

(No Model.)

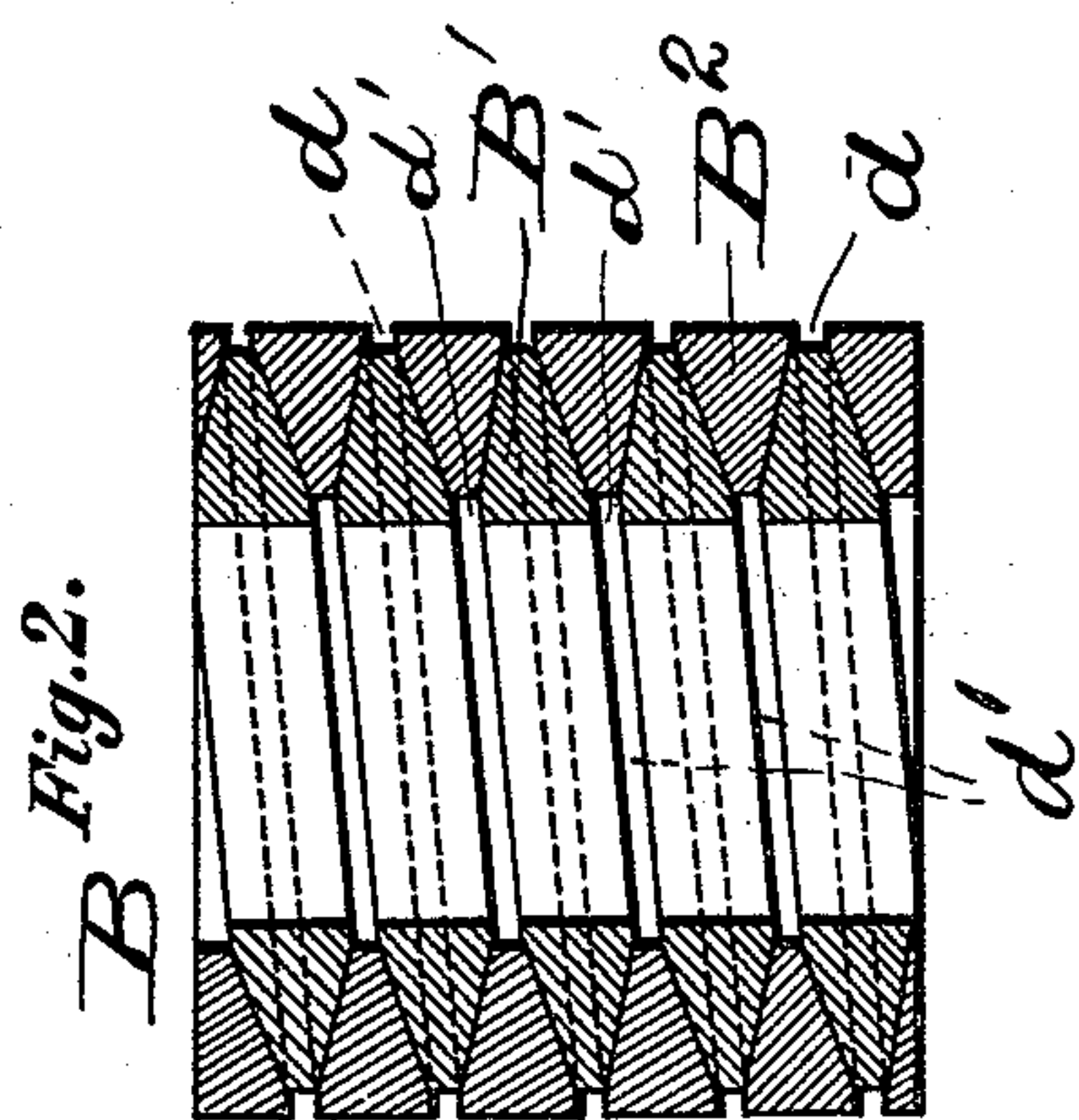
