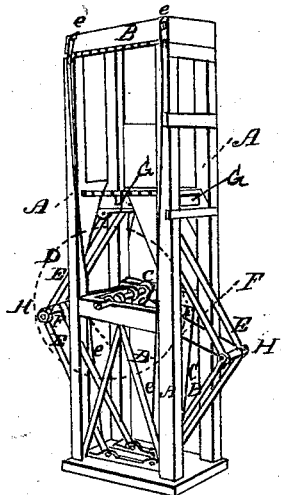
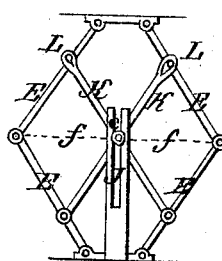


*S. Fry,*  
*Cotton Press.*  
*N<sup>o</sup> 2,611.* *Patented May 7, 1842.*

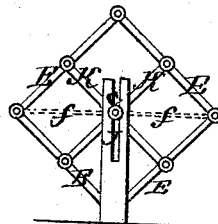
*Fig. 1.*



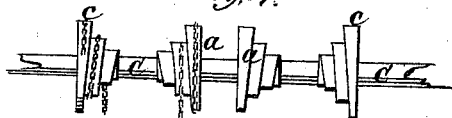
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



# UNITED STATES PATENT OFFICE.

SAMUEL FRY, OF NEW YORK, N. Y.

## IMPROVEMENT IN COTTON-PRESSES.

Specification forming part of Letters Patent No. 2,611, dated May 7, 1842.

*To all whom it may concern:*

Be it known that I, the undersigned, SAMUEL FRY, of the city, county, and State of New York, have invented a new and useful Improvement in Presses for Compressing Cotton, Oil, and other Materials, of which the following is a full, and exact description, reference being had to the annexed drawings.

Figure 1 is a perspective view of the press. Figs. 2 and 3 are two different modifications of the jointed levers with bridles attached. Fig. 4 is the shaft with its fusees, on which the chains wind, the lettering of the similar parts being the same in each figure.

A A represents the frame.

B is the stationary head at the top of the frame, hung on hinges for the purpose of being removed at pleasure for the admission of the material to be compressed.

C is the shaft to which the power is applied. A ratchet-wheel should be attached to each end of this shaft. The shaft may be made to revolve by any of the customary modes of producing a rotary motion; but when manual power is applied I prefer a tread-wheel, the radius of which should be less than the length of the lever, one wheel to be attached to each end of the shaft D D, Fig. 1.

E E E represent the several arms of the toggle-jointed levers, of which two or more pairs may be used, having their fulera at each end, top and bottom, and their joints in the center at H.

F F are chains having one end fastened to the fusees and the other to the joints of the levers H.

a a, Figs. 1 and 4, are fusees upon the shaft, of which there must be as many as there are jointed levers. The fusee may decrease from its largest or initiatory diameter to its smallest or terminal diameter by a scroll of one or more revolutions, according to the motion required to effect the compression, and which will vary according to the different properties of elasticity and compressibility of the material to be compressed and the degree of compression required. The power of the press may be varied by increasing or diminishing the diameter of the fusees. When the shaft C is stationary, as in Fig. 1, the chains which wind on the top of the fusees are at a greater angle with the horizon than those which wind under the fusees. This difference of angle

lessens as the levers approach a perpendicular and ceases when the chains on each side of the shaft become parallel with each other. This requires one chain to be longer than the other, and in order to overcome this inequality the fusees which receive the chain on the top are made as much larger than those that receive it on the under side as will compel all the levers to approach a perpendicular with equal velocities. The diameter of each of these fusees being largest at the commencement of the operation of pressing and diminishing gradually as the compression progresses, the power constantly increases from the commencement to the termination of the operation, and the ratio of the power to the resistance in every stage of the operation may be made the same for any material. When the press works upward, the lower fulera of the levers are stationary. The upper fulera are attached to and operate on the movable head platen or follower G, on which is placed the material to be compressed. At the commencement of the operation the platen G is in contact with the shaft C, or but little elevated above it. The joints H are extended as far from the shaft as the chain will allow. By winding the chains on the shaft or fusees the joints H are made to approach the shaft, and the platen is driven upward toward B, with a force constantly increasing, until the levers are brought to a perpendicular position. From the lower fulera of the levers strong straps or bands of iron extend up and pass over the head B at each end. The straps sustain the whole power of the press and prevent the two fixed points from receding from each other. These straps also form the hinges and fastenings of the head B, as represented in Fig. 1.

Fig. 2 represents the arrangement where the shaft C is movable. In this form the shaft C, the joints H H, and the chains are always in a right line, the shaft moving up and down in the slot J. In this form all the fusees are alike. The fulera at the upper or lower ends being some distance apart, the points K K, where the bridles are connected with the arms of the levers, must necessarily be nearer the fulera than the joints where the power is applied. This distance of the fulera apart causes an eccentric action of the bridle at one end upon the pin which secures it to the arm. The groove in which the pin slides must conform to this ec-

centricity. The form of this groove is shown by fixing a point in the arms at L L when the arms are perpendicular. The bridles K K being secured to the arms at the lower end by the pins upon which they revolve, by moving the platen down the point will describe the form of the groove.

Fig. 3 represents the arrangement when the levers on each side have one common fulcrum at top, and also at the bottom. In this arrangement the bridles are attached to the levers at a point equidistant from the joints and fulera.

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

The use of the chain and fusee in connection with the jointed levers, in the manner above described, or by any combination of those parts essentially the same, by which a continuous motion is given to the platen with such increase of power as may be required.

SAMUEL FRY.

Witnesses:

J. WILSON FREEBORN,  
G. C. FREEBORN.