

No. 637,696.

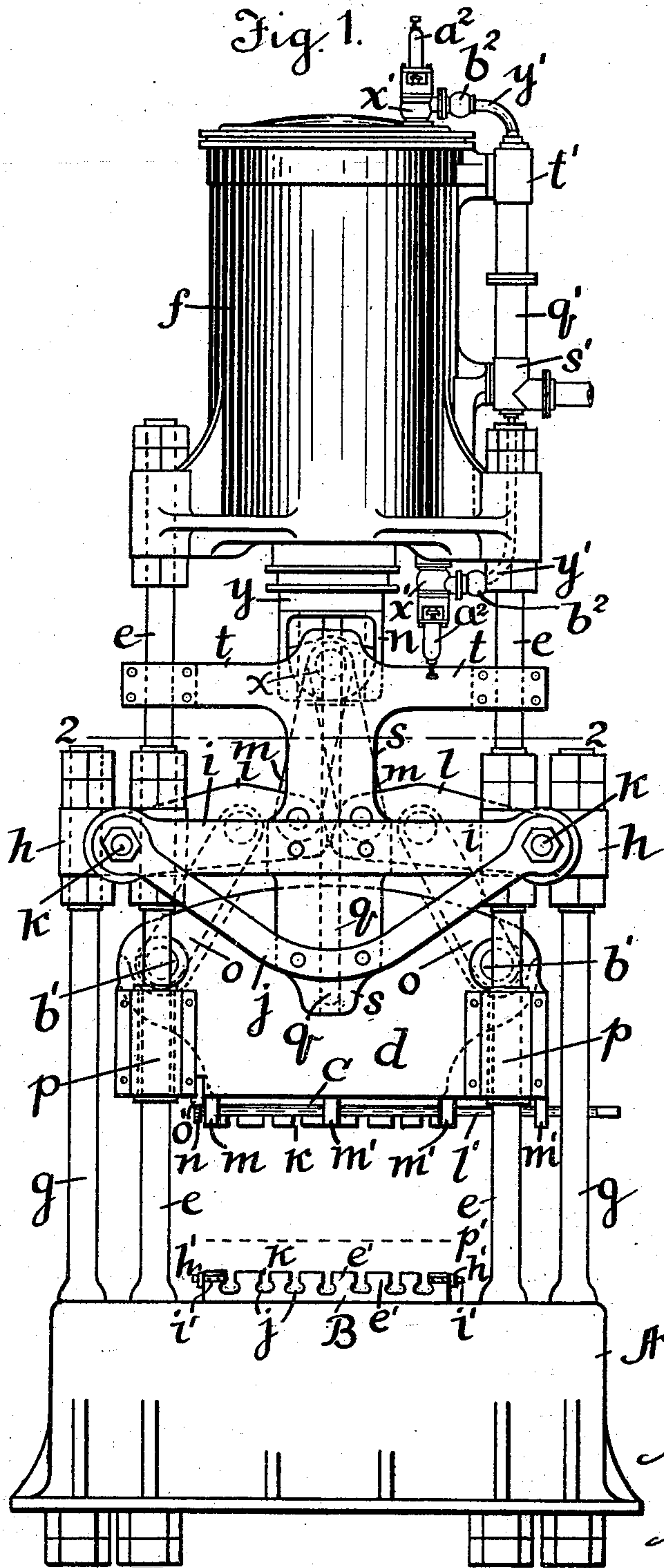
Patented Nov. 21, 1899.

A. BALDWIN.
BALE COMPRESSING PRESS.

(Application filed Nov. 25, 1898.)

(No Model.)

