

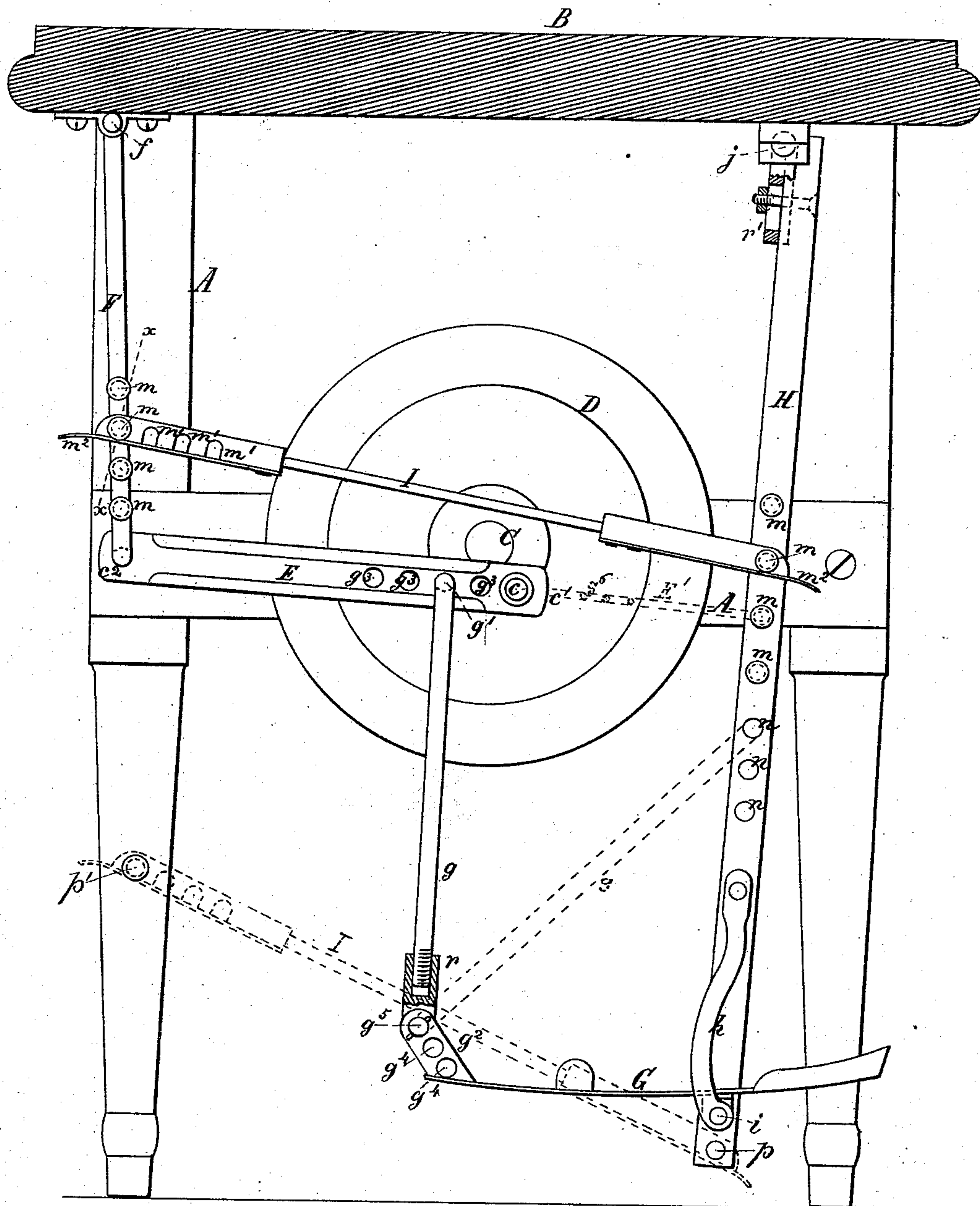
(Model.)

G. W. ZEIGLER.

Mechanism for Operating Sewing Machines.  
No. 232,624.

