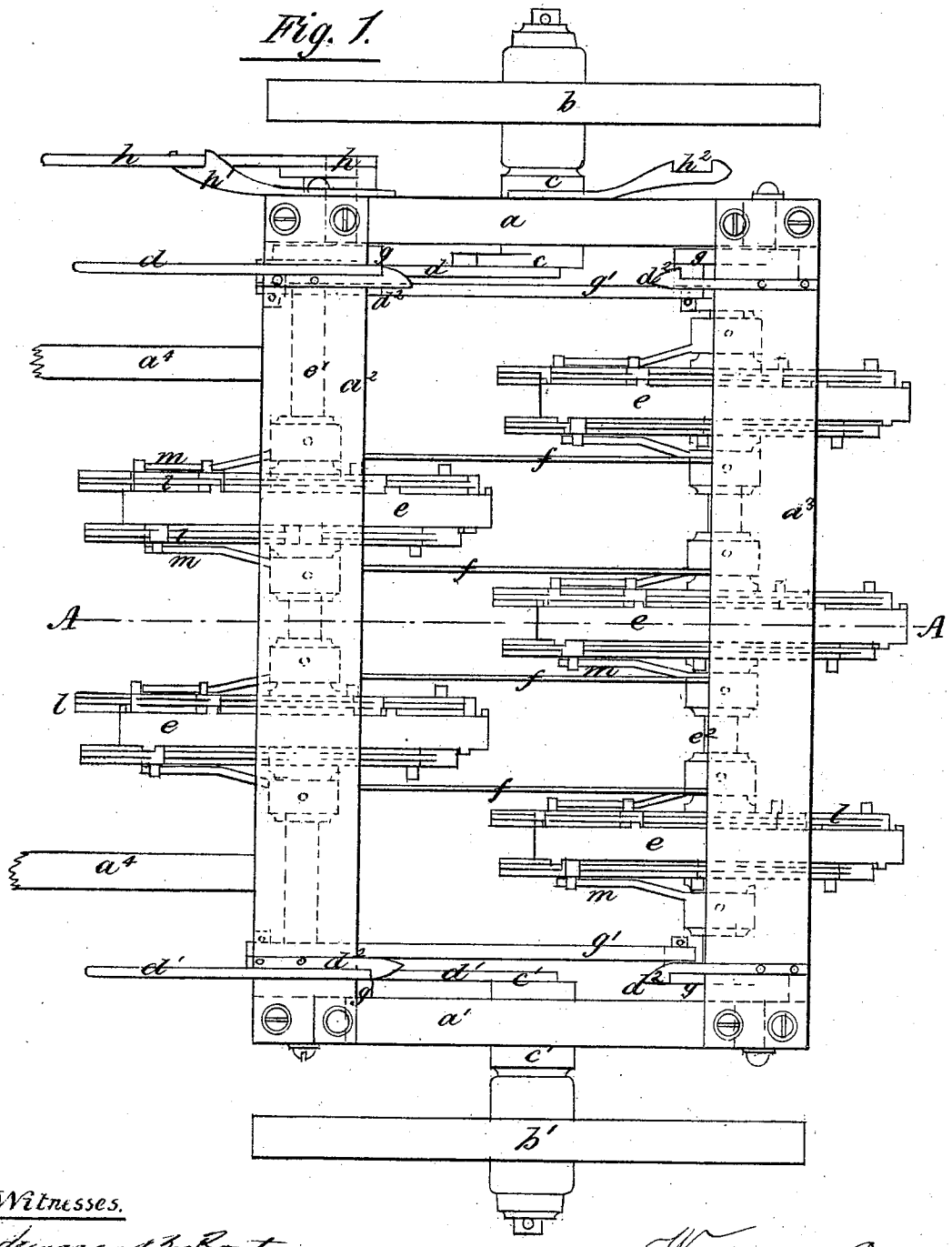
2 Sheets--Sheet 1.

