

J. Weed,

Hay Press.

N^o 28,429.

Patented May 22, 1860.

Fig. 2.

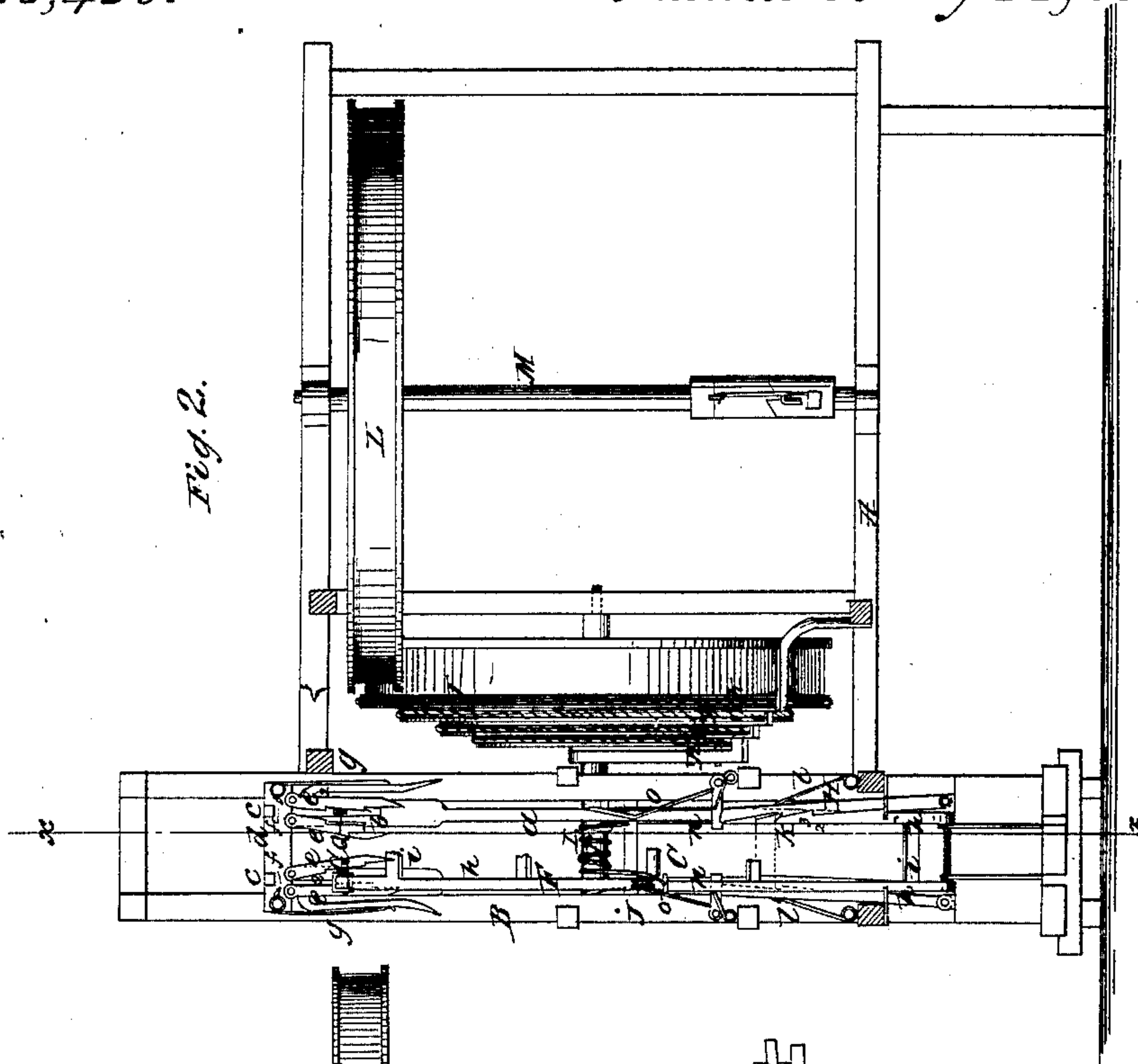
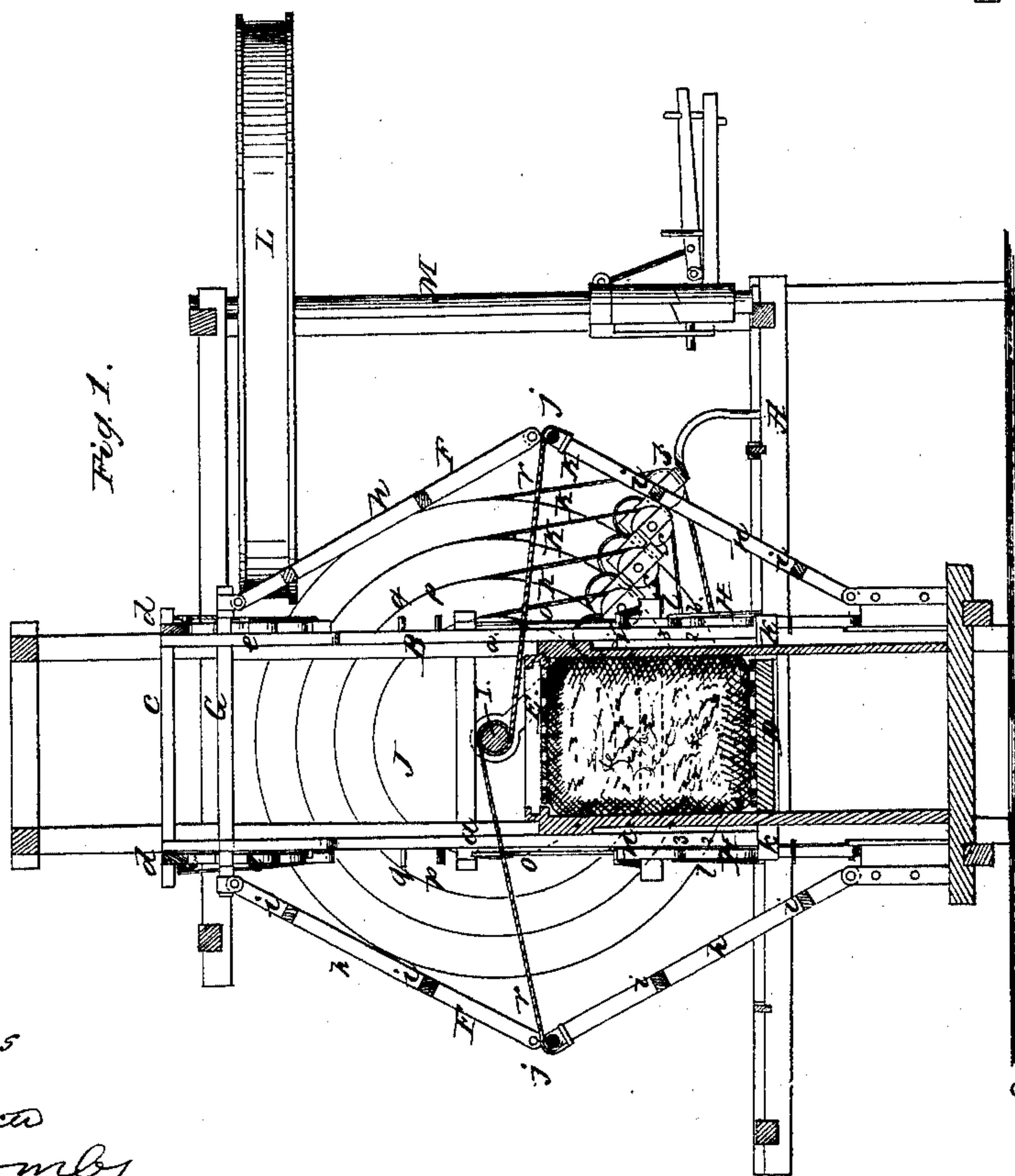


Fig. 1.



