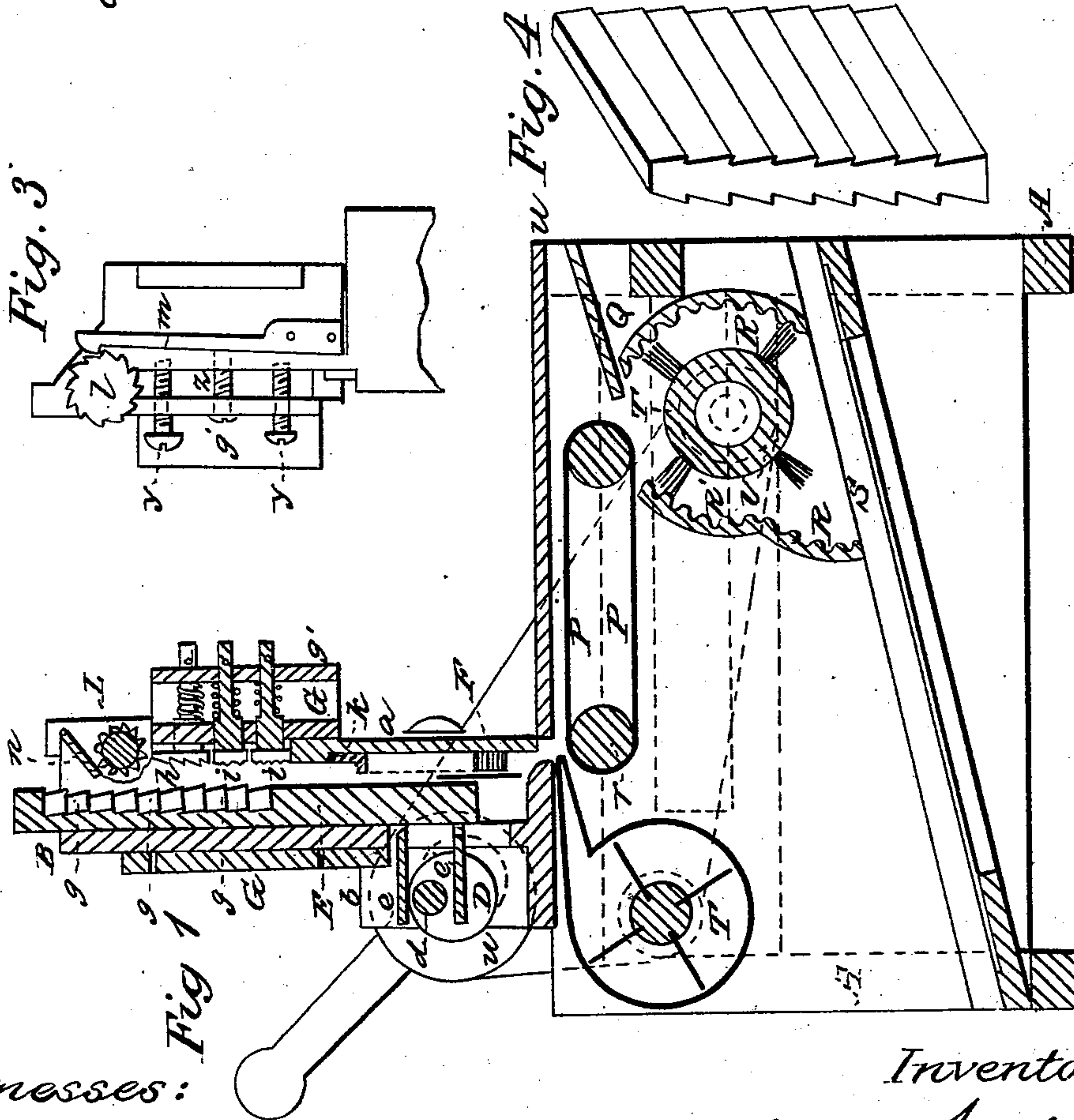
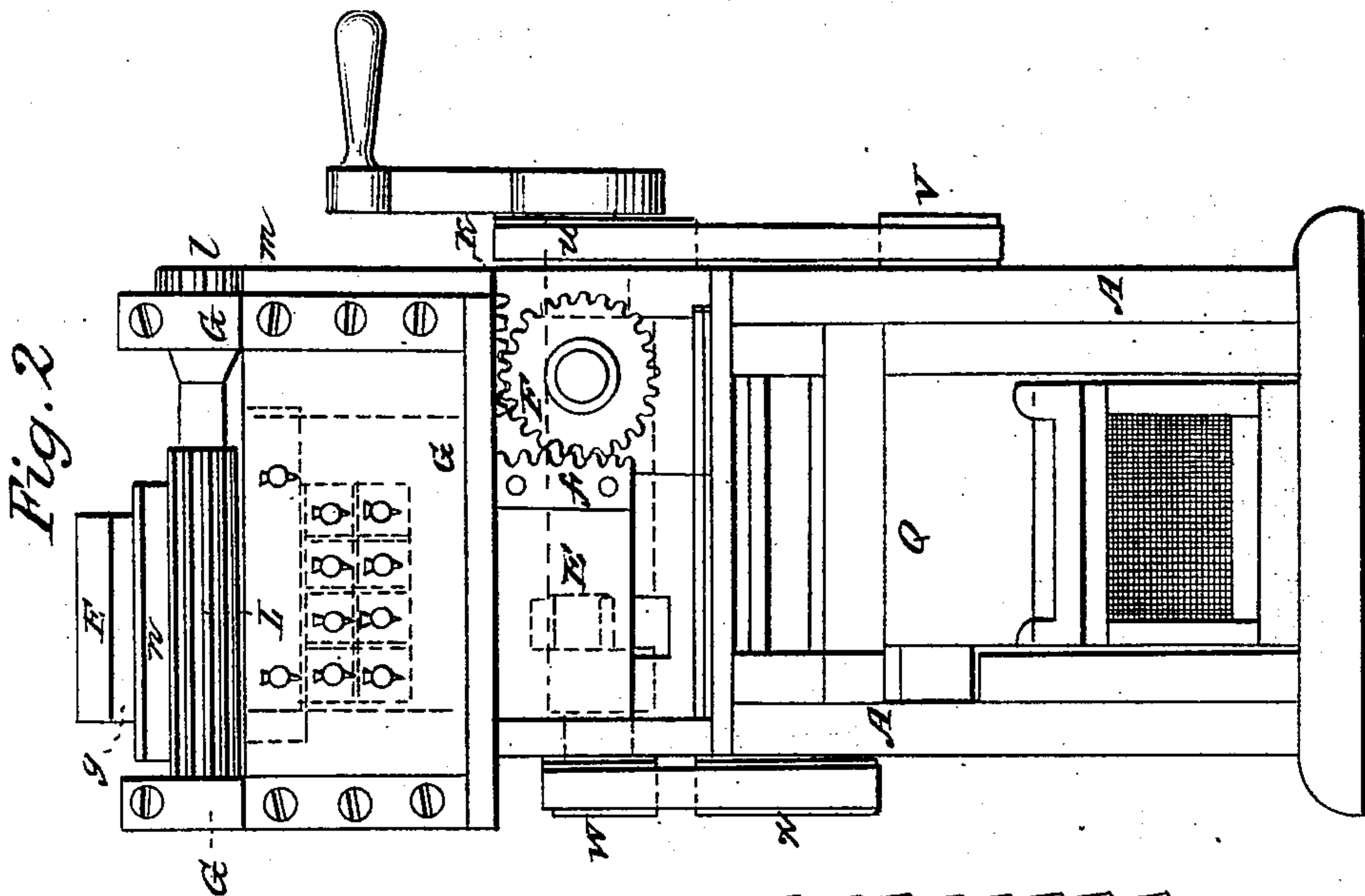


