

(No Model.)

J. T. HASTINGS.
METAL ROLLS.

No. 409,746.

Patented Aug. 27, 1889.

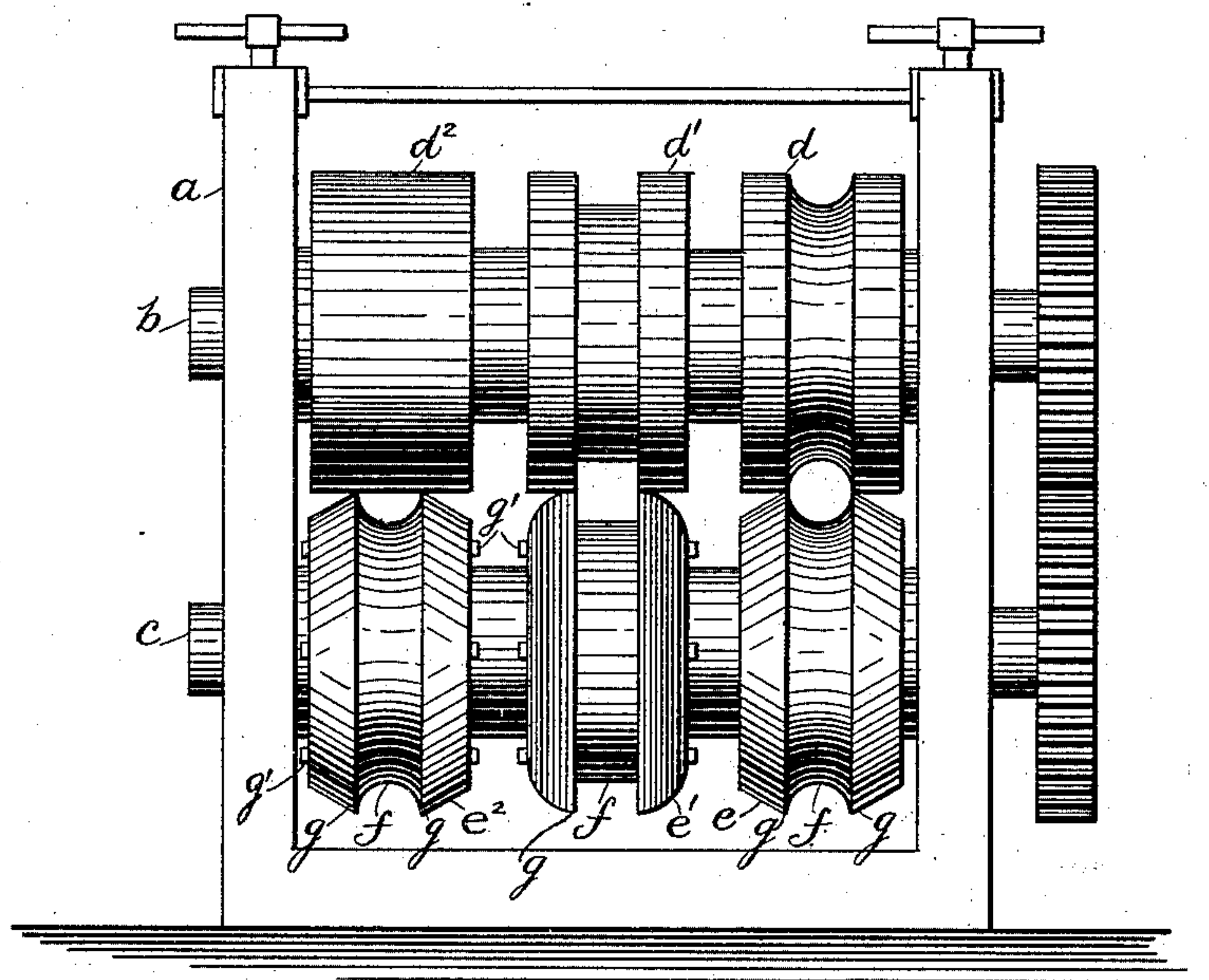


FIG. 1.

FIG. 2.

