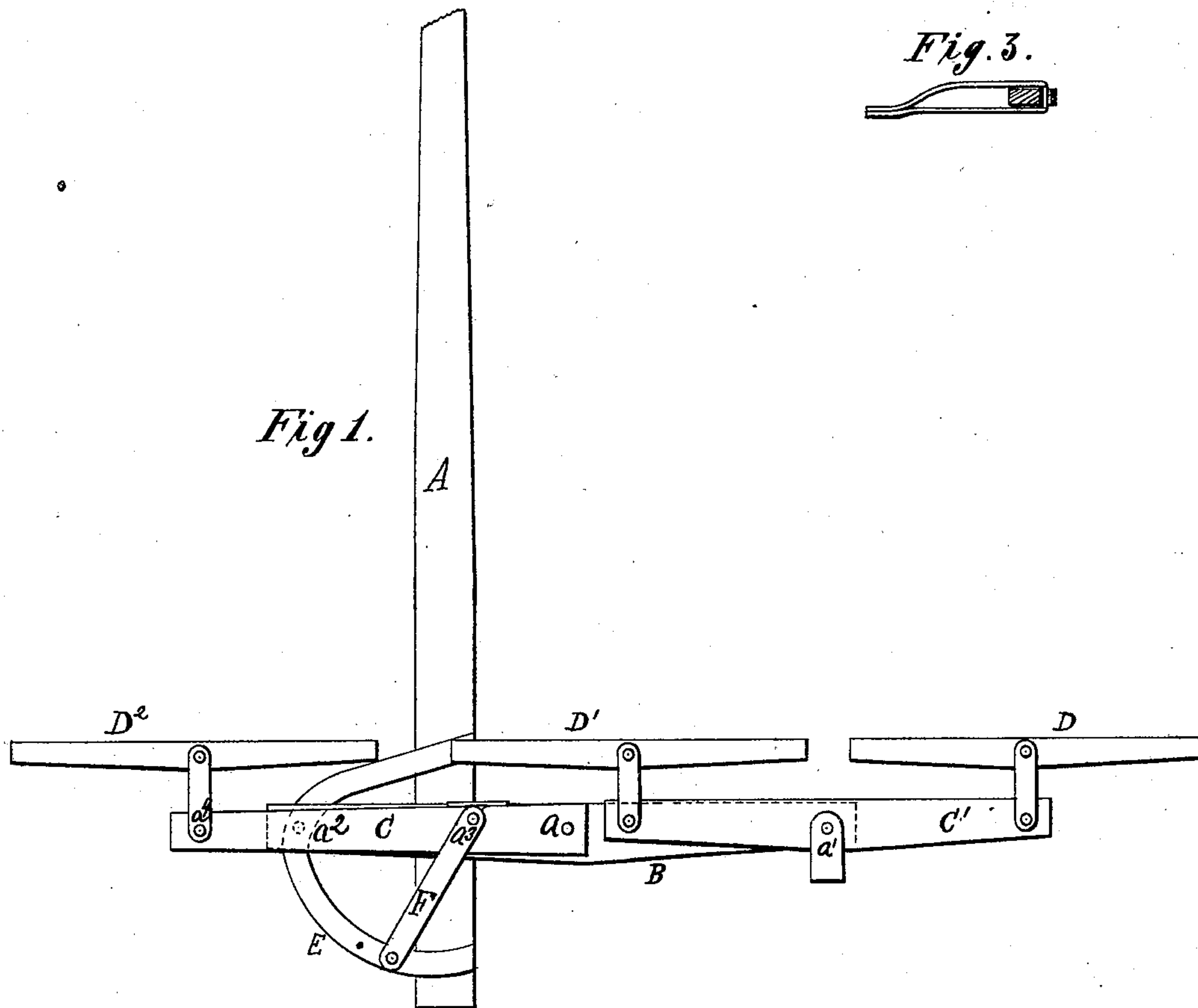
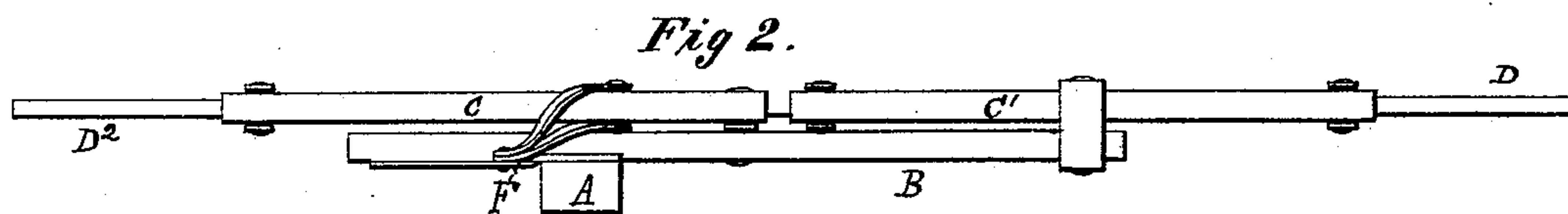


