(No Model.) 2 Sheets—Sheet 1.

M. NIRDLINGER.

BRICK OR FUEL PRESS.

No. 477,060. Patented June 14, 1892.

Fig. 1.

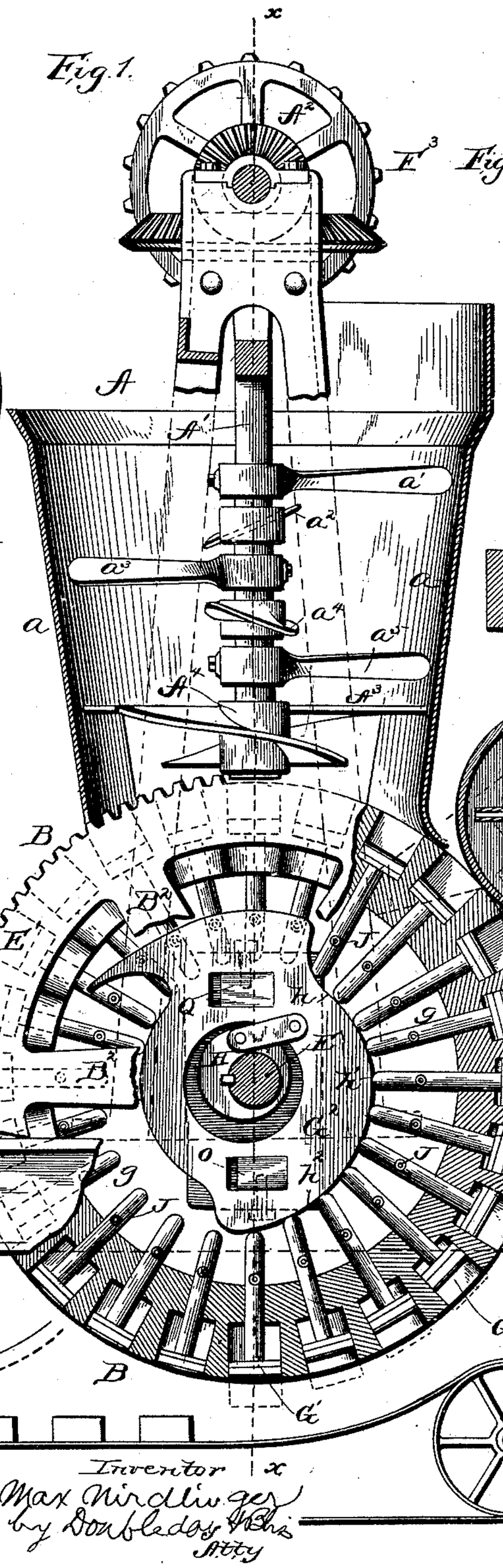


Fig. 6.

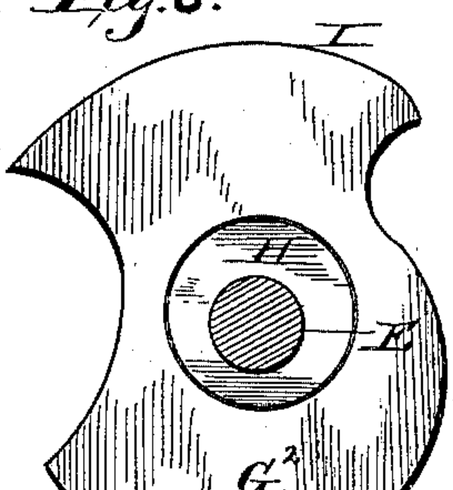


Fig. 7.

