

W. Louden Hay-Elevator.

N^o 75686

Patented Mar. 17, 1868.

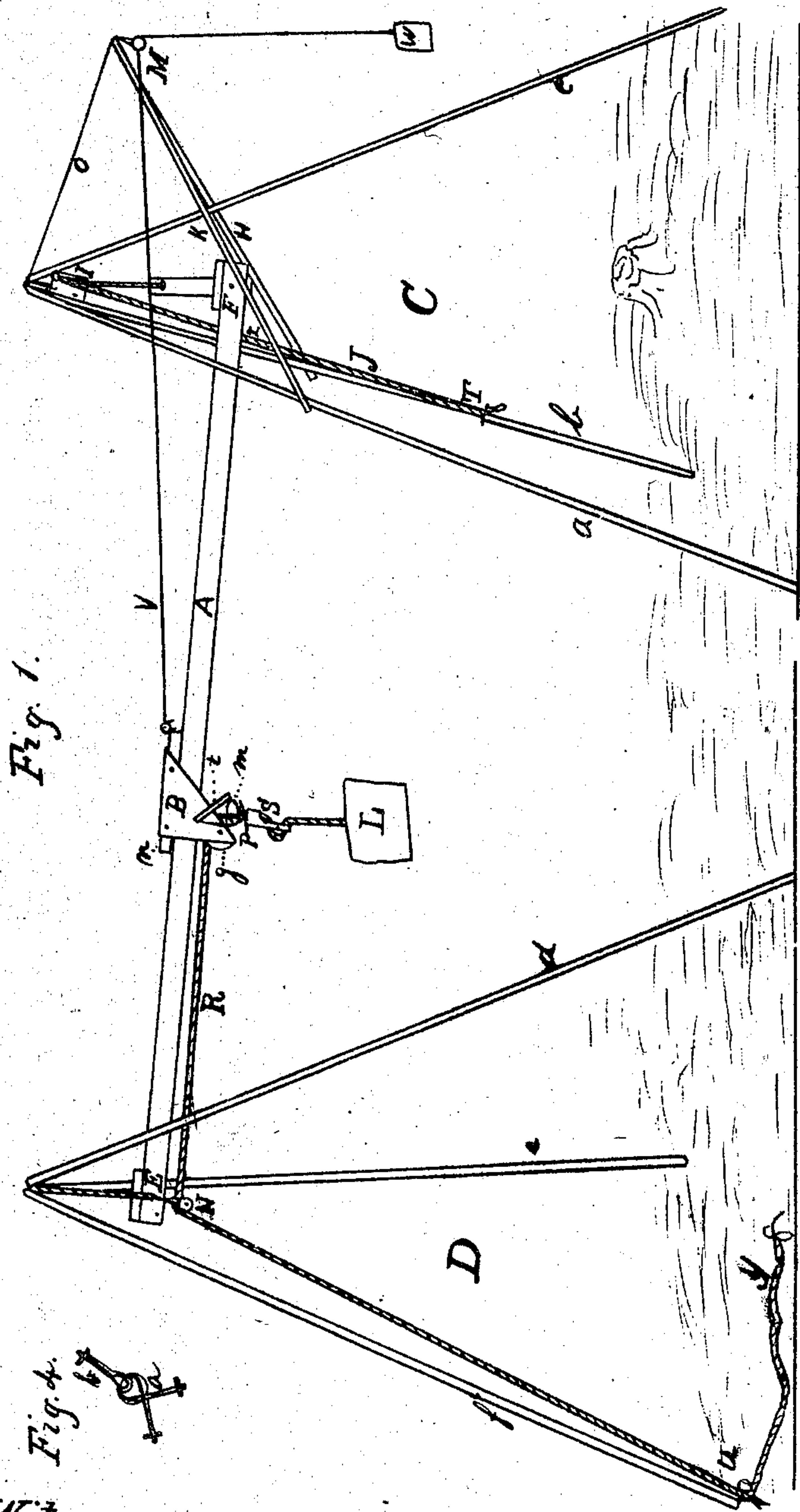


Fig. 1.

