

(No Model.)

5 Sheets—Sheet 1.

F. BAKER.
FIRE ESCAPE AND LADDER.

No. 406,617.

Patented July 9, 1889.

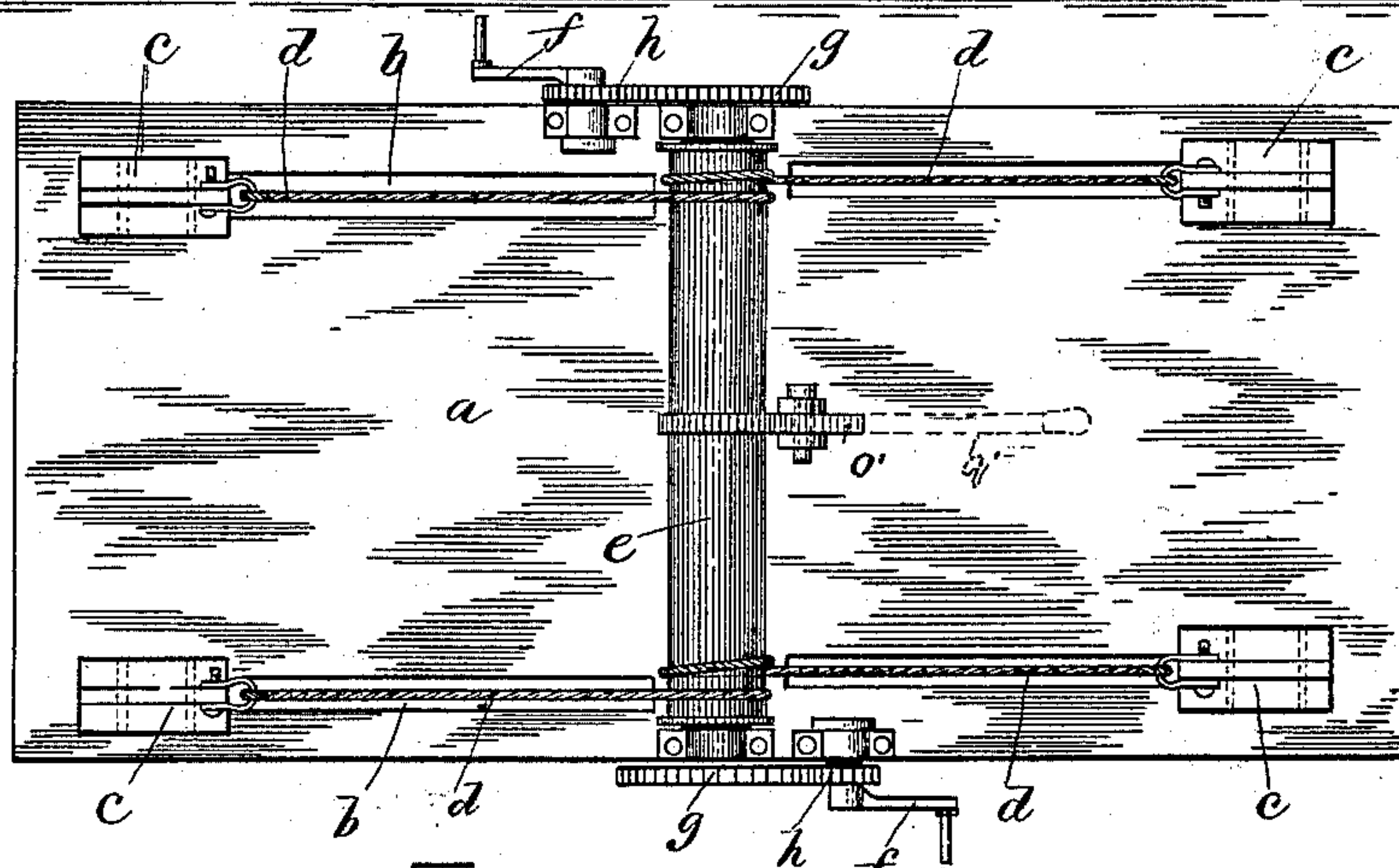
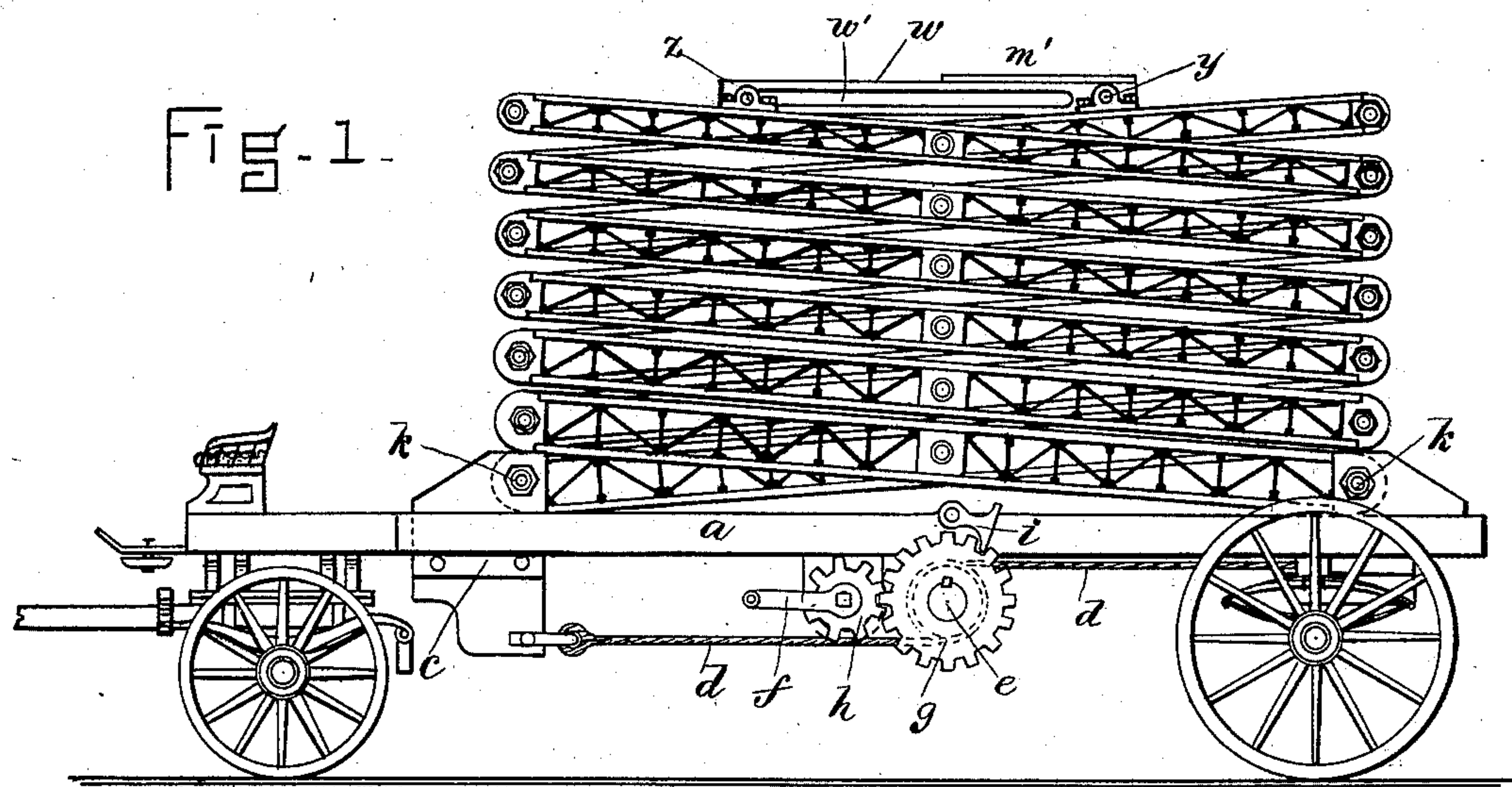


