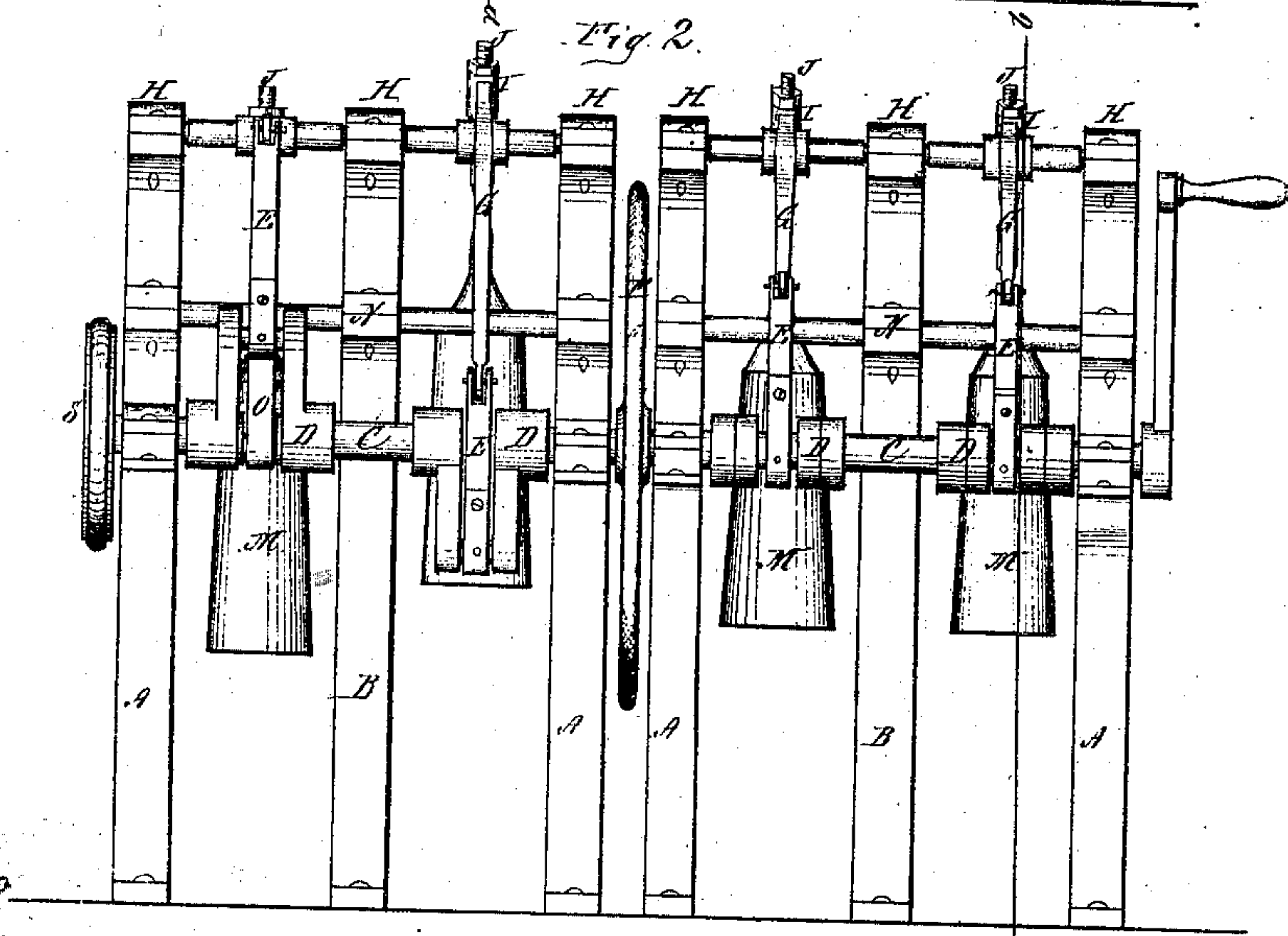
