

No. 765,232.

PATENTED JULY 19, 1904.

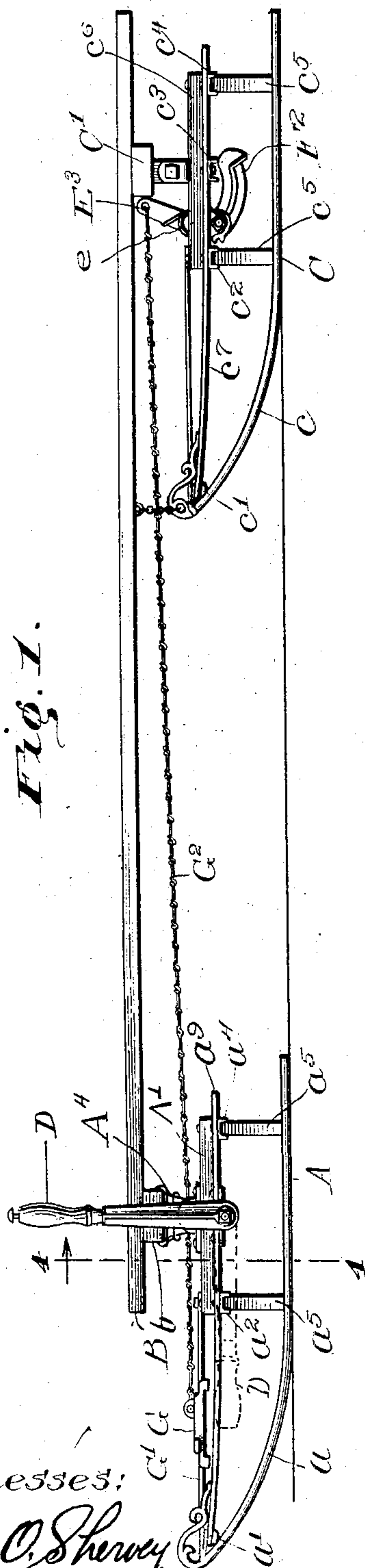
H. L. & H. J. FERRIS.

BOB SLED.

NO MODEL.

APPLICATION FILED DEC. 7, 1903.