Fig. 2.

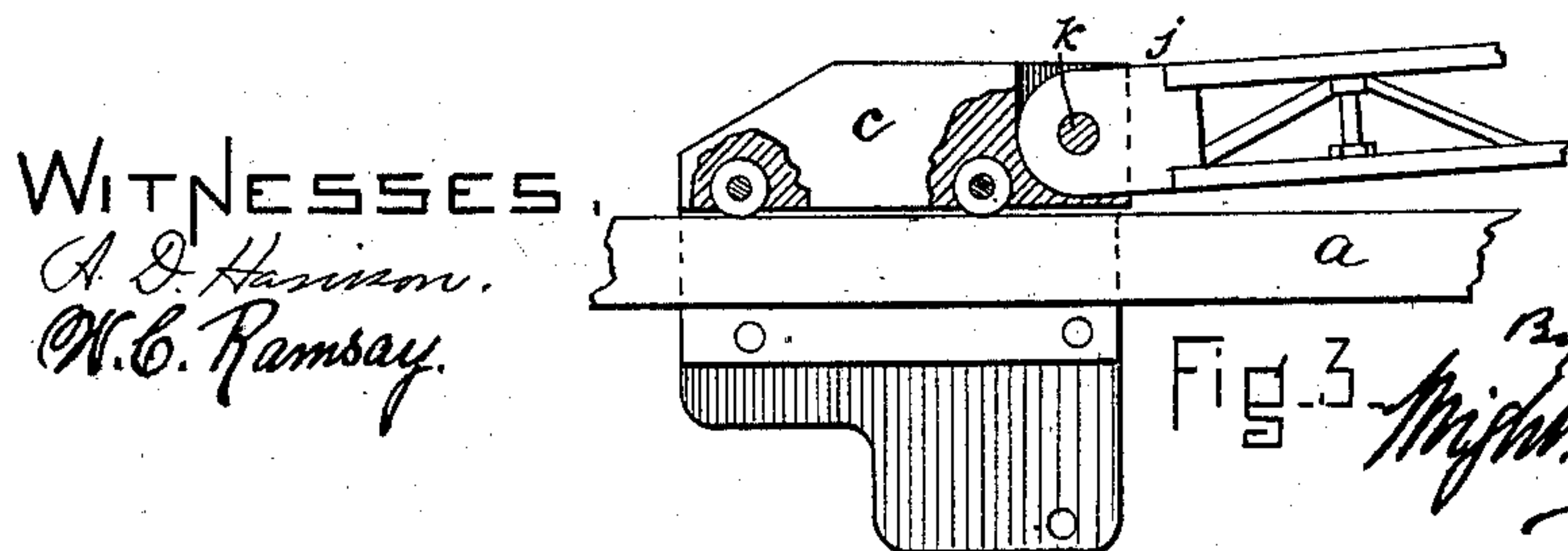


Fig. 3.