W. E. BLEECKER.

Improvement in Rotary-Plows.

No. 129,206, Patented July 16, 1872.

Fig. 1.



Witnesses.

James F. Foote

James F. Winchester

Scale 1½ in. = 1 ft.

William E. Bleecker

Inventor.

2 Sheets--Sheet 2.

W. E. BLEECKER.

Improvement in Rotary-Plows.

No. 129,206. Patented July 16, 1872.

Fig. 2

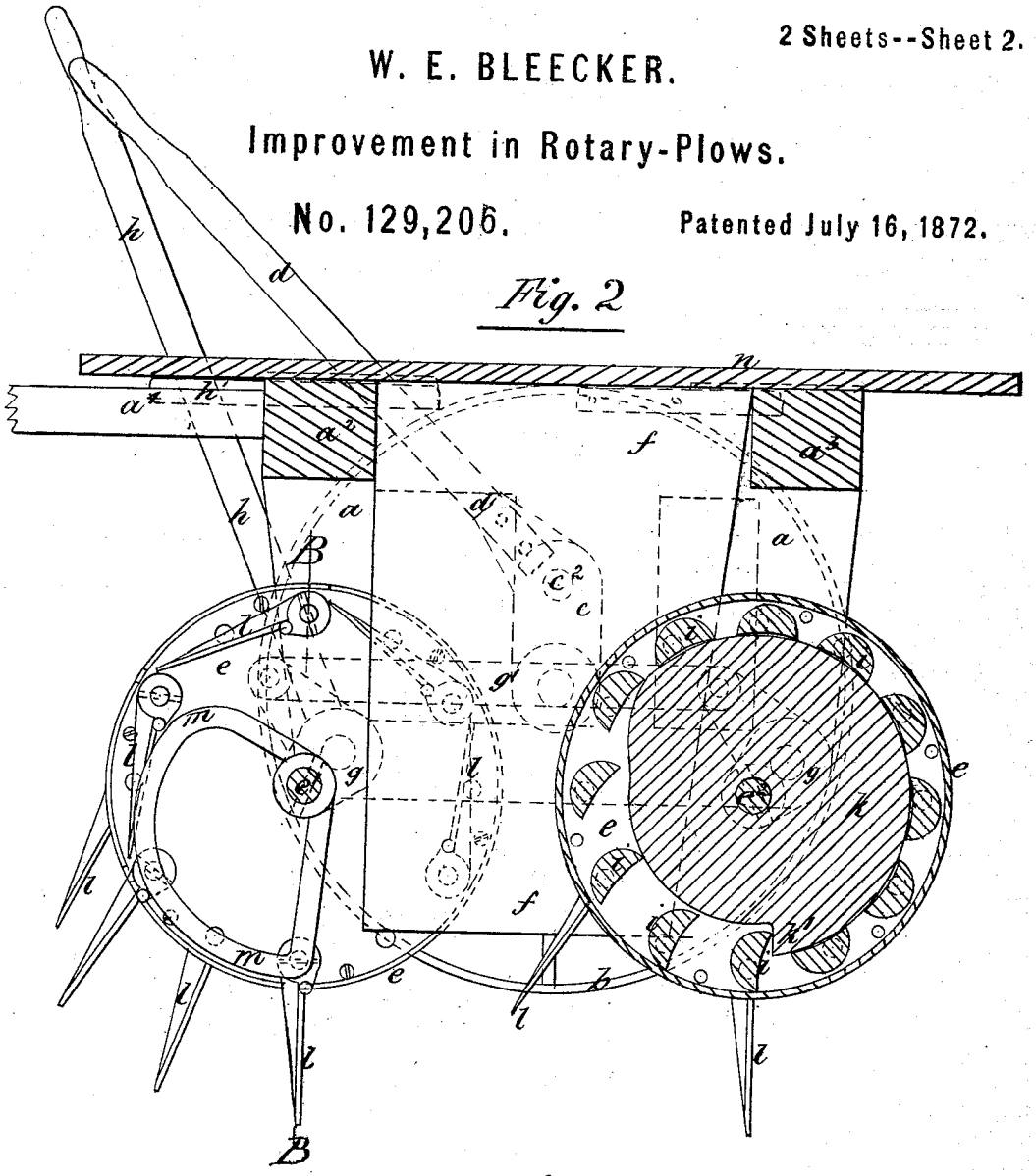
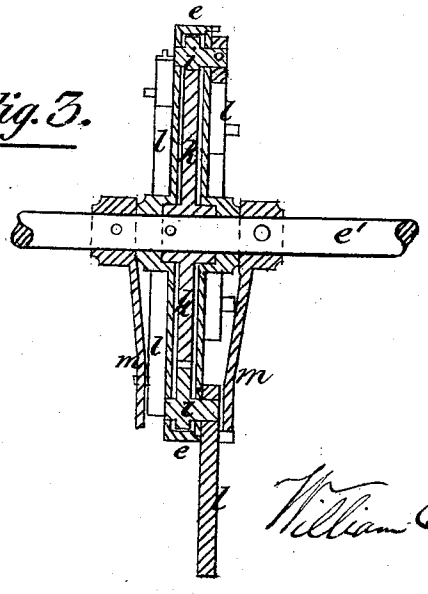