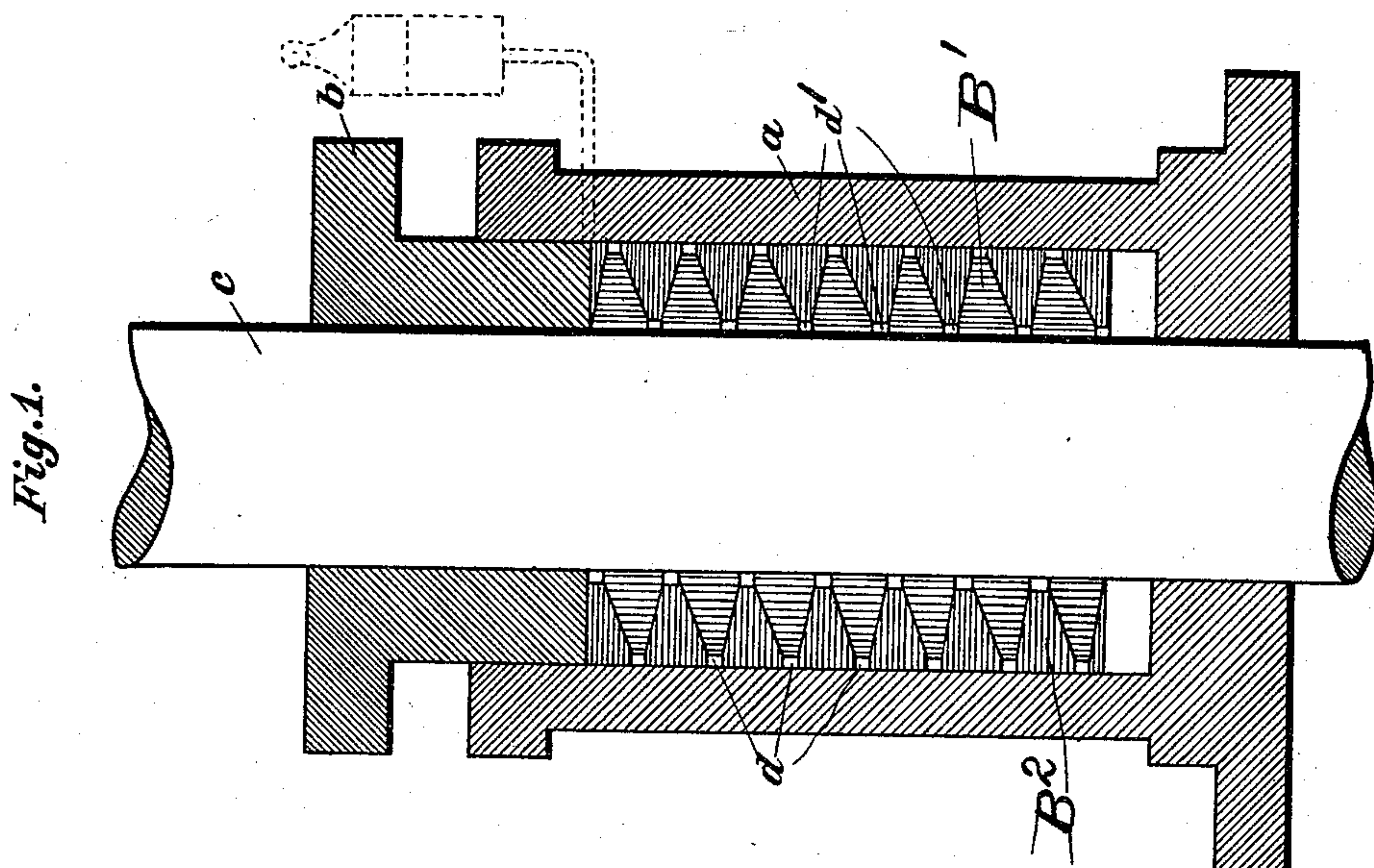
2 Sheets—Sheet 1.

