G. W. D. CULP.

Hay Press.

No. 43,480. Patented July 12, 1864.

Fig: 1.

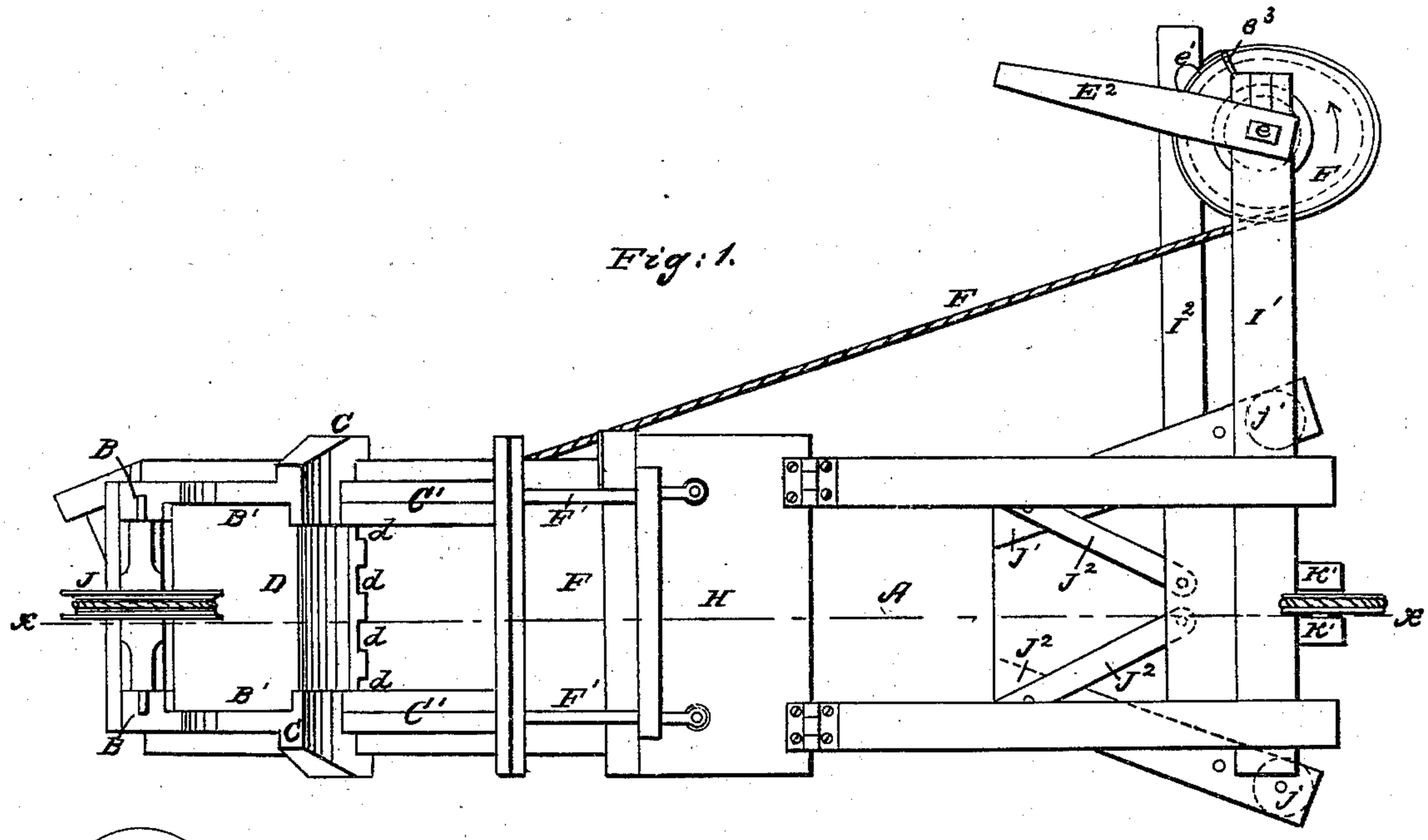

Fig: 2.

