

July 7, 1931.

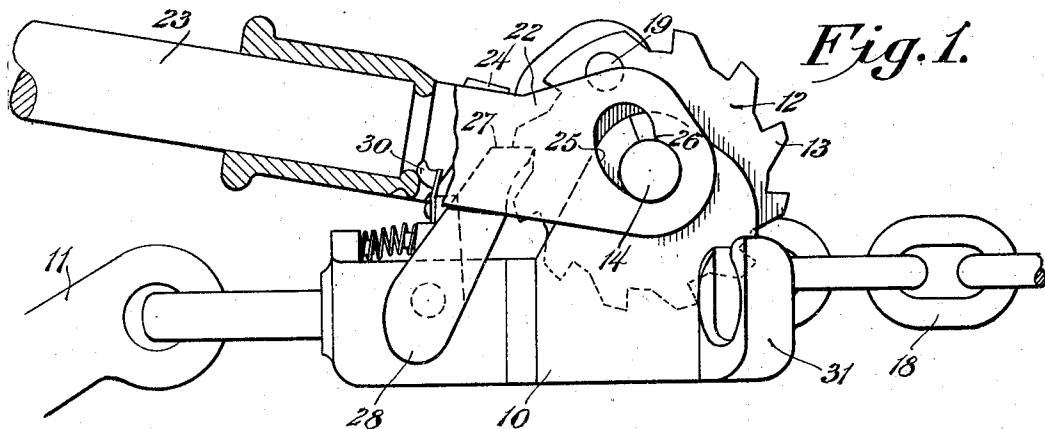
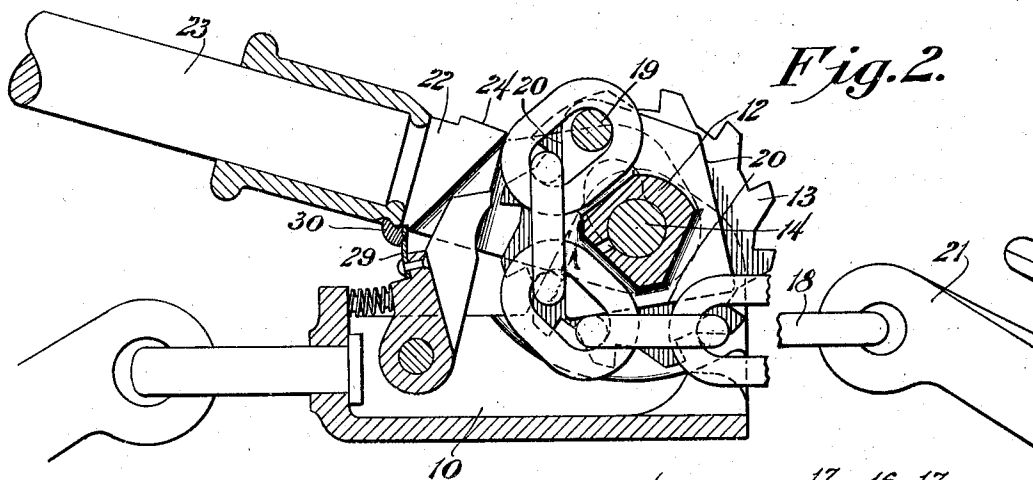
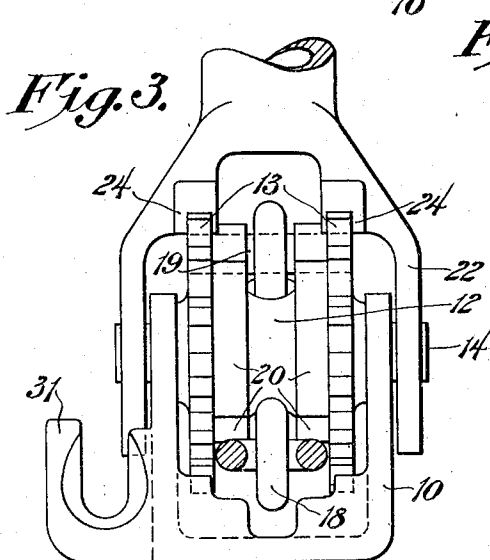
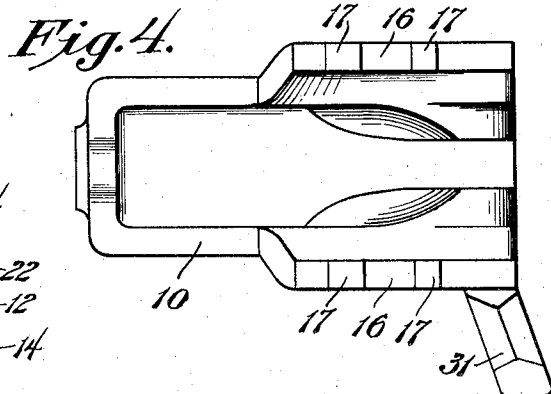
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1,813,447

