

(No Model.)

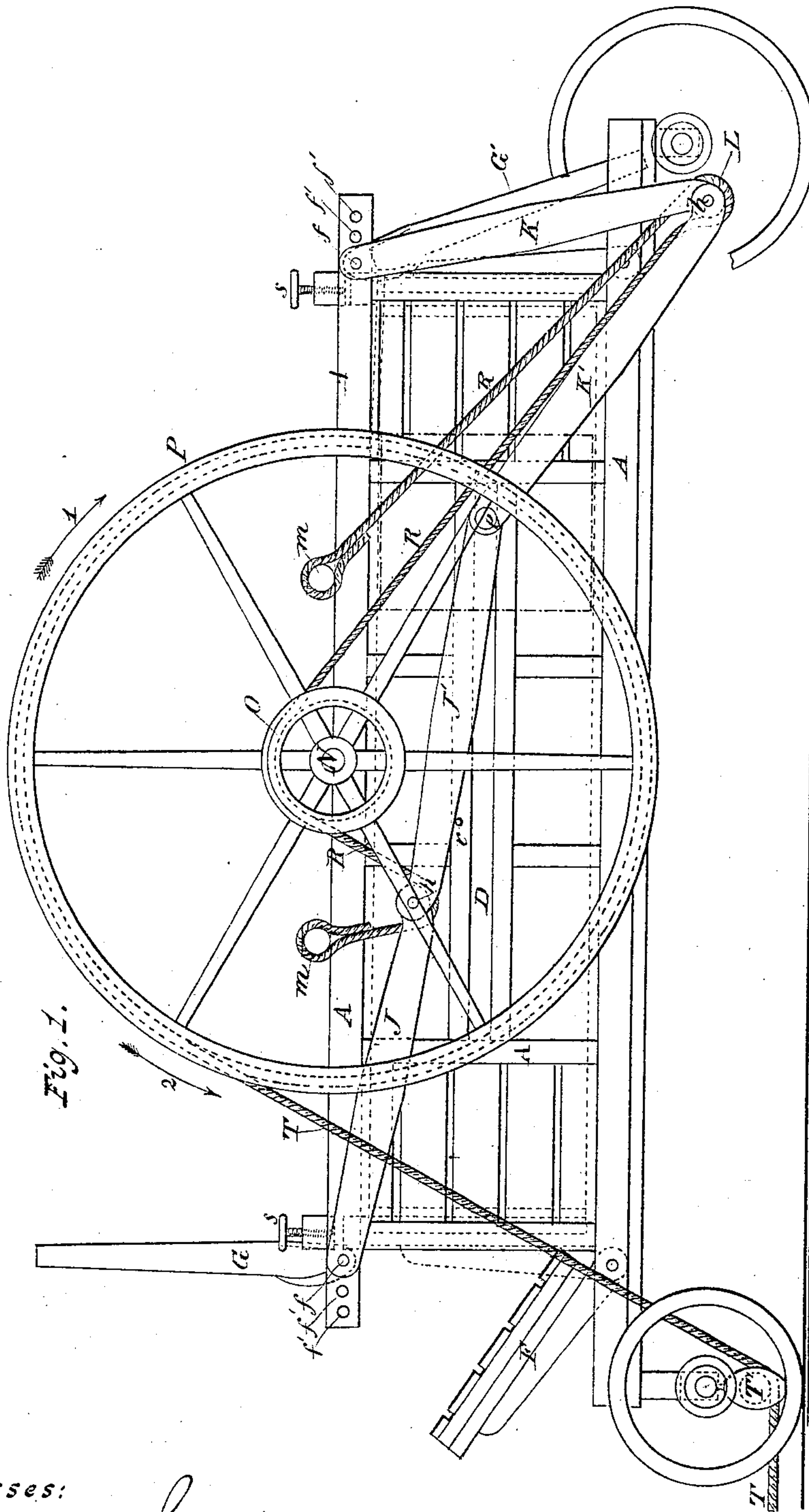
4 Sheets—Sheet 1.

J. LA DOW.

BALING PRESS.

No. 252,882.

Patented Jan. 31, 1882.



Witnesses:

Charles C. Smith.

Alex. Selkirk Jr.

Inventor.  
John La Dow  
by his Attorney Alex. Selkirk

(No Model.)

