2 Sheets—Sheet 1.

H. SMITH.

Horse-Power Tread.

No. 212,993. Patented Mar. 4, 1879.

Fig. 1.

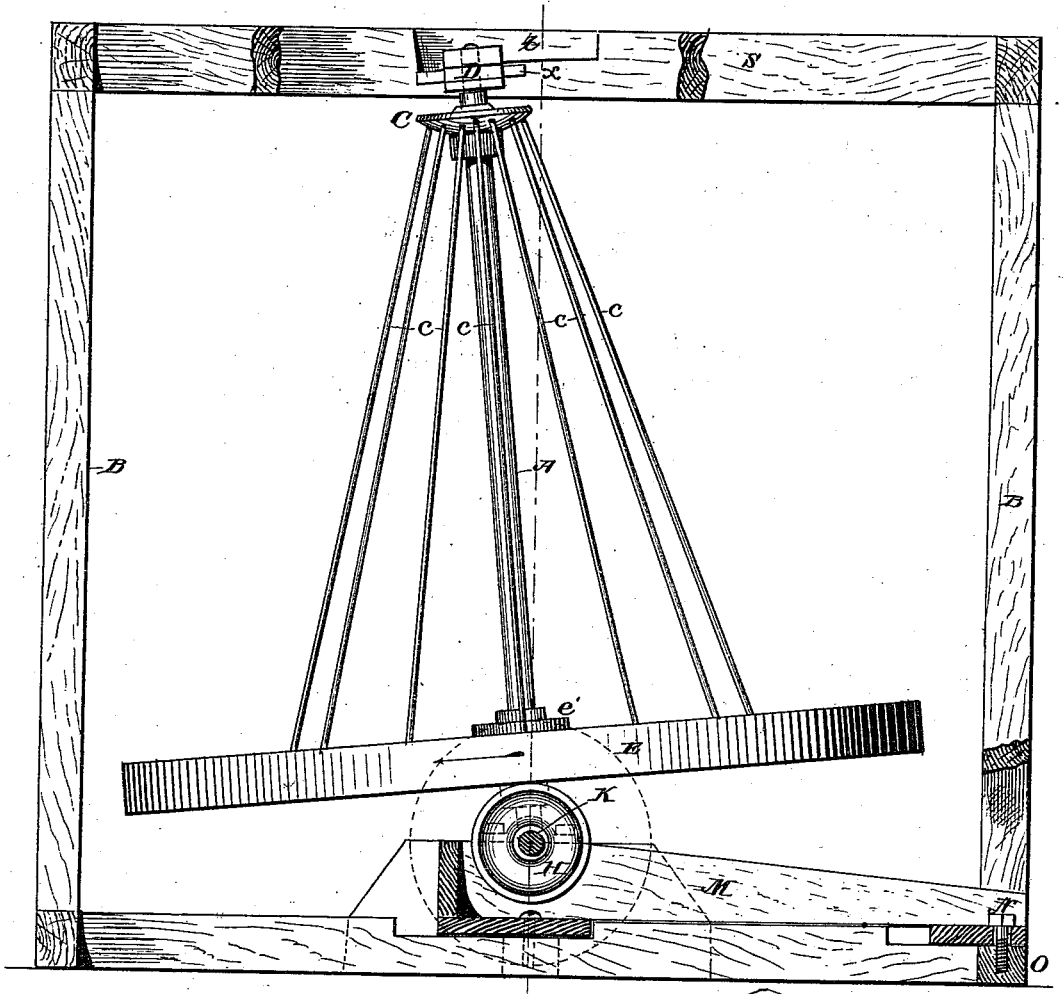
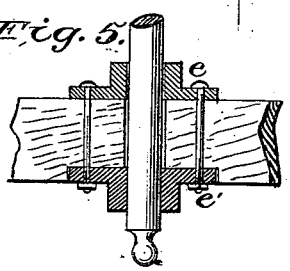


Fig. 5.



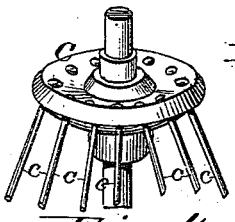


Fig. 4.

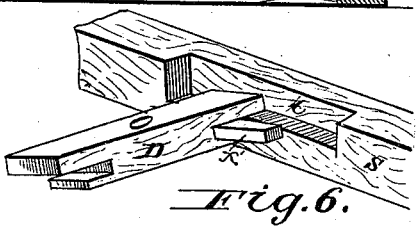


Fig. 6.

Attest:
H. L. Pennie,
A. McLoug.

Hemphill Smith.
Inventor.

