

No. 662,733.

Patented Nov. 27, 1900.

H. L. OFFERMANN.
APPARATUS FOR CARDING WOOL.

(Application filed Apr. 10, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig 3.

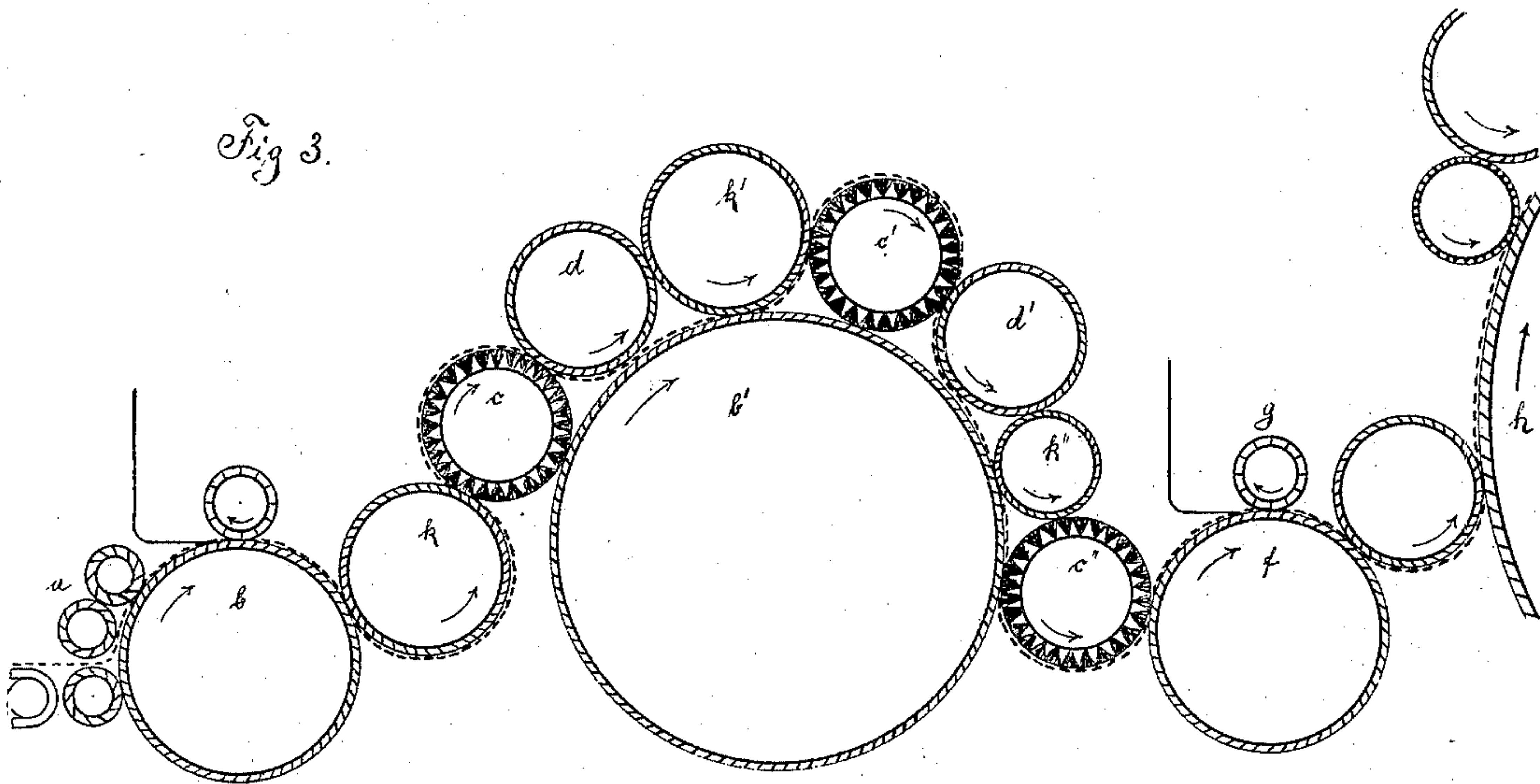


Fig 2.

