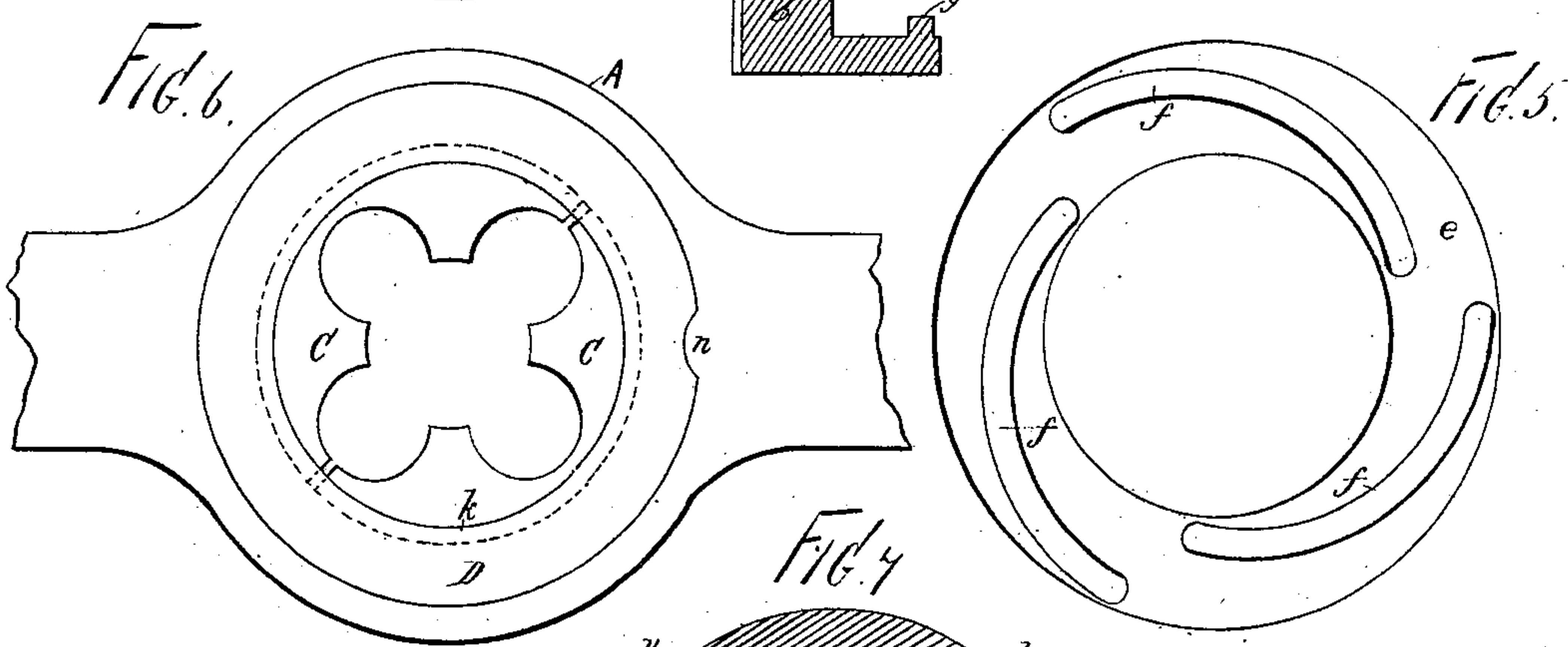
