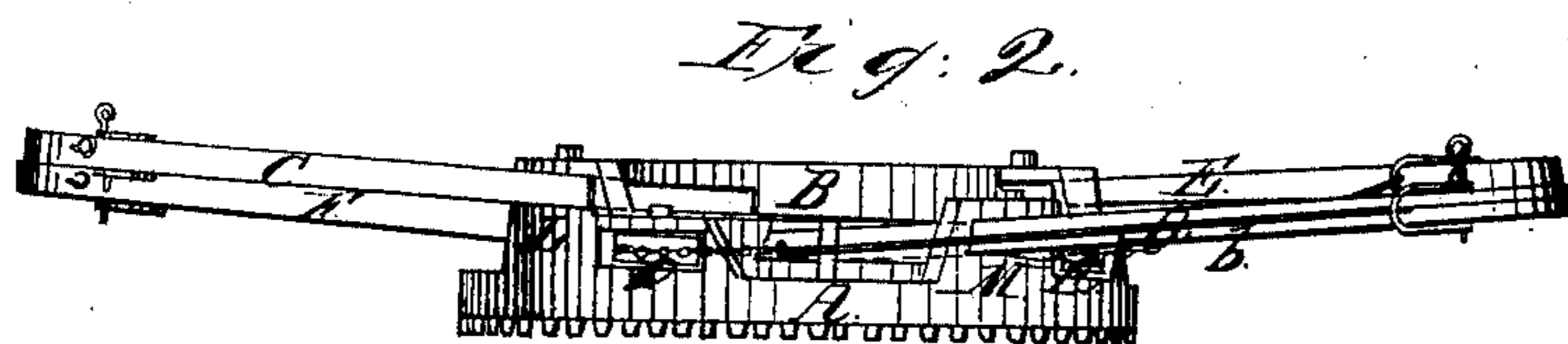
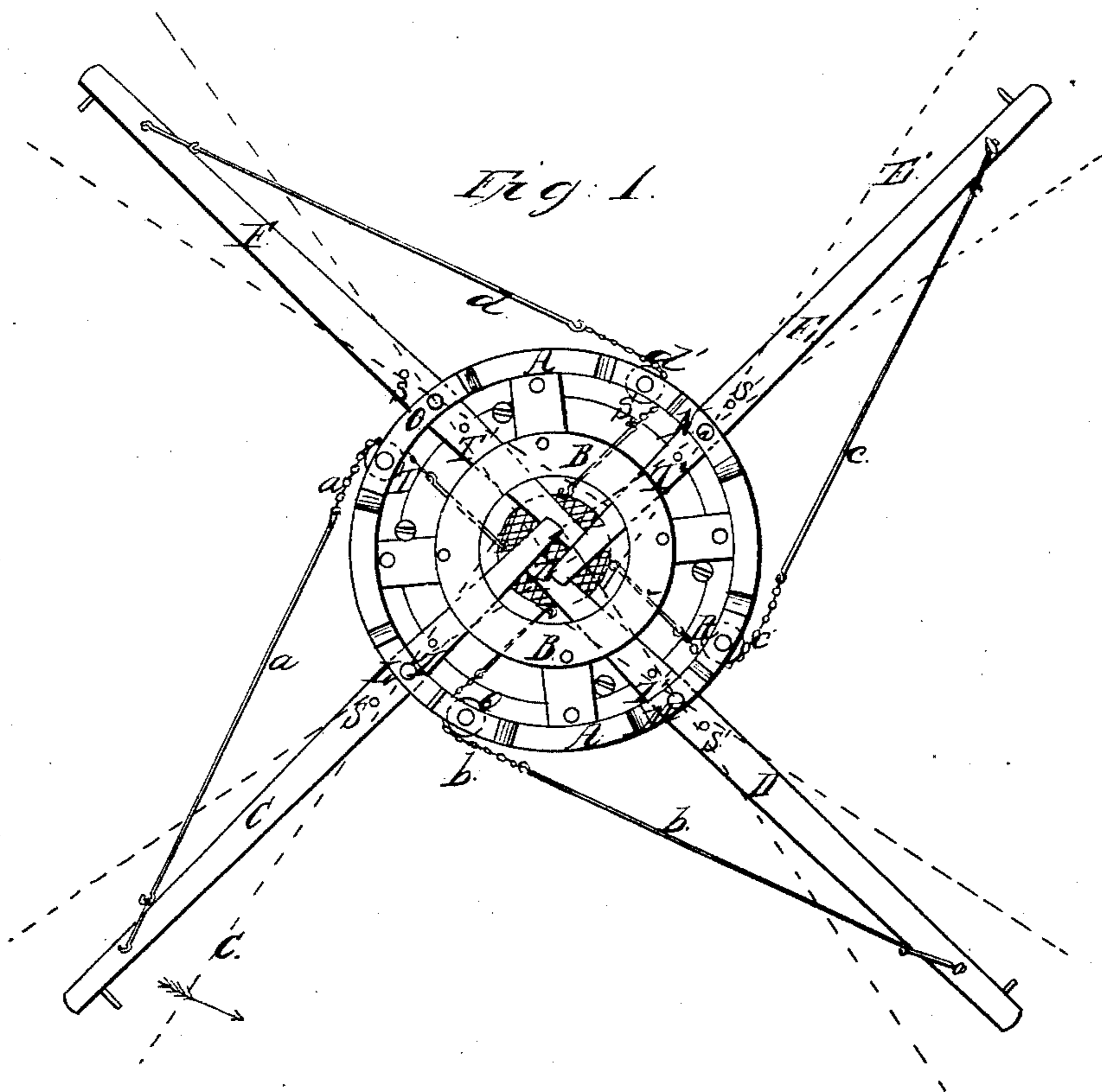


