

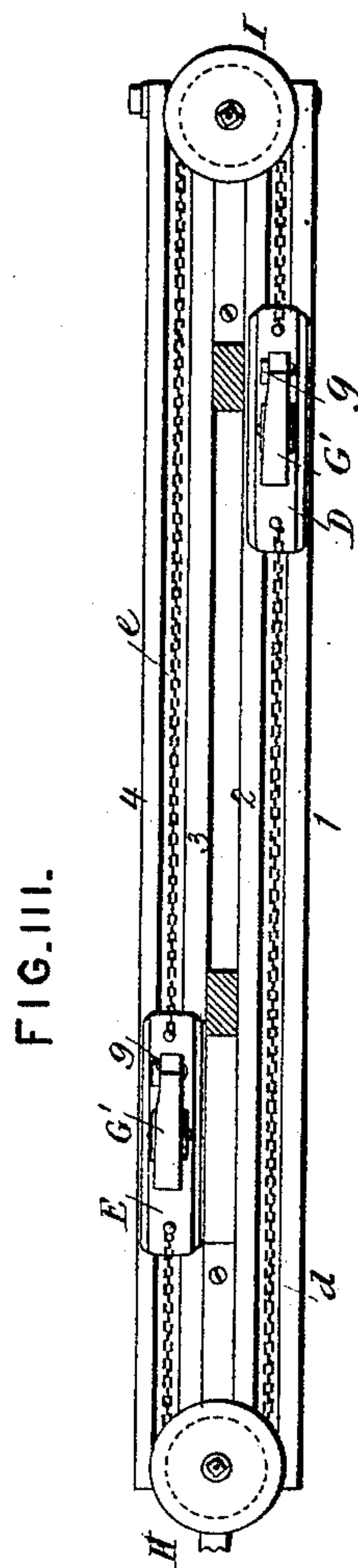
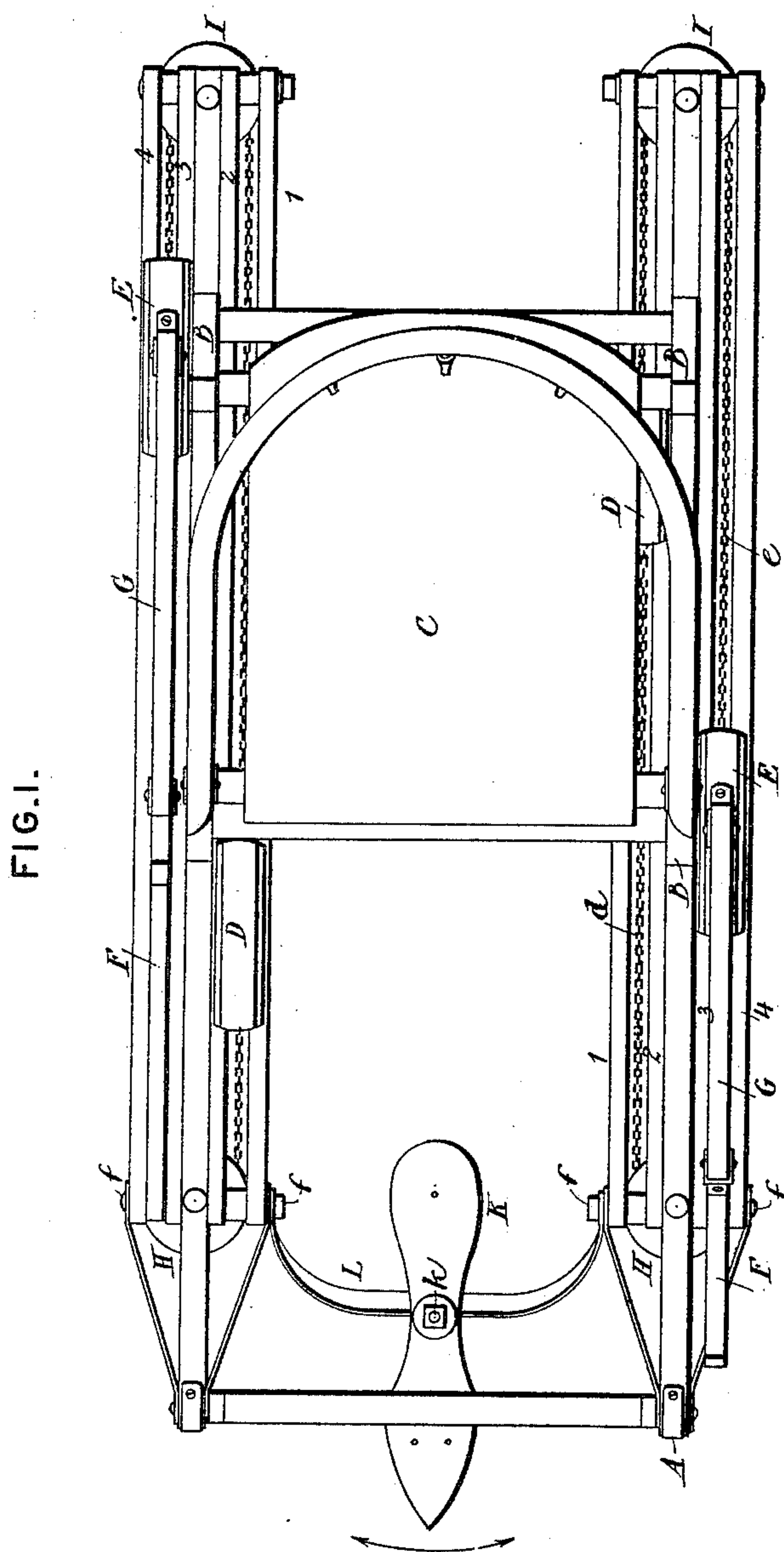
(No Model.)

