

(No Model.)

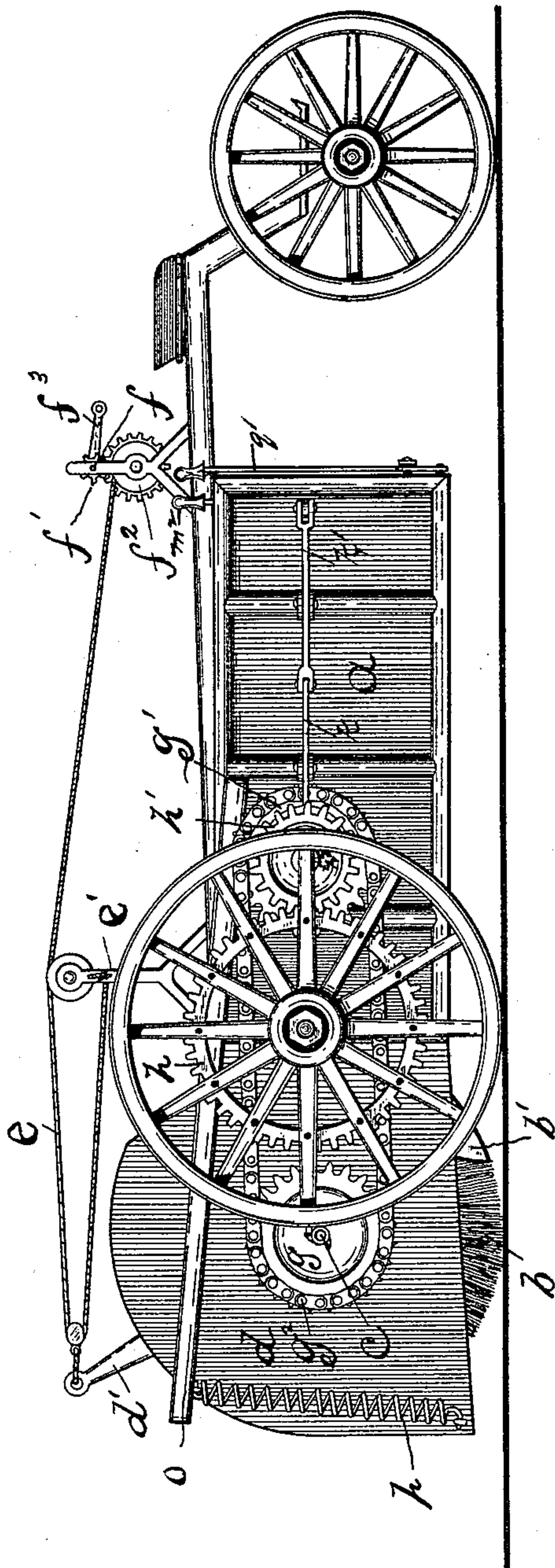
3 Sheets—Sheet 1.

H. F. PALMER.
STREET SWEEPER.

No. 481,054.

Patented Aug. 16, 1892.

Fig. 1.



Witnesses

Alvoro M. Luther.
Allan Terry.

Inventor

Henry E. Palmer.
By his Attorney
Frank H. Allen.

