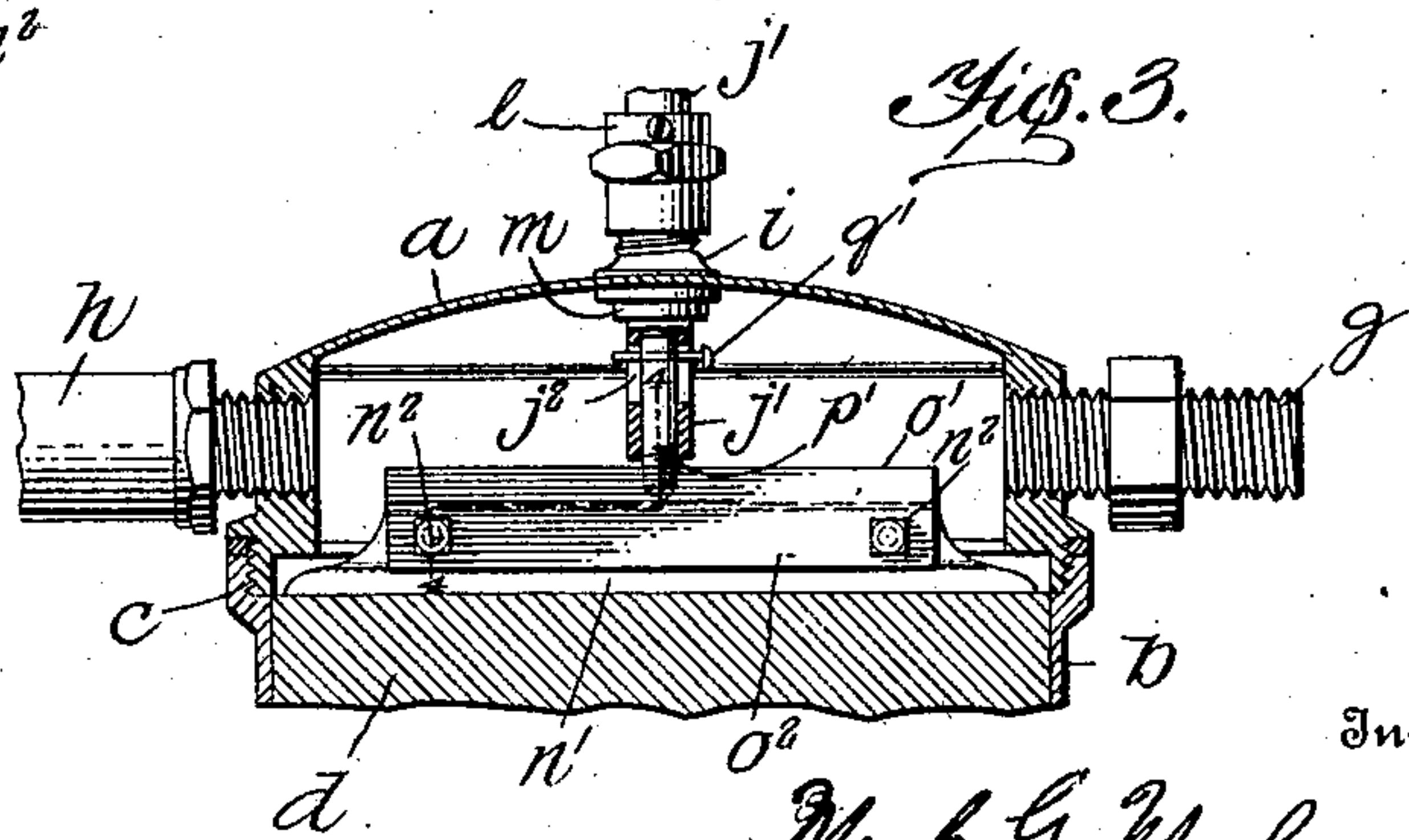
