

No. 747,819.

PATENTED DEC. 22, 1903.

G. H. WILLIAMS.
CLAM SHELL BUCKET.

APPLICATION FILED APR. 11, 1903.

NO MODEL.

4 SHEETS—SHEET 1.

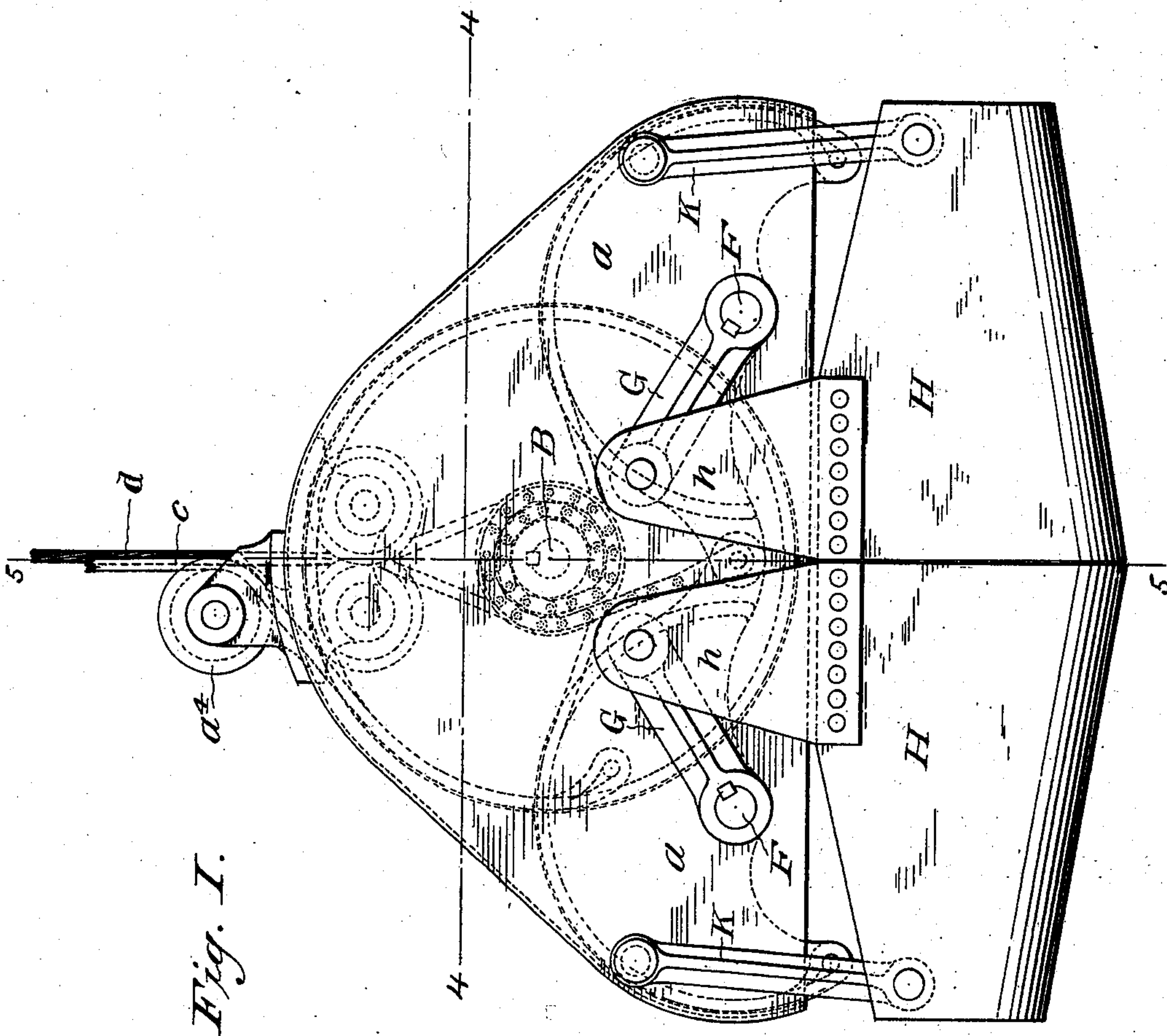


Fig. I.

WITNESSES:
G. W. Saywell
A. C. Merkel

INVENTOR:
G. H. Williams
by his attorney
J. B. Fay

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4 SHEETS—SHEET 2.