2 SHEETS—SHEET 1.



Witnesses:
Chas. C. Sherway
Russell Miles

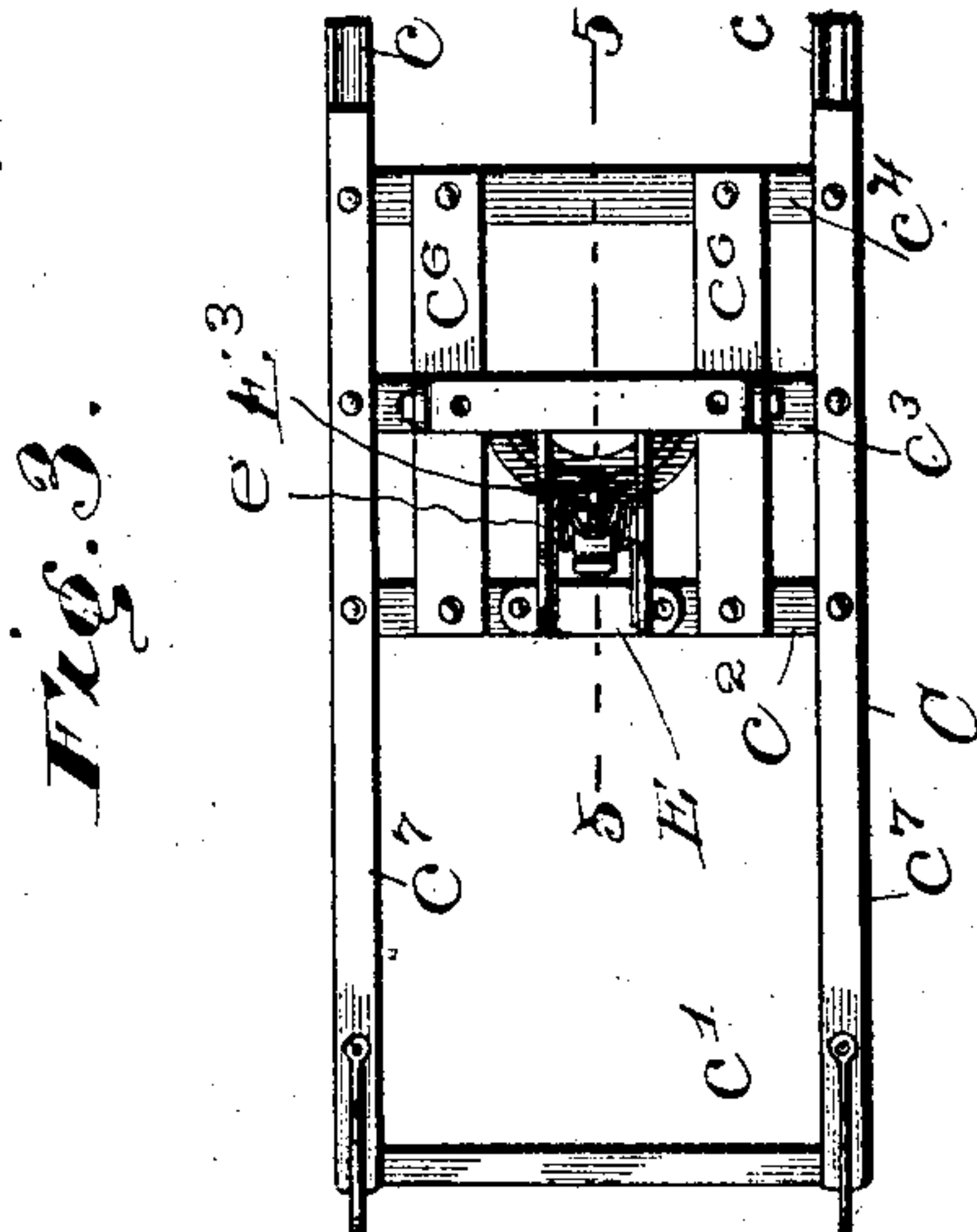
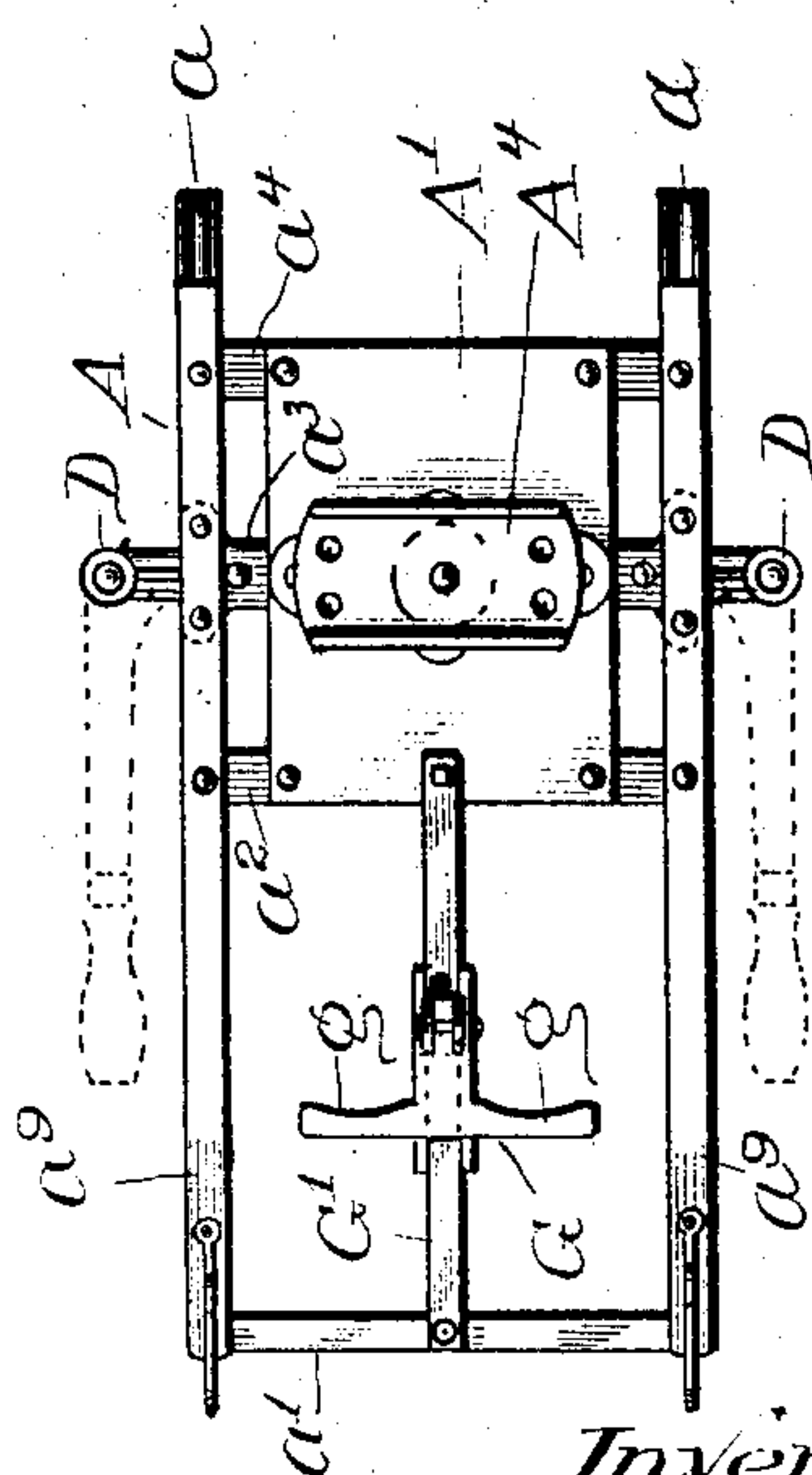


Fig. 2.



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Att'y

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2 SHEETS—SHEET 2.

