

# CHARLES W. HARVEY.

## Improvement in Devices for Lubricating Railway Journals.

119,087.

Patented Sep. 19, 1871.

Fig. I.

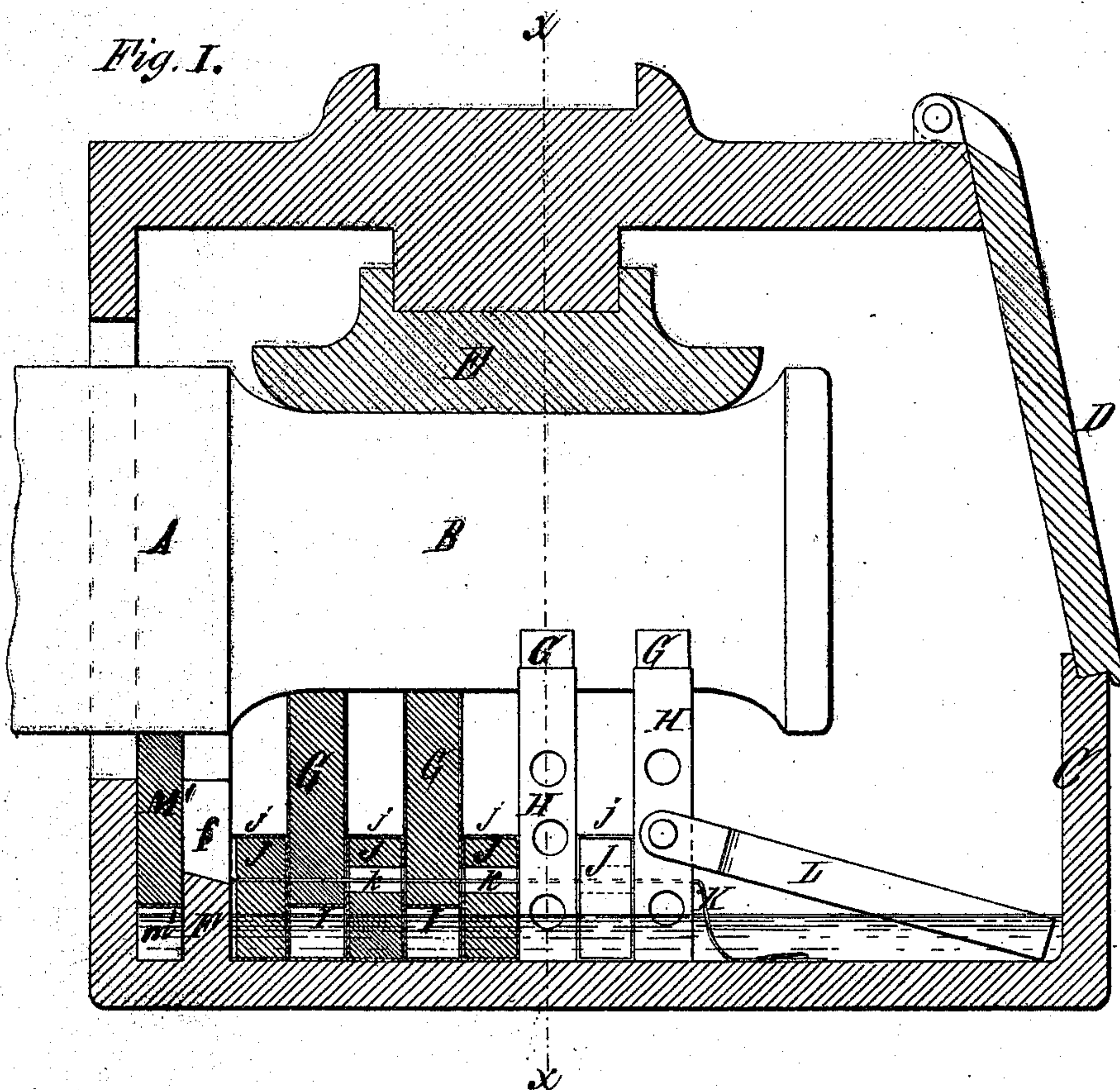
