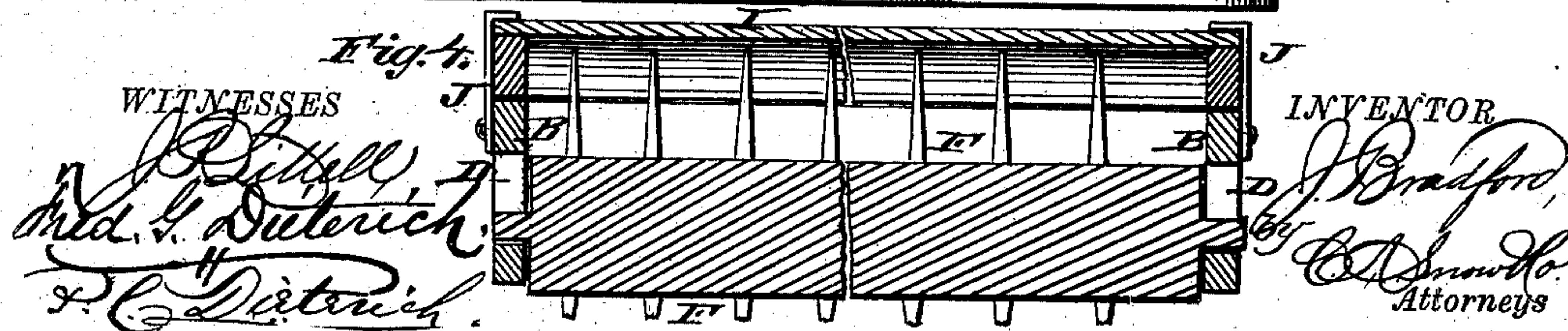
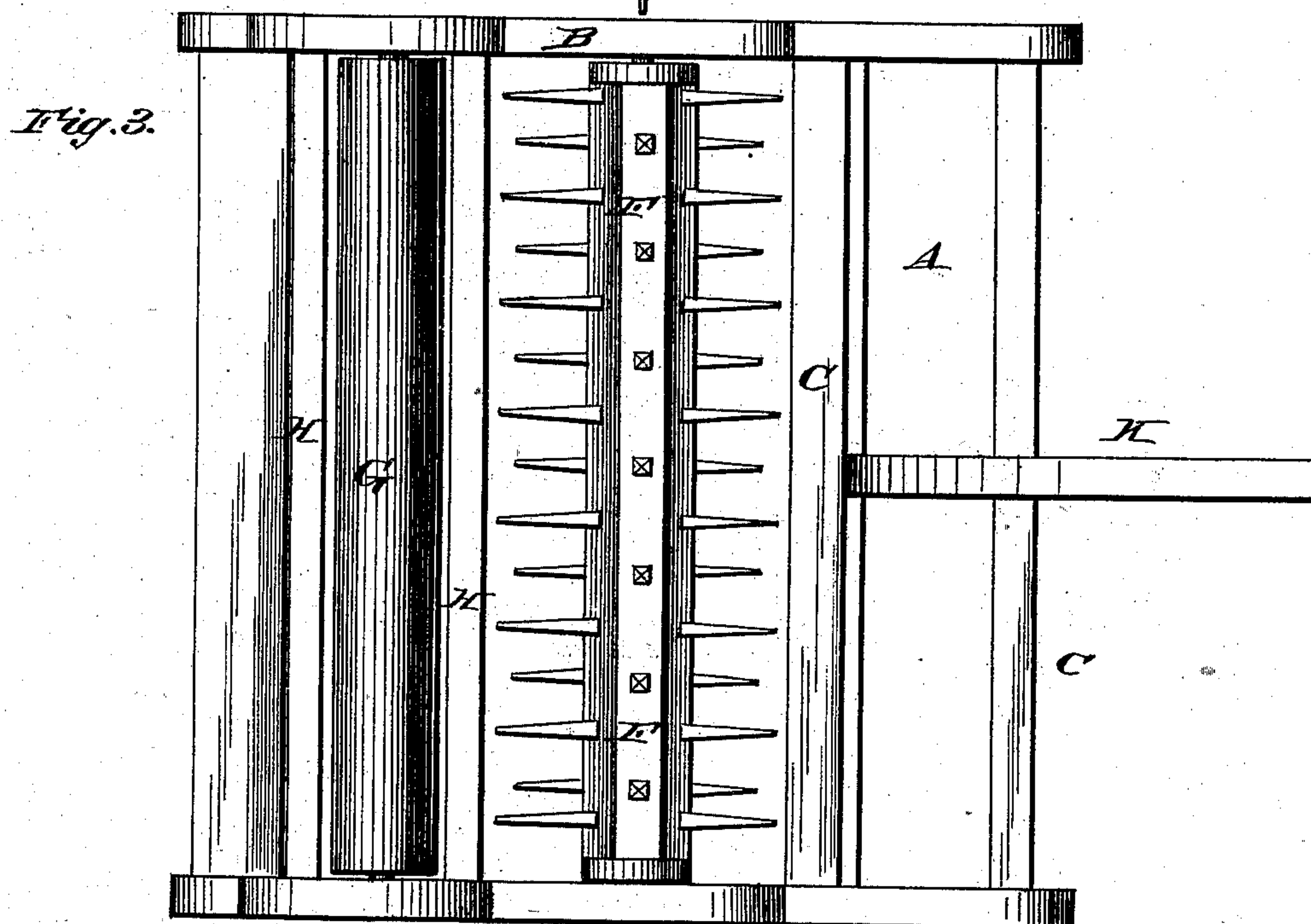