3 Sheets—Sheet 1.



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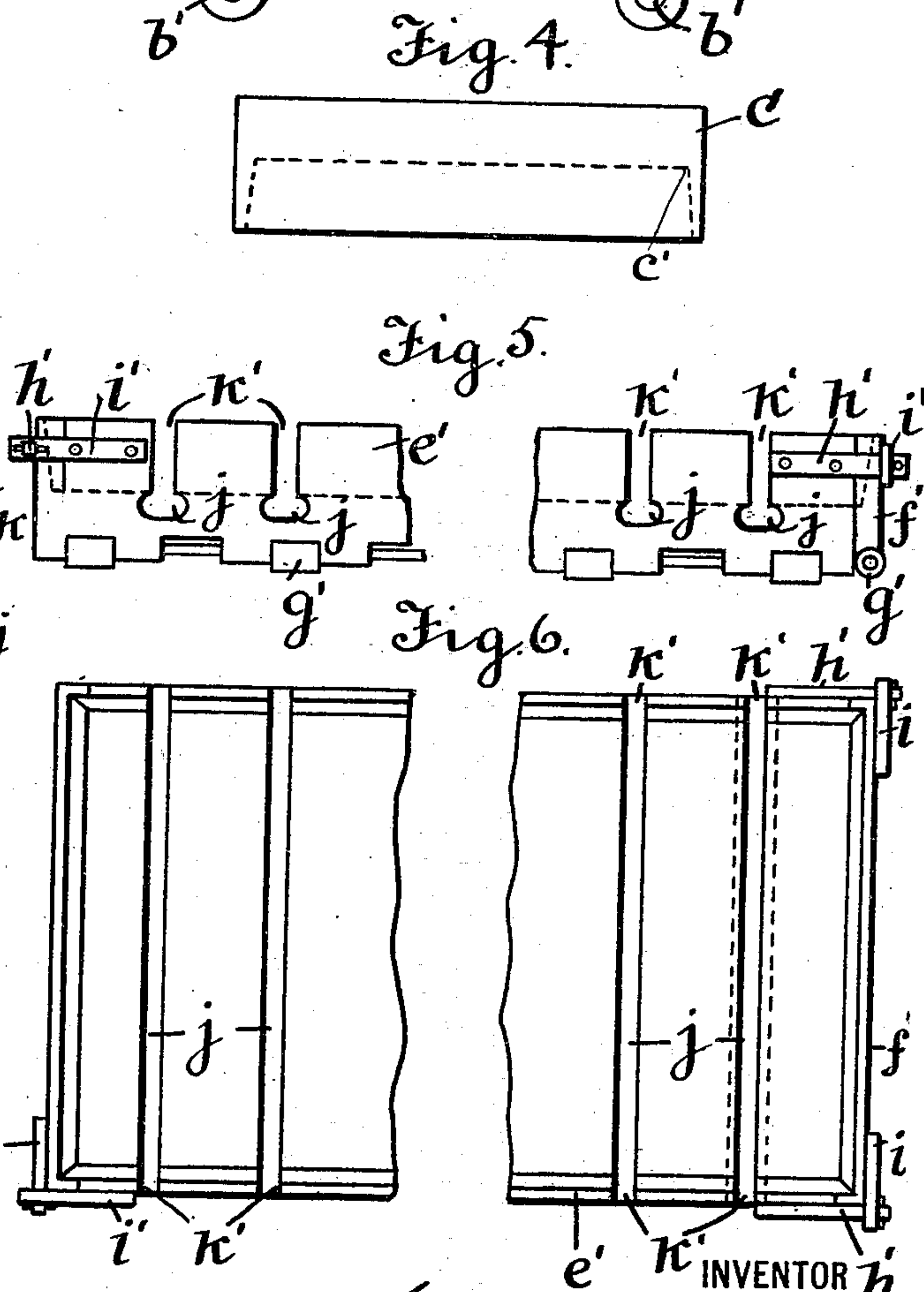