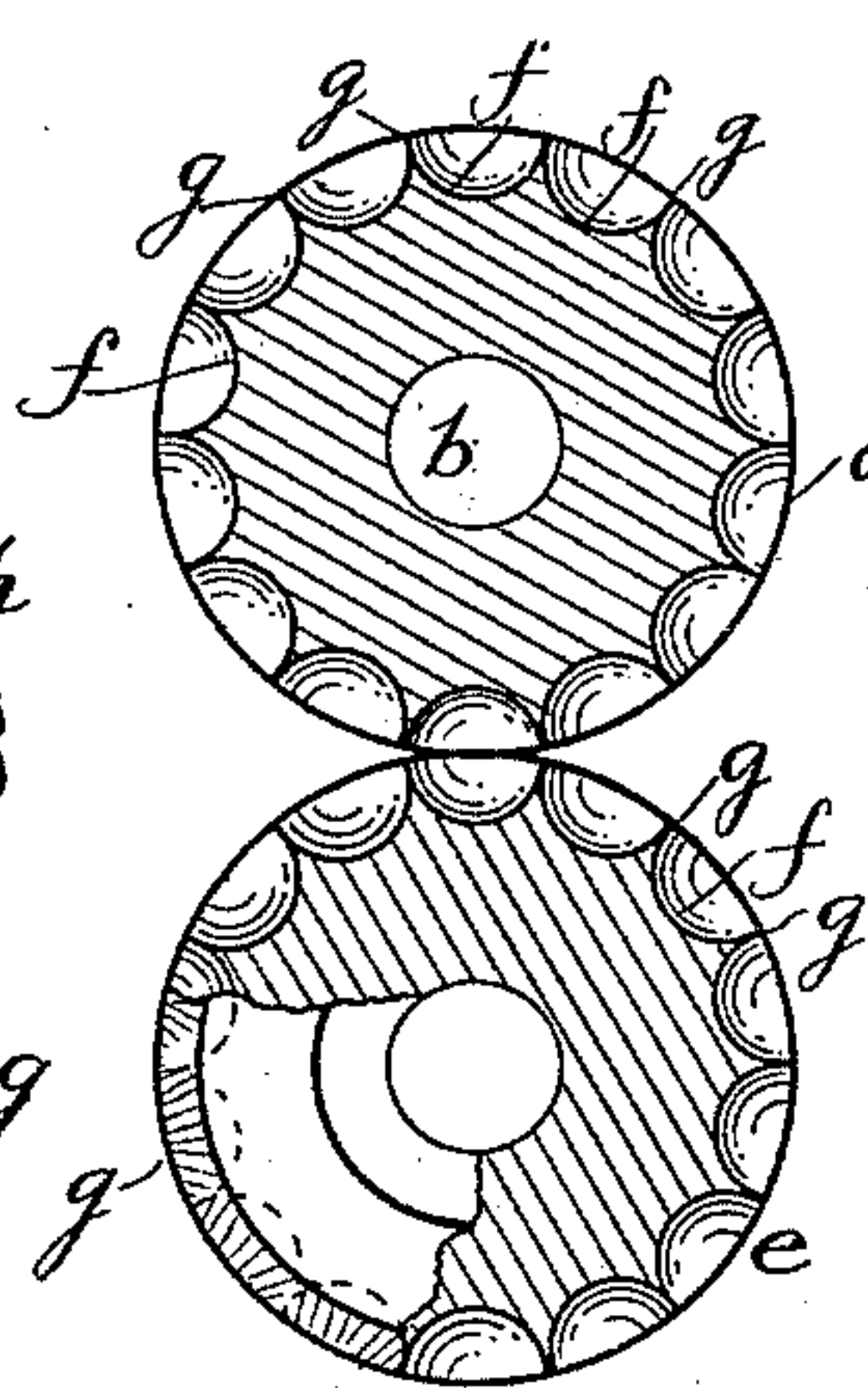
