

M. Cargell,

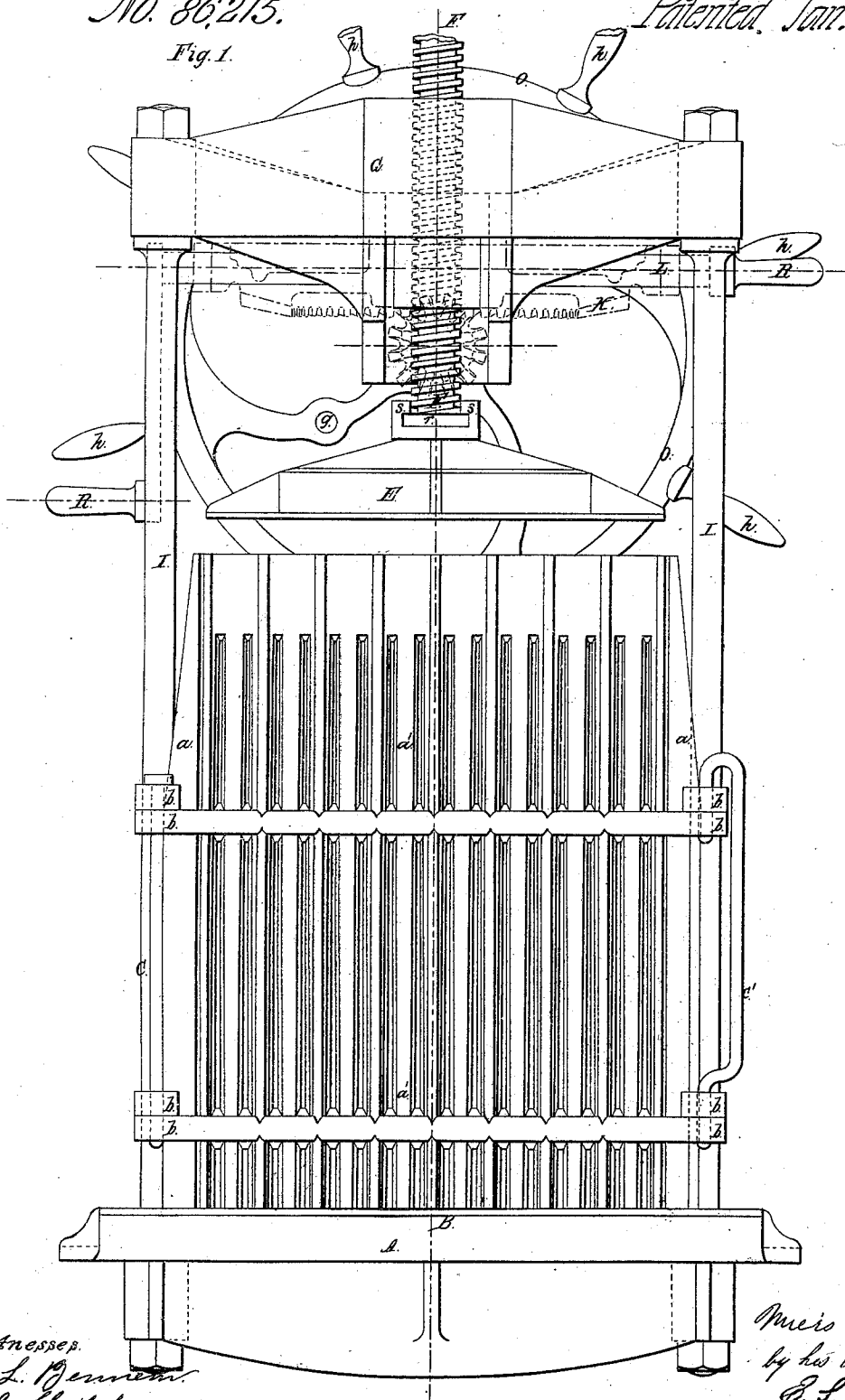
3. Sheets, Sheet 1.

Hot Press.

No. 86,215.

Patented Jan. 26. 1869.

Fig. 1.



Witnesses.
H. L. Bennett.
A. Sheddock.