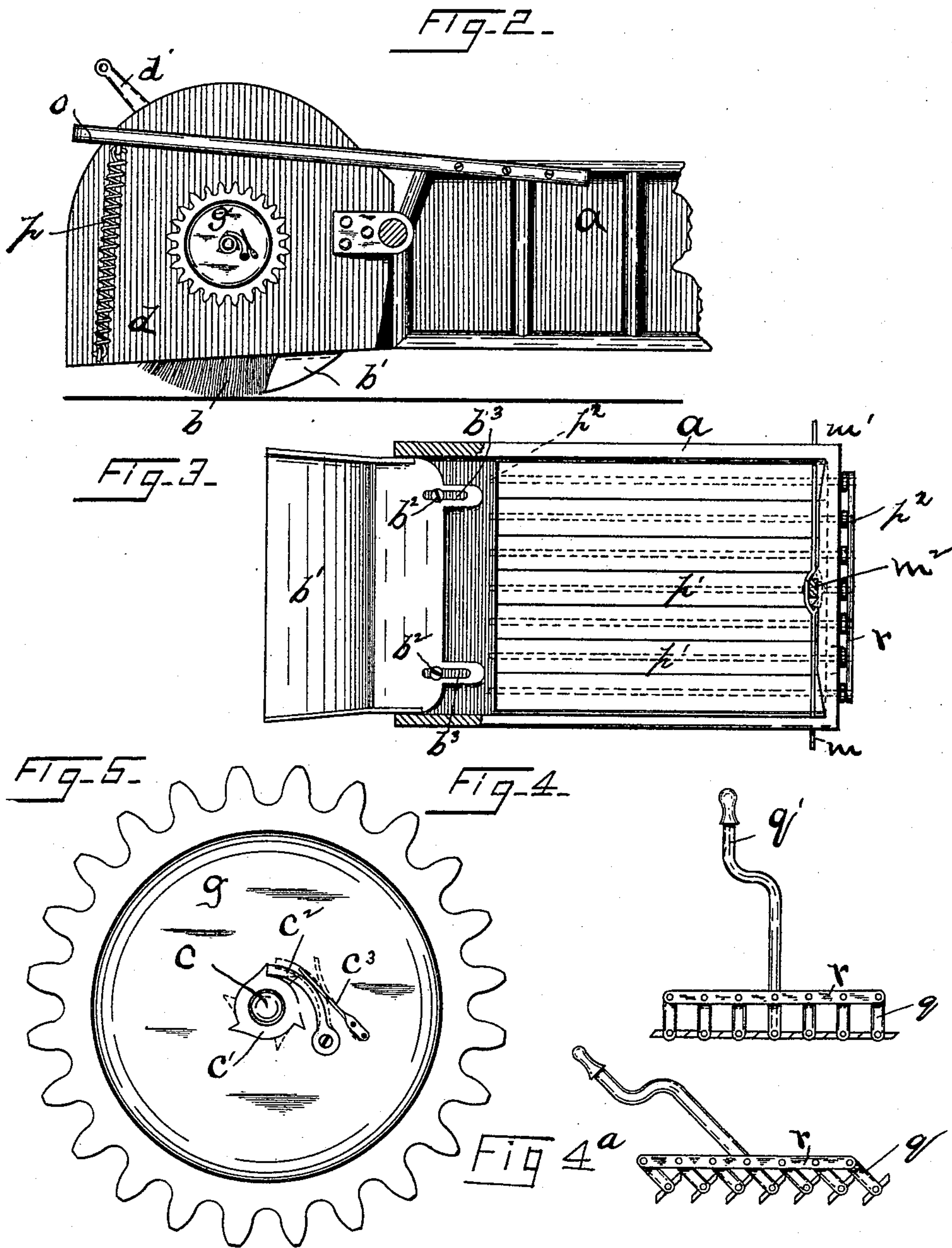
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Witnesses

Abigzo M. Luther.
Allen Tenny.