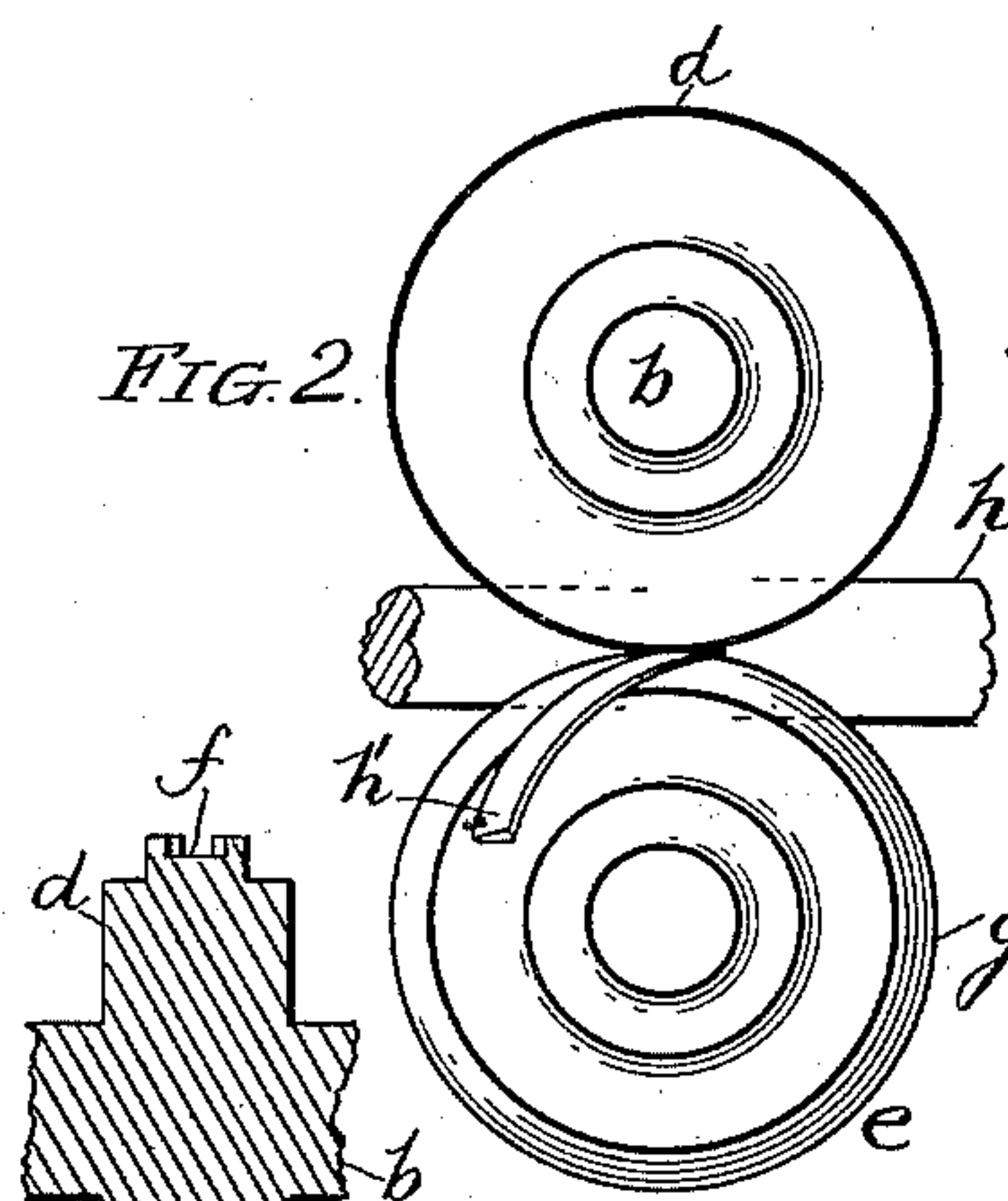