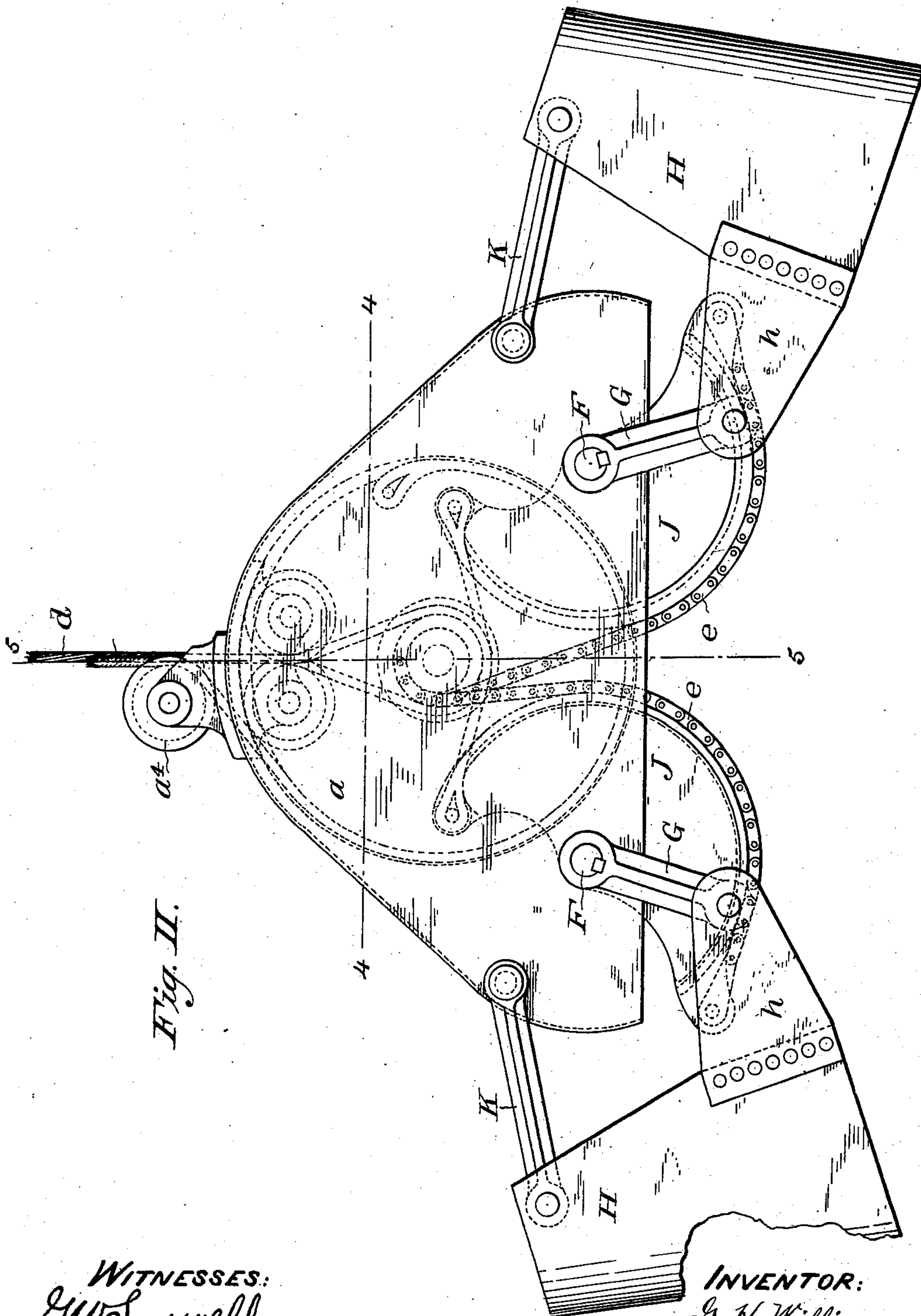


Fig. II.

WITNESSES:
G. W. Saywell
A. C. Merkel

INVENTOR:
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by his attorney
J. B. Fay.

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4 SHEETS—SHEET 3.

Fig. III.