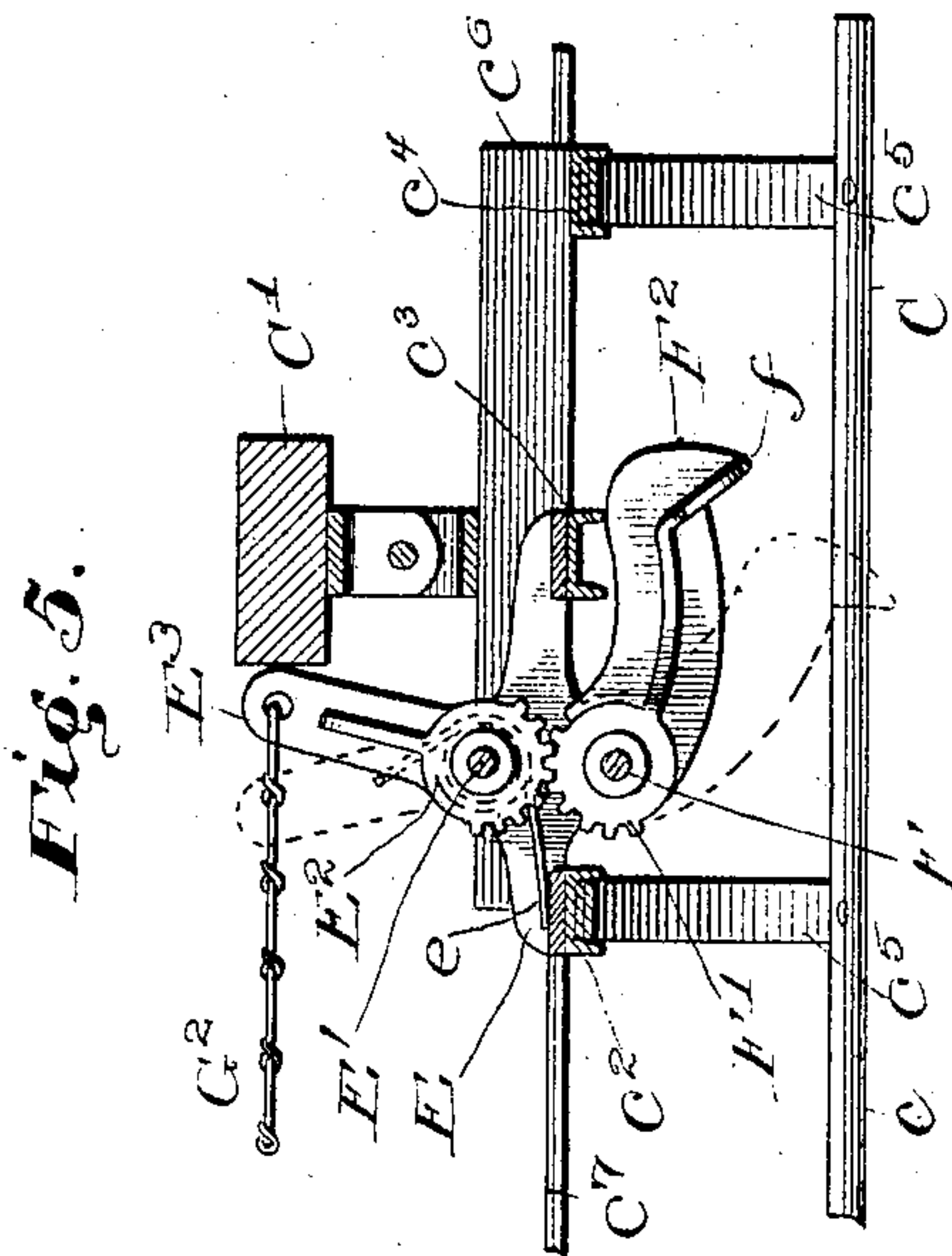


Fig. 5.

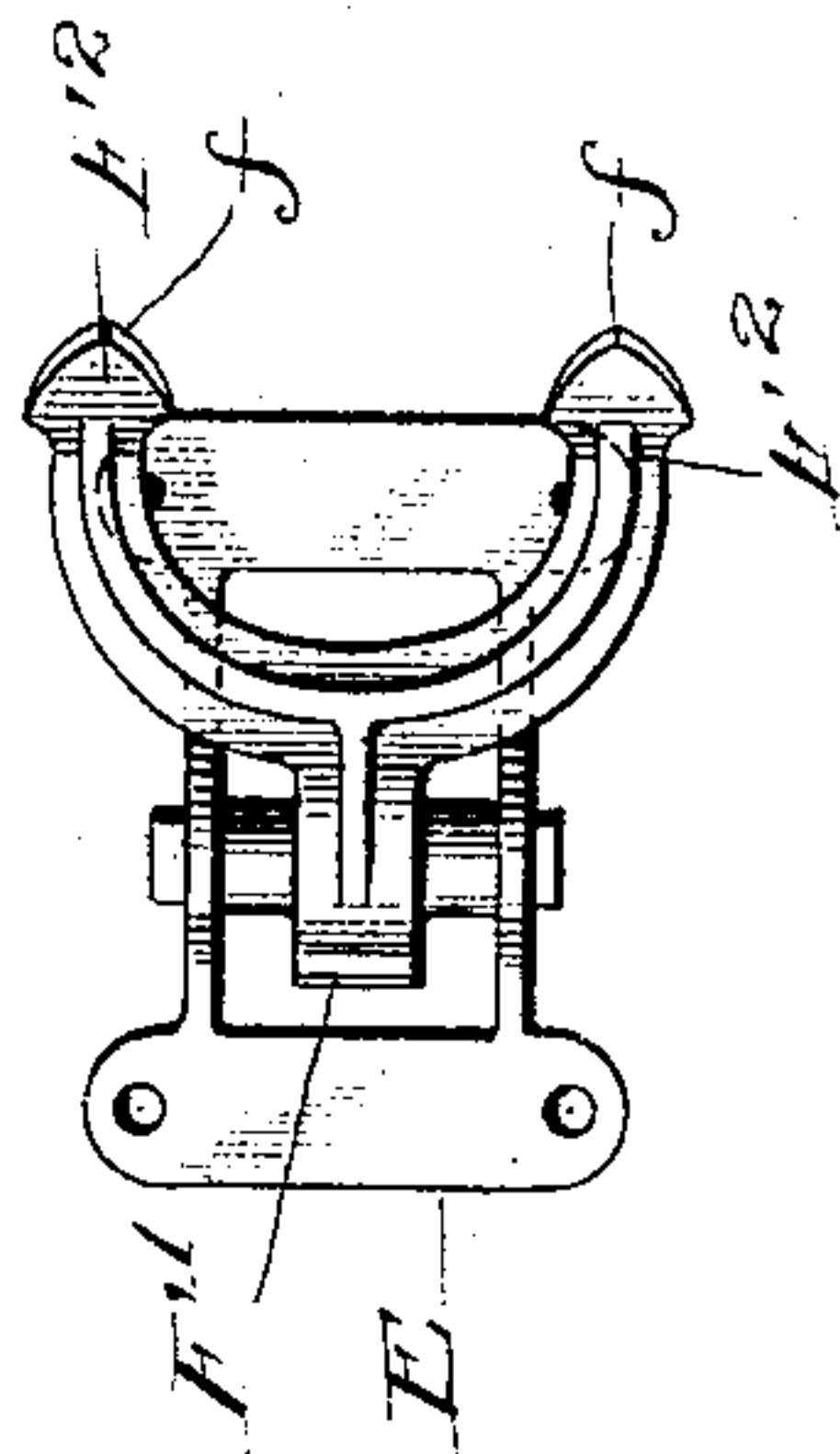


Fig. 6.