FIG. 4.

FIG. 3.

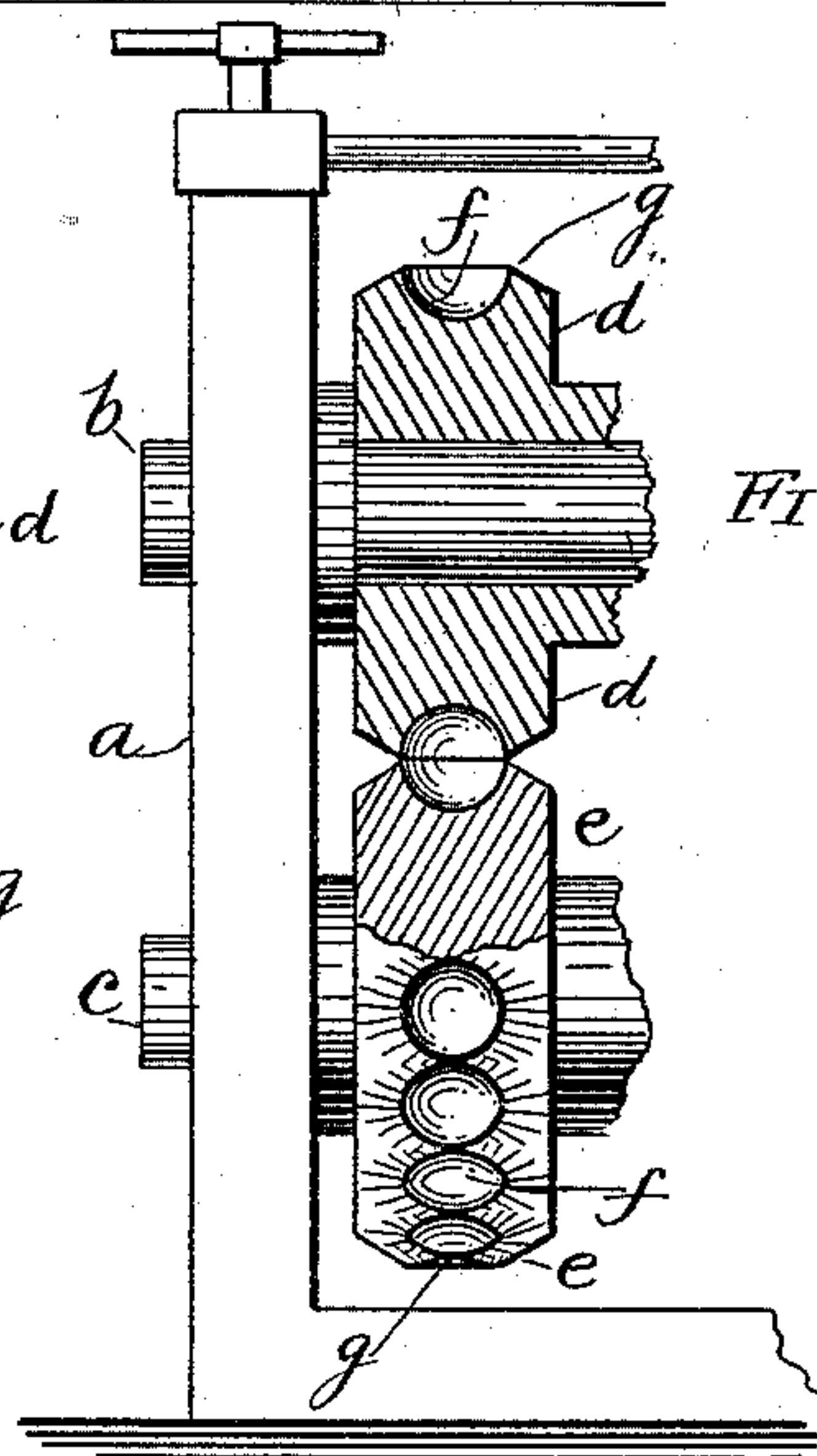


FIG. 5.