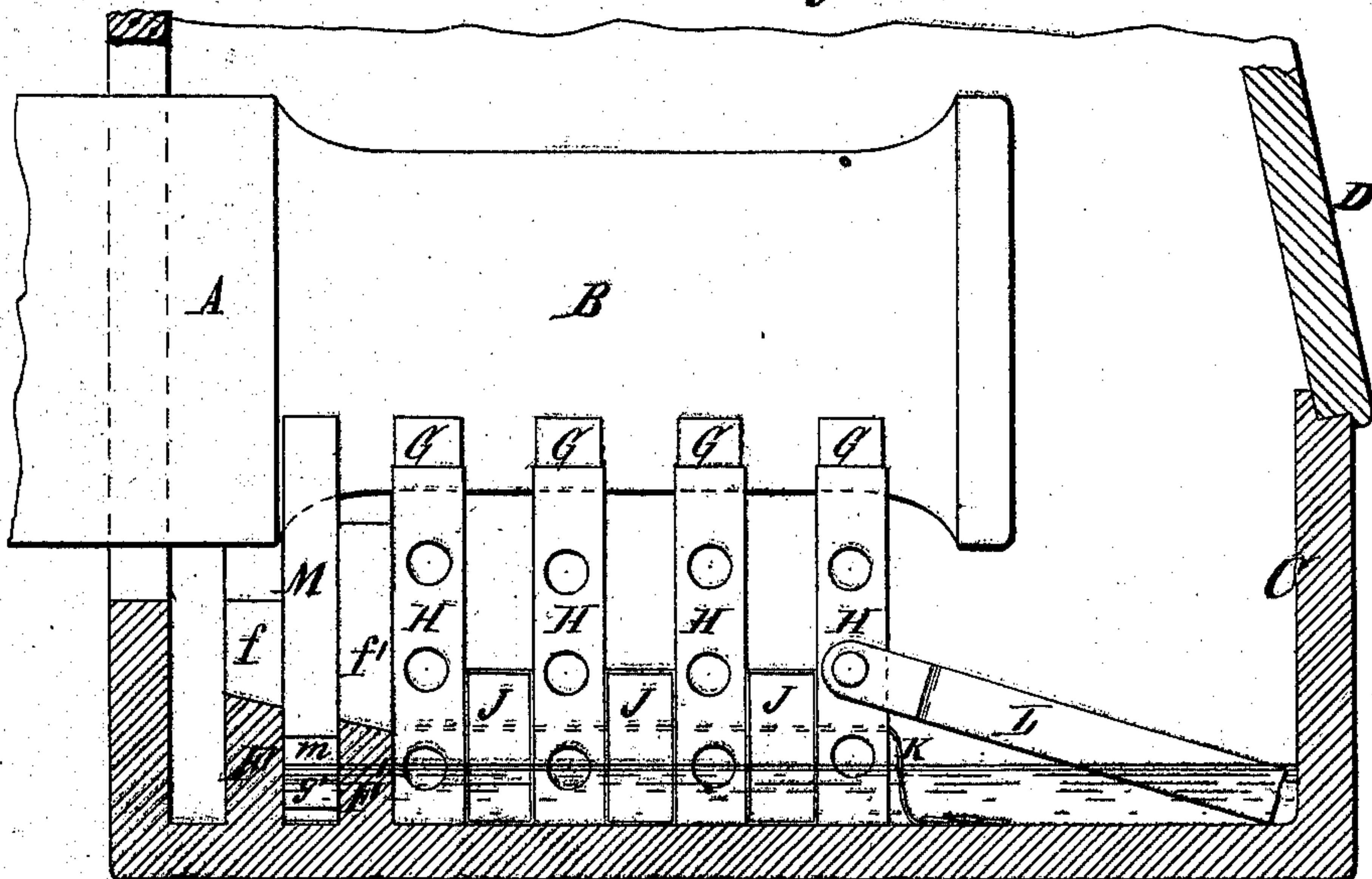


Fig. II.



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Edward M. Thibault } Witnesses.

