

G. A. BIRCH.
Scraper.

No. 231,645.

Patented Aug. 31, 1880.

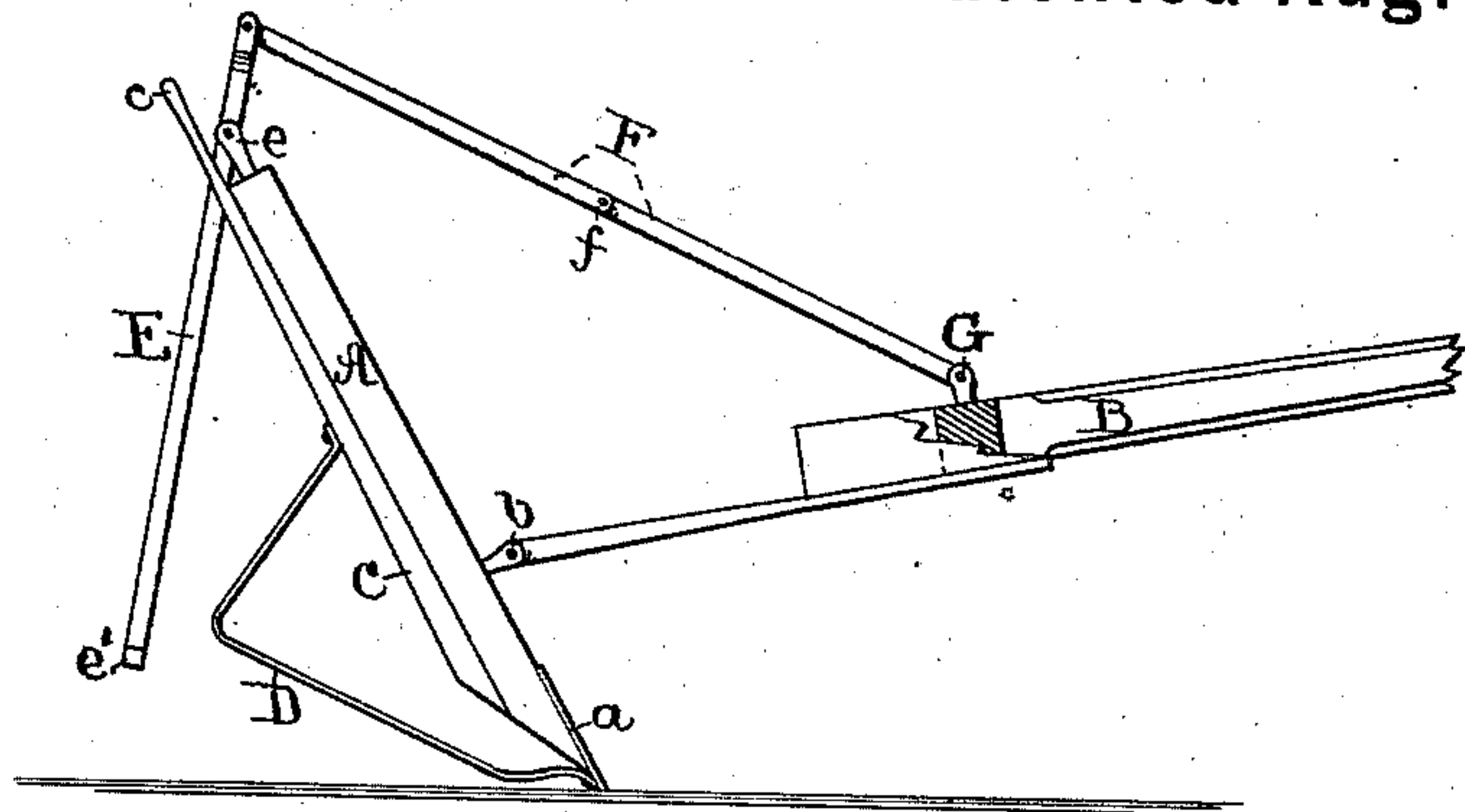


FIG. 1.

