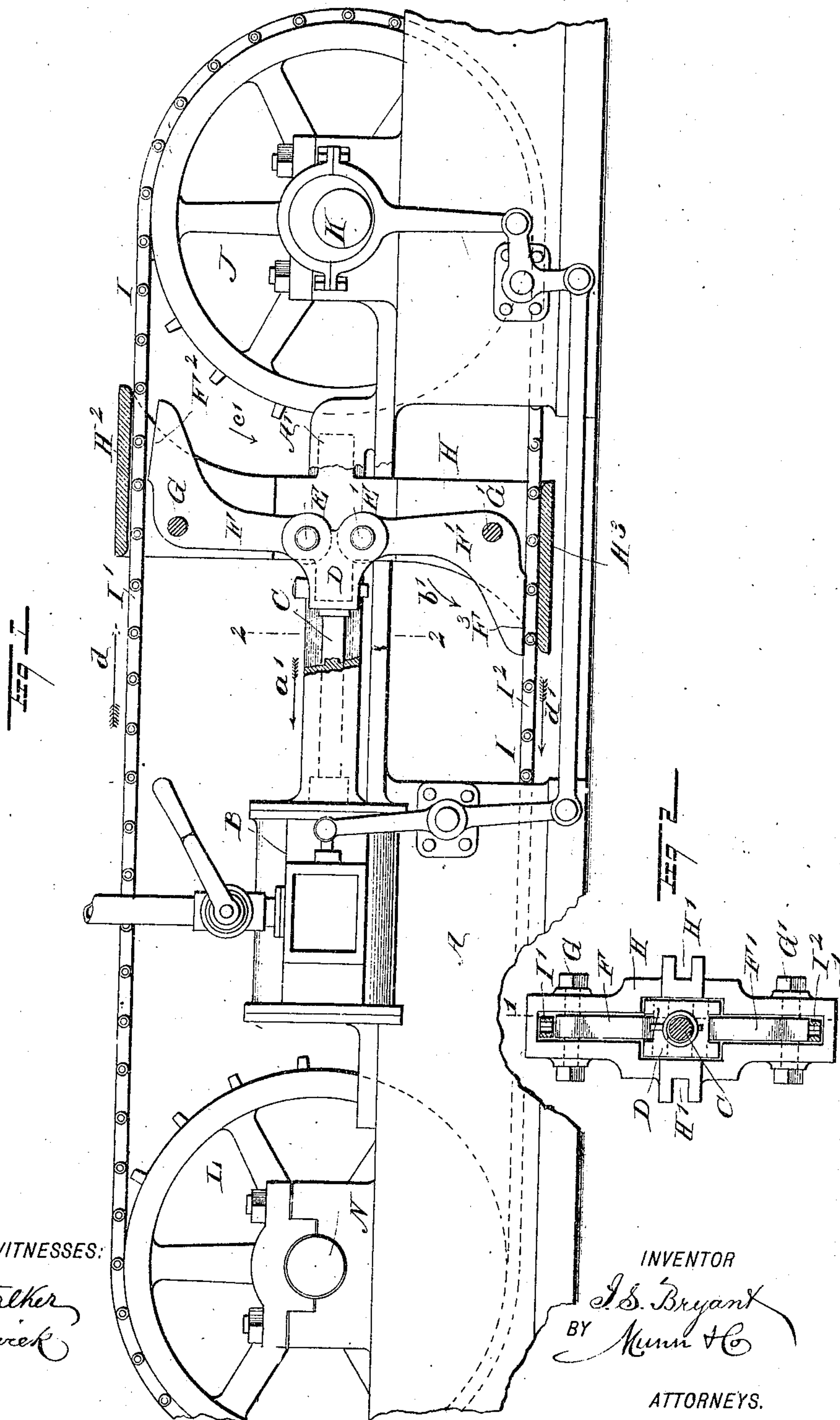


(No Model.)

I. S. BRYANT.
MECHANICAL MOVEMENT.

No. 528,412.

Patented Oct. 30, 1894



UNITED STATES PATENT OFFICE.

ISAAC S. BRYANT, OF LA JUNTA, COLORADO.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 528,412, dated October 30, 1894.

Application filed December 12, 1893. Serial No. 493,501. (No model.)

To all whom it may concern:

Be it known that I, ISAAC S. BRYANT, of La Junta, in the county of Otero and State of Colorado, have invented a new and Improved Mechanical Movement, of which the following is a full, clear, and exact description.

The invention relates to mechanical movements such as shown and described in Letters Patent No. 512,094, granted to me January 2, 1894.

The object of the invention is to provide a new and improved mechanical movement, designed to convert reciprocating motion into rotary motion in a very simple and effective manner, and at the same time avoiding all dead center positions of the transmitting parts.

The invention consists of certain parts and details and combinations of the same, as will be hereinafter described and then pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a side elevation of the improvement, with parts in section on the line 1—1 of Fig. 2; and Fig. 2 is a transverse section of the same on the line 2—2 of Fig. 1.