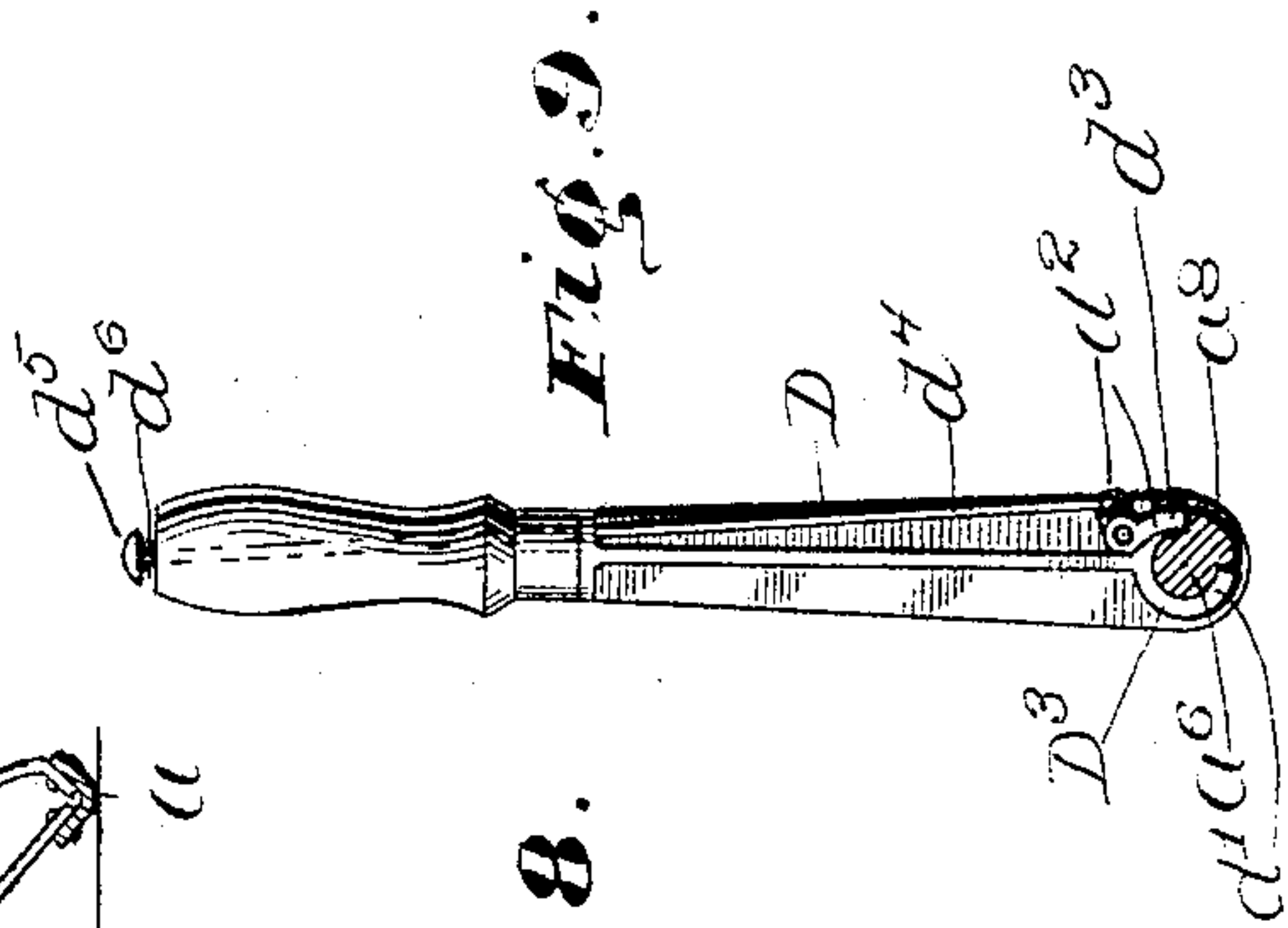
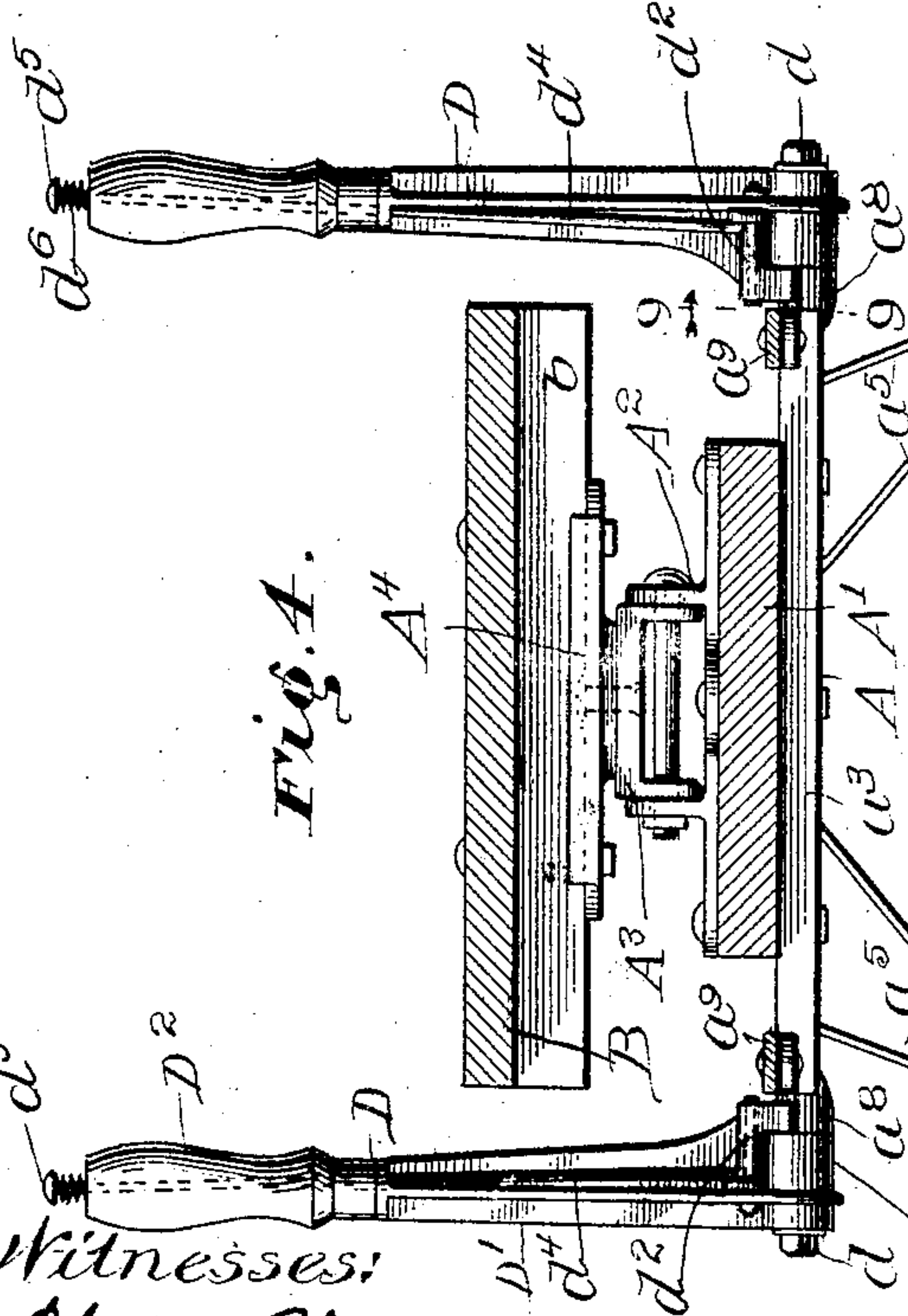
