

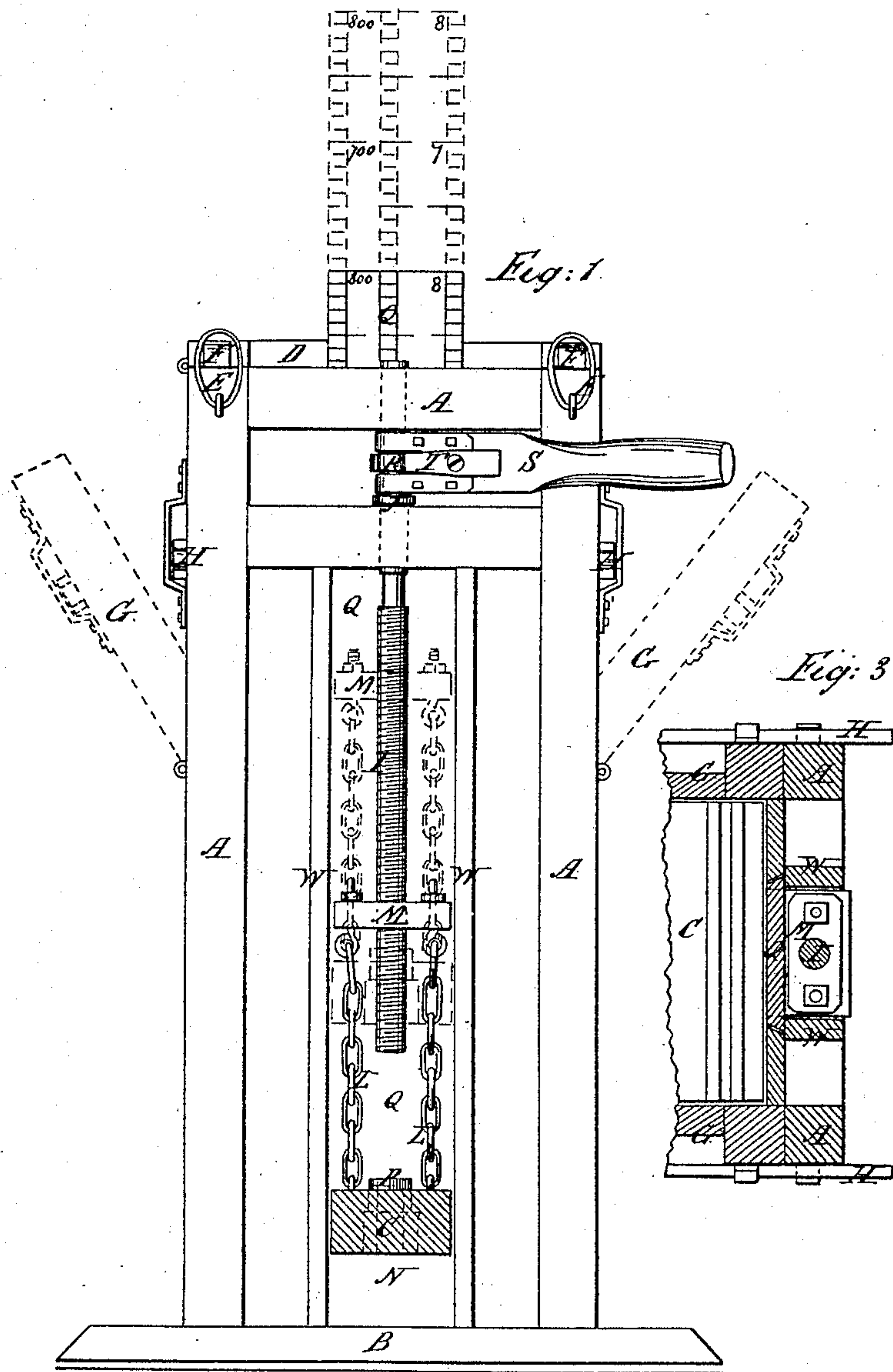
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W. E. Sheffield.

Hay and Cotton Press.

N^o 93,914.

Patented Aug. 17, 1869.



Witnesses
J. M. Intire
R. Montgomery

Inventor
William E. Sheffield
By his attorneys
Upperman & Johnson.