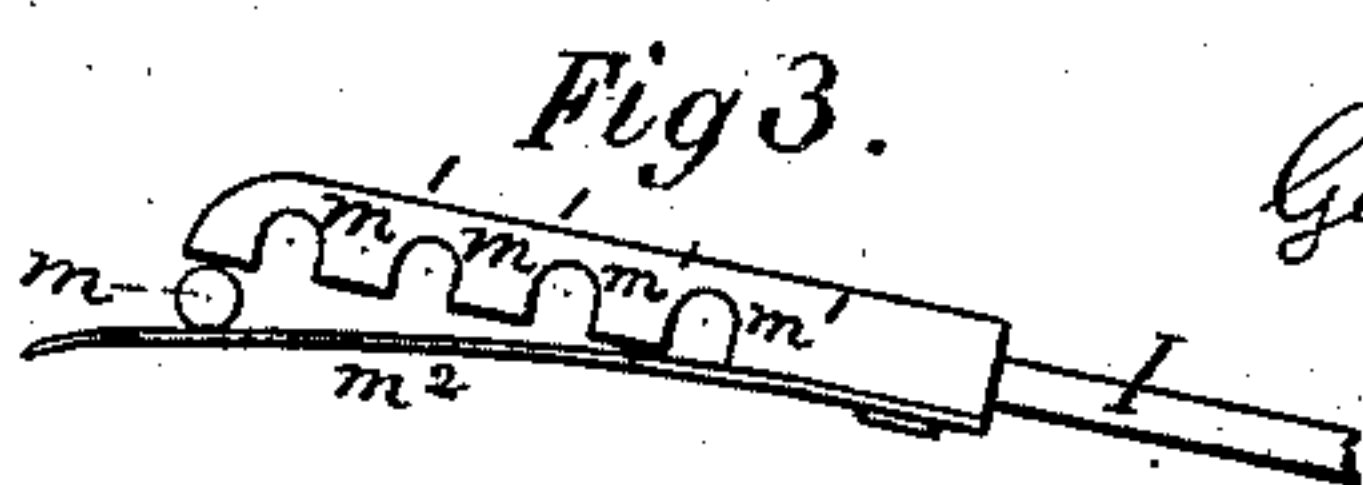
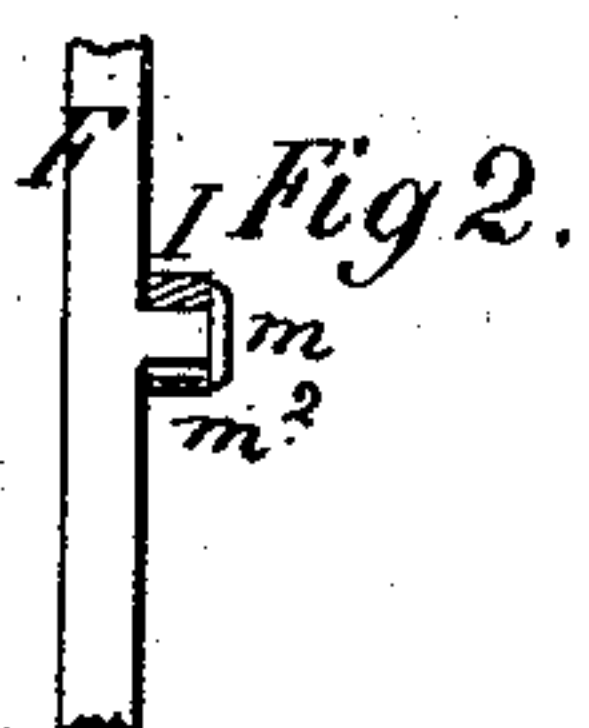
Patented Sept. 28, 1880.

Fig 1.



Witnesses:

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Inventor:

George W. Zeigler.  
by Mason Fenwick & Lawrence  
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# UNITED STATES PATENT OFFICE.

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## MECHANISM FOR OPERATING SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 232,624, dated September 28, 1880.

Application filed August 21, 1880. (Model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. ZEIGLER, a citizen of the United States, residing at Tecumseh, in the county of Lenawee and State of Michigan, have invented a new and useful Improvement in Mechanism for Operating Sewing-Machines, of which the following is a specification.

My invention relates to treadles for sewing-machines; and the objects of the improvements are, first, to provide means whereby the foot or shoe of the treadle-movement can be oscillated in an up and down direction and simultaneously swung back and forth, and thus the wrist-pin of the crank-shaft or of the wheel on the driving-shaft be prevented from getting on and resting upon the dead-center; second, to provide means whereby the pitman-rod can be employed as a locking-brace between the foot-piece and the swinging support of the treadle-movement, and the treadle-movement thereby converted from a combined swinging and up-and-down oscillating one to a simple swinging movement; and, third, to provide means, in connection with a treadle-movement which swings and oscillates the foot-piece of the treadle, whereby the foot-piece can be set nearer to or farther from the seat of the operator, and whereby the leverage power for aiding the operator in turning the power-shaft can be increased as occasion requires.