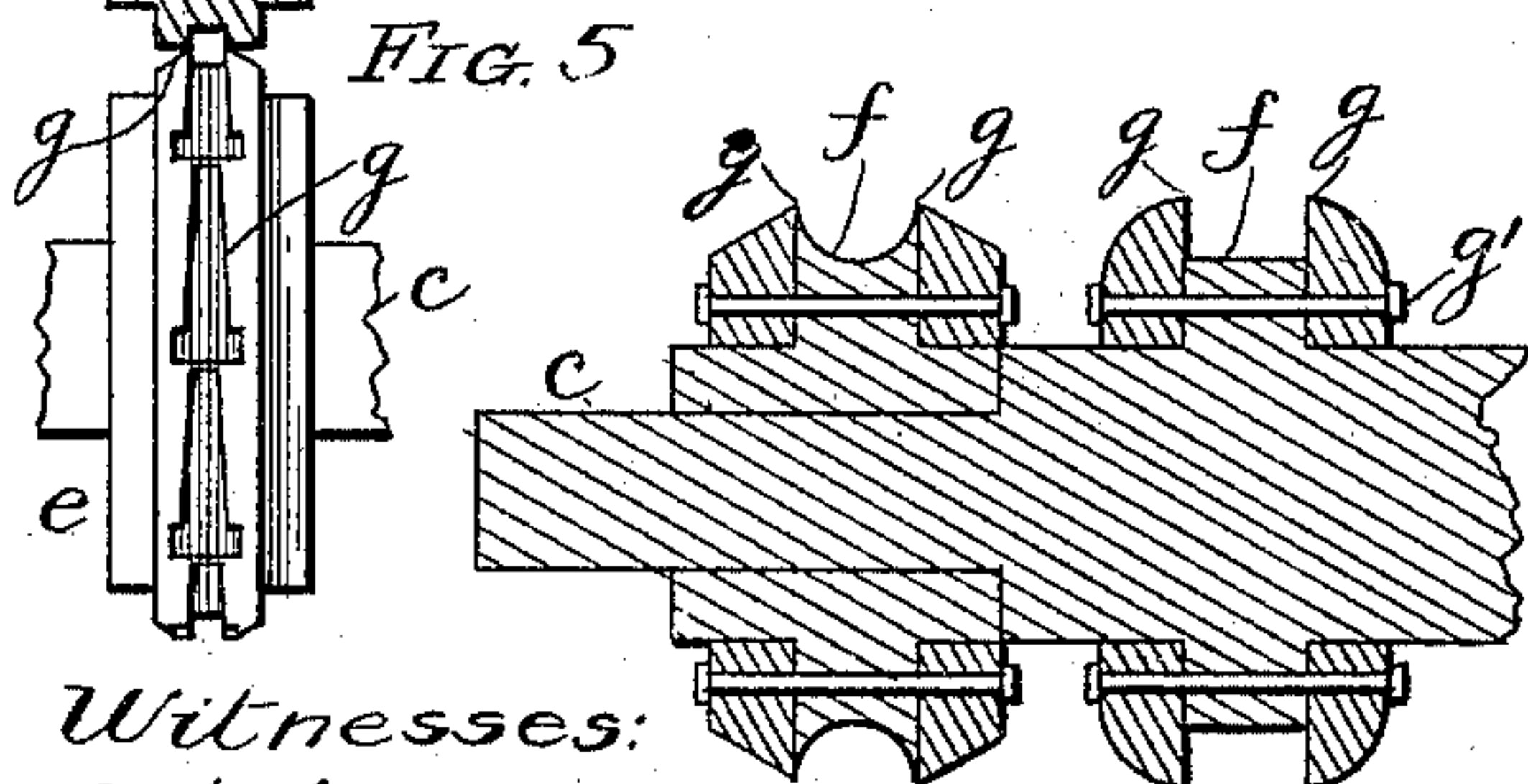
