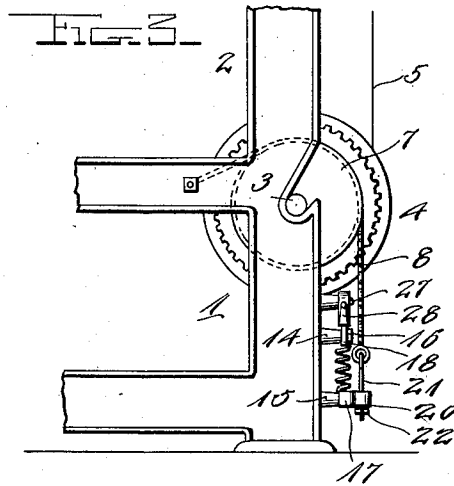
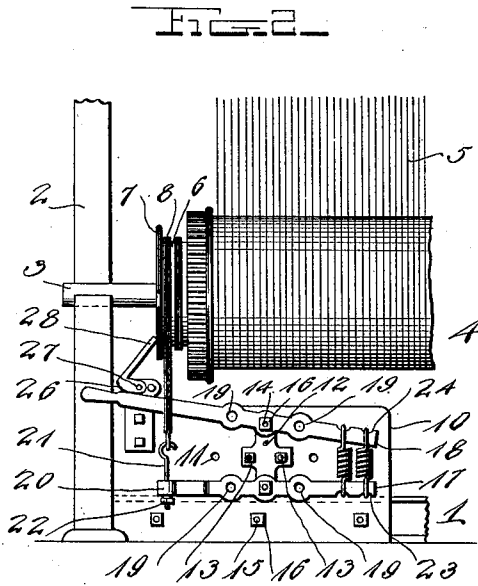
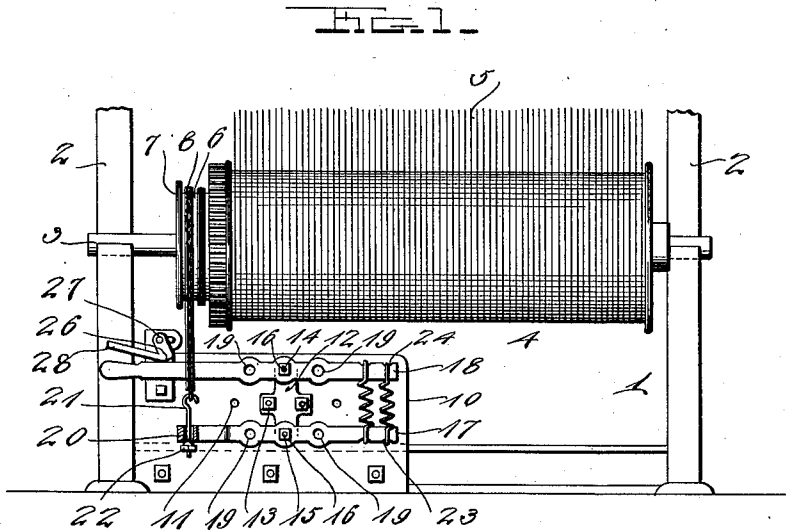


J. MARVEL.
FRICTION CLUTCH.
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1,091,069.

Patented Mar. 24, 1914.



Inventor:

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UNITED STATES PATENT OFFICE.

JAMES MARVEL, OF NEW BEDFORD, MASSACHUSETTS.

FRICITION-CLUTCH.

1,091,069.

Specification of Letters Patent.

Patented Mar. 24, 1914.

Application filed March 7, 1912. Serial No. 682,155.

To all whom it may concern:

Be it known that I, JAMES MARVEL, a citizen of the United States, residing at New Bedford, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Friction-Clutches; 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.

This invention relates to friction clutches, and is particularly useful in connection with looms in which the warp beams are provided with drums for attachment of tension weights in the conventional manner.

One object of the invention is to provide a friction clutch which is simple, strong and durable in construction, provided with unique means for increasing and decreasing the tension on the object to which it is applied and which is particularly adapted to replace the weights used at the present time in conjunction with a warp beam.

A further object of the invention is to provide a device of this character in which the tension of the warp threads can be easily adjusted and regulated by the operator.

These and other objects are accomplished by the construction hereinafter more fully described and claimed, and as shown in the drawings wherein—

Figure 1 is a front elevation showing the chain under tension, and Fig. 2 a similar elevation of one end showing the let off mechanism released so that the chain is no longer under tension. Fig. 3 is an end view with the parts standing in the position seen in Fig. 1.