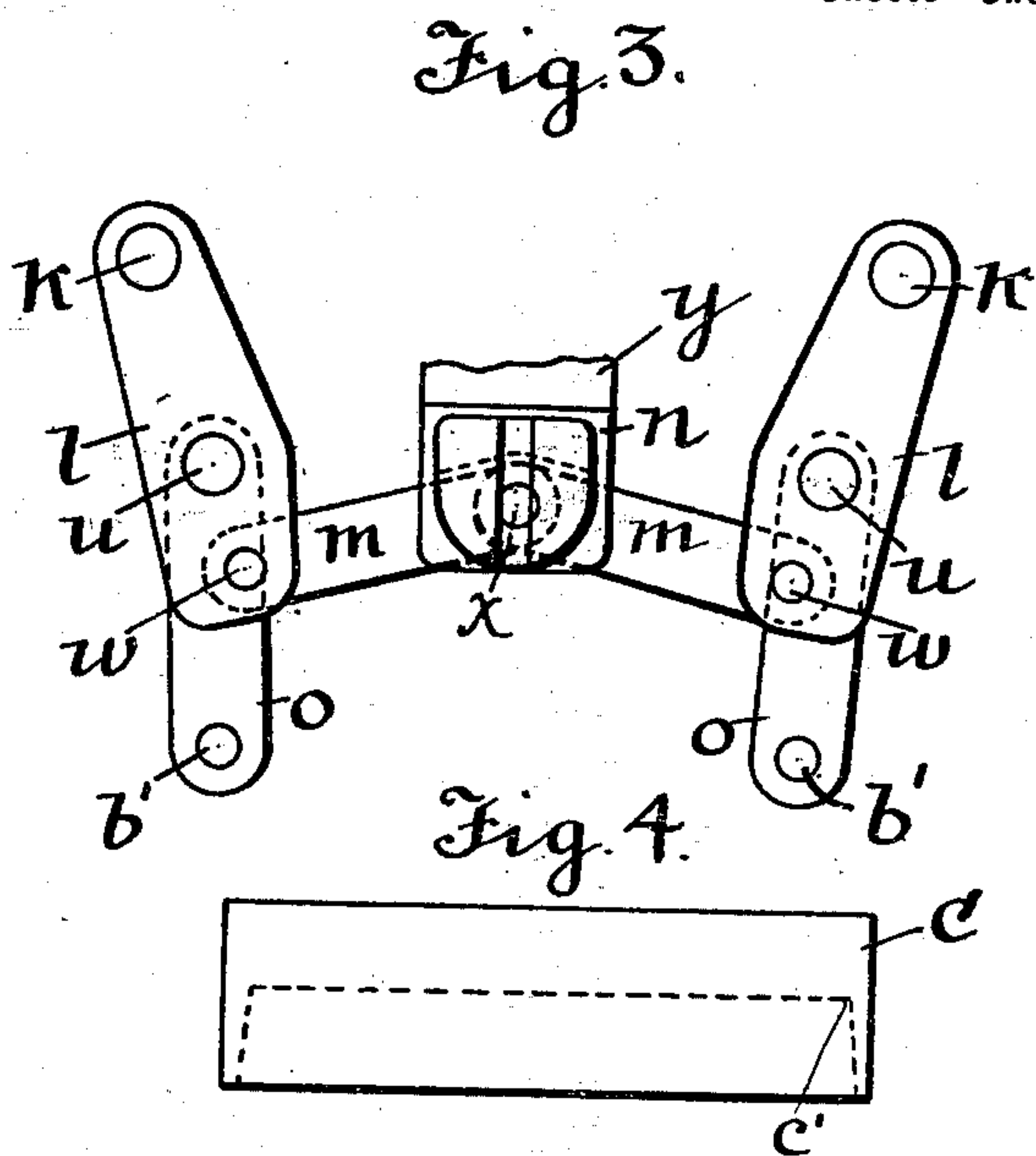
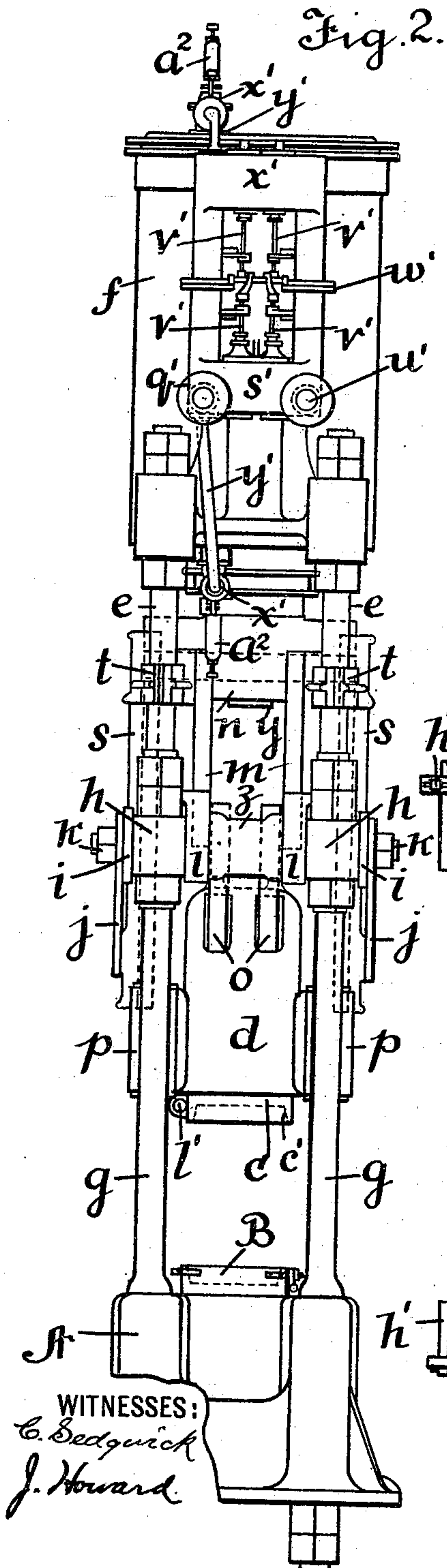
