

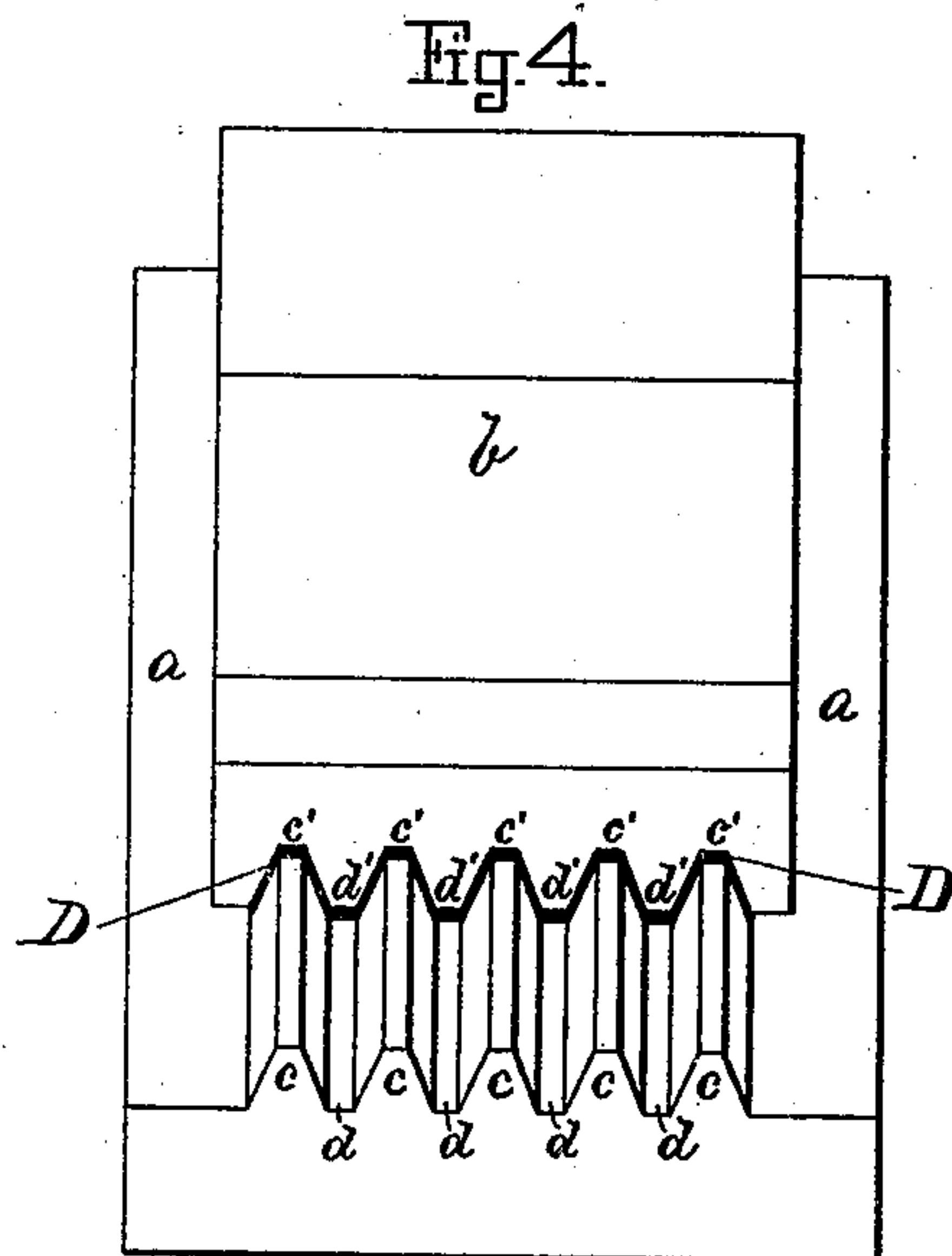
