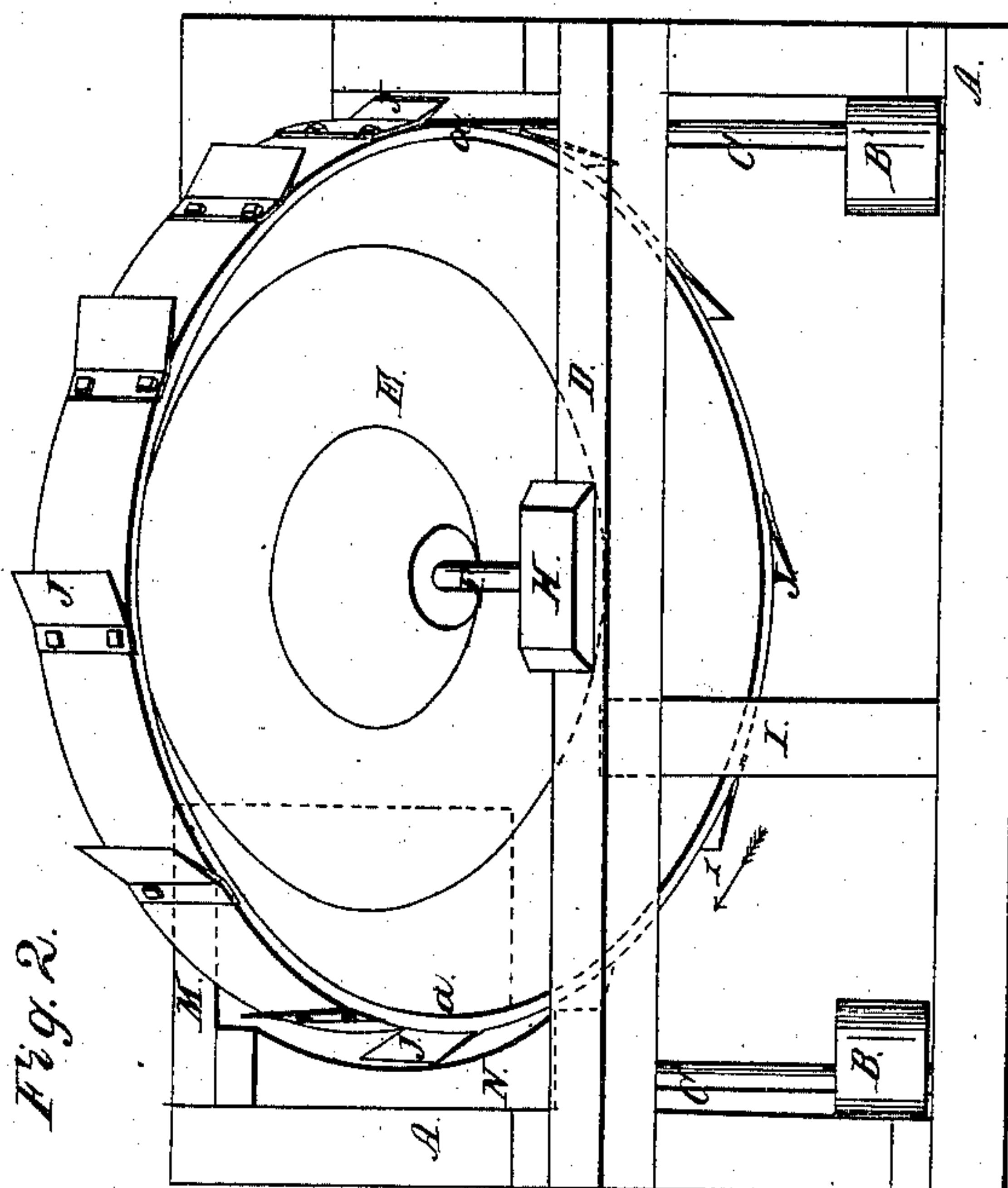
