

B. JUDY.

EXCAVATING AND LOADING MACHINE.

No. 188,147.

Patented, March 6, 1877.

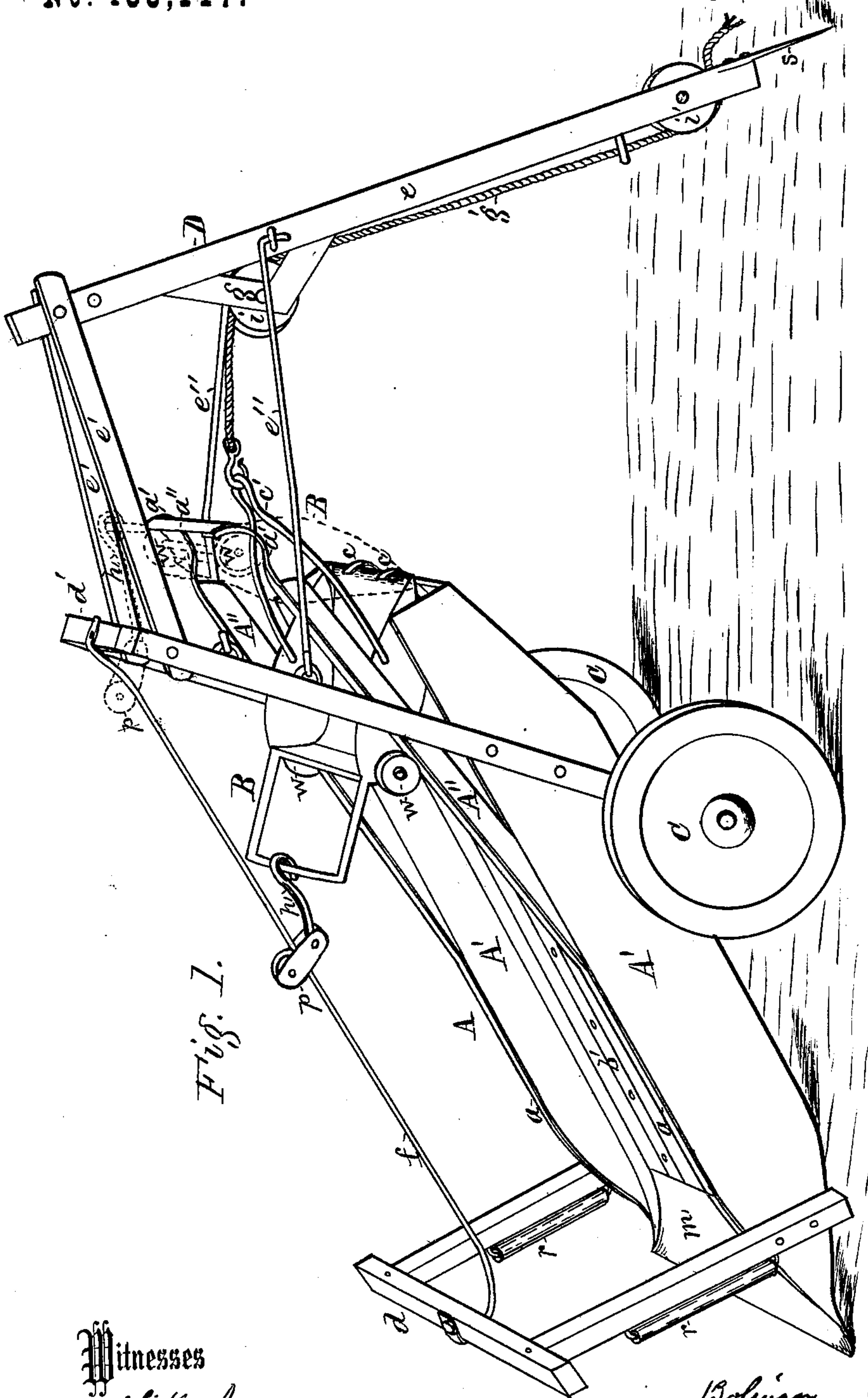


Fig. 1.

Witnesses

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Fig. 2.