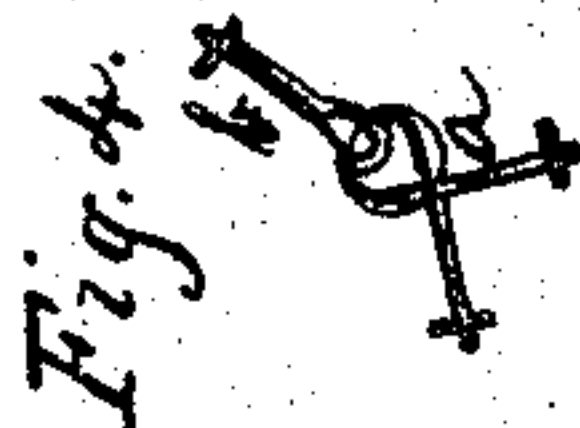


Fig. 4.

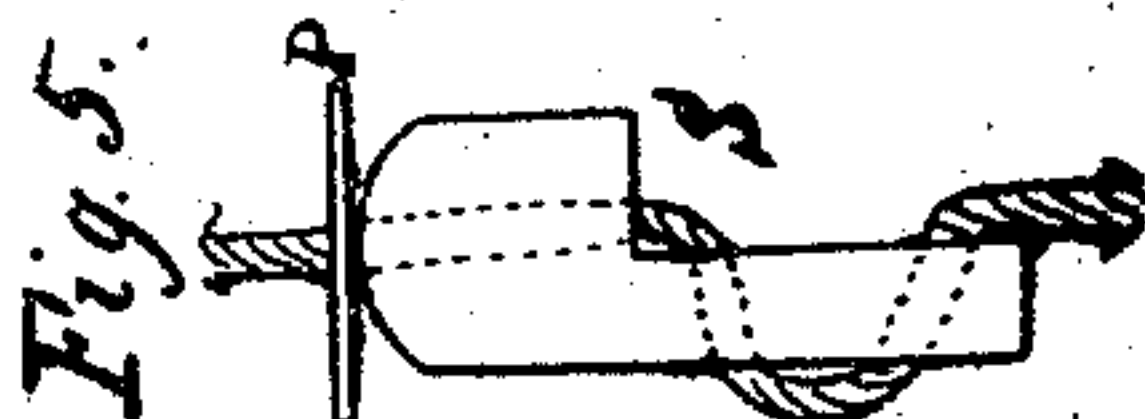


Fig. 5.

