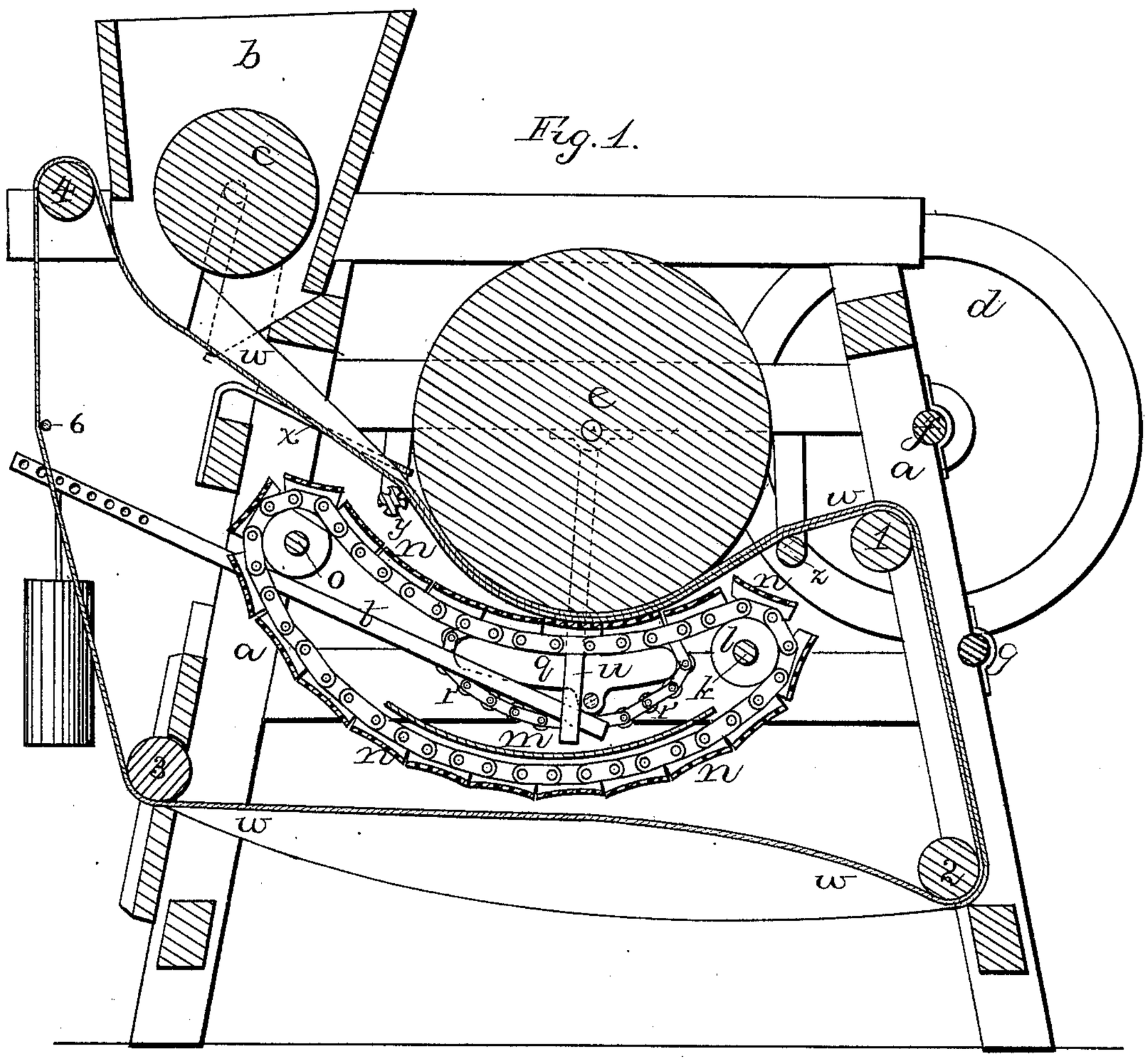
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T. D. McCORMICK.

Cider-Press.

No. 220,249. Patented Oct. 7, 1879.

Fig. 1.



Witnesses:

J. W. Garner

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Inventor:

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2 Sheets—Sheet 2.

T. D. McCORMICK.

Cider-Press.