Charles W. Harvey } Inventor.  
by Jay P. Bennett } Atty.



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Fig. III.

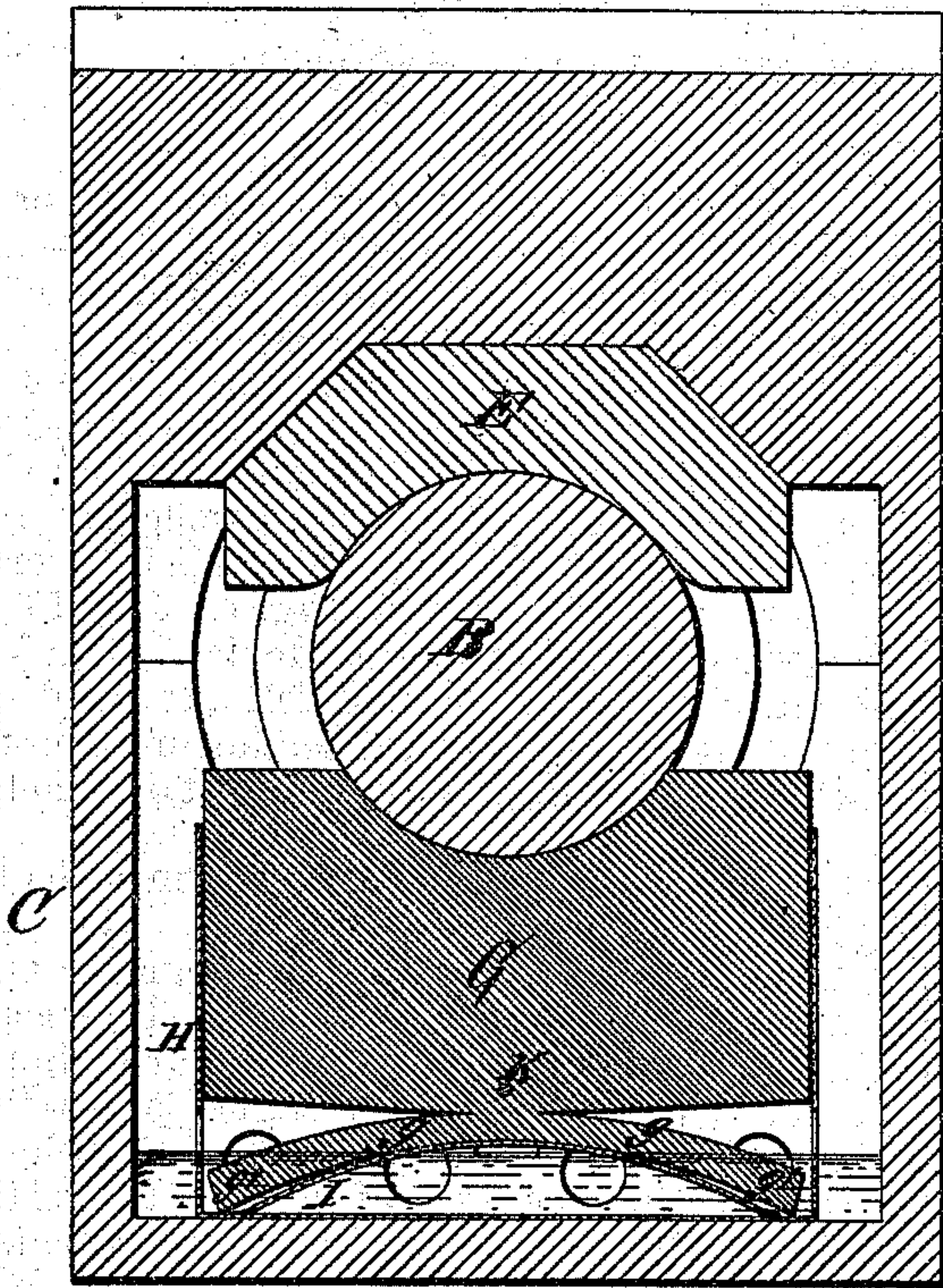


Fig. II.



