

F. Nishwitz,
Revolving Harrow.

No. 97,680.

Patented Dec. 7, 1869.

Fig. 1.

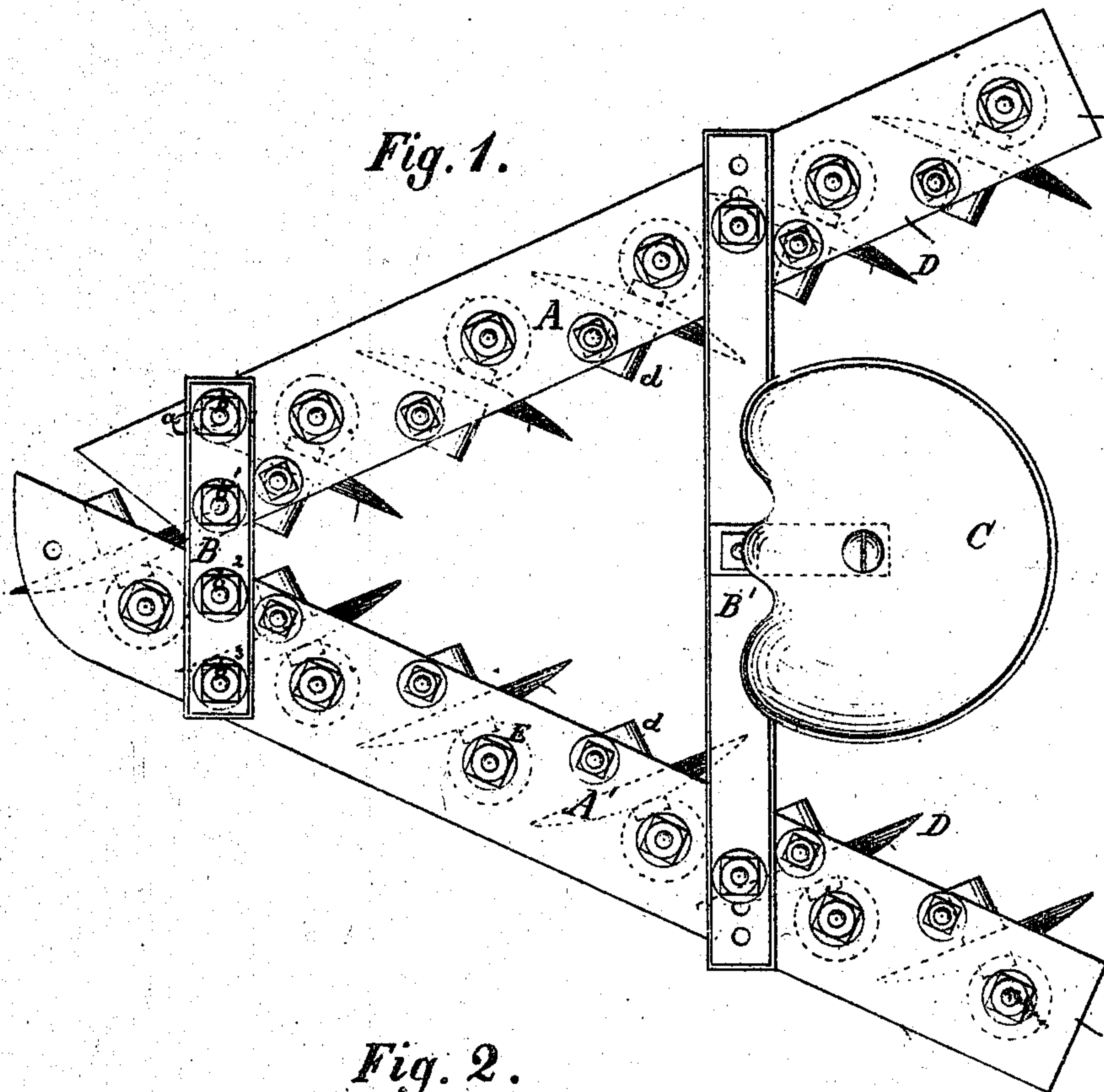
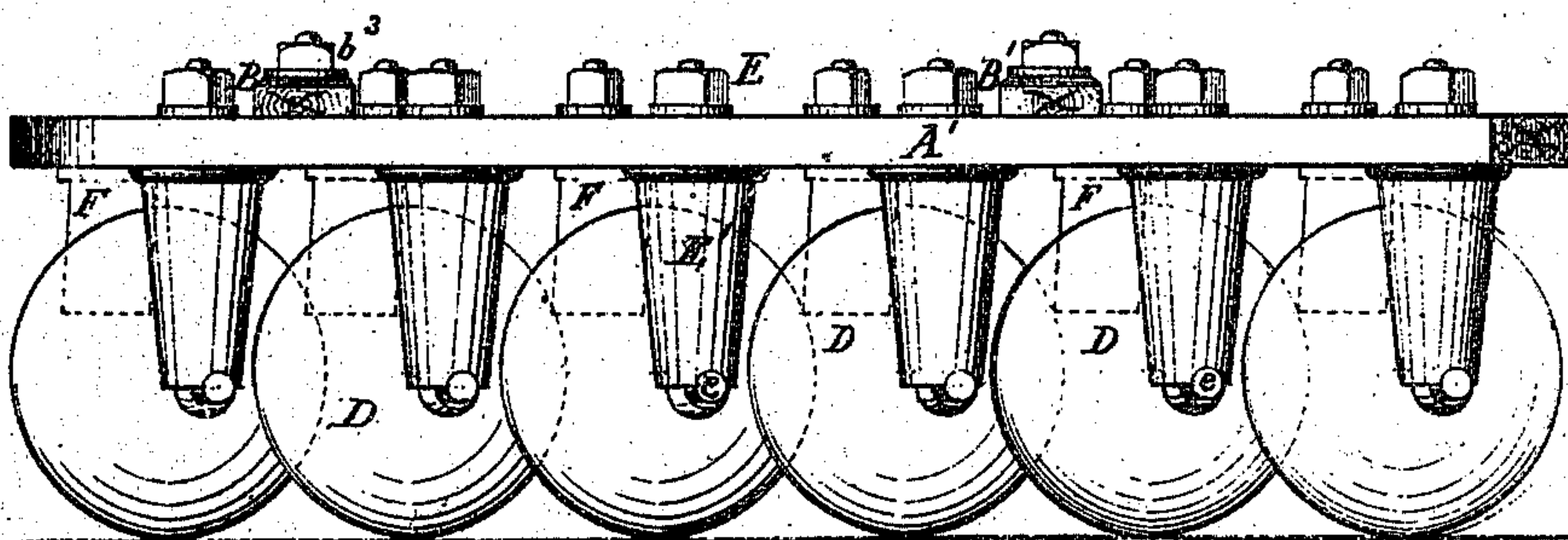


