(No Model.)

C. A. LAUNIUS.

DEVICE FOR TRANSMITTING POWER.

No. 348,022. Patented Aug. 24, 1886.

Fig. 1.

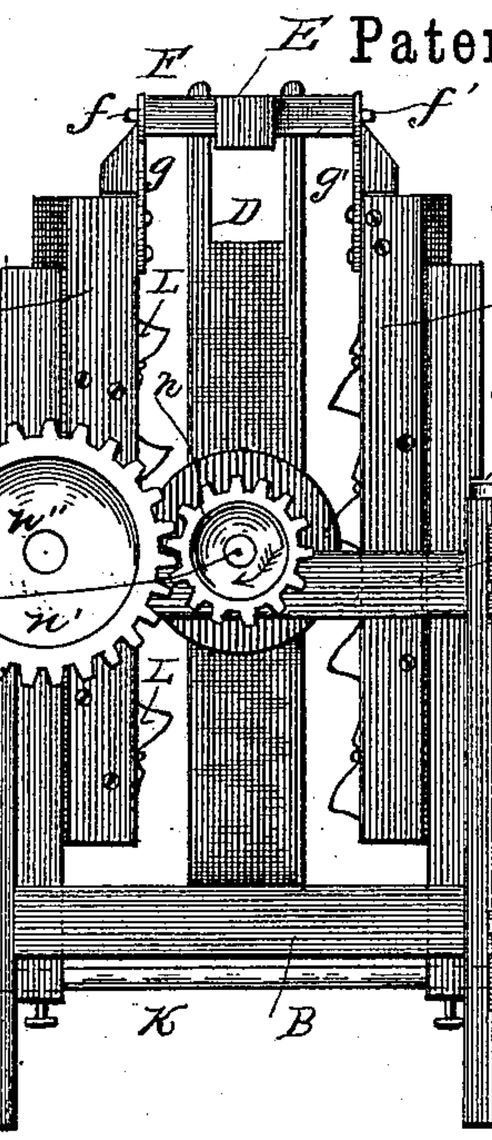


Fig. 2.

Fig. 3

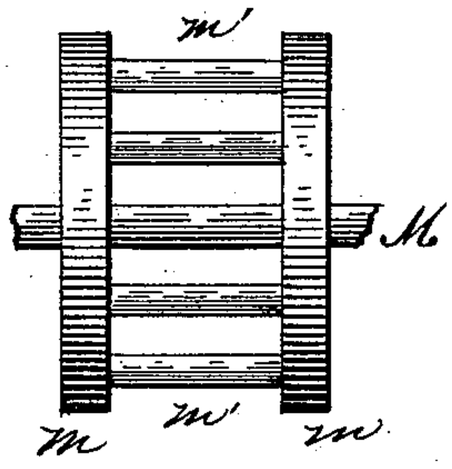


Fig. 4.

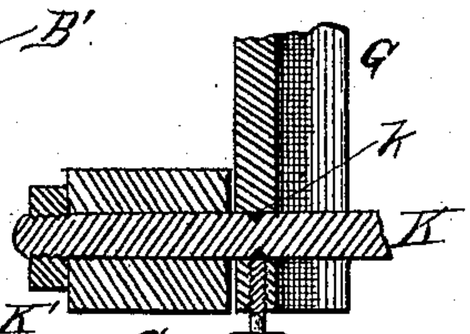


Fig. 7.