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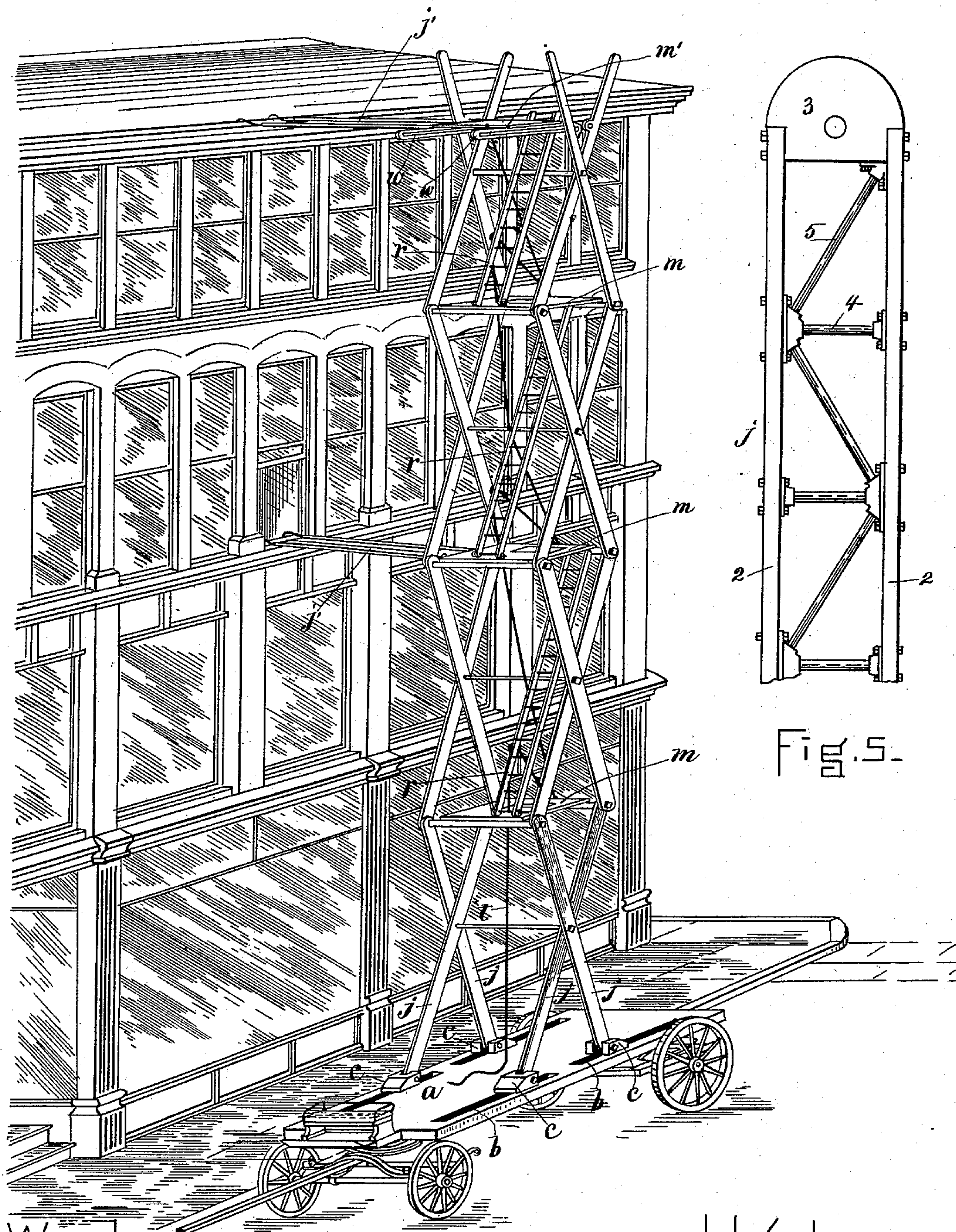


Fig. 4.

WITNESSES.

A. D. Hamm.

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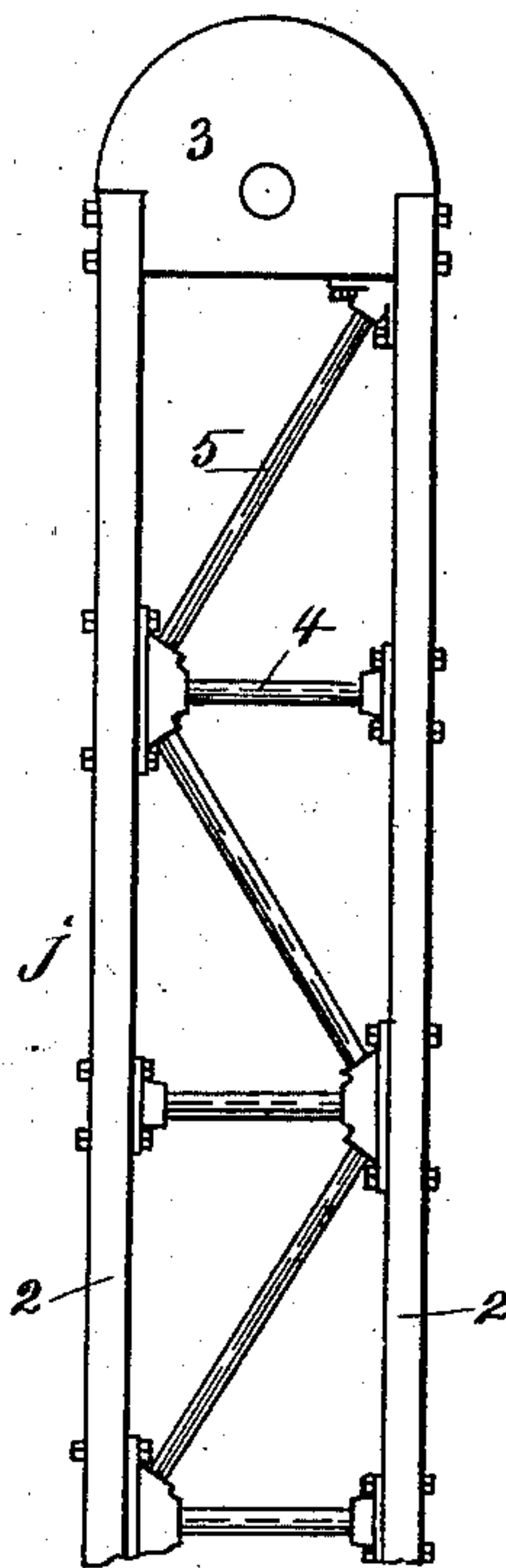


Fig. 5.

