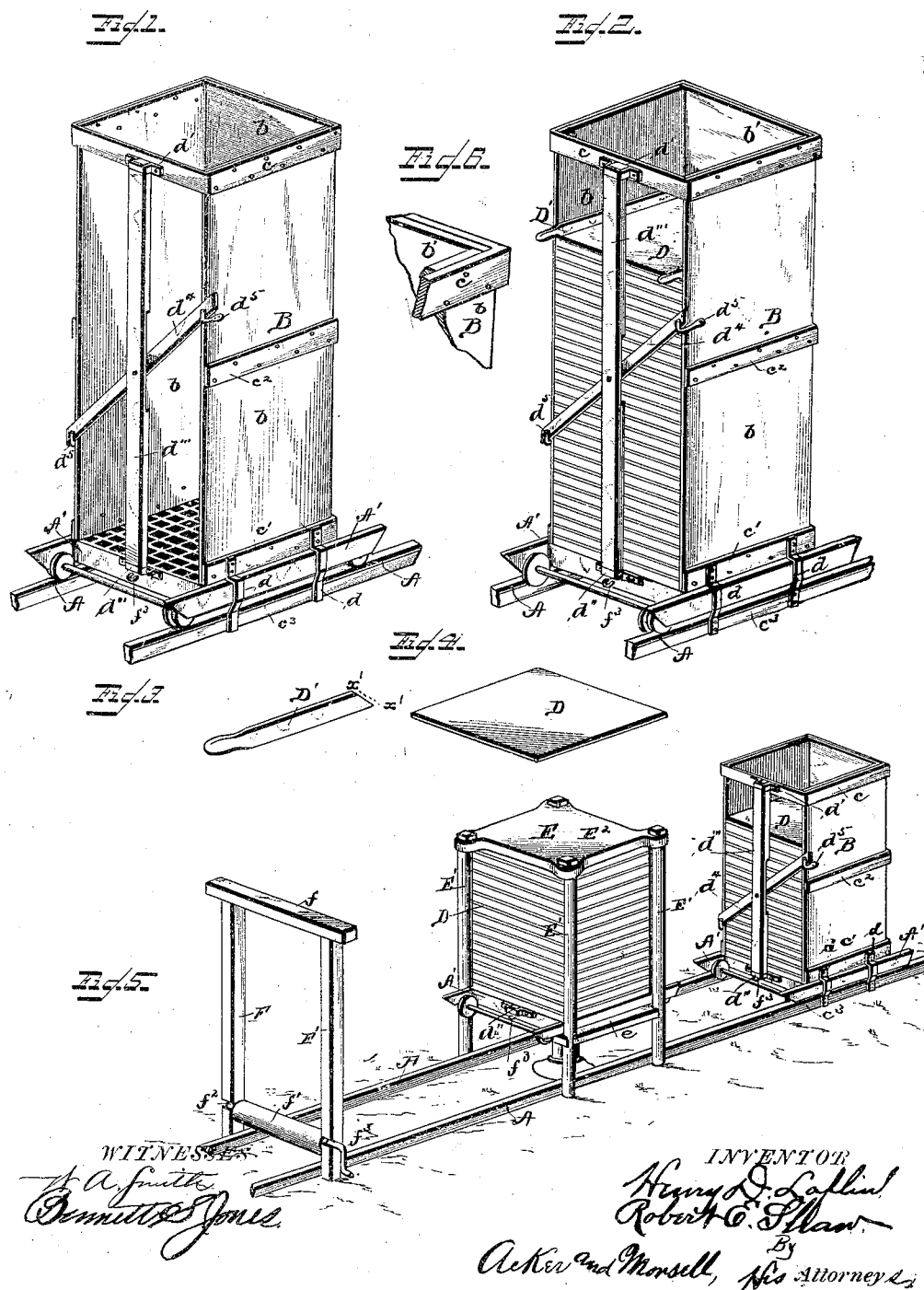


(No Model.)

H. D. LOFLIN & R. E. SHAW.
POWDER PRESS.

No. 422,602.

Patented Mar. 4, 1890.



UNITED STATES PATENT OFFICE.

HENRY D. LOFLIN, OF SAUGERTIES, NEW YORK, AND ROBERT E. SHAW,
OF PITTSBURGH, PENNSYLVANIA.

POWDER-PRESS.

SPECIFICATION forming part of Letters Patent No. 422,602, dated March 4, 1890.

Application filed December 1, 1888. Renewed January 20, 1890. Serial No. 337,601. (No model.)

To all whom it may concern:

Be it known that we, HENRY D. LOFLIN, of Saugerties, in the county of Ulster and State of New York, and ROBERT E. SHAW, of Pittsburgh, in the county of Luzerne and State of Pennsylvania, both citizens of the United States, have invented certain new and useful Improvements in Powder-Presses; and we do hereby declare the following to be a full, clear, and exact description thereof, such as will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, and to the reference-letters marked thereon, which form a part of this specification.

