert a pressure on the clutch arm as it passes from one cam way to the other, substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM F. KINTZING.

Witnesses:

CHAS. H. HEINDEL,
ISRAEL AMSPACHER.