PULLING IMPLEMENT

Filed Aug. 10, 1928

2 Sheets-Sheet 1



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Fig. 5.

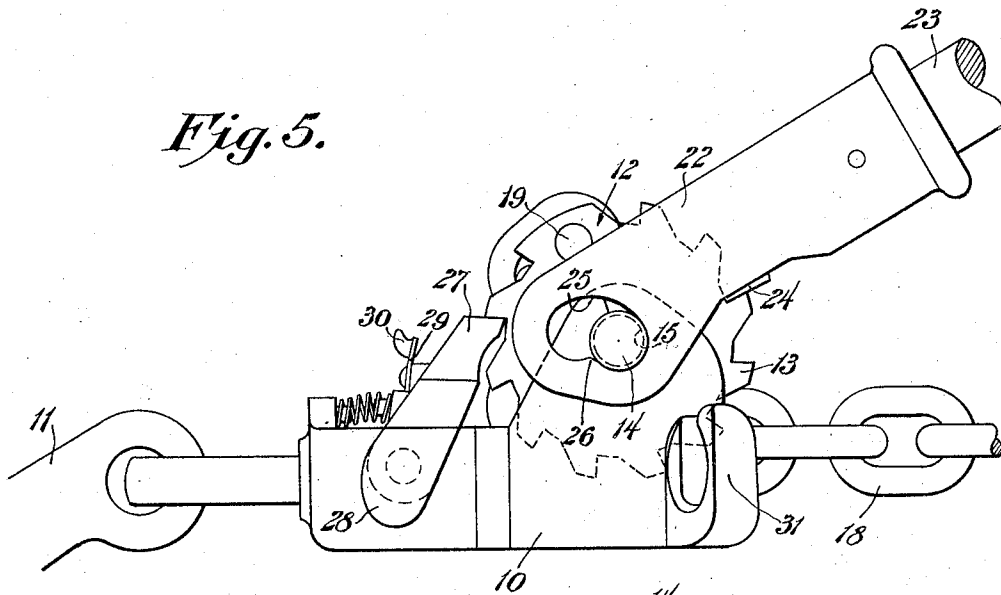


Fig. 6.

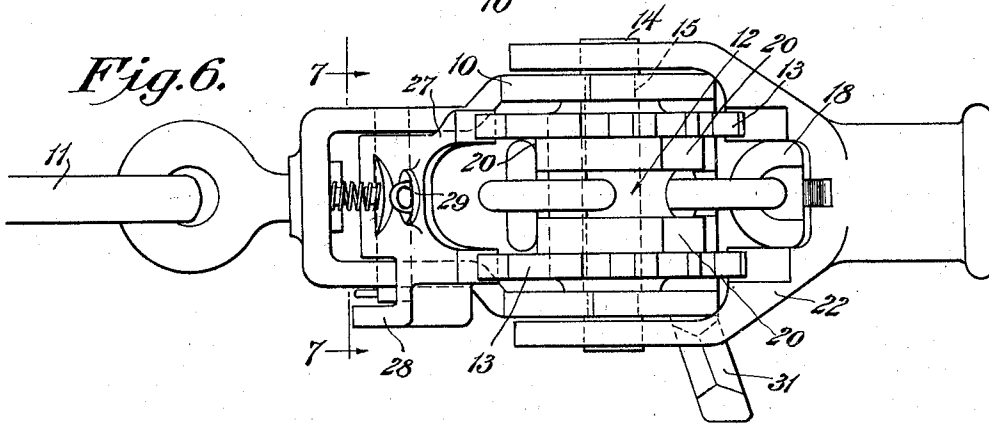


Fig. 7.