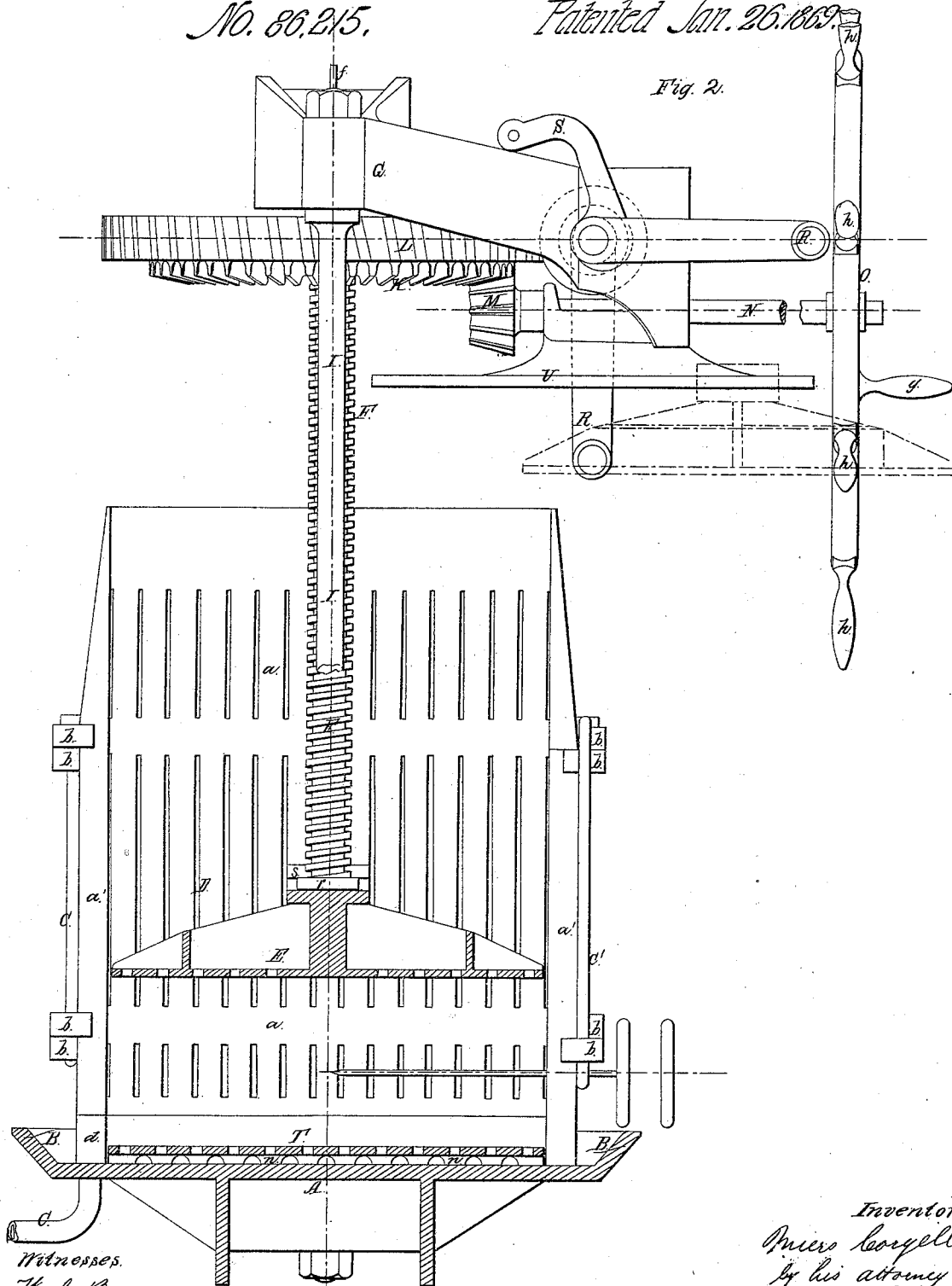
Inventor.
Muelis Cargell
by his attorney
E. P. Kearsley

3. Stars. Sheet 2

Hot Press.

No. 86,215.

Patented Jan. 26. 1869.



Witnesses.
W. L. Byrnes
U. Shaddock.

