

No. 768,342.

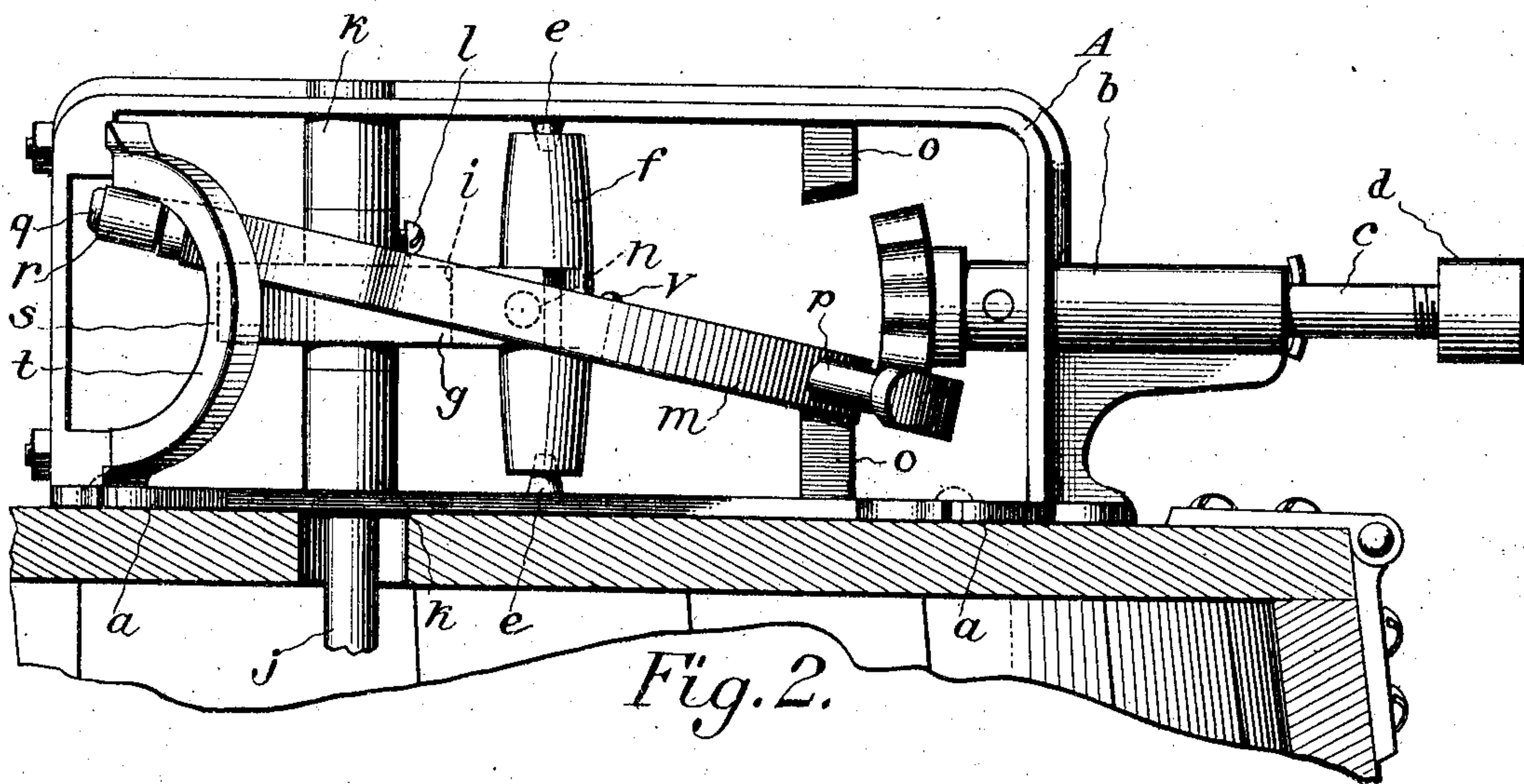