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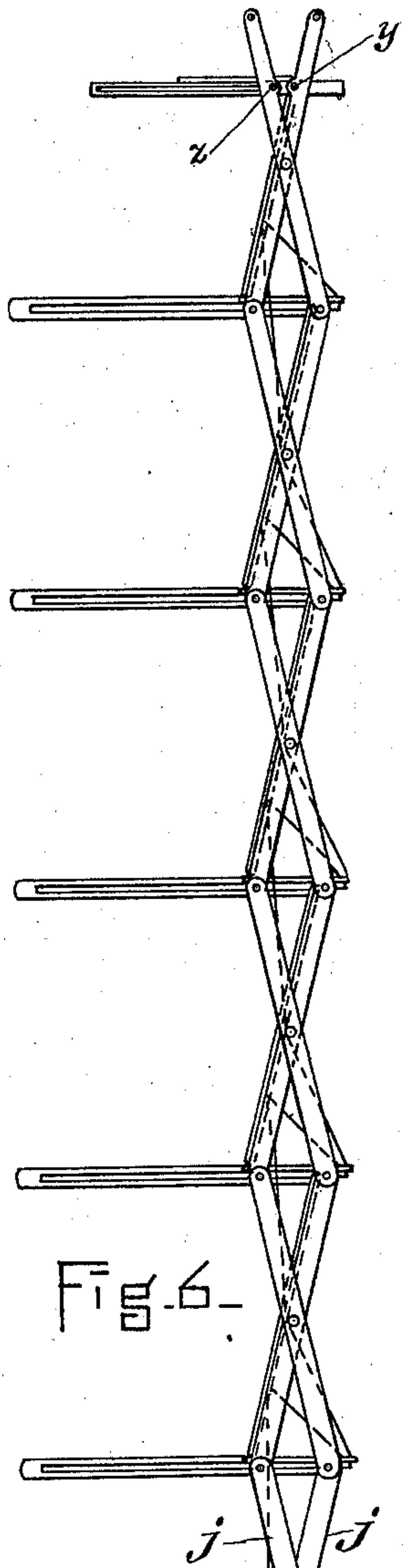


Fig. 6.

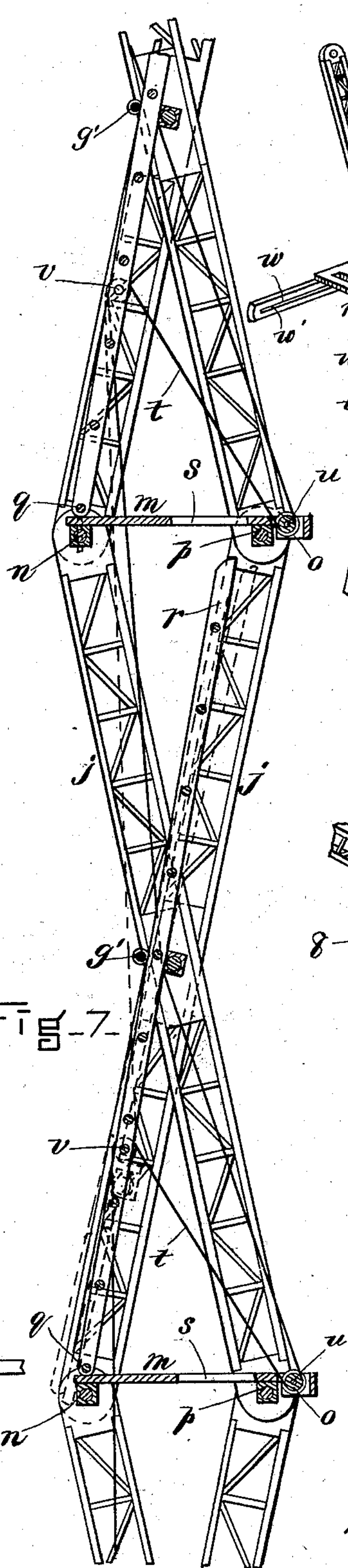


Fig. 7.