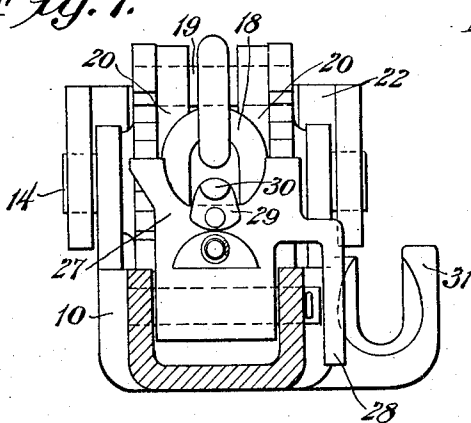
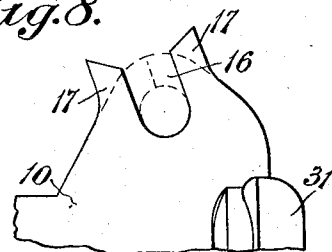


Fig. 8.



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PULLING IMPLEMENT

Application filed August 10, 1928. Serial No. 298,780.

This invention relates to pulling implements and aims, among other objects, to provide an improved manually operable power pulley adapted to tighten chains and stretch wire fencing and the like.

In the accompanying drawings,

Fig. 1 is a fragmentary side elevation of a chain tightening implement embodying the invention;

Fig. 2 is a central, longitudinal sectional view of the implement shown in Fig. 1, parts being shown in a different position;

Fig. 3 is a right end elevation of Fig. 1, parts also being shown in different positions;

Fig. 4 is a top plan view of the sheave frame shown in Fig. 1;

Fig. 5 is another fragmentary side elevation, showing the operating member in another position;

Fig. 6 is a top plan view of Fig. 5;

Fig. 7 is a sectional view taken on the line 7-7 of Fig. 6; and

Fig. 8 is a fragmentary side elevation of the frame.

Referring particularly to the drawings, the embodiment of the invention there shown comprises a sheave block of the chain-tightener type adapted to be operated manually by ratchet mechanism so that the device may be employed to tighten load binding chains or stretch wire fencing and the like by taking a series of take-up bites on a chain to be tightened.

Herein, there is provided an elongated U-shaped frame 10 which may be made in a single casting and a chain hook 11 is swivelly connected to one closed end wall, the idea being to connect the swivel hook to one end of a load binding chain or to a fixed member. Between the sides of the frame a ratchet operated sheave 12 in the form of a grooved casting having integral ratchet wheels 13 is mounted on a transverse shaft or axle 14 which is conveniently grooved as at 15 (Figs. 5 and 6) and held in slots 16 in the sides. The shaft is preferably held in place by bent or curved arms 17 on opposite sides of the slots over the axle (Fig. 8) so that it cannot fall out.

The sheave 12 is here shown as being grooved and so shaped as to receive and guide the links of a tightening chain 18 having one end secured to a cross pin 19 between the ratchet wheels, the edgewise links working in the sheave groove and the flatwise links lying on flat faces or shoulders 20 provided between the groove and the ratchet wheels 13. These faces are shown as being shaped to receive the flatwise links when they are wound on the sheave practically one revolution.

The free end of the tightening chain has a chain hook 21 adapted to engage the links of a chain to be tightened (not shown) whether or not that chain binds a load or is fastened to something else to be stretched or tightened, the idea being to take several bites in the operation of the implement.

To operate the ratchet wheels, a forked ratchet lever 22 is shown as being pivotally mounted on projecting ends of the shaft 14. To this lever an operating handle 23 is secured to enable a powerful leverage to be obtained. Operating pawls or angular projections 24 are formed on the opposed forks to engage the teeth of the ratchet wheels and the ends of the forks have curved slots 25 around the shaft 14 to permit the pawls or projections to be disengaged from the ratchet teeth and take another hold by working the lever handle. These slots have seats at their ends for the shaft and angular shoulders 26 between them to prevent the lever from being accidentally dislodged when in either position, shown in Figs. 1 and 5.