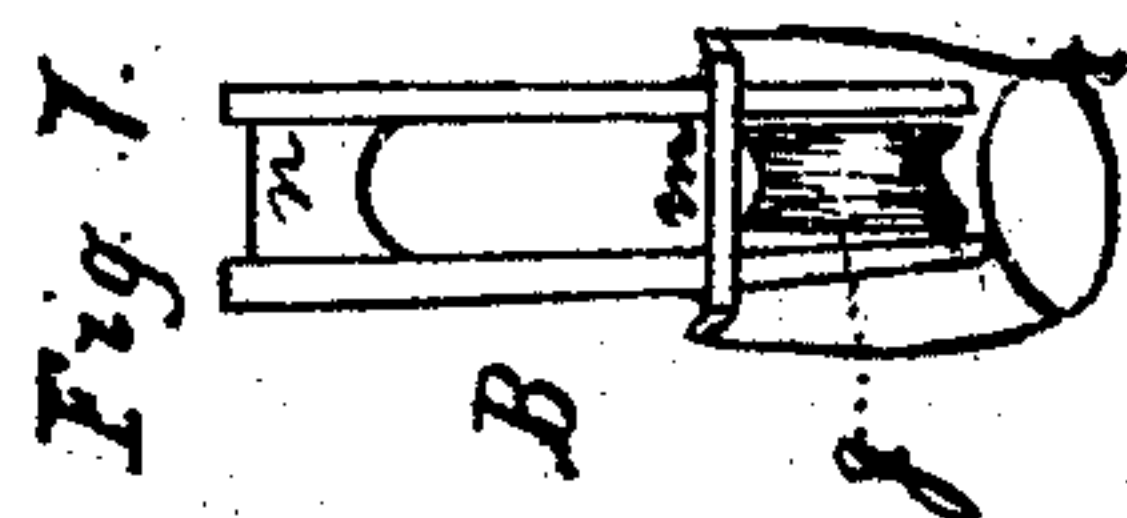


Fig. 7.