By. N. C. Abbot.
Atty.

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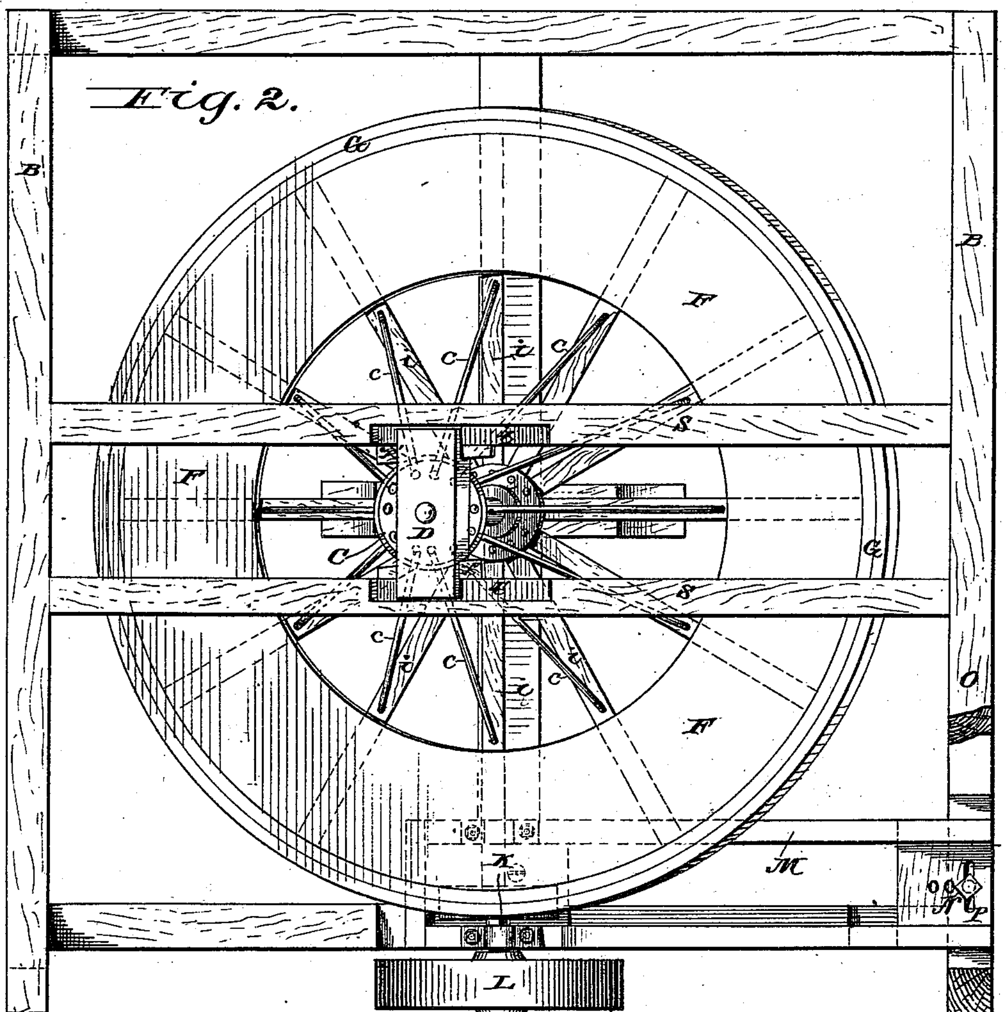
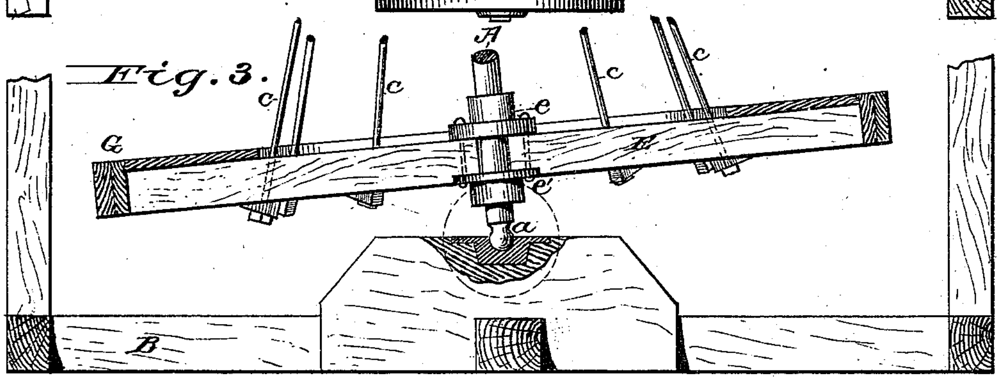
H. SMITH.
Horse-Power Tread

No. 212,993. Patented Mar. 4, 1879.