The improved mechanical movement is mounted on a suitably-constructed frame A, which supports a cylinder B, connected with a suitable source of supply to actuate the piston therein, so that the piston rod C, reciprocates in the usual manner. On the outer end of the piston rod C is secured or formed a head D, provided with transversely-extending pivot pins E, E', located one above the other and carrying the jaws F and F', respectively, fulcrumed at G, G', respectively, on a cross head II, provided on opposite sides with guideways II', fitted to slide on the slideways A', fixed on the main frame A.

It will be observed that the cross head II is not rigidly connected to the piston head D, and therefore, when the motion of the piston reverses, the cross head will remain stationary until the jaw F or F' is carried into clamping engagement with the chain I, to be described presently.

The cross head II is provided on its upper and lower ends with jaws II² and II³, through

which pass the runs I' and I² of an endless chain I, passing over a sprocket wheel J, secured on the main driving shaft K, journaled at one end of the frame A, as plainly illustrated in Fig. 1. The sprocket chain I also passes over a sprocket wheel L, secured on a shaft N, mounted on the other end of the frame A and serving to carry the runs I' and I² of the said sprocket chain I above and below the cylinder B or other working parts of the device.

The jaw F is provided at its upper end with a clamping edge F², adapted to engage the upper run I' of the sprocket chain I, so as to clamp this run in position on the fixed jaw H², at the time the piston rod C is on the outward stroke. The other jaw F' is likewise provided at its lower end with a clamping edge F³, adapted to clamp the lower run I² in position on the fixed jaw II³ of the cross head II, at the time the piston rod C is on the inward stroke in the direction of the arrow a'.

The operation is as follows: When the piston rod C is on the inward stroke in the direction of the arrow a', as shown in Fig. 1, then the pull exerted by the head D on the pivot pin E' causes the jaw F' to swing in the direction of the arrow b', the said jaw turning on the pivot pin G'. By the jaw F' moving in this direction, the edge F³ moves in contact with the top surface of the lower run I², so as to clamp the latter firmly in position on the fixed jaw II³ of the cross head II. The inward pull of the head D on the other pivot E causes a swinging motion of the jaw F in the direction of the arrow c', so that the edge F² is moved away from the under surface of the run I' so that the latter passes freely between the said clamping edge F² and the fixed jaw II² of the cross head II. As the piston C is thus on its inward stroke the lower run I² moves with the piston on account of being clamped by the jaw F' to the jaw II³. A traveling motion is thus given to the chain I in the direction of the arrows d' and d, as indicated in Fig. 1. When the piston rod C has completed the in-stroke and moves outward on the out stroke in the inverse direction of the arrow a', then the head D pushes on the pins E and E' so that the jaw F is caused to swing in the inverse direction of the arrow c', whereby the clamping edge F² is moved in

contact with the under side of the run I' and thus clamps the latter securely in position against the fixed jaw H². The pressure on the other pin E' causes the jaw F' to swing 5 in the inverse direction of the arrow b', so that the clamping edge F³ of the said jaw is moved out of engagement with the top surface of the run I², thereby unlocking the lower run I² from its clamped position between the 10 said edge F³ and the fixed jaw H³. Now, as the cross head H moves with the head D in the inverse direction of the arrow a' the clamped upper run I' of the chain I moves in the direction of the arrow d thus continuing 15 the traveling motion previously imparted to the chain on the inward stroke of the piston rod C. When the piston rod C arrives at the end of this outward stroke and returns on the inward stroke then the jaw F is moved out 20 of engagement with the run I' and the other jaw F' again clamps the lower run I² to the jaw H³, as previously described, so that a continuous traveling motion is given to the chain on both the inward and outward strokes of 25 the piston C.

It will be seen that this mechanical movement is very simple in construction, and that a continuous traveling motion is given to the chain I, so that the sprocket wheel J imparts

a continuous rotary motion to the main driving shaft K and the machinery connected therewith, as long as the motive agent admitted to the cylinder B actuates the piston contained in the said cylinder.

Having thus fully described my invention, 35 I claim as new and desire to secure by Letters Patent—

A mechanical movement, comprising a frame provided with slideways, a cross-head 40 whose central portion is mounted to slide thereon, clamping jaws rigidly secured to the extremities of the cross-head parallel to the said slideways, jaws pivoted to the cross-head on each side of the slideways, with their outer 45 ends extending in opposite directions, a reciprocating rod pivotally connected with the inner ends of the pivoted jaws, to swing the jaws on their pivots, the reciprocating rod and the cross-head being arranged essentially 50 in longitudinal central alignment, and an endless chain whose runs pass between the pivoted and the clamping jaws, substantially as described.

ISAAC S. BRYANT.

Witnesses:

C. R. BUCKEY,
WILSON A. HART.