

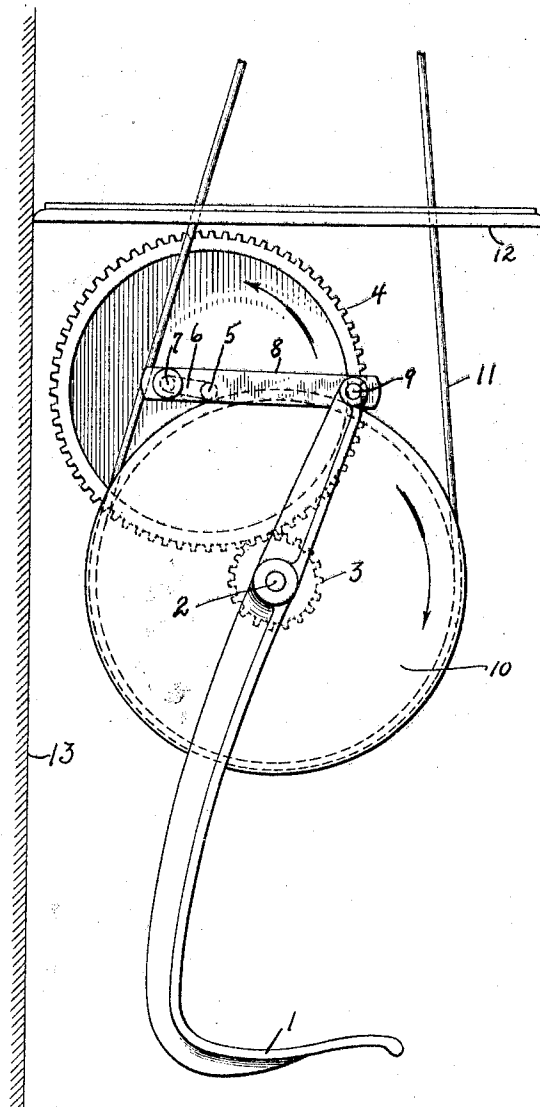
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F. P. PRINDLE

TREADLE MECHANISM

Filed March 11, 1922



Inventor

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By his Attorneys

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UNITED STATES PATENT OFFICE.

FRANK P. PRINDLE, OF NEW BRITAIN, CONNECTICUT.

TREADLE MECHANISM.

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To all whom it may concern:

Be it known that I, FRANK P. PRINDLE, a citizen of the United States, a resident of New Britain, in the county of Hartford and State of Connecticut, have invented a certain new and useful Treadle Mechanism, of which the following is a specification.

This invention has as an object a new and improved form of treadle mechanism for use in operating machines of various kinds. It has as an object a treadle mechanism of such construction that the machine may be run fast with a slow movement of the treadle. A further object is to so design the treadle mechanism that the operator may operate it without any lifting motion of the leg so that he will not easily become tired from the work. A still further object is to so design the treadle mechanism that there may be utilized the maximum power of an operator in a sitting position while at the same time avoiding fatigue due to the constant operation of the treadle. Furthermore, it is an object of the invention to design the mechanism so that space will be economized particularly in a horizontal direction in order that the machine may be set up against a wall. Further objects will appear hereinafter.

These objects are accomplished in the present invention as illustrated by the following description which is a preferred embodiment. The annexed drawing which forms part of this specification illustrates said preferred embodiment, and the figure is a side elevation of the treadle mechanism mounted adjacent a vertical wall of a building.

In said drawing there is shown a treadle 1 mounted upon a shaft 2 upon which is also mounted a small gear 3 meshing with another larger gear 4 mounted upon its shaft 5. An elbow crank 6 is also mounted upon the shaft 5 and is connected by a journal 7 to a connecting rod 8 which is journaled by a journal 9 to the end of the treadle lever. A pulley 10 is also mounted upon the shaft 2 and a belt or a cord 11 is passed over the pulley for driving the machine. The table 12 represents the working platform of the machine which is shown positioned against a wall 13. The mechanism is of course supported by suitable standards, not shown, at a suitable distance above the floor convenient to the operator. The operation of the mechanism is evident from the above de-

scription, and may be briefly stated as follows:—

As the treadle 1 is pushed forward by the foot of the operator the connecting rod 8 exerts a pulling effort upon the elbow crank 6, which causes the shaft 5 to rotate together with the gear 4, which in turn drives the small gear 3 and the pulley 10.

