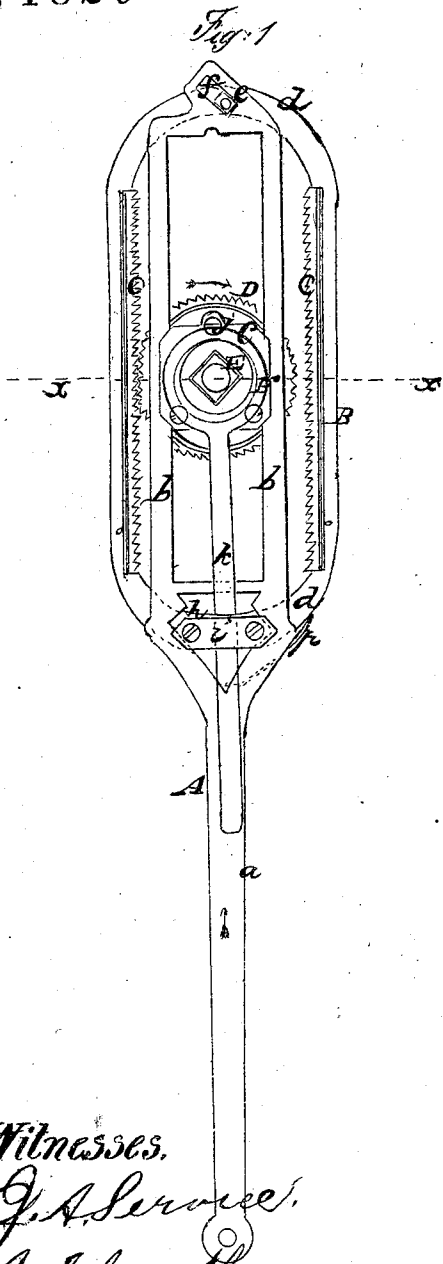


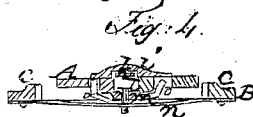
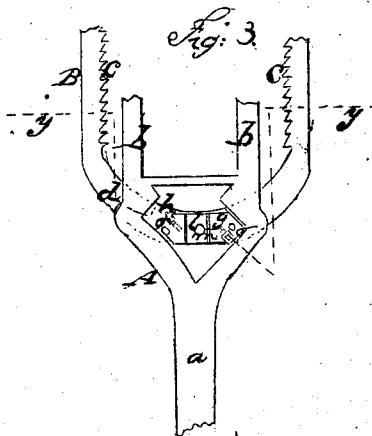
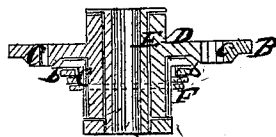
N. Thompson's Means for Transmitting & Correcting Motion.

71820



PATENTED

Fig. 2. DEC 3 1867



Witnesses.

G. A. Service.
J. H. Loomis

Inventor

N. Thompson

Per Munnell &
Attorneys

United States Patent Office.

NATHANIEL THOMPSON, OF FARMINGTON, MICHIGAN.

Letters Patent No. 71,820, dated December 3, 1867.

IMPROVEMENT IN DEVICE FOR TRANSMITTING MOTION.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, NATHANIEL THOMPSON, of Farmington, in the county of Oakland, and State of Michigan, have invented a new and improved Means for Transmitting and Converting Motion; and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from all others of a similar class; together with such parts as I claim, and desire to have secured to me by Letters Patent.

This invention relates to a new and improved means for transmitting and converting motion, a reciprocating motion being converted into a rotary one, and *vice versa*. The invention is an improvement on the double rack and pinion, which is an old and well-known means for imperfectly effecting the result specified, but which, by my improvement, is made to operate in a satisfactory manner. In the accompanying sheet of drawings—

Figure 1 is a side view of my invention.

Figure 2 a section of the same, taken in the line *x x*, fig. 1.

Figure 3, a side view of a portion of the same.

Figure 4, a section of fig. 3, taken in the line *y y*.

Similar letters of reference indicate like parts.

The frame or main portion of the device is composed of two parts, A B, the former, A, having a straight bar, *a*, and a part composed of two parallel bars *b b*, connected at their ends so as to form a rectangular interior, as shown in fig. 1. The part B of the frame is composed of two parallel racks *c c*, connected by semi-circular ends, *d d*, which are smooth, or not provided with teeth, as shown in fig. 1. This part B of the frame is connected to the part A at one end by a bolt, *e*, which passes through an oblique slot, *f*, in one end of the part A of the frame, and connected at the opposite end by a projection, *g*, which fits in an oblique slot, *h*, in the part A, said projection *g* having a cap-plate, *i*, secured to it, the ends of which lap over the edges of slot *h*. C represents a slide, which is fitted between the bars *b b* of the part A of the frame, and allowed to slide freely back and forth, and D is a pinion, which gears alternately into the racks *c c*, and has its shaft E passing through the slide C, the shaft being allowed to turn freely therein. F is a ring, which encompasses the shaft E, is secured to the slide C, by a screw, *j*, and has a bar, *k*, projecting from it, which passes underneath and works in a groove in the under side of the cap-plate *i*, (see figs. 1 and 4.) This bar *k* performs an important function, to wit, as the slide C or the part A of the frame, either one of them, is moved or has a reciprocating motion imparted to it, the friction of the bar *k* will move the part B of the frame, and owing to the projection *g* working in the oblique slot *h*, and the bolt *e* working in the oblique slot *f*, the part B of the frame will be moved obliquely in a lateral direction, and the racks *c c* thrown alternately in gear with the pinion D.

Thus it will be seen that by this simple means motion may be transmitted and converted, a rotary motion transmitted from a reciprocating one, and *vice versa*. In order to insure the bar *k* working at all times with a requisite degree of friction underneath cap-plate *i*, a small plate, *l*, which is fitted in the projection *g*, is made to press against the bar *k* by a pin, *m*, which rests on or is in contact with a spring, *n*, attached to the semi-circular end *d*, of the part B of the frame, on which the projection *g* is formed. In order to prevent undue friction on account of this spring, I insert two small bent rods *o o* in the projection *g*, one part or end of which is in contact with the spring *n*, and the other parts or ends extend upward, at opposite ends or sides of the projection *g*, so that at the termination of each oblique lateral movement of the part B, one of the rods, *o*, is brought in contact with the corresponding end of the slot *h*, and the bar *k* relieved from the pressure of the spring *n*. The part B is prevented from casually moving by means of a small spring, *p*, attached to B, and having its outer end fitted in an angle of slot *h*, (see fig. 1.)

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

1. The arrangement of the parts A B, parallel bars *b b*, racks *c c*, slide C, pinion D, with its shaft E, plate F, and rod *k*, as herein described for the purpose specified.
2. Giving the lateral oblique movement to the part B of the frame by means of the oblique slots *f h*, and

the bolt *e*, and projection *g*, working respectively therein, the bar *k*, connected with the slide C, and the projection *g* of the part B, substantially as and for the purpose set forth.

3. The spring *n*, arranged or applied substantially as shown, to exert a pressure on the bar *k*, and the bent rods *o o*, arranged in relation with the spring *n*, projection *g*, and the ends of the oblique slot *h*, to relieve the bar *k* of the pressure when required.

The above specification of my invention signed by me, this 3d day of July, 1867.

NATHANIEL THOMPSON.

Witnesses:

Wm. F. McNAMARA,

J. A. SERVICE.