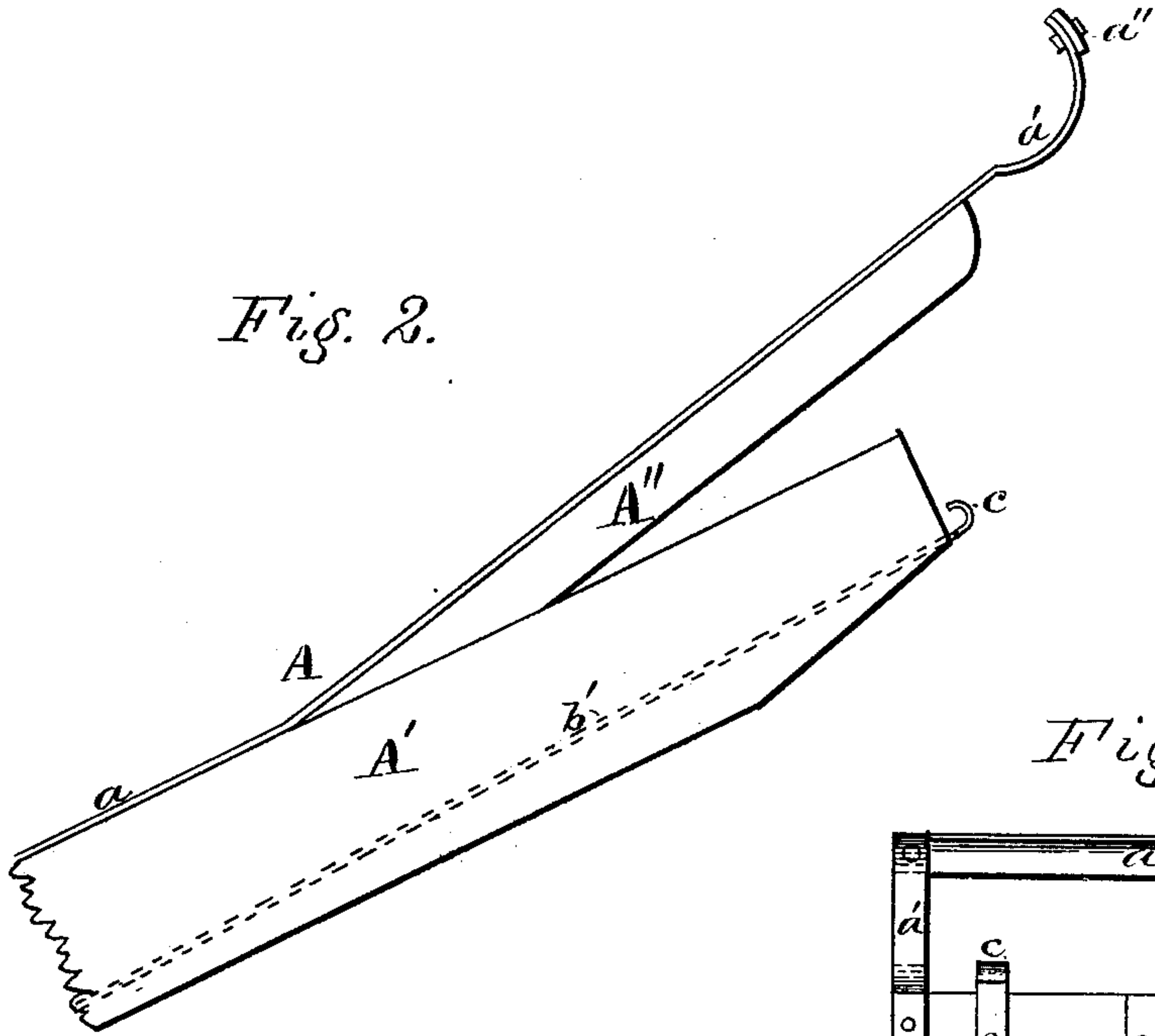


Fig. 3.

