

J. TROXEL.
Universal Joints.

No. 137,578.

Patented April 8, 1873.

Fig. 1.

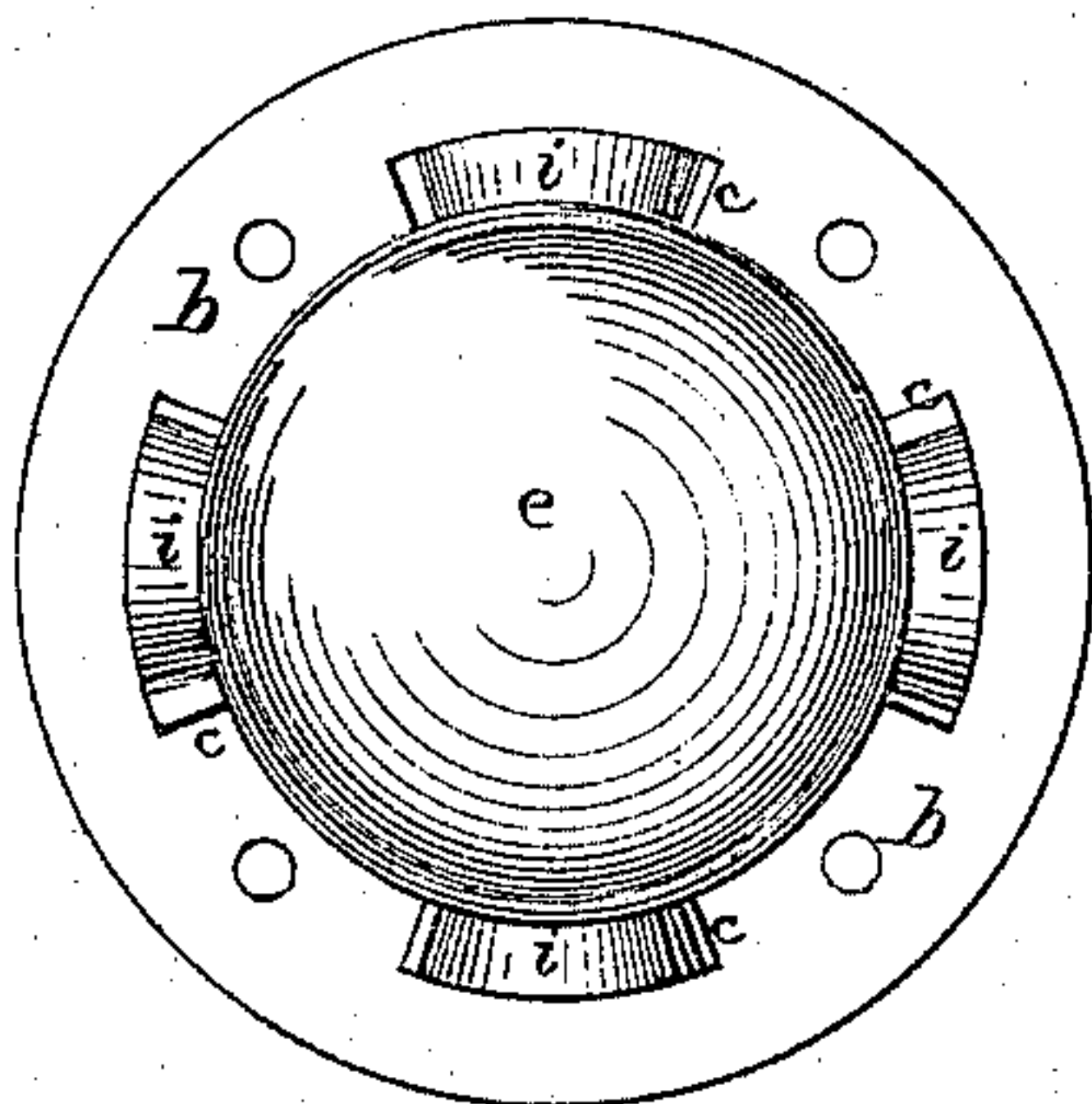


Fig. 2.