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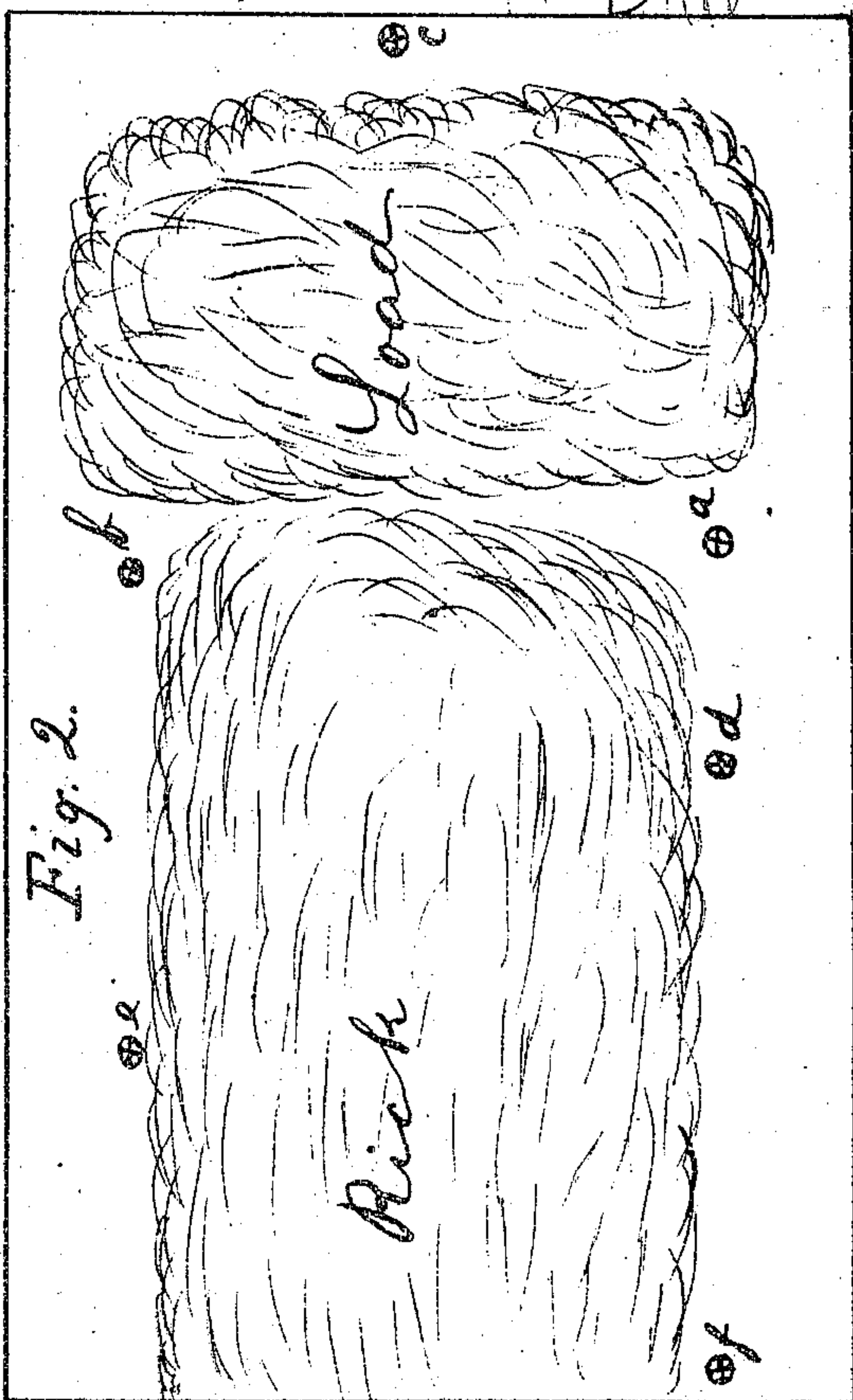
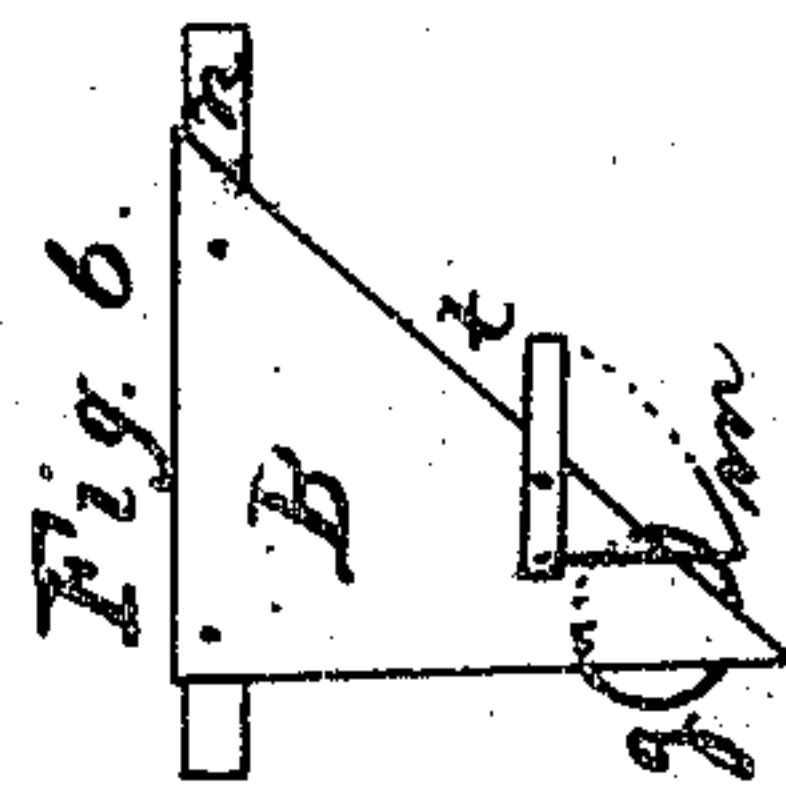