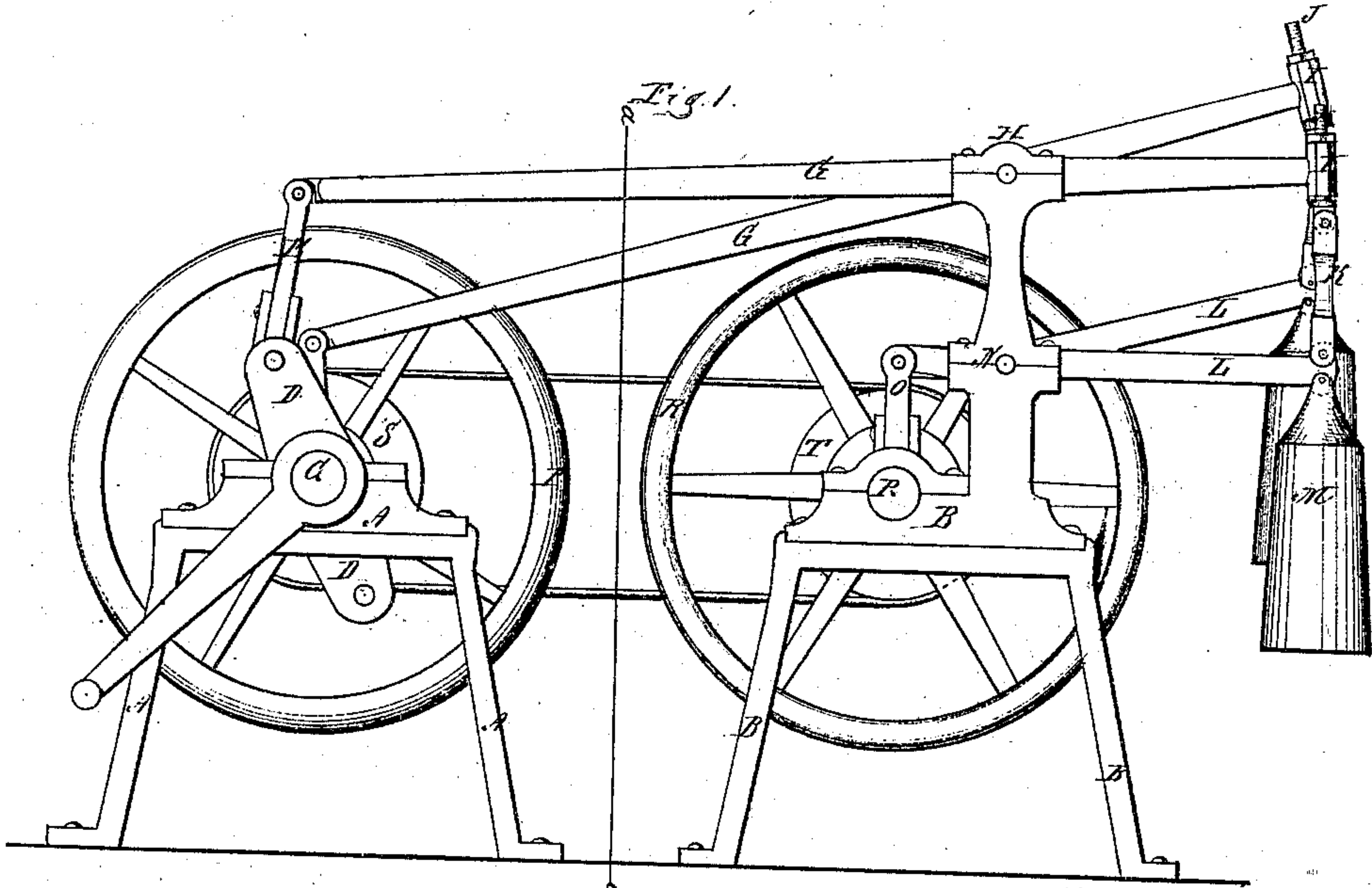