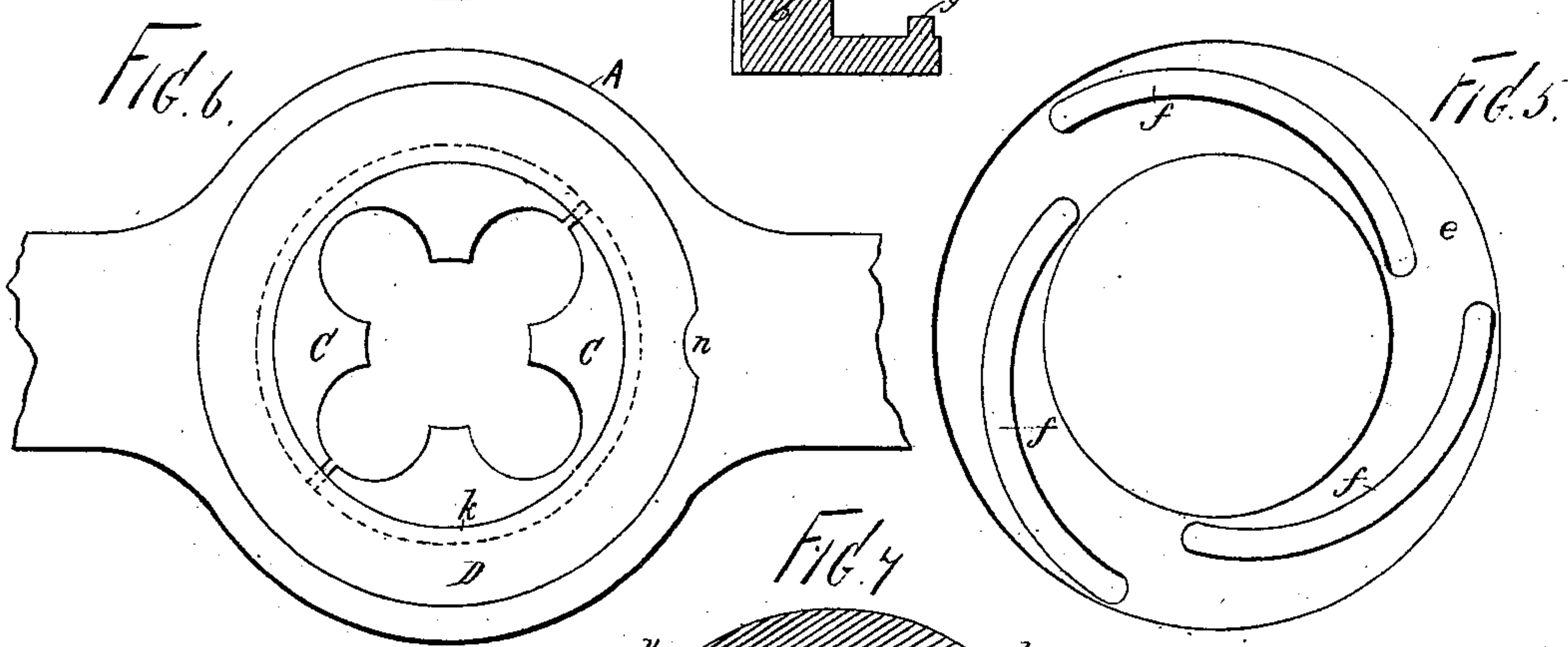
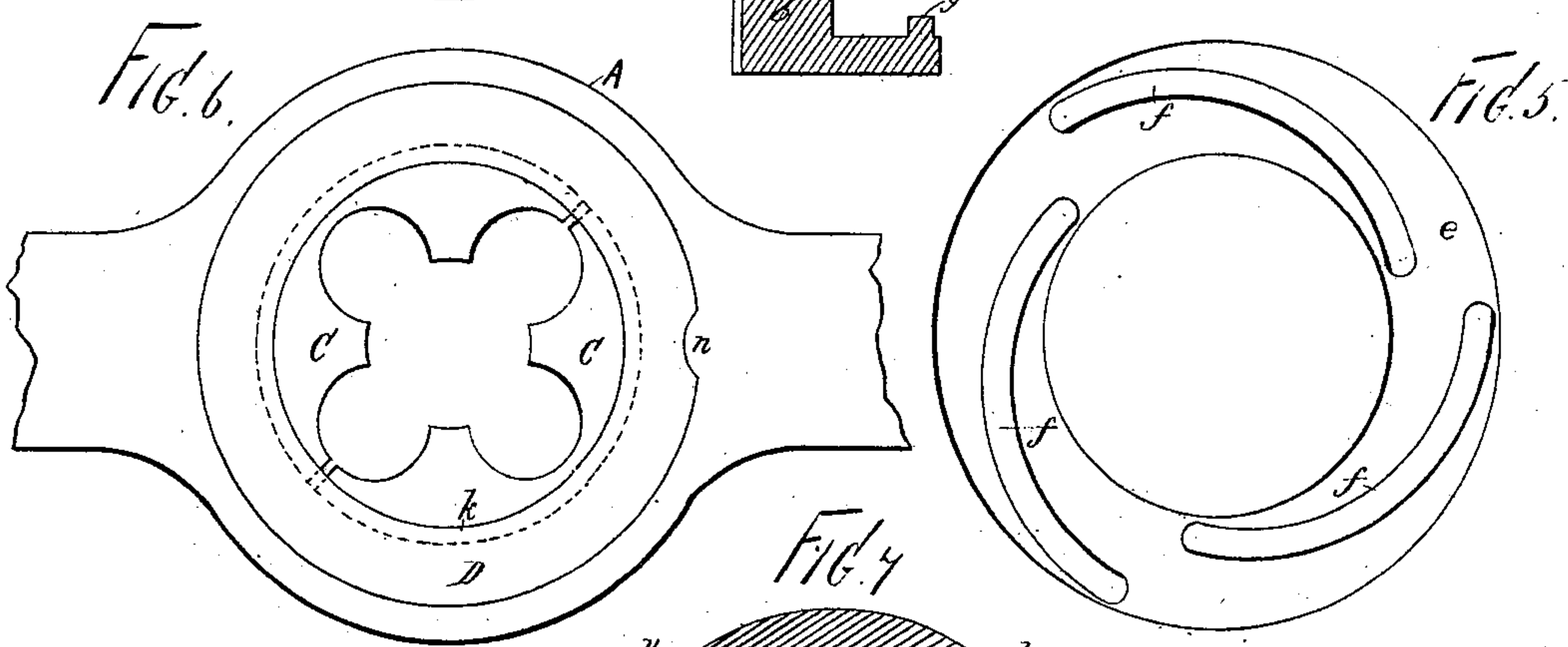