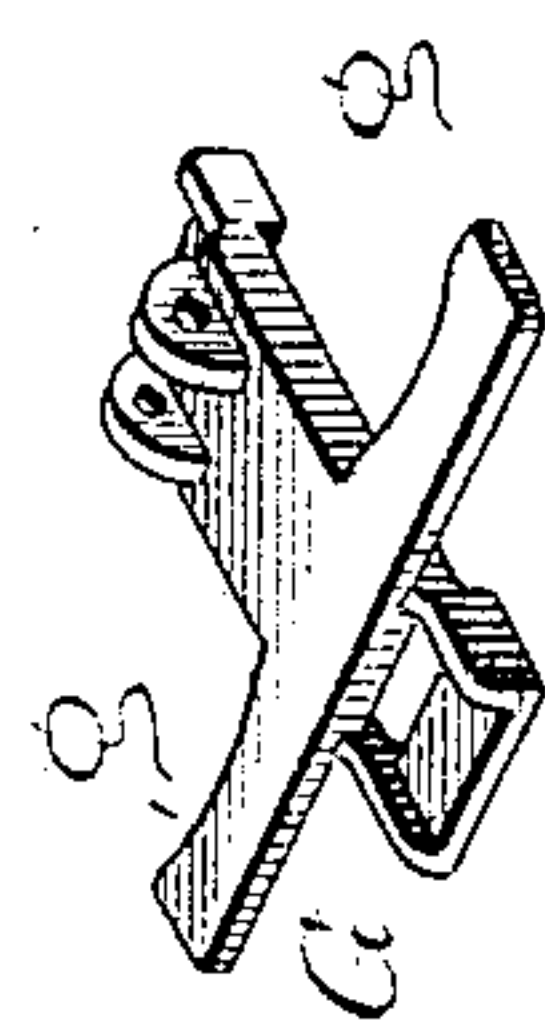