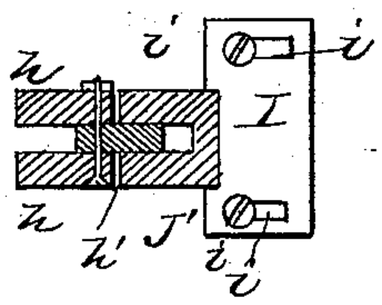
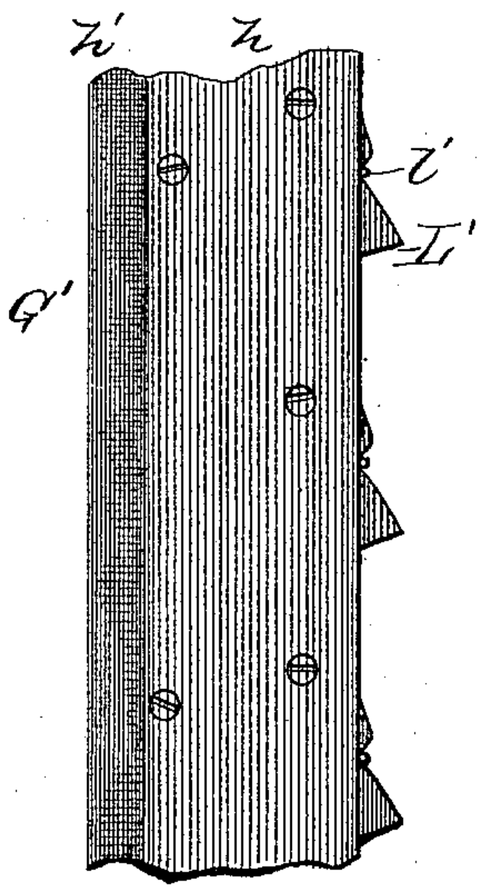


Fig. 5.



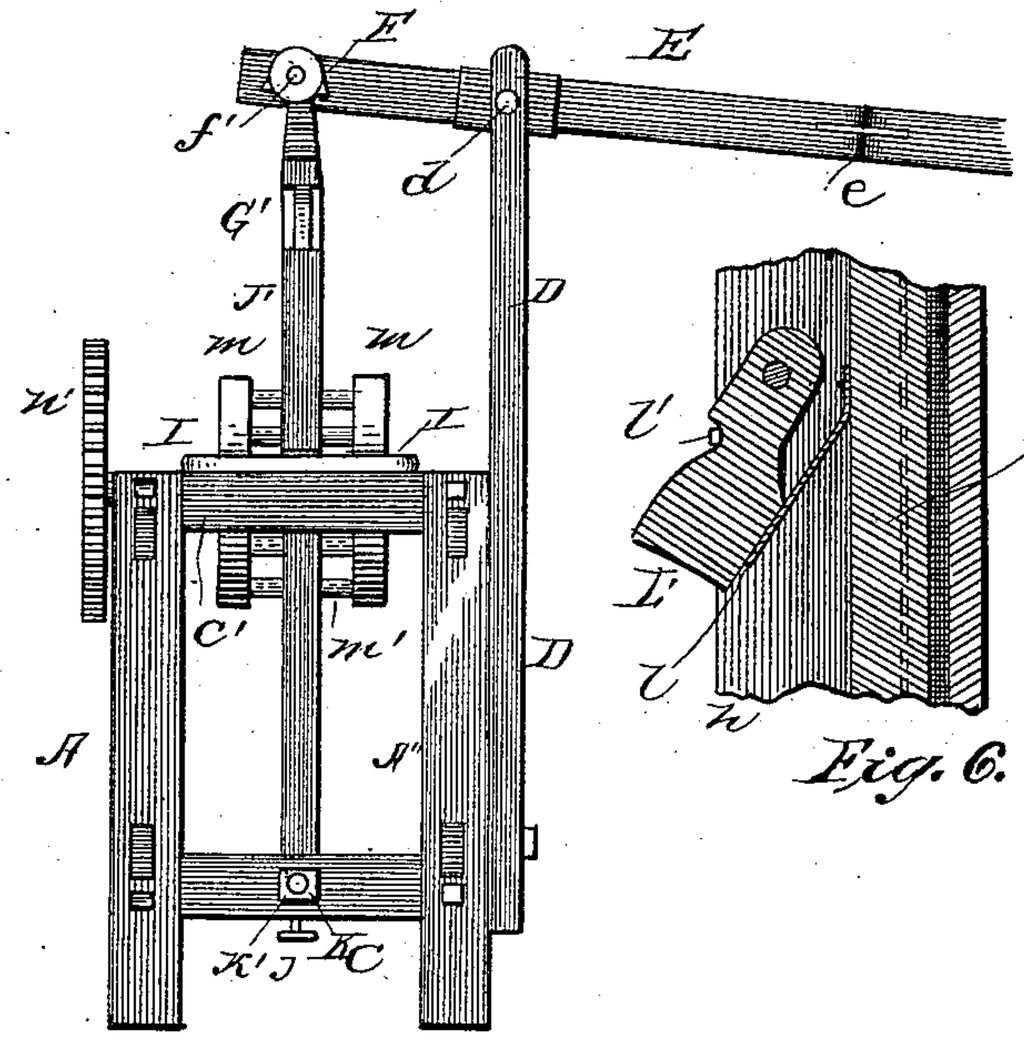


Fig. 6.

Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES A. LAUNIUS, OF HIGH SHOALS, GEORGIA, ASSIGNOR OF ONE-HALF TO THOMAS G. LAUNIUS, OF SAME PLACE.

DEVICE FOR TRANSMITTING POWER.

SPECIFICATION forming part of Letters Patent No. 348,022, dated August 24, 1886.

Application filed April 14, 1886. Serial No. 198,815. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. LAUNIUS, of High Shoals, in the county of Walton and State of Georgia, have invented certain new and useful Improvements in Devices for Transmitting Power; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 letters of reference marked thereon, which form part of this specification.

My invention has relation to mechanism for converting reciprocating motion into continuous rotary motion; and it has for its object to furnish a motor for use in situations where powerful rotary motion is required and where the speed of such rotation is a secondary object, such motor being especially useful where horse, steam, or water power is unavailable on account of its too great expense considering the operations to be performed—as, for a common instance, where it is desired to raise heavy weights, especially on farms where a single person very often has to do most of the work.

One particular object is to furnish a powerful, cheap, durable, and easily-operated device for raising water from wells for watering stock, &c.

With these objects in view, my invention consists in the improved construction, arrangement, and combination of parts, which I shall now proceed to fully and accurately describe, the specific points of novelty in which I shall afterward particularly point out in the claims.

In the accompanying drawings, Figure 1 is a view in front elevation of my improved device. Fig. 2 is a view in side elevation of the same. Fig. 3 is a detail view in elevation showing the cage-wheel and its shaft. Fig. 4 is a detail view showing in section the manner of connecting the lower ends of the guideways to the frame. Fig. 5 is a view in side elevation of a portion of one of the sliding tooth-carrying frames. Fig. 6 is a view in longitudinal vertical section through part of one of the sliding frames, showing the construction and manner of operating the spring ratchet-teeth, and Fig. 7 is a sectional detail through one of the sliding frames and guideways.

Like letters of reference mark the same parts wherever they occur in the various figures.

Referring more particularly to the drawings by letters of reference, A A′ are the two front posts or uprights of a frame, which is supported by four such posts, A″ being one of the rear posts, the other rear post not being shown. The front posts, A A′, are connected by cross-beams B B′, as are also the back posts, the beams being of the same number and shape at front and back. The front and rear posts on each side, as seen at A and A″, Fig. 2, are connected by cross-beams C C′, those on each side being of the same size and shape.

D is an upright secured rigidly to the cross-beams B B′, near their centers, and projecting some distance above the top of the rest of the framing. At the top of this upright D is pivoted, at *d*, a lever, E, whose short end projects over the center of the frame-work, while its long end (which I show hinged at *e*, Fig. 2) projects to the rear any desired distance depending upon the amount of leverage required.

To the short end of the lever E is pivoted a cross-bar, F, which carries at each end a sliding bar or frame, as G and G′, connected to said cross-bar by pivots *f* and *f′*, which engage in perforations in metal plates *g* and *g′*, secured to said sliding bars G G′, in any suitable manner. When the handle-lever E is rocked on its pivot, these bars G G′ move up and down in guideways J J′, which are pivotally secured at their lower ends on a bar, K, and are at the same time prevented from moving longitudinally of said bar, and thereby moving nearer to each other by means of a set-screw, *j*, which passes into said guideways, as seen in Fig. 4, until its point engages a small groove, *k*, in the bar K. This bar K is supported in perforations formed in the lower side cross-beams, as seen in Figs. 2 and 4, and is held in place by means of a nut, K′, on each end. The slideways are held against lateral movement near their top ends by means of plates I, which are secured to the upper side cross-beams by means of set-screws *i*, passing through slots *i′* therein, as shown in Fig. 7,

which plates engage horizontal slots *i''* in the guideways, and thus permit movement back and forward as the guideways swing on their supporting pivot-bar K.