Our invention relates to certain new and useful improvements in forming-cases for the pressing of gun-powder; and it consists of the construction and arrangement of parts, as hereinafter more fully described, and pointed out in the claims.

The general object of our invention is to provide a forming-case which shall be simple in its construction, and which at the same time will obviate the danger of the powder built therein from falling over or sliding from within the same, which often results from the method now in use of building or laying up the powder into cakes.

A further object of our invention is to provide suitable means whereby the built or laid up powder may be conveniently removed from within the forming-case to the hydraulic or screw press, where it is subjected to greater pressure than that of its own gravity, and thence to the corning-works to be grained.

Referring to the drawings, Figure 1 is a perspective view of our improved forming-case; Fig. 2, a similar view showing the built or laid up powder within the forming-case; Fig. 3, a detail view showing one of the spacing-sticks; Fig. 4, a detail view of the powder-plate; Fig. 5, a perspective view showing the forming-case, hydraulic press, and windlass; and Fig. 6, a detail view showing the back of the forming-case.

A A indicate the ordinary rail-tracks, upon which works the truck A', which, being of ordinary construction, calls for no specific description herein.

B represents our improved forming-case,

said case being composed of the sides *b b* and back *b'*, the top and bottom of said case being removed. The back *b'* of the case is made removable by sliding within grooves formed in the rear or inner sides of the case, for the purpose hereinafter set forth. Said case is held together at the top thereof by means of the metallic band *c*, which passes completely around the same, and at its lower end by means of the band *c'*, which passes around the sides and back of the case. These bands are secured to the forming-case by means of rivets, bolts, or screws passing therethrough. For strengthening purposes we prefer to secure to the sides of the case the braces *c² c³*. The said case is held over the tracks A A by means of the metallic straps *d d*. These straps are secured at their upper ends to the metallic band *c'* and at their lower ends to the supporting wooden beams *c³*, (to which the tracks are secured,) and hence hold the case in an adjusted position over the same, but sufficiently high to allow of a truck passing under. The outer sides of said truck come directly under and flush with the sides of the forming-case.

The upper metallic band of the forming-case has secured thereto the metal latch-loop *d'*, and the front cross-rail of the truck A' is provided with a similar latch-loop *d''*, the purpose of which is to allow the vertical retaining-bar *d'''* to be secured therein, (when the truck has been run under the forming-case,) and thereby secure the built or laid up powder from the danger of falling or sliding out from within the case during the pressing and settling of the same. To the vertical retaining-bar *d'''* is pivotally secured (at about the center thereof) the cross retaining-bar *d⁴*, the outer end of which rests within the metal latch-loops *d⁵ d⁶*, secured to the front edges of the sides of the forming-case, the same resting in a diagonal position across the front of the case, as shown in the drawings.

D represents the anti-frictional powder-plates, which are used to form the several layers or cakes of powder built or laid up within the forming-case, and D' D' are the spacing-sticks placed upon the powder-plates to measure the thickness of the cakes of powder to be pressed. The inner end of

said sticks are made tapering or beveled, as shown at *d'*, and the outer ends are reduced to form a convenient handle therefor.

The forming-case, as above described, is usually made from five to six feet in height, and in width and depth sufficient to accommodate the size of the cake of powder to be pressed, generally from twenty-two (22) to twenty-four (24) inches square, and the size of the powder-plate corresponds in width and length to that of the forming-case, and the spacing-sticks are of the same length as the powder-plates used in pressing, to fit the forming-case, and from one and three-quarters ($1\frac{3}{4}$) wide to one and three-quarters ($1\frac{1}{2}$) high, and beveled and reduced at their ends, as above described.

E indicates the hydraulic press placed a short distance in front of the forming-case, and when not in use the top or platform *e* of which comes flush with the rails A A.

E' E' E' E' are metallic uprights placed at either side of the rails A A, (two on each side,) and in which the top or platform of the press works, and said uprights have bolted to the top thereof the metal plate E².

Of course, instead of a hydraulic press, a screw-press may be used with equally good results, but by preference we prefer the former. A short distance in front of the press is situated two uprights F F', secured together at their upper ends by means of the cross-piece *f*, and in the lower ends of the uprights is secured a windlass *f'*. The object of said windlass is to draw the truck and built-up powder from within the forming-case to the press. This is done by running a chain from said windlass to the truck and connecting or securing it to the front cross-rail of the truck A' by means of the hook *f*², secured thereto below the latch-loop *d''*. The windlass *f'* is journaled at one end within the upright F by means of the axle *f*², which passes therethrough, and the other end of said axle extends through the upright F', and to which a handle is secured for the purpose of enabling the working of said windlass.