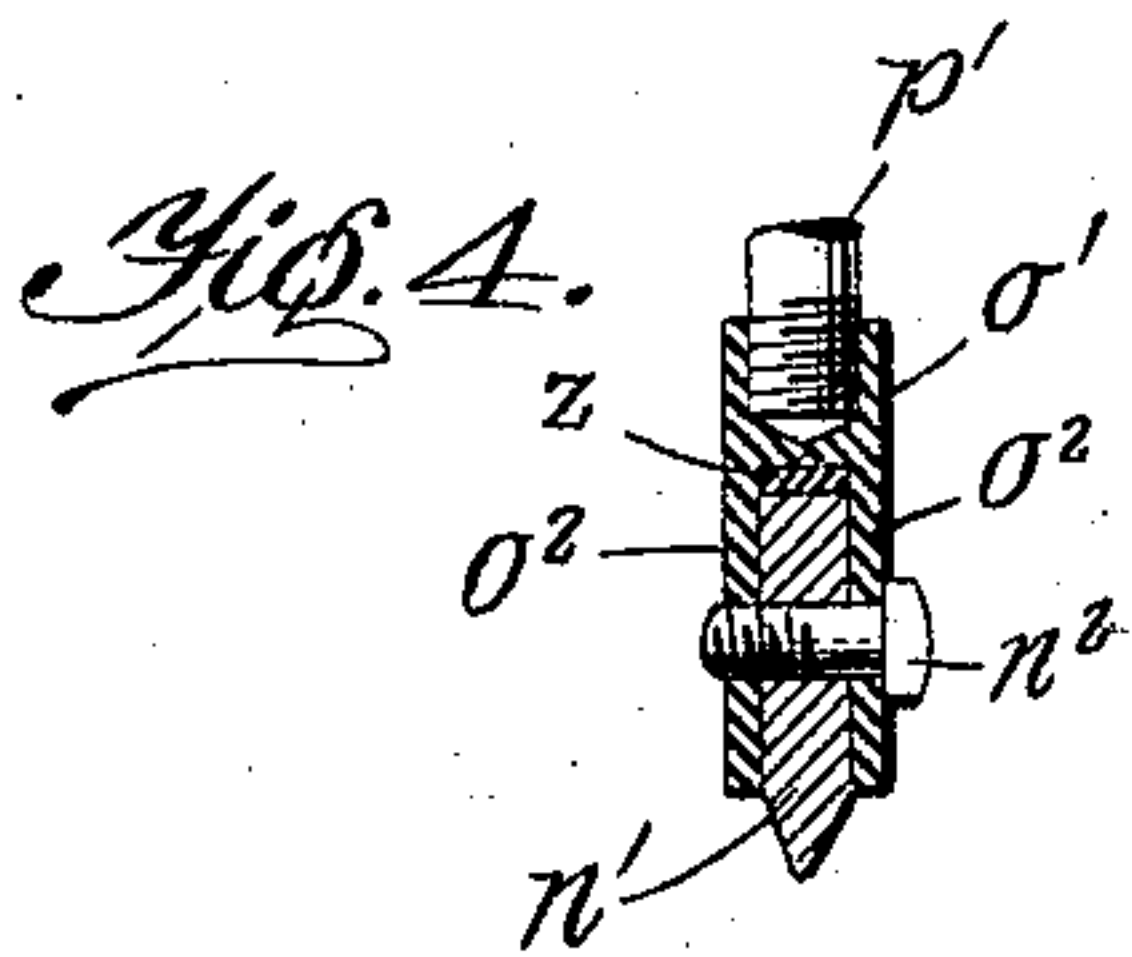
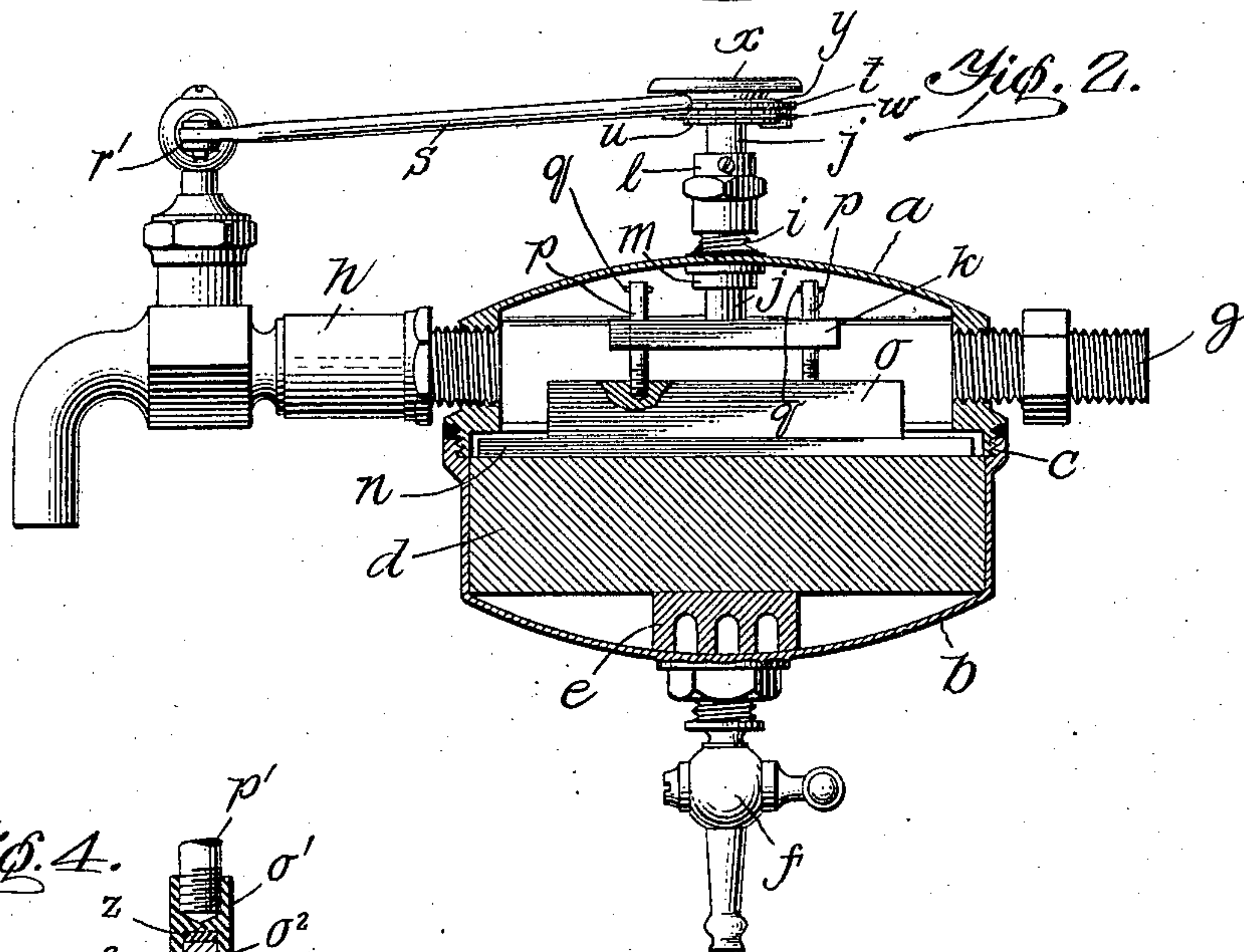