A. E. MANCHESTER.

DRAFT-EQUALIZER.

No. 177,342.

Patented May 16, 1876.



WITNESSES:
D. R. Cowell
Jno. P. Jacobs

Albert E. Manchester
INVENTOR.

J. M. C. Perkins
ATTORNEY.

UNITED STATES PATENT OFFICE.

ALBERT E. MANCHESTER, OF CALMAR, IOWA.

IMPROVEMENT IN DRAFT-EQUALIZERS.

Specification forming part of Letters Patent No. **177,342**, dated May 16, 1876; application filed March 23, 1876.

To all whom it may concern:

Be it known that I, ALBERT E. MANCHESTER, of Calmar, in the county of Winneshiek and State of Iowa, have invented certain new and useful Improvements in Three-Horse Equalizers; and I do hereby declare that the following is a full, clear, and exact description thereof, that 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 the letters and figures of reference marked thereon, which form a part of this specification.

The same letters and figures of reference are used to indicate the corresponding parts. After describing the invention, its nature and extent will be shown in the claim.

My invention relates to an improvement in equalizers for working three horses abreast when two horses are on one side of the pole and one horse on the other side of the pole. It consists of draft levers of unequal length, pivoted together and fastened to the tongue in a novel manner.

Figure 1 is a plan view of my invention. Fig. 2 is a rear view; and Fig. 3 is a detail view, showing a strap, which embraces one of the short levers at one of its ends, and is riveted to the pole-strap at its other end.

A is the pole. B is the long lever, which is attached to the circular-shaped pole-strap E. The strap E is fastened by both ends to the pole A. C is a short lever, pivoted at one end to the lever B. To the short lever C is also pivoted the strap F, which clasps both sides of the lever C, and is pivoted at its other end to the pole-strap E. C' is a lever, pivoted at

its center a' to the outer end of the long lever B. To C' are attached the whiffletrees D and D'. To the outer end of the lever C is attached the lever D². The equalization of the draft is attained by the system of compound levers shown in my invention, as will now be obvious. The long arm of the lever C is from a^3 to a^4 , and the short arm from a to a^3 . The fulcrum is a^3 , the power applied to a^4 , and the weight at a . The long arm of the lever B is $a^1 a^2$, the short arm $a a^2$, the fulcrum being a^2 , the power at a^1 , and the weight at a . Now, any one ordinarily versed in the common principles of mechanics will observe that substantially by my arrangement of the levers the draft of three horses abreast will be equalized. It is not necessary here to demonstrate the mathematical accuracy of this calculation.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a three-horse equalizer the long lever B, attached to the pole-strap E at a^2 , the short lever C, pivoted at a to the lever B, and held rigid at a^3 by the strap F, in combination with the pole-strap E, fastened to the pole A, in combination with the lever C' and the pole A, substantially as described, and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of March, 1876.

ALBERT E. MANCHESTER.

Witnesses:

HENRY MILLER, Jr.,
JOSEPH A. GIESING.