Corbit, Orput & Case.

Churn.

No. 77,172. Patented Apr. 28, 1868.

Fig. 1.

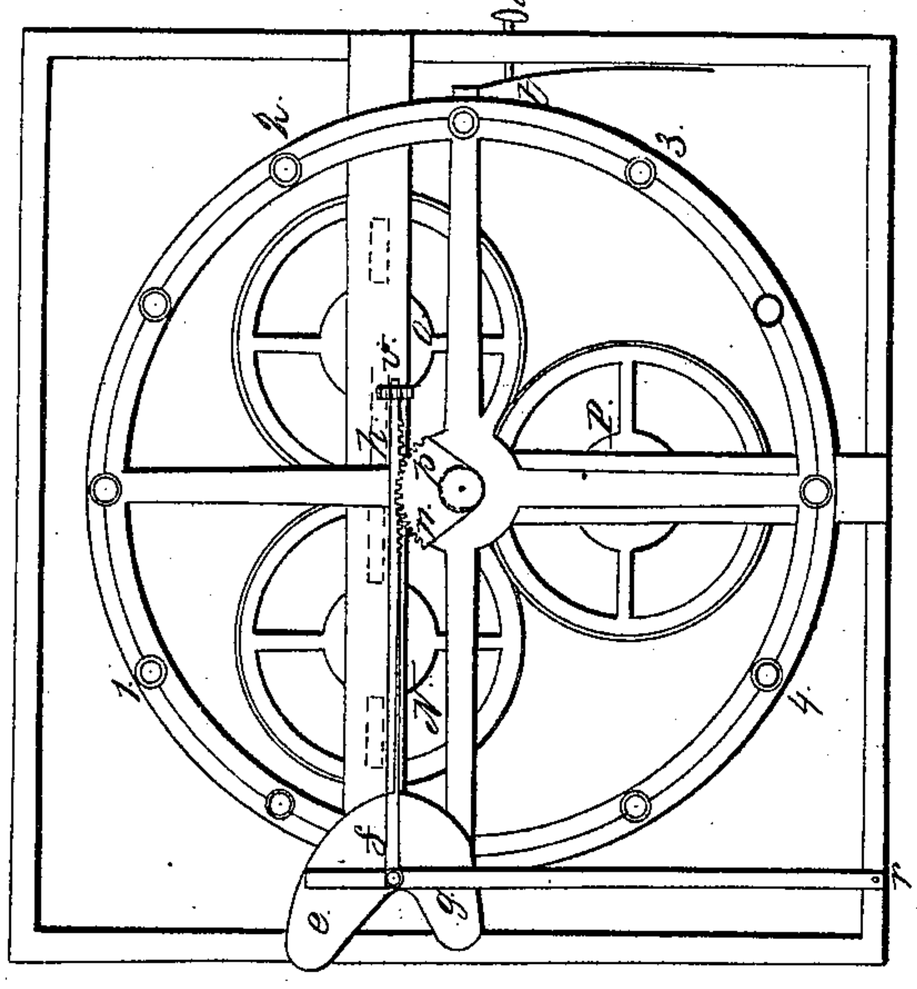

Fig. 2.