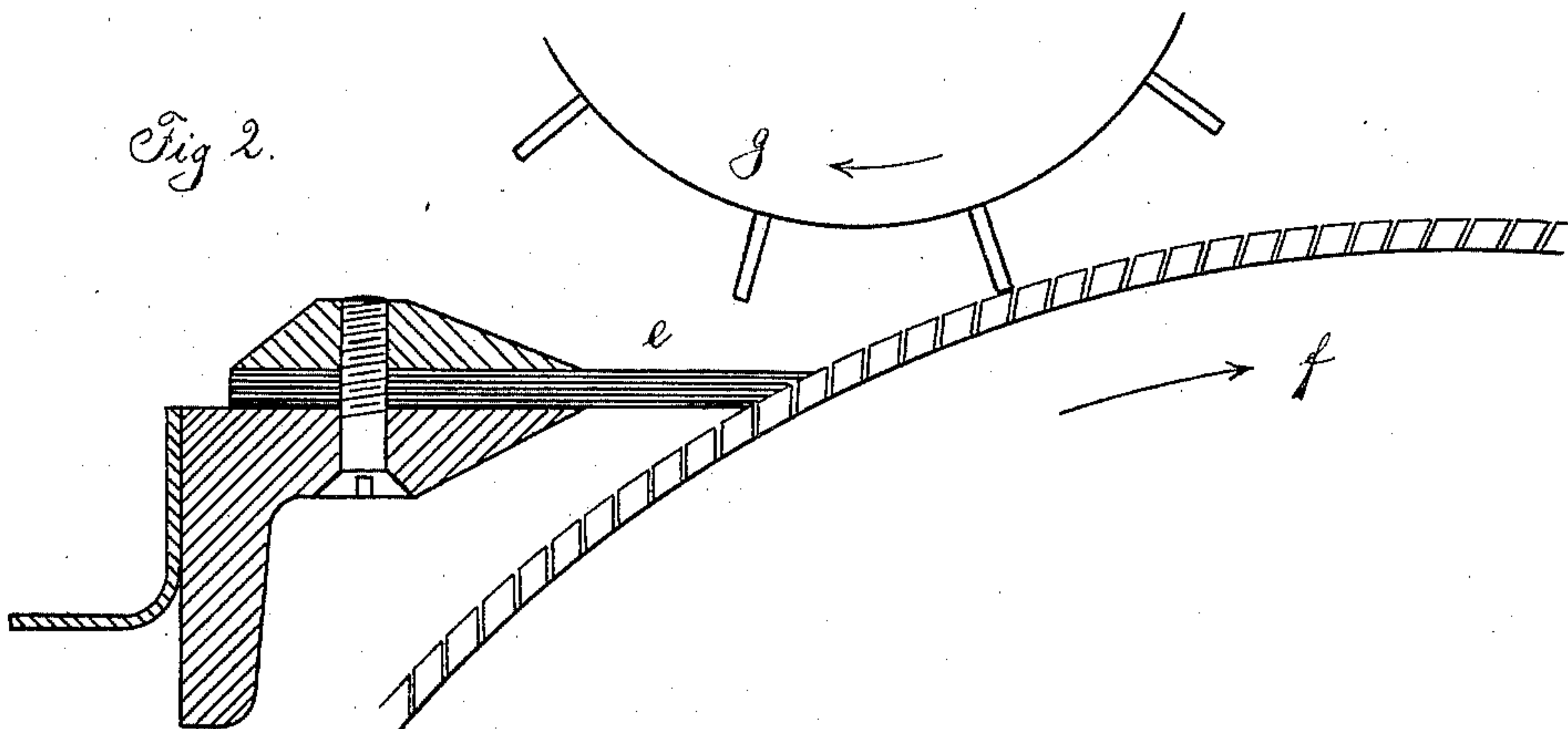
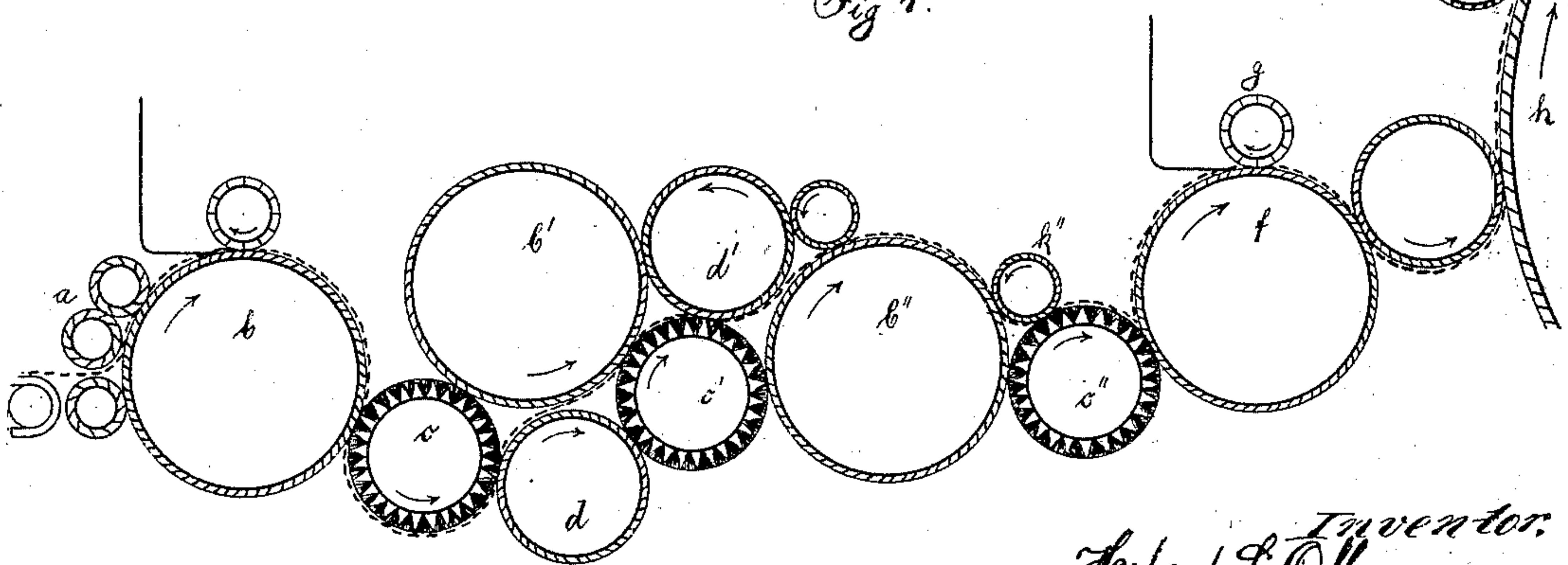