A forked, spring-urged holding pawl 27 is shown as being pivotally mounted between the side walls of the frame at the rear end (Figs. 1, 2 and 6), and is adapted to hold both ratchet wheels while the handle 23 is being manipulated and after the tightening chain has done its work, as for example, after a load binding chain has been tightened as much as is desired. This pawl is shown as having a side arm or handle 28 (Fig. 1) so that it can be disengaged by hand, without inserting the fingers in a dangerous position.

Herein, the ratchet lever 22 is constructed and arranged to engage the holding pawl and lock it either in engagement or disengagement with the ratchet wheels, a suitable spring arm 29 having a rounded projection or knob 30 being shown on the pawl and the rear end of the fork being adapted to engage the shoulder or knob, as shown in Figs. 1 and 2. This permits the lever to be pushed down over the pawl and thereby prevent the pawl from being accidentally disengaged. Also, the lever may be used to hold the holding pawl out of engagement with the ratchet wheels when the tightening chain is being pulled out to take a new bite or hold (see Fig. 2).

To enable the tightening chain to take a series of bites on a chain to be tightened, a chain holding or take-up hook 31 is shown as being cast integral with the frame 10 at one side. After the ratchet wheels have been turned about one revolution (Fig. 5), or when the chain is wound on the sheave, a link in the slack end portion of the tightened chain (not shown) may be slipped into this hook. Then another bite can be taken by unwinding the tightening chain and repeating the operation.

From the foregoing description, it is believed that the operation of the improved pulling implement is clear and that various uses thereof will be obvious to those skilled in the art. It will be observed that it is made of a relatively few simple parts, the principal ones of which may be cast metal. Moreover, it is very easy to manipulate.

Obviously, the present invention is not restricted to the particular embodiment thereof herein shown and described. Moreover, it is not indispensable that all the features of the invention be used conjointly, since they may be employed advantageously in various combinations and sub-combinations.

What I claim is:—

1. A pulling implement of the class described comprising, in combination, an open frame; a chain winding sheave rotatably mounted in said frame; a shaft for said sheave; a pair of ratchet wheels on the sheave; holding pawls pivoted on the frame and cooperating with the ratchet wheels; a forked ratchet lever member having its ends pivotally mounted on the shaft of said sheave; and operating pawls on the lever member; said forks having curved slots cooperating with the sheave shaft to permit the operating pawls to be disengaged from the ratchet wheels.

2. A pulling implement of the class described comprising, in combination, a frame; a ratchet operated sheave in the frame; a forked holding pawl cooperating with the ratchet pivoted to the frame; a ratchet lever having an integral operating pawl cooperating with said ratchet; and integral means

on the lever engageable with the holding pawl to hold said pawl out of engagement with the ratchet and permit the sheave to be rotated freely.

3. A pulling implement of the class described comprising, in combination, a frame; a ratchet operated sheave in the frame; a forked holding pawl cooperating with the ratchet and mounted in the frame; a ratchet lever having an integral operating pawl cooperating with said ratchet; and a spring member on the holding pawl engageable with the lever to lock the pawl in holding engagement with the ratchet to prevent accidental disengagement of the holding pawl from the ratchet.

4. A pulling implement of the class described comprising, in combination, a frame; a ratchet operated sheave in the frame; a holding pawl cooperating with the ratchet and mounted in the frame; a ratchet lever having an integral operating pawl cooperating with said ratchet; means on the lever engageable with the holding pawl to hold said pawl out of engagement with the ratchet; and a spring member on the holding pawl adapted to be engaged by the ratchet lever either to lock the pawl in engagement or out of engagement with the ratchet wheel.

5. A pulling implement of the class described comprising, in combination, an open substantially U-shaped frame; a chain winding sheave rotatably mounted in said frame; a shaft for said sheave; a pair of ratchet wheels on the sheave; holding pawls for the ratchet wheels mounted on the frame; a forked ratchet lever member having its ends pivotally mounted on the shaft of said sheave; operating pawls on the lever member; said forks on the ratchet lever having curved slots providing a shiftable connection between the lever and the sheave shaft to permit the operating pawls to be disengaged from the ratchet wheels; and said ratchet lever having shoulder portions intermediate the ends of the slots to prevent the operating pawl on the lever from accidentally slipping out of the ratchet teeth while being operated.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature.

LEO HAUBERT.