A. Hitchcock,

Treadle.

No. 79,572 Patented July 7, 1868.

Fig. 6

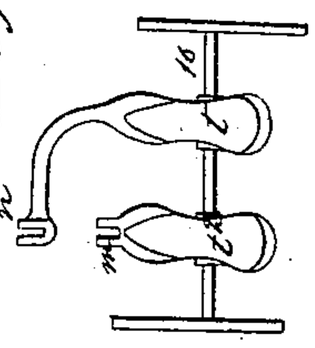


Fig. 4

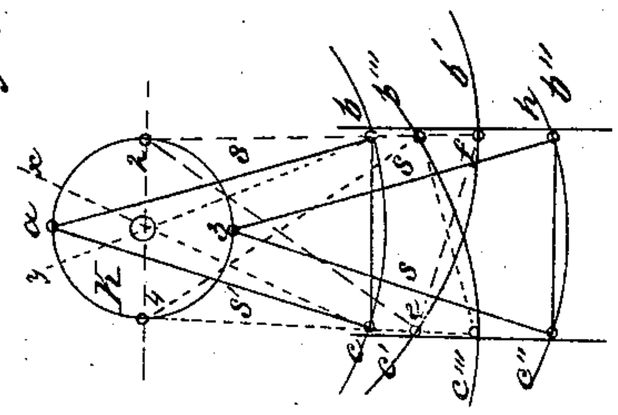


Fig. 3

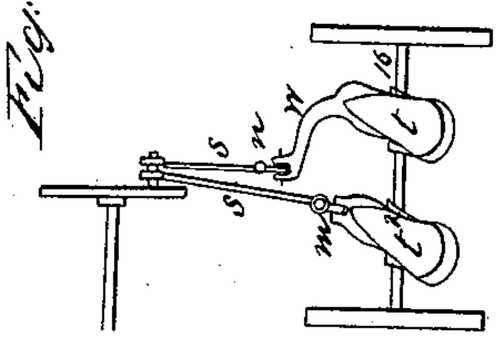


Fig. 2

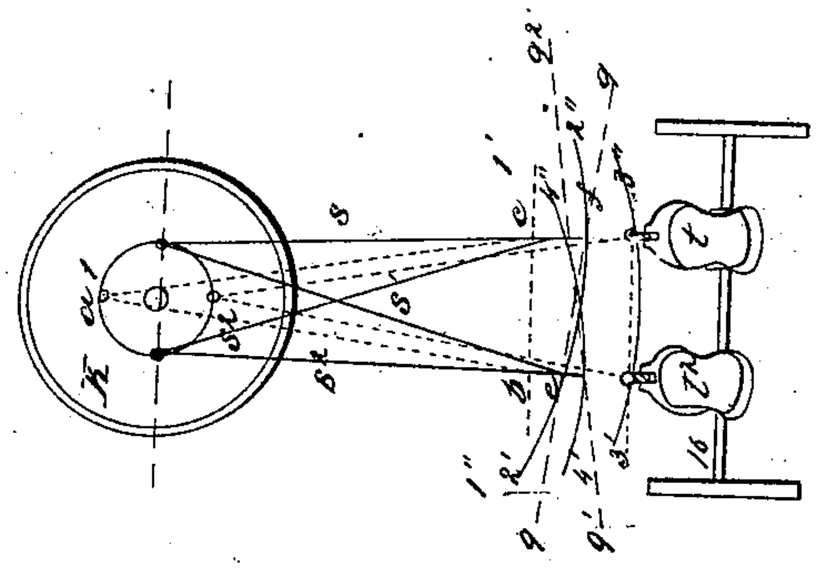


Fig. 5

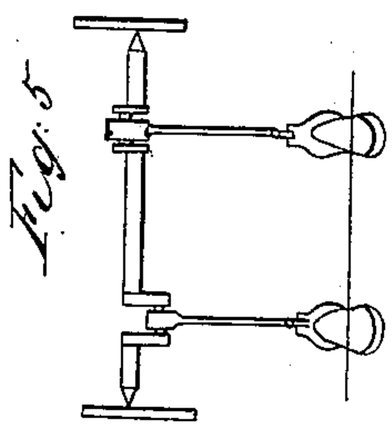
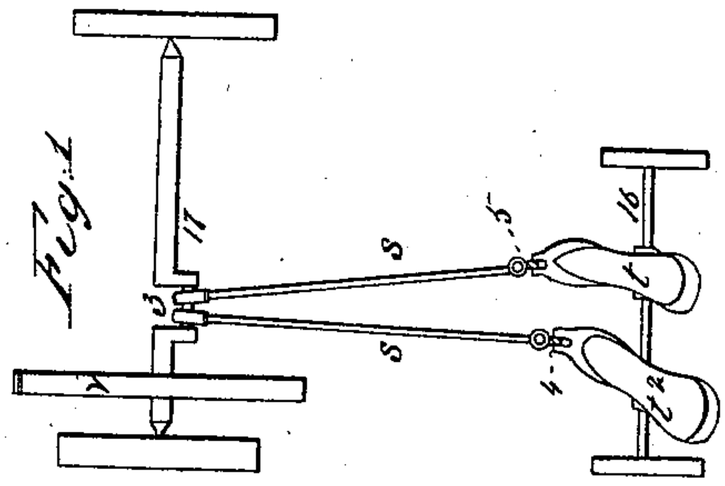


Fig. 1



Witnesses
Henry Randall
Stuart Gwynn

Inventor
Alonzo Hitchcock

United States Patent Office.