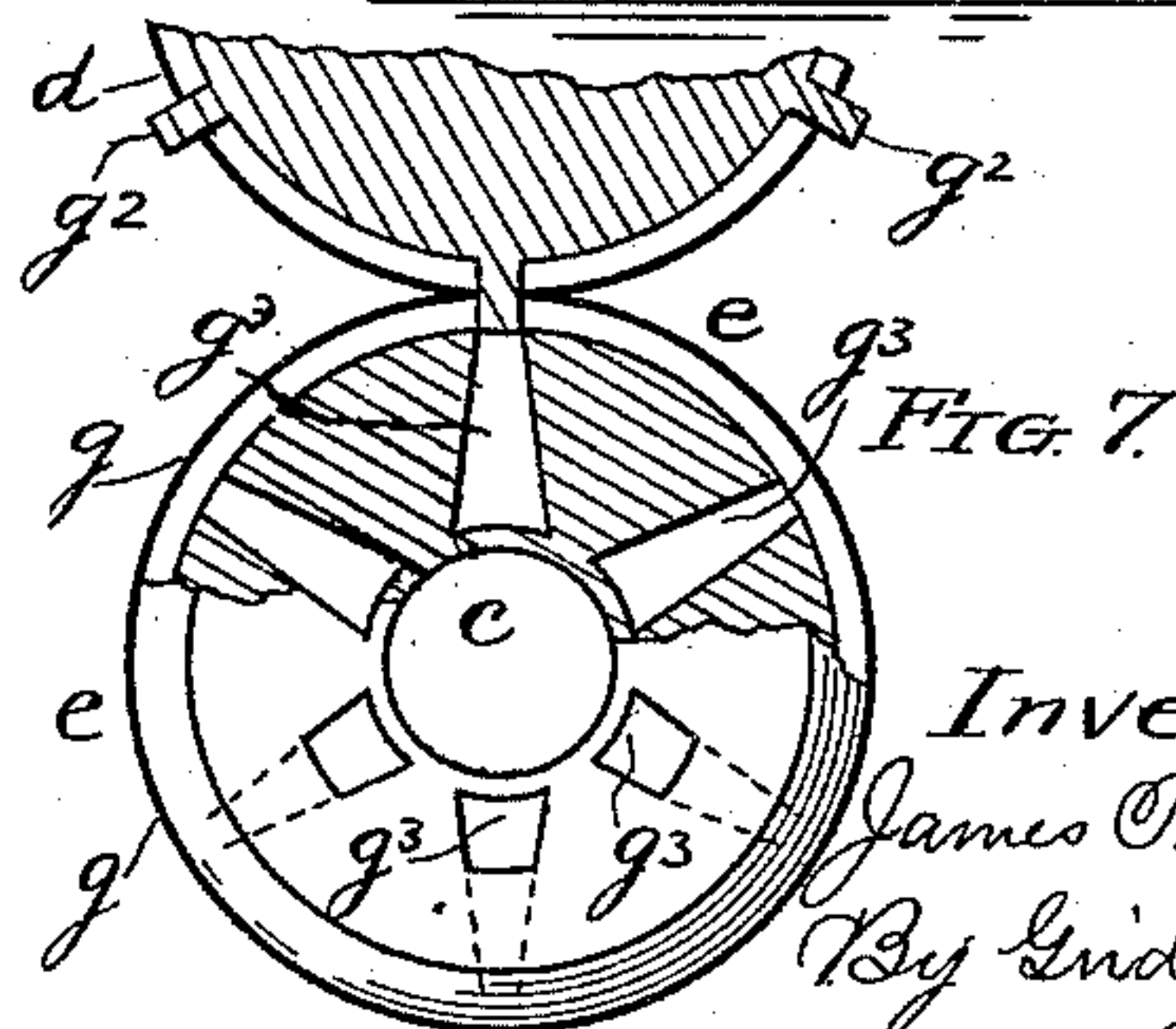