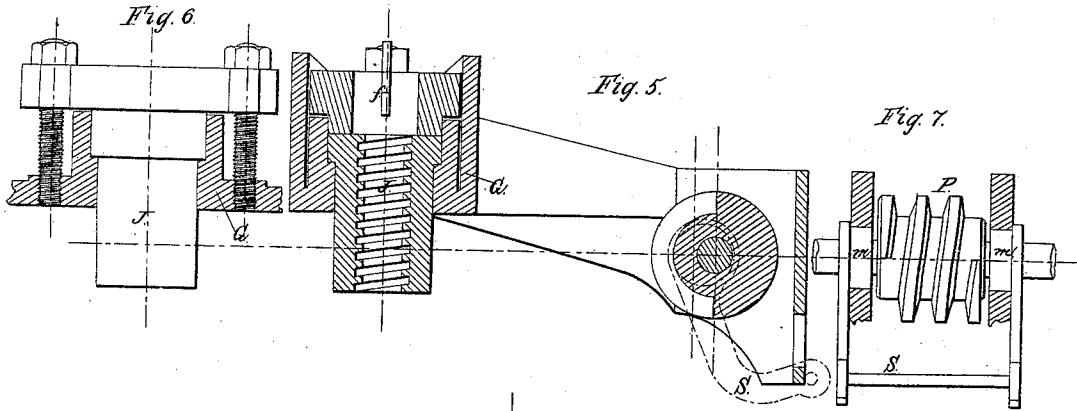
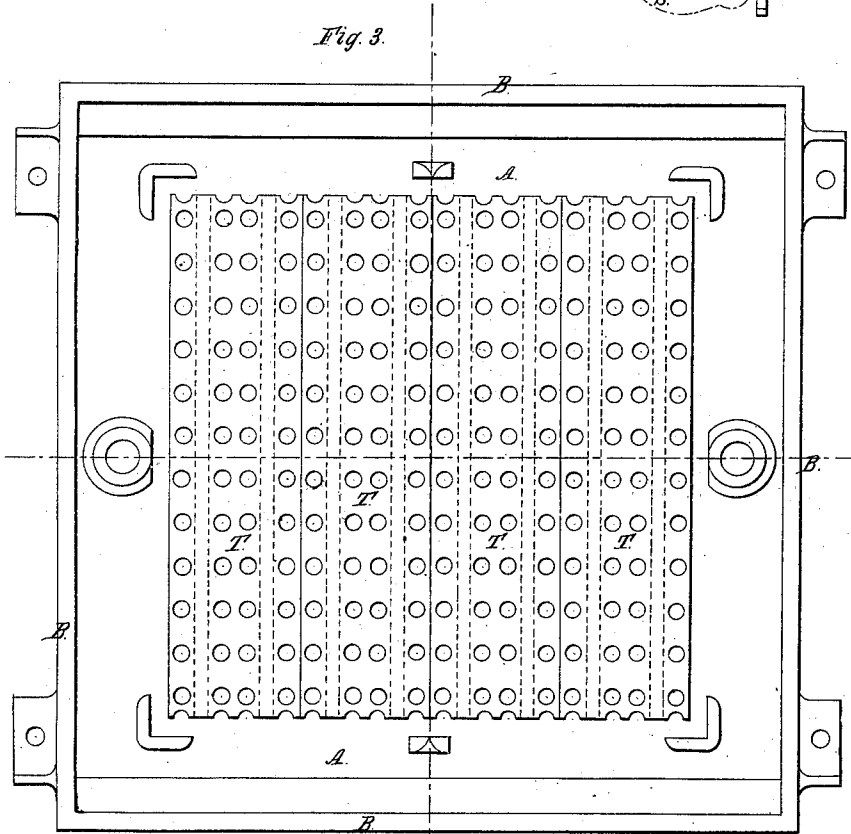
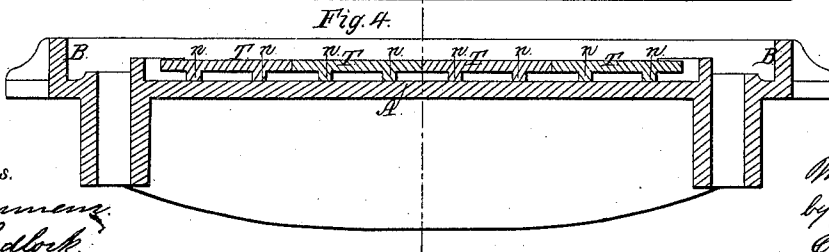
Inventor
 Oliver Longell
 by his attorney
 C. S. Kimrick

M. Corgell,

Hot Press.