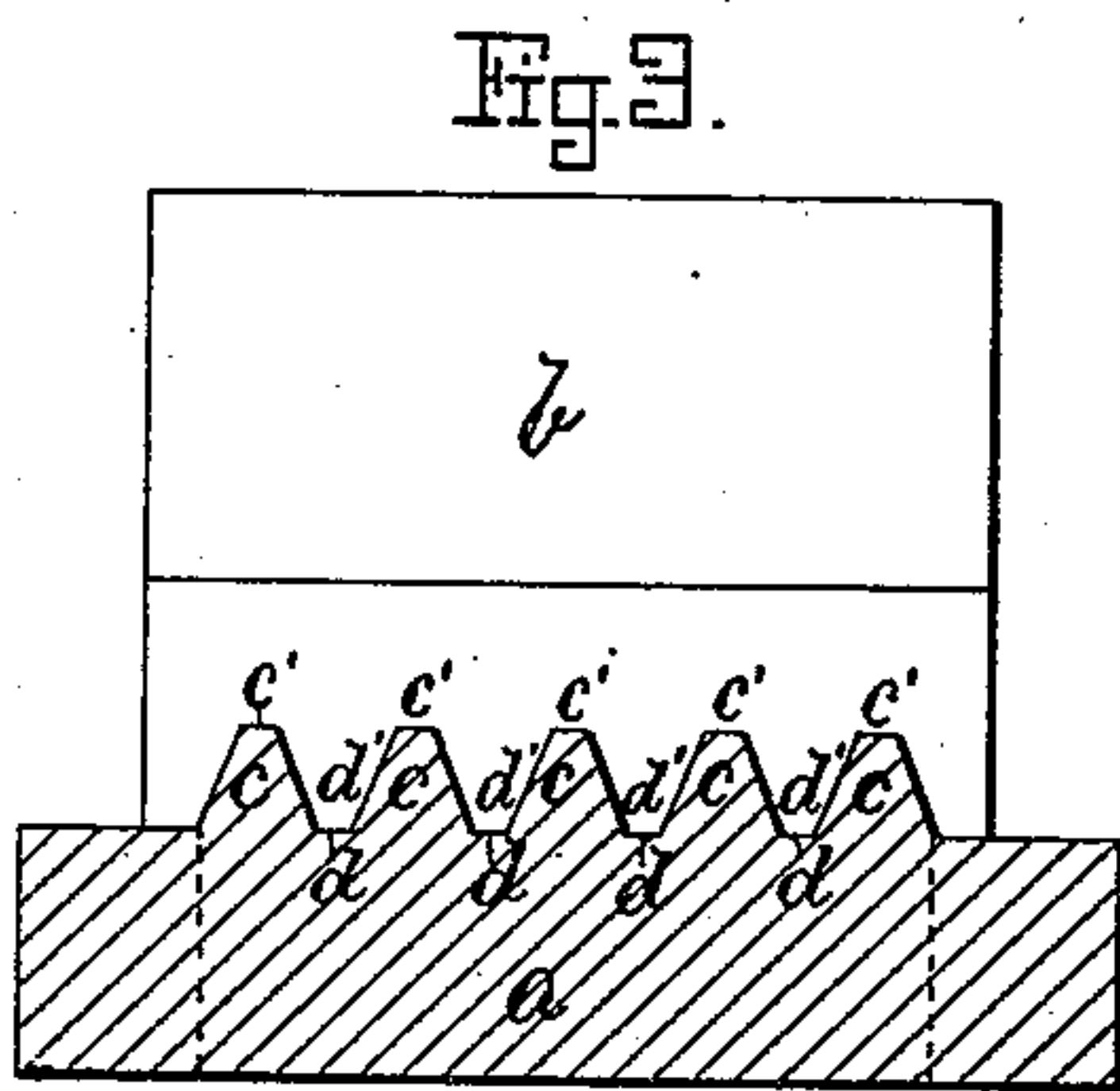
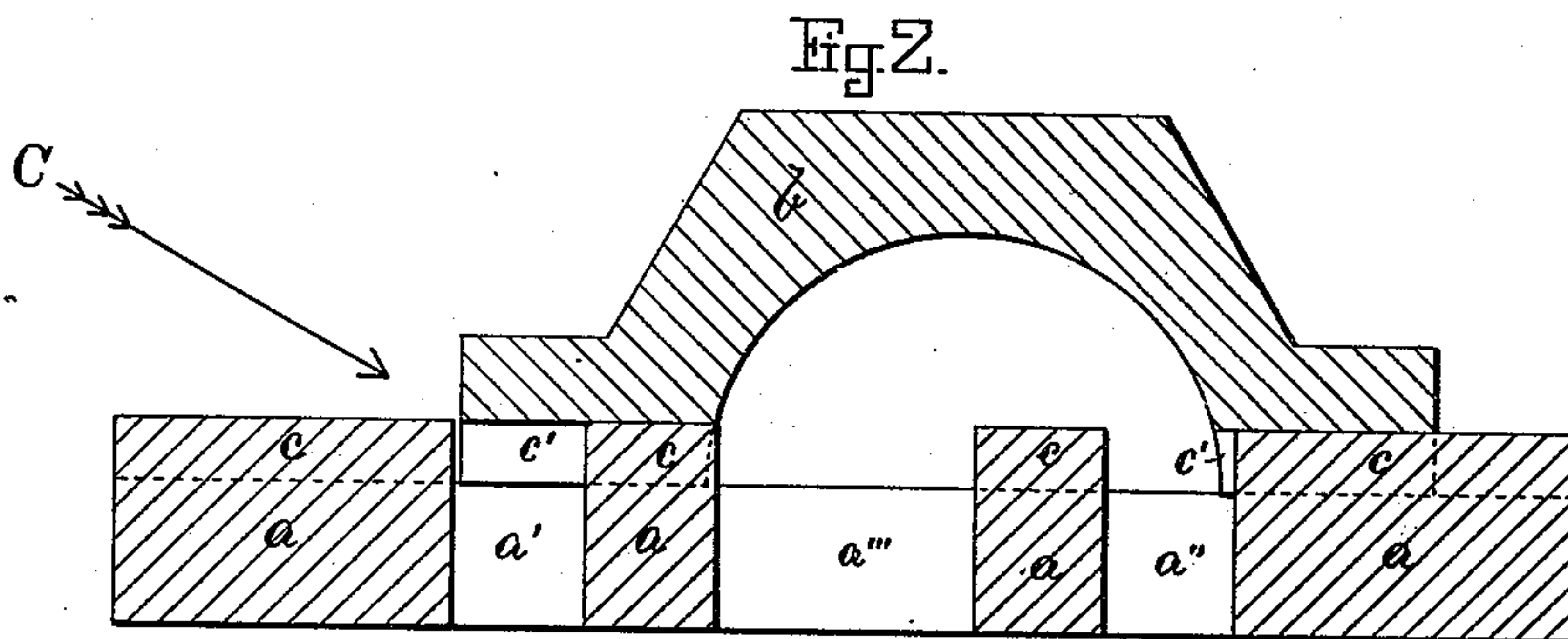