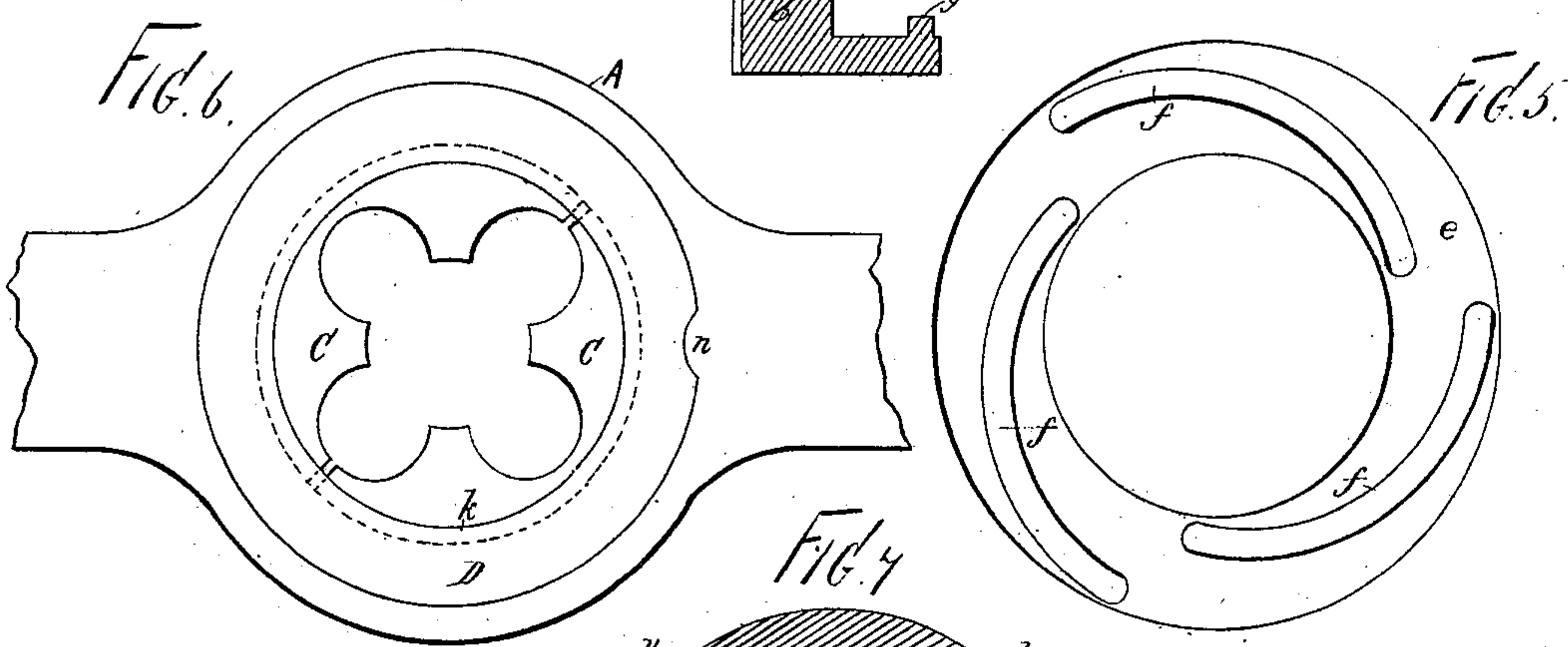