Of course it will be understood that the forming-case, press, and windlass are in a line with each other, and that the rails A A run from one to the other. The rails do not end with the windlass, but continue in any direction therefrom and to any point to which it may be desired to convey the pressed cakes of powder after being subjected to the external pressure of the press. Generally this is to the corning-works, where the powder is taken to be grained.

We have shown in Fig. 5 of the drawings the forming-case provided with the built or laid up powder being subjected to the pressure of its own gravity and the powder being retained within the case by means of the front retaining vertical and cross bars, which provide against its falling from within the case after being laid up, consequently caus-

ing an even settling thereof, and there is also shown the hydraulic press having secured therein and being subjected to heavy external pressure the settled cakes of powder previously removed from within the forming-case.

By providing the forming-case with a removable back we are enabled by raising or opening the same to run another truck within the same, while the one previously removed with the pressed powder is under pressure of the hydraulic press.

The operation of building or laying up the cakes of powder within our improved forming-case is as follows: The truck A', running upon the rails A A, is first run within the forming-case, fitting snugly therein, and there is then laid thereon one of the anti-frictional powder-plates D, and upon said plate at each side is placed one of the space-sticks, said sticks impinging against the inner sides of the forming-case. Powder is then placed between the space-sticks, using a little more than would be necessary to form a pressed cake of powder. On top of this powder and space-sticks is then shoved another powder-plate, and the space-sticks are then withdrawn from upon the first powder-plate and placed upon the one just shoved in. Powder is then placed between the sticks, as before described, and another plate placed thereon, and the operation of building is so continued until the form is filled as high as the press will accommodate. It is obvious that should there be more powder than is necessary placed between the space-sticks, instead of having to be thrown off, as is necessary by the previous methods of building now in use, the same will be thrown up upon the next plate inserted, thereby avoiding waste of the same. After the forming-case is filled with the several layers of powder the retaining-bars are secured in an adjusted position in front thereof and the powder allowed to settle by its own gravity for a predetermined length of time. After the powder has become thoroughly settled the retaining-bars are removed from the front of the case and the truck withdrawn from within or under the case by means of the windlass before described, and with it the settled powder, and the same is then run upon the hydraulic press, where it is subjected to greater pressure than that of its own gravity, and while the formed cakes of powder are within the press the back of the forming-case is removed and another truck allowed to enter therein and another case of powder is built or laid up, as above described. After the powder in the press has been sufficiently pressed it is removed and carried off, by means of the truck, to the corning-works, where it is grained.

It will be readily observed that by the use of our improved forming-case we are enabled to accomplish within the same time the pressing of double the amount of powder that can be effected by the use of the apparatus now

in use, and at the same time dispense with the service of an experienced pressman to build or lay up the cakes of powder.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. The herein-described device for pressing powder by its own gravity, consisting of the open top and bottom forming-case raised above truck-tracks, said case having an open front, and being further provided with a removable back, in combination with the loose powder-plates within the forming-case for separation of the cakes of powder, spacing-sticks located between the plates, retaining-bars secured across the front of the forming-case, so as to provide against the falling out of the plates carrying the cakes, and the truck fitting within and under said forming-case for removal of the pressed cakes, substantially as herein shown and described.

2. In a forming-case for pressing powder by its own gravity previous to being subjected to hydraulic pressure, the combination, with the case arranged over a truck-track having an open top, bottom, and front, of the anti-frictional powder-plates arranged therein, spacing-sticks situated between the powder-plates, retaining-bars secured across the open front of the forming-case for providing

against the falling out of the powder-cakes, and the truck for removing the pressed cakes of powder from within the forming-case, substantially as set forth.

3. In combination with a forming-case having an open front, top, and bottom, in which powder is pressed by its own gravity, the truck-tracks running within the case, a hydraulic press located in front of the forming-case and raised above the truck-tracks, a truck running on said tracks beneath the press and within and under the forming-case, a windlass situated in the front of the hydraulic press, and the chain running from the windlass and connecting with the truck for withdrawing the truck and built-up cakes of powder from within the forming-case to and under the press, substantially as herein shown and described.

In testimony whereof we affix our signatures in the presence of witnesses.

HENRY D. LOFLIN.
ROBERT E. SHAW.

Witnesses as to H. D. Loflin:

JOHN A. SNYDER,
P. M. GILLESPIE.

Witnesses as to Robert E. Shaw:

JOHN RICHARDS,
F. H. BANKER.

Correction in Letters Patent No. 422,602.

It is hereby certified that the name of the first-mentioned patentee in Letters Patent No. 422,602, granted March 4, 1890, for an improvement in "Powder Presses," was erroneously written and printed "Henry D. Loflin," whereas said name should have been written and printed *Henry D. Laflin*; and that said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 1st day of April, A. D. 1890.

[SEAL.]

CYRUS BUSSEY,
Assistant Secretary of the Interior.

Countersigned:

C. E. MITCHELL,
Commissioner of Patents.