In weaving cloth and the like it is necessary that the warp threads, which are gradually unrolled from the warp beam as the weaving progresses, should be maintained under a certain degree of tension to insure a proper weave. This tension should be such that the threads are taut, but are, nevertheless, gradually unwound from the warp beam, without much difficulty. It has been customary heretofore to provide the shaft upon which the warp beam is mounted with a drum, upon which is wound a rope having at one depending end a weight, this weight tending to rotate the warp beam in a direction opposite to the direction in which the warp threads are unwound, thus keeping the

threads under tension as the unwinding proceeds. My invention is designed to replace these weights while utilizing the drum provided therefor, in the looms of conventional construction.

Referring more particularly to the drawings, 1 represents the frame of a loom carrying a revolubly mounted warp beam 4 having the drums 6 of the usual form. Over each of these drums passes a chain 8 having one end attached to or connected with some fixed support, such as the frame 1, and the other end detachably and adjustably connected with my improved let off mechanism which will now be described.

The numeral 10 designates a suitable upright or support having in its body a series of holes 11, and the numeral 12 designates a casting adjustably secured as by screws 13 to certain of said holes and having projecting from its face two pins or stub bearings 14 and 15 whose outer ends are threaded for the reception of retaining nuts 16.

The numerals 17 and 18 designate respectively a lower and an upper lever, each having in its body a series of eyes 19 forming bearings adapted to be mounted on one of said pins beneath the nut 16. By this means the casting 12 may be adjusted on the upright, or either or both levers may be adjusted on the pivot pins of the casting, and thereby this improved let off may be adapted to loom beams with light or heavy weave for a reason which will appear from the following specification. The lower lever 17 has at its inner extremity an eye 20 through which passes the stem of a hook 21 whose bill engages said chain and whose lower extremity receives a nut 22 beneath the eye, by turning which nut the position of the hook in the eye may be adjusted; and the outer end of this lever has notches 23 in its lower edge. The upper lever 18 has similar notches 24 in the upper edge of its outer end, and a pair of stout contractile helical springs is disposed between the outer ends of the two levers and their endmost coils engaged with said notches as shown in the drawings. The inner end of the upper lever passes under a cam 26 pivoted at 27 to the upright 10 and having a handle 28 by means of which it may be turned on its pivot, and the size and disposition of this cam is such that when turned out of contact with the inner end of the lever so that

the latter may move on its pivot 16, the tension of the springs 25 is relaxed sufficiently to allow the lower lever to move on its pivot 16, the hook to rise, and the chain 5 to relax its tension on the drum 6. As clearly shown the cam when in a released position forms a positive stop for the upward movement of the upper lever for the purposes fully understood. Conversely, 10 when the cam is turned to the opposite position, the movement of parts is in the other direction and tension is imparted by the chain to the drum. While it is true that the springs may be replaced by others with 15 greater or lesser tension, I prefer to effect the adjustment of this device to looms of different character and having different weaves by either adjusting the position of the casting 12 on the uprights 10, or the position of one or both of the pivotal points 20 of the levers, as by setting different bearings 19 over the pins 16, or to adjust the position of the nut on the hook or perhaps the link of the chain which the bill of the hook 25 engages. It will be obvious that by having these various adjustments ready to the hand of the operator and capable of use singly or collectively, the necessity will rarely arise for him to change the springs 25. It should 30 be understood that the movement of the cam is for throwing this let off out of action rather than for effecting any adjustment, and the use of this cam and in fact of the

whole device will be well understood by those familiar with the art. 35

The parts of the device may be of the desired sizes, shapes, proportions and materials, and changes therein may be made without departing from the principle of my invention. 40

What is claimed as new is:

A device of the character described comprising a tension device consisting of an upright support, a casting adjustably mounted longitudinally upon the latter, a 45 pair of stub bearings projecting from the upper and lower ends of said casting, a pair of levers having openings formed therein along their length, whereby the same may be adjustably mounted upon the stub bearings, 50 coiled contractile tension springs connecting one end of said lever beyond the casting, a flexible connection leading from the opposite end of the lower lever to a revolubly mounted member, and a cam movably se- 55 cured to the upright support for interlocking engagement with the projecting free end of the upper lever, said cam also forming a stop for the latter when released.

In testimony whereof I have hereunto set 60 my hand in presence of two subscribing witnesses.

JAMES MARVEL.

Witnesses:

JOHN T. WHITTAKER,
ERNEST LAMB.