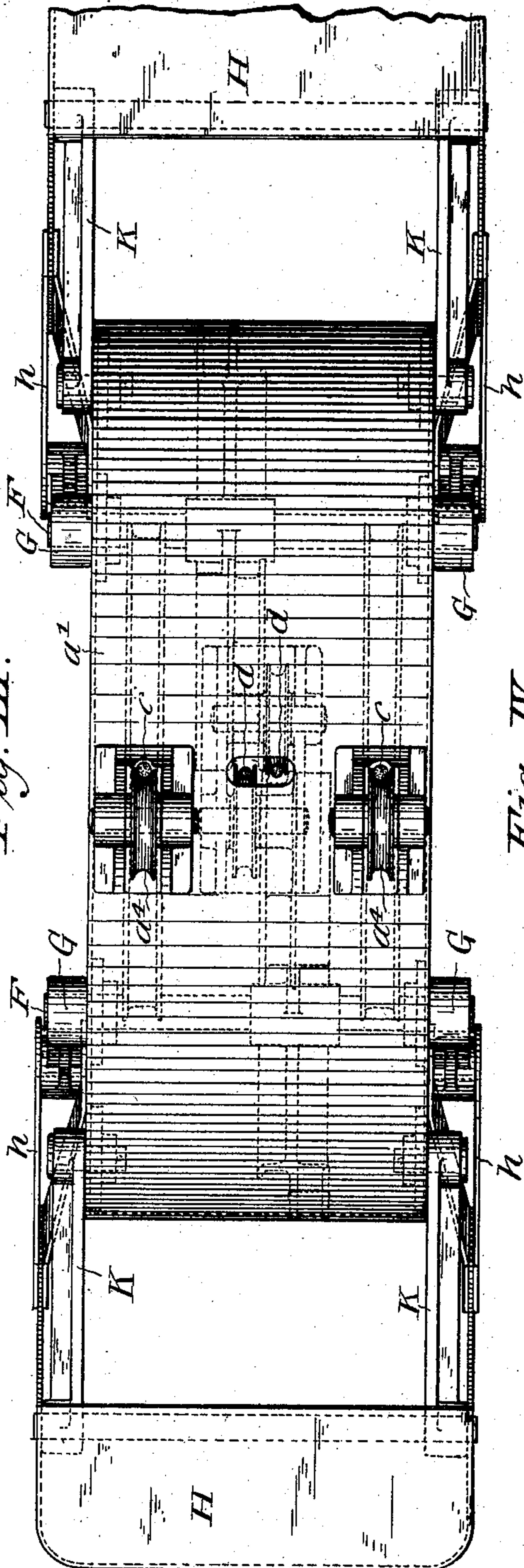