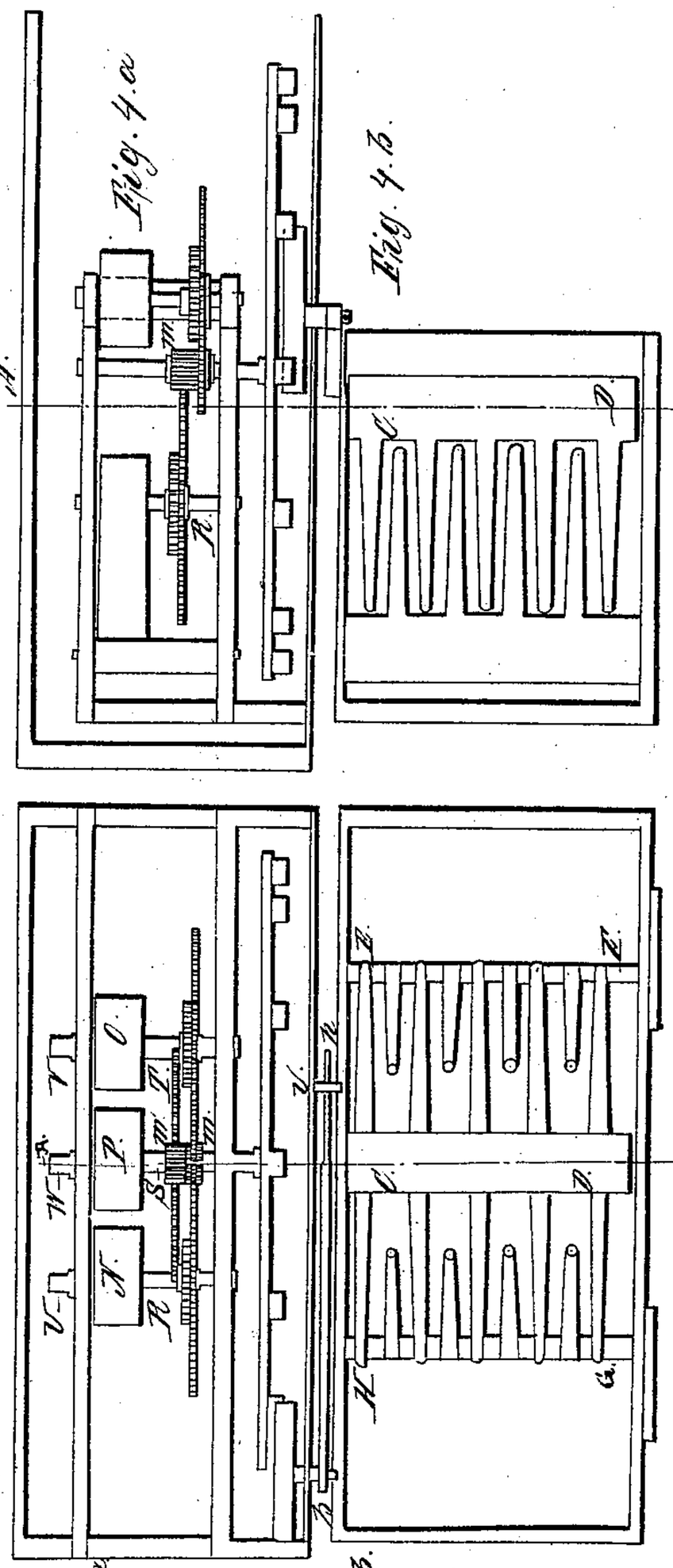

Fig. 2.a.

Fig. 2.b.

Fig. 3.

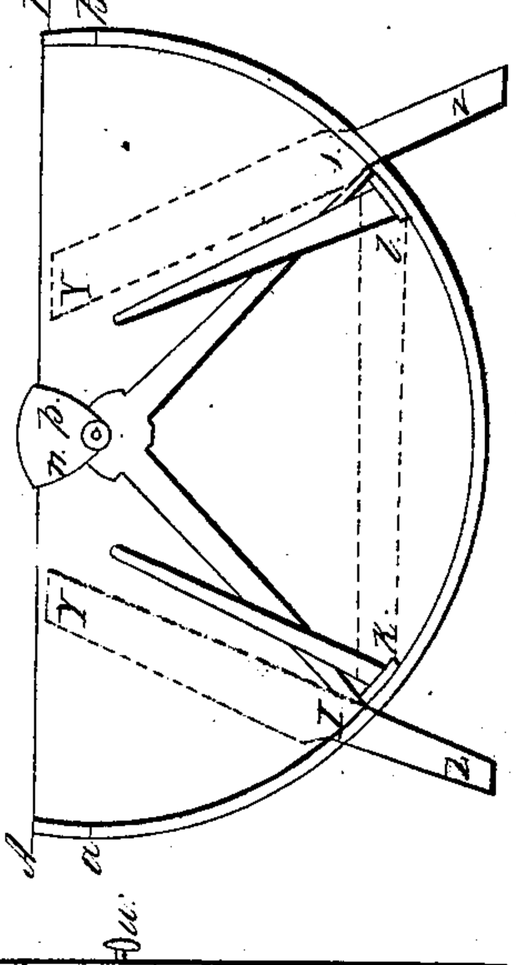

Fig. 4.