Fig. 8.

Fig. 9.

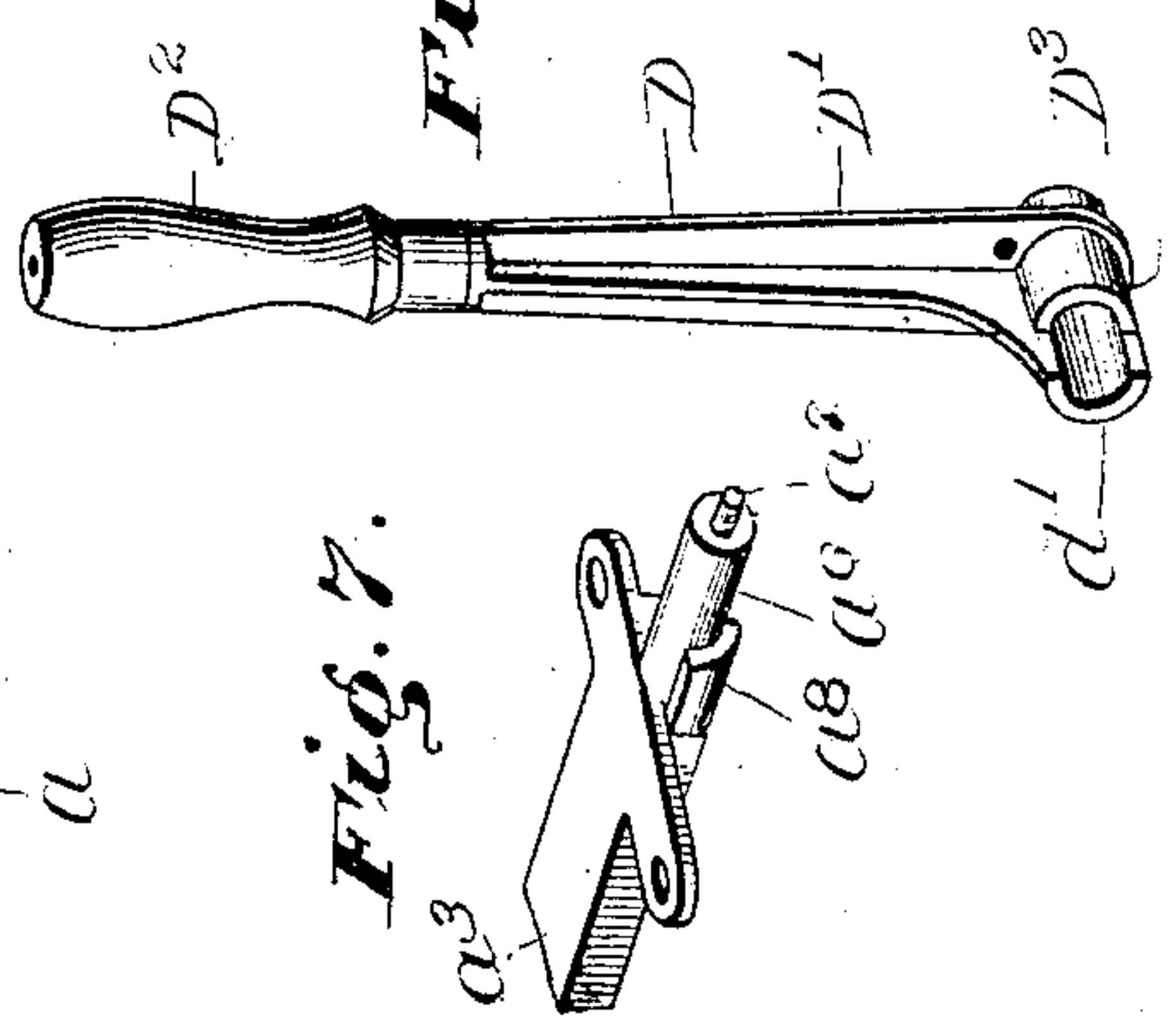


Fig. 7.

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UNITED STATES PATENT OFFICE.

HENRY L. FERRIS AND HOWARD J. FERRIS, OF HARVARD, ILLINOIS,
ASSIGNORS TO HUNT, HELM, FERRIS & COMPANY, OF HARVARD,
ILLINOIS, A CORPORATION OF ILLINOIS.

BOB-SLED.

SPECIFICATION forming part of Letters Patent No. 765,232, dated July 19, 1904.

Application filed December 7, 1903. Serial No. 184,235. (No model.)

To all whom it may concern.

Be it known that we, HENRY L. FERRIS and HOWARD J. FERRIS, citizens of the United States of America, residing at Harvard, in the county of McHenry and State of Illinois, have invented certain new and useful Improvements in Bob-Sleds, of which the following is a specification.

Our invention relates to certain new and useful improvements in bob-sleds; and its object is to produce a device of this class which shall have certain advantages which will appear more fully and at large in the course of this specification.

To this end our invention consists in certain novel features of construction, which are clearly illustrated in the accompanying drawings and described in the course of this specification.

In the aforesaid drawings, Figure 1 is a side elevation of our improved bob-sled. Fig. 2 is a plan of the front sled thereof. Fig. 3 is a plan of the rear sled. Fig. 4 is a cross-section in the line 4 4 of Fig. 1 looking in the direction of the arrow. Fig. 5 is a section in the line 5 5 of Fig. 3. Fig. 6 is an under plan of the brake mechanism illustrated in Fig. 5. Fig. 7 is a perspective view of one of the gudgeons upon the ends of a cross-bar of the front sled, to which the steering-handles are secured. Fig. 8 is a perspective of one of the steering-handles. Fig. 9 is a section in the line 9 9 of Fig. 4 looking in the direction of the arrow, and Fig. 10 is a perspective of the foot-slide by which the brake is operated.

Referring to the drawings, A indicates the front sled of the structure, and it is constructed in the ordinary form with two runners a and suitable cross-bars a' , a'' , a''' , and a^4 , which are secured to longitudinal bars a^5 , located above the runners. The cross-bar a^3 is slightly larger than the others and of peculiar construction, which will be hereinafter set forth. Suitable braces a^6 connect the runners with the cross-bars and produce a firm and substantial sled structure. To the three rear cross-bars a^2 , a^3 , a^4 is secured a plate A' , preferably of wood, to which is secured a bracket A^2 .

(See Fig. 4). Journaled in this bracket is the member A^3 , which can swing in a plane extending longitudinally of the first sled. To this member A^3 is pivoted a plate A^4 , which is rotatable with respect to the member A^3 , and to this plate is bolted a board B, which serves as a top of the bob-sled, a block b being interposed between the board and the member A^3 . The front sled can therefore be rotated with respect to the board and also can swing in a vertical plane. So much of the structure as has so far been described is old and well known and forms no part of this invention.