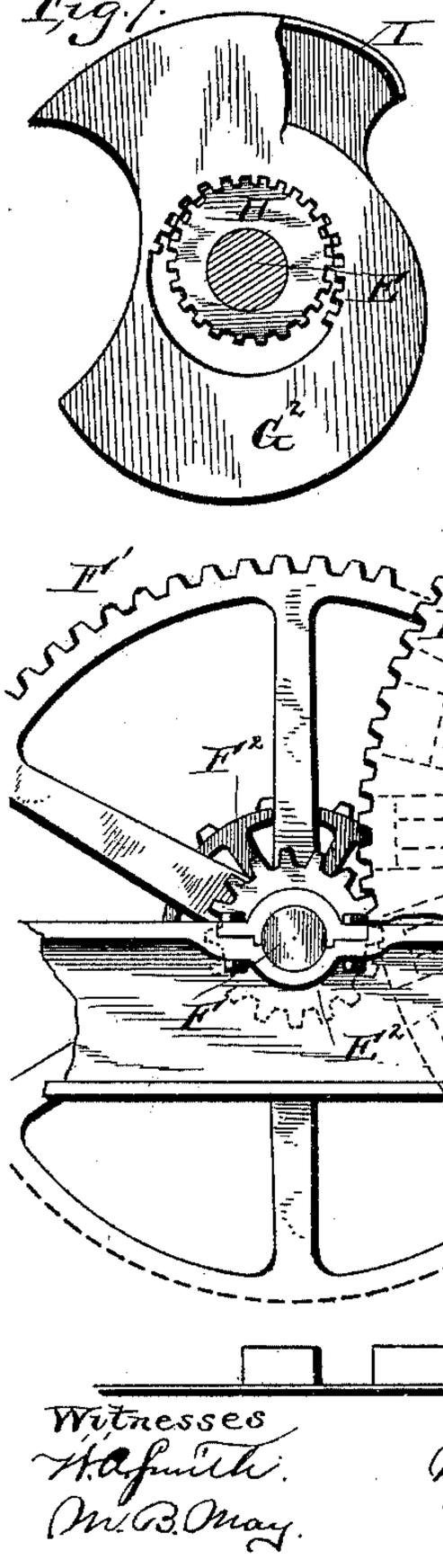


Fig. 4.

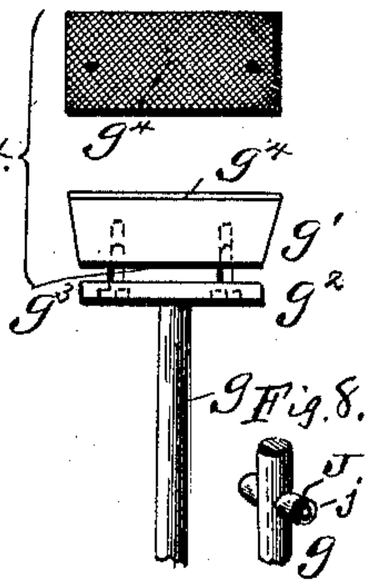
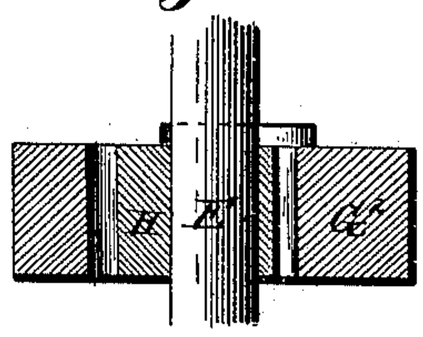
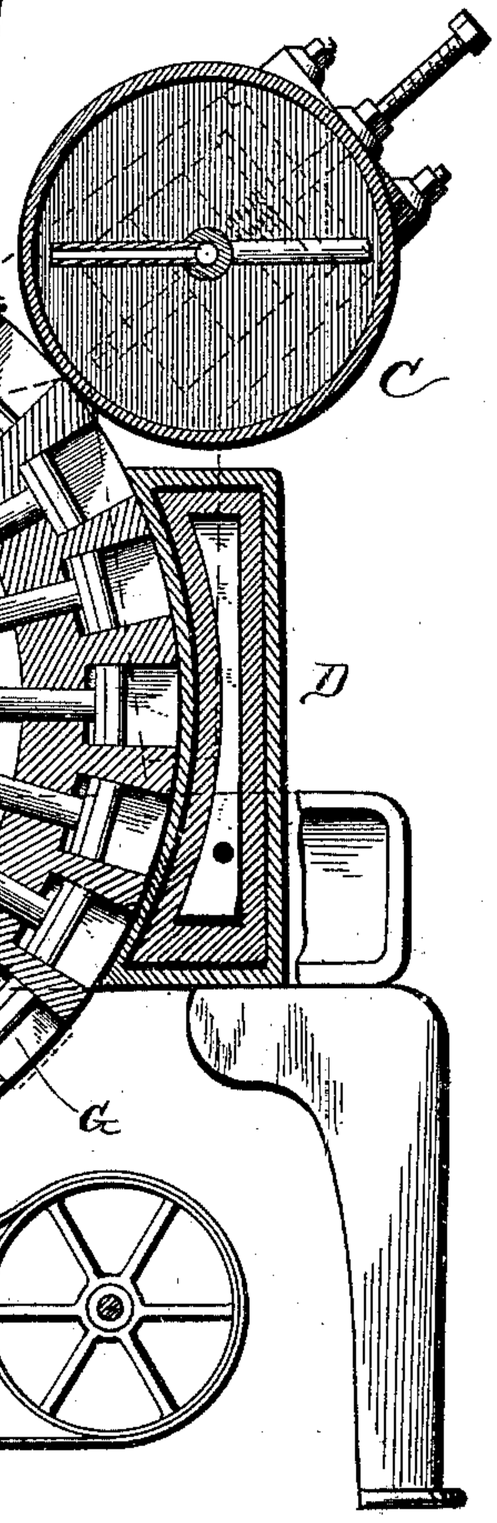