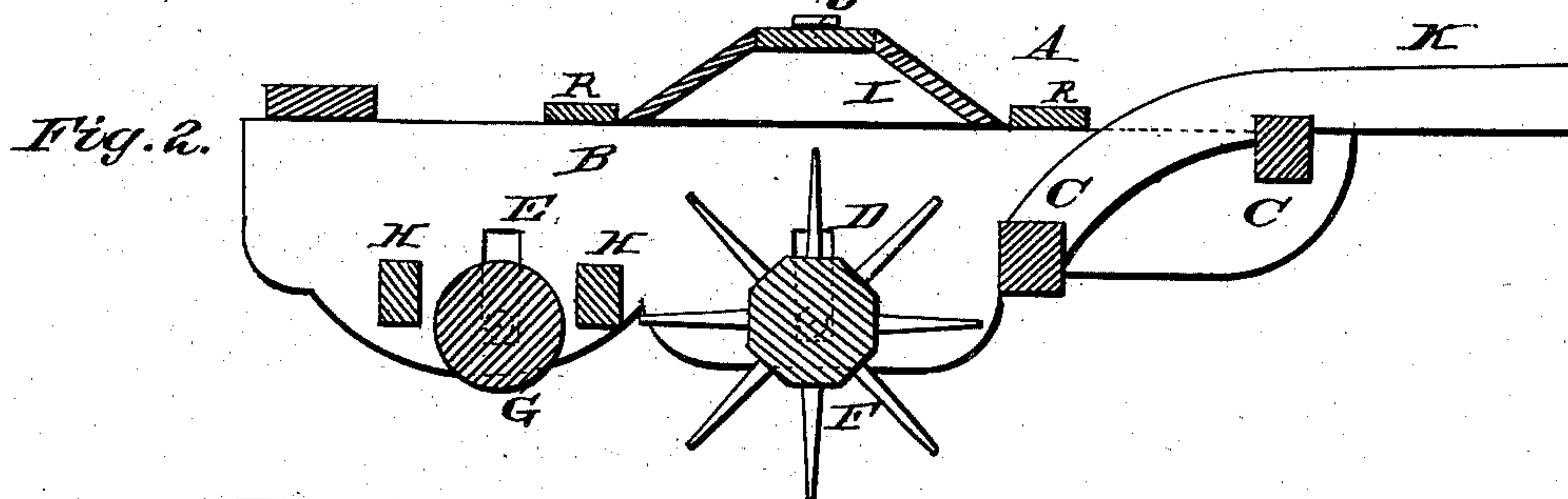
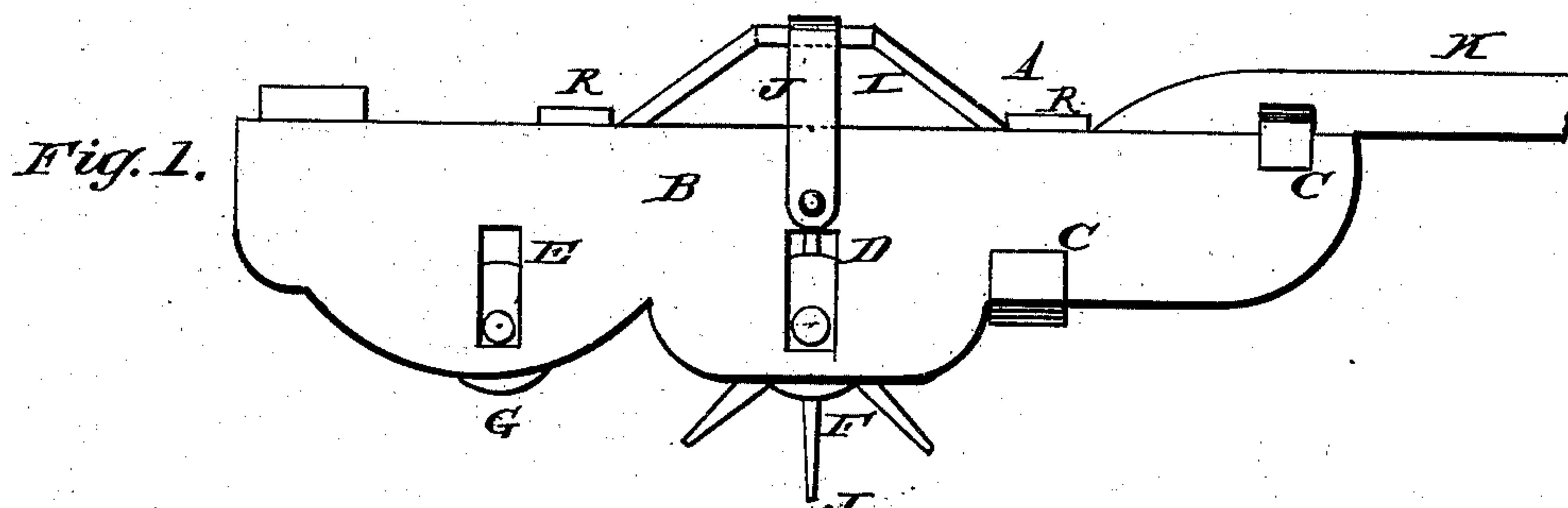