Fig. 4.a.

Fig. 4.b.

Fig. 5.

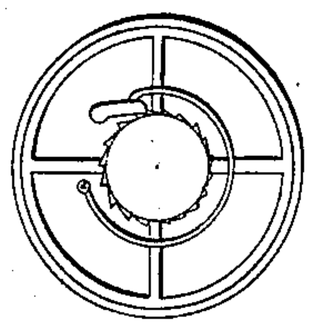

Fig. 6.

Witnesses:
John D Earl
Richard Roberts

Inventors:
George W Corbit
James M Orput
Geo Case

United States Patent Office.

GEORGE W. CORBIT, JAMES M. ORPUT, AND GEORGE M. CASE, OF MALTA, ILLINOIS.

Letters Patent No. 77,172, *dated April* 28, 1868.

IMPROVEMENT IN CHURNS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, GEORGE W. CORBIT, JAMES M. ORPUT, and GEORGE M. CASE, all of Malta, county of De Kalb, and State of Illinois, have invented certain new and useful improvements in the method of changing the rotary motion produced by spiral springs into a reciprocating motion, and in applying the same to Churns; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, forming a part of this specification, in which—

Figure 1 is a vertical section through the back part of the machine, showing the springs and other clock-work by which the churn is driven.

Figure 2 is a plan of the churn, or a horizontal section, showing the inside of the churn proper, and also the clock-work.

Figure 3 is a vertical section through the body of the churn, from side to side.

Figure 4 is a vertical section through the whole churn and clock-work, from front to rear.

Figure 5 is one of the cog-wheels, with its ratchet-wheel attached, belonging to the clock-work.

Figure 6 represents one of the springs that move the works.

Figure 7 represents the cam *e f g*, fig. 1, with the groove in which the rollers on the large wheel 1 2 3 4 are made to slide.

The object of our invention is to save the manual labor now required, when churning in the ordinary way, by providing a simple automatic machine, to be attached to the churn, or made a part of it, by which the dasher of the churn may be kept in motion; and also to furnish a churn better adapted for use in connection with such a machine than those now employed.

To enable others skilled in the art to make and use our invention, we will now describe its construction and operation.

The body of the churn is of a semi-cylindrical form, as shown in fig. 2^b and in fig. 3. In fig. 2^b we have shown the length and width, and, in fig. 3, the length and depth of the churn. A wooden bar, C D, figs. 2^b, and 4^b, turns on journals, in bearings made in the two sides of the churn. The bearing in the outer side, towards D, is simply a round hole of the proper size for the journal to turn in. The bearing on the inner side, at C, is in a narrow cut or opening, extending quite to the top of the churn, so that this bar C D, with the other parts attached to it, may be readily removed for the purpose of cleaning the churn. Projecting from the bar C D, at right angles to each other, are two sets of teeth, very similar to the teeth of a common hay-rake, but made tapering, as shown in the drawings. When the bar C D is put in motion, as hereafter shown, these two sets of teeth are made to fly back and forth between two other sets of teeth that are attached to a frame set in the bottom of the churn, as shown in figs 2, 3, and 4. In fig. 2^b we have these two sets of teeth pointing upwards, and towards the bar C D, as they would look when seen from above. In fig. 3, their exact position, or that of one tooth in each set, is clearly shown. The teeth attached to the vibrating-bar C D, it will be seen, pass between the teeth set in the frame. This frame is made simply by connecting the two bars E F and H G, fig. 2^b, by two thin strips of metal, indicated by the dotted lines I, J K L, in fig. 3, giving the shape and position of one of these strips, the other occupying a corresponding position on the other side of the churn. This frame, with its teeth attached, can easily be slipped out of the churn, after removing the bar C D, and the cover of the churn.