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JAMES WEED, OF MUSCATINE, IOWA.

IMPROVEMENT IN POWER-PRESSES.

Specification forming part of Letters Patent No. 28,429, dated May 22, 1860.

To all whom it may concern:

Be it known that I, JAMES WEED, of Muscatine, in the county of Muscatine and State of Iowa, have invented a new and Improved Progressive-Power Press, designed for compressing hay, cotton, and other substances for baling; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a front sectional view of my invention, taken in the line *x x*, Fig. 2; Fig. 2, a side view of the same.

Similar letters of reference indicate corresponding parts in the two figures.

The object of this invention is to obtain a progressive-power press by which the power may be applied in a manner commensurate with or in the same ratio as the increasing resistance of the article under compression.

In all the progressive-power presses that have been hitherto devised—at least all that have passed under my observation—the power has been gradually progressive—that is to say, during the operation of the press the power has increased in a regular ratio, and not corresponding with the resistance offered by the article under compression.

The within-described invention consists in the employment or use of toggles applied to the press in such a way as to admit of repeated application of power near the termination of their movement, and thereby effect the desired end, so far as the application of power is concerned.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a framing, which may be constructed in any proper way to support the working parts of the press; and B is a rectangular upright framing, which is secured in the framing A, and which contains the press-box C.

D is a follower which works in the press-box C, and is attached to the lower ends of uprights *a*, which are fitted in the framing B—two at each side—and are allowed to slide freely up and down therein.

E is a rotary bearing-plate which forms the

upper end of the press-box C, as shown clearly in Fig. 1.

F F represent two toggle-frames, which are placed one at each side of the framing B. The lower ends of these toggle-frames are attached to the lower part of the framing B, and their upper ends are attached to the ends of the horizontal bars G G, which are fitted in vertical slots *b* in the upper ends of the uprights *a*, as shown clearly in Fig. 2. The upper ends of the uprights *a* are connected by transverse bars *c*, which are provided with end pieces, *d*, and to these end pieces indented pendants *e e'* are attached by pivots *f*. The indentations in the pendants form step-like projections or ledges 1 2, which are shown more particularly in Fig. 2. The outermost pendant *e* of each end piece, *d*, has a spring, *g*, bearing against it, and these springs have a tendency to keep the pendants *e* pressed against the bars G G, and the latter always bear upward against either of the ledges 1 or 2 at the sides of the pendants *e e'*. The toggle-frames F F are each formed of two bars, *h h*, connected by cross-bars *i*. Any proper form of joint, *j*, may be employed for connecting the toggle-frames together. This arrangement or construction of the toggle-frames, in connection with the uprights *a*, causes the follower to be acted upon in a very even manner, and insures a horizontal position of the same.

The follower D has two end pieces, *k k*, projecting out from each side of the framing B. Against these end pieces, *k k*, bars H are arranged by springs *l l*, and the inner sides of these bars, which bear against the end pieces, *k*, are notched so as to form shoulders or step-like projections 2 3, as shown clearly in Fig. 2. To the framing B, directly above the bars H, spring-catches *n* are secured. These catches have each a bent bar, *o*, attached, the form of which is shown in Fig. 1, and said catches fit at certain times over the upper ends of the bars H, as will be presently explained. To the uprights *a* pins *p* are attached, so as to project horizontally therefrom, and similar pins, *q*, are attached to the framing B.

In the framing B, just above the press-box C, there is placed a horizontal shaft, I, to the outer ends of which a wheel, J, is attached.

The shaft I has ropes or chains *r* connected to it, and which wind around it in opposite directions. The outer ends of the ropes or chains *r* are attached to the centers of the toggle-frame. The wheel J is provided with a series of peripheries of different diameters, as shown clearly in Fig. 2. The wheel being in effect a cone of pulleys, around each periphery of the wheel J an endless rope, K, is placed, each rope passing around a pulley, *s*, so as to render a portion exposed, that it may be grasped by the hand of the operator. This will be fully understood by referring to Fig. 1.