No. 220,249. Patented Oct. 7, 1879.

Fig. 2.

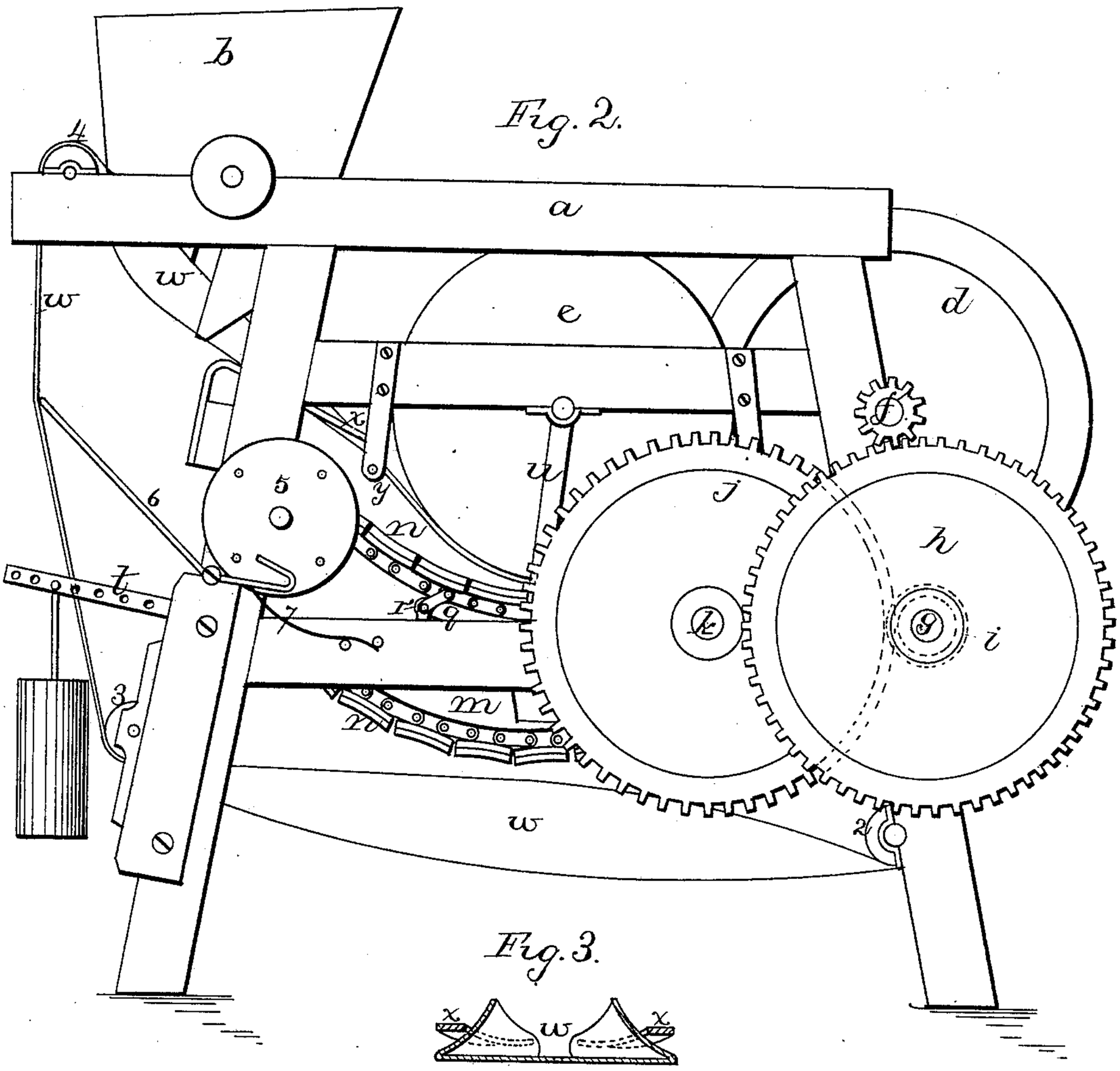


Fig. 3.