C. JORDAN.

Rice Cleaner.

No. 96,439.

Patented Nov. 2, 1869.



Witnesses:

M. S. G. Wilde.
Austin S. Spawth

Inventor:

Charles Jordan by
Carroll P. Wright

United States Patent Office.

CHARLES JORDAN, OF EAST BRIDGEWATER, MASSACHUSETTS.

Letters Patent No. 96,439, dated November 2, 1869.

IMPROVEMENT IN HULLING-MACHINES.

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

To all whom it may concern:

Be it known that I, CHARLES JORDAN, of East Bridgewater, in the county of Plymouth, and State of Massachusetts, have invented a new and useful Machine for Hulling, Cleansing, Polishing, and Sifting Berries, as coffee, rice, grains, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of the machine embodying my invention.

Figure 2 is an end view of the same, with vertical cover-plate removed.

Figure 3 is a detailed view.

Figure 4 is a modification of the hulling steel ratchet-plate.

The same letters refer to the same parts in the different figures.

The object of my invention is to produce a berry-hulling, cleansing, and polishing machine, combining these three distinct operations in one machine; further, in constructing a durable and strong hulling-plate, which will wear well, and not be subjected to the objections heretofore made against this difficult part of machines of this kind, and which, in combination with other parts, effectually removes the hull from the berry, without breaking the latter.