Fig. V.

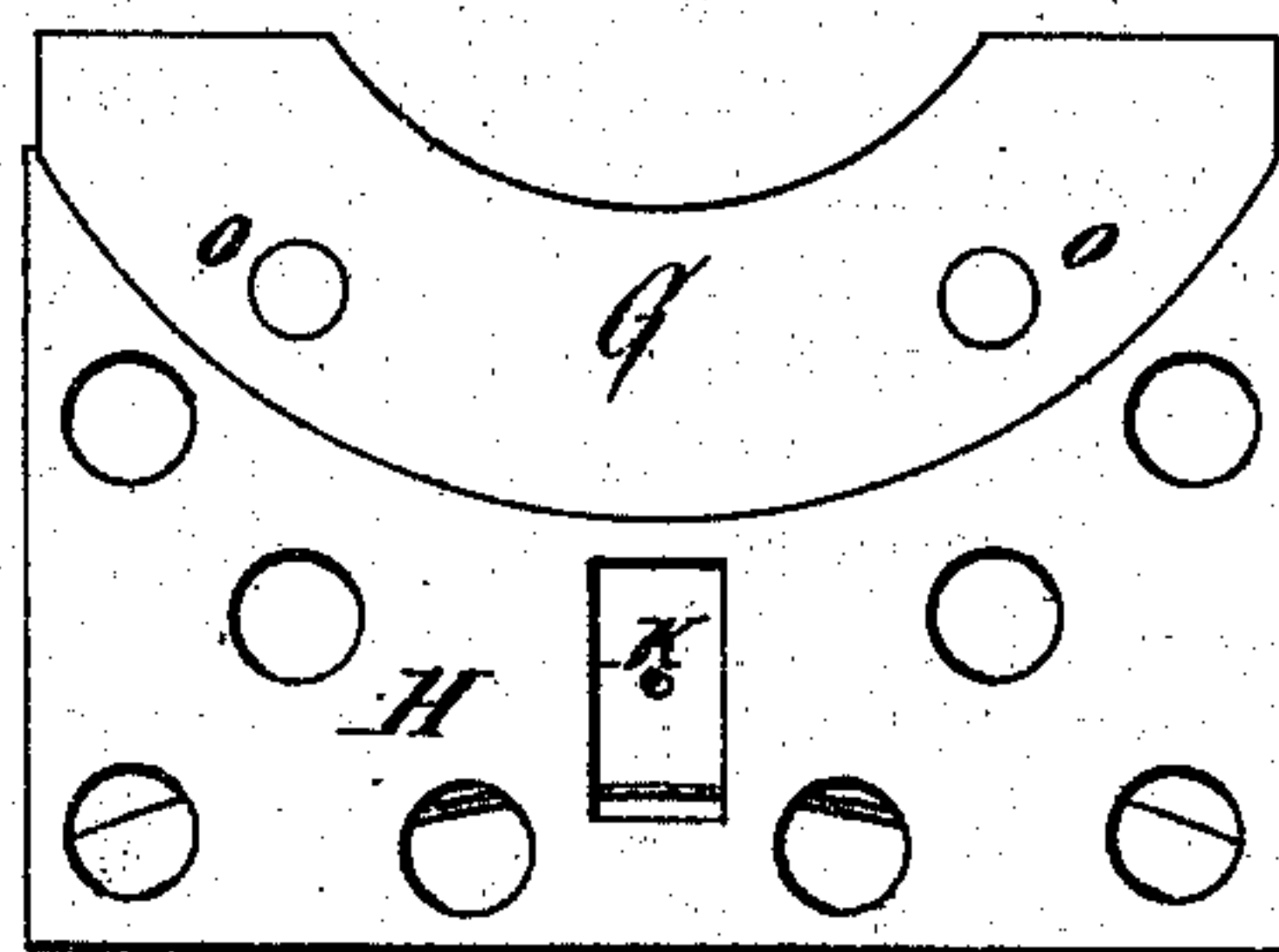