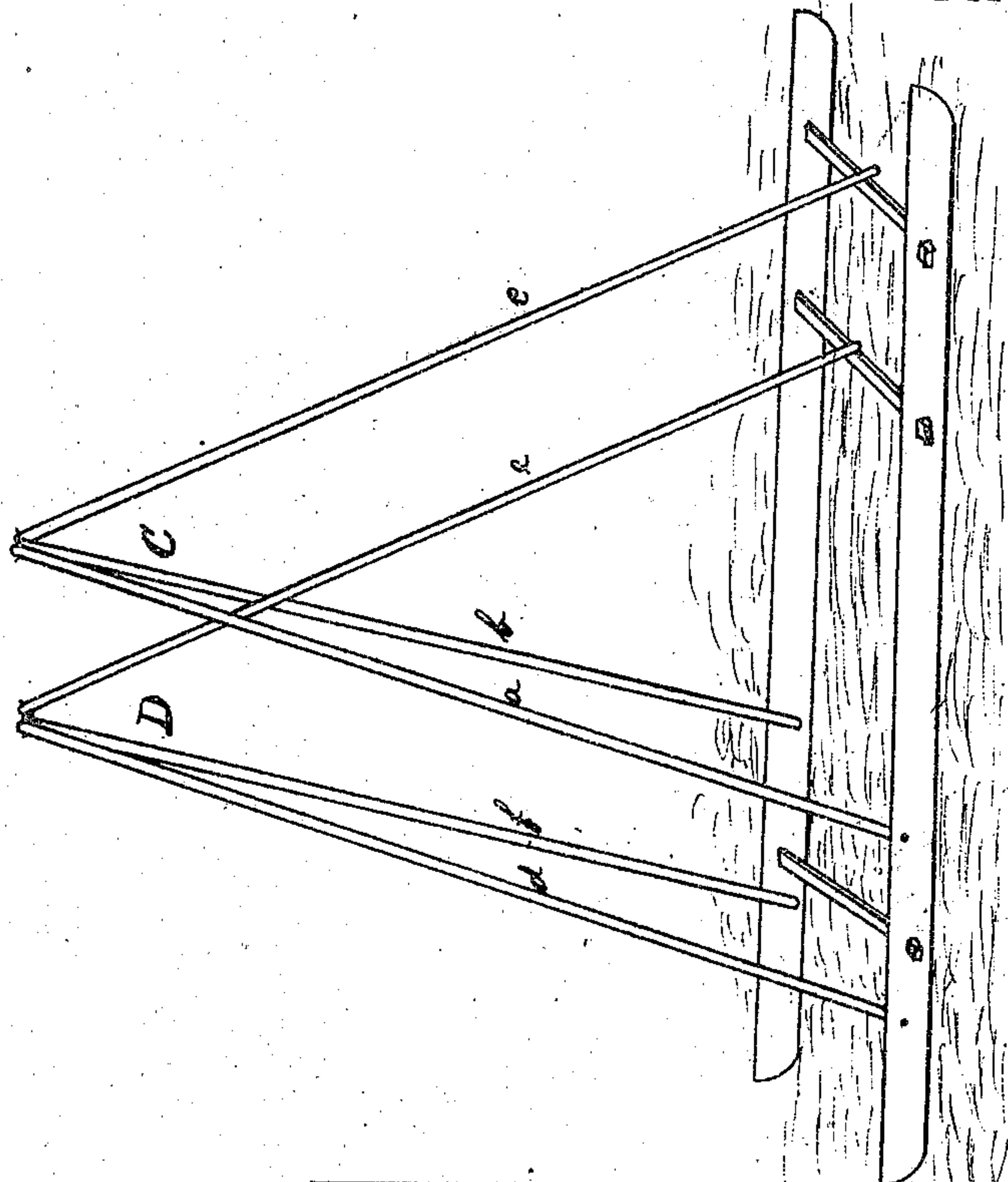
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Fig. 3.