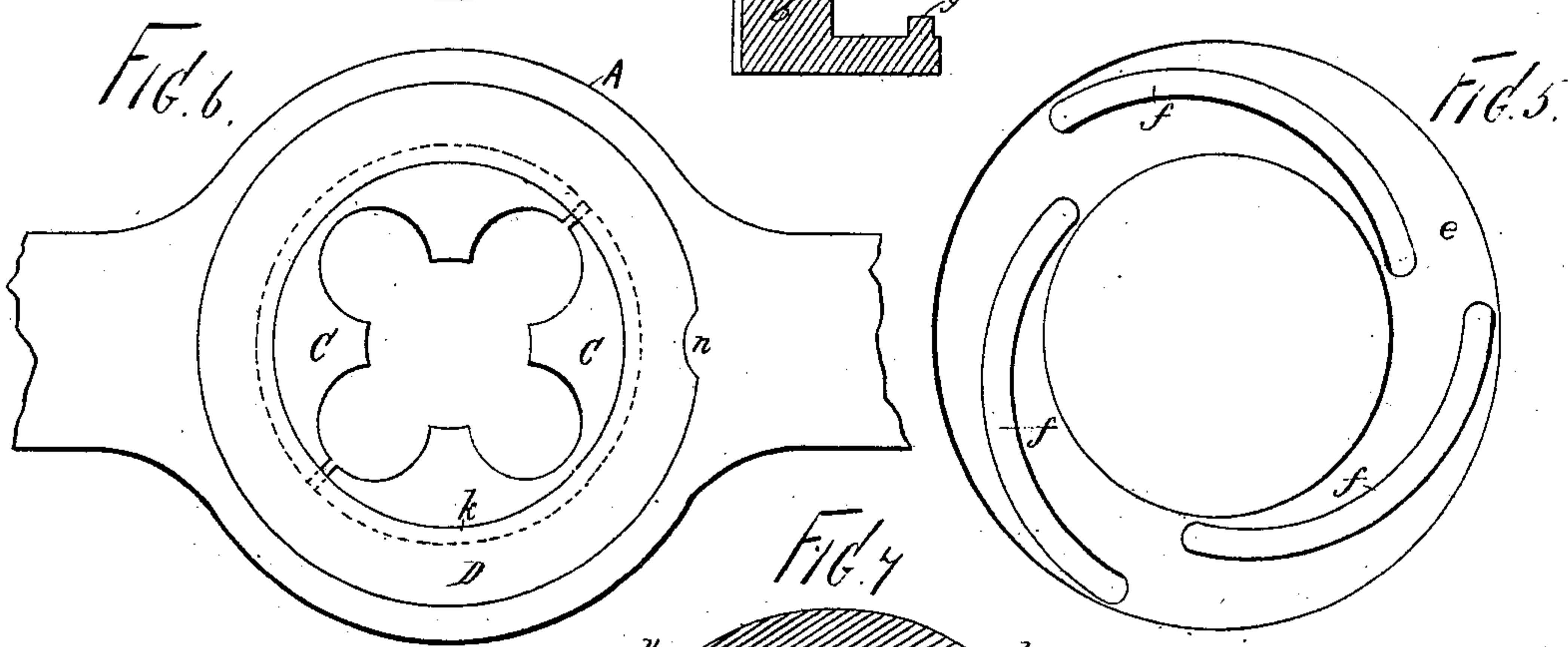