The operation is as follows: At the commencement of the operation, the follower D is depressed or lowered to its fullest extent. The press-box C is then filled, or the requisite amount of the article to be compressed placed in it, and the wheel J is rotated. As the shaft I turns, the ropes or chains *r* are wound upon it and the toggle-frames F drawn inward toward the framing B, the former elevating the follower D, and consequently compressing the contents of the press-box C. The toggle-frames F, when drawn inward to their fullest extent, elevate the follower D as far as they are capable of doing at the first operation, when the bars G bear against the under sides of the end pieces, *d d*, and at the close of this first operation the projections *k* of the follower D catch over the shoulders 2 of the bars H and retain the follower in the position it was left by the first movement of the toggle-frames. The wheel J is then turned in a reverse direction and the toggle-frames F are forced outward from the framing B, the bars G lowering until they catch underneath the shoulders 2 of the pendants *e e'*. The wheel J is then again turned in the direction as at first, and the follower D is again raised until the toggle-frames F become vertical or straight, and the projections *k* catch over the shoulder 3 of the bars H. The wheel J is then turned in a reverse direction as before, and the toggle-frames forced outward until the bars G catch under the lowermost shoulders *i* of the pendants *e e'*. The wheel J is then turned so as to wind up the ropes or chains *r*, and the toggle-frames drawn toward the framing B, the latter movement of the toggle-frames completing the pressure. When the follower D reaches its culminating or highest point at the last pressure, the catches *n* fit or drop over the tops of the bars H, so that when the bale is properly bound and removed the follower D may descend without having its projections *k* catch upon the shoulders 2 3 of the bars H, and when the follower reaches its lowest point of descent, or just previous thereto, the pins *p* of the uprights *a* strike the bent rods *o* and throw up the catches *n*, thereby releasing the bars H, so that the projections *k* of the follower may catch on the shoulders of said bars, and the pins *q* on the framing B,

as the follower reaches its lowest point, throw outward the pendants *e*, so that the bars G may, during the first action of the follower, bear against the under sides of the end pieces, *d d*.

In case the press is operated manually, the varying sized peripheries of the wheel J enable the operator to take advantage of power or time, as circumstances may require, the ropes that pass around the smaller peripheries being actuated if speed is required, and those which pass around the larger peripheries being actuated if power is required.

In case the press is operated by other power than human it may be applied to the larger periphery of the wheel J by means of a belt from the drum L of a vertical power-shaft, M.

From the above description it will be seen that the toggle-frames are applied several times to each bale, and the application of the power is when the toggle-frames are near the completion of their movement, and consequently exert their greatest power. This is the essential feature of the invention, and a very important one, as the resistance of articles under compression does not increase in a regular ratio like the gradually-increasing power of a toggle; hence these toggle-presses hitherto constructed, which are generally termed "progressive-power presses" are not perfect in their operation; but by repeated applications of the toggle-frame power, during the latter part of the pressing operation, substantially as herein shown, the article within the press-box will, without additional mechanism or extra driving-power, be subjected to a pressure commensurate with the increasing resistance offered by it.

I do not confine myself to the precise means herein shown and described for admitting of repeated applications of the power of the toggle-frames F to the follower, for various plans might be devised for effecting the result, and all operate equally well.

I do not claim the employment or use of toggle or toggle-frames for the purpose of operating the followers of presses for compressing articles for baling purposes. Neither do I claim the wheel with varying sized peripheries for applying a varying power to the toggles; but

I do claim as new and desire to secure by Letters Patent—

The employment or use of toggles or toggle-frames applied to the press and follower, substantially as described, so as to admit of repeated applications of their power during a single movement or stroke of the follower, or, in other words, during the compression of each bale, for the purpose specified.

JAMES WEED.

Witnesses:

CHESTER WEED,
THOMAS HARBACK.