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WILLIAM LOUDEN, OF FAIRFIELD, IOWA.

Letters Patent No. 75,686, dated March 17, 1868.

IMPROVEMENT IN HAY-ELEVATORS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, WILLIAM LOUDEN, of Fairfield, Jefferson county, Iowa, have invented a new and useful Improvement in Elevating and Conveying-Devices; and I do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of these specifications, in which—

Figure 1 is a perspective view.

Figure 2 shows the arrangements of the poles.

Figure 3 shows the arrangement for transporting.

The other figures illustrate the details, to be hereafter explained.

Similar letters of reference indicate corresponding parts.

This invention relates to devices for elevating and conveying products or articles, such as hay, goods, &c.; and it consists in certain improvements whereby the device is rendered cheap, durable, portable, and easily manipulated.

A represents a bar or scantling, upon which the sliding frame B works. It is flexibly connected to the apexes of two pyramidal supporting-frames, C D. The stops E F are placed upon the bar A, one at each end, and are used for arresting the motion of the sliding frame B. R is the hoisting-tackle. It passes over the pulley in the sliding frame B, then over the pulley N, and thence through the sheave or ground-pulley U. The sliding frame B is provided with a latch and trip-rod, and S is an adjustable stop upon the hoisting-tackle R. The counterpoise-weight W is suspended by the cord or rope V, which passes over the pulley M, and is attached to the sliding frame B.

The operation is as follows. The sliding frame B, which in the drawings is represented about half way along the bar A, is back until the slide comes in contact with the stop F, and the latch is engaged in the projection *x* on the under side of the bar A. The power is applied at *y*, and the weight or load L is elevated perpendicularly from the centre of the supporting-frame C until the stop S comes in contact with the loop of the trip-rod, which raises the latch out of the catch or notch formed by the projection *x*. The sliding frame is then drawn along the bar A, and the load deposited at any desired point. As soon as the power is withdrawn or disconnected from the hoisting-tackle R, the counterpoise-weight W draws the sliding frame B back until the slide strikes the stop F and the overbalancing weight of the trip-rod raises the latch into the notch, thus latching the sliding frame in this position, while the elevating or grappling-device descends to a point in the centre of the supporting-frame C, when the operation may be repeated.

The supporting-frames C D are each composed of three poles or scantlings, *a b c* and *f e d*, secured together at their upper ends by means of a triple bolt, shown in Figure 4. It is composed of two parts, *a* and *b*. The part *a* is bent so as to form an eye of its centre, while its ends pass each other, and are arranged at nearly or about right angles. The other part, *b*, has an eye on its inner end, which is connected with the eye of the part *a*. By this arrangement, while the poles are securely held together, they may have considerable lateral play, and can be moved or shifted about without danger of cramping, straining, or splitting.

Fig. 2 represents the plan of arranging the poles, so that in building ricks the load may be driven directly under the supporting-frame C, close to the end of the rick, and at right angles with it, while the rick may be extended through under the supporting-frame D as far as may be desired. By this arrangement the rick can be built much longer than the bar or track A. The dots *a*, *b*, *c*, *d*, *e*, and *f*, fig. 2, represent the position of the similarly-lettered poles in fig. 1.

It will be seen that each set of poles is arranged in the form of a triangle, of which we will suppose the sides *a b* and *f d* to be the bases, and *e* and *c* the apexes of their respective triangles. Again, suppose two lines to be drawn, one from the apex of each triangle to the centre of its base. The line thus drawn from *e* to the centre of the base *f d*, will pass through the rick at right angles, and the line from *c* to the centre of the base *a b*, will pass at right angles through the load. Thus are the triangles *a b c* and *d f e*, which form the respective bases of the supporting-frames C D, virtually arranged at right angles with each other. By this arrangement the load can be driven close by the end of the rick, the hay elevated, conveyed, and deposited at any point along the centre of the rick, while the rick may be extended to any length without interfering with any part of the supporting-frames.

H and K are two poles or bars, bolted respectively to the poles *a b*. Their upper ends are joined together, and they are supported in their proper position by the cord or rope *o* being attached to the top of the supporting-

frame C. They are used for supporting the pulley M in such a position that the counterpoise-weight W will not interfere with any article being elevated from the centre of the supporting-frame C. The manner in which they are arranged prevents them from rocking laterally, and also admits of the poles comprising the supporting-frame to be shifted at pleasure without deranging their position.

In Letters Patent, No. 69,107, issued to me, September 24, 1867, the pulley M is shown as located independently of the bar or track A. In that case it was attached to the ridge-pole of the building or supporting-frame, which is represented as extending still farther back. But in working into a window, or where there is not necessarily any overhanging support, it becomes necessary to use an auxiliary bar or frame for this purpose. This bar, pole, or frame may either be projecting or may be supported at both ends, and may be applied to other uses growing out of the use of elevators hereafter.