4 Sheets—Sheet 2

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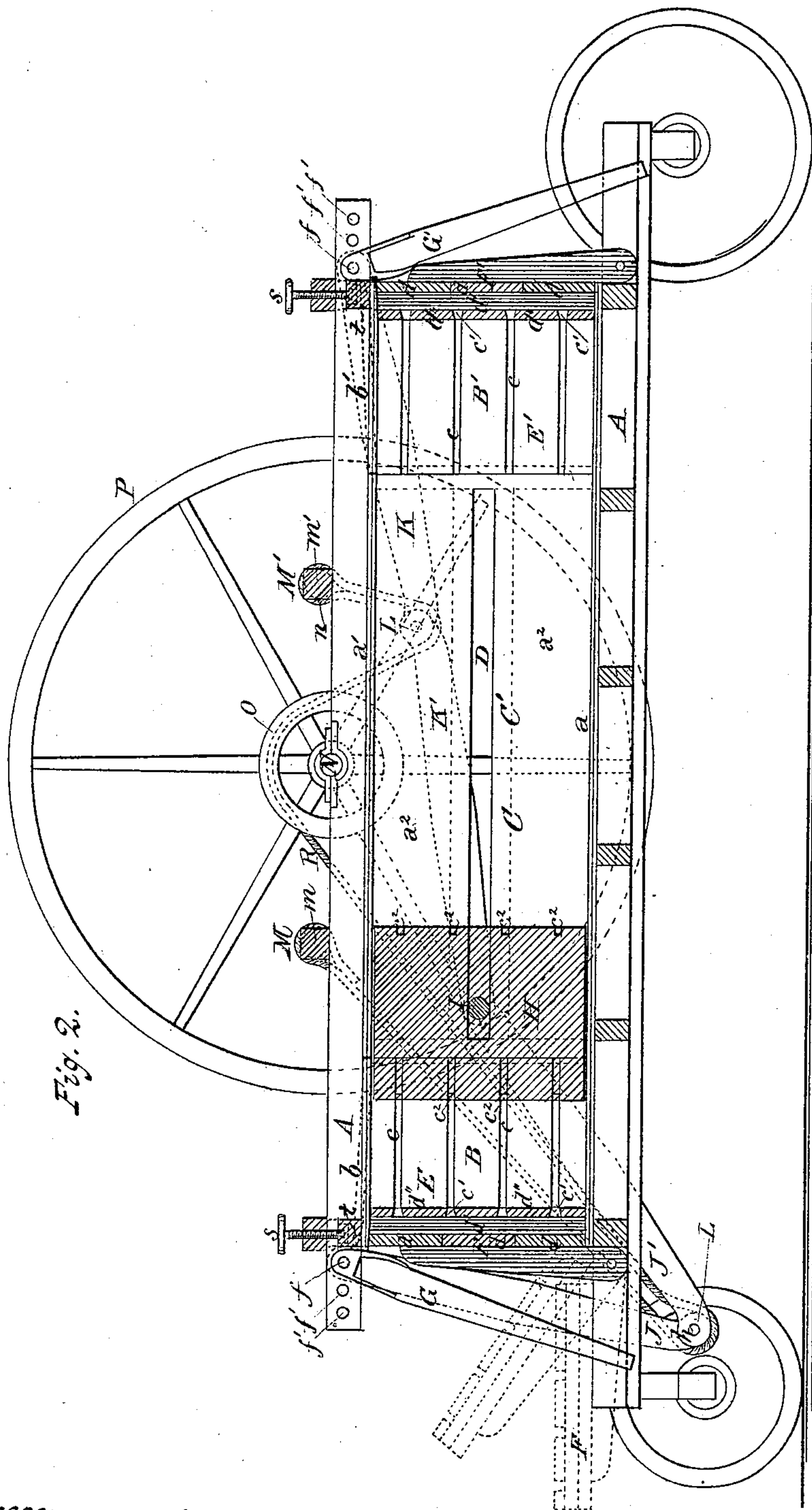


Fig. 2.

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(No Model.)

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Fig. 3.

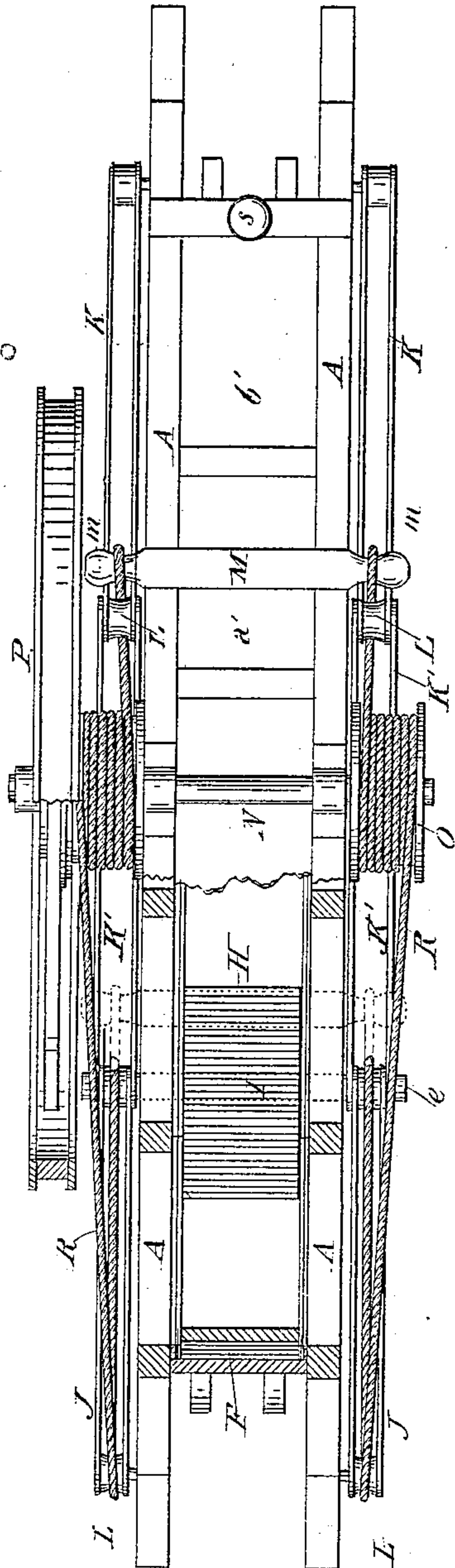


Fig. 7.