No. 86,215.

Patented Jan. 26, 1869.



Witnesses.
H. L. Bernenz.
A. Sheddock.

Inventor.
Miers Corgell
by his attorney
E. P. Herrick

United States Patent Office.

MIERS CORYELL, OF NEW YORK, N. Y.

Letters Patent No. 86,215, dated January 26, 1869.

IMPROVED HOP-PRESS.

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, MIERS CORYELL, of the city, county, and State of New York, have invented certain new and useful Improvements in Presses for Pressing Hops; and that the following is a full, clear, and exact description and specification of my said invention.

The object of my invention is to provide brewers with an effective press for expressing the liquid from hops after they have been boiled.

Hops, after boiling, hold a large amount of liquid in their pores, and it is desirable that this should be expressed as rapidly as possible, and by means only of the workmen who have to be present for other purposes; because, if the work be not done rapidly, the hops are apt to deteriorate or sour, and if extra workmen have to be engaged for this special purpose, the cost of labor to the brewer more than compensates the gain resulting from pressing the hops. Hops, when put into the press, lie loosely, and oppose a slight resistance to pressure, but, as the pressure increases, they become more and more compacted. On the other hand, the effective power that can be conveniently relied upon in a brewery for the purpose of working the press does not vary, being generally the power of the two workmen who are required for other purposes.

I have therefore devised a screw-press to be worked by two men, and containing such a combination of mechanical devices, that when the hops are first put into the press, the screw can be turned with great speed, so as to apply the pressure rapidly; and as the resistance to pressure increases, the screw can be turned by the same men more slowly, but with greater force, so as to adapt the force to the resistance, and finally, as the hops approach their greatest state of compression, and consequently oppose the greatest resistance to pressure, that the screw may be turned by the same men still slower, but with very great force, so as to apply the utmost force which the two men are capable of exerting under the circumstances; also, that after pressure the platen may be rapidly withdrawn from the cake of compressed hops.

I have also devised convenient means of removing the platen from over the press-chamber, to permit the latter to be conveniently filled, without the necessity of raising the platen materially above the top of the press-chamber; also, means of cleansing the passages for the expressed liquid in the bed of the press.

In order that my invention may be fully understood, I will proceed to describe a press embodying all my improvements, and will refer to the accompanying drawings thereof, and to the letters and figures marked thereon—

Figure 1 being an elevation of the front of the press.

Figure 2 being a side view of it, with certain portions removed to permit the construction to be understood.

Figure 3 being a plan of the bed-plate of the press, and

Figure 4 being a transverse section of the same.

Figures 5 and 6 being sectional views of detached parts of the press, and

Figure 7 being a view of the endless worm and its yoke.

The press has a bed-plate, A, surrounded by a rim, B, to prevent the escape of the expressed liquor, and fitted with a pipe, C, for its discharge.

The press-chamber D is mounted upon the bed-plate, and is composed of four sides, *a a'*, connected at the corners by ears *b* and rods *c c'*, so that two of said sides, *a' a'*, may be readily loosed from the others (by pulling out the rods) for the purpose of getting access to and removing the compressed cake.

In order to facilitate the opening of the press-chamber, sill-plates *d* are placed beneath the lower ends of the two side *a' a'*, which may be opened, so that their lower ends are above the rim of the bed-plate, and that when the sides are loosed at one corner of the chamber, they may be swung open like doors. These sides of the chamber are formed with slots or openings in them, which afford a free exit for the expressed liquor.

The platen E of the press is constructed to slide up and down in the press-chamber. It is perforated, to permit the liquor to pass through it, and it is moved by means of the press-screw F, which passes upwards through the head G of the press, and is prevented from turning therein by a stationary feather, *f*, that is received in a longitudinal groove or slot formed in the screw, so that the screw can slide through the head G without turning. The head G is secured to the bed A of the press by standards I I, and contains the screw-nut J, which is turned for the purpose of depressing or raising the screw F and platen E.

In order that the screw-nut may be turned as required, it is fitted with a bevelled wheel, K, and with a worm-wheel, L. The former gears into a bevelled pinion, M, which is mounted upon a shaft, N, to which a large hand-wheel, O, is secured; the rim of said wheel being fitted with spokes *h h*, so that two men may readily apply all the force they can exert to it.