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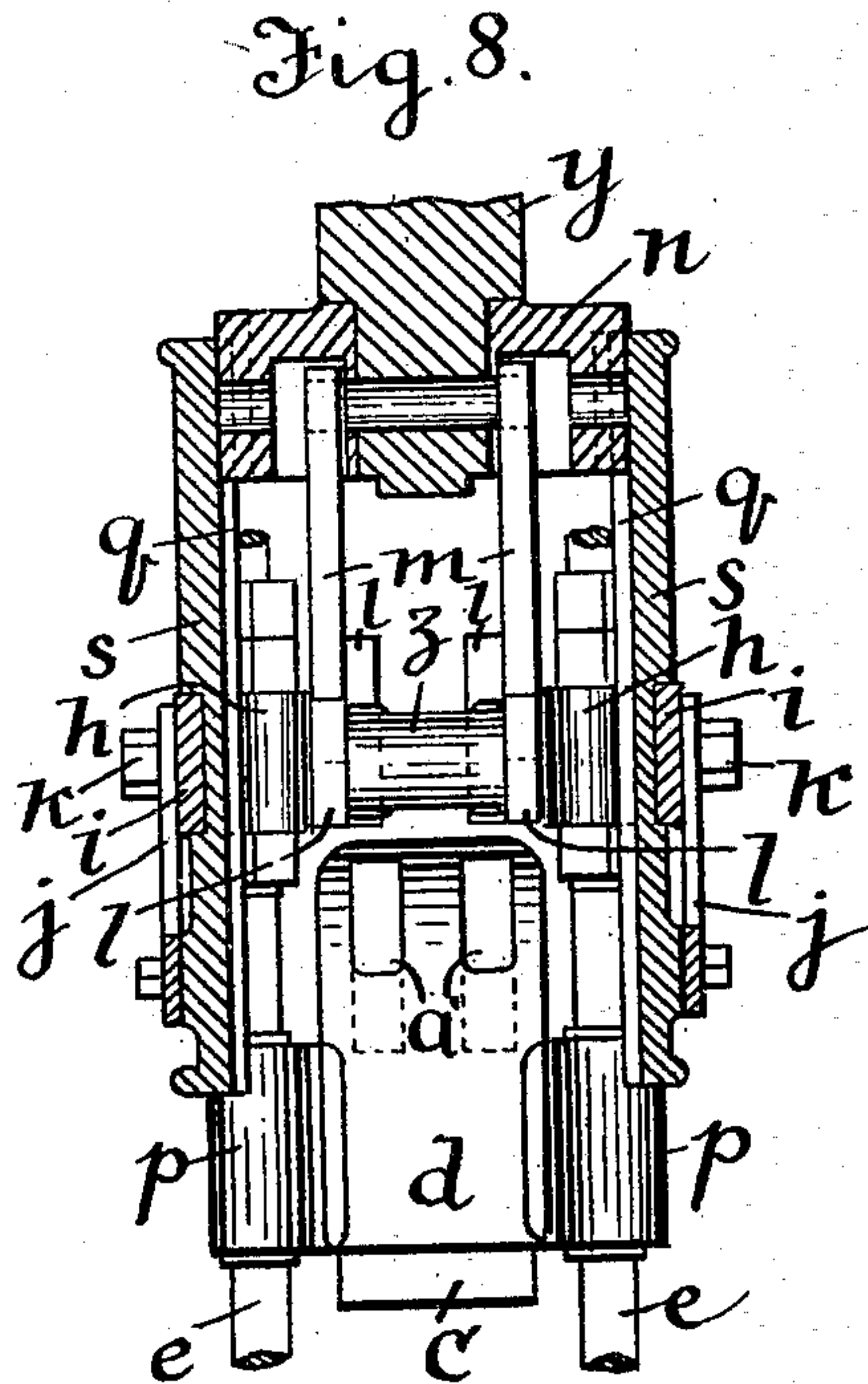