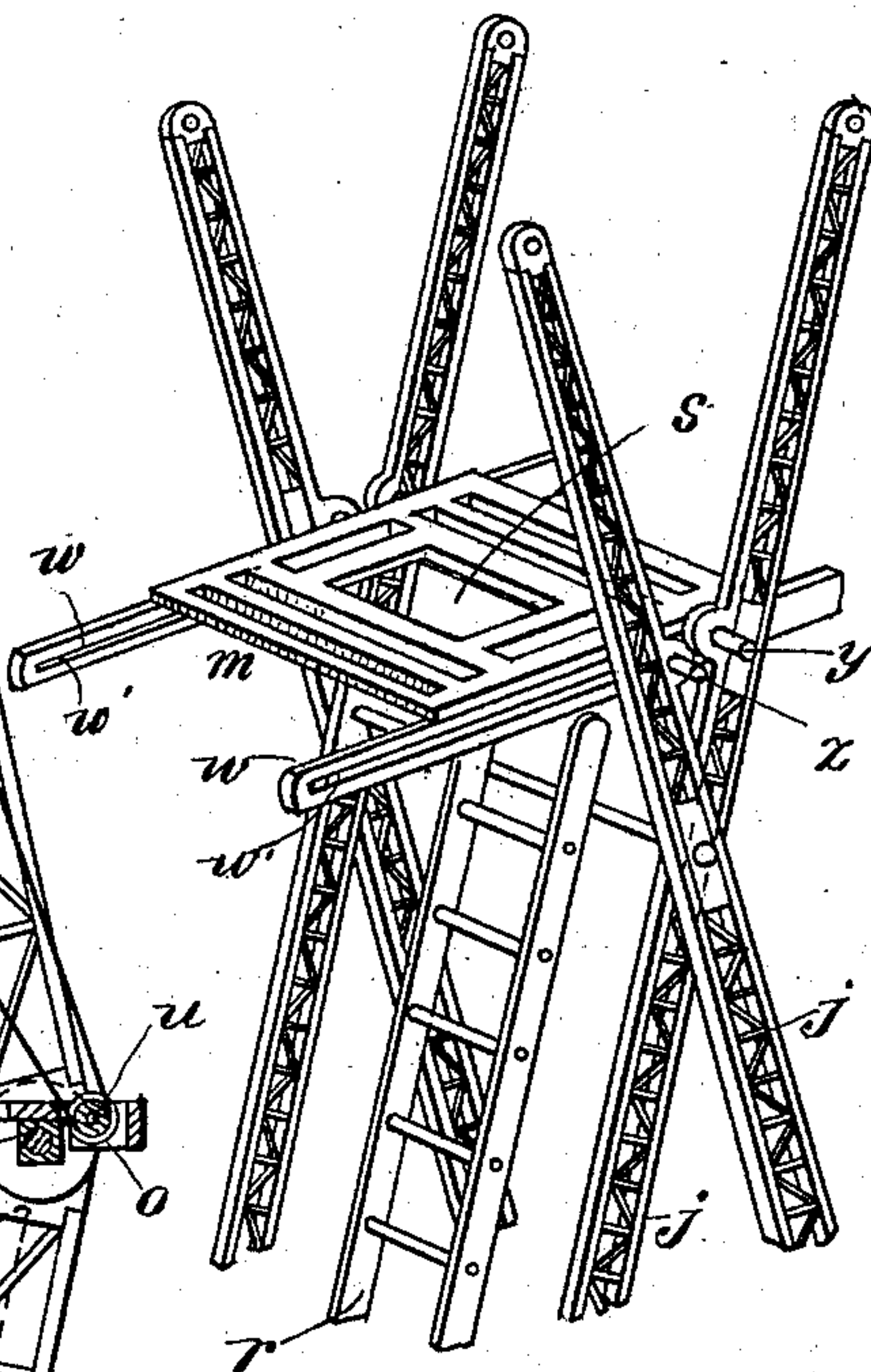


Fig. 8.

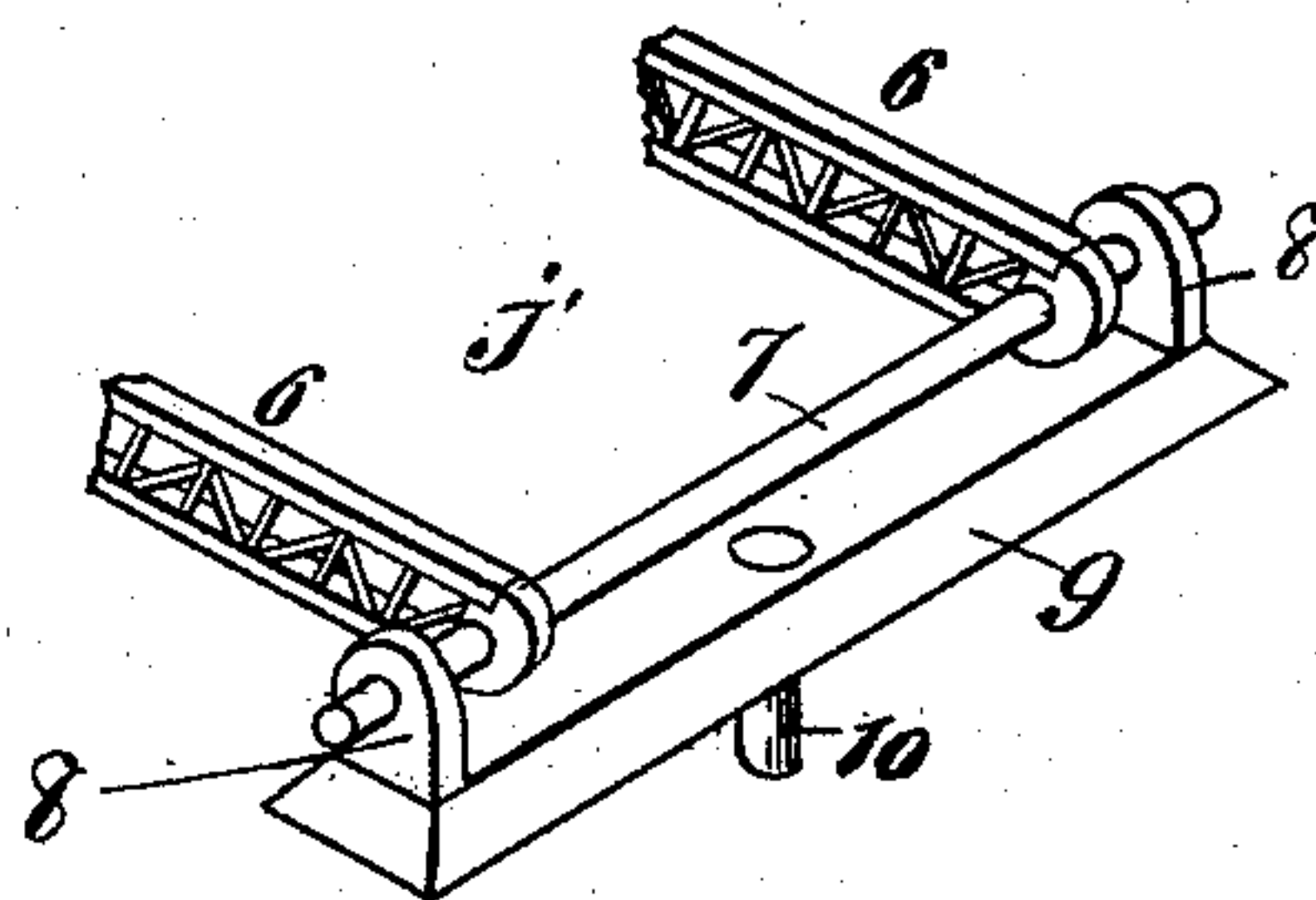


Fig. 9.