Fig. 3.



Witnesses.

James B. Foote

Samuel J. Winchester

William E. Bleecker

Inventor.

UNITED STATES PATENT OFFICE.

WILLIAM E. BLEECKER, OF BROOKLYN, ASSIGNOR OF THREE-FOURTHS OF HIS RIGHT TO HENRY BLEECKER, TRUSTEE, OF NEW YORK CITY, G. M. BLEECKER, OF COEYMANS, AND EDWARD BLEECKER, TRUSTEE, OF WHITESTONE, NEW YORK.

IMPROVEMENT IN ROTARY PLOWS.

Specification forming part of Letters Patent No. 129,206, dated July 16, 1872.

Specification describing certain Improvements in Rotary Plows, invented by WILLIAM E. BLEECKER, of Brooklyn, in the county of Kings and State of New York.

The first part of my invention consists in controlling plowing-teeth pivoted alternately on the two sides of a rotary wheel by three cams fastened to the axle upon which the wheel revolves, one on either side of the wheel guiding the teeth in entering the ground, and one inside the wheel moving the teeth from their vertical position when directly under the axle into position within the circumference of the wheel. The object of this part of my invention is, by a sudden sweeping movement of the plowing-teeth while the wheel to which they are pivoted is revolving slowly, to lift the soil vertically from its bed, throwing it up fast and high alongside of the wheel, and also at the same time to shut up the plowing-teeth in overlapping order on the sides of the wheels, so well sheltered that by a slight elevation and a quarter of a revolution of the axles the machine can be turned and transported on its outside traveling-wheels with perfect safety from all danger of breakage. The second part of my invention relates to the combination of the wheels having the plowing-teeth pivoted to them, the frame of the machine, and the outside traveling-wheels, with hand-levers, in such a manner that the machine can be easily shifted from the traveling-wheels to the plowing-wheels, and vice versa, with a very slight expenditure of power. The object of this part of my invention is to secure the facility of turning and transporting the machine on only two wheels, and to obtain the advantage in plowing of having the wheels that carry the plowing-teeth on two axles, one in front of the other, thereby relieving the horses from the weight of the machine.

In the accompanying drawing, which is drawn to a scale of one and a half inches to the foot, Figure 1 is a plan of my improved rotary plow with the platform removed. Fig. 2 is a longitudinal section through the line A A in Fig. 1; and Fig. 3 is a section of one of the plowing-wheels through the line B B in Fig. 2.