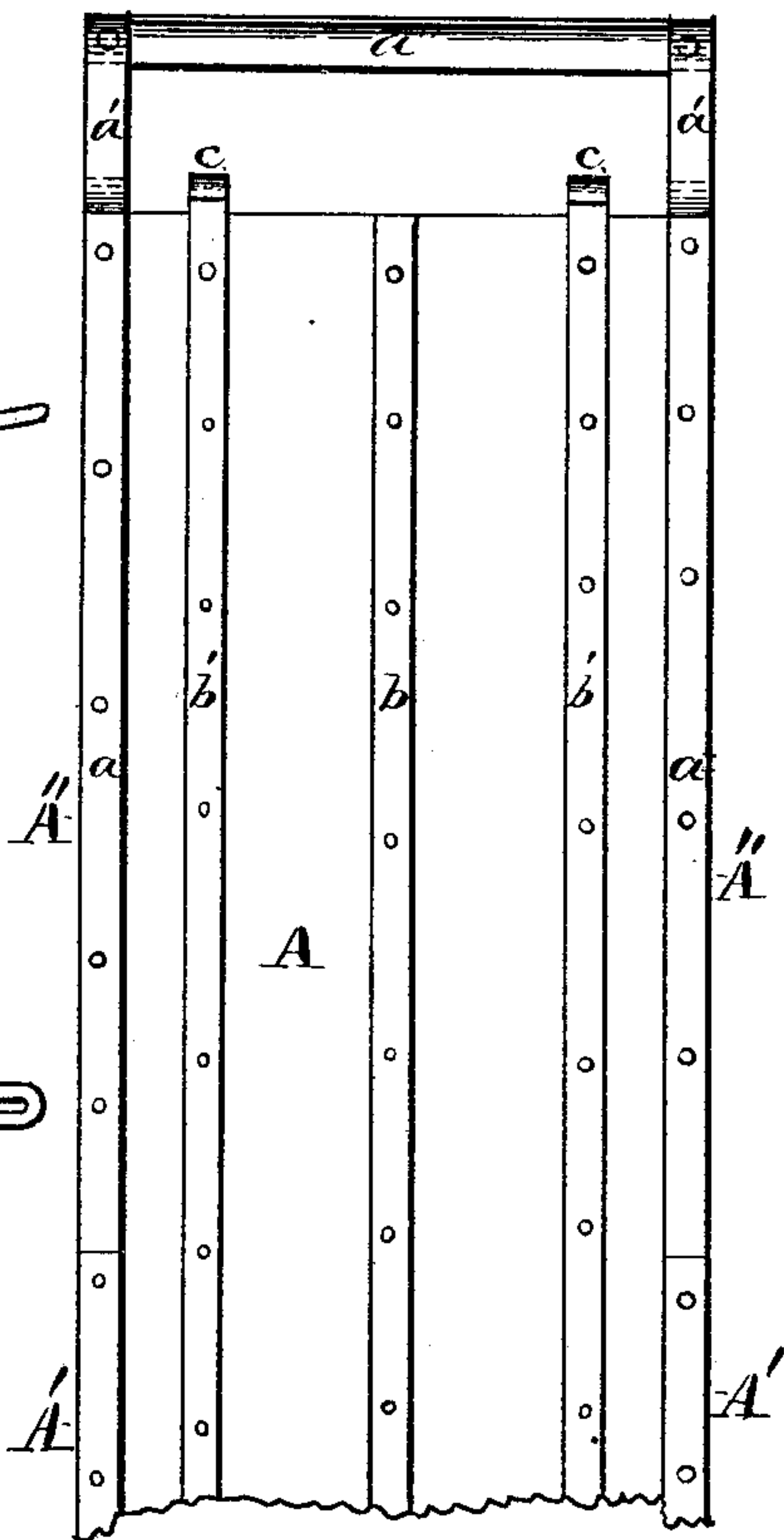


Fig. 4.