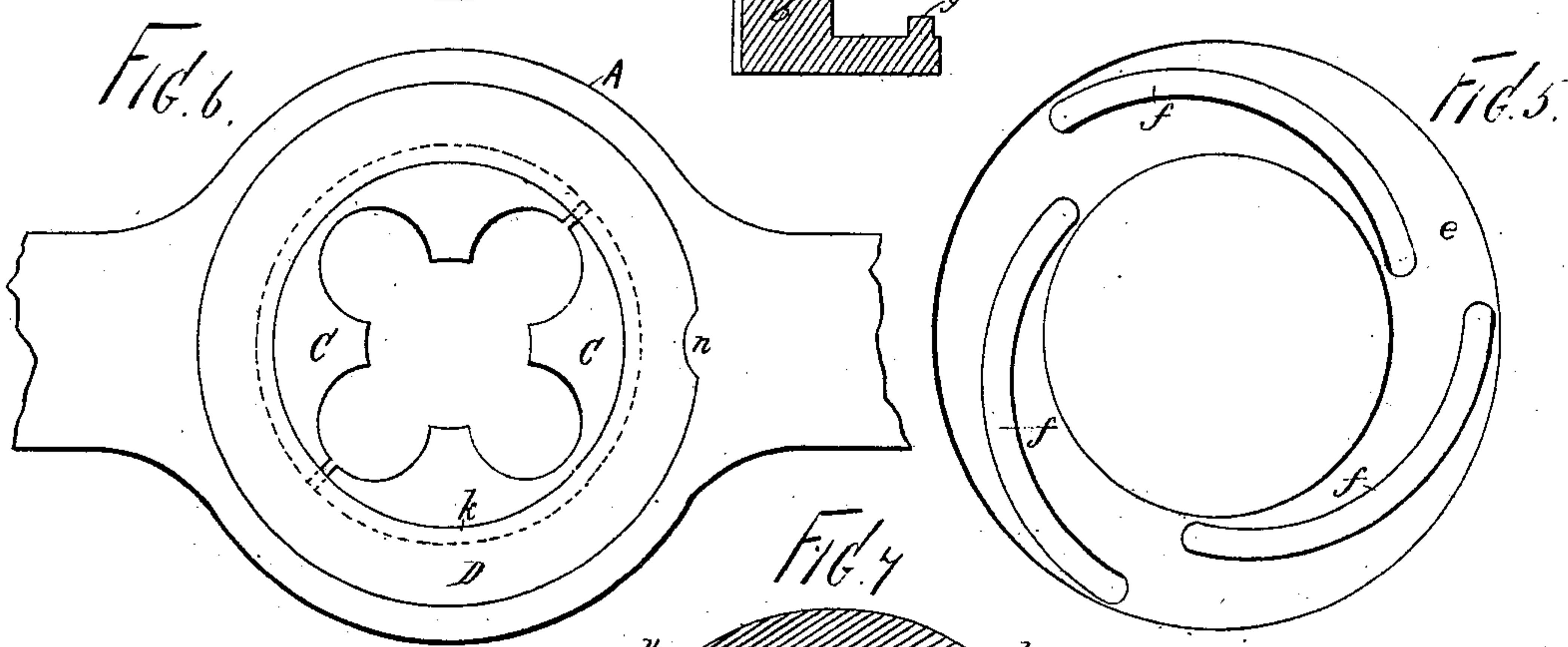
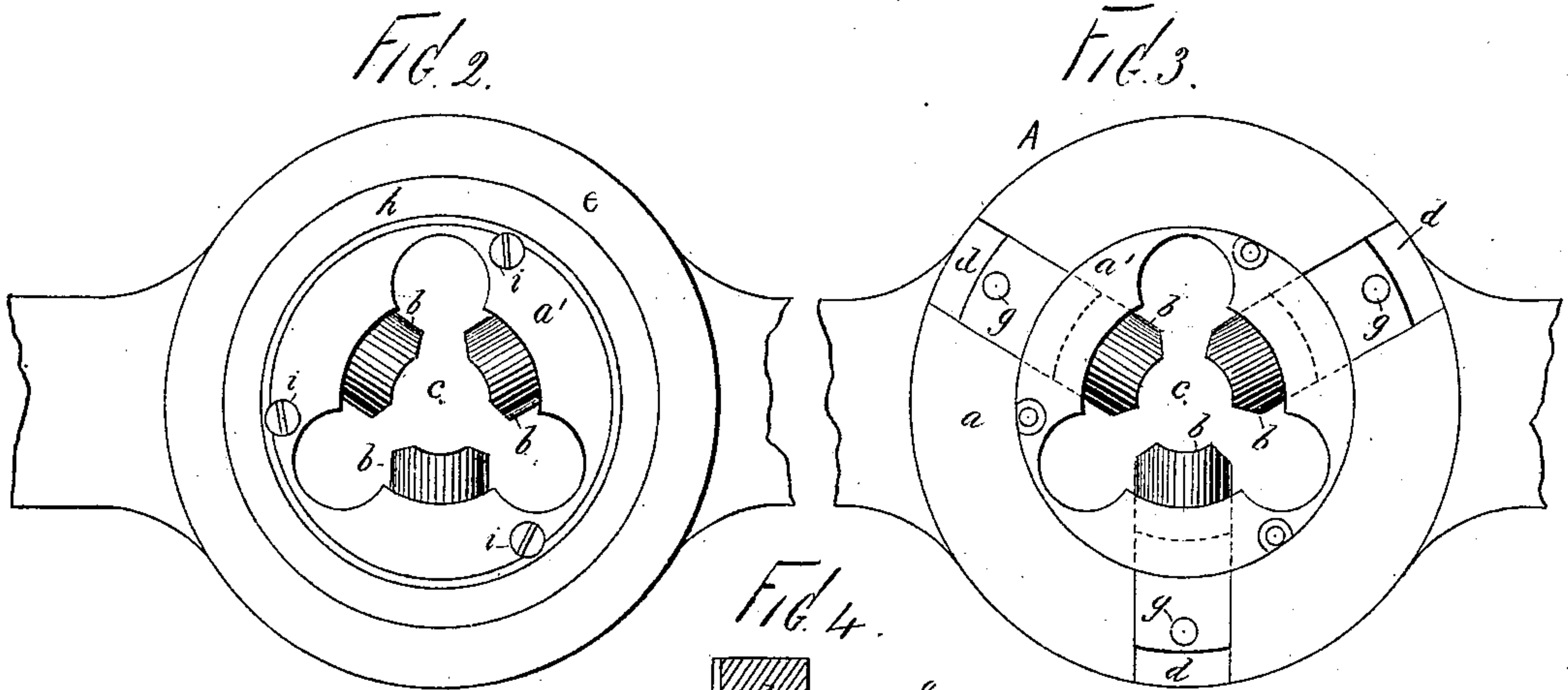
