

(No Model.)

G. F. HUTCHINS.
TAKE-UP MECHANISM FOR LOOMS.

No. 480,851.

Patented Aug. 16, 1892.

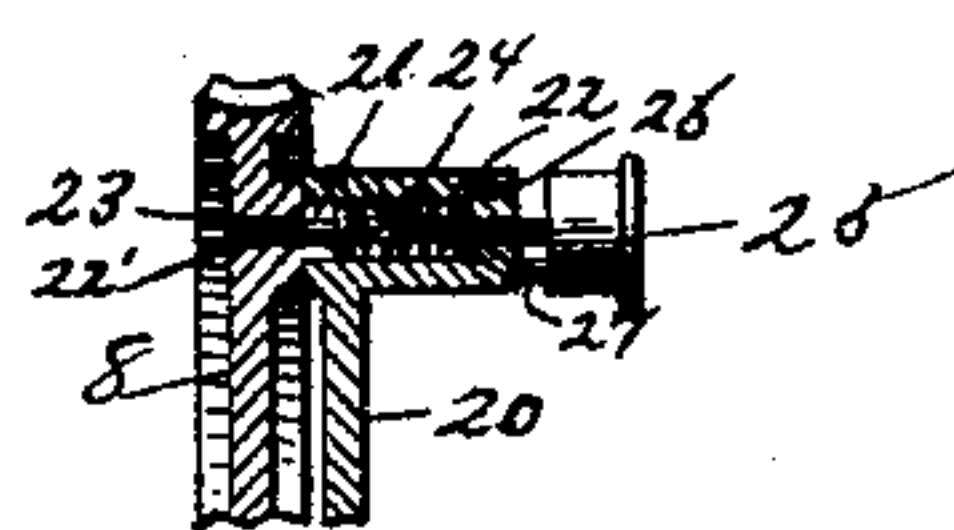


Fig. 3.