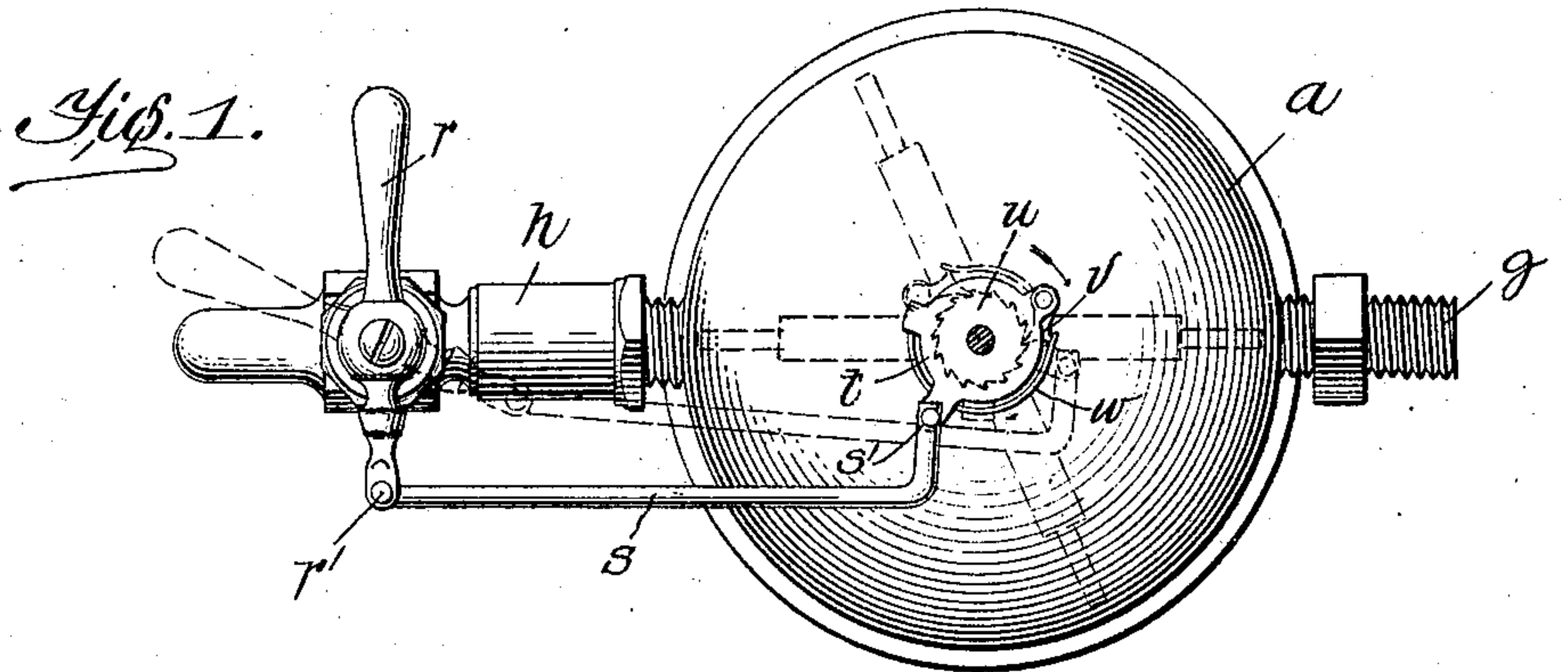