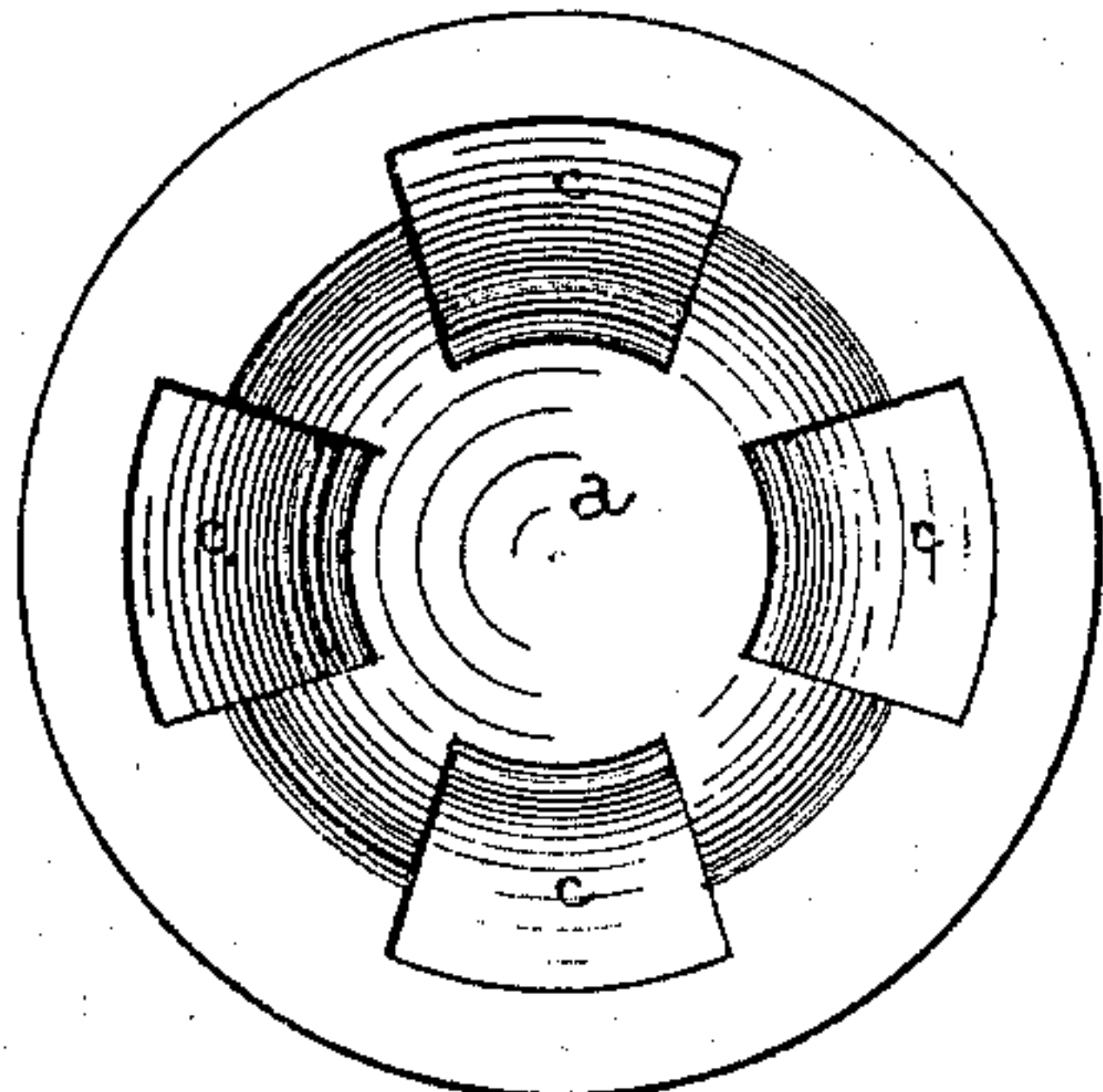
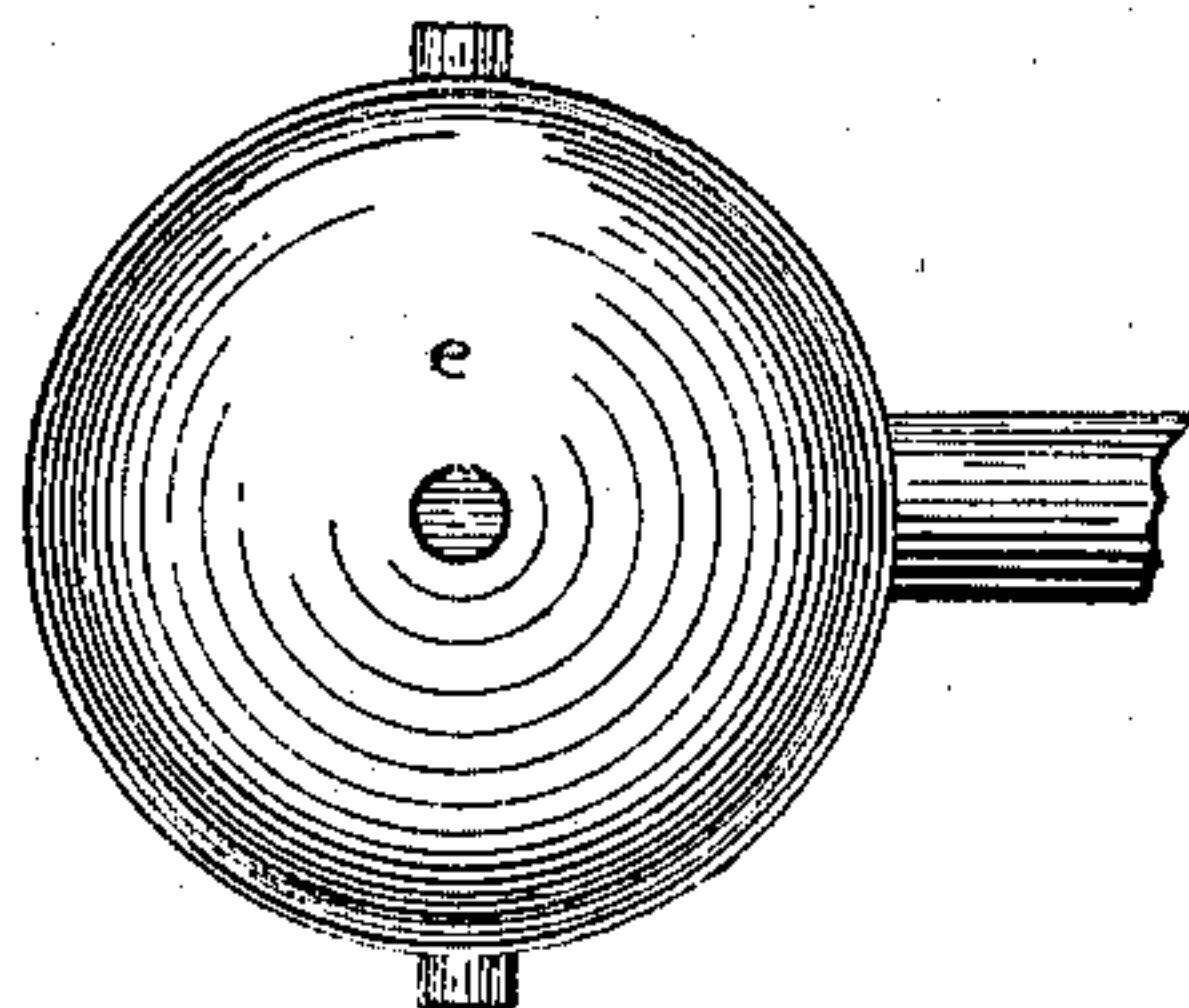