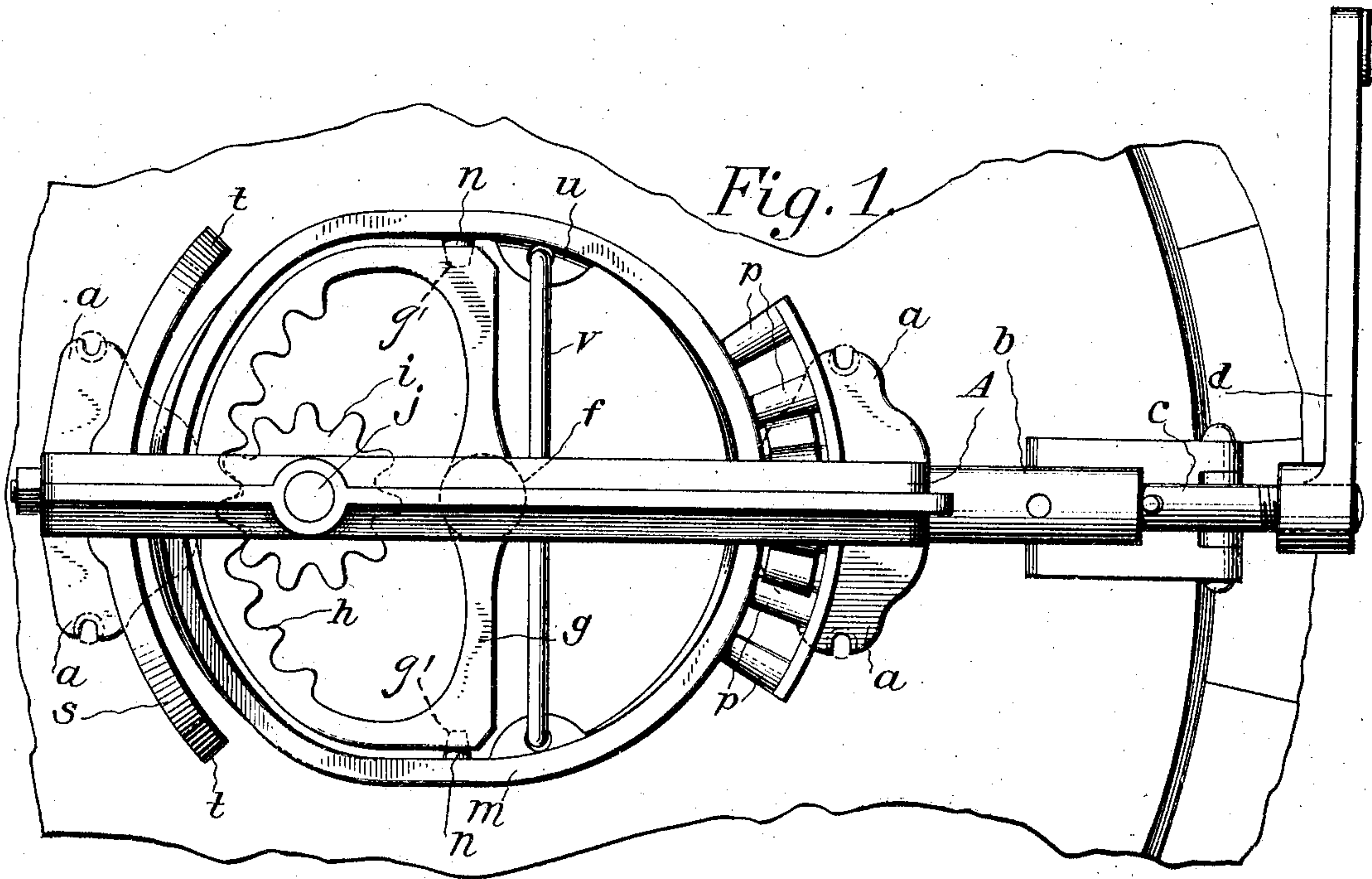
PATENTED AUG. 23, 1904.