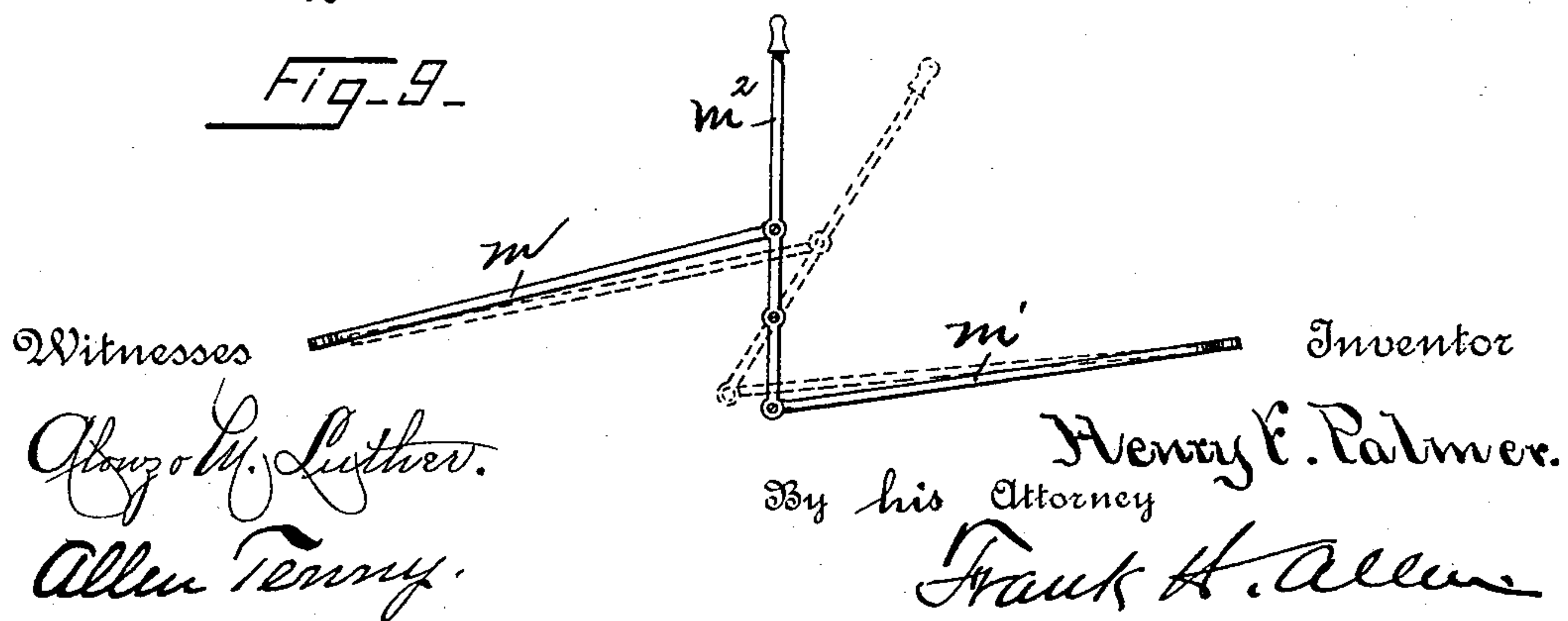
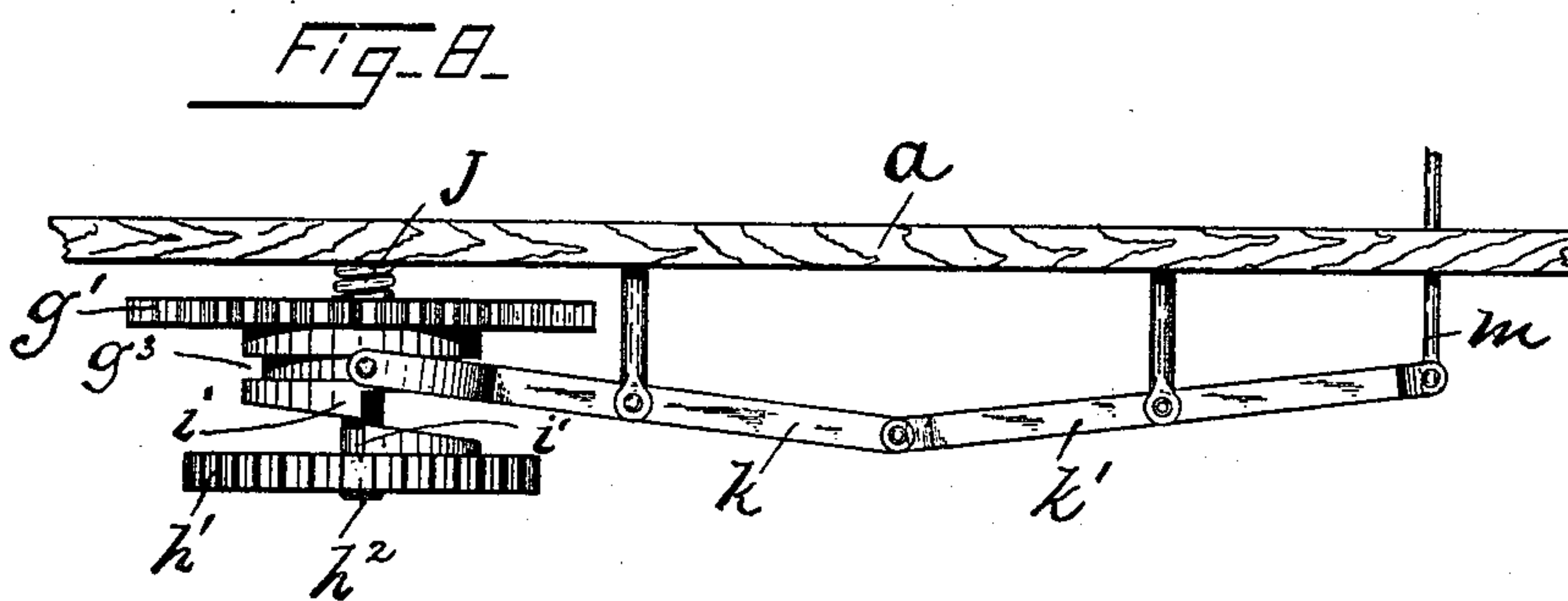