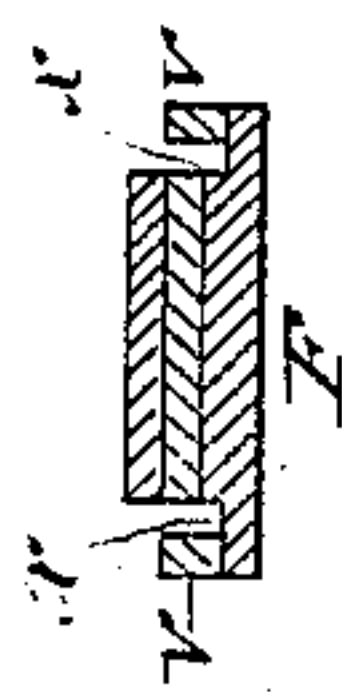
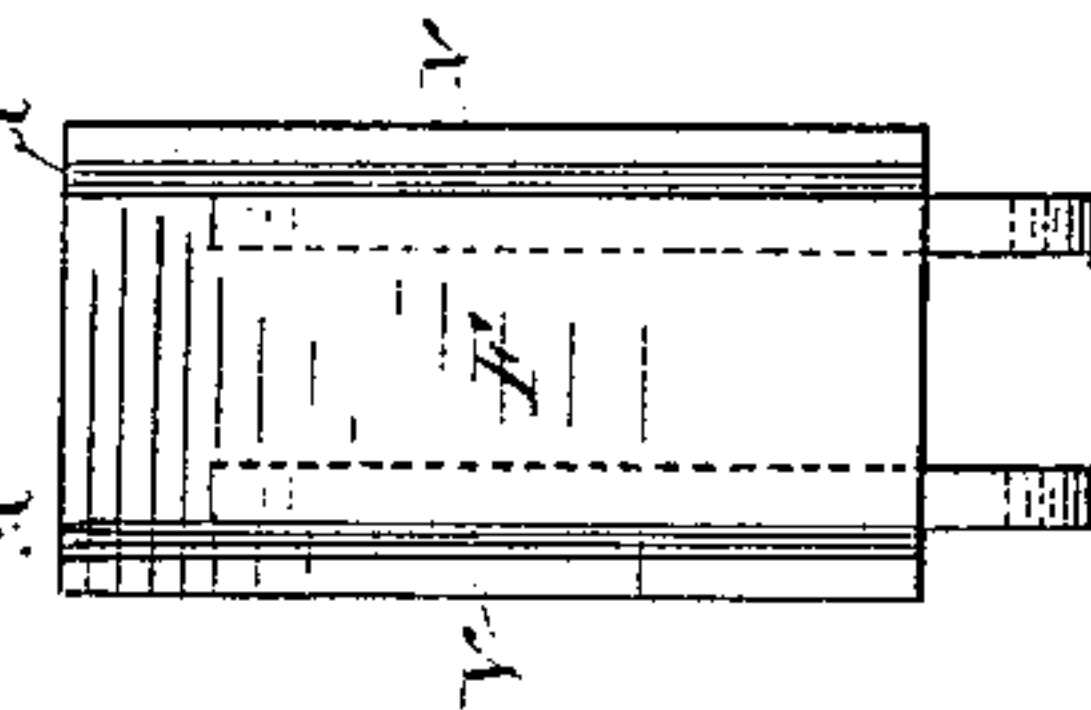


Fig. 6.