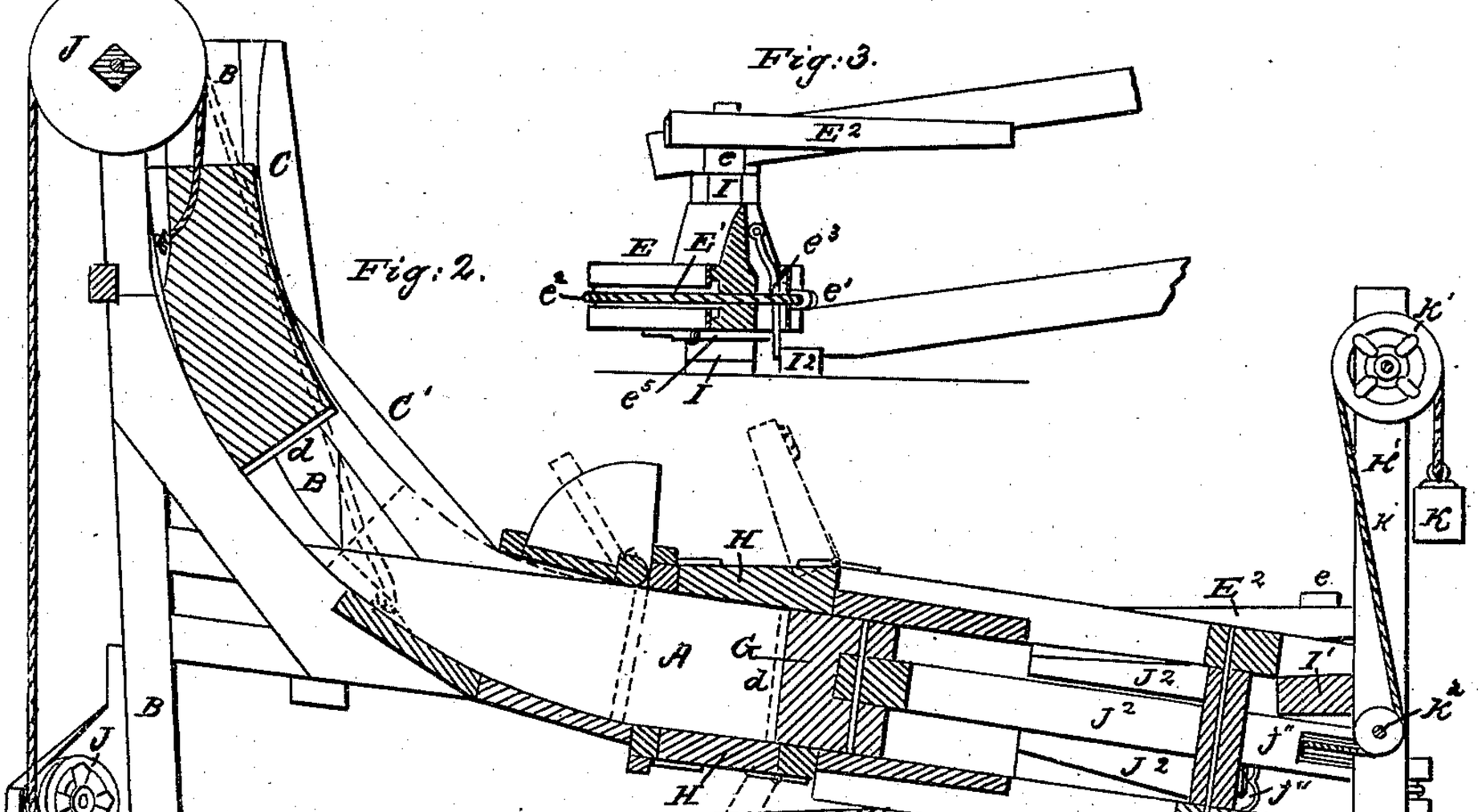

Fig: 3.

Witnesses:
C. O. Smith.
Edmund Knight.

Inventor:
G. W. D. Culp.

UNITED STATES PATENT OFFICE.

G. W. D. CULP, OF ALLENSVILLE, INDIANA.

IMPROVEMENT IN HAY-PRESSES.

Specification forming part of Letters Patent No. 43,480, dated July 12, 1864.

To all whom it may concern:

Be it known that I, GEORGE W. D. CULP, of Allensville, in the county of Switzerland and State of Indiana, have invented a new and Improved Press for Compressing Hay, Cotton, and other Substances for Baling; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of my improved press. Fig. 2 is a vertical longitudinal section of the same in the line *x x*, Fig. 1. Fig. 3 is a detached view of the capstan by which the beater is operated, and which will be hereinafter more particularly referred to.

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

The object of my invention is to produce a press in which are combined the advantages of both the vertical and horizontal press now in use.

An objectionable feature in the use of the vertical press is that its great height renders it necessary for the press to be placed within a supporting building or structure having what is known as a "pit" or "basement story," in order to obviate the labor of elevating to the filling-door the substance to be compressed.

In horizontal presses as hitherto constructed it has been impossible to employ beaters for packing the hay or other substance previously to its being acted upon by the follower or main compressing medium.

My invention consists, chiefly, in a press which occupies an inclined position, and which is provided with oblique guidways, which are of such form and arranged in such manner that a beater may be effectively employed in order to perform the packing operation, which has to be done with the feet in the horizontal presses heretofore devised.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe its construction and operation.

In the accompanying drawings, A may represent the box of the press, which is sustained in the inclined position represented in Fig. 2 by standards B B.