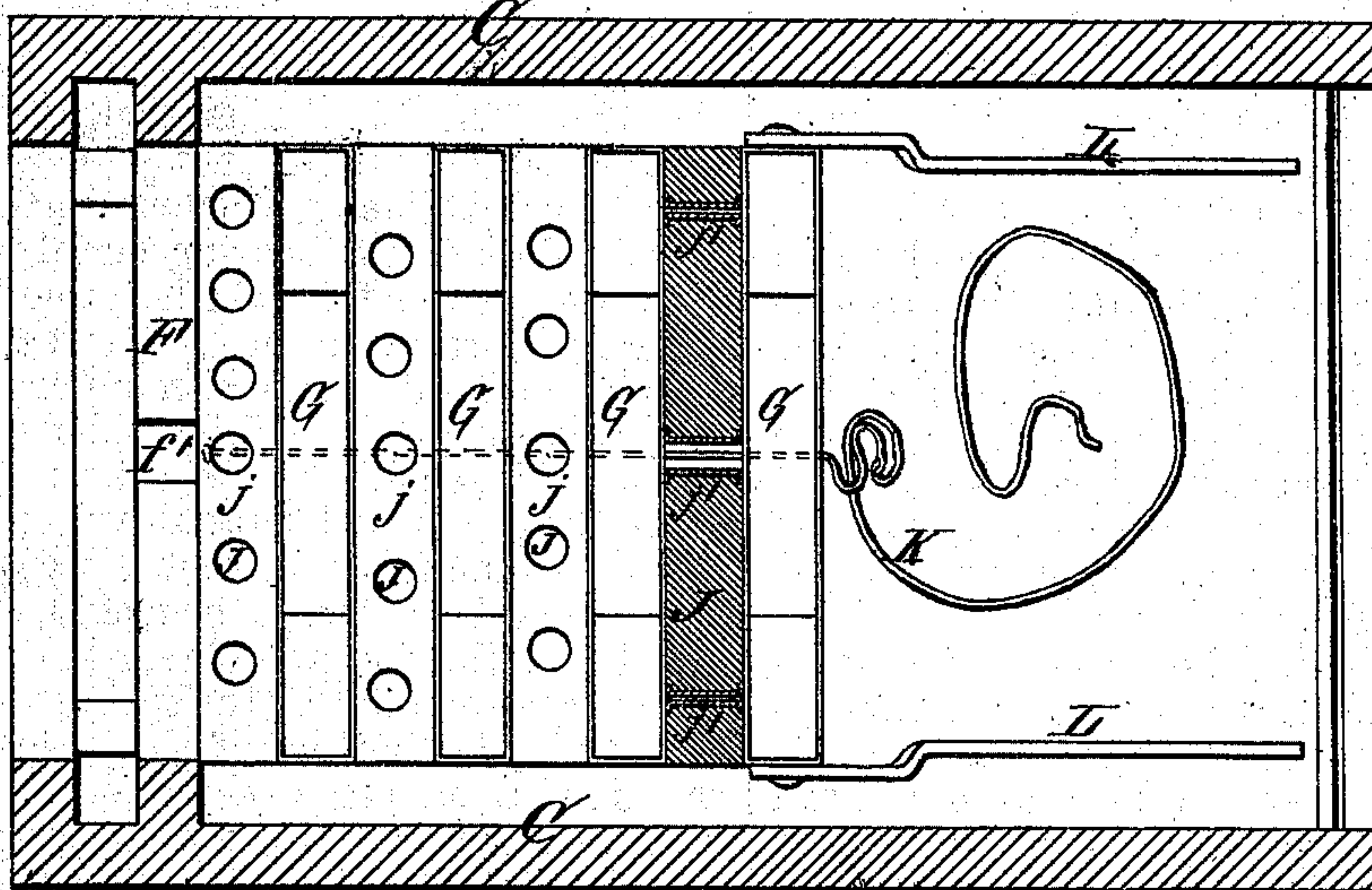