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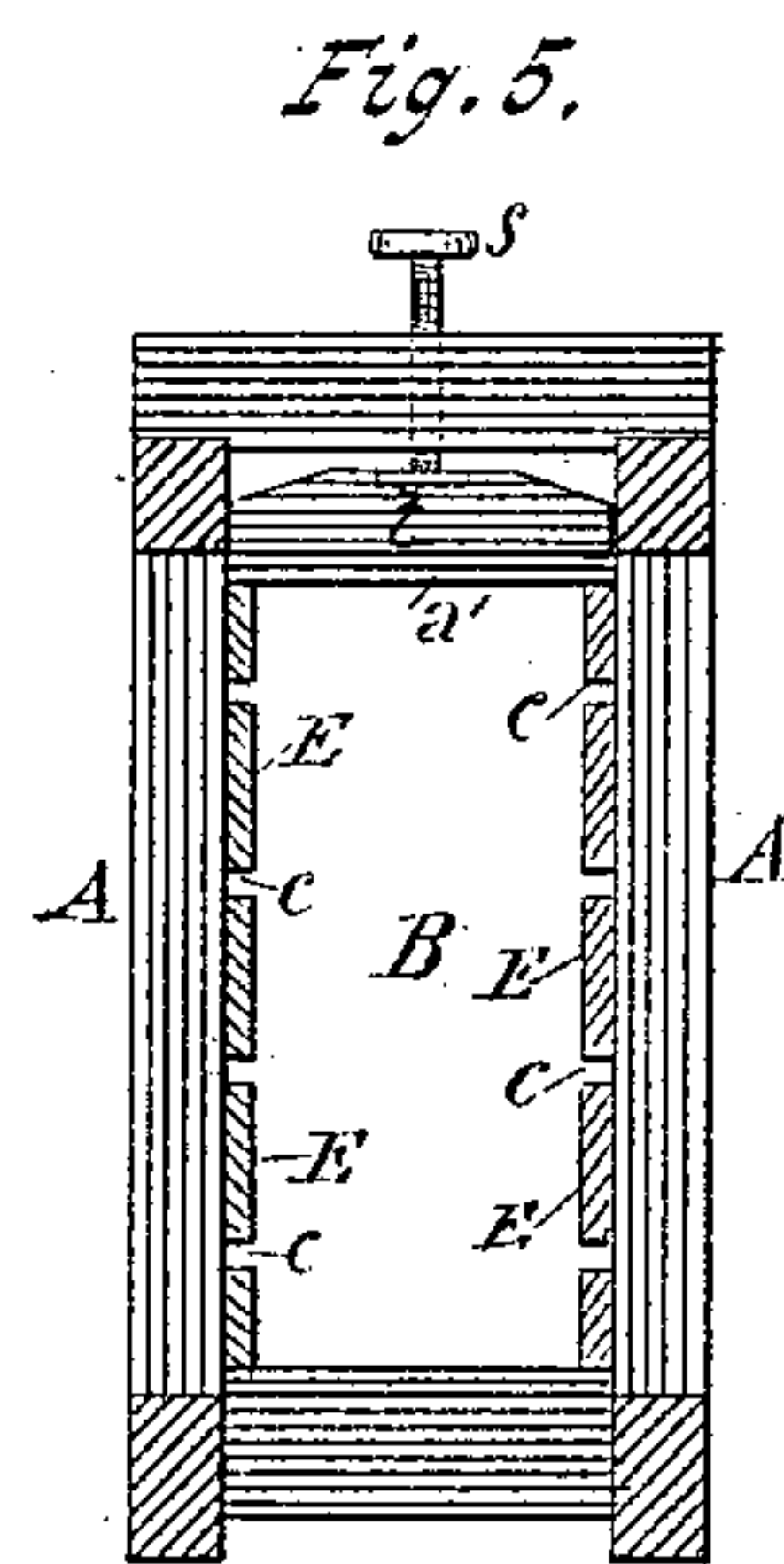
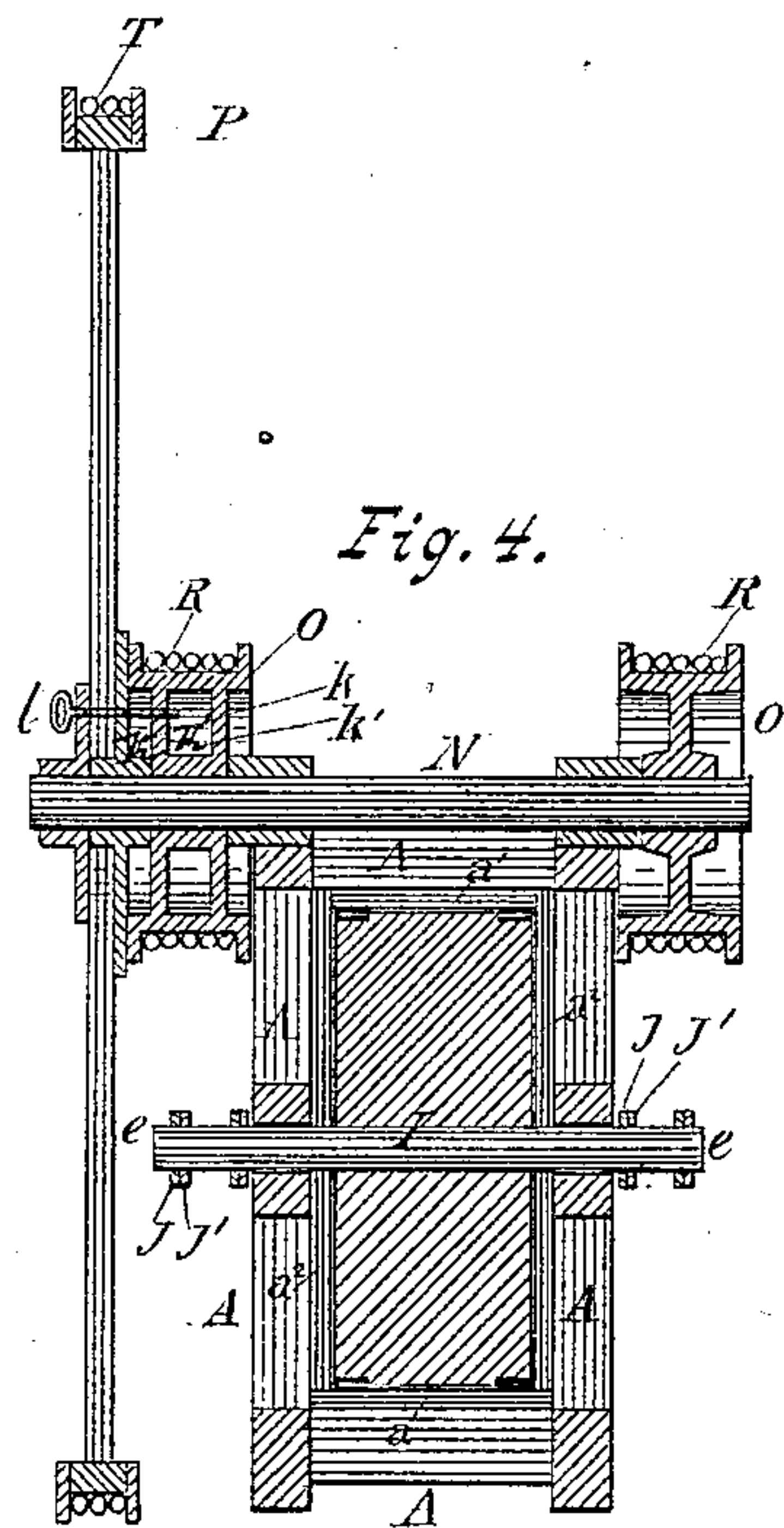
(No Model.)