Fig. 8.

Fig. 3.





Witnesses
H. A. Smith.
M. B. May.

Inventor
Max Nirdlinger
by Doubleday & Bro
Atty's

(No Model.) 2 Sheets—Sheet 2.

M. NIRDLINGER.

BRICK OR FUEL PRESS.

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Fig. 2.

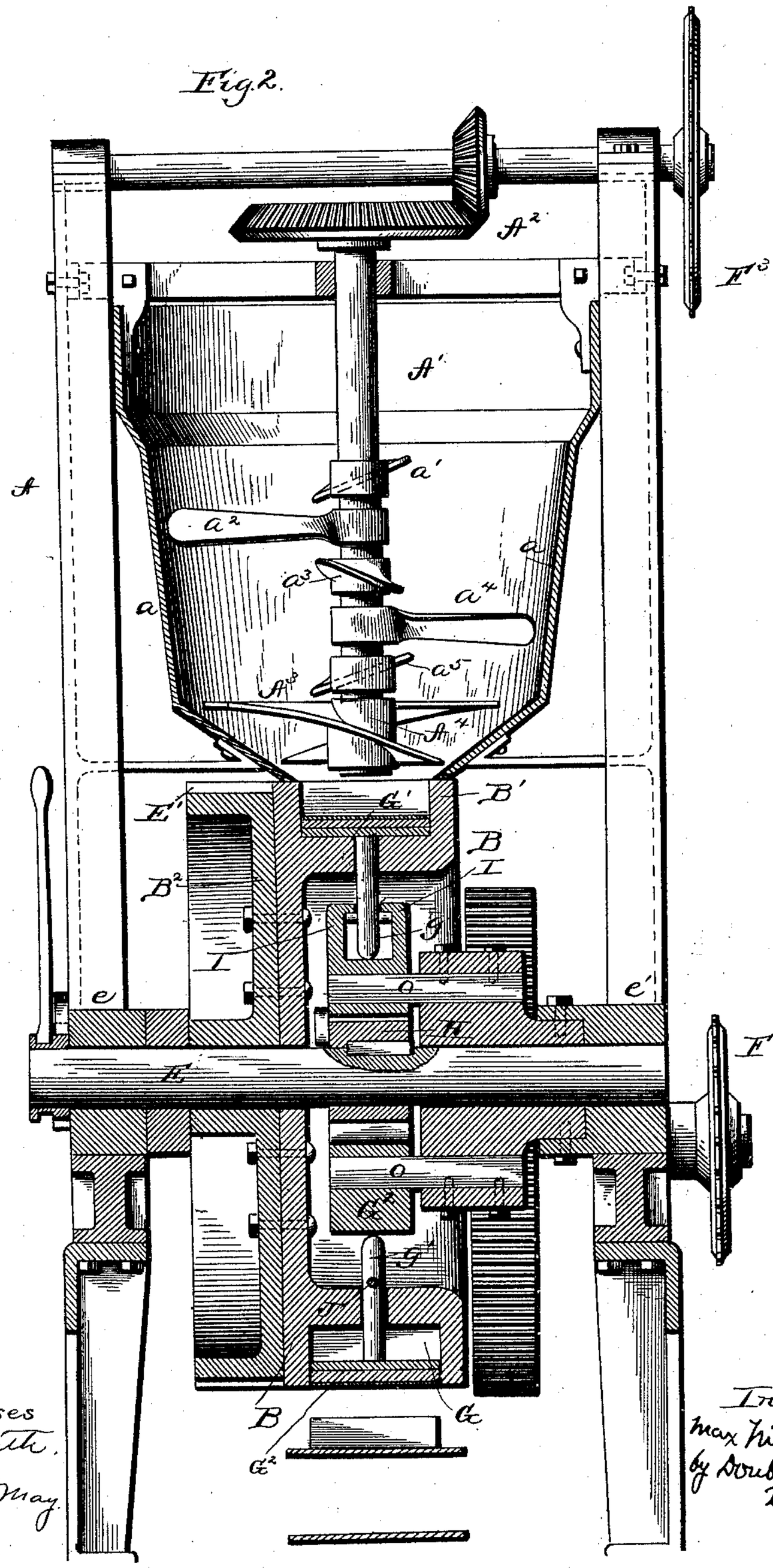
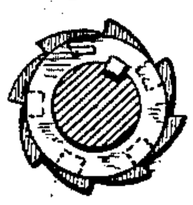