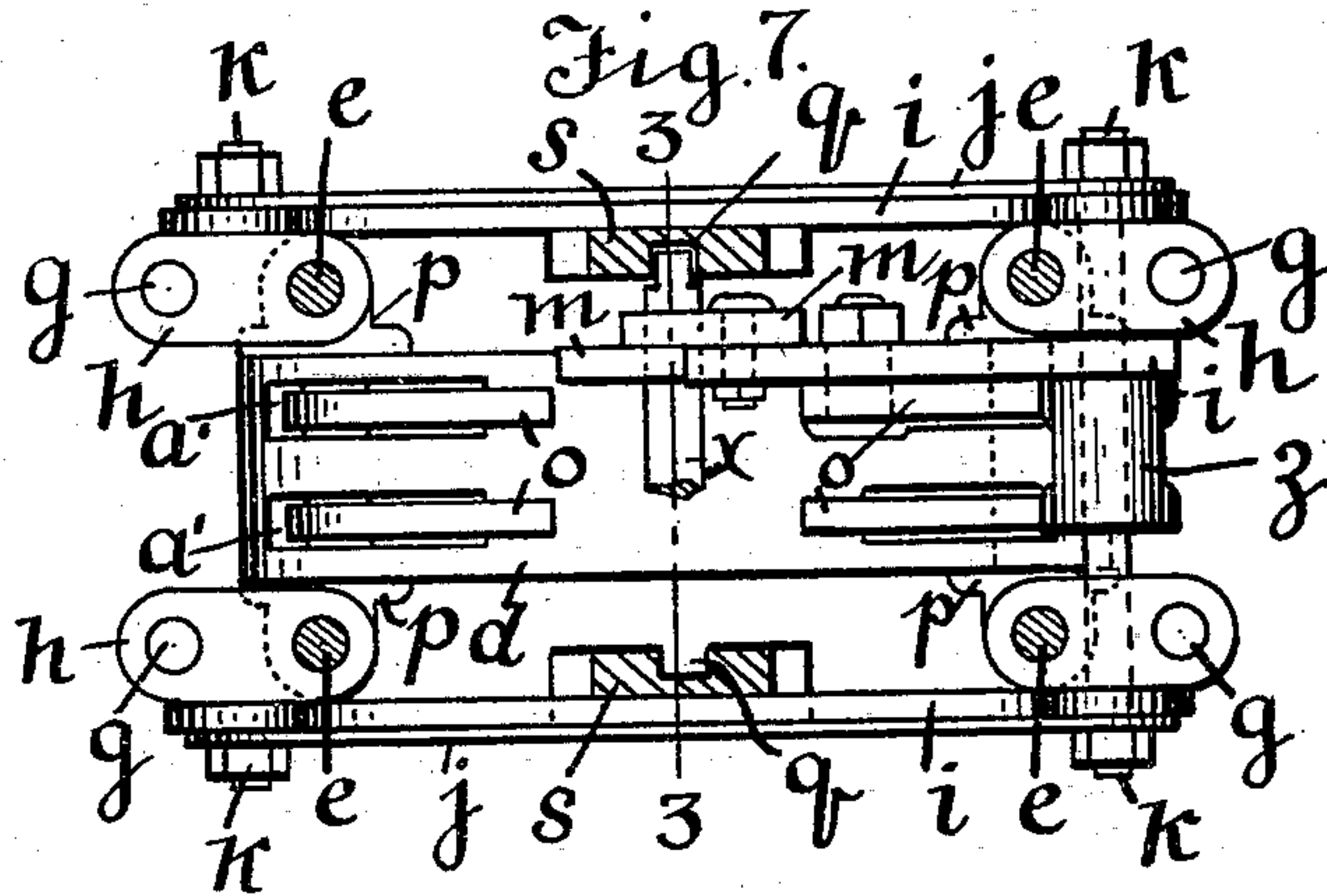
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