ALONZO HITCHCOCK, OF NEW YORK, N. Y.

Letters Patent No. 79,572, *dated July* 7, 1868.

IMPROVEMENT IN TREADLES FOR MACHINERY.

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, ALONZO HITCHCOCK, of the city and State of New York, have invented a new and improved Mode of Producing a Rotary Motion in Machinery, wherein it is necessary to produce such motion by taking hold of a crank-pin, or its equivalent.

The nature of my invention consists in providing two pitmen or connection-rods, two ends of which engage or connect on the same crank-pin, while the other two ends diverge more or less, and connect with two separate and independent treadles or levers, to operate a sewing-machine or analogous machines, so that each foot constitutes a separate driving-power.

By this arrangement the crank-pin will form the apex of a triangle, the two pitmen forming two legs of the triangle, while the points at which the lower ends of the pitmen unite with the two treadles form the base of the triangle. Then, if the crank-pin be revolved, it will be seen that the treadles will rise and fall at unequal times, in proportion to the distance the treadles are apart, and the length of the pitmen. As both pitmen cannot be on dead-centres at the same time, there is practically no dead-centre to the operator, consequently the machine may be started or stopped at any point of its revolution, and may be run as slow as may be required, or the motion may be reversed instantly, all by the feet, without the interposition of the hand, to say nothing of the great saving of power.

It is this peculiar oscillating motion of the treadles that affords the operators of sewing-machines such relief from the dull, hard, monotonous motion, so injurious in all ordinary machines with single pitmen or treadles; neither is the motion of the treadles like any double-crank machine.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Figure 1 is an elevation, showing the manner of connecting the two pitmen at the points 3, 4, 5.

Figure 2 shows a front view of a crank-wheel, K, with its connection-rods, attached to the two treadles t t^2. 1 2 3 4, the circle formed by the revolution of the crank-pin.

The treadles t t^2 are hung on an ordinary cross-bar, 16, parallel or at an angle to correspond with the natural angle of the foot, say, at an angle of five degrees to the cross-bar 16.

Starting from the upper centre at 1, the triangle a b c is formed with the base, b c, parallel with a horizontal line drawn through the centre of the crank-wheel K. Then turn the crank-pin to the right one-quarter circle, at 2; the same triangle is maintained, but the base is not now horizontal or parallel to the line drawn through the centre of the crank-wheel, but is at an angle to the same, as shown by the red lines q q. The "throw" of the crank has caused the toe of the treadle t to descend further and faster than the treadle t^2, and, when the crank-pin has reached the lower centre at 3, the base will again be horizontal, as in the upper centre.

The ascent of the crank-pin to 4, on the three-quarter circle, will be exactly the reverse of the first quarter base-line q' q''.

To show the operation more fully, the geometrical figure 4 is drawn, with the angles exaggerated. Beginning, as before, at the upper centre, we have the triangle a b c. At a quarter revolution to 2, the two points b and c are made to descend in perpendicular lines b h and c i, which will throw the triangle into the position shown by the red lines 2 e f, the point b having travelled about twice the distance of the point c in the same time.

When the crank-pin a is moved down through to the half circle or lower centre, the points e and f arrive at the bottom at the same time, but the point c has now moved about three times further in the same time than it did in the first quarter, and about twice as fast as the point f, the reverse of the time and motion in the first quarter. In ascending from the lower centre to the upper centre, the motions and times are also the reverse of the first half circle a 2 3.

Figure 3 is a modification of the same when the crank-pin is at right angles with the treadles t t^2. In this figure the treadle t has a long goose-neck, w, which projects back and around, so as to bring the two points m and n parallel to the face of the crank-wheel K, better shown in fig. 6.

I claim as my invention—

1. The use of two connection-rods, for driving sewing-machines or analogous machines, when the two connection-rods form the two legs of a triangle, the crank-pin being the apex of said triangle, and when the other two ends of the connection-rods that form the legs of the triangle unite with two separate treadles or levers, to operate substantially as set forth.

2. The use of two independent treadles or levers to revolve a crank-shaft or wheel, when the two treadles are connected to the same crank-pin by two connection-rods, substantially as herein set forth.

Witnesses:
W. S. TISDALE,
C. McDONALD.

ALONZO HITCHCOCK.