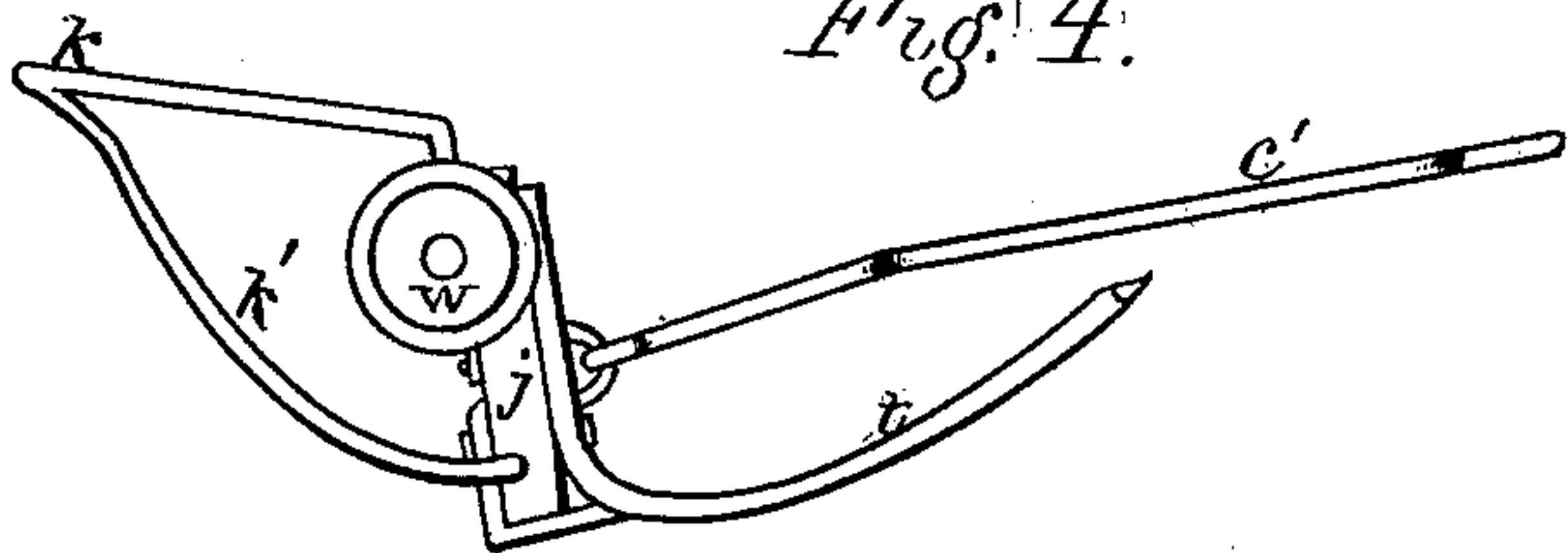
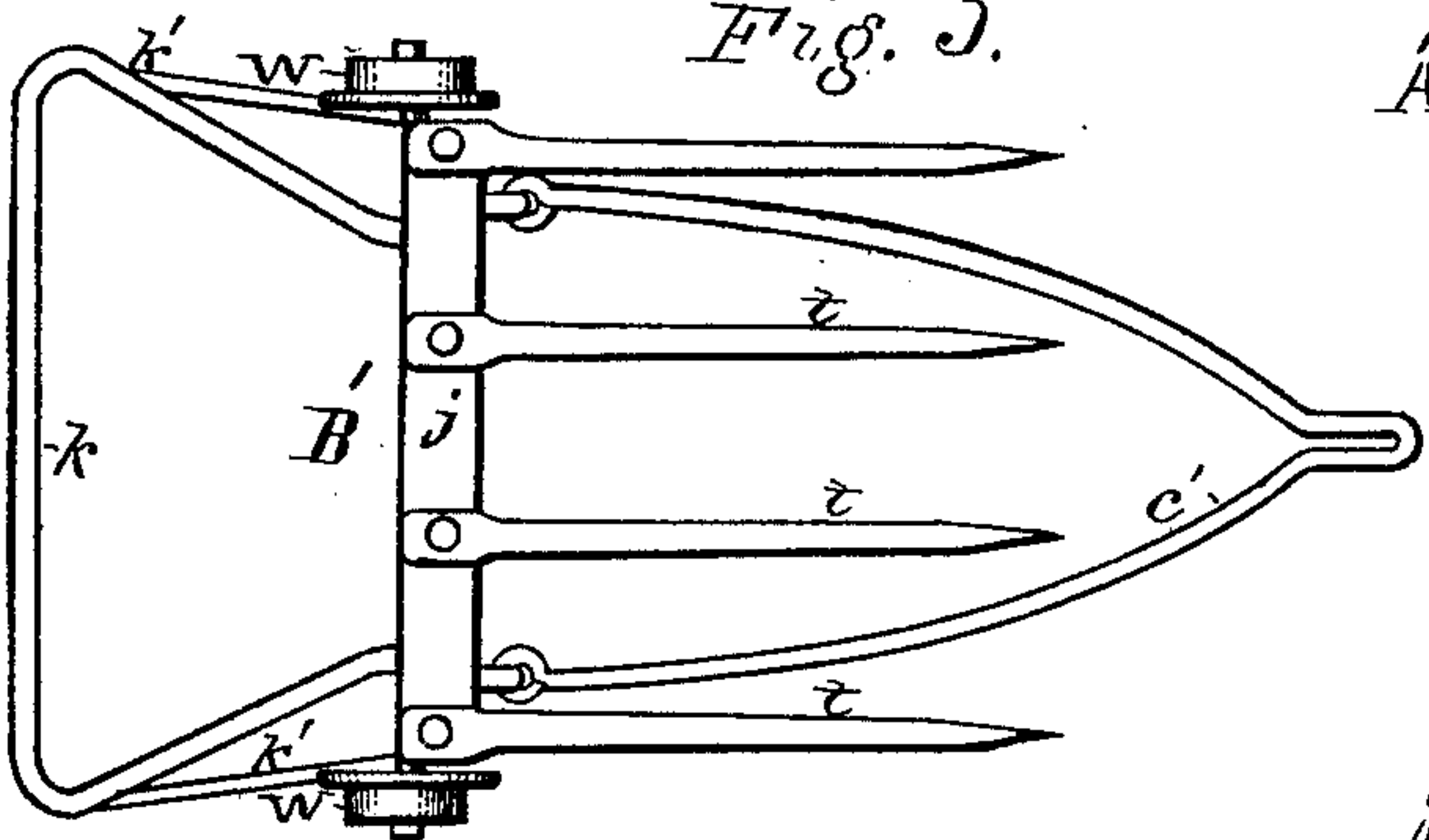