Fig 1.



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Fig. 4.

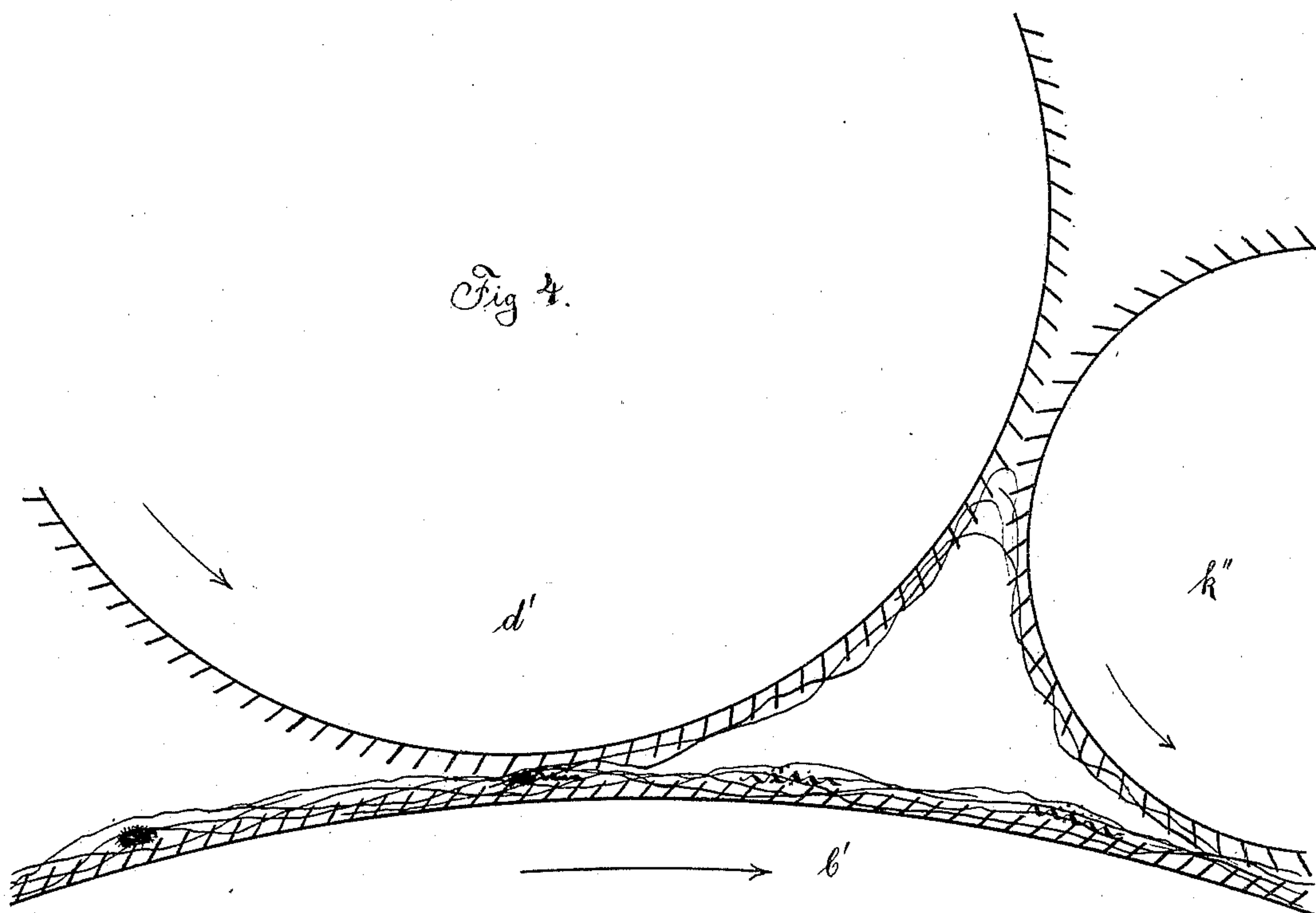
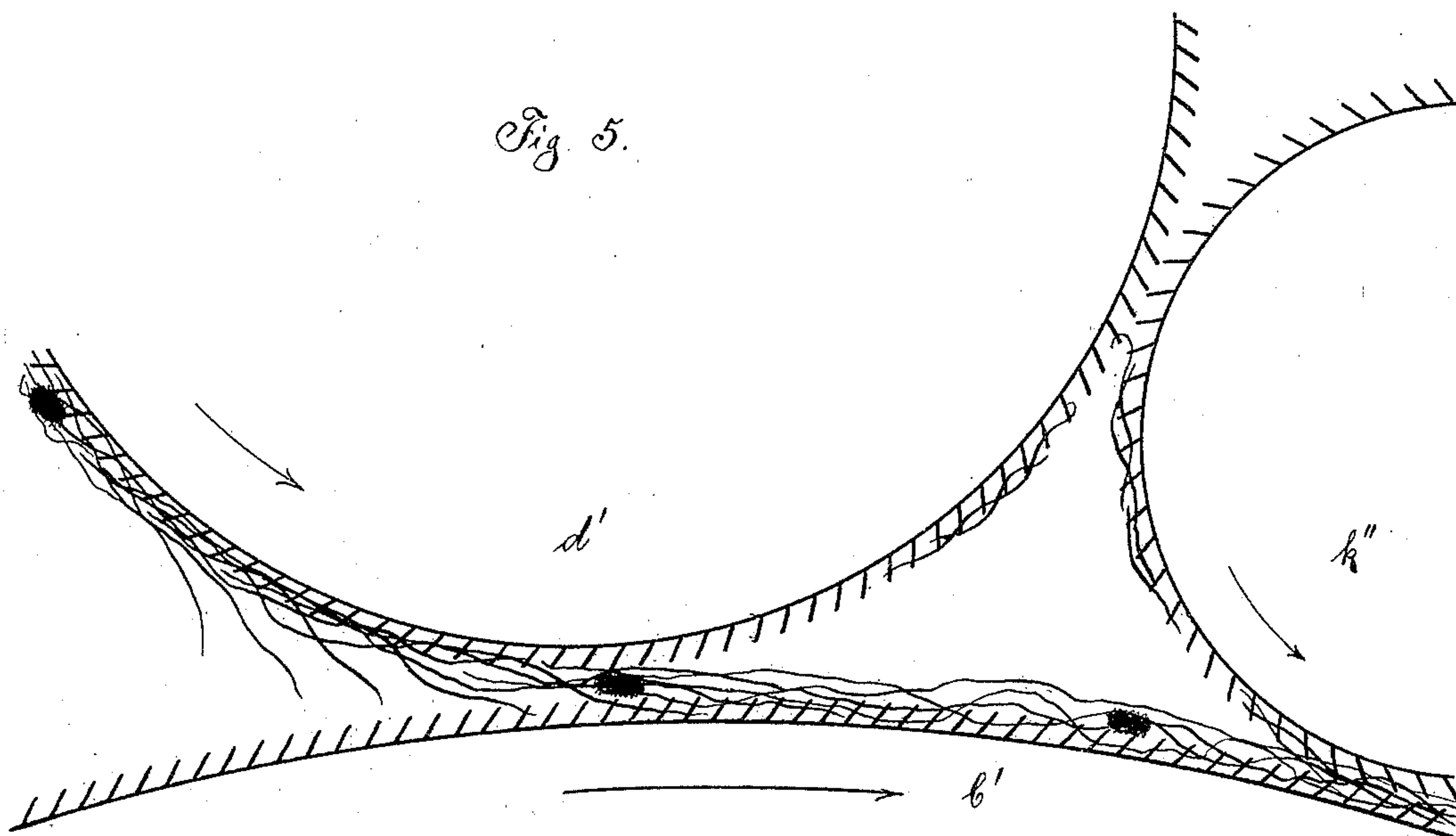