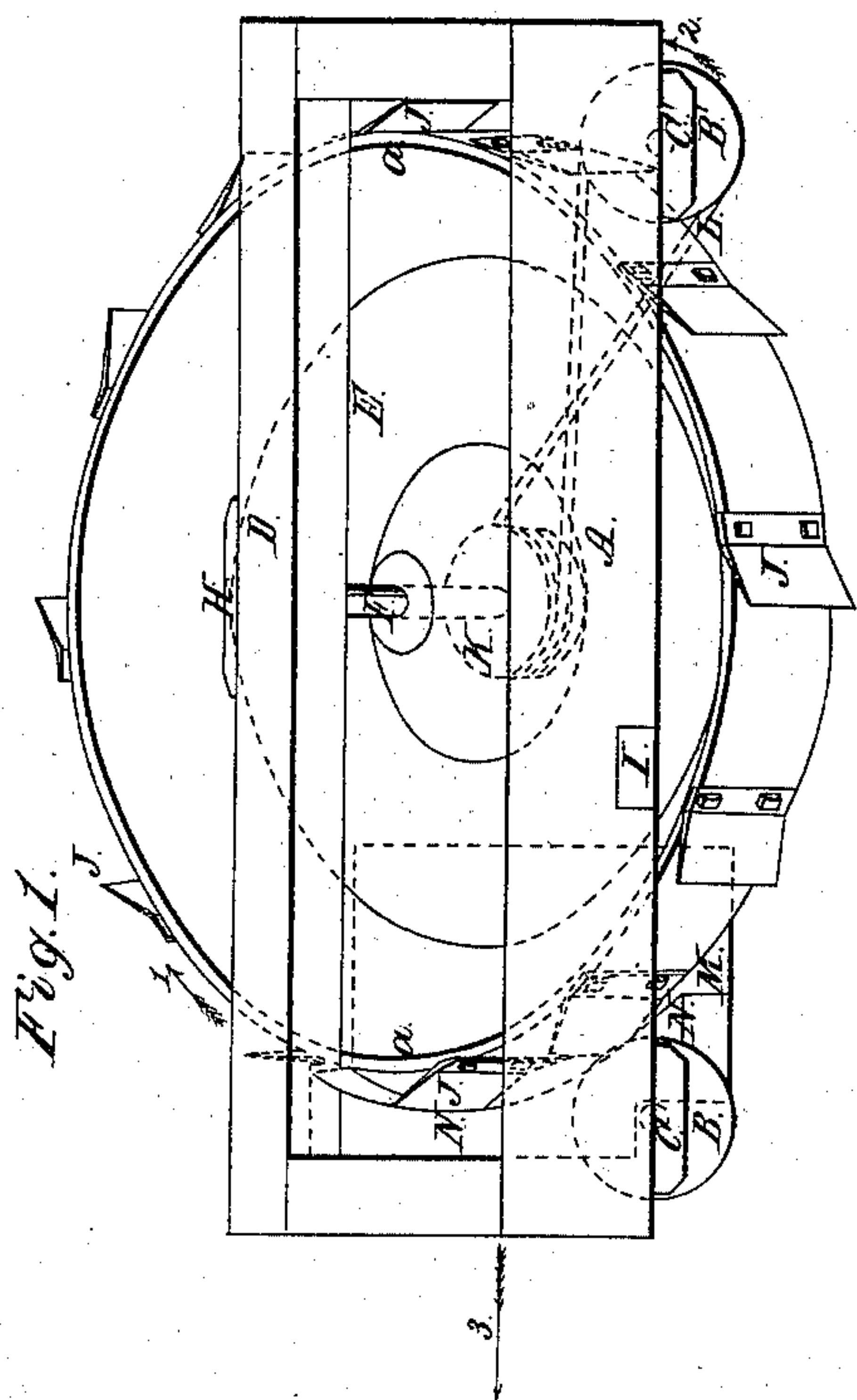