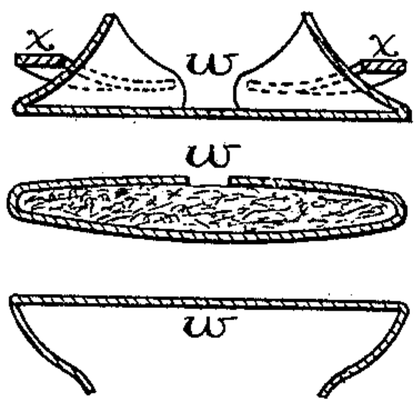
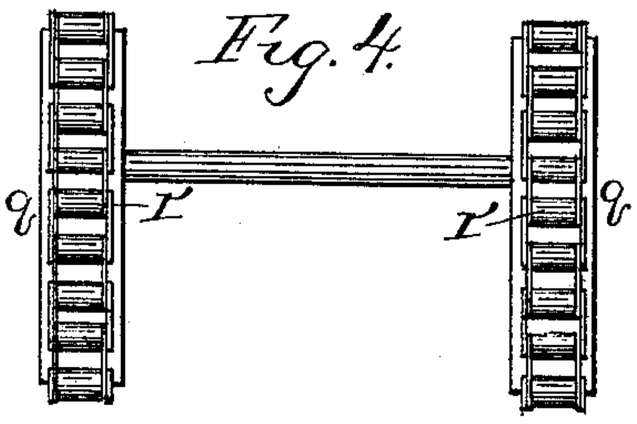


Fig. 4.



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UNITED STATES PATENT OFFICE.

THOMAS D. McCORMICK, OF CANTON, OHIO, ASSIGNOR OF TWO-THIRDS OF HIS RIGHT TO H. S. BELDEN AND W. B. BLAKE, OF SAME PLACE, ONE-THIRD TO EACH.

IMPROVEMENT IN CIDER-PRESSES.

Specification forming part of Letters Patent No. **220,249**, dated October 7, 1879; application filed May 22, 1879.

To all whom it may concern:

Be it known that I, THOMAS D. McCORMICK, of Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Cider-Presses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in cider-presses; and it consists in the application of traveling pressure to the periphery of the pressing-cylinder, whereby the pomace is pressed into cakes on the apron, so that it will readily peel off without clogging up the pores or the meshes of the apron.

It further consists in folding both edges of the apron over the pomace as it falls from the hopper, so as to prevent the pomace from escaping over the edges of the apron without being properly pressed.

It still further consists in applying friction-rollers to the under sides of the ends of the metallic slats where they bear up against the lower side of the pressing-cylinder, so that, no matter how great the pressure upon the slats, the machine will always run easily and smoothly; and it still further consists in arrangement and combination of parts that will be more fully described hereinafter.

Figure 1 is a vertical section of my invention. Fig. 2 is a side elevation of the same. Fig. 3 shows the different forms the belt assumes—first, as it first begins to fold; second, as it is folded over the pomace; and, third, as it begins to unfold and let the pomace drop out. Fig. 4 is a detached view of the friction-rollers.

a represents a suitable frame-work, upon one end of which is placed the hopper *b*, and in this hopper is the grinding-cylinder *c*, which is run by a belt from the fly-wheel *d* on the end of the shaft *f*. In the upper part of this frame *a* is journaled the large pressing-cylinder *e*, which has no other movement than to revolve around by its frictional contact with the flexible apron upon which the pomace falls and the metallic slats of the endless band which carries the pomace-apron under the cylinder. Upon the opposite end of the frame from the hopper is journaled the driving-shaft *g*, which has on one end the large gear-wheel *h* for driving the shaft *f* and the pinion *i* for meshing with and driving the large gear *j* on the end of the shaft *k*. This shaft is provided with sprocket or spur wheels *l*, for operating the endless band that is composed of the metallic slats *n*. These slats are composed of metallic plates, which have large longitudinal slots cut through them, and over these slots are securely fastened fine gauze or other similar perforated material, so as to let the juice, as fast as it is pressed from the pomace, pass through them into the spout *m*. The other end of the endless band is passed over suitable rollers on the shaft *o*, which is raised somewhat higher than the shaft *k*. Inside of this endless band, just under the pressing-cylinder and under its opposite edges, are placed the movable supporting-tracks *q*, around which travel the endless bands of friction-rollers *r*, and upon these rollers rest the ends of the metallic slats *n*. The supports *q* are vertically adjustable, and have their pressure upward against the slats and pressing-cylinder regulated by the weighted levers *t*. As the weights can be adjusted back and forth on the levers, any desired degree of pressure can be applied to the pomace as it is being passed in between the pressing-cylinder and slats *n*. Depending from the shaft of the pressing-cylinder are the two hangers *u*, through the lower ends of which are made holes for the inner ends of these levers *t* to pass through before they catch under the ends of the roller or shaft *v*, which joins the supporting-tracks together. These two hangers form fulcra, upon which the levers *t* move in pressing the rollers upward, as already described.