2 Sheets—Sheet 1.

J. GIFFORD.
SELF PROPELLING SLED.

No. 461,112.

Patented Oct. 13, 1891.



Witnesses
Will's Norton
Jonathan Ciley

Inventor:
John Gifford
By Follos Mauro
his Attorneys

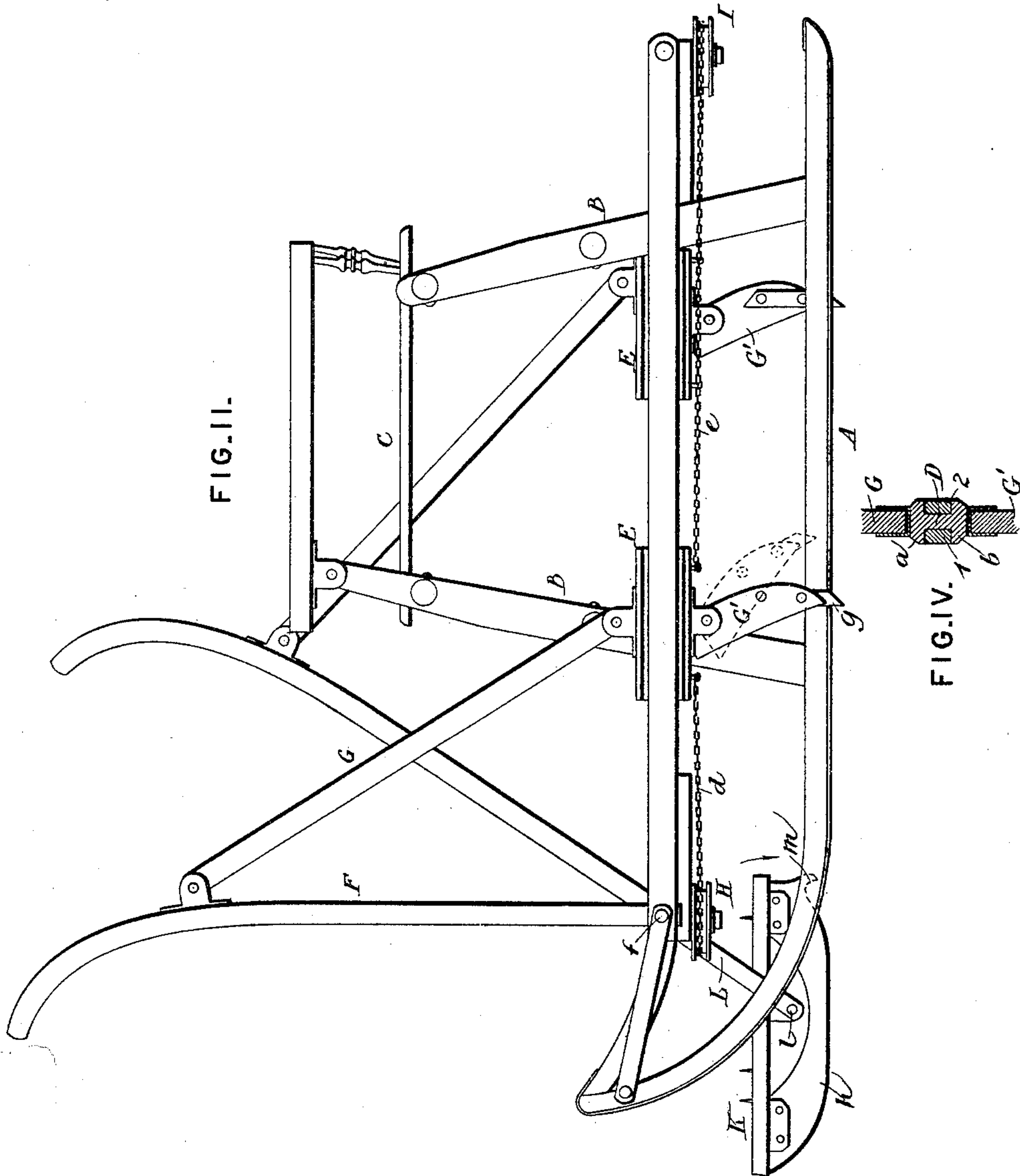
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SELF PROPELLING SLED.

No. 461,112.

Patented Oct. 13, 1891.



Witnesses:
Will. I. Norton
J. H. Allen

Inventor:
John Gifford
By Pollard & Mauro,
his Attorneys.