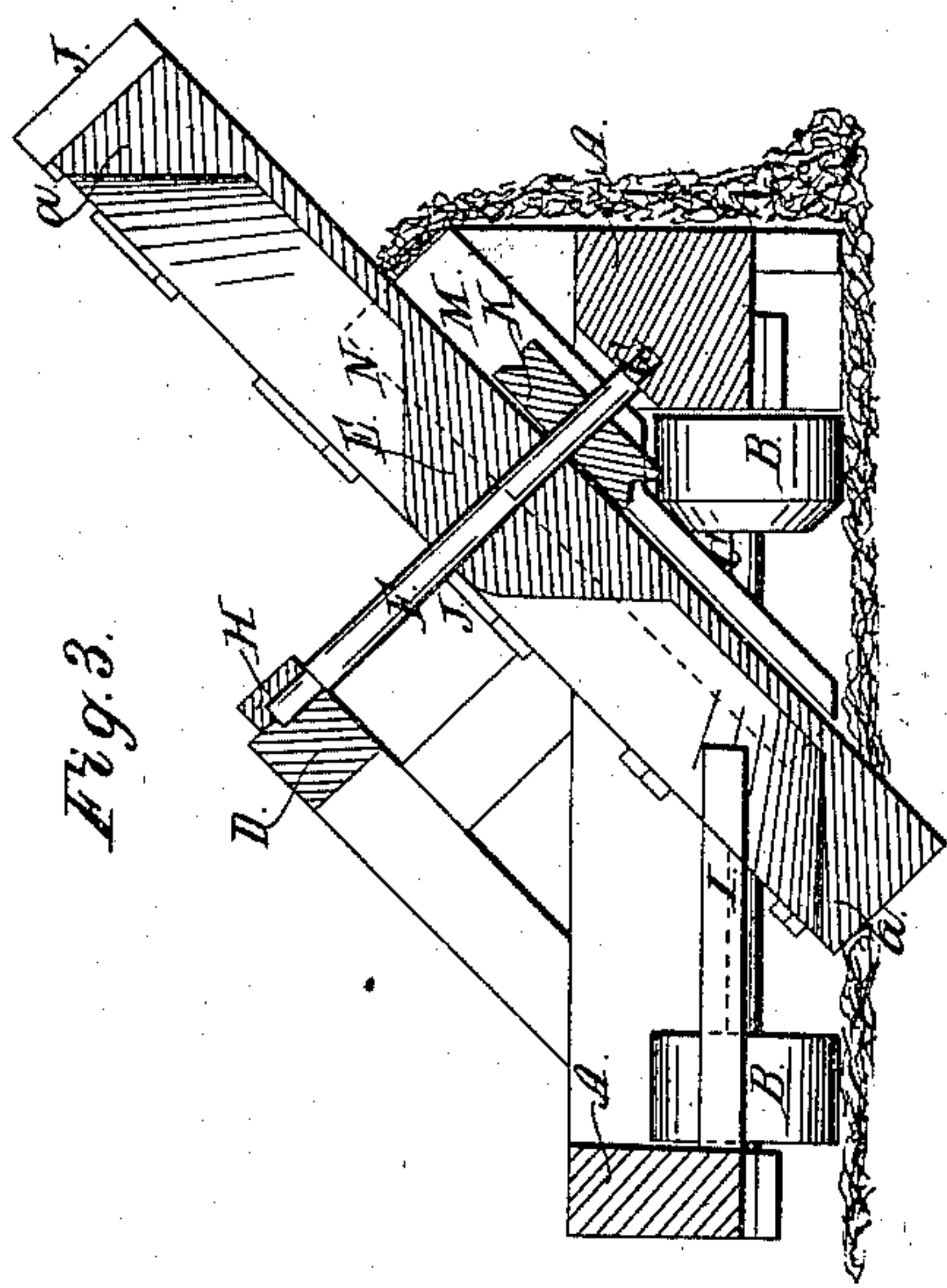