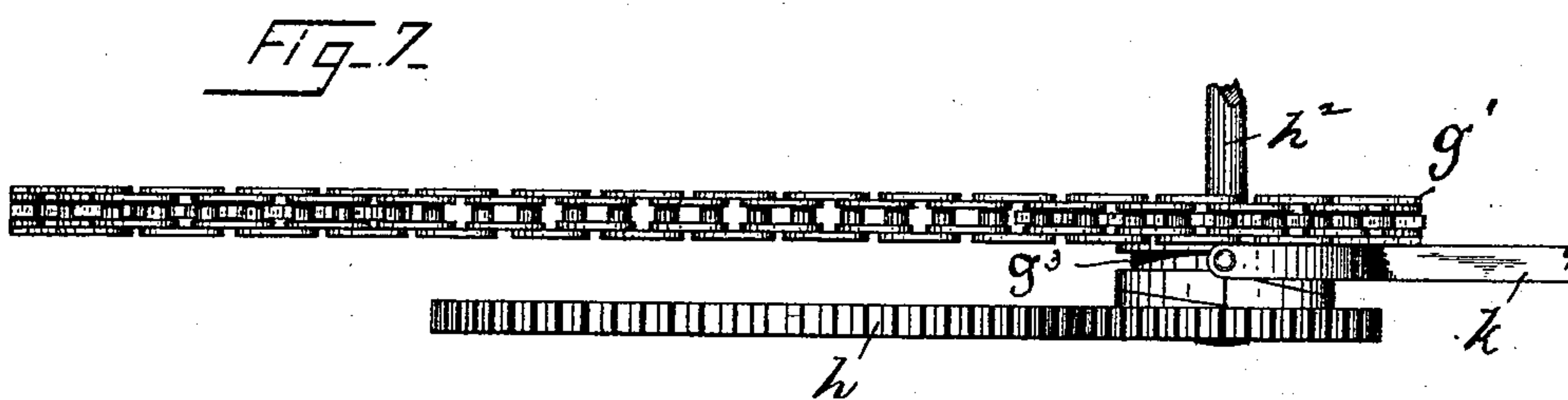
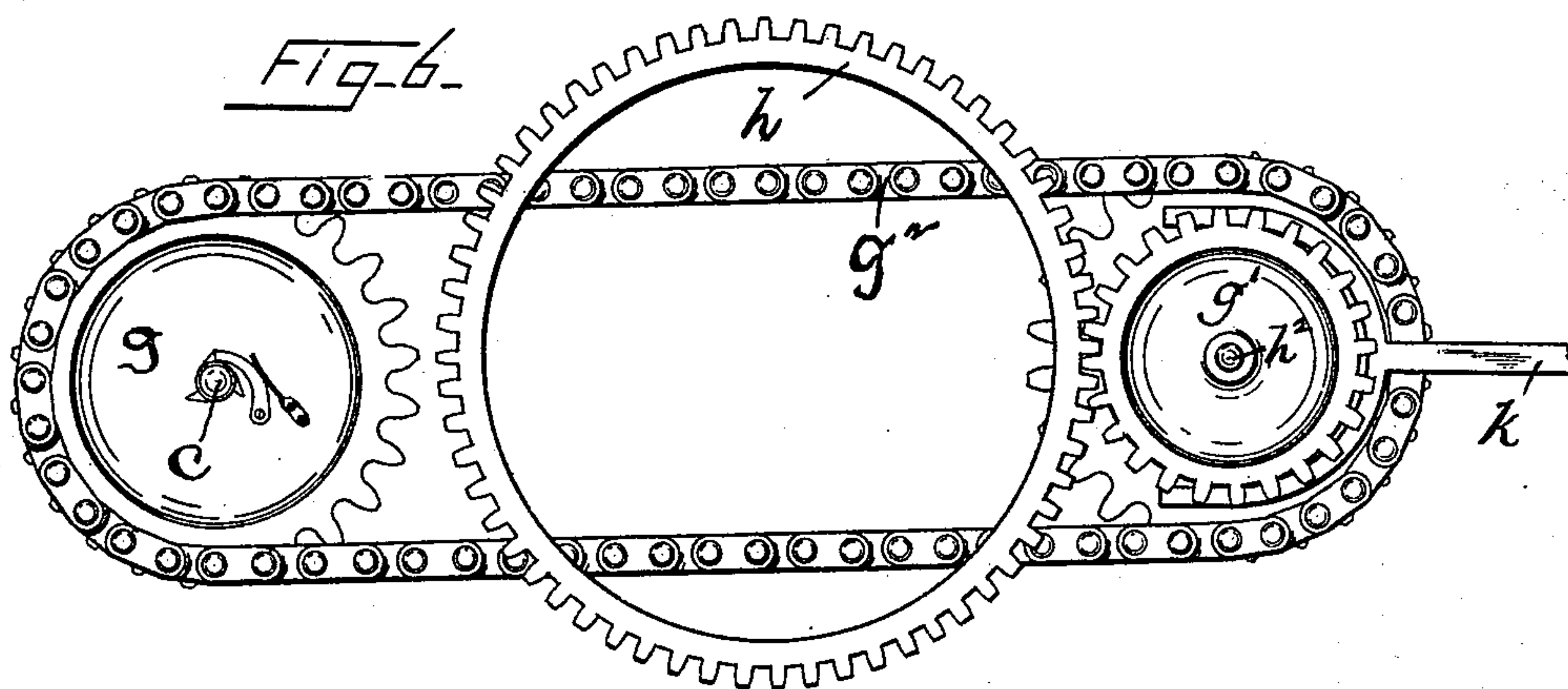
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Witnesses