A. FLAGMAN.
GEARING.

APPLICATION FILED FEB. 12, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
F. E. Cullen.
C. F. Holmes.

Adolph Flagman
Inventor.
Murphy & Susmuhl
Attorneys

No. 768,342.

PATENTED AUG. 23, 1904.

A. PLAGMAN.
GEARING.

APPLICATION FILED FEB. 12, 1904.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 3.

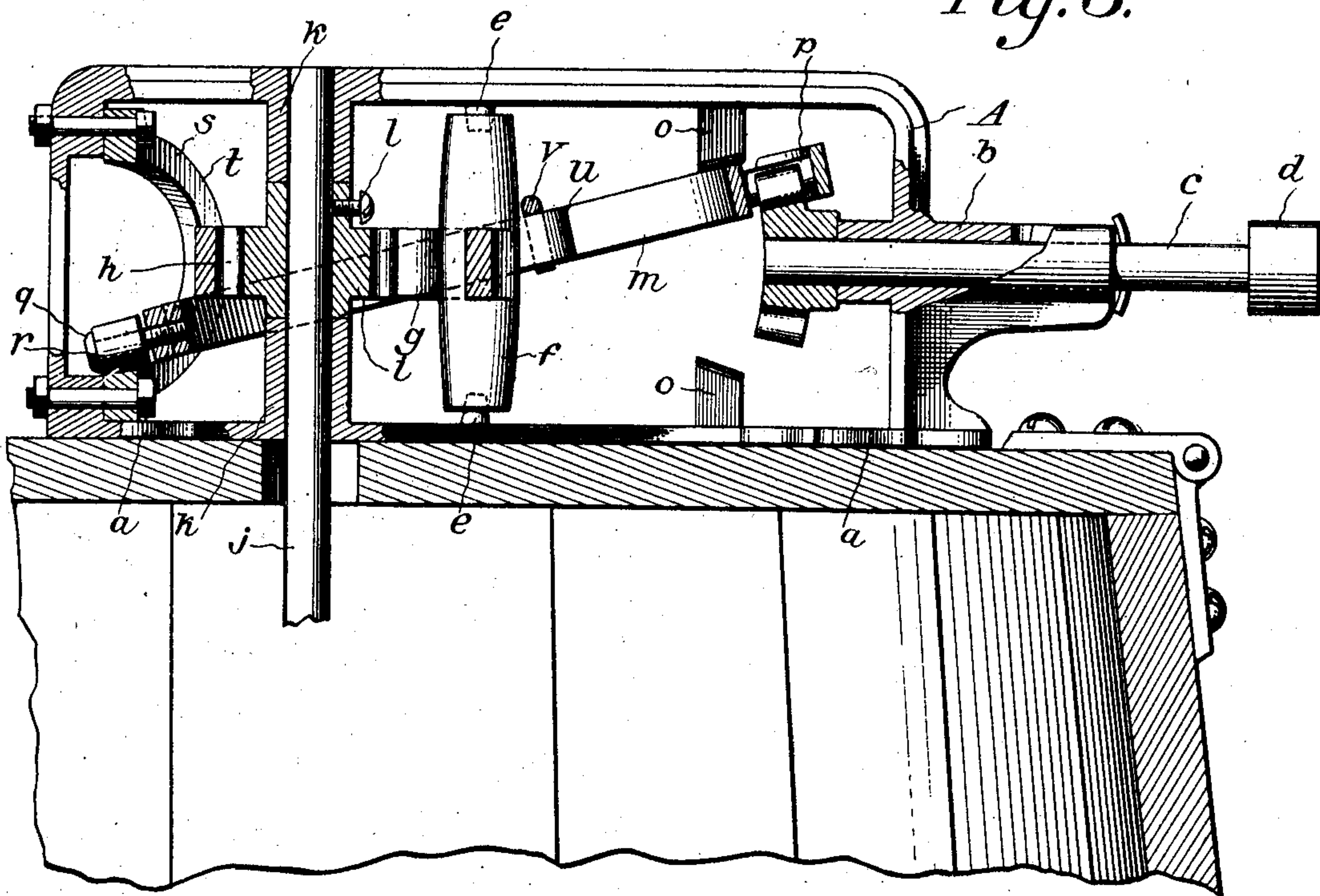
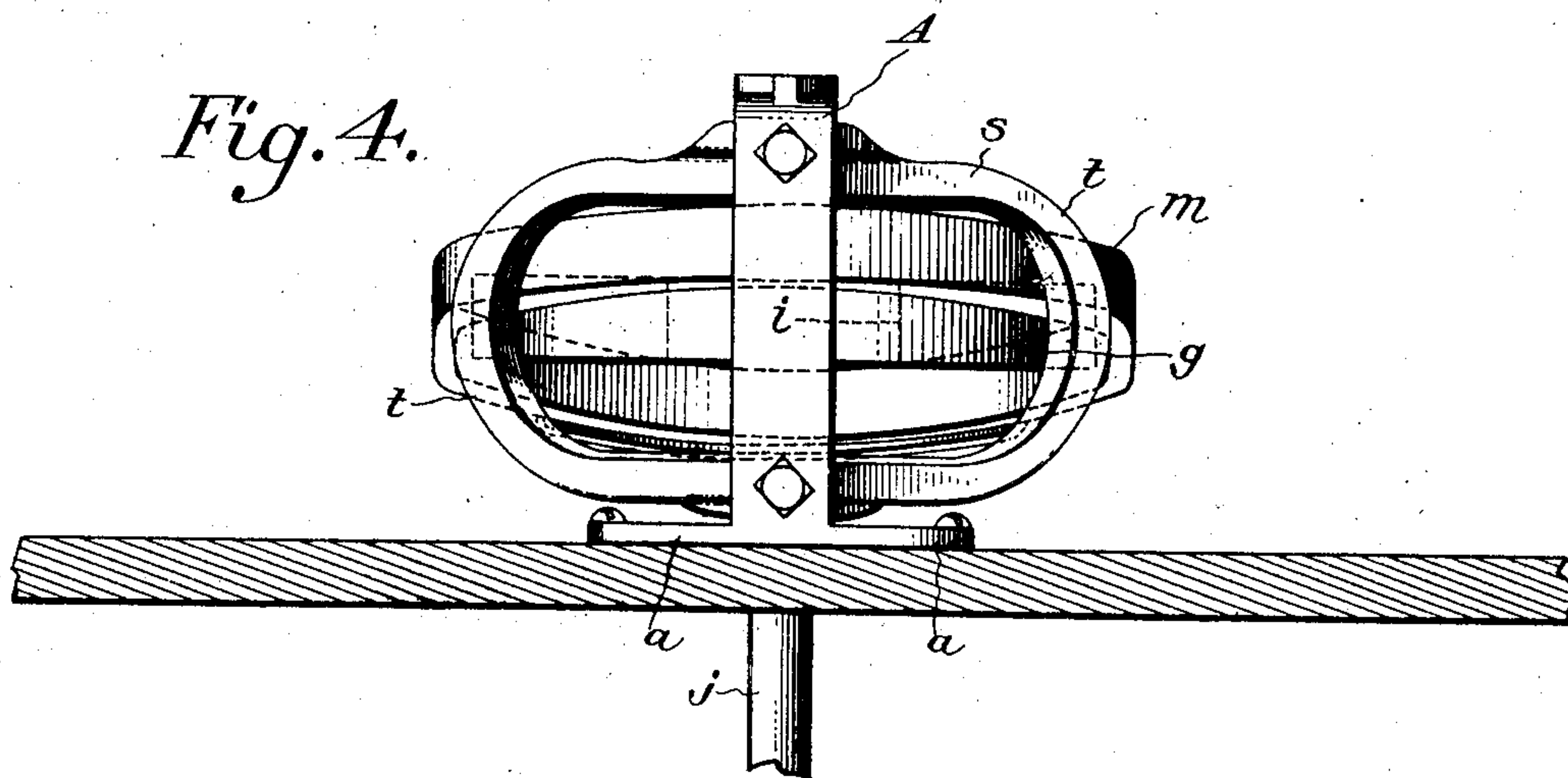