*Glidden & Starkweather,*

*Horse Power.*

*N<sup>o</sup> 28,468.*

*Patented May 29, 1860.*



*Witnesses*  
*W. C. Ferguson*  
*L. H. Loomis*

*Inventor:*  
*W. A. Glidden*  
*A. Starkweather*

# UNITED STATES PATENT OFFICE.

W. A. GLIDDEN AND A. STARKWEATHER, OF ALVARETTA, WISCONSIN.

## HORSE-POWER.

Specification of Letters Patent No. 28,468, dated May 29, 1860.

*To all whom it may concern:*

Be it known that we, W. A. GLIDDEN and A. STARKWEATHER, of Alvaretta, in the county of Rock and State of Wisconsin, have  
5 invented new and useful Improvements in Horse-Power; and we do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying  
10 drawings; making part of this specification, in which—

Figure 1, is a top view. Fig. 2, is a side view.

Like letters denote like parts in the two  
15 views.

The nature of my invention relates to an improvement in horse power, whereby the draft will be equalized and adapted to the strength of different spans of horses, also  
20 in preventing that jarring, jerking motion, occasioned by starting, that is so straining and wearing on the machinery, and likewise on the horses, and which is unavoidable in the ordinary horse power.

25 In the figures, A represents the master wheel, and C, D, E, F, the sweeps. These sweeps all pass through eyes L, M, N, O, in the master wheel, and are kept there, in place by pins or rivets. The two opposite sweeps, as for instance C, E, are connected together  
30 in the center, by an adjustable coupling Z. The rim B, that is attached to the spokes of the master wheel, keeps the sweeps in place in the center.

35 To one side of the sweeps, near the end by means of hooks and pins; are secured braces, *a, b, c, d*, that are connected with chains, *a', b', c', d'*, that pass around and move on the pulleys Q, R, S, T. These pulleys revolve in eyes in the master wheel, one  
40 side of the eyes where the sweeps pass through. The braces after passing around the pulleys, are secured to one side of the sweeps, in the center. The two opposite  
45 sweeps, D, F, are placed below the other two, so that in moving, they will not come in contact. The sweeps are coupled together in the center in such a way, as to admit of their turning in any direction, to  
50 coincide with the movement of the braces.

The advantages to be derived from this

arrangement of braces and sweeps are as follows: The pins passing through the eye of the master wheel, and the sweeps, act as fulcrums. On each side there are holes S', 55 and T', in the sweeps.

By removing a pin or fulcrum in the master wheel, as for instance in the sweep C, placing it in the hole S', the long arm of the sweep or lever, will be shortened, and the pin 60 in the opposite sweep E must be placed in the hole T', the long arm of the sweep E, will then be lengthened; and consequently less power will have to be applied at E, than at C, to overcome the same resistance. In 65 this way the draft is equalized and adapted to the strength of different teams of horses. There is a little advantage gained, in this respect, by having the sweeps fixed as they are in Fig. 1, for instance, if the greatest 70 power is applied at the sweep C, C, moving in the direction of the arrow, will take the position of C', and E, will move in the direction of E'; owing to the position of these two sweeps, there will be less power required 75 at E, than at C, to equalize the draft.

In the ordinary horse power, where the sweeps are stationary in the center, there being so much machinery to be moved at once, it is very difficult starting, and it is accompanied too, with such a jarring, jerking motion, as to strain the machinery, and it is apt to break parts of it. But with my improvement, the couplings being so pliable, together with the braces, render it easy for 85 the horses in starting, and it has been found in practice, that the braces strengthen the sweeps, and give a certain elasticity to them, that aids in preventing that jarring motion hitherto mentioned. 90

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

The sweeps C, E, and D, F; coupled in the center, and the braces *a, b, c, d*, and pulleys Q, R, S, T, when specially arranged, 95 and operating conjointly, as herein described.

W. A. GLIDDEN.  
A. STARKWEATHER.

Witnesses:

W. C. LOVEJOY,  
H. N. LOVEJOY.