4 Sheets—Sheet 4.

J. LA DOW.  
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No. 252,882.

Patented Jan. 31, 1882.



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# UNITED STATES PATENT OFFICE.

JOHN LA DOW, OF ALBANY, NEW YORK.

## BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 252,882, dated January 31, 1882.

Application filed October 4, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN LA DOW, a citizen of the United States, and a resident of the city and county of Albany, in the State of New York, have invented certain new and useful Improvements in Baling-Presses, of which the following is a specification.

My invention relates to improvements in baling-presses in which there is employed a horizontal press-case, in each end of which is a baling-chamber and a press-chamber provided with a reciprocating moving platen between said baling-chamber, and doors which serve to operate as side walls of the baling-chamber when closed up against the case and as platforms when folded down, and mechanism, substantially as hereinafter described, whereby the platform will be operated for pressing the material placed in the press case.

The objects of my invention are to produce a baling-press in which bales will be alternately pressed in baling-chambers situated at the end of the press-case, and the platform be operated by windlass-ropes, ropes and pulley, and toggle-levers in a more effective manner than heretofore, and with greater ease to the animal or man operating the pressing mechanism, and the bales, when finished, be readily removed. I attain these objects by the mechanism illustrated in the accompanying drawings, in which similar letters of reference indicate like parts throughout the several views.

Figure 1 is a side elevation of my improved press. Fig. 2 is a sectional elevation. Fig. 3 is a plan view. Fig. 4 is a cross-sectional elevation. Fig. 5 is an end view. Fig. 6 is a view of the doors from their inner sides, and Fig. 7 is a cross-sectional view of the same.

In the drawings, A A represent the framework of a horizontal pressing-case, which frame is made preferably of timbers arranged together, as shown, so as to insure stiffness and strength. The bottom *a* of the said pressing-case is made continuous throughout its whole length, and its upper wall, *a'*, and side walls, *a<sup>2</sup> a<sup>2</sup>*, are made continuous only in its middle section between the baling-chambers B and B' at the ends of the case, as shown in Figs. 2 and 3. The middle section, C, of the chamber of the case, together with the baling-chambers B and B', form the duplex pressing-chamber BC and B'C'.

Made in the side walls of the middle section, C, and central between the floor *a* and upper wall, *a'*, of the case, are horizontal slots D D, extending the entire length of said middle section, as shown.

The top walls, *b* and *b'*, of baling chambers B and B' are made of plank extending from the ends of the upper walls, *a'*, of the case to the outer ends of the same, and are so arranged that the inner ends of the top walls of said baling-chambers will always be on the same plane, while their outer ends may be elevated, so that the said walls may be inclined upward and outward, as shown by dotted lines in Fig. 2. The side walls, E E and E' E', of said baling-chambers are each made of plank so secured together as to form a stiff closing-piece, with slots *c c* at intervals apart, as shown. The inner ends of said side walls are so arranged and held by the frame of the case that the inner surface at said rear ends will be on the same plane with the plane of the side walls, *a<sup>2</sup>*, of the case, while the outer ends of the said wall may be spread apart, as indicated by dotted lines in Fig. 3.

The ends of the case are provided with doors F and F', which doors are hinged at their lower ends to the sills of the same, as shown, so that the doors will be folded downward to a horizontal plane when opened, as shown by door F in Fig. 2, and upward to a vertical position when closed, as shown by door F' in the same figure. The doors F and F' are each duplicates of the other, and are preferably made of plank *d*, arranged transversely to plank *d'*, with pieces *d<sup>2</sup>* set at short distances apart and secured to plank *d* for forming tying-slots *c'*. The tie-slots *c'* are so arranged in each of said doors as to coincide with the slots *c c*, made in the side walls, E and E', of the baling-chambers when said doors are folded shut. The said doors are held locked against the outer ends of their respective baling-chambers by cam-lever latches G G' when turned down, as lever-latch G' in Fig. 2, and when turned up, as lever G in the same figure, the said doors are free to be folded down. When the said doors are folded down they operate as platforms from which hay will be passed into the pressing-case, and when folded up the said doors operate as walls to their respective baling-chambers for opposing the thrust of the



platen, and also as supporting devices to the outer ends of the top walls, *b* and *b'*, of the baling-chambers B and B'.