C indicates the rear sled of the structure, and it is composed of runners c and cross-bars c' , c'' , c''' , c^4 , longitudinal bars c^5 , and suitable braces c^6 . The three rear cross-bars c^2 , c^3 , c^4 of the rear sled have secured to them longitudinally-extending members c^6 , to which is hinged a block C' , which is secured to the rear end of the top board B. It will be seen that the rear sled is therefore rotatable in a vertical plane with respect to the top board. This portion of the structure is, like the construction of the front sled, old and well known and is not claimed as a portion of our invention.

Upon each end of the cross-bar a^3 of the front sled is a gudgeon a^6 , Fig. 7, which has a screw-threaded centrally-projecting portion a^7 . The gudgeon, it will be noted, is not cylindrical throughout its entire length, but has at its inner end a segmental lug a^8 , which in the structure herein illustrated has an extent of substantially ninety degrees, but which can be made of greater or less extent, if desired, the corresponding portions upon the steering-handles being also varied to the same extent. Upon each of the gudgeons is a steering-handle D, preferably journaled thereon and held in place by a nut d , screwed upon the screw-threaded portion a^7 of the gudgeon.

As shown, each handle is composed of a central portion D' , a grip D^2 , and a hub D^3 . Each hub has a segmental extension d' , herein shown with an extent of substantially one hundred and eighty degrees, but which will always have an angular extent of substantially ninety degrees less than the extension

of the space not occupied by the segmental lug d^8 on the gudgeon. The lug on the gudgeon and extension on the hub of the handle are so constructed and arranged that the handle can be swung from the position shown in solid lines in Fig. 1 to the position shown in dotted lines in the same figure, but is prevented from further movement in either direction by engagement of the two parts. We have provided means for locking the steering-handles in an upright position upon the gudgeons at the will of the steersman, but which will be unlocked from said position automatically when the steersman's hand is removed therefrom.

As shown in the drawings, each handle is provided with a small bell-crank lever d^2 , one end of which, d^3 , is adapted to engage with the segmental lug upon the gudgeon to lock the handle in a vertical position. The other end of this bell-crank lever is connected to a rod d^4 , which extends upward through the grip D^2 of the handle and terminates in a head or button d^5 . A spring d^6 , interposed between the grip and the head, serves to hold the rod normally upward, and consequently to hold the end d^3 of the lever out of engagement with the lug on the gudgeon.

In the use of this bob-sled the steersman sits, as usual, on the front of the top board and grasps the two steering-handles, raising them to the position shown in solid lines in Fig. 1, pressing down the two heads d^5 and engaging the small bell-crank levers or catches with the lugs on the gudgeon. This locks the handles in this position, and they will remain locked as long as pressure is maintained on the buttons or heads. The sled is steered by the use of the two handles. If, however, any accident occurs or the sled runs into any obstruction, the operator naturally releases the pressure upon the buttons, and the bell-crank levers or catches are disengaged by the springs. The handles are then left free to swing forward, and if the operator lets go of the handles they will swing forward upon striking any obstruction, their momentum being sufficient to move them. This leaves the entire front of the bob-sled free from all projecting parts, so that if the passengers are thrown forward, as they quite frequently are in the use of these sleds, there is no projecting handle or steering-gear against which they can strike and be injured.

Heretofore it has been customary to use a single steering-handle projecting upward through the longitudinal center of the board in the line of pivot of the front sled, a steering-wheel being usually provided on this rod, and when sleds so constructed strike obstructions it is not at all uncommon for the passengers to be thrown forward and strike the steering-wheel and shaft, and the steersman is especially liable to such injury. With our improved structure the moment an accident

occurs the steering-handles swing down below the level of the top board, and consequently make it impossible for any such injury to occur.

To the cross-bars $c^2 c^3$ of the rear sled is secured a bracket E, in which is secured a bolt E' . Upon this bolt is journaled a segmental pinion E^2 , bearing a radial arm E^3 . A spring e is provided, the center of which engages with the radial arm E^3 and the two ends of which are bent around the hubs of the pinion E^2 and engage with the bracket E. This spring tends to hold the radial arm E^3 in the position shown in solid lines in Fig. 5. In the bracket E below the bolt E' is secured a second bolt F, upon which is journaled a segmental pinion F' in engagement with the segmental pinion E^2 . This pinion bears two integral arms F^2 , provided at their lower ends with points f , adapted to engage with the surface upon which the sled runs. A foot-slide G, having projecting arms g to receive the feet of the steersman of the bob-sled, is mounted upon a bar G' , which extends from the forward edge of the plate A' on the front sled to the forward cross-bar a' thereof, and this foot-slide is longitudinally movable upon the bar G' . A chain G^2 connects the foot-slide with the radial arm E^3 , the chain running underneath the top board of the structure. When this foot-slide is pushed forward, the arm E^3 will be drawn to the position shown in dotted lines in Fig. 5, and the arms F^2 will swing downward, forcing the points f into the snow or ice, thereby checking the progress of the bob-sled. It is to be noted especially that this brake is situated on the rear sled and substantially in the center thereof, although it is operated from the front sled. It is of course highly desirable that the steersman, who has entire control of the movement of the bob-sled, should be able to operate the brake, and it is also very desirable for this brake to be situated on the rear sled, for the reason that if a brake is applied at the front end the rear-end will swing around in a circle and is very likely to cause the structure to upset. It is also especially desirable that the brake be applied substantially at the center of the rear sled, so that there will be no tendency to swing sidewise as the brake is applied. The most desirable position for the "drag" applied by the brake to be applied is as near the rear of the structure as possible, so that the tendency of the drag will be to make the sled travel in a straight line rather than to swing in a curve. This type of brake is particularly desirable when used upon a surface of smooth ice, for the reason that in such cases the runners of the forward sled do not take sufficient hold upon the ice to govern the direction of movement perfectly, and consequently without any brake the sled is likely to swing and upset. Such swinging can be absolutely prevented with our improved bob-

sled by applying the brake very lightly. In this case the momentum of the front portion of the sled will swing it back into the direction of movement and prevent any undue swinging.