In order that the platen may be depressed and raised rapidly, a crank-handle, *g*, is applied to the hand-wheel O, at a short distance from its centre, so that one man may run the bevelled pinion round rapidly, the hand-wheel O then acting as a fly-wheel to equalize the motion, and apply the force accumulated by its rotation to the pressing of the material.

In order to obtain the greatest force, a worm, P, is provided, to engage with the teeth of the worm-wheel L, and this worm is mounted upon a shaft, to which two cranks, R R, are secured, for the purpose of turning it.

The worm-shaft passes through eccentric-bearings *m m*, by turning which the worm may either be engaged with or disengaged from the worm-wheel, and these bearings are connected by a yoke, S, so that they may be moved simultaneously.

In order that the passages for liquid in the bed of

the press may be readily cleansed, the press-chamber is fitted with a false bottom, composed of sections T T T, which are perforated to permit the passage of liquor, and are formed with legs or ledges *nn* that raise them above the face of the bed, so as to form passages for the liquor.

As the bottom is in sections, the weight of each piece to be handled is not great; consequently the bottom may be readily removed for cleansing.

In order that the platen may be readily got out of the way during the charging of the press-chamber, it is not fixed to the press-screw F, but is connected with a head, *r*, at the lower end thereof, by two wing-plates *s s*. Moreover, a rail, U, of the same width as the head of the screw, is secured to the head, G, of the press, with one of its ends opposite said screw-head *r* when the platen is raised clear of the press-chamber. Consequently, at this time the platen may be shoved laterally off the screw-head and on to the rail U, (as represented in red lines in fig. 2,) leaving the upper end of the press-chamber open for the reception of the hops.

The mode of using this press is as follows:

The press-screw being raised, the worm P disengaged from the worm-wheel, and the platen E being upon the rail U, the hops are quickly shovelled into the press-chamber, after which the platen is shoved back over the chamber and engaged with the screw-head. As soon as this is done, one or both of the workmen apply a hand to the crank-handle *g*, and turn the hand-wheel O rapidly, thus screwing down the platen with speed; and this operation is continued until the hand-wheel stops by reason of the resistance of the hops to pressure. Then both workmen apply their hands to the spokes *h h* of the hand-wheel O, and turn it until the resistance to the descent of the platen becomes as great as the force they can exert; and as these spokes are further from the centre of the wheel than the crank-handle, the force applied to the screw is greater, and the screw is depressed more slowly. Finally the worm P is thrown into gear with the worm-wheel L by moving the yoke S, and the workmen, applying their hands to the cranks

R R, apply the greatest force which the press is capable of exerting. After the hops are thus pressed, the worm is thrown out of gear, and a workman, applying his hand to the crank-handle *g*, runs the screw rapidly up, and raises the platen, so that it may be slid off on to the rail. Then one or both the movable sides of the press-chamber are opened, the cake is removed, and the press-chamber is reclosed, ready for another operation. The press has thus three speeds, and either speed may be readily used, as required by the conditions of the work being performed while the construction of the movable platen and its rail, and the construction of the press-chamber, enable the charging and discharging to be performed rapidly, and the construction of the bottom of the press-chamber enables the liquor-passages to be cleansed with facility.

The hand-wheel O is of course set at the proper distance from the press-screw to permit the platen E to be moved from over the press-chamber, but the dimensions of the drawings do not permit the entire shaft N to be shown.

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

1. The combination of the platen, press-screw, worm-wheel, worm, worm-yoke, and eccentric-bearings, bevelled wheels, and hand-wheel, substantially as before set forth.

2. Also, the combination of the removable platen, press-screw, and rail, to hold the platen when disengaged from said screw, substantially as before set forth.

3. Also, the combination of the following instrumentalities, viz, the bed-plate, press-chamber, with removable sides, removable platen, press-screw, platen-rail, worm-wheel and worm, bevelled wheels, and hand-wheel, substantially as before set forth.

In testimony whereof, I have hereto set my hand, this 7th day of October, A. D. 1867.

MIERS CORYELL.

Witnesses:

EDMD. P. ROGERS,
HERMAN WINTER.