No. 846,859.

PATENTED MAR. 12, 1907.

M. G. MELVIN.
FILTER.

APPLICATION FILED MAY 15, 1906.



Witnesses

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FILTER.

No. 846,859.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MARK G. MELVIN, a citizen of the United States, and a resident of Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Filters, of which the following is a specification.

The present invention relates to filters, and in particular to the type of filters in which a scraper is employed for cleaning the filtering material.

The object of the invention is to provide a filter in which the scraper is automatically actuated when the cleaning-faucet is operated.

A further object is to provide improved means whereby the scraper is held in continuous engagement with the filtering material.

Other and further objects will appear in the following description, and will be more particularly pointed out in the appended claims.

The invention is shown in the accompanying drawing, in which—

Figure 1 is a top view of one embodiment of the invention, partly in section. Fig. 2 is a side view partly in section. Fig. 3 is a sectional view showing a slightly-modified form of scraper, and Fig. 4 is a section on an enlarged scale on the line 4 4 of Fig. 3.

Reference will first be had to the embodiment shown in Figs. 1 and 2. The shell of the apparatus consists of an upper half *a* and a lower half *b*, the two halves being screwed together at *c*. A filtering-stone *d* is arranged in the lower half *b* and held against the pressure of the water by a support *e*. To the bottom of the part *b* is connected the faucet *f* for drawing off the filtered water. The upper half *a* is provided with a nipple *g* for attachment to a piping, and opposite the nipple is a faucet *h*, by means of which unfiltered water may be drawn through the filter. This faucet will be referred to in the following as the "cleaning-faucet." On the top of the part *a* is a sleeve *i*, through which projects a shaft *j*, which terminates in a head *k*, located within the shell of the filter. Above the shell the shaft is provided with a collar *l*, which prevents the shaft from dropping down, and within the shell the shaft is provided with a collar *m*, which prevents the

shaft being forced upwardly by the pressure of the water. A suitable packing is preferably provided between the shaft and the sleeve. *n* is the scraper or cleaner, which is provided with a ridge *o* of considerable weight. The scraper is connected to the head *k* by means of pins *p*, which are screwed into the ridge *o* and pass loosely through perforations in the head. The pins are provided with stops *q* near their upper end. The cleaning-faucet *h* has operating-handle *r*, which is jointed at *r'* to a bent lever *s*, which in turn is jointed at *s'* to a disk *t*, which is rotatably mounted on the shaft *j*. A ratchet-wheel *u* is rigidly secured on the shaft *j* below the disk *t*. The disk *t* carries a pawl *v*, which is held in engagement with the ratchet-wheel *u* by means of a spring *w*. A cap-plate *x* is screwed to the upper end of the shaft *j*, a washer *y* being inserted between the cap-plate and the disk *t*.