My machine consists in the peculiar construction of the hulling-plate, which may be made as a cast plate, corrugated upon its face, or reversible, that is, corrugated upon both its faces; or, as an equivalent construction, by square steel bars set into the bed-plate, so that one edge of a bar projects beyond that of the succeeding one, said plate having a vertical reciprocating motion; and in a series of elastic plates, which, with their corrugated or diamond-cut steel faces, being opposite to the hulling-plate, and being firmly secured to a frame, receives a horizontal reciprocating motion, thus rolling and rubbing the berries between the hulling-plates, but, by means of the elasticity of the latter, preventing breaking the same, and still frees the berries completely from the hull or chaff.

Referring to the drawings—

A is a frame of the machine, with closed sides and top, and open ends. At the rear portion of it is placed an upright frame or box, B, provided with three sides, and the front only partially covered by the board a.

At the rear of box B are two stands, b b, which support the shaft D, with crank d. The latter acts upon two studs or arms e e, which latter, being firmly secured to the hulling-plate E, cause the latter, by the rotation of crank d, to receive a reciprocating vertical motion in box B.

To one side of hulling-plate E is attached the rack f, which, operating on pinion F, communicates to the latter a vibrating motion.

Opposite the steel bars g g g of hulling-plate are an elastic serrated steel plate, k, and a series of elastic pads, i i i, the faces of which are either serrated, corrugated, or diamond-cut, turned toward bars g g g, and attached to a movable frame, G, in such a manner that they are held to frame G, by means of spring-bolts, which make the pads yielding and elastic.

At the under edge of frame G is firmly attached the rack K, meshing also into pinion F, and, therefore, receiving a reciprocating horizontal motion, by the oscillation of said pinion F.

The spring-bolts are held to frame G by cap g, which is provided with set-screws y y, and held by screw z, for the purpose of adjusting for the different-sized berries.

Above elastic plate k, and also secured to frame G, is the corrugated roller L, moving with the frame, and being provided at one end with a ratchet-wheel, l, and spring-catch m. The purpose of this roller is, that if any large berry or hard material should pass between the hulling-bars g g and roller L, the latter will be rotated, thus acting as a feed-roller, and preventing clogging of the berries. The spring-catch m prevents too free a motion of roller L.

The apron n guides the berries from a hopper into the box B.

Underneath box B, and close to the aperture o, is the mouth of fan-blower O and the endless band P, which carries the berries to the polisher Q, at the forward portion of the frame A.

The polisher Q consists of the cylinder p, the surface of which is provided with a number of stiff brushes, which sweep against the corrugation of cylindrical shells R R.

Underneath the polisher is the sieve S, placed at such an inclination as to allow the now cleaned berries to pass to the rear, to a vessel provided for their reception.

On one end of shaft D are pulley U, and hand-crank or driving-pulley, for imparting motion to the movable parts of the machine from pulley U.

The belt passes around pulley T, on fan-blower shaft, to pulley V of polisher, and back again to pulley U, thus connecting and moving these three pulleys by one belt.

At the other end of shaft D is attached a pulley, W, which imparts motion, by means of a belt-pulley, X, on roller r, to endless band P.

The operation is as follows:

After setting the machine in motion, the berries will enter above apron n, and drop between the bars g g g, roller L, pads h i i, where they receive a thorough scrubbing and working, the hulls being completely separated from the kernel, and both drop down through the orifice o. At that point a strong current of air, issuing from the fan, will blow the light

chaff above and along endless belt P, and out of the aperture *u* at the end of the machine, whilst the body will drop upon the belt or apron P, to be carried to the polisher, where it is rubbed and cleaned by the brushes, rotating within the cylindrical casing. From there the berries pass upon the sieve, the dusty, small, or broken particles falling through the same, and the now cleaned berry is carried alone into a proper bag, ready for shipping.

It will be seen that the double reciprocating motion is accomplished by the simple application of crank *d*, racks *f* and *K*, and pinion *F*.

Into the hulling-plate, as shown in the drawings, is inserted a series of square, hardened-steel bars, in such a manner, that when the edges should become dull, the bars may be turned and another edge presented for action; but I do not confine myself to the bars, as a steel plate, formed as shown in fig. 4, and reversible, so that the two faces can come in action respectively, will answer the same purpose.

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

1. The combination of the yielding pads and bars *i i h* with the vertically-reciprocating hulling-plate *E*, eccentric pin, *d*, and arms *e e'*, when said parts are constructed and arranged as described.

2. The reversible hulling-plate, shown in fig. 4, when constructed in the manner and for the purpose set forth.

3. The square steel bars *g g*, set into the bed of plate *E*, and placed one above the other, in combination with vertically-reciprocating plate *E*, when constructed and arranged substantially as set forth.

4. The reciprocating frame *G*, provided with adjustable cap *g'*, in combination with the yielding pads and bars *i i h*, eccentric *d*, and arms *e e'*, when said parts are constructed and arranged as shown and described.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

CHARLES JORDAN.

Witnesses:

CARROLL D. WRIGHT,
AUSTIN S. HOWARTH.