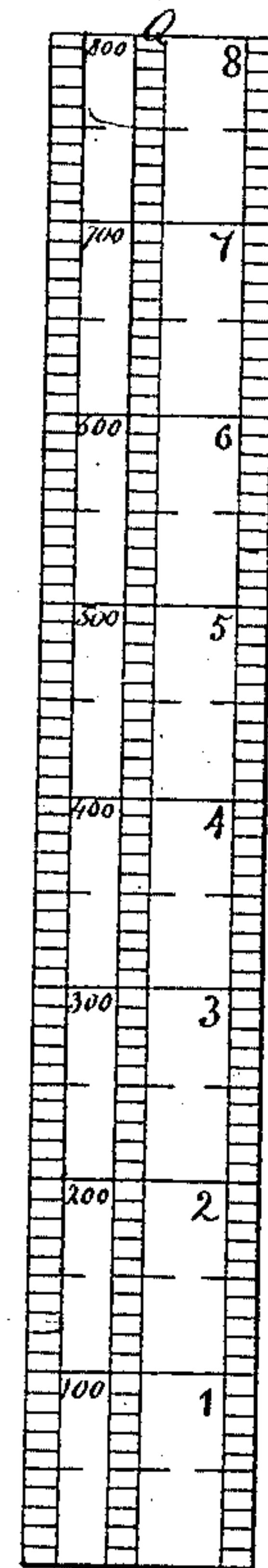
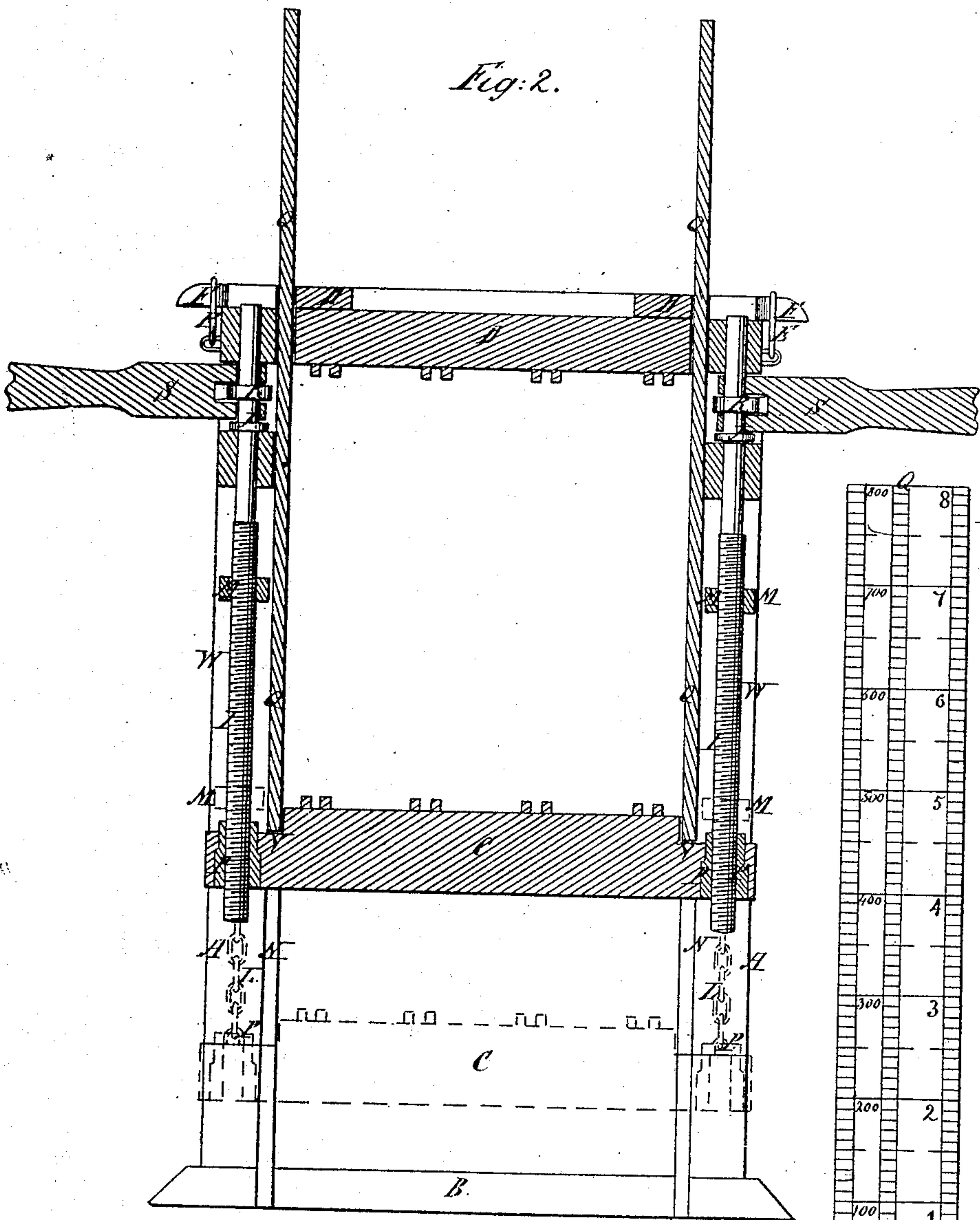
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United States Patent Office.

