P. BECHE.

Horse-Power.

No. 207,795. Patented Sept. 10, 1878.

Fig. 1.

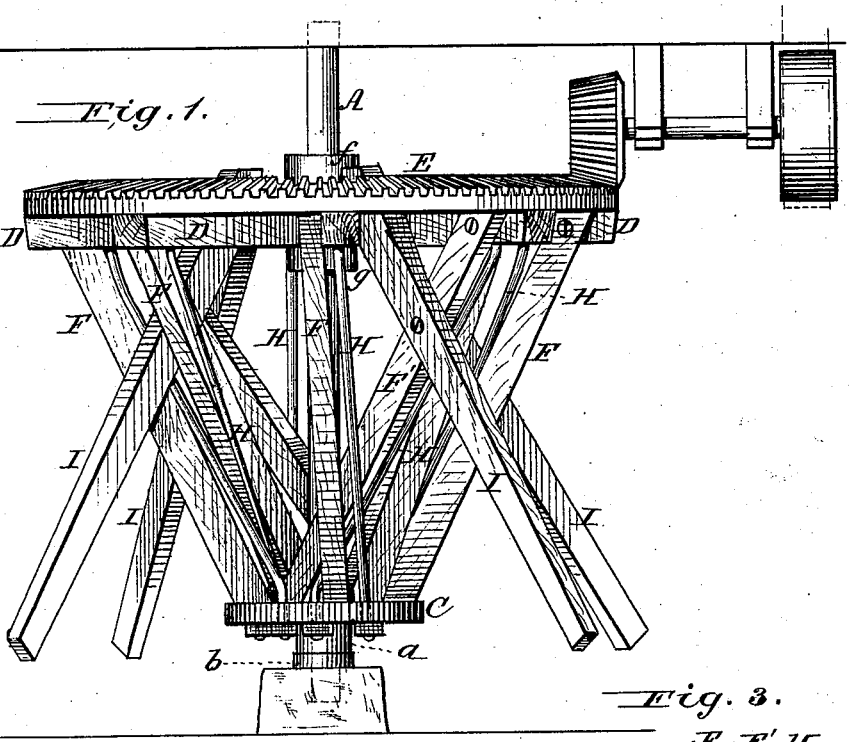


Fig. 4.

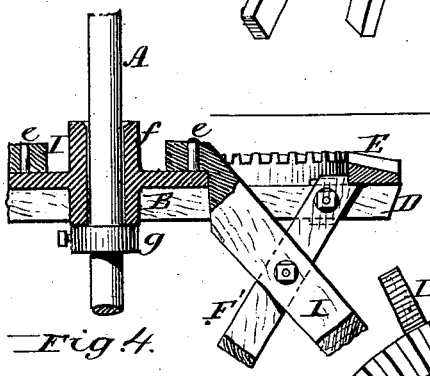


Fig. 3.

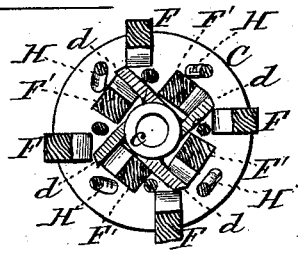
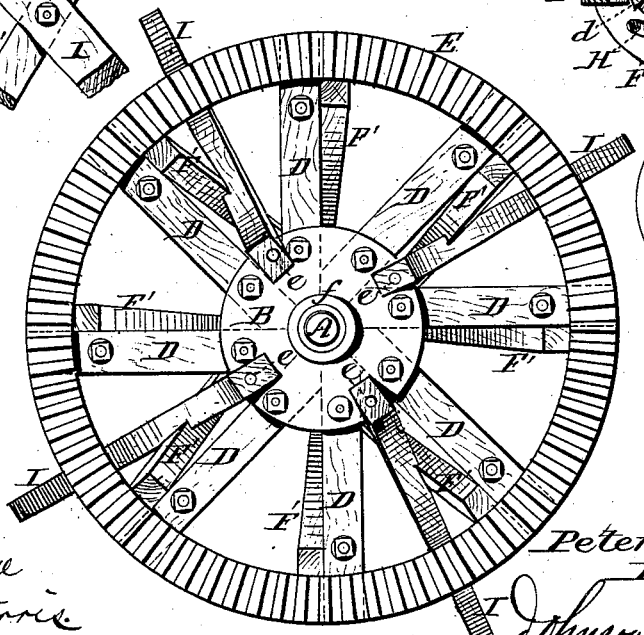
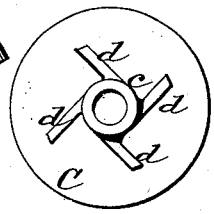


Fig. 2.





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UNITED STATES PATENT OFFICE.