B′ B′ represent grooves or guideways formed partially in the standards B B and partially in the vertical and oblique timbers C C C′ C′, said guideways being of circular or curved form, constituting gentle slopes for a short distance in the immediate vicinity of the box A, and then, as they extend from or leave the latter, rapidly approaching a vertical position.

D is a beater which is moved up within the ways B′ B′ by means of a capstan, E, through the medium of a cord, E′, which permits the beater to descend by gravity with great force against the substance within the box A, after it (the beater) has been elevated to the uppermost part of the grooves B′ B′.

F is a door where the hay is placed loosely within box A, between the beater D and a follower, G, the manner of operating which will be presently explained.

F′ F′ are side pieces erected at the respective ends of the door F, and employed in connection with the latter when opened to prevent the waste of hay or other substance being compressed.

H H′ represent doors hinged respectively to the upper and under side of the box A. These doors may be opened so as to permit bands to be applied to the bale within the box A, after which the bale may be passed out at the door H′.

d may represent spaces formed in the respective proximate ends of the beater D and follower G, for the purpose of facilitating the application of the bands to the bales. The capstan E is mounted horizontally upon a shaft, *e*, which has its bearings in bars or timbers I I′, and a sweep, E^2, attached to the said shaft, provides means for the turning of the capstan in customary manner. The sweep E^2 is represented as occupying a position above the timber I′; but in practice this arrangement may be reversed, so that the horses attached to the sweep will pass under the timber I′. The capstan E in its transverse section has the shape of an egg or of an ellipse, and is secured eccentrically upon the shaft *e*, so that when it is turning to wind upon it the cord E′, for the purpose of elevating the beater D, its point of action upon said cord E′ will decrease in distance with relation to the shaft *e* commensurately as the beater D rises within the inclined ways B′ B′. The cord E′ is fastened to the end of the beater D in any suitable manner and passes over pulleys J J′, and its attachment to

the capstan E is made through the medium of a block, e', which is fitted loosely within a continuous groove, e^2, which is formed upon the periphery of the capstan E.

e^3 is a pivoted bar fitting within a corresponding slot in the capstan E, and affording a firm bearing for the block e' while the capstan is being turned to elevate the beater D. The parts are to be so arranged that when the capstan has made almost a complete revolution upon its axis the beater will be elevated to the proper height within the groove, from which it may be permitted to descend against the hay or other substance within the box A.

e^5 is a spring which acts to throw the bar e^3 into the groove e^2, so as to cause the block e' to move round with the capstan E until said block comes in contact with a timber or bar, I^2, which causes the block e' to move inward, or in the direction of the axis of the capstan E, entirely out of contact with the block e', whose bearing is thus removed, the block being then allowed to slide around in the groove e^2. When the bar e^3 strikes against the timber I^2, the beater D will have been elevated to the height from which it is allowed to descend.

It is manifest that the peculiar form of the capstan E adapts it to act with increasing force upon the cord E′ as the beater ascends in the ways B B, inasmuch as the point of action of the capstan E approaches its axis or fulcrum as fast as the wheel is turned. The advantage of thus constructing the capstan is that its elevating capacity increases in proportion as the beater approaches a vertical position, when, of course, it will require greater power to elevate it than when in an approximately horizontal position.

J^2 J^2 may represent toggle-joint levers attached by suitable pivots to the follower G.

j j represent rollers secured to the under side of the levers J^2, and employed to support the same in their correct positions while in operation, and also to prevent friction.

The transverse timber A^3, upon which the rollers j j rest, may extend outward as far as the ends of the levers J^2 J^2 move, in order to form a continuous way or bearing for said rollers.

After the substance within the box A has undergone the requisite packing process, the beater may, by any suitable device, be retained in contact with said substance to hold it against the pressure of the follower G.

The levers J^2 J^2 may be drawn together by means of a rope or cord, which extends from the capstan E and passes around friction-wheels j' j', inserted into the ends of the levers J^2 J^2.

The position of the levers J^2 J^2 may be reversed by a weight, K, attached to the ends of a cord, k, which passes over a pulley, k', under a pulley, k^2, and is attached to the ends of one of the levers J^2 or J^3, the pulleys k' k^2 being mounted between standards K′ K′.

Having thus described my invention, the following is what I claim as new and desire to secure by Letters Patent:

1. The combination of the beater D, working in inclined ways B B, with the box A in an inclined or horizontal position, substantially as described and represented.

2. An eccentric, elliptical, or other irregularly-formed drum or roller, E, employed, in connection with beater D and ways B B, to apply an increasing power to elevate the beater D, as explained.

GEO. W. D. CULP.

Witnesses:
FRANK LAKE,
IRA LAKE.