By the application of this traveling pressure to the cylinder as the pomace is being pressed, not only is the pomace more thoroughly and perfectly pressed, but it is pressed into cakes on its apron, so that it will readily scale off without clogging up the pores of the apron. The pressure and friction are uni-

form, no matter how much pomace is passing through or what the pressure is that is applied to it, and the operation of the machine is rendered more easy and regular. Where this traveling pressure is not used in machines the pomace cannot be caked, and hence it adheres to and clogs up the apron like paste, and soon renders the apron almost useless.

As the pomace drops from the hopper it falls directly into the endless apron *w*, which has its two edges folded over toward each other by the two curved rods *x*, which are secured to the frame under the hopper. As the pomace drops in between these two turned-over edges the apron is drawn along under the pressing-cylinder by frictional contact, and the pomace is inclosed, as in a bag, so that it cannot possibly escape over the edges of the apron, as is generally the case, before all of the juice has been pressed out. Being thus inclosed, as pressure is applied to the pomace the juice runs through the apron and the slats *n* into the spout underneath. Where the pomace simply rests upon the apron, as soon as pressure is applied thereto a portion of it escapes over the edges of the apron unpressed; but where the edges of the apron are folded over it, as shown in Fig. 3, escape is impossible. The pomace being thus held in a mass, a greater and more even pressure is applied to it, and consequently a greater amount of juice is pressed out.

Just in front of the pressure-roller is a small grooved roller, *y*, which prevents the pomace from escaping backward before the pressure of the cylinder can be brought to bear upon it; and on the other side of the cylinder is another small roller, *z*, which serves to keep the pressure of the cylinder on the apron as long as possible. The apron then passes out over the roller 1 and down around the roller 2, still in a folded condition, and keeping the pomace within it. As the apron passes along under the machine it is gradually opened out wide again, so as to let the pomace fall off in cakes, and as it passes up around the rollers 3 and 4 the apron is opened wide out again.

In order to shake off from the apron all pieces of pomace which may have clung to it, on the end of the shaft *o* is placed a tappet-wheel, 5, which operates the bent rod 6, having the spring 7 applied under one end, so as to keep the rod constantly striking against the inner side of the apron, as shown. In this way the apron may be kept perfectly clean, and will never clog.

Having thus described my invention, I claim—

1. In a cider-mill, a pressing-cylinder, a belt, *w*, and an endless band composed of slats, the slats being pressed up against the cylinder by any suitable traveling or moving mechanism, substantially as shown.

2. In a cider-mill, a pressing-cylinder, an endless belt composed of slats, endless belts of friction-rollers, and levers for adjusting the pressure upon the pomace, substantially as described.

3. The combination of the supporting-tracks *q*, connected together by a rod or shaft, endless belts of friction-rollers moving around the tracks, and the levers *t*, fulcrumed in the hangers *u*, for pressing the rollers up against the slats *n*, substantially as set forth.

4. In a cider-mill, the method herein described of preventing the pomace from escaping over the edges of the apron by turning the edges of the apron up over the top of the pomace, substantially as specified.

5. In combination with the apron *w*, the two curved rods *x*, for turning up its edges, substantially as shown.

6. In combination with the apron *w*, a tappet-wheel, rod 6, and spring 7, for knocking the pomace off, substantially as described.

7. In combination with the pressing-cylinder, a roller, *y*, to prevent the pomace from moving backward, and a roller, *z*, to keep the pressure of the cylinder upon the apron, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 19th day of May, 1879.

T. D. McCORMICK.

Witnesses:
W. S. D. HAINES,
F. A. LEHMANN.