The side frames a and a^1 are fastened together by the girders or cross-beams a^2 a^3. To the girder a^2 is secured the shafts a^4 a^4. The traveling-wheels b and b' work on pins projecting from the pieces c and c^1, which are pivoted to the frames a and a^1 by the pins or bolts c^2 c^2. To the pieces c and c^1 are secured the hand-levers d and d'. The object of fixing the traveling-wheels in this manner will be hereafter explained. The plowing-wheels e e are arranged on the shafts or axles e^1 and e^2, as shown at Fig. 1, two on the forward shaft e^1 and three on the rear one e^2. Between the plowing-wheels and suspended from the girders a^2 and a^3 are the partitions f f. The object of these partitions is to prevent the soil thrown up by the forward plowing-wheels from clogging up the outside cams of the rear wheels, and also to insure the ground being left in a level condition, as the soil thrown up by the wheels would have to fall in their respective tracks. The ends of the axles e^1 and e^2 are securely fastened to the short arms of the bell-crank levers g g. At the bends of these levers are pins or studs, which have bearings in the side frames a and a^1. One of the forward ones of the pins or studs passes through the frame a, and to it is keyed or pinned the hand-lever h. The upper ends of the bell-crank levers g g are connected together by the links g' g', so that both the axles e^1 and e^2 work together. The plowing-wheels e e are made hollow, and so constructed that one side takes off, so that the crank and the pieces i i may be put inside the wheels. The pieces i i are provided with pins which work in holes in the sides of the wheel e, these pins on one side being made sufficiently long to pass alternately through the sides of the wheel e and allow the plowing-teeth l l to be secured to them. To the axle is keyed the cam k. The wheel is then put on the shaft with the pieces i i, and the cover or other side of the wheel is put on the shaft on the other side of the cam k. The two parts of the wheel are then held together by screws. Immediately alongside of the wheels e e are the cams m m, which are also keyed or pinned to the shaft. These cams control the plowing-teeth in entering the ground by operating upon

studs projecting from the sides of the plowing-teeth *l l*. As the wheel rolls on the ground the teeth are brought to a vertical position, as shown at Fig. 2; then the pieces *i i* strike against the part *k'* of the inside cam *k*, and the plowing-teeth *l l* are thrown up fast and high alongside of the wheel in overlapping order, and are retained in this position by the cam *k* until they come round and are ready to be entered into the ground by the cams *m m*. By moving the hand-lever back the shafts e^1 and e^2, with their cams fastened to them, are caused to turn round about one-quarter of a circle, at the same time raising the plowing-wheels *e e* a few inches from the ground sufficient for transporting the machine on the traveling-wheels *b* and *b'*. The wheels are held in their different positions by the spring-catches or locking-pieces h^1 h^2. It is sometimes found necessary to raise the traveling-wheels *b* and *b'* from the ground when the machine is in operation, in order to clear obstructions or place part or the whole of the weight of the machine on the plowing-teeth. They are operated by the levers *d* and d^1, which are held by the catches d^2 d^2. The platform *n* is fastened on the tops of the girders a^2 a^3, the object of which is to supply a standing space for the driver, or a seat may be placed thereon. By making the plowing-wheels *e e* larger and wider a cam may be placed inside of it to take the place of the two cams *m m*, thereby covering up all the working parts.

I propose to make some of the machines with only three plowing-wheels, in which case one will be placed on the forward axle and two on the rear axle.

I am aware that two or more series of spades arranged in alternate order on the periphery of a cylinder, in combination with a cam and springs, have been used before.

I claim—

1. The combination of the cams *m m* and *k* with the plowing-teeth *l l*, pivoted alternately on the two sides of the wheel *e*, as and for the purposes hereinbefore described, and operating in the manner set forth.

2. The combination of the levers *d* and d^1 and the wheels *b* and *b'* with the lever *h* and plowing-wheels *e e*, as and for the purposes hereinbefore set forth.

WILLIAM E. BLEECKER.

Witnesses:

THEODORE R. WETMORE,

ROB. L. CASE.