In the embodiment shown in Figs. 3 and 4 the lower part of the shaft *j'* is tubular and provided with a vertical slot *j''*, through which is inserted a pin *q'*, secured to a stem *p'*, which is screwed into a holder *o'*. The holder *o'* has depending arms *o''*, which receive the scraper *n'* between them. The scraper is held in position by means of screws *n''*, passing through perforations in the holder-arms and in the scraper. A layer *z*, of elastic material, is interposed between the upper part of the scraper and the holder.

The operation of the device is as follows: Unfiltered water enters through the nipple *g* and passes through the filtering-stone *d* to the lower part of the shell, from where the filtered water is drawn by opening the faucet *f*. The impurities contained in the unfiltered water will collect at the top of the filtering-stone, and when the filter has been in use for some time a layer of dirt will have been formed on the upper surface of the filtering-stone, which layer will materially impede the working of the filter. In order to reestablish good working of the filter, the layer of dirt must be removed, and this is done in the following manner: The faucet *h* is opened by moving the handle *r* from the position shown in full lines in Fig. 1 to the position shown in dotted lines in the same figure, and water rushes through the upper part of the filter and carries along with it the loose par-

ticles of dirt at the top of the filtering-stone. The shifting of the handle *r* causes the disk *t* to turn through the medium of the bent lever *s*, and the pawl *v* slides along the ratchet-wheel *u* without turning the same. When the faucet is closed, the handle and the bent lever are returned to the position shown in full lines in Fig. 1, thereby causing the disk *t* and the pawl *v* to turn in the direction of the arrow. This time the pawl carries along with it the ratchet wheel, which is secured on the shaft *j*, and the scraper is consequently rotated from the position shown in heavy dotted lines in Fig. 1 to the position shown in finely-dotted lines in the same figure, and the layer of dirt is scraped off from a part of the stone. The faucet *h* is thereupon opened again, and dirt scraped off by the closing of the faucet passes out with the water. When the faucet is closed, another part of the stone is cleaned by the scraper, as the scraper now turns in the direction of the arrow from the position shown in finely-dotted lines in Fig. 1. The opening and closing of the cleaning-faucet is repeated until clean water passes out through the faucet.

The scraper is held in engagement with the filtering-stone by its own weight and by the heavy weight of the ridge *o*, and when the stone wears, due to repeated scraping, the scraper moves downwardly to retain its position on the top of the stone, the pins *p* sliding in the perforation of the head *k*.

The operation of the embodiment shown in Figs. 3 and 4 is identical to that of the other embodiment; but in this instance it is the combined weight of the scraper *n'* and holder *o'* that holds the scraper in engagement with the filtering-stone, and downward movement of the scraper is permitted by the pin-and-slot connection *q' j'*.

I wish it to be understood that I do not limit myself to the exact construction shown and described, as various changes may be

made therein without departing from the scope of the invention.

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

1. In a filter, the combination with the shell having a filtering medium therein, of a cleaning-faucet, a rotary cleaner in contact with the filtering medium, and means connecting the cleaning-faucet and the cleaner and transmitting movement from the faucet to the cleaner to rotate the cleaner in one direction only.

2. In a filter, the combination with the shell having a filtering medium therein, of a cleaning-faucet, a cleaner in contact with the filtering medium, and means connecting the cleaning-faucet and the cleaner and transmitting movement from the faucet to the cleaner when the faucet is turned in one direction only.

3. In a filter, the combination with the shell having a filtering medium therein, of a cleaning-faucet, a cleaning mechanism in contact with the filtering medium, means connecting the faucet with the cleaning mechanism, and a pawl-and-ratchet mechanism in said means.

4. In a filter, the combination of a shell, a filtering medium in said shell, a rotary cleaner in contact with the filtering medium, a rotary shaft projecting outside of the shell and held from axial movement therein, means connecting the shaft and the cleaner, a cleaning-faucet having a handle, and means connecting the handle and the shaft to transmit movement from the faucet to the shaft and cleaner.

The foregoing specification signed, at the city of Scranton, this 9th day of April, 1906.

MARK G. MELVIN.

In presence of—

JOSEPH F. GILROY,
 H. W. MULHOLLAND.