Fig. 2.



Witness
Goelbeyton.
Baltis & Long.

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by his atty
Wm. D. Baldwin

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Fig 3.

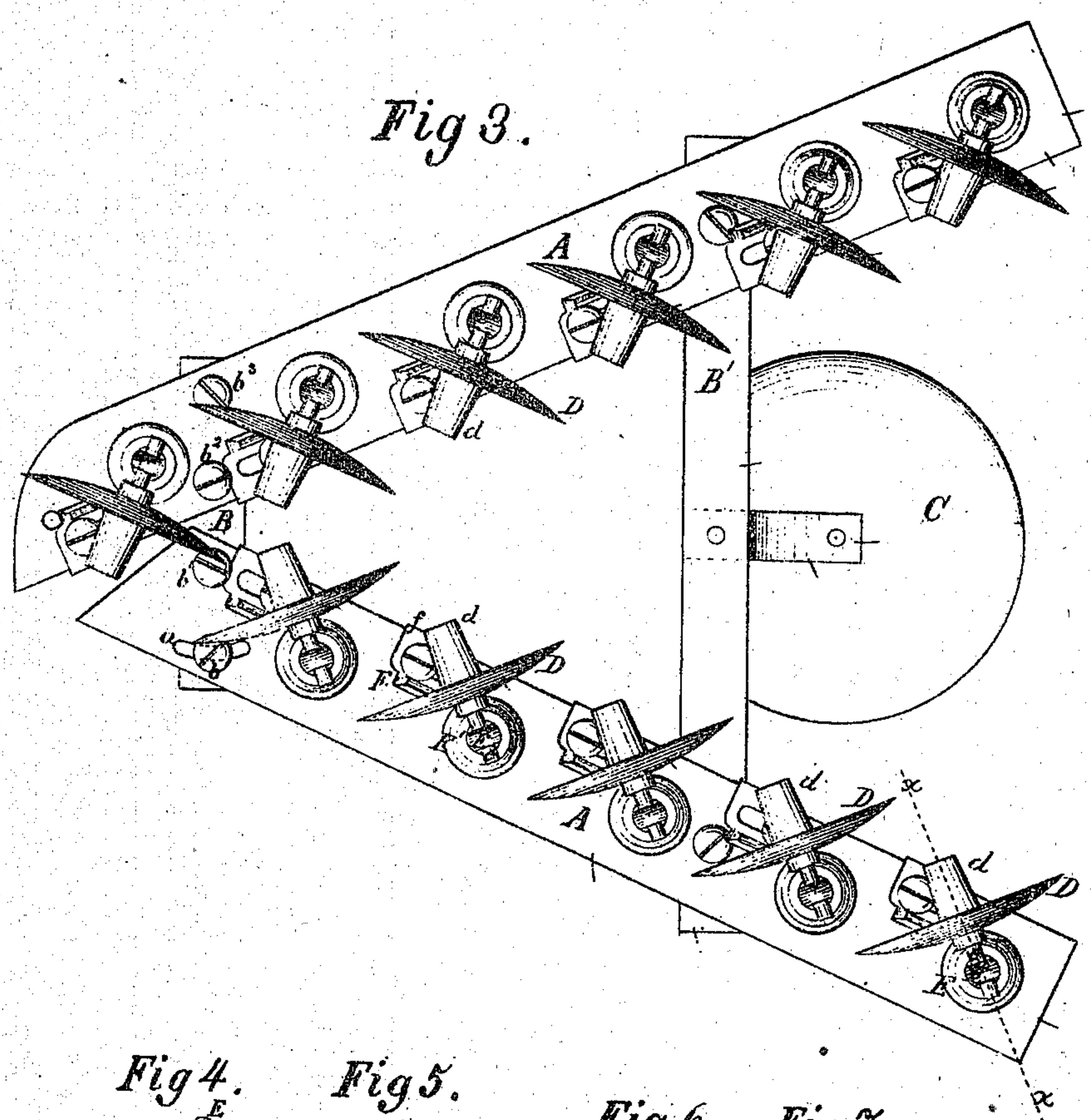


Fig 4.

Fig 5.