The end of the bar A, supported by the supporting-frame C, is sustained by the rope J passing through the sheave I, and then secured to one of the poles which compose the supporting-frame, as shown at T. By this means the end of the bar A may be raised or lowered at pleasure without having to ascend the supporting-frame. When necessary to remove the device from one place to another, the end of the bar A is lowered in this manner, and the ropes J and V disconnected from the bar A, when the supporting-frames can be moved or shifted independently of each other wherever desired. When necessary to move the device any distance, the supporting-frames are adjusted upon a frame, as shown in fig. 3, and thus transported any distance.* By this arrangement two or more triangular pyramidal supporting-frames can be safely and compactly transported from one place to another, and without much expense, time, or labor.

Figure 5 gives a side view of the stop S and plate P in combination. The stop S has three holes, the two lower of which are in a horizontal or slightly inclined position, while the other is vertical. The two lower holes prevent the rope from slipping through the stop, while the vertical hole through the centre of its head presents a resisting surface parallel all around the rope, thus preventing the stop from being strained or twisted laterally.

The plate P may also be used in combination with this stop when its (stop's) upper end is rounded off as shown, thus allowing the plate P to conform itself to the inclined or unequal surface of latch, pulley, &c.

Figure 6 gives a side view of the sliding frame B, and

Figure 7 an end view of the same.

The frame B is composed of a slide, *n*, latch, *t*, trip-rod, *m*, pulley, *g*, and two triangular-shaped side-pieces, one piece on each side. By means of the triangular shape of the side-pieces, the pulley *g* is placed in a position about forty-five degrees from the centre of the slide *n*, thus placing the centre of the weight about in the centre of the slide *n*. By referring to fig. 7, it will be seen that that part of the slide which works upon the bar A, is grooved. The upper edge of the bar A, between the stops E F, is rounded off to fit this groove. Thus will the slide run smoother, and wear on the side-pieces be prevented.

The trip-rod *m* is about the same length as the latch *t*; thus when the trip-rod is pressed up, as shown in fig. 1, the loop will come in contact with the latch, which will support it. This also renders the latching-apparatus very compact, and should the power continue to be applied after the slide *n* had come in contact with the stop E, this arrangement would give the trip-rod much additional strength, and would better enable it to resist the extra strain.

By means of the arrangements herein stated an elevator and conveyer is obtained, simple in its details, cheap and durable in its construction, effective in its operation, and convenient and expedient in manipulation.

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

1. The frame B, provided with the grooved slide *n* and pulley *g*, in combination with the bar or track A and hoisting-tackle R, all arranged to operate substantially as set forth.
2. The manner of supporting and sustaining the poles H K by means of a cord or rope *o*, so that the poles composing the supporting-frame C can be shifted without disarranging the position of the pulley M, substantially as set forth.
3. I claim passing the rope J, which sustains the end of the bar A, through the sheave I, and securing it to one of the poles, as at T, substantially in the manner as and for the purpose set forth.
4. The manner of adjusting two or more triangular pyramidal frames upon another frame, for transportation, wherein the base of one frame will extend into the space occupied by the frame adjacent, thus securing economy of space and rendering the apparatus compact, substantially as shown and set forth.
5. The arrangement of the triple bolt, (fig. 4,) constructed substantially in the manner as and for the purpose set forth.
6. The stop S, constructed in the manner substantially as shown and described.
7. The plate P, when used in combination with a stop whose upper end has its corners rounded off, and has the rope passing through its centre, all arranged substantially as shown and described.
8. The arrangement of the trip-rod *m* with the latch *t*, whereby, when the former is pressed up, the latter will serve as its support, substantially as set forth.

*In the drawing (fig. 3) the bar A, poles H, K, &c., are not shown, as they have no bearing on the case. In transportation the bar A is suspended at one end to the supporting-frame D.

Witnesses:

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