H. FRIESE.

METALLIC PACKING FOR STUFFING BOXES.

No. 543,300.

Patented July 23, 1895.



Witnesses:

Jane Kingsbury

Robert Head

Inventor:

By Hermann Friese

Whitaker & Trowest, atty.

(No Model.)

2 Sheets—Sheet 2.

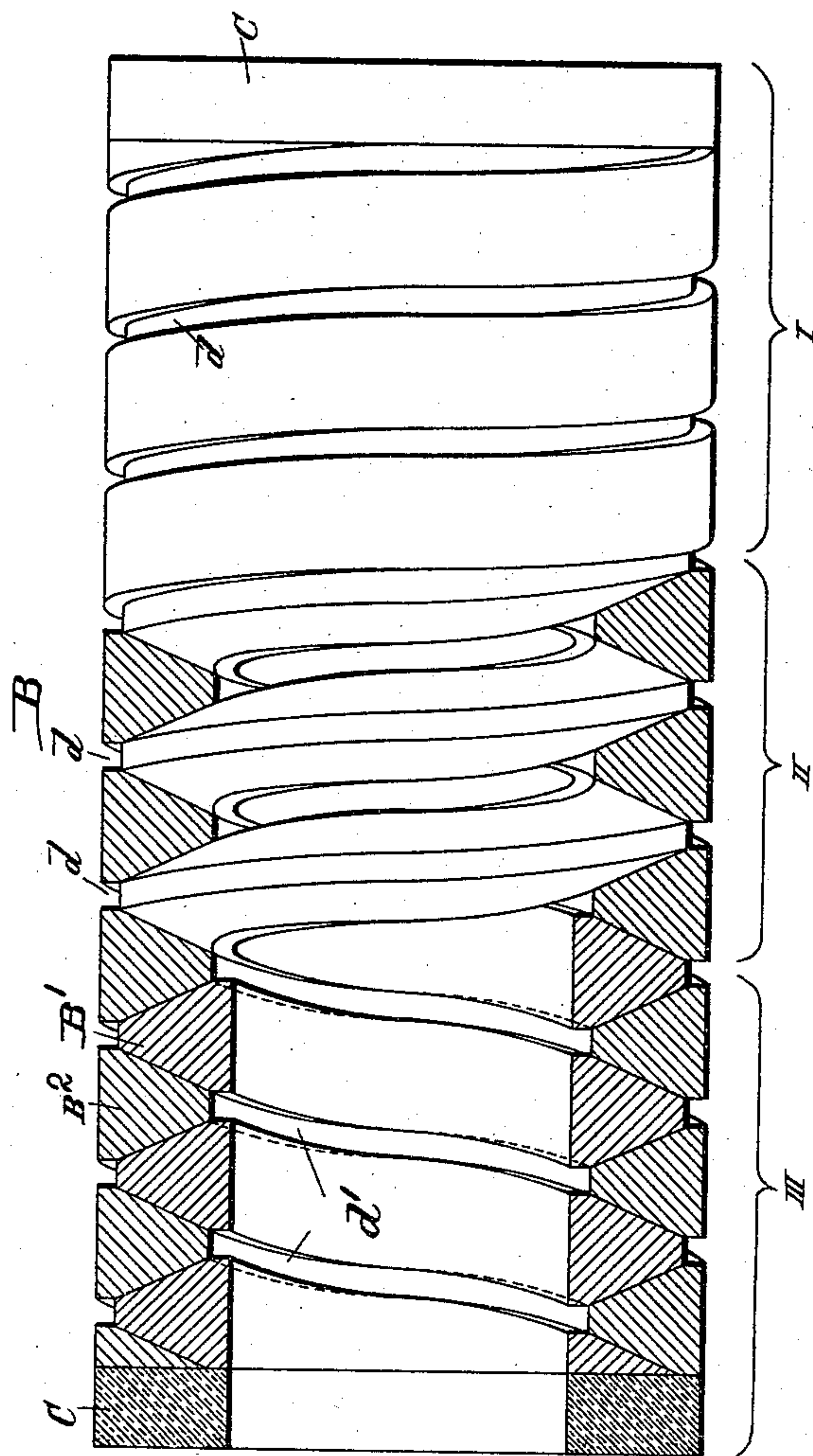
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Patented July 23, 1895.

Fig. 3.



Witnesses:

G. A. Kauberschmitt,
J. D. Kuegberg.

Inventor:

Hermann Friese,
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UNITED STATES PATENT OFFICE.

HERMANN FRIESE, OF DORTMUND, GERMANY.

METALLIC PACKING FOR STUFFING-BOXES.

SPECIFICATION forming part of Letters Patent No. 543,300, dated July 23, 1895.

Application filed February 20, 1894. Serial No. 500,871. (No model.) Patented in Germany November 7, 1892, No. 9,357; in England December 22, 1892, No. 23,597, and in Austria-Hungary November 3, 1893, No. 18,286 and No. 82,267.