Fig. 5.



Witnesses
H. A. Smith.
M. B. May.

Inventor
Max Nirdlinger
by Doubleday & Bliss
Atty's

UNITED STATES PATENT OFFICE.

MAX NIRDLINGER, OF MINNEAPOLIS, MINNESOTA.

BRICK OR FUEL PRESS.

SPECIFICATION forming part of Letters Patent No. 477,060, dated June 14, 1892.

Application filed April 2, 1890. Renewed March 4, 1892. Serial No. 423,750. (No model.)

To all whom it may concern:

Be it known that I, MAX NIRDLINGER, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Brick or Fuel Presses, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in machines for compressing bricks, fuel, &c.

The improvements and the objects aimed at will be understood from an examination of the drawings, in connection with the description thereof given below. The mechanism illustrated is one of several adapted to embody my improvements.

Figure 1 is a view, partly in side elevation and partly in section, of a machine. Fig. 2 is a transverse vertical section on the line $x\,x$, Fig. 1. Fig. 3 shows a portion of the central shaft or axle, together with the cam and its carrier in section. Fig. 4 shows in side elevation and face view one of the plungers. Fig. 5 is a face view of a locking-ratchet and a socketed collar adapted to receive a wrench-lever for adjusting the cam. Figs. 6 and 7 show modified devices for adjusting the cam. Fig. 8 shows a part of a plunger-stem.

In the drawings, A indicates as a whole the feeding mechanism or initial compressing devices.

B is the mold-wheel.

D is the bulk-head or stationary abutment, against which the plungers exert their final pressure, and C represents a presser-wheel for the purpose of removing material that may tend to escape from the feeding-hopper, and also for imparting pressure to the material prior to its reaching the bulkhead or abutment D.

$a\,a$ represent the downwardly-converging walls of the hopper.

$a'\ a^2\ a^3\ a^4\ a^5$ indicate the blades or arms for forcing the material downward. They are adjustably secured to a vertical shaft A′, driven by suitable gearing at A^2. These blades will be seen to decrease in length downward through the series to conform to the converging hopper. At the bottom the shaft carries a section of pressure-conveyer comprising a hub A^4 and a spiral web A^3 of about two convolutions. I have found that devices of this sort are of superior character in compressing and delivering the material to the molds.

The mold-wheel (indicated as a whole by B) is formed with an annular part B′ at the periphery, which is supported from the shaft E by means of one or more arms or plates at B^2. This shaft E is mounted in bearings at $e\ e'$ upon the frame-work, which latter may be of any suitable sort.