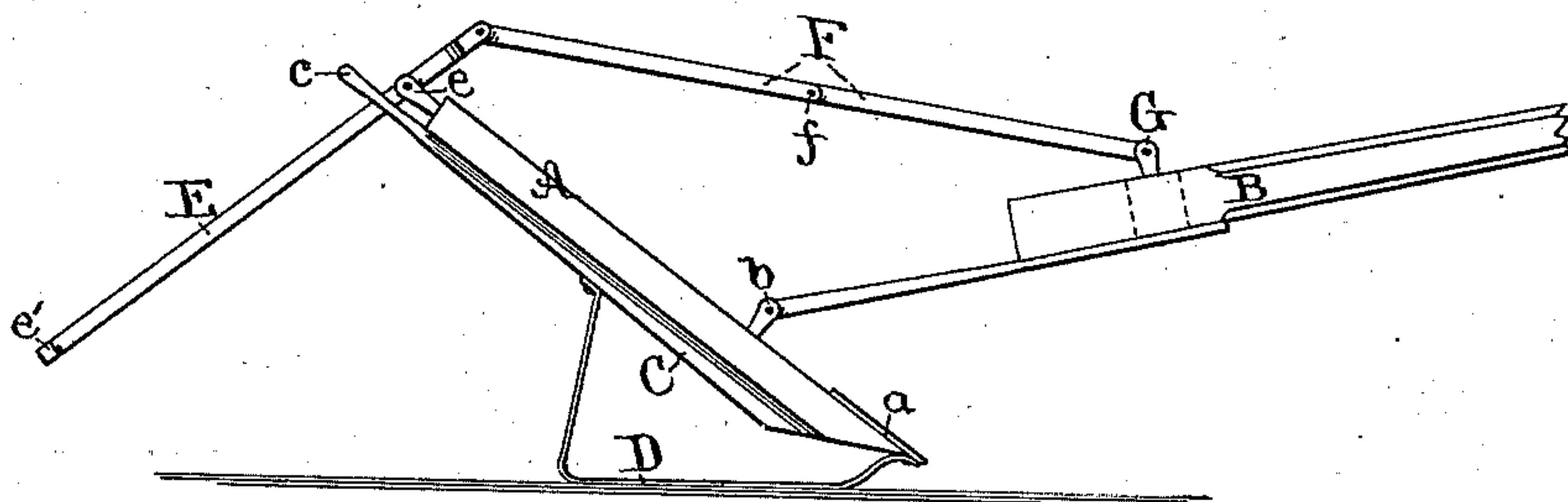


FIG. 2.