Fig. 5.



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UNITED STATES PATENT OFFICE.

HUBERT LEOPOLD OFFERMANN, OF LEIPSIC, GERMANY.

APPARATUS FOR CARDING WOOL.

SPECIFICATION forming part of Letters Patent No. 662,733, dated November 27, 1900.

Application filed April 10, 1899. Serial No. 712,404. (No model.)

To all whom it may concern:

Be it known that I, HUBERT LEOPOLD OFFERMANN, a subject of the German Emperor, residing at Leipsic, in the German Empire, have invented certain new and useful Improvements in Apparatus for Carding Wool and Removing Burs and other Foreign Substances Therefrom; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The apparatus arranged at the entrance to the wool-carding engine serving for removing the burs and other foreign substances from the wool, which apparatus consists of the known licker-in cylinder and beater working against the points of the teeth of the said cylinder, does not work sufficiently well, since the flocks of wool are presented to the beater in an unopened condition, so that only the burs on the surface thereof are removed. If the beater works at a high peripheral velocity, stands very near to the drum, and if the teeth of the latter are so fine that the beater cannot press down the burs between the tooth-spaces, and can thus break them up, the effect is greater; but this violent removal of the burs results in considerable damage to the fibrous material. If, on the contrary, the wool be previously carded to such a degree that it comes onto the drums as a thin layer, it passes through uninjured beneath the beater, and since it no longer offers any protection to the burs these burs are completely separated. The well-known carding process, in which the wool is carded from the drum into the worker-cylinder in order to be returned therefrom by the clearer-cylinder to the drum again, cannot serve for attaining the object in view, since with that distance of the worker-cylinder away from the carding drum or cylinder, which is necessary in order that the burs may be allowed to pass through undamaged between the worker-cylinder and the drum, the carding of the wool is precluded. For the burs to remain undamaged there is required, particularly between the carding-drum and the worker-cylinders, a distance corresponding to the thickness of the burs. This is, however, so great that the wool supplied from the drum to the worker-cylinders is no

longer seized and held thereby. In the present arrangement, notwithstanding this large distance between the drum and workers, the wool is not carded as heretofore from the drum into the worker-cylinders directly, but is removed from the drum and transferred to the workers by means of a special transferring-roller in order to be then presented by them to the drum for treatment.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a diagrammatic section of a carding-engine constructed according to my invention. Fig. 2 is an enlarged detail section of a stationary brush or scraper forming part of my invention, and Fig. 3 illustrates a modification. Figs. 4 and 5 are enlarged detail sections of the carding-drum, the working-cylinder, and the stripper, Fig. 4 showing the ordinary arrangement, and Fig. 5 the arrangement according to my invention.