WILLIAM E. SHEFFIELD, OF ST. JOSEPH, MISSOURI.

Letters Patent No. 93,914, dated August 17, 1869.

IMPROVEMENT IN HAY AND COTTON-PRESSES.

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, WILLIAM E. SHEFFIELD, of St. Joseph, in the county of Buchanan, and State of Missouri, have invented certain new and useful Improvements in Hay and Cotton-Presses; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings of the same, making part of this specification, and in which—

Figure 1 represents a side elevation of a press, embracing my improvements;

Figure 2 represents a vertical section of the same;

Figure 3 represents a horizontal section of one side of the press; and

Figure 4 represents one of the gauge-slides, showing the scales by which the movements of the slides are graduated, and the scales for determining the weight of the bale.

My improvements relate to that class of presses operated by hand, and consist in connecting the follower to the operating-screws, by means of chains and intermediate nuts, in connection with auxiliary nuts, in either end of the follower, in such a manner, that the power of the screw will be applied to the follower by means of chains and intermediate nuts only at the commencement of the pressing, and subsequently through the direct connection of the follower, by means of the auxiliary nuts with the screws, thereby obtaining a double connection with said screws, for the purpose of increasing the power in proportion to the increased resistance of the article being pressed, thereby relieving the screws of the danger of breaking their threads, to which they are always liable with a single connection with the follower.

My improvement also relates to the arrangement of gauging-slides, supported and operated by the follower, for the purpose of forming the sides of the case, and regulating, during the operation of pressing, the position of the follower, keeping it equal at both ends, and thereby prevent the binding of the follower by reason of its assuming an inclined position within the press, while being raised or lowered.

My improvement also consists in providing the slides with scales of numerals, arranged in connection with the scale of inches, for the purpose of ascertaining and determining the weight of the bale, according to the degree of compression given to it by the press, whereby the press is made to indicate, automatically, the exact weight of the bale while under pressure.

In the accompanying drawings—

The frame A is made in the form of an upright oblong box, supported by sills B, and constructed in a substantial manner. Within this box, the follower C is placed, and at the top, the head-block D is hinged

and secured by rings E, fitting over the projecting ends F, of the head-block, in the usual manner.

The press is also provided with side-doors G, hinged so as to drop down out of the way while strapping the bale, and secured, when closed, by cross-bars H, fitting into staples on the doors and the frame, in the usual manner.

At the opposite sides of the press, I arrange a vertical screw-shaft, I, permanently connected to the upper part of the frame, and supported by a collar, J. These screw-shafts I, do not extend to the bottom of the frame, but are united to the follower on either side, by means of two chains, L L, and an intermediate nut, M, so that when the follower is down, it is suspended and supported by the chains alone, as shown in fig. 1. The opposite ends of the follower project through openings N, in the sides of the box, and the chains L L, by which the follower is suspended, are placed on either side of, and parallel to the screw-shaft, and unite the follower to the intermediate nut M, which is prevented from turning with the screw I by contact with the side of the slides Q.