UNITED STATES PATENT OFFICE.

JOHN GIFFORD, OF WATERTOWN, NEW YORK, ASSIGNOR TO THE GIFFORD MANUFACTURING COMPANY, OF SAME PLACE.

SELF-PROPELLING SLED.

SPECIFICATION forming part of Letters Patent No. 461,112, dated October 13, 1891.

Application filed July 9, 1891. Serial No. 398,890. (No model.)

To all whom it may concern:

Be it known that I, JOHN GIFFORD, a resident of Watertown, county of Jefferson, and State of New York, have invented a new and useful Improvement in Self-Propelling Sleds, which improvement is fully set forth in the following specification.

This invention relates to the construction of sleds provided with means whereby the same may be propelled by the rider over the surface of the ice or snow.

Prior to my invention sleds have been provided with propelling means of various descriptions. For example, an endless band has been arranged lengthwise of the sled and provided with two pivoted dogs, adapted to catch in the surface of the ice or snow when the band moves backward, and thus urge the sled forward. The band was driven by means of a pinion actuated by two sliding racks adapted to turn the driving-pinion first in one direction and then in the other.

The object of the present invention is principally to improve the actuating mechanism, so as to produce a continuous action and uniform motion of the sled, and also to make the work of propulsion easier to the rider. The invention also includes improved steering and brake mechanism.

The improvements may be most conveniently described in connection with the accompanying drawings, in which—

Figure I is a top plan view of the improved sled; Fig. II, a side elevation; Fig. III, a detail showing a bottom view of the slides, chains, and dogs on one side of the sled; and Fig. IV a cross-section of one of the slides and slide-rails.

A represents the runners, and B the uprights by which the seat C is supported. On each side of the sled are four horizontal rails 1 2 3 4, bolted together at their ends. These rails act as guide-rails for the slides D and E, there being two slides on each side of the sled. Slide D works between the rails 1 and 2 and slide E between the rails 3 and 4. These slides have top flanges *a* and bottom flanges *b*, which bear against the upper and lower sides of the rails, so that large bearing surface is provided.

The operating hand-levers F are pivoted on the bolts *f*, which fasten the guide-rails to-

gether at their forward ends, and are connected by links G with the outside slides E, which are thus driven in both directions directly from levers F. The inner slides D are connected with the outer slides by chains *d* and *e*. Chain *d* passes from the under side of slide D around a sheave H at the front end of the sled and thence back to the slide E. Chain *e* passes around a similar sheave I at the rear of the frame and is fastened at its ends to the two slides D and E, which thus move in opposite directions. To the said slides are pivoted dogs G', armed at their lower ends with teeth *g*, which bite into the surface of the snow or ice when the slide is moved back (thus urging the sled forward) and slip over the surface when the slide returns. The driving-gear on one side is independent of that on the other, and the rider can work the two hand-levers in the same direction or in reverse directions, or can use one alone for the purpose of assisting the steering mechanism in making a sharp turn.

The steering device or skate K is swiveled on a pin *k*, so that it can be turned by the foot on a horizontal axis and thus guide the sled in either direction. The pin *k* has a flattened lower end which is pivoted on a pin *l*, so as to turn vertically in a curved metal frame or support L. The pivots *k* and *l* constitute a universal joint. The steel guiding-runner *h* of the skate terminates at its rear end in a sharp horn *m*, which, by depressing the heel and turning the skate on its horizontal axis *l*, can be pressed into the surface over which the sled moves with greater or less force, so as to regulate its speed or to arrest its motion entirely.

This combined steering and brake mechanism is particularly useful in coasting.

The support L of the skate is pivotally attached to the side rails by the bolts *f*, so that it can be swung up, lifting the skate out of contact with the ground when its use is not required.

I reserve the right to make modifications in details which do not depart from the spirit of the invention and to use parts of the invention without others, if desired.

I claim as my invention and desire to secure by Letters Patent—

1. The described propelling-gear for sleds,

comprising, in combination, the slideways on each side of the sled, two slides on each side, connected, as specified, so as to move in opposite directions, a pivoted dog carried by each slide, and actuating-levers each connected with one of said slides, as set forth.

2. The described propelling-gear comprising, in combination, the following elements on each side of the sled: two slideways, two slides, chains attached at their ends to said slides and passing around sheaves, respectively, at the front and rear ends of the sled, a dog pivoted to each slide and adapted to slip over the ground when the slide moves forward and bite into it when the slide moves back, an actuating-lever pivoted to the frame, and a link connecting said lever with one of said slides, substantially as described.

3. The combination of the parallel horizontal rails forming slideways, the slides working between and having flanges above and be-

neath said rails, the chains connecting said slides and running over sheaves, the dogs pivoted to said slides, and means for reciprocating the slides, substantially as described.

4. The steering and brake mechanism consisting of a skate arranged to turn both vertically and horizontally and provided with a steering-runner and with a pointed heel or horn, substantially as described.

5. The combination of the support pivotally connected with the frame of the sled and the skate mounted on said support so as to turn vertically and horizontally, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN GIFFORD.

Witnesses:

ZELL K. HALL,

W. C. RICH.