C. BISHOP.
EXCAVATING MACHINE.

No. 8,836.

Patented Mar. 30, 1852.



UNITED STATES PATENT OFFICE.

CHARLES BISHOP, OF NORWALK, OHIO.

EXCAVATING-MACHINE.

Specification of Letters Patent No. 8,836, dated March 30, 1852.

To all whom it may concern:

Be it known that I, CHARLES BISHOP, of Norwalk, in the county of Huron and State of Ohio, have invented certain new and useful Improvements in Ditching-Machines, and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of a machine in which my improvements are embodied. Fig. 2, is a plan or top view of the same. Fig. 3, is a transverse vertical section of the same.

Similar letters of reference indicate corresponding parts in each of the several figures.

This invention consists in the employment of an inclined cutter wheel so constructed that it serves also as a horse walk, by which means the power is applied directly to the wheel itself without the intervention of other mechanism.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A, is a strong framing of timber of quadrangular form supported upon two pairs of rollers B, B, and B', B' which are hung on axles C, C', running in suitable boxes under the frame. Above the frame A, a strong timber D, is supported upon suitable standards, for the purpose of forming the support for the upper bearing of the excavator wheel shaft.

E, is the excavator wheel, whose periphery is of cylindrical form; it may be constructed of timber or metal and is secured upon a shaft F, which is supported in a position at an angle of 45° to the horizon in bearings G, H. The bearing G, which is a step, is in one of the side timbers of the main frame, which is of extra strength; and the bearing H, is secured upon the timber D. The upper face of the excavator wheel is hollowed out to form a rim *a, a*, whose inner surface is at an angle of 45° to the axis, and consequently the lowest part of it must be horizontal, (see Figs. 1 and 3). This inner surface of the rim forms the horse-walk; the horse being connected to a bar I, secured to the frame.

J, J, are the excavating cutters which have straight edges, and may be either straight or curved from the edge to the

stock or part attached to the wheel. They are represented in the drawing as being straight. The edges of the cutters are parallel to the periphery of the wheel, and to the axis of the shaft, and perpendicular to the plane of revolution.

K, is the propelling pulley which is secured upon the shaft F, close under the excavating wheel, and L, is a band, leading from the said pulley around one of the hind rollers B, B', which are the driving rollers.

The trough for discharging the dirt is formed by a flat boarding secured to the frame A, in front of its shaft, and lying close to the under side of the excavator wheel, but not quite touching it, so as to allow it to clear without friction. This boarding extends from the ground, (see Figs. 1 and 3) to a considerable distance higher than the center of the wheel, and stands out in front of the wheel. Upon that part of M, in front of the wheel is secured a curb N, composed of one or more pieces of wood which stand up from M, and present a face, toward the periphery of the cutter wheel, of the form of an arc described from the center of the said wheel, so that the edges of the cutters will almost scrape it in their revolution. The rectangular recess formed by the union of M, and N, constitutes the trough.

The operation is as follows: The animal stands on the walk inside the rim of the wheel, with his head toward the back of the machine, and is attached to the bar I. When he commences walking, the wheel will be caused, by his weight, to rotate in the direction of the arrow 1 (see Figs. 1 and 2) and the cutters will cut into the earth and scoop it up, and carry it up the spout M, N, over the top of which it is discharged, and falls to the ground as indicated in Fig. 3, forming a bank with one vertical and one inclined side. The band L, from the pulley K, gives motion to the driving rollers B', B', and their axle C, in the direction of the arrow 2, (see Fig. 1) and propels the machine in the direction of the arrow 3, (Fig. 1). The combined operation of the wheel, and the movement of the machine forward, cut the ditch, in the form, in its transverse section, of a triangle, the two sides representing the letter V.

This machine possesses many advantages. First, it cuts the ditch in the form universally acknowledged to be the best, at one

operation; second, the inclination of the wheel allows the dirt to be discharged up a spout, without the aid of any mechanism, while the perpendicular wheel will not discharge it without additional machinery. 5 Third, this excavator wheel has the power of the animal applied directly to it without any mechanism, whereby the construction of the machine is, to an immense extent, 10 simplified.

I do not claim inclining the cutter cylinder. Neither do I claim placing the horses within or upon ditching machines for the purpose of working them; but

What I claim and desire to secure by Letters Patent is, 15

So constructing the inclined wheel or cutting cylinder E, that it is made also to serve the purpose of horse-walk, by which means the power of the horse is applied directly 20 to the cylinder itself without the intervention of other mechanism substantially as herein described.

CHARLES BISHOP.

Witnesses:

A. G. SUTTON,
T. R. STRONG.