PETER BECHE, OF BATH, PENNSYLVANIA.

IMPROVEMENT IN HORSE-POWERS.

Specification forming part of Letters Patent No. **207,795**, dated September 10, 1878; application filed June 10, 1878.

To all whom it may concern:

Be it known that I, PETER BECHE, of Bath, in the county of Northampton and State of Pennsylvania, have invented certain new and useful Improvements in Horse-Powers; 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.

My improvements relate to that class of horse-powers in which the master-wheel is supported by studs and braces, in connection with a vertical fixed center-shaft, upon which the power is revolved; and my said improvements consist in the construction of the supporting-frame with special reference to the diagonal arrangement of the draft-levers, by which the driving-wheel is rendered more stable and durable. I use an upper and a lower hubbed metal bearing-plate, to the lower one of which the wooden studs and brace-rods are secured, so as to cross each other with the brace-rods, forming ties with the upper horizontal arms of the driving-wheel, while the draft-levers are secured to the top bearing-plate, and, extending obliquely downward therefrom, are secured to the wooden studs, so as to bring the draft-strain chiefly upon the upper hubbed bearing-plate, in contradistinction to a horizontal arrangement of the draft-levers having direct connection with the wheel-studs only, by which I obtain a new arrangement and firmer construction of the wheel-supporting structure and the draft-levers. This is important in horse-powers of this kind in order to give a firm and durable structure for the driving-wheel.

Referring to the drawings, Figure 1 represents a side elevation of so much of a vertical horse-power as embraces my invention; Fig. 2, a top view of the driving-wheel; Fig. 3, a horizontal section taken above the lower bearing-plate; and Fig. 4, a vertical section taken through the upper bearing-plate, showing the manner of securing thereto the upper ends of the draft-levers.

The wheel is arranged to be supported and driven upon the ground-floor for running cotton-gins and other machinery upon an upper floor by a band-wheel on the shaft, which gears by a pinion working in the driving-wheel in the usual manner, or by any suitable connection with the power.

The vertical shaft A is suitably supported, and serves also as a supporting-stud for the upper floor. The wheel is supported by and turns upon this shaft by means of an upper and a lower bearing-plate, B C, the latter resting by a hub, *a*, upon a suitable firm bearing, *b*, and also has an upper hub-extension, *c*, Fig. 3, which, with the hub *a*, gives a long bearing upon the shaft.

To the upper bearing-plate, B, the arms D are secured, to the outer ends of which the master or driving wheel E is fastened, and supported by cross wooden studs F F′, which are bound upon the lower bearing-plate and secured by screws to the outer ends of said arms. The cross-studs are arranged in two series, an inner and an outer one. The lower ends of the inner series, F′, cross obliquely the outer series, and are bound in place against ribs *d*, Fig. 3, formed upon the upper side of the lower bearing-plate, C, while their upper ends lap upon the inner side of the master-wheel rim, (see Figs. 2 and 4,) so as to brace it horizontally. These two series of cross-studs are thus bound upon the lower bearing-plate by cross-braces H, secured to said bearing-plate by screw-nuts and to the beams D above, and thus render the structure firm and durable.

The draft-levers I are secured to the top bearing-plate by pins *e*, Fig. 4, and, extending downward obliquely between the brace-rods and the cross-studs, are also secured to the inner or diagonal series of the studs, F′, thereby making a strong and durable connection with the top bearing-plate of the wheel, and bringing the thrust directly upon the arms D and the oblique inner studs, F′, instead of using horizontal levers connected with each other and the studs, as heretofore, and in which all the strain is borne directly upon the supporting-frame below the driving-wheel. The upper wheel-plate has a top hub-extension, *f*, to give the proper bearing upon the shaft, and a

collar, *g*, is secured upon the latter, as a support for the center of the wheel, and to prevent it from sagging, as shown in Fig. 4.

I claim—

1. In a horse-power, the hubbed bearing-plates B C, in combination with the supporting-studs F F′, the cross brace-rods H, and the central fixed shaft, all constructed and arranged as herein specified.

2. The oblique studs F′, arranged to lap the inner side of the driving-wheel rim, and bound against ribs *d* on the lower bearing-plate, C, as and for the purpose stated.

3. The upper wheel-bearing plate and the fixed supporting-shaft, in combination with the shaft-collar *g*, for supporting the center of the wheel, as specified.

4. The draft-levers applied to the top bearing-plate, B, fixed in oblique positions therewith and with the wheel, in combination with the oblique studs F′, to which they are secured, all constructed and arranged as specified.

In testimony that I claim the foregoing I have affixed my signature in the presence of two witnesses.

PETER BECHE.

Witnesses:

JACOB H. BECK,

ENOS ACKERMAN.