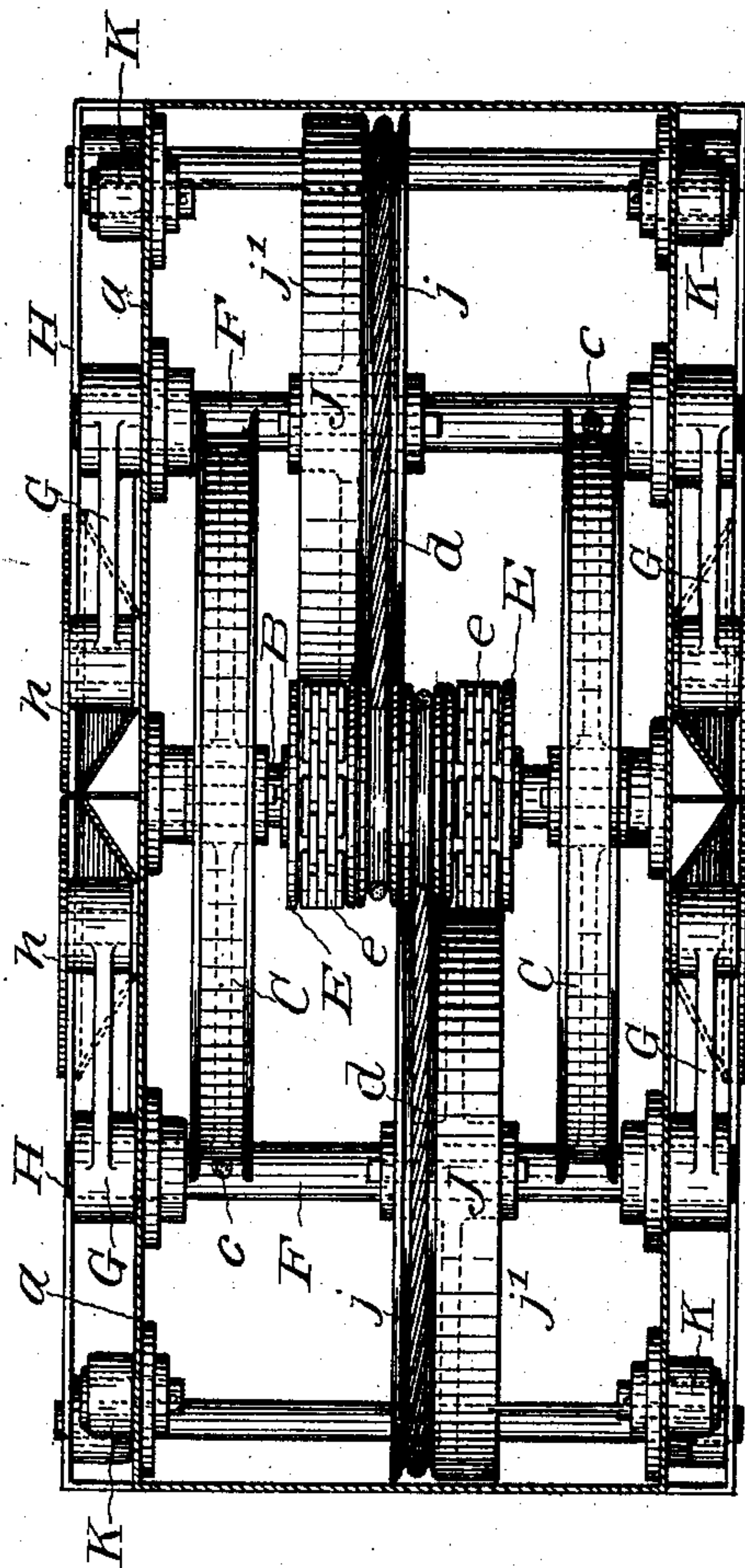