AUGUSTINE BALDWIN, OF NEW YORK, N. Y.

BALE-COMPRESSING PRESS.

SPECIFICATION forming part of Letters Patent No. 637,696, dated November 21, 1899.

Application filed November 25, 1898. Serial No. 697,404. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTINE BALDWIN, a citizen of the United States of America, and a resident of New York city, county and State of New York, have invented certain new and useful Improvements in Bale-Compressing Presses, of which the following is a specification.

My invention relates to steam-presses of great size and power for compressing cotton and other bales into small size for compact storage, particularly in ships and cars for transportation, and which, owing to their magnitude, it is desirable to construct on a large and substantial bed-plate affording the foundation and mainstay of all the rest of the structure and being the base on which the bales are compressed by a platen located above and operated by an inverted double-acting steam-cylinder mounted at the upper extremity of the structure to facilitate handling the bales on the ground-floor, so as to avoid hoisting and the more expensive upper structure necessary when the reverse construction is employed, particularly in the case of presses of twenty feet and more in height, as contemplated in my plans; but in some places it may be preferred to reverse the machine, as where it is to be located in the side of an embankment, as hereinafter described, reference being made to the accompanying drawings, in which—

Figure 1 is a front elevation of my improved press with the platen up. Fig. 2 is a side elevation. Fig. 3 is a diagram of the compound-lever mechanism detached and represented in the positions they assume when the pressing is completed. Fig. 4 is an end elevation of the face-plate of the platen. Fig. 5 is a front elevation of the face-plate of the base on a larger scale and with the middle portion broken out. Fig. 6 is a plan view of the face-plate of the bed, also enlarged and with the middle portion broken out. Fig. 7 is a horizontal section of the press on line 2 2 of Fig. 1 with some parts omitted. Fig. 8 is a detail in elevation, partly in a central section, on line 3 3, Fig. 7.

A represents the base, whereon the face-plate B is placed, between which and the face-plate C of the platen *d* the bales are compressed. The base A supports four long posts

e, at the upper ends of which the inverted steam-cylinder *f* is mounted, also shorter posts *g*, at the upper ends of which and on the posts *e* four pivot-supporting blocks *h* are mounted at the four corners of the plan, respectively. (See Fig. 7.) These blocks of the front and rear sides of the press, respectively, are coupled by the tension-bars *i* and the drop-stays *j*, being bolted thereto by the projecting ends of pivot-rods *k*, on each of which is a pair of levers *l*, the free ends of which meet at the center of the machine and are coupled by links *m* with the cross-head *n*, and said levers are also coupled by other links *o* with the platen *d*, said platen being mounted by guide-lugs *p* on the posts *e* to slide up and down freely. By the employment of the outside posts *g* in addition to the posts *e* and the lever-pivot-supporting blocks *h*, attached to both sets of posts, much greater holding power for the pivots is obtained and the pivots may be located at a greater distance from the center line in which the power acts, which permits of longer levers *l* and of the corresponding arrangement of the links *o*, pivoted to levers *h* intermediately of the fulcrum-pivots of said levers and their connections with links *m*. The fulcrum-pivots *k* are inserted in the blocks *h* between the posts, and the tension-rods *i* are connected by said pivots in a simple but at the same time most substantial construction.

Guideway-grooves *q* for the cross-head are formed in housings *s*, which are supported at the upper end by arms *t*, clamped on posts *e*, and lower down are bolted to the tension-bars *i* and the drop-stays *j*, the chief function of the latter being to support the lower ends of the housings.