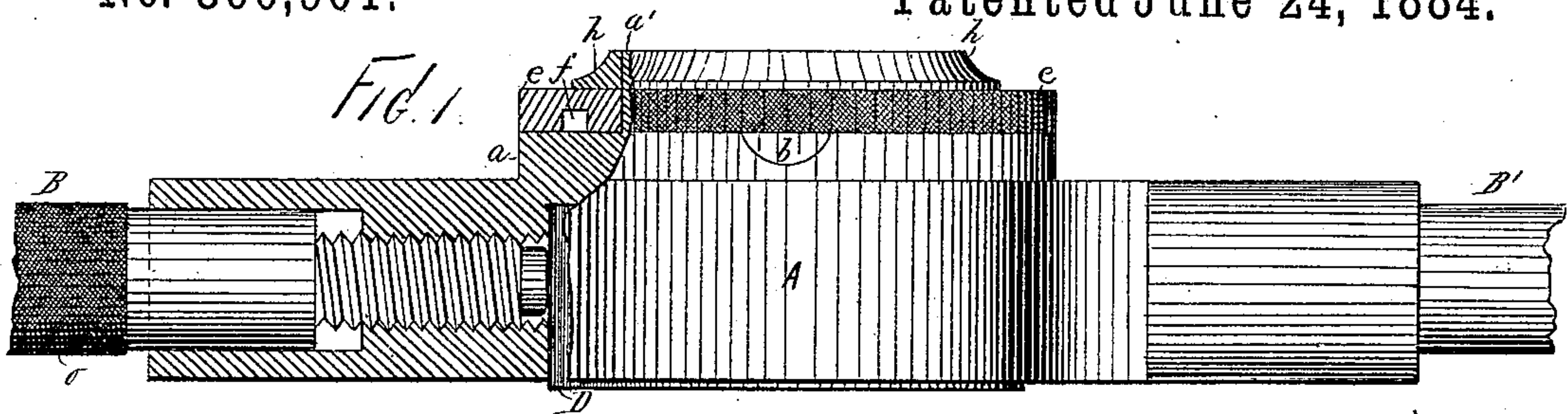