Fig. 4.



Witnesses
F. C. Alden.
C. F. Holmes

Adolph Plagman
Inventor.
by Murphy & Tusewihl
Attorneys

UNITED STATES PATENT OFFICE.

ADOLPH PLAGMAN, OF DAVENPORT, IOWA.

GEARING.

SPECIFICATION forming part of Letters Patent No. 768,342, dated August 23, 1904.

Application filed February 12, 1904. Serial No. 193,301. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH PLAGMAN, a citizen of the United States of America, and a resident of Davenport, in the county of Scott and State of Iowa, have invented a certain new and useful Improvement in Gearing, of which the following specification, taken in connection with the drawings making a part of the same, is a full, clear, and exact description.

This invention relates to washing apparatus and particularly to a class thereunder known as "washing-machines."

An object of this invention is to provide novel means for transmitting rotary motion in alternate directions to the dasher or rubber-shaft of a washing-machine, the said motion being taken from a power-shaft having rotary motion continuously in one direction, it being the purpose of this invention to so alternate the direction of rotation of the rubber-shaft that the contents of the body or tub will be thoroughly agitated and the water therein caused to splash through the meshes of the cloth contained within the receptacle to facilitate the removal of the dirt therein.

Furthermore, an object of the invention is to provide a mechanism to be utilized in connection with a washing-machine in which leverage is utilized for increasing the power derived from the driven shaft, means being provided for rotating the mechanism of washing-machines in alternate directions; and the invention further resides in part in the novel means for causing the continuous engagement of a power-driven pinion with the elements with which it coacts in transmitting the motion to the shaft of the washing-machine.

Furthermore, an object of the invention is to provide novel means for oscillating and guiding the members of the combination between the power-shaft and the rubber-shaft, which are interposed to transmit rotary motion to the said shaft of the washing-machine.

Finally, an object of the invention is to provide a washing-machine of the character described which will possess advantages in points of simplicity, efficiency, and durability, proving at the same time comparatively inexpensive to manufacture.

With the foregoing and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully set forth and specifically claimed.

In describing the invention in detail reference will be had to the accompanying drawings, forming part of this specification, wherein like characters denote corresponding parts throughout the several views, in which—

Figure 1 illustrates a plan view of a fragment of a washing-machine top and the driving mechanism applied thereto. Fig. 2 illustrates a side view thereof. Fig. 3 is a longitudinal sectional view, and Fig. 4 is an end view thereof.

In the drawings, A denotes a suitable frame having flanges *a* by which the said frame is anchored to the top of a washing-machine, the said frame in elevation being approximately rectangular and having on one end an integral bearing *b* for the power-shaft *c*, the said power-shaft being rotated through the medium of the crank-handle *d*, or it may be provided with a pulley, (not shown,) and thus it may be coupled to be driven by power other than manual power. Approximately centrally of the frame and projecting from the inner surfaces of the upper and lower members are studs *e*, which are designed as trunnions for the hub *f*. The hub *f* is preferably an integral part of an elliptical rack *g*, the major axis of which is disposed transversely of the frame, with the hub at a position centrally of and at right angles to the major axis. The elliptical rack is provided with internal teeth *h* along the surface opposite the hub, and these teeth are designed to be in engagement with a pinion *i* of the shaft *j*, which shaft *j* depends into the washing-machine body or tub and carries a head or rubber, (not shown,) which may be of any ordinary construction. The shaft *j* has a bearing in the hollow bosses *k*, which are integral with the upper and lower members of the frame, and the pinion is secured to the shaft through the medium of a set-screw *l*. The hub and the rack move constantly in the same plane or in a plane parallel with the upper and lower members of the frame.