The sides of the churn are of wood; the bottom, A M B, fig. 3, is of zinc, with a border or frame of wood, at A *a* and B *b*. Other materials may, of course, be used, if desired. At the bottom of the outer straight side of the churn there is a small opening for drawing off the buttermilk, stopped with an ordinary wooden plug. Two of the legs are shown at Y Z, fig. 3.

We come now to describe the machinery by which the churn is driven.

N O P, figs. 1 and 2^a represent three spiral springs, wound about the axes R S T, fig. 2^a. They are wound up in the usual manner, with a key fitted to the square ends U W V, fig. 2^a. The back of the churn

may open for this purpose on hinges, or key-holes may be made in it, as may be preferred. One of these spiral springs is shown fully at fig. 6, with the peg or bolt X, to which one end is attached.

Connected with these springs in the usual way are three ratchet-wheels and cog-wheels attached, one for each spring. One of these ratchet-wheels, with its cog-wheel, is shown in fig. 5. The teeth or cogs are not there shown, however, but are indicated, though imperfectly in fig. 2ª.

Between these three cog-wheels is a fourth cog-wheel or pinion, *m*, figs. 2ª and 4ª, which is driven by them, and which itself in turn gives motion to the shaft supporting the large wheel, 1 2 3 4, fig. 1.

On the circumference of this wheel are placed a number of small wheels or rollers, as shown in the drawing, and, as the large wheel revolves, these rollers, each in turn, pass through the groove *e f g* in the cam, shown in its proper place in fig. 1, and again alone in fig. 7, causing it to fly back and forth with great velocity, and thus to give motion to the horizontal bar *b h*, figs. 1 and 2, which, by meane of the cogs or teeth cut in its lower side, is made to work the fan-shaped cam, *n p*, figs. 1 and 3, and thus drive the bar C D, to the journal of which the cam is attached.

The cam *e f g* is supported on the rod *g r*, fig. 1, which rocks on a pivot at its lower end.

At *t*, fig. 1, is a brake, attached by a spring to the side of the frame supporting the clock-work. This brake, on being forced against the surface of the large wheel by the set-screw *w*, will either check its speed or stop it altogether, as may be desired.

The clock-work is enclosed in a wooden case, not unlike an ordinary clock-case, but of simpler construction, and having doors opening both in front and rear.

The bar *b h*, figs. 1 and 2, is placed just on the outside of the door, next the churn, and is supported at one end in a socket or bearing, *v*, figs. 1 and 2, attached to the door.

As at the commencement of the churning less force is required than later in the operation, the two springs N O, figs. 1 and 2, are all that need to be used at first. After the butter has begun to come, the third wheel and spring P may also be brought into play.

In order to effect this, the pinion *m*, fig. 2ª, is made in two parts, as shown in the drawing, one being designated as *m*, the other as *m'*. *m* is firmly attached to the axis S, but *m'* is made to slide freely upon it. By means of a set-screw working in the frame, above the axis W, fig. 2ª, and opposite the point marked * in fig. 1, this pinion *m'* can be moved out and in on the axis. When moved into the position shown in fig. 2, the pinion takes hold of the cog-wheel P, and at the same time catches into the pinion *m*, by means of projections on the side or end of one fitting into openings in the end of the other. The two pinions thus become one, and are both driven by all the wheels. By turning the set-screw in the opposite direction, the pinion *m'* is unlocked both from the wheel P and the pinion *m*.

Having thus described the various parts, what we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination of the cam *e f g*, bar *f h*, and wheel 1 2 3 4, substantially as described.

2. The method of connecting and detaching the cog-wheel P with the other parts by the device substantially as described.

3. The combination of the cam *e f g* and wheel 1 2 3 4, substantially as described.

GEORGE W. CORBIT,
JAMES M. ORPUT,
GEORGE M. CASE.

Witnesses:
JOHN T. EARL,
RICHARD ROBERTS.