(No Model.)

N. SAWYER.
DIE STOCK AND DIE.

No. 300,901.

Patented June 24, 1884.



UNITED STATES PATENT OFFICE.

NELSON SAWYER, OF HARTFORD, CONNECTICUT, ASSIGNOR TO WALLACE A. DOWNS, OF SING SING, NEW YORK.

DIE-STOCK AND DIE.

SPECIFICATION forming part of Letters Patent No. 300,901, dated June 24, 1884.

Application filed July 14, 1883. (No model.)

To all whom it may concern:

Be it known that I, NELSON SAWYER, of Hartford, county of Hartford, and State of Connecticut, have invented certain new and
5 useful Improvements in Die-Stocks and Dies, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

10 My invention has relation to implements employed for forming screw-threads upon rods or bars and pipes of metal, and particularly to the construction and arrangement of the die-stock and the dies and their auxiliaries.

15 Among the objects of my invention are the application to the die-stock of a simple, cheap, and efficient means of mounting and operating the steadying device applied on one side of the die-stock, to secure the sectional dies in place in
20 the stock in such manner that they may be easily removed when desired to exchange them, easily and accurately adjusted to cut the proper-sized thread, and be securely held in the place to which adjusted for use, and to arrange
25 the cutting parts so that by simply reversing the dies in the stock and the implement upon the bolt or rod the thread thereon may be extended as far as may be desired, (as in the case of a bolt when it is required to run the
30 thread close up to the head.) To accomplish all of this, and to render the device strong and durable and not liable to get out of order, my improvements involve certain novel and useful arrangements or combinations of parts,
35 details of construction, and principles of operation, all of which will be herein first fully described, and then pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is an elevation and partial section of a die-stock having
40 my improvements applied thereon, (the ends of the handles being broken away.) Fig. 2 is a plan or top view of the central part of the stock, showing the adjustable jaws in place; and Fig. 3 is a view similar to Fig. 2, the adjusting and securing rings being removed.
45 Fig. 4 is a sectional elevation of one of the adjustable jaws detached from the other parts. Fig. 5 is a plan view of the under side of the adjusting-ring, showing the cam-grooves therein. Fig. 6 is a plan of the under side of

the stock represented in Fig. 1. Fig. 7 is a horizontal section through the dies and the collet therefor, and Fig. 8 is a vertical section of the same.

In all these figures like letters of reference,
55 wherever they occur, indicate corresponding parts.

A is the central part of the stock, with which the handles B B' are connected, and in which
60 the dies are held. Upon one side of the stock is the seat *a*, within which the movable jaws *b* are located. These jaws are made substantially as indicated in Fig. 4, and are disposed radially about the central opening represent-
65 ed at *c* in the side of the stock. Solid with the seat *a* is a central extension, *a'*, perforated to admit the jaws *b*, the latter riding in channels *d* in the part *a*.

Upon the seat *a* is the adjusting-ring *e*, fit-
70 ting around the central extension, *a'*, checked for convenience of turning by the hand, and provided upon its under side with cam-grooves or channels *f f*.

Upon the jaws *b* are studs or pins *g*, which
75 enter the cam-grooves *f* when the ring is in place. By turning the ring in one direction the jaws are forced inwardly, and by turning it in the opposite direction they are retracted, as will be readily understood. The inner ends
80 of the jaws are formed to fit upon or against the surface of any cylinder, and they may be readily adjusted to correspond with any size of pipe or rod which may be operated upon by the implement, and may be regulated to
85 correspond with the inequalities in the surface of any particular rod, and they thus at all times afford an accurately-operating device for steadying the stock while the thread is being cut. The adjusting-ring *e* is held in proper
90 place upon its seat by the overlying ring *h* and suitable screws, *i i*, tapped into the top of the projection *a'*. This construction, so far, is the cheapest, strongest, and best, all things considered, which I have been able to
95 devise for the purpose.