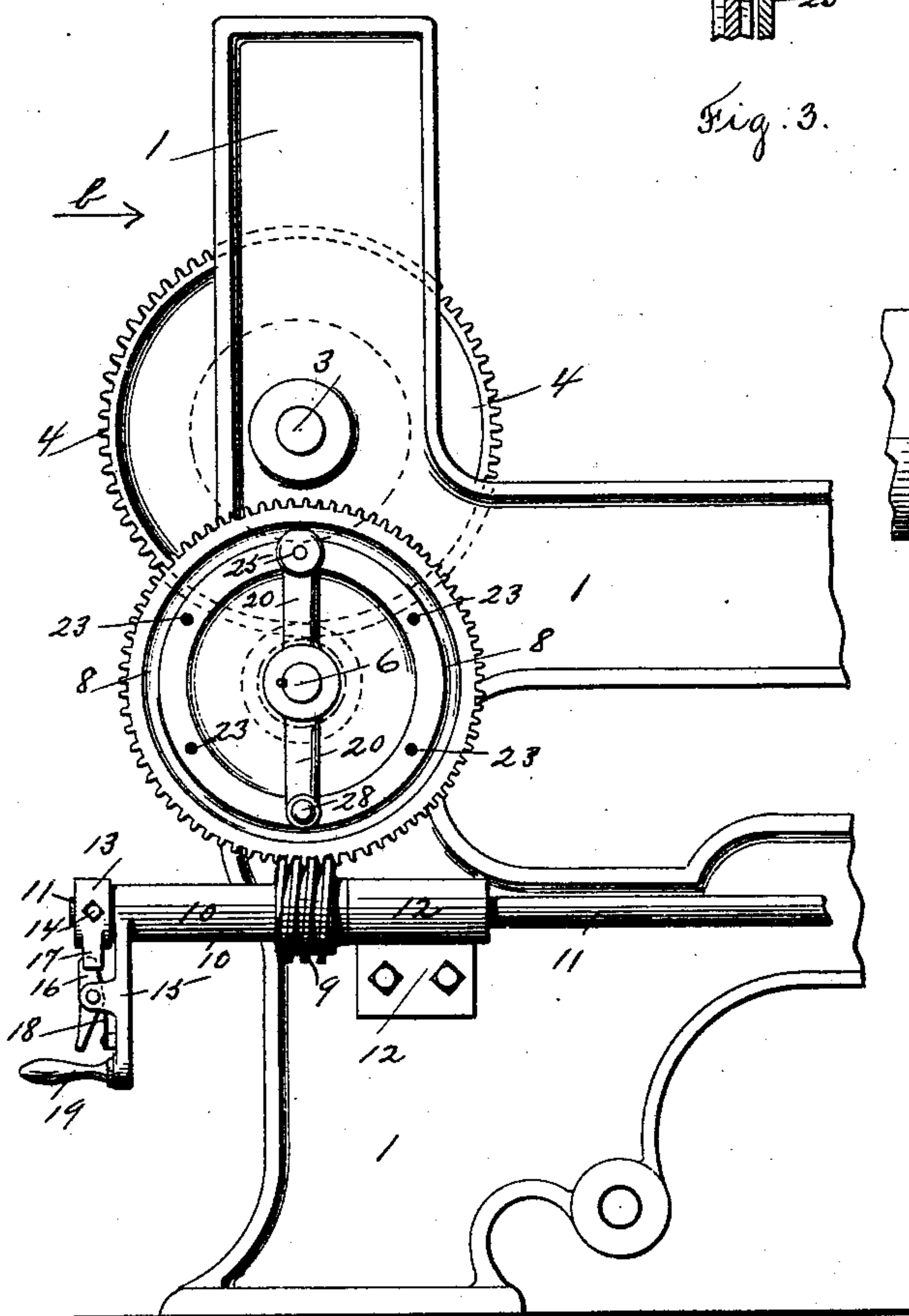


Fig. 1.