Working in screw-threaded nuts set in the cross-bars, and secured to the top of the press-case and at its ends, are wheel handled screws *s s*, the lower ends of which are secured with the cross-cleats *t*, made fast with the expansible top walls, *b* and *b'*, of the baling-chamber B and B' in such a manner that the said handled screw may be freely revolved in either direction, and at the same time hold with said top walls, to depress or raise the same, according as the said screws are turned.

Fitting nicely in the pressing-chamber, and freely working in the same, is the platen or follower H, which platen is made preferably of timber. Secured centrally in said platen, and horizontally through the same from side to side, is the metal bar or shaft I, the outer ends of which pass through slots D D and form trunnions *e*, on which the conjoined ends of toggle-levers work. Each end of the platen is provided with slots *c*<sup>2</sup>, arranged to coincide with the slots *c* and *c'*, before described, and operate as tying-slots for receiving the bale-ties when the bale is to be tied off. Platen H is shown in the drawings to be operated by two pairs of toggle-levers, J J' and K K'. The toggle-levers J J' operate to move the platen H from the bale-chamber B alternately toward and from the opposite end of the case or bale-chamber B', while the toggle-levers K K' operate to move the said platen alternately toward and from baling-chamber B', according as said toggle-levers are moved. The said toggle-levers are arranged in duplicate pairs at each side of the press-case, the levers J J' at one side of the press-case being duplicates of corresponding levers at the opposite side, as also are levers K K' duplicates of corresponding toggle-levers at opposite sides. A description of levers J J' will suffice for descriptions of all the other levers of the said duplicate toggle-levers. At each side of the press-case the lever J has its outer end pivoted to the end of the upper sill of the press-case, as at *f*, while its inner end is pivoted to the inner end of lever J', so as to form a hinge-joint with the same. The opposite end of lever J' is pivoted to the trunnion *e* of the platen H. In like manner the lever K is pivoted to the upper sill of the case, as at *f*, and to lever K', while the inner end of lever K' is pivoted to trunnion *e* of platen H in a manner similar to lever J'. A series of two or more holes, *f'*, are made in the upper sills, which holes are adapted to receive the pivot-shafts *f f*, on which the levers J and K work.

Mounted on each pivot *h* of the toggle-levers J J' and K K' are pulleys L L. (Shown by dotted lines in Fig. 1 and full lines in Fig. 3.)

Secured to the upper side of the press-frame, and to the upper sills thereof, are cleats *m m'*, formed by the projecting ends of bars M M.

Supported in suitable bearings at the middle of the length of the pressing-case, and from

the upper side of the same, is shaft N, and secured to each end of said shaft is a windlass-pulley, O. Mounted loosely on one of the outer ends of said shaft is a windlass-wheel, P. Made through the hub of said wheel is a pin-hole, *k*, and made in the spokes of the adjoining windlass-pulley is a corresponding pin-hole, *k'*. A pin, *l*, is inserted into pin-holes *k* and *k'* and keys the said windlass-wheel with the said windlass-pulley, so that when said wheel is revolved it will also revolve said pulley and its shaft and the pulley secured to its opposite end. When pin *l* is removed the windlass-wheel will turn on shaft N without effecting a rotation of the same or the pulleys O O.

Coiled on windlass-wheel P is a draft-rope, T, and coiled on pulleys O O, respectively, are the toggle-lever ropes R R. The opposite ends of each coiled rope, after passing around pulleys L L of the toggle-levers, are secured to the cleats *m* and *m'*, respectively, as shown in Fig. 1. In this manner the toggle-levers J J' and K K' at each side of the press-case are geared to their respective windlass-pulleys O by the toggle-lever ropes R R and cleats *m m'*.

The manner of operation of the several parts is as follows: The wheel P is revolved in a direction so as to coil an end section of rope, R, on pulleys O O, as shown in Fig. 1. One end of rope R being secured to cleat *m*, the coiling of said rope on pulleys O O will cause said rope to run and draw on pulley L at the hinge or joint of one of the toggle-levers, and thereby elevate the toggle-lever and elevate and spread the same, as shown in J J' in Fig. 1, while the opposite end of rope R will run off windlass-pulleys O O and permit the opposite toggle-levers, K K', to drop down and fold toward each other, as shown in the same figure. When the said toggle-levers are in the position shown in Fig. 1 the platen H will be moved to the baling-chamber B', and the pressing-chamber C and baling-chamber B will be in fact a single or continuous chamber for receiving hay or other material to be pressed. The pin *l* is then withdrawn, when the wheel P will be revolved in direction of arrow 1 in Fig. 1 to coil rope T on the same, as shown by full lines in Fig. 1, when pin *l* will be again inserted to lock wheel P with pulleys O O. The several parts of the press being ready for operation, door F will be folded down to a horizontal position to form a platform from which the hay or other material will be introduced into the chamber B C, and the operator attending to that end of the press will introduce the hay or other material into said chamber until it is filled. When filled he will fold door F upward and lock the same by turning cam-lever latch G down. When the door is folded up, the tongues *v v*, Figs. 6 and 7, will crowd on the outer marginal edge side of the expansible side walls, E, of the baling-chamber, while the grooves *x x* in said door will receive the ends of said expansible sides, when said sides will be held with their inner surfaces coincident