J. BRADFORD.
REVOLVING HARROW.

Patented May 16, 1882.



UNITED STATES PATENT OFFICE.

JOHN BRADFORD, OF NELSON, INDIANA.

REVOLVING HARROW.

SPECIFICATION forming part of Letters Patent No. 258,012, dated May 16, 1882.

Application filed January 17, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN BRADFORD, of Nelson, in the county of Vigo and State of Indiana, have invented certain new and useful Improvements in Revolving Harrows; 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, which form a part of this specification.

Figure 1 is a side view. Fig. 2 is a longitudinal vertical sectional view. Fig. 3 is a bottom plan, and Fig. 4 is a vertical transverse section.

Corresponding parts in the several figures are denoted by like letters of reference.

This invention relates to revolving harrows; and it consists in certain improvements in the construction of the same, which will be hereinafter fully described, and particularly pointed out in the claim.

In the drawings hereto annexed, A represents the frame of the machine, which consists of sides B B, connected by cross-bars or braces C. The sides B are provided with vertical slots D E, the front ones of which, D, form bearings for the shaft of the toothed cylinder F, which constitutes the revolving harrow and which serves to break the clods. In the slots E is mounted the shaft of a roller, G, which serves to grind or crush and to smooth the dirt.

H H are two crushing-bars, arranged respectively in front and in rear of the roller G, and connected rigidly to the sides of the frame. These crushing-bars assist in smoothing and leveling the soil.

Placed upon the frame A, just over the toothed cylinder F, is a cover, I, which is detachable, and which is held in place by means of spring-catches J, secured to the sides of the frame. The latter is provided with two cross-pieces or transverse bars, R R, between which the said cover I is fitted, so as to be held securely and without danger of displacement by the spring-catches J. The said cover may be

so constructed as to form a seat for the driver; or a separate and detachable seat may be attached to said cover.

The frame A is provided with a tongue, K, to which the horses may be hitched.

If desired, springs may be arranged in the slots D and E, above the shafts of the cylinder F and roller G, for the purpose of forcing said cylinder and roller in a downward direction. This, however, is not necessary or essential to the successful operation of my invention.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation of my invention will be easily understood. The toothed cylinder will break the clods, and the bars H and roller G will serve to crush and pulverize and to level the soil. The cylinder F and roller G, being capable of moving in a vertical plane, will adapt themselves to any unevenness of the land, and will cause the bars H to be always in operation; and for the same reason weeds and roots are prevented from being entangled with and choking the machine.

I am aware that rollers and toothed cylinders have been made adjustable in the frames of this class of devices prior to my invention either by forming separate bearings for the shafts or by vertical slots in the sides of the frame. Such arrangement, therefore, I do not broadly claim; but,

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

As an improvement in revolving harrows, the combination, with the frame A, having sides B, provided with vertical slots D E, of the toothed cylinder F and the roller G, mounted in said slots, and the rigid crushing-bars H H, arranged respectively in front and in rear of said roller G, substantially as set forth.

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

JOHN BRADFORD.

Witnesses:

THOMAS A. FOLEY,
SAMUEL R. HAMILL.