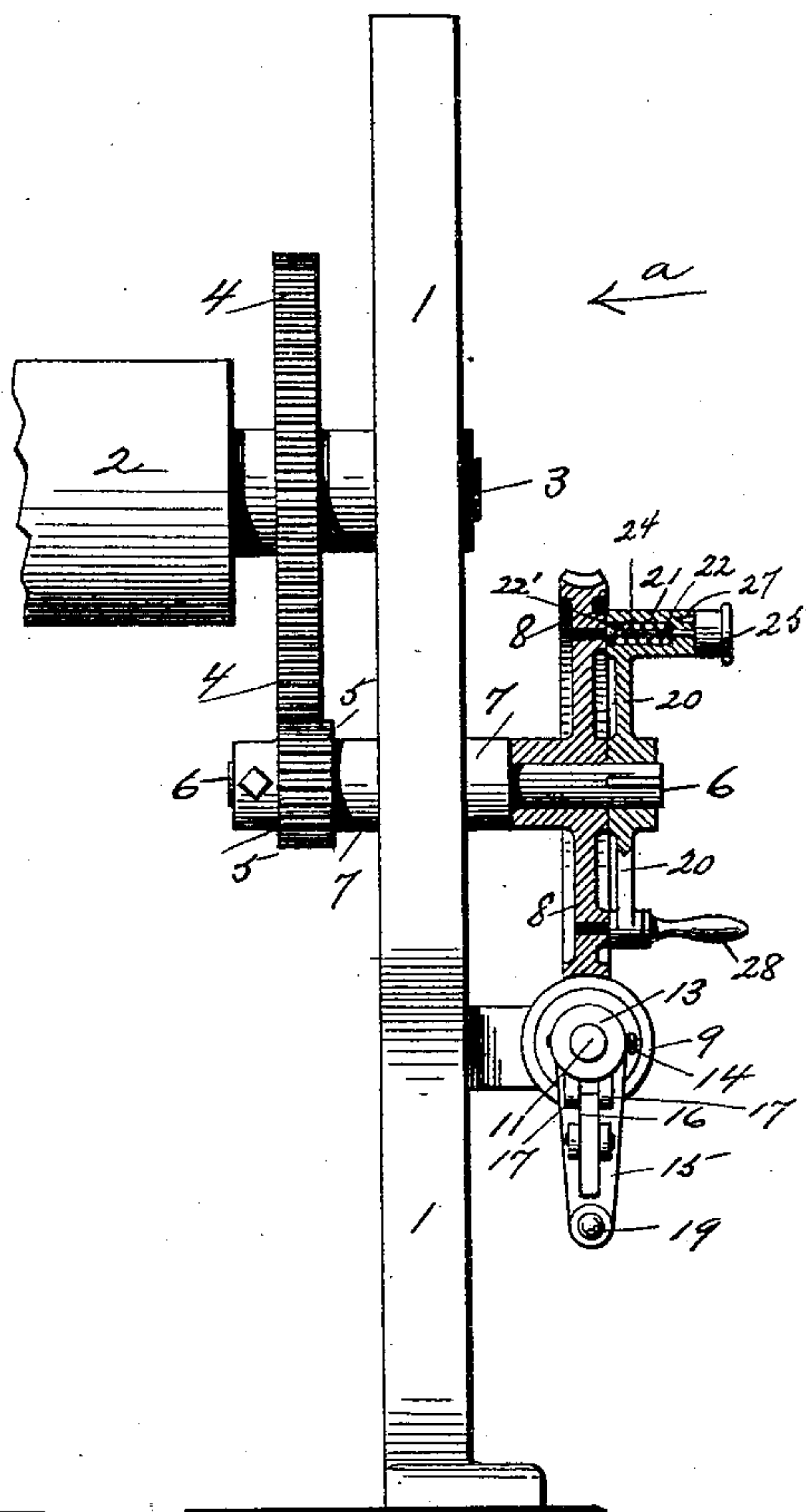


Fig. 2.

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KNOWLES LOOM WORKS, OF SAME PLACE.

TAKE-UP MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 480,851, dated August 16, 1892.

Application filed March 18, 1892. Serial No. 425,403. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. HUTCHINS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Take-Up Mechanism for Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawings making a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to the take-up mechanism of looms, and more particularly to the worm-and-gear take-up mechanism of looms in which the take-up roll is operated through a worm-gear and a worm-shaft driven positively from the loom-shaft or otherwise.

Heretofore in the ordinary construction of the worm-and-gear take-up mechanism of looms the worm has been supported loosely on its driving-shaft and adapted to be connected with said shaft to be driven thereby or to be disconnected to be revolved independently thereof for the purpose of turning back the take-up roll through the intervening gearing independently of the worm-shaft. By this construction it has been necessary to turn the worm by means of a handle connected therewith or otherwise, the number of revolutions corresponding to the number of picks to be taken out, as each revolution of the worm turns the worm-gear but a single tooth and turns the take-up roll for the distance only of a single pick. Thus it will be seen that if it is desired to turn the take-up roll back for a distance of three inches in the fabric to take out mispicks, or for other reasons, and there are a hundred or more picks in each inch of the fabric, it will be necessary for the operator to give to the worm after it has been disconnected from its driving-shaft three hundred or more revolutions before the take-up roll is turned back the required distance. This operation will consume considerable time.

The object of my invention is to save the time of the operator and to do away with the necessity of giving the same number of revolutions to the worm as there are picks to be

taken out, and to provide a convenient and effective supplemental attachment combined with the ordinary worm-and-gear take-up mechanism, by means of which the worm-driving mechanism may be disconnected from the take-up-roll gearing, and said take-up roll revolved independently of the worm-driving mechanism by the operator to within a few picks of the point required in the fabric and then the take-up-roll gearing connected with the worm-driving mechanism and the take-up roll revolved the remaining distance for the number of picks required by the ordinary revolution of the worm, disconnected from its driving-shaft.

My invention consists in certain novel features of construction and operation of the worm-and-gear take-up mechanism for the purpose above stated, as will be hereinafter fully described.

Referring to the drawings, Figure 1 is an end view of a detached portion of a loom, looking in the direction of arrow *a*, Fig. 2. Fig. 2 is a front view, partly in section, of the parts shown in Fig. 1, looking in the direction of arrow *b*, same figure; and Fig. 3 is a sectional detail showing the driving-pin of the snap-handle disengaged.

In the accompanying drawings, 1 is the loom side; 2, the take-up roll; 3, the take-up-roll shaft, on which is fast a gear 4. The gear 4 meshes with and is driven by a pinion 5, fast on a shaft 6, supported in a bearing 7 on the loom side. On the opposite end of the shaft 6 is a worm-gear 8, loose on said shaft. The worm-gear 8 meshes with and is driven by a worm 9, fast on a sleeve 10, which sleeve is loosely supported on the worm-shaft 11 between the bearing 12 of said shaft and the collar 13, fastened on the end of said shaft by a set-screw 14 or otherwise. The worm-shaft 11 is driven from the loom-shaft or otherwise in the ordinary way, and the sleeve 10 of the worm 9 is provided with a handle 15, upon which is pivoted a spring-latch 16, adapted to engage and extend between the lugs 17 on the collar 13 to lock the sleeve 10 to the collar 13 and cause the worm 9 to turn with the shaft 11 or to be disengaged from said lugs 17 against the action of the spring 18 to allow the sleeve 10 and the worm 9,

through the handle 19, to be turned independently of the shaft 11, all in the ordinary and well-known way.