Fig. IV.



WITNESSES
G. W. Saywell
A. C. Merkel

INVENTOR:
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by his attorney
J. B. Fay

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4 SHEETS—SHEET 4.

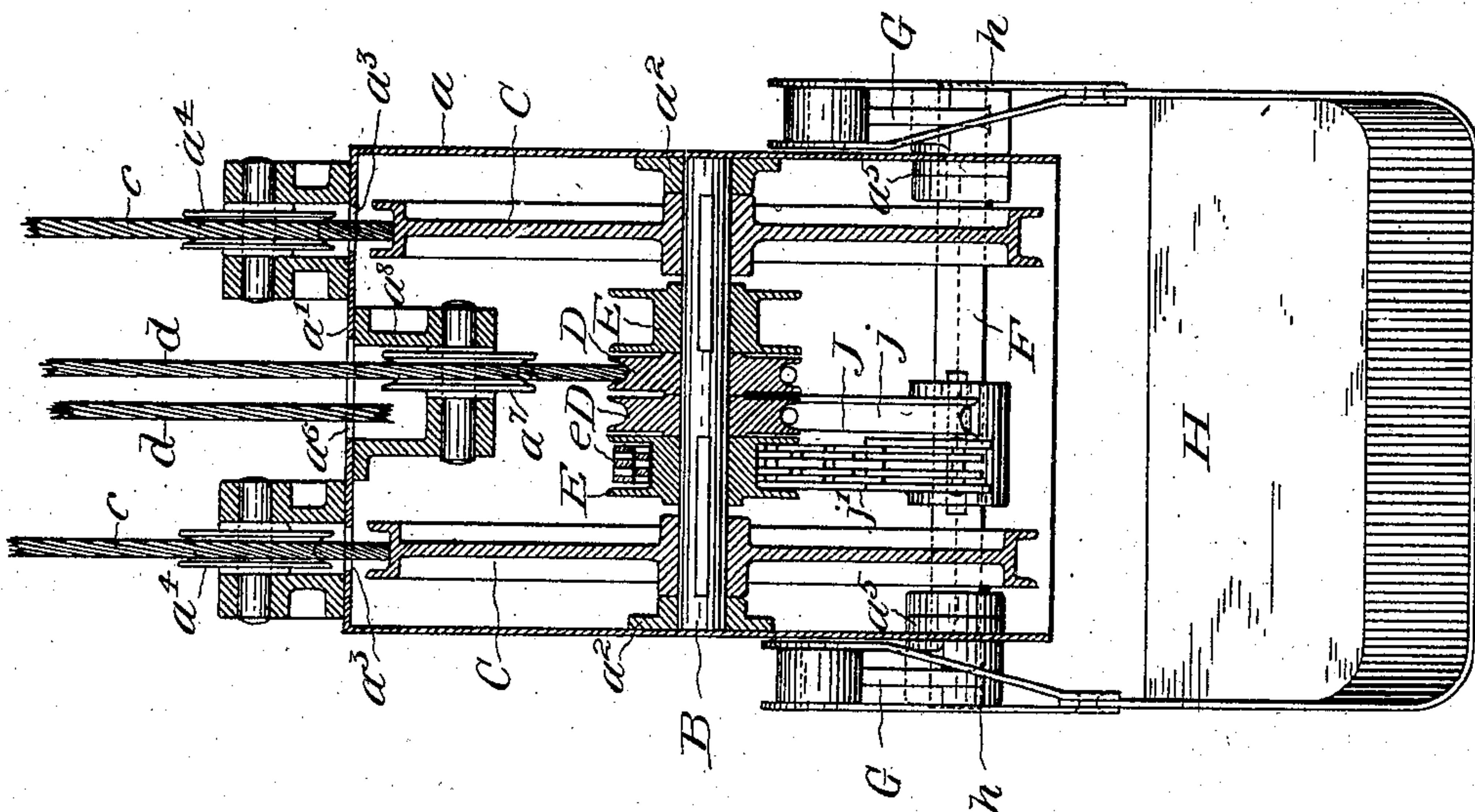


Fig. V.

WITNESSES:
G. W. Saywell
A. E. Merkel

INVENTOR:
G. H. Williams
by his attorney
J. B. Fay

UNITED STATES PATENT OFFICE.

GURDON H. WILLIAMS, OF SOUTH BROOKLYN, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE BROWN HOISTING MACHINERY COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF DELAWARE.

CLAM-SHELL BUCKET.

SPECIFICATION forming part of Letters Patent No. 747,819, dated December 22, 1903.

Application filed April 11, 1903. Serial No. 152,195. (No model.)

To all whom it may concern:

Be it known that I, GURDON H. WILLIAMS, a citizen of the United States, and a resident of South Brooklyn, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Clam-Shell Buckets, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to devices commonly referred to as "clam-shell buckets," its object being to provide a device of said character which will embody in its construction and operation as many elements of economy and efficiency as possible.

Said invention consists of means hereinafter fully described, and particularly set forth in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents a side elevation of a clam-shell bucket embodying my invention, the scoop members being shown in their closed position and the connected parts being illustrated in a position corresponding thereto. Fig. II represents a side elevation of such bucket, showing the scoop members open and the connected parts in a position corresponding thereto. Fig. III represents a plan view of the bucket in its open position. Fig. IV represents a longitudinal section taken upon the plane indicated by line 4 4, Fig. I. Fig. V represents a vertical transverse section taken upon a plane indicated by line 5 5, Fig. I, portions of the mechanism cut by such plane being shown in elevation.

A frame is provided consisting of two parallel side plates a and a curved cover-plate a' , such side plates being fixed rigidly relatively to each other by hereinafter-described parts. Upon the inside of each such side plate a and located centrally thereon are secured two bearings $a^2 a^2$, in which are journaled, respec-

