

W. F. & J. BARNES.

FOOT-POWER.

No. 175,010.

Patented March 21, 1876.

Fig 2.

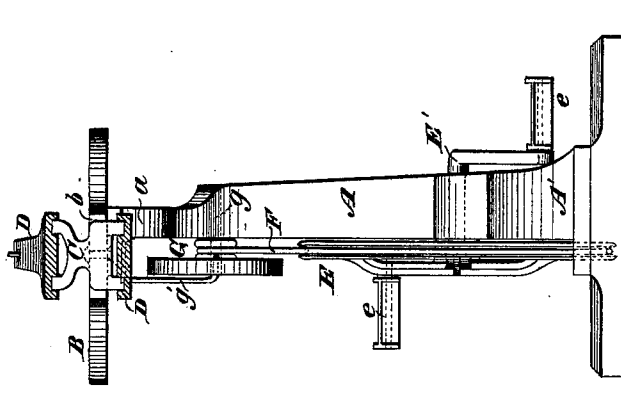
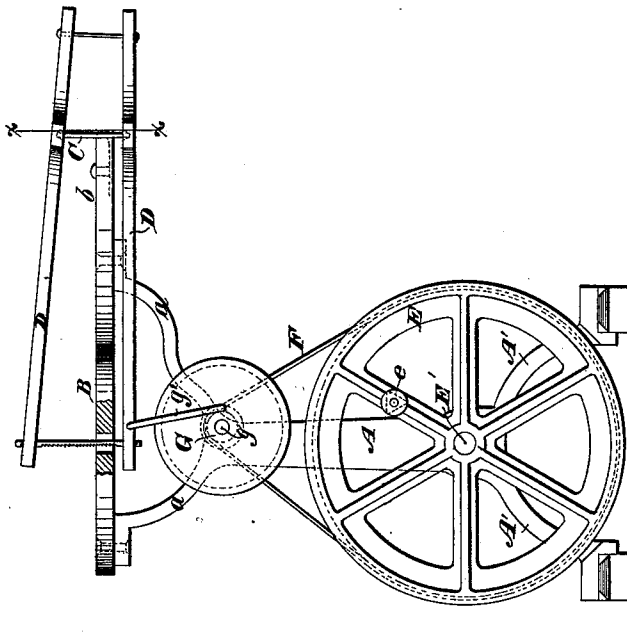


Fig 1.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM F. BARNES AND JOHN BARNES, OF ROCKFORD, ILLINOIS.

IMPROVEMENT IN FOOT-POWERS.

Specification forming part of Letters Patent No. **175,010**, dated March 21, 1876; application filed March 8, 1876.

To all whom it may concern:

Be it known that we, WILLIAM F. BARNES and JOHN BARNES, both of Rockford, in the county of Winnebago and State of Illinois, have invented new and useful Improvements in Foot-Powers, of which the following is a specification:

Our invention relates to a foot-power for driving scroll-saws, small lathes, and such other light stationary machinery requiring but little power and a quick movement. Its objects are to dispense with treadles or foot-boards and to overcome dead-centers which are an incident to treadle-powers.

To carry out the objects of our invention, we employ a driving-pulley of comparatively large diameter, mounted in suitable bearings, and provide it with crank-arms on opposite sides thereof, to which the feet of the operator are directly applied, motion being communicated from the driving-pulley to a pulley or shaft of the operative parts of the machine by belt connections or gearing.

In the accompanying drawings our improvements are shown as applied to a scroll-saw of the type manufactured by us, to which it is especially adapted, in the best way now known to us.

Figure 1 is a side view of our improved machine, and Fig. 2 a rear view thereof, partly in section, on the line *x x*, of Fig. 1.

A suitable standard or frame, A, preferably of metal, is provided, with branching arms *a* at its top for supporting a table, B, a portion, *b*, of which extends backward and supports a suitable bracket, C, projecting both above and below the table, to form fulcrums for a vibrating saw-frame, D, all of which is similar to that shown in Letters Patent No. 172,951, granted to us February 1, 1876, for improvements in scroll-saws.

Near the bottom of the standard A, which is supported upon a suitable base, A', is mounted a double-cranked driving-pulley, E, a continuation of its shaft or axis E', which passes through suitable bearings in the standard, being so constructed as to constitute one of the cranks or foot-supports. These cranks are provided with loose-bearing sleeves *e e*, for a well-known purpose. The driving-pulley E is provided with a belt-groove in its periphery,

for the reception of a driving-belt, F, which passes therefrom over a pulley, G, (the diameter of which is considerably smaller than that of the driving-pulley,) mounted and turning upon a short stud-axis, *g*, on the standard immediately beneath the table of the machine. This pulley G, by means of suitable link-connections *g'*, which connect it with the lower arm or lever of the vibrating saw-frame, communicates motion thereto when the driving-pulley is operated. By varying the diameters of the driving and driven pulleys, a greater or less rapidity of movement of the operating parts of the machine will be obtained, as is well known.

In using a foot-power constructed according to our invention, the operator places his feet directly upon the cranks of the driving-pulley and bears or pushes one of them away from him to commence its revolution, and then by alternately bearing and drawing upon them he is enabled to keep up a continuous movement, which, as before stated, is communicated to the apparatus to be driven by the belt-connections passing to the driven pulley or shaft, or by suitable gearing.

In a foot-power such as described, power can be applied for a greater part of the circle described by the cranks than could be possible by the use of treadles, and we have in practice found that the cranks can be drawn toward with almost as much power as in forcing them from the operator, whereby we obtain at least one-fourth more of the circle to operate upon than when treadles are used. Instead of mounting the driving-pulley upon the side of the standard, and having its shaft constitute one of the cranks, we contemplate placing the pulley centrally in a recess in said standard and have the cranks project from either side, as less friction and a steadier movement would probably result from such an arrangement.

By dispensing with treadles or foot-boards space is economized in transportation.

We are aware that velocipedes have been propelled by the use of double-cranked driving-wheels, and do not claim such a device; but we are not aware that a double-cranked driving-pulley, to be operated by foot-power applied directly thereto, has been mounted

upon a stationary machine to drive it by belt-connections running from said pulley.

We claim as our invention—

1. The combination, substantially as here-
inbefore set forth, of a stationary frame, a
double-cranked driving-pulley mounted there-
on, and adapted to be driven directly by the
feet of the operator, and gearing or belt con-
nections passing from said driving-pulley over
a pulley or shaft of the machine to be driven,
whereby treadles are dispensed with.

2. The combination, substantially as here-
inbefore set forth, of the frame, the double-

cranked driving-pulley mounted thereon, the
driven-pulley, also mounted on said frame;
and connected by link-connections with the
vibrating saw-frame, and the belt-connections
passing from the driving to the driven pulley.

In testimony whereof we have hereunto
subscribed our names.

WILLIAM F. BARNES.
JOHN BARNES.

Witnesses:

W. T. ROBERTSON,
CHANDLER STARR.