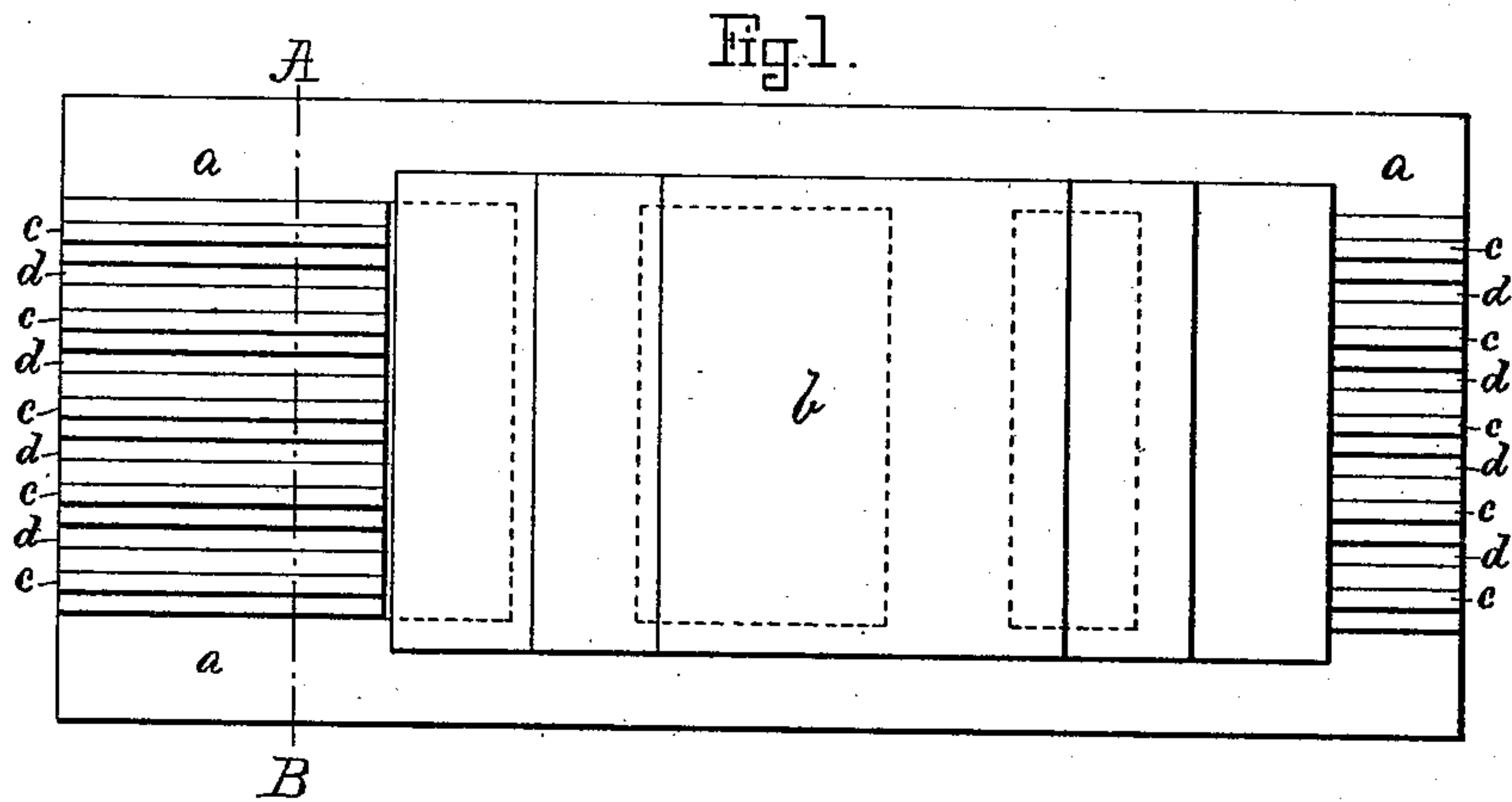
(No Model.)