tively, the two ends of a main shaft B. Near such ends of such shaft and keyed to the latter are two grooved power-wheels C C, Fig. III, to each of which is secured the end of a closing-cable $c c$, such cables being laid so as to wind or unwind in the same direction upon their respective wheels. These cables pass out of the top of the device through openings $a^3 a^3$ in the cover-plate and run upon two guiding-wheels $a^4 a^4$, suitably secured to the said plate, as shown. Upon the middle portion of the shaft B are rotatively mounted two idle pulleys D D, and immediately of each such idle pulley D and the adjacent power-wheel C is keyed a grooved wheel E. Below said shaft and equidistant from its axis are mounted two rock-shafts F F, mounted in suitable bearings $a^5 a^5$, secured to the side plates $a a$ and projecting through and some distance laterally beyond said plates, as shown in Fig. V. Upon each projecting end of each such shaft is keyed an arm G, to the free ends of which are pivotally secured, by means of plates h , secured thereto, the front ends of the scoop members H H, the two arms on one shaft supporting the front end of one scoop member and the two arms on the other shaft supporting the front end of the other scoop member. Upon the middle portion of each such shaft is fixedly secured a broken sheave J, each provided with a groove j for receiving a round cable, and a flat wide surface j' for receiving a flat chain. Grooves $j j$ are located in the same vertical planes at right angles to shaft B in which are located the grooves of idlers D, Fig. IV, and surfaces $j' j'$ are located in similar planes in which are located the grooves of wheels E. To the inner or front ends of the sheaves J are secured the two outer ends, respectively, of two flat chains $e e$, which are wrapped around wheels E in the same direction and have their inner ends secured in any suitable manner to the peripheries of said wheels, respectively. To the other ends of these two sheaves J are secured the lower ends, respectively, of two opening-cables $d d$, which pass around the idlers D in opposite directions upwardly and through an aperture a^6 in the cover-plate, Fig. III. The rear

end of each scoop member H is movably hung upon the lower ends of two arms or links K, which are pivotally mounted upon the outside of the two side plates, respectively, as shown in Figs. I and III.

In operating the device above described from the closed position (illustrated in Fig. I) the weight is thrown upon the cables *d d*, the cables *c c* being permitted at the same time to run free. Such action causes the sheaves J to turn inwardly, the arms G to turn downwardly, the front or inner ends of the scoop members to be first depressed and then swing backwardly, the rear ends moving about the pivotal axes of links K. At the same time the chains *e* unwind from wheels E and cables *c c* wind upon power-wheels C. The bucket is so caused to assume the position illustrated in Fig. II. To close same from such position, the action is reversed—that is, the weight is thrown upon cables *c c*, cables *d d* being allowed to run free. This rotates the power-wheels C, winds up the chains on wheels E, and so closes the bucket. The dimensions of the wheels E and C are caused to be such as to produce great pulling force on the part of the chains *e e*, as is required during such closing operation.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any one of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention—

1. In a clam-shell bucket, the combination of a frame, a scoop member, a power-wheel, a shaft mounted in said frame, the rear end of said scoop member being movably suspended from said frame and the front end of said member being connected with said shaft, said power-wheel and shaft being operatively connected.

2. In a clam-shell bucket, the combination of a frame, a scoop member, a power-wheel, and a shaft mounted in said frame, and arms secured to said shaft, the front end of said member being hung on said arms, and the rear end thereof being movably suspended

from the frame, said power-wheel and shaft being operatively connected.

3. In a clam-shell bucket, the combination of a frame, a scoop member, a power-wheel, and a shaft mounted in said frame, arms secured to the ends of said shaft, the front end of said member being hung from said arms, and two arms pivotally mounted upon said frame, the rear end of said member being hung from the free ends of said arms, said power-wheel and shaft being operatively connected.

4. In a clam-shell bucket, the combination of a frame, a scoop member, a power-wheel, a shaft, and arms secured to said shaft, one end of said scoop member being movably supported upon said frame and the other end being hung from said arms, said power-wheel and shaft being operatively connected.

5. In a clam-shell bucket, the combination of a frame, a scoop member, a power-wheel and shaft mounted in said frame and operatively connected, one end of said member being movably hung from said frame and the other being pivotally connected with said shaft.

6. In a clam-shell bucket, the combination of a frame, a scoop member, a power-wheel and shaft mounted in said frame, a sheave secured to said shaft, two arms secured to the ends of the latter, and means for transmitting the motion of said power-wheel to said sheave, one end of said scoop member being movably suspended from said frame and the other end being pivotally secured to said arm.

7. In a clam-shell bucket, the combination of a frame, a scoop member, a power-wheel and shaft mounted in said frame, a sheave secured to said shaft, two arms secured to the ends of the latter, and means for transmitting motion from said wheel to said sheave, the rear end of said scoop member being movably suspended from arms pivotally mounted upon said frame and the front end being pivotally suspended from said shaft-arm.

Signed by me this 12th day of March, 1903.

GURDON H. WILLIAMS.

Attest:

G. W. SAYWELL,
A. E. MERKEL.