C C are the dies for cutting or forming the threads. They are made in sections or parts, (preferably two, as shown, though more, if desired.) These sectional dies are located in a
100 ring or collet, D, removable from the stock.

In order that the sections may be easily and

accurately adjusted in proper relation with respect to each other in both the horizontal and vertical directions, which is necessary in order that they may cut a true thread of the proper size; and also, in order that they may be securely held after being so adjusted, I form a flange, *k*, upon the collet and project the setting-screws *l l' l'* through the collet, as indicated in Fig. 7. The dies being brought to bear against the flange *k*, they will be in proper working position so far as their relative longitudinal positions are concerned. They are set to the proper diameter by the screws *l l*, the same being pointed and entering conical recesses cut for them in the dies at the lines of division. While the dies are being so adjusted the pointed ends of the screws *l l* also tend to force the dies snugly against the flange *k*. Then the screws *l' l'* are turned in, completing the setting of the dies and holding them firmly to proper place.

Upon one side of the collet is a groove, *m*, and upon the inner surface of the socket in the stock is a corresponding rib, *n*. The collet, with the dies in place, being dropped into the socket, the handle *B* is screwed up against it, and, in connection with the rib *n*, holds it firmly in place for work. The collet may be set in the stock either side up. Under ordinary circumstances it may be placed so that the end with flange will be outside the stock, in which case any working-strain brought upon the dies will tend to force them more and more solidly against the flange. The dies extend flush with the open end of the collet, and the latter is preferably so made as to be a trifle deeper than the socket in the stock.

In cutting threads upon bolts, &c., if it be desired to run the thread closer to the head than permitted by the steadiment, it is only necessary to reverse the collet in the stock and then reverse the stock on the bolt, when the cutting may be proceeded with.

It will be observed that the threads in the dies are cut upon curved surfaces, as indicated in Fig. 8, so that no matter which way the die may be placed upon the rod or pipe the cutters will operate to equal advantage. At *o*, Fig. 1, the threaded handle *B* is shown as checked, to facilitate turning when required, and a plain portion of this handle is made to fit a plain socket in the stock, so as to exclude dust, &c., from contact with the screw.

The implement constructed and arranged for operation substantially in accordance with the foregoing explanations is found in prac-

tice to admirably answer the purposes or objects of the invention, as previously set forth.

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

1. The die-stock, the radially-adjustable jaws applied upon one side thereof, the annular cam-plate provided with spiral grooves for moving the jaws, the central extension upon the stock around which the cam-plate moves, and the holding-ring applied upon said extension and secured thereon, the several parts being combined and arranged for operation substantially as shown and described.

2. In combination with a die-stock, the herein-described removable collet or ring for holding the removable sectional dies, said collet being provided at one end with a narrow flange projecting over the dies, and made reversible in the socket provided for it in the stock, substantially as and for the purpose set forth.

3. In combination with the die-stock, the reversible collet or ring having a narrow flange at one end, and the sectional reversible dies located in the said ring, and provided with the conical recesses, and adjustably held in the ring by pointed screws bearing at their inner ends in the said conical recesses, the collet being reversible in the socket provided for it in the die-stock, substantially as shown and described.

4. In combination with the die-stock, the collet or ring reversible in the socket provided for it in the die-stock, and having the narrow flange at one end, and the adjustable sectional dies mounted in said collet and having their cutting-threads formed upon curved surfaces, said dies being arranged to be reversed within the ring and extending flush with one end of said ring, substantially as shown, and for the purposes set forth.

5. The combination of the die-stock, an adjustable steadying device applied thereon, a reversible collet carrying the dies, and a threaded handle for clamping the collet, the dies extending flush with one end of the collet, substantially as and for the purposes described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

NELSON SAWYER.

Witnesses:

C. A. WIERS,
D. H. MURPHY.