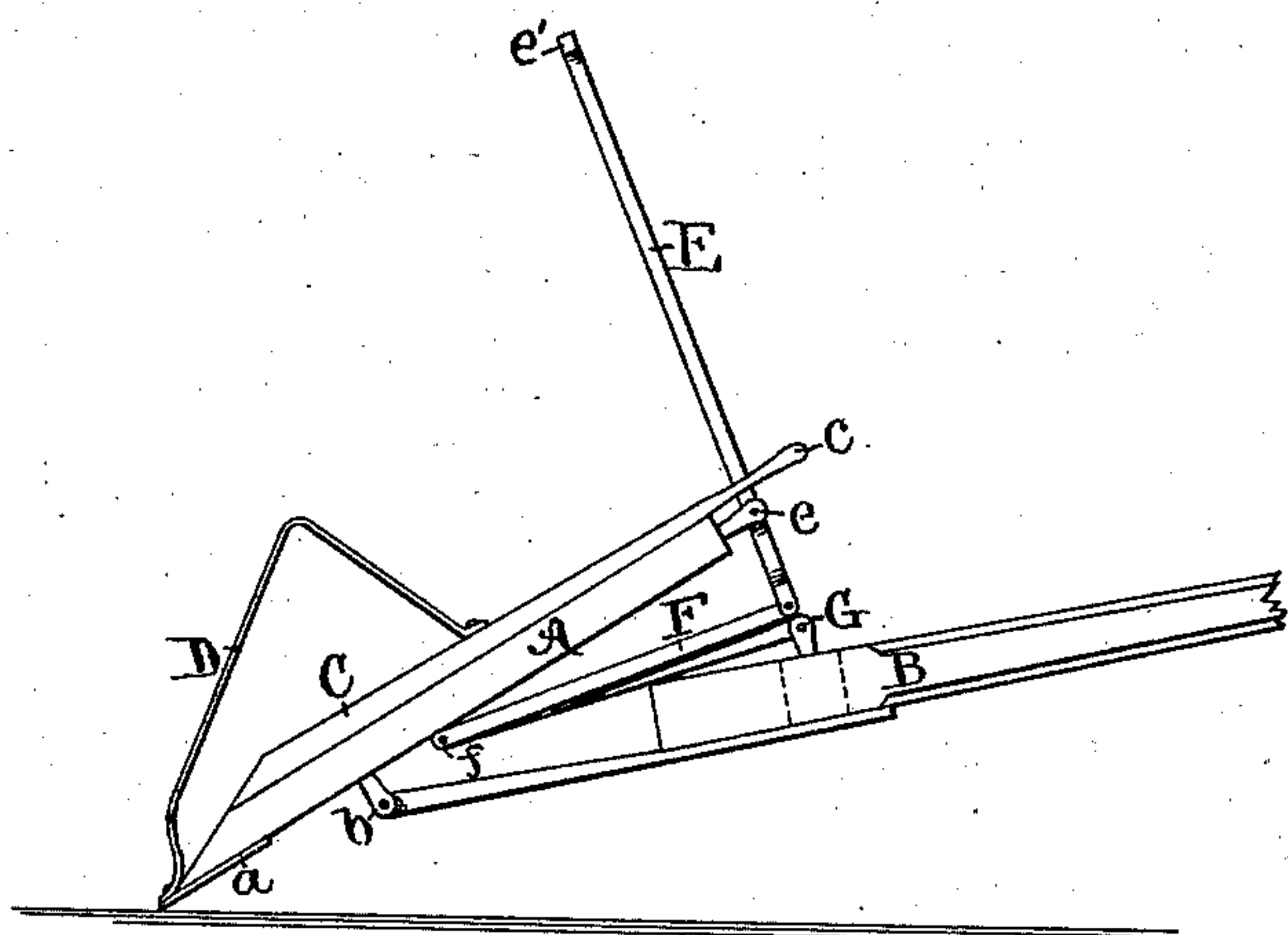


FIG. 3.

Witnesses,

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UNITED STATES PATENT OFFICE.

GEORGE A. BIRCH, OF EAST GREENBUSH, NEW YORK.

SCRAPER.

SPECIFICATION forming part of Letters Patent No. 231,645, dated August 31, 1880.

Application filed December 20, 1879.

To all whom it may concern:

Be it known that I, GEORGE A. BIRCH, of East Greenbush, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Ice-Scrapers, of which the following is a full and exact description.

My invention relates to the class of scrapers that are used for removing snow and other deposits from the surface of the ice before it is cut and harvested for storage in ice-houses. This kind of implement, technically known as a "fire-board scraper," as heretofore constructed and used, has been drawn by animals that were attached to the scraper by means of ropes, and for that reason the animals could exercise no control over the scraper when required to turn it from a direct line. Another defect in such scrapers is that when used in a heavy body of snow, or in soggy snow, the accumulation in front of the scraper soon becomes so heavy that the animals cannot move the scraper, thereby necessitating the dumping of the load where it stands, and greatly augmenting the cost of its subsequent removal.

The object of my invention is to remedy these defects; and to that end it consists of a scraper provided with a pole or shafts, to which the animals are harnessed. The scraper and shafts are also connected by a lever and rod, so arranged that the lower edge of the scraper may be raised from the ice, thereby stopping its work and throwing it, with its superincumbent load, back upon the runners secured to the back of it for the purpose of utilizing the scraper as a vehicle for transporting the load from the ice-field.

In the accompanying drawings, which form a part of this specification, Figure 1 is a side elevation of my improved scraper, showing the position of its parts when its edge is in contact with the ice; Fig. 2, the same, with the parts in position as when used for transporting a load; and Fig. 3, the same, showing the parts in position for dumping the load.

As shown in the drawings, A is the scraper, having at its lower edge a metallic strip, a;

B, shafts for one or more horses, coupled to the front of the scraper by means of a hinge-joint, b; C, battens secured to the back of the scraper and extending above the upper edge of it, where they terminate in the handles c, by which the driver may retain his hold on the scraper while operating it; D, runners or shoes secured to the back of the scraper, and so arranged that they will have no bearing on the ice while the operation of scraping is being performed; E, a lever fulcrumed to the top edge of the scraper at e, and provided at its lower end with a cross-bar, e', or other suitable device, upon which the driver stands during the operation of scraping, as hereinafter described; F, a rod, provided with a hinge-joint, f, near its middle, and pivoted at one end to the short end of the lever E, and at the other end pivoted to the stud G, fixed in the cross-bar of the shafts or pole.

The operation of my scraper is as follows: One or more horses are harnessed to the shafts B, and the driver stands upon the cross-bar e', (steadying himself by the handles c,) so that his weight causes the lever E to force the lower edge of the scraper A down in close contact with the surface of the ice, placing the various parts in the positions shown in Fig. 1.

When by dragging the scraper over the ice a sufficient quantity of snow has been accumulated on the scraper, the driver dismounts from the cross-bar e', and the scraper tilts backward until it rests upon the runners D, which then bear the loaded scraper while it is removed to a proper place of deposit.

The dumping of the load is effected by raising the outer or cross-bar end of the lever E. This movement causes the joint in the rod F to bend, and forces the scraper A to turn forward, as shown in Fig. 3.

In effecting the operation of dumping it will readily be seen that a material advantage is gained by the increase of power secured by means of the lever E.

It is obvious that any other form of runner may be used, or, when desired, wheels may

be substituted for the runners shown in the drawings, and such modifications are included in the scope of my invention.

I claim as my invention—

5 1. The combination, with the scraper A and shafts B, of the lever E and rod F, constructed and arranged to operate essentially as herein specified.

2. The combination, with the scraper A,

provided with runners D and shafts B, of the lever E and rod F, adapted to control the movements of the scraper A, as herein specified.

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