George W. Luther.
Allen Terry.

Inventor

Henry F. Palmer.

By his Attorney

Frank H. Allen

UNITED STATES PATENT OFFICE.

HENRY F. PALMER, OF NORWICH, CONNECTICUT.

STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 481,054, dated August 16, 1892.

Application filed February 1, 1892. Serial No. 419,908. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. PALMER, a citizen of the United States, residing at Norwich, in the county of New London and State of Connecticut, have invented certain new and useful Improvements in Street-Sweepers, which improvements are fully set forth and described in the following specification, reference being had to the accompanying three sheets of drawings.

This invention relates to the class of sweepers in which a revolving brush sweeps the dirt into a receptacle of box form, a familiar type of said class being seen in Patent No. 356,029, issued January 11, 1887, to John T. Collins.

The objects of this invention are, first, to improve materially the driving mechanism by means of which motion and power are transmitted from the rear wheels of the sweeper to the brush, and, second, to provide a system of springs for suspending the hinged brush-shield and its connected parts.

The drawings hereto annexed illustrate my invention, Figure 1 being a side elevation of a sweeper embodying my improvements. Fig. 2 is a side view of a portion of the body of the sweeper with the brush and brush-shield attached thereto, showing particularly the means provided for suspending the rear portion of said shield. Fig. 3 is a plan view of the body with top or cover removed, illustrating the mode of attaching the dust-pan to provide for adjustment. Said figure also shows the tilting slats that form the bottom of the body of the sweeper. Figs. 4 and 4^a are end views of said slatted bottom and its operating-handle, the former view showing the slats closed and the latter view showing the same opened as if to dump the contents of the sweeper. Fig. 5 is an enlarged view of one of the brush-shaft sprocket-wheels. Figs. 6 and 7 are respectively side and plan views of one of the gears *h* and the connected gear, sprocket, and chain; and Fig. 8 is a plan view of a portion of one of the side walls of the body of the sweeper, having attached thereto gear *h'* and sprocket-wheel *g'* and the shipper mechanism, by means of which the clutch which connects said gear and sprocket may be controlled. In Fig. 9 I have illustrated a lever-handle and connect-

ing-rods, by means of which said shipping mechanism is controlled.

Referring to the drawings, the letter *a* denotes the body of the sweeper, formed as a box of considerable size and serving as a receptacle for dirt collected by a cylindrical brush *b*, which is carried by a shaft *c*, journaled in a box-shield *d*, hinged to the rear upper portion of the body *a*. To the shield *d* is fixed a stand *d'*, having a single sheave-block attached thereto, through which is rove a rope *e*, one of whose ends is fastened to a stand *e'*, attached to the body of the sweeper. The other end of said rope is connected to a small windlass located near the front of the sweeper within easy reach of the driver. This windlass, as here shown, consists of a shaft *f*, with gear *f'*, that meshes with a gear *f''* on a shaft around which the end of rope *e* is coiled, one of said gears being also utilized as a ratchet-wheel to operate with a suitable pawl to hold the turns of rope coiled about the windlass-shaft. An operating-crank *f'''* is provided on said shaft. By the aid of the described windlass and rope the shield *d* may be easily raised on its hinges when it is not desired to use the brush.

On each end of the brush-shaft *c* is a sprocket-wheel *g*. Secured to each of the rear wheels of the sweeper is a large gear *h*, that meshes with and drives a smaller gear *h'*, hung on a stud *h''*, projecting from the body of the sweeper. On the same stud is a sprocket-wheel *g'*, that is connected by a chain *g''* with the sprocket *g* on the brush-shaft, and it will be readily understood that when the sprocket *g'* is in revolution the brush will be rotated. When it is not necessary to run the brush, it may be stopped by throwing the sprocket-wheel *g'* out of engagement with the gear *h'*. This is made possible by the following construction: The confronting faces of the sprocket and gear on the stud *h''* are formed with projecting clutch-sections *i i'*, that may interlock with each other. Sprocket *g'* is loosely mounted on the stud and may be moved thereon to throw it into or out of clutch with the gear, the parts being held normally in clutch by a spring *j*, encircling the stud and located between the sprocket *g'* and the body of the sweeper, as best seen in Fig. 8 of the draw-