Attest:
H. L. Perrine
A. M. Long.

Hemphill Smith.
Inventor.
By. H. S. Abbott
Atty.

UNITED STATES PATENT OFFICE.

HEMPHILL SMITH, OF TIPTON, TENNESSEE.

IMPROVEMENT IN HORSE-POWER TREADS.

Specification forming part of Letters Patent No. **212,993**, dated March 4, 1879; application filed January 2, 1879.

To all whom it may concern:

Be it known that I, HEMPHILL SMITH, of Tipton, in the county of Tipton and State of Tennessee, have invented certain new and useful Improvements in Horse-Power Treads; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a side view of the power with portions cut away, and showing the power-wheel shaft at an inclination from dotted vertical line. Fig. 2 is a plan or top view. Fig. 3 is a vertical section through power-wheel, showing end of shaft resting in step; Fig. 4, a detached view of cap on shaft; Fig. 5, a section of lower plates, showing mode of securing end of spokes; and Fig. 6, a detached view of head-block, one end resting in cross-beam.

My invention relates to horse-powers, and is an improvement on my Patent No. 120,678, reissued March 7, 1876, No. 6,978.

The invention consists in the means of attaching the spokes of the power-wheel and the braces to the shaft; also, in the means by which the upright shaft of the lower wheel and the lateral shaft of the friction and band wheels are kept in line; also, the means by which the inclination of the power-wheel and the pressure thereof on the friction-wheel are regulated; and, lastly, to means for preventing the power-wheel from chafing or slipping on the friction-wheel.

A in the drawings is a shaft composed of metal or other material, with a steel point at the bottom resting in the step *a* of the frame B, and revolving in the head-piece D, and having fastened near the top a cap, C, supporting the braces *c* of the power-wheel E, and near the bottom the double plates *e e'*, which fasten to the shaft the spokes *i i i* of the power-wheel E. This power-wheel E is composed of spokes *i i i*, a disk, F, and a rim, G. These spokes *i i i* are secured to the shaft A by means of the metal plates *e e'*, which are fastened to the shaft A, and are also bolted, with bolts having a nut at one end, to the end of the spokes *i i i*. These spokes are also supported by the braces *c c c*, the lower ends of which pass through the spokes *i i i*, and are fastened by nuts on the under side of the spokes, and the upper ends of which are fastened in a similar manner to the cap C by nuts on the upper side of the cap. These spokes *i i i* support the disk F, and also the rim G, which is coated on the under side with a mixture of paint and fine sand, or other gritty substance, in order to increase the friction between the rim G of the power-wheel E and the friction-wheel H. This friction-wheel H is fastened to the horizontal revolving shaft K, which is placed in a line with the step *a*, and revolves a band-wheel, L, all of which are supported by the frame M, constructed independent of the main frame B, so that it may be moved either backward or forward or sidewise in either direction, and clamped to its position by means of the screw N, fastening it to the sill O of the main frame B, through the slot P. Thus the shaft K can always be kept in line with the step *a*, and the amount of friction between the friction-wheel H and the power-wheel E can be regulated.

The head-piece D, (represented in Fig. 6,) moves freely in the slots *t t'* in the cross-pieces *s s* of the frame B, and thus allows the shaft A to be put at any inclination, and regulates the amount of friction between the friction-wheel H and the power-wheel E by regulating the inclination of the power-wheel E. This head-piece D is kept in position by means of the wedges *x x'*, which also regulate the amount of friction between the friction-wheel H and the power-wheel E, for by drawing in one wedge and driving out the other an endwise movement is given to the head-piece D, which, imparting it to the shaft A, raises or lowers that part of the rim G of the power-wheel E which bears upon the friction-wheel H.

Having described my invention, what I claim is—

1. The shaft A, provided with cap C and plates *e e'*, and the wheel E and braces *c*, in combination with adjustable head-block D and wedges *x x'*, substantially as set forth.

2. The shaft K and wheels L H, supported in frame M, adjustable as described, in combination with shaft A and tread-wheel E, substantially as set forth.

3. The head-block D and wedges x x', the head-block admitting of side and lateral adjustment, as described, in combination with shaft A, substantially as and for the purpose set forth.

4. The friction-wheel H, supported in frame M, adjustable as described, in combination with tread-wheel E, provided with rim G, having on its under surface a composition of an adhesive substance and gritty matter, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

HEMPHILL SMITH.

Witnesses:

W. McCLELLAND,

M. C. MUSE.