2. Streets, Street.

## Mechanical Movement.

No. 99737.

*Patented Feb. 8. 1870.*



Witnesses  
Henry Johnston  
Henry J. Smith

B. Williams, Inventor.

by Alex<sup>r</sup>. A. C. Klauke & Co.

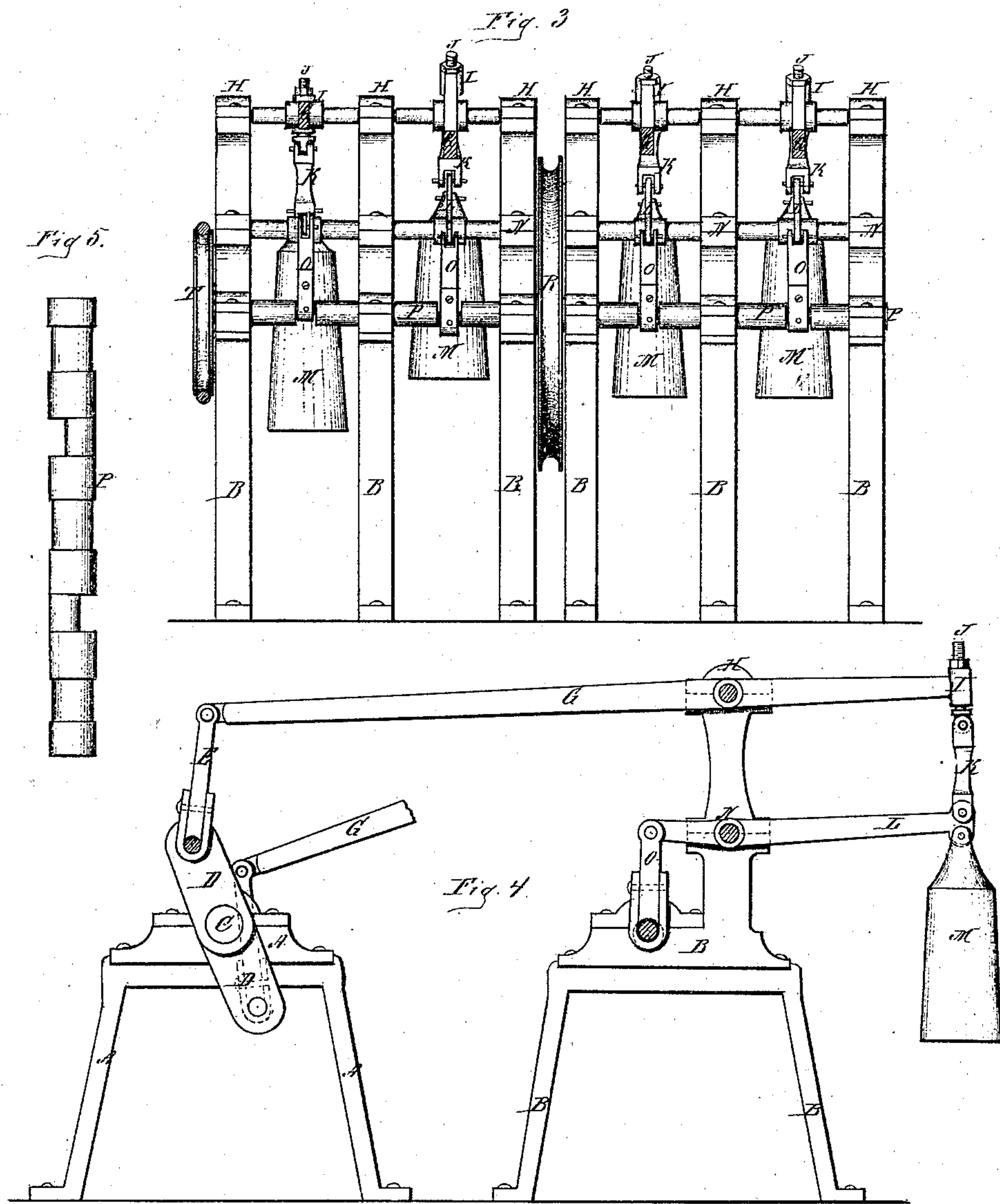
His Attorneys.

*B. Williams,* 2. Sheets, Sheet 2.

*Mechanical Movement.*

*No. 99,737.*

*Patented Feb. 8. 1870.*



Witnesses  
*Henry Johnston.*  
*Henry J. Smith.*

*B. Williams, Inventor.*  
by *Alex. A. C. Klaucher & Co.*  
*His Attorneys.*



# United States Patent Office.

BLASIUS WILLIAMS, OF JEFFERSON, TEXAS.

*Letters Patent No. 99,737, dated February 8, 1870.*

## APPARATUS FOR TRANSMITTING POWER.

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, BLASIUS WILLIAMS, of Jefferson, in the county of Marion, and State of Texas, have invented a new and useful Apparatus for Transmitting Power; and I do hereby declare the following to be a full and correct description of the same, sufficient to enable others skilled in the class to which my invention appertains to fully understand and construct the same, reference being had to the accompanying drawing, which make part of this specification, and in which—

Figure 1, sheet 1, is a side elevation of my improved apparatus.

Figure 2, sheet 1, is an end view of the same.

Figure 3, sheet 2, is a sectional view, the line of section being in line *a a*, fig. 1.