ings. Sprocket g' is thrown out of clutch with the gear h' by means of a compound lever $k k'$, having at one end a fork with in-turned ends that lie in a groove g^3 in the hub of the sprocket. The forward ends of the compound levers (at each side of the sweeper) are connected by rods $m m'$ with a vertical lever m^2 , that is fulcrumed on the inner side of the front wall of the body a , where it may easily be reached by the driver of the sweeper. The connecting-rod m is jointed to the lever m^2 above the fulcrum of the latter, while the connecting-rod m' is attached to said lever below its fulcrum. When the lever is rocked, (see dotted lines in Fig. 9,) the connecting-rods and front ends of the compound levers are drawn inward—i. e., toward the body of the sweeper—and in consequence the forked ends of the compound levers are actuated to force the sprockets out of clutch with their companion gears. The operating-lever m^2 , after having been adjusted to throw out said clutch, may be locked and held against the stress of spring j by a simple hook or catch not involving invention, and I have therefore thought it unnecessary to illustrate such hook or catch.

Another important feature of my invention consists in the means provided for supporting the brush-shield d when the rope e is slackened.

Secured to the body a at each side is a bar or joist o , whose rear end extends along the sides of the brush-shield and has suspended therefrom a strong spiral spring p , whose lower end is attached to the brush-shield, thus providing a yielding support for said shield when the brush is in service. This yielding support is desirable, if not absolutely necessary.

The revolving brush b sweeps the dirt forward upon an inclined dust-pan b' , whence it is delivered into the box formed by the body of the sweeper. This dust-pan is secured to the body a at the rear end of the latter by screws b^2 , passing through slots b^3 in the dust-pan, thus providing for limited adjustment of said pan toward or away from the brush.

For convenience in dumping the contents of said box I make its bottom with a number of slats p' , that are secured to the box at each end by pivots p^2 and are adapted to be swung after the ordinary manner of blind-slats. Each of the slats has an arm q extending upward, the free ends of said arms being connected by a bar r . The arm q of the central slat is extended to form an operating-handle q' , that reaches upward to a point where it may be grasped and operated by the driver. When the slats are closed, they form a perfect bottom for the sweeper-body a . When,

however, it is desired to empty the contents of the box, the handle q' is forced to one side and the series of slats rocked into the position shown at the bottom of Fig. 4, when the dirt within the box at once drops through the openings between the slats. Handle q' is then brought back to place to close the slats and the sweeper is again ready for loading.

The sprocket-wheels g are loosely mounted on the brush-shaft. Secured to the extreme ends of said shaft are ratchet-wheels c' . Each of the sprocket-wheels g carries a pawl c^2 and a spring c^3 , the latter serving to hold the pawl in engagement with the teeth of the ratchet-wheel. (See Fig. 5.) When the sweeper is in use, the rotation of the sprockets g serves (through the aid of the described pawl-and-ratchet device) to impart rotary motion to the brush in the proper direction to sweep the dirt up the dust-pan and into the body of the sweeper. When, however, the machine is backed, the pawl-and-ratchet mechanism permits the brush to remain at rest, while the pawls ride idly on the ratchet-wheels. This manner of connecting the brush-shaft with its driving mechanism is also useful when driving on curves or turning corners. At such times the sweeper-wheels turn at different rates of speed and if they were geared directly to the brush-shaft one of said wheels would of necessity have to drag on the ground until the complete machine was again caused to move in a right line; but with my described pawl-and-ratchet devices the sprockets g are independently operated and each may be governed by and follow the movement of its particular driving mechanism.

Having thus described my invention, I claim—

1. In combination with a dirt-receptacle of box form, a brush journaled in a shield hinged to said receptacle, bars o , secured to said receptacle, as set forth, and springs connecting the ends of said bars with said shield, as and for the purpose specified.

2. In a street-sweeper, in combination with a box-shaped receptacle on wheels, a brush journaled in a shield hinged to said receptacle, said shield being supported by springs p and bars o , as set forth, sprocket-wheels mounted upon the brush-shaft, and mechanism consisting of chains, sprocket-wheels, and gearing, as herein described, connecting the sprocket-wheel of the brush-shaft with the rear wheels of the sweeper, for the purposes specified.

HENRY F. PALMER.

Witnesses:

FRANK H. ALLEN,
ALONZO M. LUTHER.