Fig. IV.



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# UNITED STATES PATENT OFFICE.

CHARLES W. HARVEY, OF BUFFALO, NEW YORK.

## IMPROVEMENT IN DEVICES FOR LUBRICATING RAILWAY JOURNALS.

Specification forming part of Letters Patent No. 119,087, dated September 19, 1871.

*To all whom it may concern:*

Be it known that I, CHARLES W. HARVEY, of the city of Buffalo, in the county of Erie and State of New York, have invented certain Improvements in Device for Lubricating Railroad Journals, of which the following is a specification:

The object of my improvements is to provide means for insuring a more perfect lubrication of the journals of railroad trucks with the oil at a very low level, thereby preventing swashing and loss of the oil through the openings and joints of the axle-box. My invention consists: First, in the combination and arrangement, transversely with the journal and axle-box of a railroad truck, of a series of two or more oil-feeding devices, composed of a piece of felt sliding in a perforated case, and pressed by a spring against the journal so as to be self-adjusting in feeding the oil from the bottom of the box to the latter. Second, in providing each piece of felt of the lubricating device with two partially-detached wings, which will remain in contact with the oil and form a conductor for the same to the main body of the felt as the latter recedes from the oil in adjusting itself to the journal. Third, in the combination and arrangement, with the axle-box, journal, and one or more of the oil-feeding devices above mentioned, of blocks of felt arranged on the bottom of the box, and between the oil-feeding devices, so as to hold the same in place to absorb the oil and prevent swashing out of the same. Fourth, in arranging a series of felt lubricating devices and intermediate blocks on a cord for the purpose of facilitating the arrangement of said devices in the axle-box and their withdrawal therefrom. Fifth, in providing the case of the foremost oil-feeding device with two arms or braces pivoted to its sides, so that said arms when swung down will bear against the front of the axle-box and prevent longitudinal displacement of the lubricating apparatus. Sixth, in the combination, with the felt of the oil-feeding device hereinbefore mentioned, of a similarly-formed plate of metal or other hard material secured to the side thereof so as to form a guard to retain the felt in proper position under the journal and reduce the oil-conducting capacity of the piece of felt and prevent the excessive wear of its lubricating-surface. Seventh, in the arrangement in the partition or partitions near

the rear of the axle-box, of an opening or slot slightly above the level of the oil, so as to allow the oil which may have worked behind said partitions to flow back into the axle-box.

In the accompanying drawing, Figure I is a sectional elevation of an axle-box provided with my improvements. Fig. II is a sectional elevation, showing a modified arrangement of my improved lubricating device. Fig. III is a vertical cross-section on line *x x*, Fig. I. Fig. IV is a plan view of the lubricating device. Fig. V is a detached view of a piece of felt arranged in its case. Fig. VI is a vertical section of an oil-feeding device, showing the attachment of a metallic plate to the felt.

Like letters designate like parts in each of the figures.

A represents the axle; B, the journal; C, the housing; D, the cover thereof; E, the bearing metal; F, the partition near the rear end of the axle-box; and F', Fig. II, a higher partition, as arranged in some kinds of axle-boxes for the purpose of raising the level of the oil. All of these parts are old and well known. G represents the pieces of felt, notched at the top so as to conform to the shape of the journal, and arranged upright in perforated cases H, made of tin or other suitable material. They are pressed against the journal by springs I, of elliptical or other suitable shape, arranged in the bottom of the cases H. The felt G is guided by the case H in its vertical movement as it adjusts itself to the journal, which latter recedes from the bottom of the axle-box as the bearing metal wears out. *g* *g* represent two wings of felt, formed by partially severing portions from the lower end of each piece G, preferably in such manner that the outer end *g'* of each wing will be wider than the inner portion. The ends *g'* of these wings, when saturated with oil, will hang down and rest on the spring I, remaining in contact with the oil so as to conduct the latter to the main body of the felt, which, as the journal changes its position, is sometimes elevated by the spring away from contact with the bottom of the axle-box and oil therein. Each piece of felt G, in combination with its spring and perforated case, constitutes a complete lubricating device. The number of such devices which is required in one axle-box depends upon the speed of the axle and other circumstances, and cannot be generally stated.