The first improvement is of great utility, as it saves the operator much labor and annoyance, and it will prevent much of the physical injury heretofore experienced by the operator. The second improvement is also of importance, as it enables the operator, when she or he is tired of the combined movement secured by the first improvement, to change the character of the movement and thereby bring into action a different set of muscles, and thus overcome the difficulty experienced from continuously operating the machine in the same manner; and the third improvement enables the operator to adjust the treadle and its leverage power to suit his or her height and strength.

I effect the objects above mentioned by the mechanism represented in the accompanying drawings, in which—

Figure 1 is a section of the frame and table of a sewing-machine treadle-movement, showing the mechanism in side elevation. Figs. 2

and 3 are detail views of the connecting-rod of the two swinging bars of the movement.

The frame A and table B may be of any suitable construction adapted for supporting the driving-shaft C of a sewing-machine, and also the mechanism for revolving said shaft.

On the driving-shaft C is mounted a balance-wheel, D, having a crank or wrist pin, *c*.

If desired, a crank-arm, instead of a balance-wheel, may be used, and the same be formed as part of or attached directly to the shaft C.

To the wrist-pin a pitman, E, is loosely connected by its inner end, *c'*. The outer end, *c''*, of the said pitman is connected loosely to a pendent swinging bar, F, said bar being loosely connected to the under side of the table B, as indicated at *f*. The pitman E is also connected to the foot-piece G of the treadle by a pitman-rod, *g*, said rod being connected loosely at *g'* to the pitman E, and at its lower end to a lug or bracket, *g''*, on the toe end of the foot-piece G, as shown at *g'''*.

It is not essential to the overcoming of the dead-center that the rod *g* should be set forward of or in rear of the wrist-pin. Other benefits are derived from setting the connection *g'* some distance from the wrist-pin, and hence a series of holes, *g'''*, are provided in the pitman, and a like series, *g''''*, in the bracket of the foot-piece. The foot-piece G is pivoted in rear of the center of its length to a tubular swinging bar, H, and to a bracket, *h*, of said bar, as shown at *i*, and it oscillates or rocks on the pivot *i* in an up-and-down direction.

The bar H is loosely connected by its upper end to the under side of the table B, as shown at *j*. This arrangement of the foot-piece G and bar H permits an oscillating or up-and-down rocking movement of the foot-piece independently of the bar, and also a swinging or back-and-forward movements simultaneously with the said oscillating or rocking movement of the bar and foot-piece together.

The two bars F and H are connected together by a latching-rod, I, said rod being loosely connected at its respective ends to pins *m* of the bars. A series of pins, *m*, are provided on each bar, and a series of notches, *m'*, in the latching-rod, at one end, and a single notch at the other end. The notched ends of the latching-rod are respectively provided with a spring latching-plate, *m''*, and by press-



ing this spring-plate away from the bar, as illustrated in Fig. 3, the bar can be latched upon one or the other of the pins  $m$ , in the manner shown in Figs. 1 and 2 of the drawings.

The plurality of pins  $m$  and notches  $m'$  admit of the bar being set farther from or nearer to the fulcrum of the respective bars  $F$  and  $H$ , and also of the bars being set with a greater or less convergence toward one another, and thus the foot-piece  $G$  may be adjusted nearer to or farther from the seat of the operator and be operated with a greater or less leverage power, according to the height and strength of the operator.

The holes  $g^4$ , for the connection  $g^5$ , serve for adjusting the toe and heel of the foot-piece  $G$  according to the desires of the operator—that is, for depressing the heel or toe and setting the foot-piece more or less inclined to the floor.

The rod  $g$  can be disconnected from the pitman at  $g'$  and connected to the swinging pendent bar  $H$ , as indicated by the dotted lines. The bar  $H$  is provided with holes  $n$ , for receiving the connection  $g'$ ; and by having a series of holes,  $n$ , the foot-piece  $G$  can be set on a greater or less inclination to the floor when the rod  $g$  is adjusted as shown in dotted lines. When the rod  $g$  has been moved to the position just described it serves as a brace and support for the toe end of the foot-piece  $G$ , and the foot-piece is prevented by it from oscillating when the bar  $H$  is swung back and forth for the purpose of turning the driving-shaft.