Fig. 5.



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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN EXCAVATING AND LOADING MACHINES.

Specification forming part of Letters Patent No. **188,147**, dated March 6, 1877; application filed December 11, 1876.

*To all whom it may concern:*

Be it known that I, BOLIVAR JUDY, of the town of Plattsburg, county of Clarke, and State of Ohio, have invented certain Improvements in Portable Inclined Ways and Loading-Machines, of which the following is a specification:

My invention relates to a machine and the attachments to the same for elevating dirt, gravel, or other material, and loading the same upon wagons, carts, or cars, or into boats; and consists of an inclined platform mounted upon a truck, in combination with a derrick. At each end of the incline is a gallows-frame, which supports a rod extending from one to the other over it for a traveling pulley-block. This block carries suspended from it a loose-hung hook, for righting the scraper or drag (which is hauled up the incline with its load) after it is dumped over the top. This pulley also aids in keeping the scraper or drag steady as it descends the incline to renew its load. To the front gallows-frame is attached a derrick, constructed of a single stick of timber, supported by connecting-braces. Its lower end is armed with an extended point of iron, which is driven into the ground far enough to keep it firm. A pulley at its upper and lower ends carries the rope or chain, which is attached to the scraper or drag. Power is applied at the end of the rope or chain, which extends from the foot of the derrick to draw the loads up the incline. The incline has its bottom or floor protected by metal sheets or strips. The sides of the incline are elevated above its bottom or floor, and have track-irons mounted on them, which extend from the foot to the top end, terminating above it in a curve upward, and are connected by a cross-bar. Toward the upper end of the incline these side tracks rise at a greater angle of elevation, the object being to facilitate the dumping of the scraper or drag, the rear end of which is supported upon car-wheels, which run on them, while its toe or front end slides up on the floor part of the incline. This allows it to maintain nearly a horizontal position with its load until it reaches the steeper side tracks, when its rear end is gradually raised till it reaches the top, where it is thrown up to a vertical posi-

tion, discharging its contents into the car or other receptacle placed to receive it.

On each side of the incline, at the foot end, are vertical rollers, pivoted to the uprights of the lower gallows-frame, to allow a smooth run to the rope or chain when the scraper or drag with its load is drawn from either side toward the mouth. Usually the scraper or drag will descend the incline, when empty, by its own gravity; but when the material being loaded is wet or otherwise prevents this, the traveling pulley may have a rope attached to it to pull it down, though this is not often required.

Figure 1 is a perspective view of my improved excavating and loading machine in position for operation. Fig. 2, Sheet 2, is an elevation of the upper end of the incline, (sectional.) Fig. 3 is a plan view of the same. Fig. 4 is a side elevation of the drag specially constructed for operation upon the incline. Fig. 5 is a plan view of the drag.