Fig. 3.



WITNESSES.

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UNITED STATES PATENT OFFICE.

JOHN TROXEL, OF NANKIN, OHIO.

IMPROVEMENT IN UNIVERSAL JOINTS.

Specification forming part of Letters Patent No. **137,578**, dated April 8, 1873; application filed March 10, 1873.

To all whom it may concern:

Be it known that I, JNO. TROXEL, of Nankin, county of Ashland and State of Ohio, have invented certain new and useful Improvements in Universal Joints, of which the following is a specification:

The nature of my invention relates to the construction of a universal joint for machines of all kinds; and consists in a hollow shell made in two parts, and provided with suitable grooves internally in which a ball having a number of suitable projections secured to its surface has a limited movement, allowing the shaft to which it is attached to change the angle at which it works, as will be more fully set forth hereafter.

Figure 1 represents a plan view of one half of the shell holding the ball-joint. Fig. 2 is a plan view of the other half of the shell, showing the grooves. Fig. 3 is a side elevation of ball.

a b represent the two halves of the shell, each of which has a number of grooves, *c*, cut on its inside. One part of the shafting is rigidly secured to the half *a*, while the other part has a ball, *e*, secured to its end, and which is held between the two halves of the shell, the shaft passing through the side of the half

b. Projecting from the sides of the ball are a number of pivots, corresponding to the number of grooves *c*, upon which are placed the friction-rollers *i*, or square concavo-convex pieces, and which work back and forth in the grooves *c* as the shaft is turned in any direction from a straight line. These projections on the ball serve to communicate the motion of one shaft to the other, while the friction-rollers, or their equivalents, prevent wear and tear upon them, and at the same time make them move more easily.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The ball *e*, provided with projections and rollers, or their equivalents, substantially as set forth.

2. The internally-grooved shell *a b*, in combination with the ball and its projections, substantially as shown and described.

In testimony that I claim the foregoing as my invention I hereunto affix my signature this 5th day of March, 1873.

JOHN TROXEL.

Witnesses:

P. H. CLARK,
ROBT. McMURRAY.