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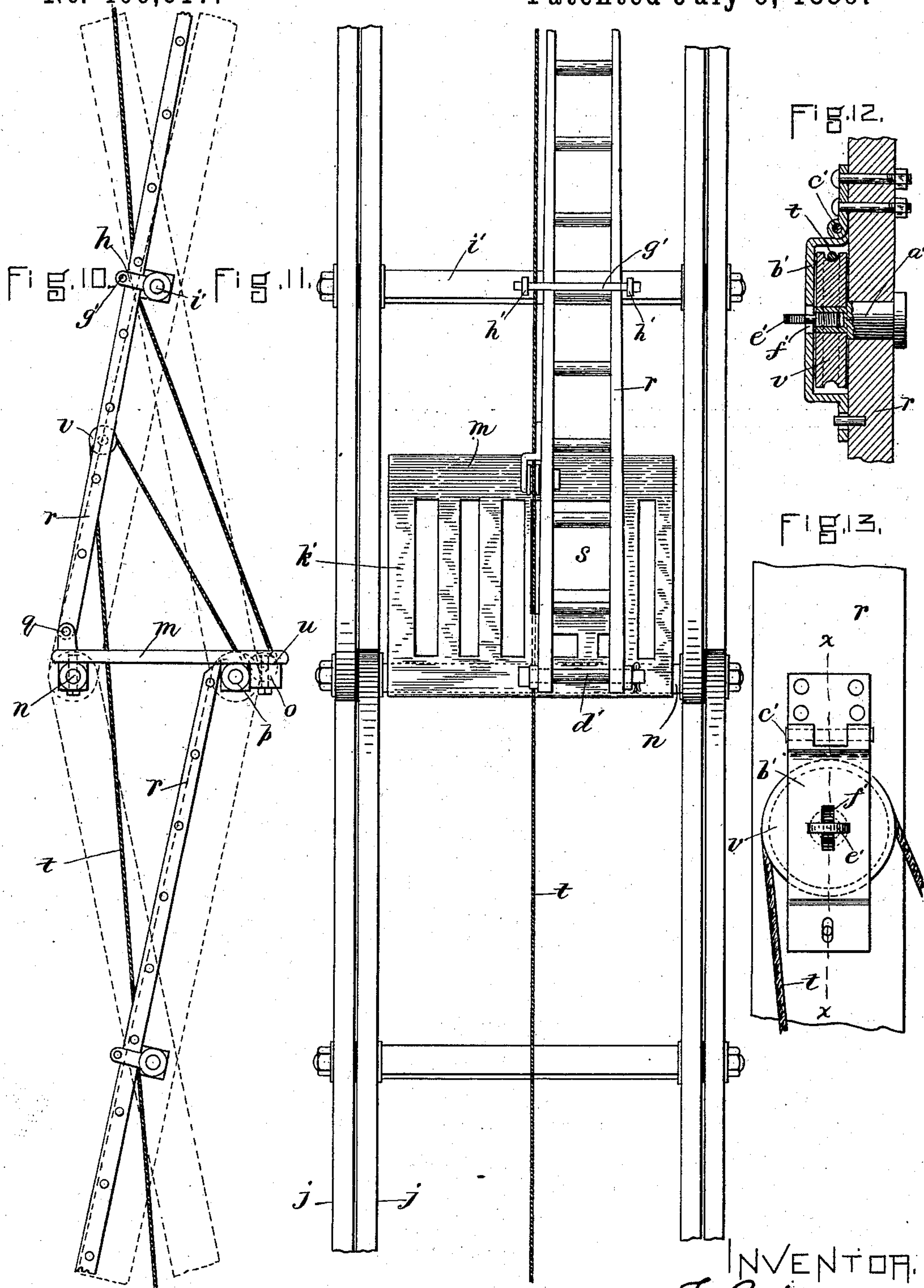
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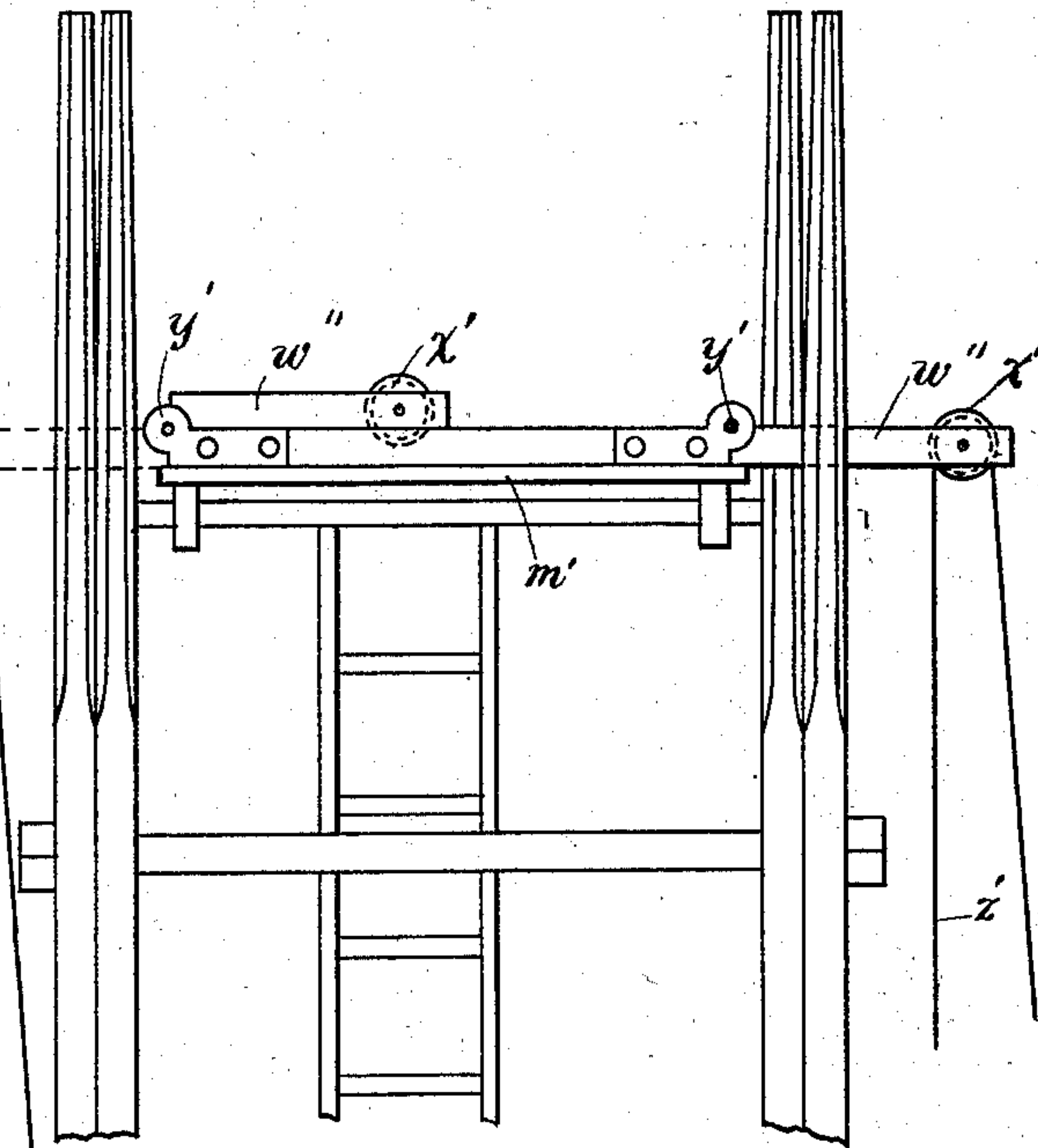
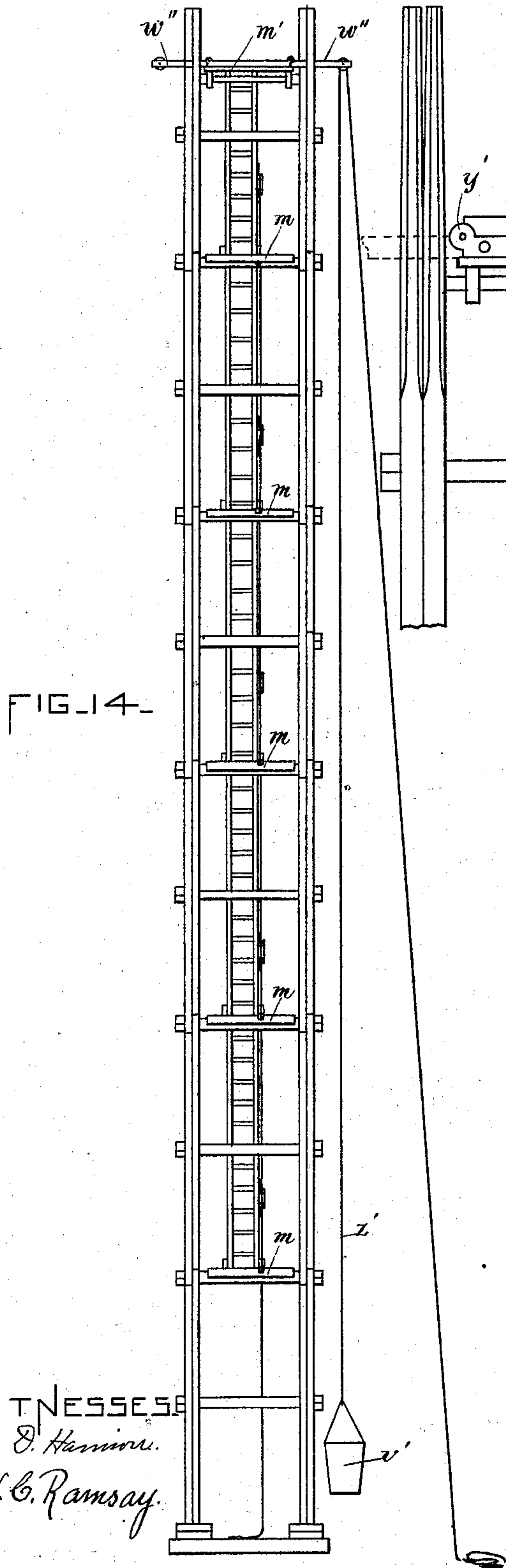
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No. 406,617.