From the feed-rollers *a*, Fig. 1, the wool is delivered to a licker-in or taker-in cylinder *b*, from which it is removed by a brush-cylinder *c*. This cards the wool into a slowly-rotating worker-cylinder *d* in such a manner that the wool fibers are directed tangentially outward. This action is due to the fact that the brush-cylinder *c* rotates in the opposite direction to the worker-cylinder *d* and at a greater circumferential speed. In this manner the carding-drum *b'*, notwithstanding its great distance away from the worker-cylinder, is enabled to seize and work the wool. From the drum *b'* the wool is again taken up by a second brush-cylinder *c'* and carded into a second worker-cylinder *d'*, from which it is removed by a second carding-drum *b''*. The stripper *k''* now takes the wool from the cylinder *b''*, and a third brush-cylinder *c''* removes it from the stripper *k''* and transfers it to a bur-removing drum *f*, working in conjunction with a beater *g*, from which it then passes to the drum or cylinder *h* of the main carding-engine. If the wool is carded in the manner described, the beater *g* also beats out a quantity of wool fibers in addition to the burs. In order to prevent this, there is provided a brush *l*, Fig. 2, secured to the bur receptacle or receiver. This brush stands close to the bur-drum, and while it allows the burs and other foreign bodies to pass through

easily it offers a resistance to the wool fibers in such a manner that they stretch, and thus resist the action of the beater. Since the lick-in cylinder has, however, only the object of removing the wool from the feed-rollers and, further, of guiding the same, there results the advantage that it can work at a considerably smaller peripheral velocity than heretofore and can be removed farther from the feeding arrangement. At this place, therefore, considerably fewer fibers are broken than heretofore.

The preliminary carding-engine can also be made so that different worker-cylinders can work in conjunction with a single carding drum or cylinder. An arrangement of this kind is shown in Fig. 3. The wool is delivered by the feed-rollers *a* to a carding-drum *b*, from which it is taken off by a second carding-roller *k* and transferred to a brush-cylinder *c*, which cards the wool in the manner above mentioned into the first worker-cylinder *d*. From this worker-cylinder the wool is then presented to the carding-drum *b'* for treatment in order to be again transferred from this by a third carding-roller *k'* and the brush-cylinder *c'* to the second worker-cylinder *d'*, which again presents it to the carding-drum *b'* for treatment. From the said carding-drum *b'* the transfer to the drum for removing the burs takes place in the manner above described. Damage to the burs during the passage between the carding-rollers *k' k''* and the carding-drum *b'* does not occur in this case, since the carding-teeth of the rollers have the same direction as the teeth of the drum.

By reason of the great distance of the feed-rollers and of the worker-cylinder from the drums and the moderate speed of the latter the wool fibers are much less broken than heretofore. The working capacity of each worker-cylinder is, moreover, very much greater, since the fibers are seized and treated in front of the line of contact, so that the main drum also receives a better-prepared material and its output is increased accordingly.

The preliminary carding-engine described can also be used as an independent bur-moving machine, and in this case is to be provided with one of the known arrangements for removing the fleece of wool.

To better illustrate the difference between my invention and the ordinary arrangement of parts, I have shown the latter in Fig. 4

and my construction in Fig. 5. As shown in Fig. 4, the wool which has been fed directly in the usual manner to the carding-drum *b'* is carded partly into the working cylinders *d'*, which come so close together that the burs cannot pass between the drum and the roller without being broken by the teeth thereof having an opposite direction. From the working cylinder *d'*, rotating at a slower speed than the drum *b'*, the wool is taken off in the usual manner and returned to the carding-drum by the stripper *k''*, having its teeth facing in the same direction as those of the working cylinder and rotating at a higher speed than the working cylinder *d'*, but more slowly than the carding-drum *b'*, so that the teeth of the latter pull the wool out of the teeth of the stripper. In my invention, however, as represented in Fig. 5, the wool may be fed to the carding-drum *b'* in the usual manner, but is then taken off said drum by the transferring-roller or brush-cylinder *c'*, (not shown in Fig. 5,) which cards the wool in the worker-cylinder *d'*, and as the free ends of the fibers extend tangentially from said cylinder they come within the reach of the teeth of the carding-drum *b'*. This drum, however, is spaced sufficiently from the working cylinder to allow the burs to pass unbroken between the teeth of both, as clearly shown in the drawings. In passing between the drum *b'* and the stripper *k''* the burs are not broken, the yielding teeth of the drum and the stripper having the same direction and being moved in the same direction.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

In a carding-engine, a worker-cylinder, a brush-cylinder for feeding the material to the worker-cylinder, and a carding-drum arranged adjacent to the worker-cylinder at a distance sufficient to enable burs to pass unbroken between it and the worker-cylinder, while allowing the fibers which project from said cylinder to be seized by the carding-drum.

In testimony whereof I have affixed my signature in presence of two witnesses.

HUBERT LEOPOLD OFFERMANN.

Witnesses:

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