The outer surfaces of the ends of the rack

g are provided with recesses to form bearings g' for a yoke m , which yoke has two studs n , forming trunnions which fit in the bearings of the rack g . It is my purpose to have the yoke sufficiently yielding to permit its being sprung under certain conditions for applying the trunnions to the bearings of the rack, and it is also my purpose to have the frame A so constructed as to permit the upper and lower members thereof being sprung apart sufficiently to permit the application of the hub to the studs or trunnions thereof. As the rack g is held in the same horizontal plane, its movement is always in a direction transversely of the frame A, while the yoke being trunnioned on the rack has a vertical oscillatory movement thereon and a horizontal oscillatory movement taken from the travel of the rack on which it is mounted, and the two ends of the yoke on each side of the pivot move oppositely, and the said yoke is guided in its movement at one end through the medium of the lugs o , which project from the inner surfaces of the top and bottom members of the frame A. The yoke has radial rack-pins p projecting from its end, and the said rack-pins are engaged by the pinion on the power-shaft, the said pinion serving to turn the yoke from side to side with relation to the frame A. The said pinion engages the upper surfaces of the rack-pins when the said yoke is moved in one direction and then engages the lower surfaces of the rack-pins when the yoke is moved in the opposite direction. At the end of the yoke opposite the end having the rack-pins is a stud q , which carries an antifriction-roller r , and the said antifriction-roller is in constant engagement with the guide s , extending transversely of the frame. The guide has its ends curved inwardly, so that the arc of the circle of the guide corresponds with the arc described by the stud carrying the antifriction-roller. The guide has curved ends t , around which the antifriction-roller travels as the pinion on the power-shaft passes around the end rack-pins on the opposite end of the yoke. The guide serves to retain the pinion and rack-pins in engagement, and the lugs o heretofore referred to tend to steady the movement of the said yoke and prevent rattling or undue vibration. The yoke has apertured ears u for the reception of the tie-rod v , which tie-rod has its ends bent at right angles to the body portion to enter the apertured ears, and this tie-rod when in place prevents spreading of the yoke under any condition and insures the engagement of its trunnions with the bearings of the rack g .

In operation the power-shaft is rotated, thus carrying the pinion thereon continuously in one direction, and said pinion successively engages the rack-pins on the end of the yoke, thereby moving the said yoke until the end rack-pin is reached, when the said pinion will

depress the end of the yoke, and further rotation of said pinion will result in driving the yoke in a direction opposite to that traveled in the movement just described. The said yoke meanwhile moves on its trunnions and causes the antifriction-roller to travel along the curved end of the guide, limiting the movement of the yoke and preventing the rack-pins of the yoke from disengaging the pinion. As the yoke is connected to the rack g through the medium of the trunnions, it follows that the teeth of this rack g is oscillated with relation to its pinion, and as the said rack is in engagement with the said pinion the shaft on which the pinion is mounted will receive rotary motion, alternating in direction with the alternate movement of the yoke.

Having fully described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a washing-machine, a suitable body and shaft, a frame mounted on the body and having bearings to receive the shaft, a rack mounted in the frame to have oscillatory motion parallel with the top of the body, a pinion on the shaft engaged by the rack, a yoke trunnioned on the rack, a guide at one end of the frame, means on the yoke for engaging the guide and limiting the movement of said yoke, and means for communicating motion to the opposite end of the said yoke.

2. In a washing-machine, a suitable body and shaft, a frame on the body in which the shaft is journaled, a pinion on the shaft, a rack engaging the pinion, a hub for carrying the rack and means for mounting the said hub in the frame, a yoke trunnioned on the ends of the rack, a guide on the frame having curved ends, means on the yoke for engaging the guide, rack-pins on the opposite end of the yoke, a shaft suitably journaled in the frame and a pinion on said shaft engaging the rack-pins of the yoke.

3. In a washing-machine, a suitable body and shaft, a frame in which the shaft is journaled, a pinion on the shaft, a rack engaging the pinion, a hub carrying the rack mounted in the frame, a yoke trunnioned on the rack, a guide on the frame having curved ends, means carried by one end of the yoke for engaging the guide; rack-pins on the yoke, a pinion engaging the rack-pins, means for rotating the pinion, the said guide and the engaging member carried on the yoke serving to retain the rack-pins in engagement substantially as described.

4. In a washing-machine, a suitable body and shaft, a frame in which the shaft is journaled, a pinion on the shaft, a rack engaging the pinion, a hub carrying the rack mounted in the frame, a yoke trunnioned on the rack, means for preventing spreading of the yoke, a guide on the frame having curved ends,

means carried by one end of the yoke for en-
gaging the guide; rack-pins on the yoke, a
pinion engaging the rack-pins, means for ro-
tating the pinion, the said guide and the en-
5 gaging member carried on the yoke serving
to retain the rack-pins in engagement, sub-
stantially as described.

In testimony whereof I have hereunto af-
fixed my signature in the presence of two wit-
nesses.

ADOLPH PLAGMAN.

In presence of—

I. C. ANDERSON,
C. F. HOLMES.