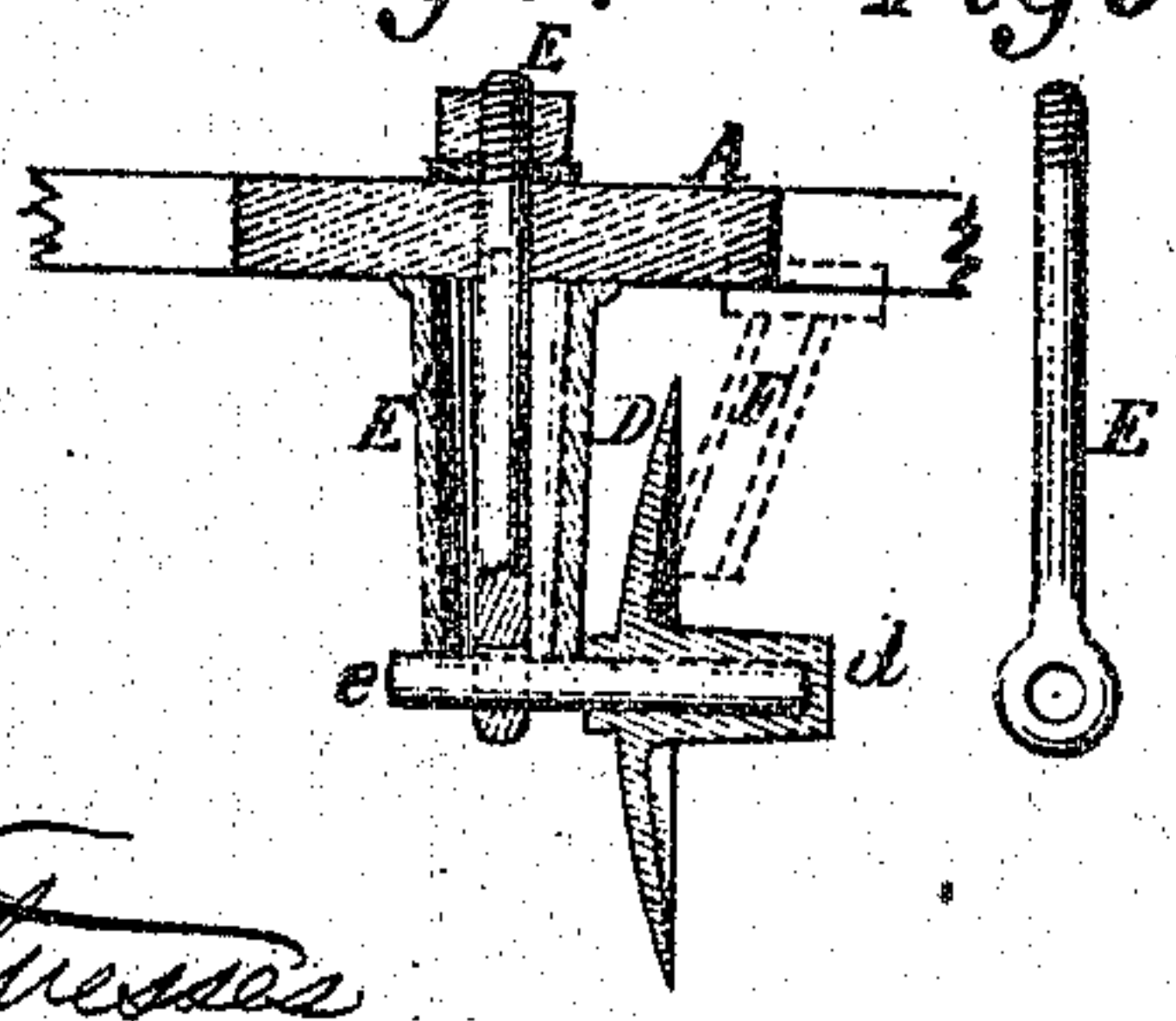
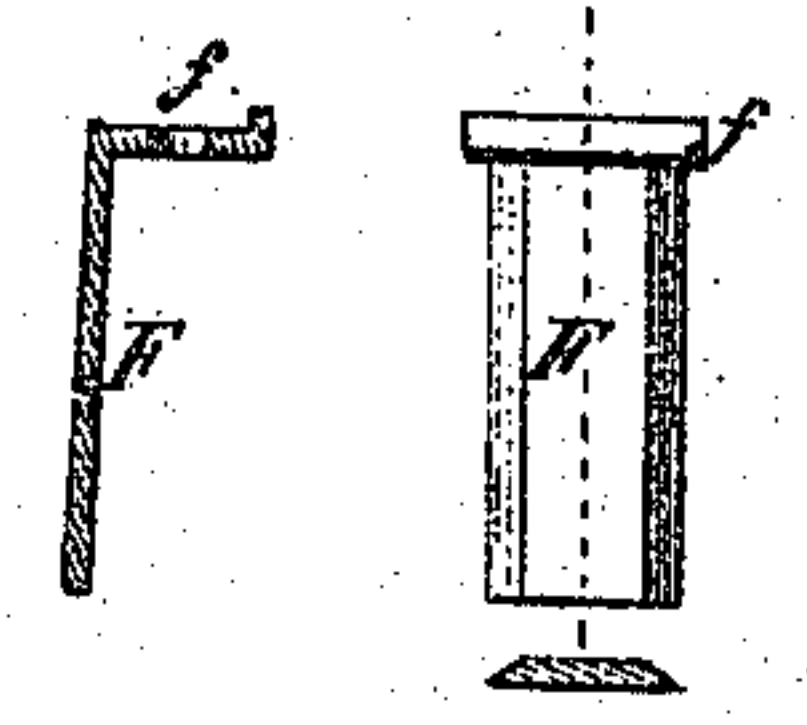


Fig 6.

Fig 7.



Witnesses
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UNITED STATES PATENT OFFICE.

F. NISHWITZ, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN HARROW-CULTIVATORS.

Specification forming part of Letters Patent No. 97,680, dated December 7, 1869.

To all whom it may concern:

Be it known that I, FREDERICK NISHWITZ, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Harrow-Cultivators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which make part of this specification, and in which—

Figure 1 represents a plan or top view of my improved machine; Fig. 2, a side elevation of the same; Fig. 3, a plan of the machine as seen from the under side; Fig. 4, a vertical section through one of the disks, at the line *x x* of Fig. 3; Fig. 5, a view of the clamping-rod which holds the axle of the disk detached; and Figs. 6 and 7, views of the scraper.

My invention pertains to that class of harrow-cultivators in which a series of revolving disks is arranged in the frame at an angle to the line of draft; and my improvements comprise novel and useful features in every part of the machine, as well as in the combinations of the same, this cultivator being the perfected adaptation of the principles upon which I constructed the cultivator for which I have a pending application, filed June 12, 1860.

I construct the frame of two beams, *A A'*, arranged at an acute angle to each other, and connected at their forward ends by a brace, *B*. I prefer to make one beam longer than the other, the longer one overlapping the shorter one at the front end. Through the cross-beam *B*, as well as through the beams *A A'*, I pass screws *b b¹ b² b³*. One of the screws in the cross-beam *B* works in a slot, *a*, Fig. 3, in the side beam *A*, by which means the angle of divergence of the beams can be adjusted at pleasure, as the beam swings horizontally around the inner screw *b¹* as a pivot.