It is advantageous to have the parts proportioned to provide a fast movement of the machine for a given movement of the treadle, and the following proportions provide a ratio of $3\frac{1}{2}$ revolutions of the belt wheel 10 for one swing of the foot. The large gear 4 is accordingly given a 10" diameter, the small gear a diameter of 3", and the belt wheel a diameter of 12"; the distance between the centers of journals 7 and 9 is 6", and the distance between the centers of journals 7 and 5 is $1\frac{1}{2}$ "; the swing of the treadle is 7". The arrangement of the mechanism is substantially as that shown in the drawing, which is drawn to a scale of about 1:4.

The above described treadle mechanism may be used for operating sewing machines, lathes and other machine-shop mechanisms advantageously operated by the foot of an operator, and any other mechanism where such a treadle would be serviceable. It will be apparent that this mechanism takes up but little space particularly in a horizontal direction, and it may therefore be moved up close against a wall to be out of the way. The treadle is supported from the shaft 2 and will therefore support the leg of the operator, thereby preventing fatigue, so that all that is required of the operator is to push the treadle forward in a substantially horizontal plane. No lifting of the leg will be required, and it will therefore be possible for the operator to run the machine in a sitting posture, which is a difficult position in the case of most treadle mechanisms since the operator can exert but little power in such a position unless a proper motion for the foot is provided for. The machine of this invention provides such a motion in the form of a swinging treadle as described above, and therefore one of the great advantages of this apparatus will be apparent.

As many apparently widely different embodiments of this invention may be made without departing from the spirit thereof, it is to be understood that I do not intend to limit myself to the specific embodiment

thereof except as indicated in the appended claims.

I claim:

1. A treadle mechanism comprising a shaft, a treadle lever mounted upon the shaft to provide a substantially horizontal motion for the treadle, a pulley on the shaft and means connected to the short end of the lever for operating the pulley.
2. A treadle mechanism comprising a treadle lever mounted upon a shaft to provide a substantially horizontal motion for the treadle, a connecting rod journaled in the short end of the lever and mounted to operate a gear, and means connected to the gear for driving a pulley mounted on the first mentioned shaft.
3. A treadle mechanism comprising a treadle lever mounted upon a shaft so as to provide a substantially horizontal motion for the treadle, a connecting rod journaled to the short end of the lever and having an elbow crank journaled in its other end, an elbow crank mounted upon a second shaft, a large gear upon said shaft, a small gear fixed upon the first mentioned shaft and in mesh with said first mentioned gear, and a driving pulley fixed upon said first mentioned shaft.
4. A treadle mechanism comprising a treadle lever mounted on a shaft so as to provide a substantially horizontal motion for the treadle, a pulley on said shaft, and means connected to the short end of the lever for driving a driving mechanism for the pulley, said treadle and said means being arranged in a vertical direction so that they will economize space horizontally.
5. A treadle mechanism comprising a shaft, a single treadle mounted upon the shaft so as to provide a substantially horizontal motion for the treadle, a pulley on the shaft, and means connected to the short lever arm of the treadle lever for driving said pulley.
6. A treadle mechanism comprising a single treadle mounted upon a shaft so as to provide a substantially horizontal motion for the treadle, a driving pulley and a small gear upon said shaft, a large gear meshing with said small gear, and means connected to the short lever arm of the treadle for driving said large gear.
7. A treadle mechanism comprising a single treadle lever mounted on a shaft so as to provide a substantially horizontal motion for the treadle, a small gear and a driving pulley on said shaft and a larger gear in mesh with the small gear mounted upon another shaft, and means connecting the short lever arm of the treadle with the large gear to cause it to be rotated, said gears, treadle and connecting means being so proportioned as to provide for three rotations of the driving pulley for one forward movement of the treadle.

In testimony that I claim the foregoing, I have hereunto set my hand this 11 day of February, 1922.

FRANK P. PRINDLE.