Patented July 9, 1889.



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UNITED STATES PATENT OFFICE.

FRANCIS BAKER, OF BOSTON, MASSACHUSETTS.

FIRE-ESCAPE AND LADDER.

SPECIFICATION forming part of Letters Patent No. 406,617, dated July 9, 1889.

Application filed September 24, 1888. Serial No. 286,160. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS BAKER, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Fire-Escapes and Ladders, of which the following is a specification.

This invention has for its object to provide a simple and efficient apparatus which may be folded compactly for transportation and extended vertically to any desired height for the safe descent of persons from buildings in case of fire.

The invention consists in the several improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of my improved fire-escape folded. Fig. 2 represents a bottom view of the supporting-platform. Fig. 3 represents a side elevation, partly in section, showing a part of the apparatus. Fig. 4 represents a perspective view of the apparatus. Fig. 5 represents a side view of a part of one of the risers of the lazy-tongs. Fig. 6 represents a side elevation of a modification. Fig. 7 represents a longitudinal section of a part of the apparatus. Figs. 8 and 9 represent perspective views of parts of the apparatus. Figs. 10 and 11 represent, respectively, a side and a front elevation of a part of the apparatus. Fig. 12 represents a section on line *x x*, Fig. 13. Fig. 13 represents a side view of a part of one of the ladders. Figs. 14 and 15 represent elevations showing means whereby a rope supporting a basket or receptacle may be suspended so as to be capable of raising and lowering the basket.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents the supporting-platform, which is mounted on wheels and is adapted to be drawn by horses. Fitted to move in longitudinal slots *b b* in the platform *a* are blocks or slides *c c*, which project partly below and partly above said platform. To the lower portions of said slides are attached ropes or chains *d d*, which are wound on a drum *e*, the latter being journaled in bearings on the platform *a*. The arrangement of the ropes *d* is such that when the drum is rotated in one direction the slides *c c* will be drawn

simultaneously toward each other. Cranks *f f* and gears *g h* are provided, whereby said drum may be rotated. It is obvious, however, that any other suitable devices may be used for the same purpose. The drum may be held from rotating either way by a reversible dog *i*, Fig. 1, or otherwise.

The platform *a* supports two sets of lazy-tongs, the members or risers *j j* of which are jointed to each other in the usual way. The lower members of the lazy-tongs are jointed at *k k* to the slides *c c*. When the slides *c c* are moved apart, as shown in Fig. 1, the members of the lazy-tongs lie parallel with each other, the lazy-tongs being compactly folded; but when the slides are moved toward each other, as shown in Figs. 4 and 6, the lazy-tongs are extended upwardly.

m m represent a series of platforms, which are mounted to swing vertically on rungs or rods *n* at the meeting ends of the members *j*, so that each platform can be swung upwardly between the members *j*, as shown in Fig. 11, and thus be folded out of the way or downwardly to extend horizontally across the space between the upper ends of each *X* formed by said members, the free end of each platform having a cleat or rib *o* on its under side, which engages, as shown in Fig. 10, with a rung or bar *p* on the members *j* opposite the rung *n*. It will be seen, therefore, that when the platforms are thus engaged with the bars *p* they lock the members *j* together so that they cannot spread. The lazy-tongs are therefore held in their raised position by said platforms.