The rear ends of the beams *A A'* are held the desired distance apart by means of a cross-beam, *B'*, secured to them by bolts, or by slots and set-screws, so as to accommodate this beam *B'* to the adjustment above described. On this cross-beam *B'* I mount a seat, *C*, for the driver. Each of the beams *A A'* has a series of holes through it, at suitable distances apart along its entire length.

I make a series of bolts, *E*, each having on its upper end a screw-thread, fitted with a nut.

The lower end of the bolt has a hole or eye through it. I further make a hollow column or thimble, *E'*, for each bolt, with a flange or flush bearing on its upper surface, for the beams *A A'*, and having in its lower end recesses, as bearings for an axle, *e*, these recesses being deeper on the inner than on the outer side of the thimble, in order to give an upward inclination to the axle. Placing this column or thimble underneath one of the holes through the beams *A A'*, I pass the bolt *E* through the beam and through the thimble *E'*. I now pass one end of a stud-axle, *e*, through the hole in the bolt, and fit it into the bearings in the thimble, and screw up the bolt on top of the beam by means of the nut and a washer, thus firmly clamping the thimble between the stud-axle and the under side of the beam, and at the same time, by means of the unequal depth of the bearings in the thimble, tilting the free end of the stud-axle a little upward, taking care, also, to incline the projecting end of the stud-axle forward at an acute angle with the line of draft.

The disk *D* is concavo-convex, and has a boss or hub, *d*, which secures a long bearing for the disk on the axle *e*, and which I prefer to close on the outer or free end, so as to prevent dirt from getting between the axle and the hub. This disk is slipped onto the axle *e* with the convex side toward its thimble, and presents a cutting-edge at an angle to the line of draft, while the inclination of the axle, already described, gives the disk an angle to the horizon, insuring a deeper cut, and a better digging and turning resistance against the tendency of the disks to rise up, than would be the case were the axle horizontal.

By the foregoing construction I secure the adjustability of the disks to any angle required, by simply adjusting the distance apart of the side beams *A A'*. I can also adjust each disk to any angle with the line of draft by loosening the bolt *E* and turning the thimble *E'* in the desired direction, the slot in the flange of the scraper permitting its correspondent adjustment.

To prevent the disks from being thrown or pulled off their axles, and to keep them from clogging by the accumulation of earth, I secure, on the under side of the beams *A A'*, in front of each of the disks *D*, a flanged scraper,

F, the edge of which bears at an angle against the concave side of the disk, so that, as the disk revolves, the scraper not only presses it constantly back toward the thimble, but also cleans off the earth.

By means of set-screws passing through the beams A A', and through a slot in the flange *f* on the scraper, I can adjust the scraper relatively to the disk.

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

1. The combination, in a harrow-cultivator, of a revolving disk with a hollow boss, closed at its inner end, substantially as and for the purposes set forth.
2. The combination, in a harrow-cultivator, of revolving disks, independently adjustable relatively to the line of draft, substantially as set forth.
3. The combination, with a harrow-cultivator frame, of a stud-axle, a thimble, and a clamping-bolt, substantially as set forth.
4. The combination, with a harrow-cultivator frame, of the recessed thimble, the clamping-bolt, and the stud-axle, as set forth, whereby the disk is carried at an angle both to the line of draft and to the horizon.
5. The combination, in a harrow-cultivator frame, of a revolving disk with a scraper,

which keeps the disk on its axle, substantially as set forth.

6. The combination, in a harrow-cultivator, of a loose disk, an adjustable axle, and an adjustable scraper, substantially as set forth.

7. The combination, in a harrow-cultivator, of revolving disks, arranged in two series or gangs, adjustable toward or from each other, substantially as set forth.

8. The combination, in a harrow-cultivator, of an adjustable triangular frame, a leading disk at the apex of the triangle, and a series of following disks on each side of the triangle, substantially as set forth.

9. The combination, in a harrow-cultivator, of an adjustable triangular frame, two series of revolving disks, and a seat for the driver, substantially as set forth.

10. The combination, in a harrow-cultivator frame, of a long arm, a short arm pivoted to the long arm, and the cross-pieces, admitting of the adjustment relatively to the line of draft, substantially as set forth.

In testimony whereof I have hereunto subscribed my name.

F. NISHWITZ.

Witnesses:

W. GRANDY,
HENRY GECKLER.