To insure a perfect lubrication of the journal the cases H are not required to be arranged close together, but a greater or lesser space is left between them, in which may be arranged blocks of felt J, made of sufficient height to retain the lubricating cases in their proper upright and relative position without coming in contact with the journal. These blocks may be protected against undue compression by perforated cases *j* inclosing each block, or they may be provided with stay-pieces *j'* made of tin or other thin metal, as shown in Fig. IV. K is the cord attached to the innermost block or section of the lubricating device. It runs horizontally through all the blocks J and oil-feeding devices G. The openings in the blocks J through which the said cord passes are slotted, as shown at *k*, to allow the pieces G free vertical movement. L represents two arms pivoted to the sides of the case H of the foremost oil-feeding device.

My improved lubricating device is arranged and operates in the axle-box in the following manner: The block J, with the cord K attached, is first introduced under the journal. The first oil-feeding device is then slipped on the cord K, passed under the collar of the journal in an inclined position, straightened up, and pushed against the block J. The other blocks and oil-feeding devices are then slipped on the cord and arranged in place in their order. When the last section is in place the cord is tightened and the arms L swung down so as to bear against the front of the axle-box, as shown in Fig. I. The end of the coil is loosely coiled up between the arms L so as to be ready for use when the lubricating device is required to be taken out, which is readily accomplished by drawing on the cord. The quantity of oil necessary for lubricating the journal is filled in the axle-box, the greater portion of which is absorbed by the pieces of felt G and blocks J, leaving only a thin stratum of oil on the bottom of the box. The swashing of the oil so common with the lubricating devices now in use, and whereby a considerable quantity of the oil is lost, is in this manner effectually prevented. The oil is fed to the journal by the pieces G gradually. The latter are kept in close contact with the journal by the springs I, and always touch the oil with the wings *g g*, so that an unbroken communication between the oil and the journal is insured in all positions of the latter. The blocks J serve as reservoirs for the pieces G, and deliver the oil absorbed by them to the pieces G as the latter become dry. My improved lubricating device has, furthermore, the advantage that it can be arranged in the axle-box or removed therefrom without withdrawing the axle.

O in Fig. VI represents a piece of metal or other hard material secured to the upper portion of the piece of felt G on its side by rivets *o* or otherwise. Both the plate O and piece G are cut out so as to conform to the shape of the journal, against which they are pressed by the spring I. The object of the plate O is to reduce the oil-feeding capacity of the piece of felt G without impairing its stiffness, and at the same time protect the upper edge thereof against wear. M is the piece of felt arranged between the partitions F and F', as shown in Fig. II. It is pressed against the journal by a spring, *m*, and serves to exclude dust and prevent the oil from working along the journal and axle and out of the axle-box. A similar piece of felt, M', and spring *m'* may be arranged between the partition F and the rear of the axle-box for the same purpose. *f* is the slot or opening arranged in the partition F, slightly above the level of the oil; and *f'* the slot arranged in the partition F' at about the same height. The oil which may work along the journal accumulates in the spaces behind the partitions F and F' until it rises to the height of the slots *f* and *f'*, when it overflows and returns to the main body of the oil in the axle-box. The oil is in this manner prevented from escaping through the opening in the rear of the latter.

I claim as my invention—

1. The combination and arrangement, with the journal and axle-box of a railroad truck, of a series of lubricating devices, each consisting of the felt G, spring I, and case H, substantially as described.
2. The partially-detached portions or wings *g* of the felt G, arranged substantially as described.
3. The arrangement, in an axle-box and with the oil-feeding devices G I H, of the blocks of felt J, substantially as hereinbefore set forth.
4. The combination and arrangement, with a series of oil-feeding devices G I H, with or without the blocks J, of the cord K, substantially as described.
5. The arrangement, in an axle-box and with the oil-feeding device G I H, of the pivoted arms L, substantially as hereinbefore set forth.
6. The guard-plate O secured to the felt G of the oil-feeding device, substantially as hereinbefore set forth.
7. The partitions F and F', provided with openings *f* and *f'*, arranged substantially as shown and described.

C. W. HARVEY.

Witnesses:

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