It will be understood from the foregoing description and accompanying drawings that the effect of the swinging movement of the two pendent bars  $F$  and  $H$  is to pull and carry the wrist-pin of the driving-shaft at the times when it would rest upon the dead-center in an ordinary treadle-movement, and that the combined effect of the oscillating movement of the treadle and the swinging movement thereof is to so revolve the driving-shaft that its motion is not impaired by the wrist-pin getting on the dead-center.

As a modification of the means shown for producing a back and forward swinging movement of the foot-piece of the treadle-movement simultaneously with the up-and-down oscillating movement of said foot-piece, the pitman  $E$  may be pivoted directly to the swinging bar  $H$ , as illustrated by the dotted line  $E'$ . This modification is specially adapted for machines wherein the wheel  $D$  is located in rear of the center of the frame  $A$ . The bar  $F$  and rod  $I$  would be dispensed with under such modification, and adjusting-holes  $g^6$ , to answer the office of the notches  $m'$ , would be provided in the pitman  $E$ , and, in connection with such holes, adjusting or set-pin holes would be provided in the bar  $H$ , which would answer the same purpose as the pins  $m$  of bar  $H$ .

As in some instances it is desirable to provide means for preventing the foot-piece swinging

while it is being oscillated, latching-pins  $p$  and  $p'$  are provided, one on the bar  $H$ , just beneath the pivot  $i$ , and the other on the frame of the machine, and by removing the latching rod or bar  $I$  from the pins  $m$  and placing it on the pins  $p$   $p'$  the foot-piece and bar  $H$  will be prevented from swinging. The dotted lines show the bar  $I$  adjusted as described above. The bar  $I$ , adjusted upon the latching-pins  $p$   $p'$ , is not claimed here specifically, except in its combination, as the same is claimed by me in another application for a patent.

A bodily adjustment of the foot-piece  $G$  and swinging bar  $H$  may be effected by means of the screw-and-socket connection at  $r$  and the set-screw and slot connection at  $r'$ , and thus after the proper inclination of the foot-piece is secured the machine may be further adapted to the requirements of the operator.

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

1. The combination, with the driving-shaft  $C$ , provided with a crank-arm or balance-wheel,  $D$ , having a wrist or crank pin,  $c$ , and the foot-piece  $G$ , of means whereby the foot-piece  $G$  may be swung back and forth and oscillated up and down, and the wrist or crank pin may be pulled and carried over the points usually designated as the "dead-centers," substantially as described.

2. The combination of the bar  $H$ , foot-piece  $G$ , rod  $g$ , pitman  $E$ , latching-bar  $I$ , and swinging bar  $F$  with the driving-shaft  $C$ , having wheel  $D$ , provided with a wrist or crank pin,  $c$ , substantially as described.

3. The combination of the bar  $H$ , having holes  $n$ , foot-piece  $G$ , rod  $g$ , pitman  $E$ , latching-bar  $I$ , and swinging bar  $F$  with the driving-shaft  $C$ , having wheel  $D$ , provided with a crank-pin,  $c$ , substantially as described.

4. The combination of the foot-piece, having toe piece  $g^2$ , provided with holes  $g^4$ , rod  $g$ , pitman  $E$ , having holes  $g^3$ , latching-bar  $I$ , having notches  $m'$ , and bars  $F$  and  $H$ , having pins  $m$ , with the driving-shaft  $C$ , provided with wheel  $D$ , having a wrist or crank pin,  $c$ , substantially as described.

5. The combination of the foot-piece  $G$ , rod  $g$ , pitman  $E$ , having holes  $g^3$ , bars  $F$  and  $H$ , and latching-bar  $I$  with the driving-shaft  $C$ , provided with wheel  $D$ , having a wrist or crank pin  $c$ , substantially as described.

6. The combination, with the driving-shaft  $C$ , provided with wheel having a wrist-pin,  $c$ , of the bars  $F$  and  $H$ , pitman  $E$ , latching-bar  $I$ , rod  $g$ , and foot-piece  $G$ , having a toe-piece with adjusting-holes  $g^4$ , substantially as described.

7. The combination of the swinging bars  $F$  and  $H$ , bar  $I$ , pitman  $E$ , wheel  $D$ , having a wrist or crank pin,  $c$ , and shaft  $C$ , substantially as described.

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Witnesses:

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