

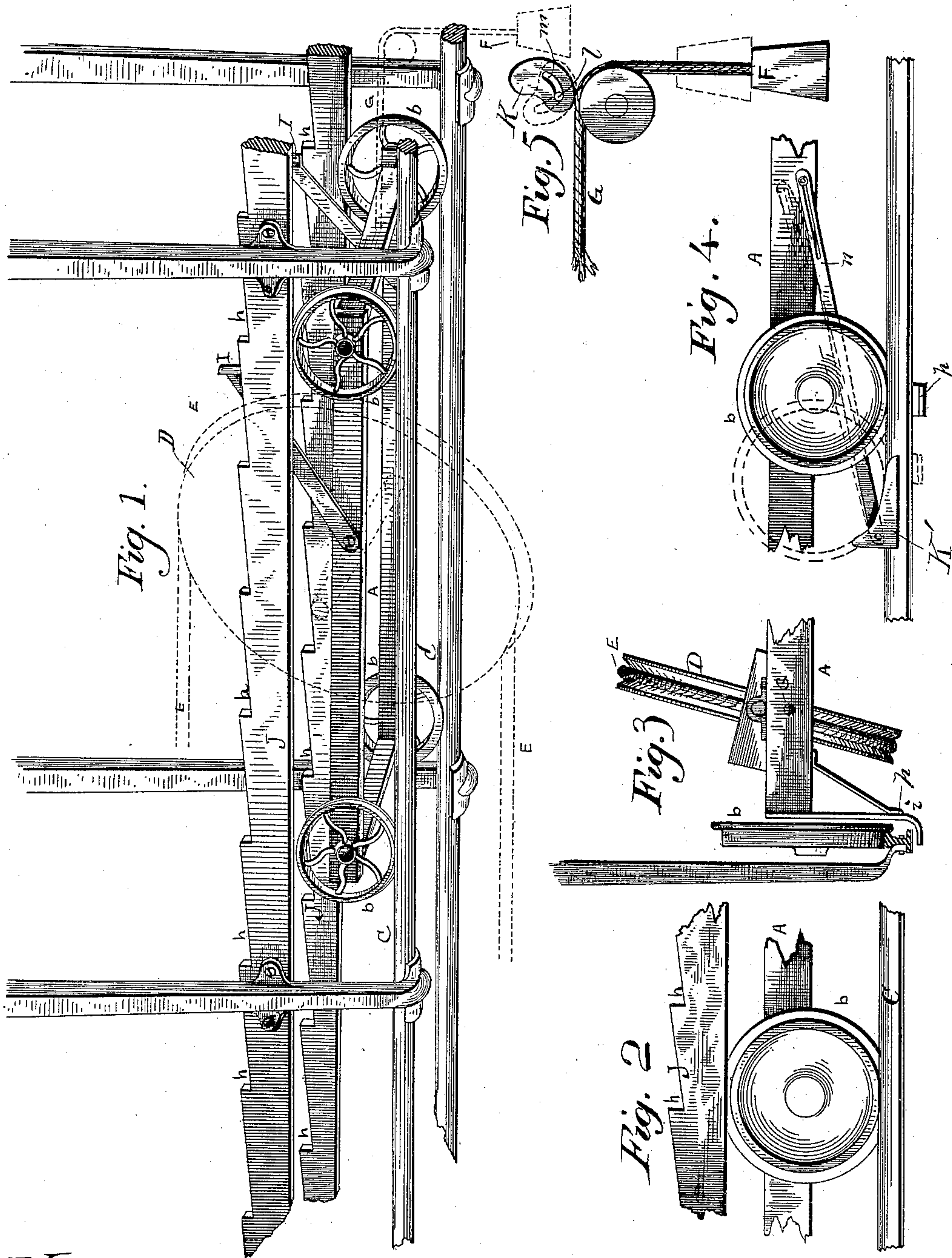
(No Model.)

W. H. DODGE.

SLACK TAKE-UP FOR ROPE TRANSMISSION.

No. 383,282.

Patented May 22, 1888.



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UNITED STATES PATENT OFFICE.

WALLACE H. DODGE, OF MISHAWAKA, INDIANA.

SLACK-TAKE-UP FOR ROPE TRANSMISSION.

SPECIFICATION forming part of Letters Patent No. 383,282, dated May 22, 1888.

Application filed October 1, 1887. Serial No. 251,159. (No model.)

To all whom it may concern:

Be it known that I, WALLACE H. DODGE, of Mishawaka, in the county of St. Joseph and State of Indiana, have invented new and useful Improvements in Slack-Takers for Power-Transmission by Ropes; and I do hereby declare that the following is a full and accurate description of the same, reference being had to the accompanying drawings, wherein—
10 Figure 1 is a perspective view of my device. Fig. 2 is an elevation showing one wheel and two rails. Figs. 3, 4, and 5 represent modifications.