H. F. SHAW.

SLIDE VALVE.

No. 251,382.

Patented Dec. 27, 1881.



Witnesses:

Henry Chadborn.
Sarah M. Goodrich

Inventor:

Henry F. Shaw.
by Alvan Goodrich, his atty.

UNITED STATES PATENT OFFICE.

HENRY F. SHAW, OF BOSTON, MASSACHUSETTS.

SLIDE-VALVE.

SPECIFICATION forming part of Letters Patent No. 251,382, dated December 27, 1881.

Application filed July 2, 1881. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. SHAW, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Slide-Valves; and I do hereby declare that the same are fully described in the following specification and illustrated in the accompanying drawings.

10 This invention relates to improvements in slide-valves for steam-engines, it being especially well adapted for locomotive-engines, although it is equally well adapted for marine or stationary engines of any kind.

15 In running engines at a high rate of speed with a comparatively small throw of the slide-valve it is very desirable to admit the greatest amount possible of steam at the commencement of the opening of the steam-port to the steam-chest leading to each end of the cylinder, so as to obtain the full value of the steam at such time. With the ordinary flat valve and corresponding flat-valve seat such result is impossible to obtain, as the area of the port-opening at the commencement of the steam-supply of the valve is exceedingly small and of a knife-edge form, by which the full pressure of the steam in the boiler is prevented from reaching the steam-cylinder until the port is 30 fully open, and thus preventing the engine from performing the full amount of work of which it would be capable were the steam freely admitted to the cylinder ends at the commencement of the stroke of either end of the piston. To obtain such an increased steam-supply to the cylinder at the commencement of the opening of the port is the object of my invention, for which purpose it is carried out as follows, reference being had to the accompanying drawings, on which—

40 Figure 1 represents a plan view of the valve and valve-seat. Fig. 2 represents a longitudinal section of the same. Fig. 3 represents a cross-section on the line A B, shown in Fig. 1; and Fig. 4 represents a perspective view, seen from C in the direction of the arrow shown in Fig. 2.

Similar letters refer to similar parts wherever they occur on the different parts of the 50 drawings.

a represents the valve-seat, with its steam-ports *a'* and *a''* and exhaust-port *a'''*, as shown.

b represents the reciprocating slide-valve. The face of the valve-seat *a* is corrugated, as shown—that is, provided with a series of parallel projections, *c c c*, and parallel intermediate grooves, *d d d*, as shown. The under side of the valve *b* is also correspondingly corrugated, having parallel projections *d' d'* and intermediate parallel grooves, *c' c'*, accurately 60 planed or milled and ground to a steam-fit with the corresponding grooves, *d d d*, and projections *c c c* of the valve-seat *a*. By this arrangement a largely-increased area is obtained at the commencement of the opening 65 of the steam-ports, as represented by the corrugated black space D shown in Fig. 4; and it will be seen that such corrugated port-opening is from two to three or more times as large as the width of the valve, and consequently 70 from two to three or more times as much steam is admitted to the steam-chest and cylinder at the commencement of the stroke as compared with a flat valve of the same width, by which the object sought to be attained is accomplished with a very narrow valve in proportion to the steam supplied at the commencement of the stroke of the piston. 75

I do not wish to confine myself to any particular shape or form or number of projections 80 and grooves in the seat and corresponding ones in the valve, as they may be made triangular, of a more or less height and width, with or without a flat intervening base, or curvilinear or rectangular, or of any other suitable 85 form and dimension, as may be desired for different kinds of engines.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent, and claim— 90

The herein-described improvement in slide-valves, consisting of the seat *a*, with its corrugated surface *c c c d d d*, and valve *b*, with its correspondingly corrugated surface *c' c' c' d' d'*, as and for the purpose set forth. 95

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

HENRY F. SHAW.

Witnesses:

ALBAN ANDRÉN,
HENRY CHADBOURN.