The sliding frames G G′ are composed of three pieces of plank or plates of metal *h h* and *h′*. The planks *h h* are set at a slight distance apart and the plank *h′* placed between them, and there rigidly secured by means of screws, nails, or bolts. It projects in their rear and fits snugly in the grooves in the guideways, while the space between *h* and *h* is utilized as a space in which to pivot spring ratchet-teeth L L′, as hereinafter set forth. These ratchet-teeth are in two series, the series L being pivoted in the groove of slide G, and the series L′ being similarly secured in the groove of slide G′. The series L have their points projecting upward, and the teeth L′, as shown in Fig. 5, project downward. The teeth of each series are pivoted in the space or groove between the planks *h h* of the sliding frames G G′, and are normally forced outward, so that their points project beyond the edge of the sliding frames by means of leaf or other springs *l*, secured to the planks *h′*, the amount of such forward or outward projection being limited by straps *l′*. (See Fig. 6.)

In the front and rear upper cross-beams of the machine are provided bearings for a shaft, M, which carries two disks, *m m*, set at a short distance from each other and connected by a concentric series of rods, *m′*, thus forming a wheel *n*, of the form known as "cage-wheel." The shaft M is provided with a gear-wheel, *n*, which meshes into the gear-wheel *n′*, mounted on shaft *n''*. This is merely an instance for illustration, as the gearing from the shaft M may be varied to suit the occasion or the desire of the user.

The operation of my device may be described as follows: By grasping the lever E it may be reciprocated, oscillating it on its pivot *d*. This carries the slide-frames G G′ up and down in the guideways J J′. As they pass down the teeth L′ engage the rods or teeth *m′* of the cage-wheel and cause the shaft M to rotate in the direction of the arrow on the pinion *n*, during which operation the rods *m′* on the opposite side of the cage-wheel pass upward and the teeth L in their downward motion slip over said rods or teeth. At the end of the stroke the motion is reversed, and the slide-frames moving upward the teeth L engage the rods *m′* and continue the rotation of the shaft in the same direction, the teeth L′ now slipping over the rods of the cage-wheel. Thus a continuous rotation in one direction is given to the shaft M and any other mechanism connected with it as long as the reciprocation of the lever E is continued. At the same time the machine can be stopped at the end of any stroke, the cage-wheel remaining stationary. It will be seen at a glance that the reciprocation of the slide-frames will not be in an exact vertical line, but will vary therefrom slightly. This motion is permitted by pivoting the guideways on rod K, as before set forth, and by providing rods for the cage-wheel of a suitable length, always greater than the width of the slide-frames. This variation from the vertical will, however, be very slight, owing to the shortness of the short end of the lever E. The cage-wheel may be omitted, however, and a broad toothed wheel substituted for it.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In combination, a shaft, a cage or toothed wheel, M, the slide-frames G G′, carrying yielding reversed teeth L L′, the cross-bar F, having pivots *f f′*, the plates *g g′*, secured to the slides and perforated to receive said pivots, and the lever E, pivoted to cross-bar F and to the frame of the machine, as set forth.

2. In combination, the framing, the shaft, wheel M, the slideways having reversed yielding teeth, the cross-bar F, pivotally connected at each end to one of said slides and at its center to the lever E, the lever E, pivoted to the frame, and the guideways J J′, pivoted near their lower ends, as set forth.

3. In combination with the framing, the rod K, having grooves *k*, the grooved guideways having set-screws engaging said groove *k*, the plates I, having slots *i′*, and the set-screws engaging in said slots, the guideways being provided with horizontal grooves *i''* to receive the edges of said plates I, as set forth.

4. In combination with a shaft mounted in suitable bearings, a cage-wheel consisting of disks *m* and concentric series of connecting-rods *m′*, a pair of oscillatory reciprocating slide-frames having yielding reversed and normally forced-outward teeth, and suitable guideways for such slides pivoted at the lower ends and constructed to admit of a slight oscillatory movement at their upper ends, as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

CHARLES A. LAUNIUS.

Witnesses:
O. E. DUFFY,
HENRY B. BOLTON.