To each platform *m* is pivoted at *q*, just above the rung *n*, to which the platform is pivoted, a ladder *r*, the free end of which bears against the bar *p*, which engages the free end of the platform *m* next above. An opening *s* is formed in each platform coinciding with the ladder below it, said opening being of sufficient size to permit a person to pass through it to or from the ladder below. It will be seen, therefore, that a person can easily and safely descend from the top of the lazy-tongs by passing through each platform and down on each ladder in succession, the platforms breaking the continuity of the descent and enabling timid persons to descend with less fear than on a continuous ladder.

t represents a rope or chain attached at its

upper end to the highest platform m' and passing downwardly, first around a pulley u , inserted in the swinging end of the next platform below, then upwardly over a pulley v on the ladder which rests on said platform, then downwardly to a pulley u in the free end of the next platform, then upwardly over a pulley on the ladder resting on the last-mentioned platform, and so on, the rope being engaged, as above specified, with each platform and ladder of the series, so that by pulling downwardly on its lower end all the platforms excepting the highest one will be swung upwardly at the same time. The lazy-tongs are thus enabled to be folded without obstruction by the platforms.

The highest platform m' is supported by slotted horizontal arms $w w$, Fig. 8, which are supported by pins or trunnions $y z$, journaled in ears on the top members of the lazy-tongs. The trunnions y are affixed to the bars w , while the trunnions z are fitted to slide in the slots w' of the said bars. Said bars securely support the highest platform in a horizontal position, so that firemen can stand thereon while the structure is being raised and lowered.

If desired, similar supporting-bars may be provided for each platform, as shown in Fig. 6.

The members of the lazy-tongs are preferably made of parallel side bars 2, end pieces 3, transverse bolts 4, and trusses 5, as shown in Fig. 5.

The pulleys v on the ladders are journaled on studs a' , Fig. 12, affixed to said ladders. The rope t is retained on each pulley by a yoke or guard b' , which is connected by a hinge c' with the side of the ladder. Whenever it is desirable to disconnect a ladder from the apparatus and use it independently, the pin or bolt d' , Fig. 11, which connects said ladder with the platform on which it rests, is removed, thus detaching the ladder from said platform, and the hinged yoke b' is unfastened by turning a button e' on the end of the stud a' until said button coincides with a slot f' in the yoke. The yoke may then be swung outwardly, thus permitting the removal of the rope t from the pulley, after which the ladder may be removed by sliding it lengthwise from under a pin or rod g' . Said rod is supported by ears $h' h'$ on the connecting bar or pivot i' of the lazy-tong members, its function being to hold the ladder against said bar or pivot i' and prevent the ladder from tipping back independently.

When the apparatus is raised, as shown in Fig. 4, communication between one or more of the platforms and a building may be established by a bridge or bridges j' , detachably secured to the platforms. Each bridge is composed of two bars or side pieces 6 6, having hooks at their outer ends to engage with the building, Fig. 4. The inner ends of said side pieces are mounted on a rod 7, which is fitted in ears 8 8 on a block 9. Said block has a central pin 10, which enters a

socket k' , formed for it in a platform m , (each platform m having a similar socket.) When a bridge is to be placed in position, its block 9 is engaged with the desired platform by means of the pin 10 and the hooks of the bridge are engaged with the building. The pin 10 is adapted to be turned in the socket k' , in which it is inserted, and thus permit the bridge to extend in any desired horizontal direction from the platform to which it is secured, while the pivotal connection of the bridge to the block by means of the rod 7 enables the bridge to be inclined up or down from the platform. The bridges may be detachably secured to the lazy-tongs at points near the platforms when they are not in use.

To enable a life-saving car or basket v' to be raised and lowered to and from the top of the lazy-tongs, I provide the highest platform m' with an arm w'' , which is connected by a rule-joint y' with a beam or support on said platform. Said arm has a pulley x' in a slot in its outer end. When the arm is turned outwardly, as shown in Fig. 14 and at the right in Fig. 15, its outer end projects outside of the lazy-tongs, so that a rope or chain z' may depend from the pulley to the ground, said rope supporting the car or basket v' , as shown in Fig. 14. I prefer to provide two arms w'' , as shown in Figs. 14 and 15.

It will be seen that with this apparatus inmates of burning buildings can pass from several floors of the building onto the different platforms at the same time.

I claim—

1. The combination of the lazy-tongs, the series of platforms pivoted thereto, the ladders between the platforms, and the rope or chain arranged, as shown, to raise all the platforms simultaneously.

2. The combination of the lazy-tongs, the pivoted platforms, the ladders, the pulleys on said ladders, and the rope or chain engaged with said pulleys and platforms, as set forth.

3. The combination of the lazy-tongs, the platforms, the ladders detachably secured at their lower ends to the platforms, as described, and the rods g' , whereby the ladders are held in place when secured to the platforms, as set forth.

4. The combination of the lazy-tongs, the ladders having the pulleys v , and the movable yokes or guards for said pulleys, the platforms, and the rope engaged with the platforms and pulleys, as described, said rope being made detachable from the pulleys by the movable guards, as set forth.

5. The combination, with the lazy-tongs and a platform thereon, of a block 9, adapted to be pivotally engaged with said platform to swing horizontally, and a bridge pivoted to said block, so as to be capable of swinging vertically, as set forth.

6. The combination of the lazy-tongs having the horizontal platform m' , an arm w'' , connected by a rule-joint y' to a support on said platform, whereby said arm may be

folded within the ladder or projected there-
from, and a pulley at the swinging end of
said arm, whereby a rope may be suspended
and raised and lowered.

5 7. The lazy-tongs composed of risers or
members, consisting of the side pieces 2 2,
connecting end pieces 3, trusses 5, and bolts
4, as set forth.

In testimony whereof I have signed my name
to this specification, in the presence of two or
subscribing witnesses, this 5th day of Sep-
tember, A. D. 1888.

FRANCIS BAKER.

Witnesses:

C. F. BROWN,
A. D. HARRISON.