We realize that considerable variation is possible in the details of this construction without departing from the spirit of the invention, and we therefore do not intend to limit ourselves to the specific form herein shown and described.

We claim as new and desire to secure by Letters Patent—

1. In a device of the class described, the combination with a top board, a rear sled secured thereto, and a front sled swiveled thereto, of two steering-handles journaled at their lower ends upon the front sled and having a limited rotation in planes extending longitudinally of said front sled, said handles projecting when in their rearmost position upward above the surface of the front sled and being adapted to swing forward and downward below the surface thereof.

2. In a device of the class described, the combination with a top board, a rear sled secured thereto, and a front sled swiveled thereto, of two steering-handles journaled at their lower ends upon the sides of the front sled, and adapted to swing from a vertical position forward to a horizontal position.

3. In a device of the class described, the combination with a top board, a rear sled secured thereto, and a front sled swiveled thereto, of two steering-handles journaled at their lower ends upon the sides of the front sled and adapted to swing from a vertical position forward to a horizontal position, and means for limiting the swing of said handles in both directions.

4. In a device of the class described, the combination with a top board, a rear sled secured thereto, and a front sled swiveled thereto, of two steering-handles journaled at their lower ends upon the sides of the front sled and adapted to swing from a vertical position forward to a horizontal position, and means for locking said handles in a vertical position.

5. In a device of the class described, the combination with a top board, a rear sled secured thereto, and a front sled swiveled thereto, of two steering-handles journaled upon the sides of the front sled and adapted to swing from a vertical position forward to a horizontal position, and automatically-releasing means for locking the handles in a vertical position.

6. In a device of the class described, the combination with a top board, a rear sled secured thereto, and a front sled swiveled thereto, of gudgeons extending laterally from the front sled and provided with segmental lugs, and handles journaled upon the gudgeons, each handle having upon its hub a segmental extension of substantially ninety degrees less

angular extent than the space upon the gudgeons left unoccupied by the segmental lugs, each handle being adapted to swing through an arc of substantially ninety degrees.

7. In a device of the class described, the combination with a top board, a rear sled secured thereto, and a front sled swiveled thereto, of gudgeons extending laterally from the front sled and provided with segmental lugs, and handles journaled upon the gudgeons, each handle having upon its hub a segmental extension of substantially ninety degrees less angular extent than the space upon the gudgeons left unoccupied by the segmental lugs, each handle being adapted to swing through an arc of substantially ninety degrees, and a catch upon each handle adapted to engage with the segmental lug upon the corresponding gudgeon.

8. In a device of the class described, the combination with a top board, a rear sled secured thereto, and a front sled swiveled thereto, of gudgeons extending laterally from the front sled and provided with segmental lugs, and handles journaled upon the gudgeons, each handle having upon its hub a segmental extension of substantially ninety degrees less angular extent than the space upon the gudgeon left unoccupied by the segmental lugs, each handle being adapted to swing through an arc of substantially ninety degrees, and an automatically-releasing catch upon each handle adapted to engage with the segmental lug upon the corresponding gudgeon.

9. In a device of the class described, the combination with a top board, a rear sled secured thereto, and a front sled swiveled thereto, of gudgeons extending laterally from the front sled and provided with segmental lugs, handles journaled upon the gudgeons, each handle having upon its hub a segmental extension of ninety degrees less angular extent than the space upon the gudgeon left unoccupied by the segmental lugs, a catch pivoted to each handle, a rod secured to the catch and extending upward through the handle, a knob on the end of each rod, and a spring adapted to hold the catch normally out of engagement with the segmental lugs.

10. In a device of the class described, the combination with the top, a front sled swiveled thereto, and a rear sled secured thereto, of a brake member adapted to be moved into engagement with the surface upon which the structure moves, situated upon the rear sled and symmetrically arranged with respect to the longitudinal center thereof, a foot-slide upon the front sled, under the control of the operator, and means of connection between the brake and the foot-slide.

11. In a device of the class described, the combination with the top, a front sled swiveled thereto, and a rear sled secured thereto, of two shafts on the rear sled, pinions upon the shafts in mutual engagement, a radially-

extending brake-arm secured to the lower of
said pinions, and adapted to be swung from a
substantially horizontal position downward
from the rear into engagement with the sur-
5 face upon which the structure moves, a radi-
ally-projecting arm upon the upper pinion, an
engagement device upon the front sled, and
means of connection between the engagement
device and the radially-projecting arm upon
10 said upper shaft.

12. In a device of the class described, the
combination with the top, a front sled swiv-
eled thereto, and a rear sled secured thereto,
of two shafts on the rear sled, pinions upon
15 the shafts in mutual engagement, a radially-
extending brake-arm secured to the lower of
said pinions, and adapted to be swung from a
substantially horizontal position downward
from the rear into engagement with the sur-

face upon which the structure moves, a radi- 20
ally-projecting arm upon the upper pinion, an
engagement device upon the front sled, means
of connection between the engagement de-
vice and the radially-projecting arm upon said
upper shaft, and a spring engaging with one 25
of the pinions to hold the brake member nor-
mally raised.

In witness whereof we have signed the
above application for Letters Patent, at Har-
vard, in the county of McHenry and State of 30
Illinois, this 12th day of November, A. D.
1903.

HENRY L. FERRIS.
HOWARD J. FERRIS.

Witnesses:

BLAKE B. BELL,
W. S. DODGE.