The links *m* are connected to the cross-head by a pivot-bolt *x*, extending through the cross-head *n* lengthwise and through the end portion of the piston-rod *y*, inserted in the cross-head. Spacing-collars *z* are placed on pivot-rods *k*, by which, together with the inner surfaces of the blocks *h*, the said levers are confined. Recesses *a'* are formed in the upper surface of the follower to let in the ends of links *o* to connect with pivots *b'*.

The face-plate C of the platen is recessed, as indicated at *c'*, Fig. 4, to receive the upper portion of the bale, and together with the

face-plate B of the base, also recessed, constitute a practically inclosing box when the bale is reduced to the final dimensions and more sharply define the outlines of the bale than when the common plain unrecessed face-plates are used.

To facilitate delivery of the bales from face-plate B, on which they rest when the platen rises, the side e' and the end f' are hinged, as at g' , to turn down and allow the bales to be shoved on and off without obstruction. When closed up, these sides are secured by the interlocking keepers h' and i' .

Both the face-plates are grooved in their faces, as at j' , for reception of the bands, and the sides are notched at k' coincidently with said grooves for allowing the bands to be wrapped around the pressed bales and tied. The dotted line p' indicates the position of the surface of face-plate C when the bale is completely pressed, the levers l and connecting-links being then in the positions represented in Fig. 3.

To facilitate drawing the bands tightly, a shaft l' is mounted on the front side of the face-plate C of the platen in suitable bearing-lugs m' to be turned by a crank applied at one end and provided with a holding-ratchet n' and pawl o' for so drawing them, the bands being coiled on the shaft, so as to bind by friction and then be drawn tight. While so drawn the bands are to be wedged fast in the grooves or notches and held against retraction when released from the shaft to be tied. This shaft may be mounted on the face-plate of the base, if desired; but this is not claimed herein.

The valve mechanism of the steam-cylinder may be of any approved kind suitable for being operated by hand or otherwise and is not claimed herein nor definitely shown in the drawings. For a general understanding of it, it may, however, be stated that q' represents the live-steam pipe; s' , the lower valve-chest; t' , the upper valve-chest, and u' the exhaust-steam pipe. The valve-rods are represented at v' . w' is a rock-shaft, which may be considered as provided with the usual wiper-cams for lifting the valves in the usual manner of such well-known valve apparatus. At each end of the steam-cylinder is a relief-valve x' , which opens into a pipe y' , connected with the live-steam pipe to relieve excessive compression of the steam-cushion by

which the piston is arrested at each end of its strokes, said valve being controlled by springs inclosed in the covers a^2 , adapted to be set to open at any desired predetermined pressure. Check-valves b^2 are connected in the pipes y' , intermediately of the relief-valves and the live steam for intercepting the steam which would otherwise be in constant communication with the relief-valves, which is not desirable.

In the operation of the press, starting with the piston at the upper end of its stroke and the platen at the upper extremity of its movement, as seen in Fig. 1, the movement of the piston will be from the position of x in Fig. 1 to x in Fig. 3, while the movement of the platen will only equal the vertical descent of pivots u , swinging around pivots k , somewhat less than half the travel of the piston, with corresponding increase of power.

I am aware that various contrivances of toggle-joints and compound levers have been employed for multiplying the power of the piston on the platen; but I am not aware that the construction shown and described by me herein has ever before been used.

What I claim as my invention is—

1. In a press, the combination of the base A, having the face-plate B, posts e supported on said base, cylinder f supported on said posts e , platen d having face-plate c and fitted to slide up and down on said posts e , short posts g exterior to posts e , pivot-blocks h supported on the posts e and g , levers l , pivoted on the bolts k carried by said blocks, links o connecting the platen to said levers, cross-head n , links m , connecting said levers and cross-head, and the piston actuating said cross-head all substantially as described.

2. The combination with the base and the platen, of the recessed face-plates adapted to inclose and define the form of the upper and lower portions of the bales, the face-plate of the base having sides hinged to open and permit the bales to slide on and off the surface of the face-plate, and to close and confine the bales while being pressed, substantially as described.

Signed by me, at New York, N. Y., this 23d day of September, 1898.

AUGUSTINE BALDWIN.

Witnesses:

C. SEDGWICK,
A. P. THAYER.