with the planes of the surfaces of the sides of the press chamber C. The operator will then turn the screw *s* until the expansible top wall of the baling-chamber will be made to rest on the upper edge of door F, and made to have its plane of surface coincident with the plane of the surface of the top wall of case C. The animal will be hitched to the draw-rope T past friction-pulley T', and will walk forward, drawing on said rope, which rope, being drawn on, will, in uncoiling from wheel P, cause said wheel to revolve in direction of arrow 2 in Fig. 1, and being locked to pulley O by pin *l*, the said wheel will carry with it the pulleys O O in the same direction, when the coiled ends of ropes R will be uncoiled from said pulleys, and, playing out that end of the rope as it is being uncoiled, will permit the toggle-levers J J' to gradually drop and fold together, while the opposite end or half-section of said rope will at the same time be coiled up on pulleys O O, and in being so coiled up will draw on the pulley or sleeve L at the hinge of the toggle-lever K K', and cause the said lever to progressively open and rise until it assumes the position of levers J J', when said levers J J' will assume the position of levers K K'. As the toggle-lever K K' gradually progresses to a spread or opened position of its limbs, the platen H will be gradually moved from baling-chamber B' toward baling-chamber B, and will crowd the hay before it into said chamber in a compressed condition. When the platen has been carried forward to its full distance, as in Fig. 2, in the press-case, the toggle-lever K K' will have its limbs so opened apart that their several centers of motion will be in the same plane-line, as indicated by dotted lines in Fig. 2. The toggle-lever may then be temporarily supported by a pin, *r*, inserted in a hole provided in the frame-timber at any convenient place, when platen will be made to hold the hay in the bale-chamber B in a pressed condition, ready for tying off, and the chamber C B' will be ready to receive a charge of hay ready to be pressed.

While the attendant at the baling-chamber B is tying off the bale formed in said chamber the attendant at the opposite end will open and fold down door F' of chamber B', and will introduce the hay in chamber C B' until it is filled, when the door F' will be closed and operate with the expansible sides and top walls of chamber B' the same as door F with the similar sides of chamber B, before described. The set screw *s* will also be turned to hold the top wall down on door F', when the second charge of material will be ready to be pressed. One of the two attendants will then withdraw locking-pin *l*, the animal attached to rope T having returned to his place of starting, near the press, and revolve wheel P in direction of arrow 2, when said rope will be reversely coiled on said wheel, as indicated by dotted lines in Figs. 1 and 2, when the said locking-pin will be again inserted in place to lock said wheels with pulleys O O, and the supporting-pin *r*

will be withdrawn to permit the middle of the toggle-lever K K' to drop. The animal will be again driven forward, and, drawing on rope T, will reverse the revolution of wheel P and its attached pulleys O O, and cause the rope R to be uncoiled off said pulleys in one direction and coiled on the same in another direction, and thereby raise and spread the toggle-levers K K' and close toggle-levers J J', and thereby force the platen to move the hay before it into the baling-chamber B' in a pressed condition. When said toggle-levers K K' have been moved to their full distance the supporting-pin *r* will be inserted in its hole beneath said toggle-lever, and the platen will be held pressing against the bale formed in chamber B' until relieved. While the attendant at the baling-chamber B' is attending to the operations at his end of the press the attendant at chamber B will turn screw *s* up, so as to relieve the top wall of said chamber and permit its outer end to be raised, and will throw up the cam-lever latch G and fold down door F to a horizontal position. The sidewalls, E, of said chamber, being relieved of the pressure of the tongues *v v* on said doors, will spread apart at their outer ends, and the sides of the tied-up bale will be wholly relieved of pressure of the side and top walls of the bale-chamber, when the attendant will readily remove the bale by means of a bale-hook. A similar operation on the part of attendant at the baling-chamber B' will be attended by like results, and by like operations alternately had bales will be made at each end of the press alternately.

If selected, cone-shaped pulleys may be substituted for plain pulleys O O. If it is selected, the draft-rope T may be dispensed with, when the wheel P may be operated by hand; or the rope T may be operated by horse-power, or steam or water-power, if selected.

The press may be mounted on wheels for convenience in transportation, as is the practice with the trade.

By means of the series of pin-holes *f'* the size of the bale may be increased or decreased.

By means of the above-described improvements the press is made strong and effective, as well as cheap in construction. It is adapted to produce bales of different sizes or weights in a comparatively rapid manner and with greater ease in labor than in presses heretofore constructed.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a baling-press, the combination, with a case having a pressing-chamber in its middle section and baling-chambers in its end portions, and a platen adapted to be moved through the entire length of said middle section, of mechanism for operating said platen alternately in opposite directions toward and from said end baling chambers, as and for the purposes set forth.

2. In a baling-press, the combination, with a case having a pressing-chamber in its mid-



dle section and baling-chambers in its end portions, and a platen adapted to be moved through the entire length of said middle section, of toggle-levers and mechanism operating with the same, whereby said platen will be moved alternately toward each baling-chamber and from the same, in the manner set forth.