This connection of the follower with the screw, by means of the chains, is sufficient to produce the required degree of power at the commencement of the operation of compressing a bale, but as the pressing advances, and the resistance of the bale increases, the strain upon the chains and the single connection of the intermediate nut becomes very great, and endangers the breaking of the chains and the threads of the said nut. To prevent this, therefore, and to increase the power of the screw in proportion to the increased resistance of the bale, I arrange an auxiliary nut, P, in each end of the follower, fitted with a female screw of a diameter corresponding to that of the screw-shaft, so that the follower ascends by its connection with the intermediate nut, until the force upon the screws is measurably increased, when they are caused to take into the auxiliary nuts of the follower, as shown in fig. 2. Thus, the lower nuts come to the relief of the upper ones, and constitute a double connection with the screw, thereby doubling the power of the screw, by equalizing the force between the intermediate and auxiliary nuts. This method of increasing the power of the screw is of great importance, and permits the bale to be compressed with a far greater degree of compactness than could be obtained by the single connection of the follower with the screw, as heretofore.

In hand-presses, where the follower is operated by screw-shafts, the former is liable to assume an inclined position, and bind against the sides of the box. To maintain the follower always parallel to the top of the press, I arrange a vertical-sliding gauge-board, Q, on either side of the press, next to the screw-shafts, so

that their lower ends rest upon the opposite ends of the follower, at V, fig. 2. These gauge-boards are of a length nearly equal to the height of the press, and are fitted into grooves *a*, fig. 3, in the sides of the press, so as to close the opening N, in which the ends of the follower move, and form a part of the inner casing of the opposite sides of the press, in such manner as to rise and fall with the follower. These slides are provided with scales on their outer sides, so that the operators can observe, alike from the opposite sides of the press, the exact degree of elevation or descent of the slides, while turning the screws, and thereby maintain the follower in a horizontal position, and effect a free and perfect operation of the press.

The screws are provided, near their upper ends, with notched circular heads R, and a hand-lever, S, is also fitted to each screw-shaft, so as to embrace these notched heads, in such manner that a continuous spring-arm, T, secured to either side of the lever, will take into the notches of the circular head, and thus turn the shaft, either to the right or left, to elevate or depress the follower.

Both sides of the gauge-boards may be provided with scales, so that either operator can see the scale of the opposite gauge, without requiring the operators to tell the divisions of the scales as the operation progresses, by which means they can always graduate the position of the slides.

These gauging-scales also perform another important function, that of determining the exact weight of the bale, by suitable figures, indicating different weights at different degrees of compression. This feature adds greatly to the utility of the gauging-slides, and constitutes an automatic weighing-press, according to the degree of compression the bale may receive, thereby saving much time, labor, and expense, in weighing the article after it is pressed and baled, it being ready for the market as delivered from the press. The gauging of the scales, to ascertain the weight, must be determined from the area of the press, according to the degree of compression of the bale, indicated by the scale.

As cotton, hay, and hops, would occupy a different area, at the same degree of compression, there will be no difficulty in determining the exact weight from the

subdivisions of the scales, and these several scales of inches and numerals may be arranged to be read from the bottom or top of the slides, as convenience and facility may determine.

The scale of inches and feet is arranged so as to be read in connection with the scales of pounds and hundred weight. The slides, therefore, serve three purposes, viz, movable slides to the openings N, in the press-casing; to maintain the follower in a horizontal position; and to indicate, automatically, the weight of the bale, when pressed, whatever the degree of compression, or the character of the article being pressed.

The top of the frame A constitutes the fixed guide, from which to read the scales, and to determine the position of the follower.

Having described my improvements,
I claim—

1. The combination and arrangement of the intermediate nuts M, the screw-shaft I, and the connecting-chains L, with the follower C, and auxiliary nuts P, substantially as before described.

2. The combination and arrangement of the gauging-slides Q with the follower of a press, for the purpose of ascertaining and regulating the ascent and descent of the follower alike at both ends, substantially as before described.

3. The gauging-slides Q, arranged so as to form the sides of the opening N, in which the follower moves, while, at the same time, they are free to rise and fall with the follower, as before described.

4. The means herein described and represented for determining, automatically, in a press, the weight of the bale, according to its degree of compression, substantially as before described.

5. The gauging-boards Q, provided with scales, for determining both the degree of compression and the weight of the bale, according to any degree of compression, as herein described.

In testimony whereof, I have hereunto signed my name.

WILLIAM E. SHEFFIELD.

Witnesses:

A. M. SAXTON,
C. B. FRANCE.