This invention relates, particularly, to the improvement in power-transmission described in my Letters Patent No. 320,544, granted June 23, 1885.

The nature of the improvement will be made clear by a statement of the objectionable effects which it corrects.

First. When the main driving-wheel is attached to the crank-shaft of the engine. Sometimes the engine will be permitted to stop with its crank so near to the dead-center that steam admitted behind it cannot move the crank forward past said dead-point, and it becomes necessary to back the piston a little way before starting forward. This backward movement of the main pulley draws in the slack side of the transmission-rope and brings the strain directly on the take-up pulley, which will be pulled forward to the end of its track. When, now, the engine starts forward, the slack will run out quickly and the take-up will travel back to its position and be arrested with a jerk. This causes undue and sometimes disastrous strains on the rope and pulley-bearings, &c. The first object of my invention is to obviate this effect by providing automatic means to limit the backward movement of the take-up carriage.

Second case. When the distance between the driving and the driven pulley is considerable, the sag of the rope will necessarily be proportionate to such distance, and this sag represents slack which cannot be taken up. When the driving-pulley is first started, the tendency will first be to straighten out the sag, and as the driven mechanism begins to move the rope will sag again. The effect produced is an oscillation of the transmitting-rope, or

alternate strain and relaxation for a period of time until uniform motion is established throughout the system. The immediate effect of this oscillation is on the take-up, because that is the part which can yield most readily, and consequently it will be drawn forward and suffered to run back quickly several times, causing undesirable strains on the rope. When the length of the sagging portion is inconsiderable, this effect is not material, but in long "transmissions" it is very undesirable. In erecting a rope transmission it is necessary to provide the take-up with a range of motion proportionate to the length of the transmitting-rope and the probable amount of its stretch in use. It is necessary that the take-up shall be free to recede as the rope elongates in order to maintain a uniform tension; but the variation in position to compensate contraction and elongation of the rope from atmospheric causes will be very much less in extent.

In the drawings, A is the take-up carriage provided with wheels *b*, which traverse the track C. D is the take up wheel mounted on said carriage.

E is the transmission-rope.

F is the tension-weight connected with said carriage by a rope, G.

In many places it will be useful to provide means to prevent the wheels *b* from leaving the track under any circumstances. This may be accomplished in a variety of ways: Pendent hooks *i*, or brackets *p*, may be attached to the carriage A, with their ends extended beneath the rails C, as in Fig. 3, so that said wheels cannot rise from the track far enough to permit the wheel-flanges to pass over the track; or rails J may be placed above the track C and just clear of the wheels *b*, as in Figs. 1 and 2.

When the engine is reversed, or when in starting a long transmission, the sagging part of the rope is caused to oscillate, as above set forth. The forward movement of the carriage may be restrained in a variety of ways, embodying an automatically-acting catch or clutch which will permit a free movement in one direction, but arrest movement in the other direction. This catch may consist of a cam or eccentric shaped pivoted clamp attached

to either the stationary or moving part of the apparatus, as shown in Figs. 4 and 5, wherein a cam-shaped catch, K, rests upon the weight-rope G and is capable of a limited movement on a pin, l, which passes through a slot, m, in said catch. When during said movement one end of said slot arrives at said pin, it immediately commences to act as a pivot, and thereafter when said cam rotates it pinches the rope against the pulley or other object occupying a fixed position as to the rope. In Fig. 4 a corresponding cam, K', is placed upon the rail and attached to the carriage by a drag-rod, n, slotted so as to permit a limited movement of the carriage irrespective of said cam. In the direction of arrest the wheel of the carriage will run up on said cam and clamp the carriage to the rail by means of a hanging bracket, p, or with the overlying rail J; or I form on the upper edge of one or both of the rails J long ratchets, h h, and I pivot to the carriage A a corresponding number of arms, I, each provided with a hook or angle end, which rest on and engage with said ratchets, so that while the carriage may move freely backward to take up slack as the rope stretches, the engagement of the arm I with the ratchet h will quickly arrest any

movement in the opposite direction, and thereby the difficulties mentioned in cases one and two will be avoided and the take-up will be restrained from forward movement.

Having described my invention, I claim—

1. In combination, the transmission-rope, the take-up wheel, the carriage to support said wheel, and the track C, with a catch adapted to engage and automatically arrest said carriage when moved in one direction, but let it slide freely in the other direction.

2. The transmission-rope, the take-up wheel, the carriage A, and track C, combined with a rail, and a catch attached to said carriage and adapted to engage said rail and automatically arrest the carriage when moved in one direction, but let it go freely when moved in the other direction, as set forth.

3. The transmission rope, the take-up wheel, the carriage A to carry said wheel, and the track C, combined with the rail J, provided with ratchets h, and arm I, hinged to the carriage and in engagement with said ratchets, as set forth.

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