Keyed to the end of the worm-gear shaft 6 outside of the worm-gear 8 is a snap-handle arm 20, which is provided at one end with a chamber 21, in which is fitted to slide freely the plunger 22, which is turned down at its outer end to engage a series of sockets 23, drilled in the worm-gear 8 and concentric with said gear-shaft 6 and snap-handle 9. On its inner end the plunger 22 is turned down to receive the coil-spring 24, one end of which bears against the shoulder 22' on the plunger 22 and the other end against the end of the chamber 21 in the handle-arm 20, thus acting to hold the plunger 22 in engagement with the sockets 23 in the worm-gear 8. The inner end of the plunger 22 extends out through the end of the chamber 21 and is fastened in the knob 25, which acts as a stop to prevent the spring 24 from pushing the plunger 22 too far out of the chamber 21.

Fixed in the hub of the knob 25 is in this instance a small pin 27, which enters a corresponding hole 26 in the end of the chamber 21 when the plunger 22 is in engagement with the worm-gear 8, as shown in Fig. 2, and which when the plunger 22 is withdrawn and the knob 25 turned around is moved away from its hole and bears against the end of the chamber and serves to hold the plunger 22 out of engagement with the sockets 23 in the worm-gear 8, as shown in Fig. 3. On the opposite end of the handle-arm 20 from the chamber 21 is a handle 28 to facilitate the turning of the handle-arm 20.

The operation of the snap-handle arm 20 for turning the take-up roll 2, through the pinion 5 and gear 4, independently of the worm-gear 8 and worm 9 will be readily understood by those skilled in the art. When it is desired to turn back the take-up roll 2 to pick out imperfect work, the knob 25 is drawn outwardly against the action of the spring 22 and moved around until the pin 27 bears against the end of the chamber 21, as shown in Fig. 3, thus disconnecting the handle-arm 20 from the worm-gear and leaving said worm-gear loose on the shaft 6. The handle-arm 20, fast on the worm-gear shaft 6, is then turned by means of the handle 28, or otherwise, causing the take-up roll 2, through pinion 5 and gear 4, to be revolved. After the take-up roll 2 has been turned back the gear 8 is again connected to its shaft 6 by turning the knob 25 and allowing the plunger 22 to enter the nearest socket 23, and then the take-up roll is turned the remaining number of picks desired by means of the worm 9, through the handle 19 thereon, in the ordinary way. It will thus be seen that by means of the handle-arm 20 the worm-driving mechanism may be disconnected from the take-up roll, and the take-up roll revolved by means of the arm 20; a few revolutions of said handle-arm imparting to the take-up roll sub-

stantially the necessary amount of revolution required, the remaining amount of revolution for a distance between the sockets 23 in the gear 8 being given to the take-up roll through the revolution of the worm 9 in the ordinary way.

By making the sockets 23 in the worm-gear 8 at some distance apart the operator is prevented from moving ahead the take-up roll faster than the operation of the take-up mechanism.

It will be understood that the details of construction of the handle-arm 20 and the mechanism connected therewith may be varied somewhat from what is shown and described, if desired.

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

1. In the take-up mechanism of a loom, in combination, the take-up roll, intervening gearing between the take-up roll and the worm-gear shaft, and said worm-gear shaft, and the worm-gear loose on said shaft, the worm loose on the worm-shaft, and said worm-shaft, and means for connecting the worm to the worm-shaft and for disconnecting it therefrom, and means for connecting the worm-gear to the worm-shaft and for disconnecting it therefrom, and means for turning the worm-gear shaft to cause the take-up roll to be turned independently of the worm-driving mechanism, for the purpose stated, substantially as set forth.

2. In the take-up mechanism of a loom, the combination, with the worm-shaft, the worm fast on a sleeve mounted loose on said worm-shaft, and means for connecting said sleeve with said shaft and for disconnecting it therefrom to allow the worm to be turned independently of the worm-shaft, the said means consisting of a handle-arm fast on the sleeve, carrying a spring-actuated latch which is adapted to engage lugs on a collar fast on the worm-shaft, and said collar, of the worm-gear driven by the worm and loose on the worm-gear shaft, and said worm-gear shaft, and means for connecting said worm-gear to the worm-gear shaft and for disconnecting it therefrom, such means consisting of a handle-arm fast on the worm-gear shaft and provided with a spring-actuated plunger adapted to engage sockets in the worm-gear to lock the gear to said handle-arm and cause it to be revolved therewith and with the worm-gear shaft or to be disengaged from said sockets to allow the worm-gear shaft to be turned by the handle-arm independently of the worm-gear to turn the take-up roll through the intervening gearing, and said take-up roll and intervening gearing between said roll and worm-gear shaft, substantially as set forth.

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