3. In a baling-press, the combination, with a case having a pressing-chamber in its middle section and baling-chambers in its end sections, and a platen adapted to be moved alternately toward said baling-chambers, of duplicate toggle-levers arranged at each side of said press-case and having a pivotal connection with said platen, whereby one pair of said toggle-levers will be adapted to move the platen in one direction toward one of said end baling-chambers, and the other pair of said toggle levers will move said platen in an opposite direction toward the opposite end baling-chamber, as and for the purpose set forth.

4. The combination, with a horizontal pressing-case and a platen adapted to be moved in a horizontal plane in the same, of toggle-levers  $J J'$ , (or  $K K'$ ), having one of their limbs pivoted to said platen and the other limb to a fulcrum situated at an end of said pressing-case, whereby the said toggle-levers when straightened in line will crowd said platen to the full distance of its length of movement, and when broken from a straight line will draw said platen to a distance back, substantially as set forth.

5. In a horizontal baling-press having a pressing-case in which a baling-chamber is situated at each end, and a pressing-chamber provided with a platen is situated between said baling-chambers, duplex toggle-levers which have their neighboring ends pivoted to said platen and their outer ends pivoted to, or near to, the ends of said pressing-case, whereby each of said toggle-levers is made to counterbalance the other and each alternately operate said platen, substantially as set forth.

6. In a baling-press, the combination, with the press case, platen moving in said case, and toggle-levers  $J J'$ , (or  $K K'$ ), having one end pivoted to said platen and the opposite end pivoted to the end of said press, of windlass pulley  $O$ , rope  $R$ , coiled about said pulley, and cleat  $m$ , (or  $m'$ ), whereby said cleat will be made to sustain one-half of the resistance and said rope operate the said toggle-levers to progressively move said platen, as set forth.

7. In a baling-press, the combination, with the pressing-case and platen adapted to be moved within the same, toggle-levers  $J J'$ , (or  $K K'$ ), having one end pivoted to said platen and the opposite end pivoted to pivot-pin  $f$ , of the series of holes  $f' f'$ , adapted to receive said pivot-pin, whereby larger or smaller bales may be made, at the will of the operator, by a simple adjustment of said pivot-pin, in the manner set forth.

8. In a horizontal baling-press, the combina-

tion, with a press-case having a pressing-chamber and a platen adapted to be moved by mechanism, as described, in said chamber, and baling-chambers situated at each end of the press-case and communicating with said pressing-chamber, of door  $F$ , (or  $F'$ ), pivoted to the lower sill, so as to be adapted to be folded from a vertical and closing position to a horizontal one, whereby said doors, when held vertical, will operate to form opposing walls to the thrust of the platen, and when folded down will form a platform from which hay will be fed into said press-case, substantially as set forth.

9. In a horizontal baling-press, the combination, with the parallel side walls of the press-chamber, of the expansible side walls of the baling-chamber and door  $F$ , (or  $F'$ ), provided at its marginal side edges with tongues  $v v$  and grooves  $x x$ , whereby the inner surfaces of said expansible side walls will be held in planes coincident with the planes of the inner parallel surfaces of the said press-chamber walls when said door is in a closed position, and adapted to be expanded outward at their outer ends when the said door is opened from said baling-chamber, substantially as and for the purpose set forth.

10. In a horizontal baling-press, the combination, with the parallel top and bottom walls of the press-chamber, of the expansible top wall of the baling-chamber, door  $F$ , (or  $F'$ ), having its upper end supporting said baling-chamber top wall in a horizontal plane coincident with the horizontal plane of the press-chamber top wall, and mechanism  $s$ , reacting against the support of the outer end of said expansible top wall, whereby the plane of the surface of said adjustable top wall will be held coincident with the plane of the surface of the top wall of the press-chamber while a bale is being pressed and its outer end be inclined upward when the bale is being removed, substantially as and for the purpose set forth.

11. In a baling-press, the combination, with the press-case, platen adapted to be moved in said case, windlass-pulleys  $O$ , having ropes  $R$  coiled about the same as a contributing power to move said platen, of the windlass-wheel  $P$ , fixed to revolve with pulleys  $O$ , and draft-rope coiled about the same, all for operation as set forth.

12. The combination, with a windlass-pulley having a coiled rope about its periphery, with its ends running from the same for attachment with reacting devices or mechanism  $m$ , (or  $m'$ ), of wheel  $P$  and pin  $l$ , adapted to hold said wheel with said windlass-pulley, substantially as and for the purpose set forth.

13. Mechanism for moving a platen, consisting of the combination of the following devices, viz: duplicate toggle-levers, windlass-pulley, and windlass-rope coiled about said pulley, with its end portions connected with said duplicate toggle-levers at the hinge of their respective arms and its extremities attached



to cleats *m m'*, or fixed pieces, all for operation substantially as set forth.

14. Mechanism for moving a platen, consisting of the combination of the following-described elements, viz: duplicate toggle-levers,  
5 windlass-pulleys, windlass-ropes coiled about said pulleys, with their end portions connected with said duplicate toggle-levers at the hinge-connections of their respective arms and their  
10 extremities secured to fixed pieces, a windlass-

wheel loosely mounted on the windlass-pulley shaft and provided with mechanism by which it will be locked with or unlocked from the windlass-pulley, and draft-rope coiled about said wheel, all for operation substantially as  
15 set forth.

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Witnesses:

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