FIG. 6.



Inventor:

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Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES T. HASTINGS, OF CHICAGO, ILLINOIS.

METAL-ROLLS.

SPECIFICATION forming part of Letters Patent No. 409,746, dated August 27, 1889.

Application filed January 25, 1889. Serial No. 297,537. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. HASTINGS, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Metal-Rolls, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which—

10 Figure 1 is a front view of a machine, showing rolls for rolling continuous lengths and of varying forms in cross-section. Fig. 2 is a side view in detail of a pair of said rolls, showing the action thereof upon a bar of metal.
15 Fig. 3 is a front view of a portion of a machine, showing a modified form of rolls constructed for the rolling of balls from a continuous bar. Fig. 4 is a side view of said rolls, partly in section. Fig. 5 is a detail view of a
20 pair of rolls, one of which is shown in section, for rolling irregular forms. Fig. 6 is a longitudinal sectional view of a portion of the shaft and rolls shown in Fig. 1, in which the cutting portions of the rolls are made detachable; and Fig. 7 is a detail side view of a pair
25 of rolls, partly in section, for cutting bars into short lengths.

Like letters of reference in the different figures indicate like parts.

30 In forming metal between rolls, whether in continuous or short lengths, regular or irregular forms, the tendency is for the surplus metal to press out into the spaces between the contiguous faces of the rolls, and thus form
35 lateral flanges or "fins," which are greatly injurious to the product and require great labor and expense to remove.

The object of my invention is to overcome these objections and to so construct a roll that
40 the fins may be severed from the article rolled or shaped into whatsoever form the latter may be made, all of which is hereinafter more particularly described, and definitely pointed out in the claims.

45 Referring to the drawings, *a* represents the frame within which the roll-shafts *b c* are mounted. Upon the shaft *b* are rigidly secured rolls *d d' d''*, and upon the shaft *c* are secured in like manner rolls *e, e', and e''*, corresponding, respectively, in position and con-
50 formatory to the rolls *d d' d''*, as clearly shown

in Fig. 1. The grooves or depressions in the rolls may be of any desired shape, according to the form desired to be rolled. In the rolls *d e* the grooves are semicircular, in *d' e'* rect- 55 angular, while the roll *d''* is plain and its counterpart *e''* is provided with a semicircular groove for the purpose of rolling half-round bars. Each of said rolls, it will be observed, is intended for rolling bars of an indefinite 60 length.

In order to sever the fin from the bar, I provide cutting-edges upon each side of the groove in one of each pair of rolls, *f* representing the grooves or cavity, regular or irregular, and *g* 65 *g'* the cutting-edges. As the bar is passed into the rolls, that portion of the metal which is caused to spread laterally is sheared by means of the cutting-edges *g*, as shown in Fig. 2, in which *h* represents the metal bar, and *h'* the 70 severed fin as it is cut from the bar, thereby leaving the contour of the bar perfect in cross-section.

The cutting portions of the rolls may be made integral with the body, or cutting-rings 75 may be formed and secured by means of bolts *g'* to said rolls, as shown in Figs. 1 and 6.

In Figs. 3 and 4 I have shown rolls adapted to form balls from a bar of metal. In this construction the cutting-edge *g* extends en- 80 tirely around the cup, socket, or depression *f*, and is, by preference, formed upon both rolls, which, it is obvious, may also be done upon other forms of rolls.

In Fig. 5 I have shown a further modifica- 85 tion for rolling irregular forms—such, for example, as horse-nails—and simultaneously cutting the fins therefrom. For this purpose the cutting-edges are preferably formed upon a die only. 90

Fig. 7 shows a still further modification, in which cutting-spurs *g''* are formed upon the roll *d*, opposite which are formed openings *g'''* in the roll *e*, which are gradually enlarged and carried laterally to the side surface of the roll, 95 as shown. This construction not only enables the lateral fins to be cut from the bars when rolled, but severs the bars into regular lengths, the portions cut therefrom being allowed to drop through the openings *g'''* as fast as they 100 are severed from the bar.

I do not limit myself to any form of groove,

die, or cavity in the roll, it being obvious that the form is immaterial, so long as the cutting-edge is employed upon one or both of the rolls to sever the lateral fin from the metal passing
5 between the rolls, and thus leave a product without formal blemish.

Having thus described my invention, I claim—

1. The combination of a pair of metal-rolls
10 in which one of said rolls has a cutting-edge adjacent to the groove or cavity formed therein and concentric with the axis of the roll, substantially as shown and described.

2. A metal-roll having depressions *f* and
15 adjacent cutting-edges *g*, the latter being con-

centric with the axis of the roll, substantially as shown and described.

3. In a metal-forming machine, substantially as shown and described, a metal-roll having a continuous knife-edge adjacent to
20 the matrix and concentric with the axis of the roll.

In testimony whereof I have signed this specification, in the presence of two subscribing witnesses, this 19th day of January, 1889. 25

JAMES T. HASTINGS.

Witnesses:

D. H. FLETCHER,
J. HALPENNY.