A is the incline, constructed of wood, having elevated sides  $A'$ , from which extend the subways  $A''$  at a greater degree of elevation. Extending along the top of both from end to end are the track-irons  $a$ . These extend, as before specified, above the upper ends of  $A''$ , terminating in the curves  $a'$ , and are connected together by the cross-bar  $a''$ . The floor of the incline is protected by the metal strips or strap-irons  $b$  and  $b'$ . The latter terminate in the hooks (turned upward)  $c$  on their upper ends.  $d$  is the lower gallows-frame, extending over the foot of the incline;  $d'$ , the upper gallows-frame. It is set at an angle forward, to form part of derrick D, and it also supports the upper end of the rod  $f$ , which extends from the lower gallows-frame over the floor of the incline for the traveling pulley-block  $p$ , which is made to run on the rod. A hook,  $h$ , is pivoted to the lower end of  $p$ , which catches over the bail of the scraper or drag, and steadies it when operated in ascending or descending the incline, as well as when being dumped. (See B, Fig. 1, the dotted lines showing it in the act of dumping.)

It will be noticed that the rod  $f$  is bent under the lower gallows frame  $d$ , its end extending up over the top from its lower side. It is



formed in this way to accommodate the operation of block *p* when it reaches the foot end.

The handles of the scraper *B* are connected by a bar, so as to form a bail for the attachment of the hook *h* of the pulley-block *p*. The handles of the drag *B'* are formed in one piece with the cross-bar *k*. It is connected to the main bar *j* of the drag by the braces *k'* on each side. (See Figs. 4 and 5.)

The drag *B'* is used in loading manure and other like fibrous substances which cannot be loaded upon the scraper *B*. Both drag and scraper are mounted upon trucks, the wheels of which run on the tracks *a* of the incline, and are dumped in the same manner. Each has the long clevis attachment *c'*, made of rod-iron, and flexibly connected with their body part, to allow them to be tilted. The drag *B'* has heavy teeth *t t* bolted to the main piece *j*, and bent in the form of the bottom of the scraper sides, so that it will hold its load and admit of being dumped. The ends of its teeth catch the hooks *c* of the irons *b'* at the top of the incline, tilting it vertically, as in the dotted lines showing that position of the scraper *B* in Fig. 1. *C C* are the wheels of the truck, on which the front of the machine is carried. The front pole or timber *e* of the derrick is connected with the front gallows-frame *d* by the braces *e'*, which are pivoted by a bolt at each end to this timber, and to the side posts of the gallows-frame. Below the top they are again connected by the rods or bars *e''* on each side. These are flexibly connected to a staple on the gallows-frame post, and a hook on their forward ends slips into a staple on each side of the derrick-pole *e*, which is set at an angle to the machine, and its broad sharp end *s* of steel driven firmly into the ground. Triangular braces *g*, pinned or bolted together, support the loose pulley *i* on the inner side of *e*. At its lower end is another pulley, *i'*, which runs in a mortise in the pole. The rope *g'* is fastened to the clevis of the scraper or drag, and passes over the top pulley *i'*, and down the inside of *e*, around the lower pulley *i''*, and out, through its mortise, to the front, where

it is attached to a horse or other power for operating it.

When it is desired to transport the machine from one place to another, the brace-rods *e''* are unhooked, and as the bolts at each end of the braces *e'* are pivot-bolts, they allow the pole *e* to be folded back under the incline, where it can be secured, thus making the machine in more compact shape.

In operating the scraper or drag on either side of the mouth *m*, the rollers *r* protect the rope *g'* from abrasion against the posts of the gallows-frame *d*. My machine can be used for loading any such material as gravel, sand, coal, manure, or other material.

When the derrick part is folded the front end can be hitched behind a wagon or cart in transporting it short distances.

I claim—

1. The incline *A*, mounted upon its truck *C*, in combination with the derrick *D*, with its braces *e'* and rods *e''*, for the purpose of supporting the hoisting device, for operating the scraper *B* or drag *B'*, the whole arranged substantially as shown and described, for the purpose set forth.

2. In combination with an incline for excavating and loading dirt, gravel, manure, or other material, the elevated ways *A'*, subways *A''*, track-irons *a*, with their top curves *a'* and cross-bar *a''*, the gallows-frames *d d'*, rod *f*, pulley *p*, with its hook *h*, scraper *B*, and derrick *D*, with its hoisting device, substantially as described and set forth.

3. Vertical rollers *r r*, as attached to the gallows-frame *d* of the incline *A*, for the purpose described and set forth.

4. The combination of the pole *e*, pivoted braces *e'*, hooks *e''*, and the gallows-frame *d'* of the incline *A*, for the purpose of allowing the folding of the derrick under the incline, substantially as described.

BOLIVAR JUDY.

Attest:

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M. M. CONVERSE.