Figure 4, sheet 2, is a sectional view, the line of section being in line *b b*, fig. 2.

Figure 5, sheet 2, is a detached view of part of the transmitting-shaft.

Like letters of reference indicate like parts in the several figures.

The nature of my invention consists in the employment of weights, and their arrangement in relation to and their combination with two sets of levers—a set of long ones, and a set of short ones—in such a manner that the weights, being connected to the working-shaft by the shorter set of levers and cranks, will increase the power transmitted to the same by the combined levers.

A, in the drawings, represent the standards on which the bearings of the driving-shaft are situated, while B are the standards or bearings of the transmitting-shaft.

The driving-shaft C, to which motion is imparted from any suitable power, carries cranks D, in which the crank-arms E are pivoted.

In the drawings I have shown four cranks, as I use four levers in each set; but this number may be increased or decreased, provided there is always an even number of weights, levers, and cranks.

In the centre of the shaft is secured a fly-wheel, F.

The cranks are placed each two at right angles to the other two, so that when two of the crank-arms are elevated, the other two are depressed, the cranks of each set of two being placed in opposite directions, as clearly shown in figs. 2 and 4.

Pivoted to the crank-arms E are the longer arms of levers G, which are provided with short trunnions or gudgeons, which have their bearings in a set of upper boxes, H, in the standards B.

The shorter arms of the levers G terminate in circular enlargements I, through which pass screw-shanks J, being held in position by nuts, and terminating below the enlargements I in disks, from which extend,

downwardly, flat pieces which are pivoted between the forked upper ends of links K, the forked lower ends of which are pivoted to a flat piece extending upwardly from the ends of the longer arms of levers L; similar flat pieces extending downwardly from the latter, support, in pivots, weights M.

The levers L are provided with trunnions, which have their bearings in boxes, N, in standards B, they being below and in a vertical line with boxes H, so that the pivots of levers G and L are in a direct vertical line.

The ends of the shorter arms of levers L are pivoted in the forked ends of crank-arms O, which move on short cranks placed in opposite directions, similar to the crank-arms E on the transmitting-shaft P, which has its bearings on standards B.

In the centre of this shaft is secured a belt-wheel, R, which transmits the power and motion to the machinery to be driven.

The longer arms of the levers G and L are exactly three times as long as their shorter arms, and the longer arms of levers G are exactly three times as long as the longer arms of levers L.

To equalize the movements of the levers I fix a belt-wheel on each of the two shafts, as shown by letters S T, the movement of the apparatus becoming smoother thereby.

The weights operate, through the levers L, on the transmitting-shaft P. Motion being imparted to the shaft C, the same is transmitted, through crank-arms E, levers G, links K, levers L, and crank-arms O, to shaft P, the movement being increased by the power of the weights M. Now, two of these weights are always being raised while two are going down, increasing the motion and consequently the power, by their weight. And as the down-going weights are not obliged to pull up the long levers G, and the up-going weights are raised by the long levers, the power lost in raising these weights is but one-third of the power gained by the other two weights going down, the long levers being three times as long as the short levers L, and no power being lost in raising the long levers of the down-going weights. Thus power is continually gained by two weights at a time.

Instead of making the long arms of the levers three times as long as the short ones, they may be made as many times longer as may be desired, provided the same proportions are used for the smaller set of levers as for the larger ones.

Instead of placing the belt-wheel R in the centre of shaft P, I may place it at the free end of the shaft, and place a fly-wheel in the centre of the shaft; or instead of using a belt-wheel, a crank may be used to transmit the power.

Instead of using the belt-wheels S T, three gear-wheels may be used, though belt-wheels will answer the purpose perfectly well.

Of course, the apparatus can be made of any suitable material.

Instead of the weights, I may employ springs, fastened with one end to the floor or bottom, and with the other to the ends of the longer arms of levers L. These springs answer the same purpose as the weights.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the levers G and L and weights M with the shafts C P, when arranged to operate substantially as herein set forth.

2. The combination of the proportional levers G and L, when arranged in relation to each other and to the weights M, substantially as set forth.

3. The combination of the proportional levers G and L and weights M, when arranged in sets of twos, or of even numbers, substantially as set forth.

The above specification of my improvement in apparatus for gaining power, signed this 7th day of December, 1869.

BLASIUS WILLIAMS.

Witnesses:

U. S. COLBY,

HENRY A. JOHNSTON.