E′ is a gear-wheel on the wheel B, driven by a pinion E^2 on a shaft F, which is driven by means of a power-wheel F′, this shaft also having a chain-wheel F^2, which is connected with the wheel F^3 at the top of the machine for driving the gearing at A^2.

G G indicate the mold-cavities formed in the periphery B′ of the wheel. In each cavity there is a plunger G′. The plungers each have an inwardly-projecting stem g, passing through an aperture in the bottom of the mold. Each plunger is made in two parts $g'\ g^2$, secured together by adjusting-screws g^3. (See Fig. 4.) By varying the relative positions of the parts $g'\ g^2$ the plungers and the mold-cavities can be arranged for producing blocks or bricks of different sizes. The faces of the part g', it will be seen, converge inwardly. At g^4 there is a layer of web belting or other equivalent material secured to the outer face of each plunger. This furnishes a simple and economical conductor for the lubricant which is used, and also a protector for the operative face to prevent any of the material from entering the mold-cavities under the plunger-faces. It also insures that the compressed block or brick shall be easily discharged from the face of the plunger and prevents it from sticking thereto. Experience has shown that the clogging of the plungers by the fuel material is a matter of great annoyance and disadvantage.

G^2 represents a cam properly supported at the center of the wheel, it having the surface at h adapted to give the initial thrust upon the plungers, the surface at h' adapted to still further throw the plungers out, and the surface at h^2 adapted to move the plungers in such way as to discharge the finished blocks or bricks. This cam is made adjustable, it

being supported upon devices by which it can be moved from or toward the axis of the wheel, whereby the amount of pressure and the throw of the plungers can be regulated. This adjustment can be attained in any suitable way. This a matter of great importance in a successful machine, as materials of various resistances have to be dealt with, some requiring a more powerful compression than others, and the pressure can be readily varied to correspond with the materials by means of devices such as described.

In Figs. 1 and 2 the cam is supported independently of the wheel and of the shaft by means of bars or guides suitably held on the frame and passing through slots or apertures in the cam. There is an eccentric or crank head secured to the shaft, and it is connected to the cam by one or more links. The shaft can be turned, so as to rock the eccentric, by means of a lever or wrench-bar adapted to fit a socketed collar outside of the frame. A pawl or lock of any suitable sort—such as that shown—holds the shaft and the cam in the position of desired adjustment.

In Figs. 6 and 7 are shown modifications of the cam adjustment, the eccentric or crank head being here in direct contact with the cam, said eccentric being in one case toothed and in the other plain. In either case the cam can be moved by rocking the shaft. Guides or supports more or less similar to those shown in Figs. 1 and 2 can be combined with the cams in these constructions also.

Directly below the feeding-hopper there are arranged two cams I I, they being supported in any suitable way, preferably by making them integral with cam G, so as to be stationary, and the plungers are each provided with a cross-pin J, the ends of which are preferably provided with rollers *j j*. These pins and the cams I I are so related that the latter are impinged on by the former as the plungers move beneath the feeding-hopper, the stems *g* moving between the two cams I I. As the pins and rollers strike the cams the plungers are drawn down forcibly. This insures that each plunger shall move into the lowest point possible. The material tends to crowd past the plungers into the lower parts of the cavities, and then the plungers cannot drop into place by their gravity. By employing cams of the character described I positively force them back and leave the cavities properly open to receive the next charge.

C indicates a presser-roller adjacent to the feed-regulator. This roller may be supported in any suitable way.

What I claim is—

1. The combination, with the shaft, the rotary mold-wheel having molds in its periphery and rotating around the axis of said shaft, and the radially-acting plungers, of the centrally-arranged cam, the support for the cam independent of said shaft, and means, substantially as described, actuated by said shaft for adjusting the cam, substantially as set forth.

2. The combination of the mold-wheel, the central wheel-supporting shaft, the plungers, the cam, the cam-supports, the eccentric H or equivalent, and the links connecting the eccentric to the cam, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

MAX NIRDLINGER.

Witnesses:
W. J. MARSON,
H. F. LEOPOLD.