To all whom it may concern:

Be it known that I, HERMANN FRIESE, engineer, of Dortmund, in the Empire of Germany, have invented new and useful Improvements in Metallic Packing for Stuffing-Boxes, (for which I have obtained Letters Patent as follows: in England, No. 23,597, dated December 22, 1892; in Germany, Gebrauchsmuster, No. 9,357, dated November 7, 1892, and in Austria-Hungary, No. 18,286 and No. 82,267, dated November 3, 1893;) and I do hereby declare the following to be a full, clear, and exact description of my invention, such as will enable others skilled in the art to which it ap-

15 pertains to make and use the same.

My invention consists in the novel features hereinafter described with reference to the accompanying drawings, which illustrate one form in which I have contemplated embody-

20 ing my invention, and said invention is fully disclosed in the following description and claim.
The metallic packing for stuffing-boxes as illustrated in the accompanying drawings is particularly suitable for use in machines for making ice by the ammonia process, and also in other machines of the kind in which there is a possibility of loss accruing through leakage or escape of gases. While such stuffing-

30 boxes as heretofore constructed can be employed for steam-engines, because any steam that might escape would not thereby cause any smell and would not constitute an appreciable loss, yet when used in machines for making ice by the ammonia process a great drawback has heretofore been found to exist, inasmuch as such stuffing-boxes are not successful for making joints sufficiently tight to prevent leakage of the ammonia-gases to some

40 extent.
In carrying out my invention the packing is formed of two metal coils or spirals having inclined faces engaging each other and one coil having portions for engaging the inner

45 walls of the stuffing-box and the other having portions for engaging the rod, so that when endwise pressure is exerted upon the packing one of said coils will be forced outwardly into engagement with the box and the other will

50 be compressed tightly about the rod, forming a very tight packing. The space between the

coils of each spiral forms spiral channels adjacent to the walls of the box and adjacent to the rod to contain oil for lubricating the rod and also to act as a seal to prevent the escape of the ammonia-gas. 55

In the said drawings, Figure 1 is a sectional view of a stuffing-box provided with my improved packing. Fig. 2 is a sectional view of the packing removed from the stuffing-box. 60 Fig. 3 is a view of the complete packing, part I of said figure showing the two spirals in elevation, part II showing the exterior spiral in section and the inner spiral in elevation, and part III showing both parts in section. 65

In the drawings, *a* represents the stuffing-box, *c* the piston or other rod passing through the same, and *b* the compressing-collar for the stuffing-box, which will be provided with any usual form of tightening device (not shown) 70 for forcing it down into the box in the usual manner.

B represents my improved metal packing, which consists of two parts *B'* and *B''*, each part consisting of a number of coils or ex-

75 pandsible rings, forming a spiral. The spiral *B'* has the inner periphery of its coils or rings constructed to engage the piston-rod *c*, and the upper and lower faces of each coil are inclined toward each other, as shown, and the outer periphery of the coils do not extend quite to the walls of the stuffing-box. 80
The spiral part *B''* is constructed exactly opposite to the part *B'* and has outer peripheral portions for engaging the walls of the box *a*, and the upper and lower faces of each of its coils are inclined to correspond with and engage the inclined faces of the spiral *B'*. The inner peripheral portions of spiral *B''* do not come into contact with the piston-rod. The spiral *B'* is inserted within or 90 screwed into the spiral *B''*, and it will be seen that the spaces between adjacent spirals will form a spiral groove *d* adjacent to the walls of the stuffing-box and a similar groove *d'* adjacent to the rod for the reception of oil. 95
It will thus be seen that diameters of the outer and inner peripheral portions of the inner spiral are less than the diameters of the outer and inner peripheral portions of the outer spiral. 100

It will be readily seen that when endwise

pressure is applied to the packing by means of the collar *b* the packing will be compressed, and by means of the inclined faces of the spirals the coils of the spiral *B'* will be compressed tightly around the piston-rod *c*, while the coils of spiral *B²* will be forced tightly into engagement with the walls of the stuffing-box, thus forming a very tight joint. Oil is supplied to the oil-channels *d* and *d'* in any desired way, or, as indicated in dotted lines in Fig. 1, by means of a suitable oil-feed. I prefer to provide one or both ends of the packing with a metal ring or washer *C*, as shown in Fig. 3, but this is not essential.

What I claim, and desire to secure by Letters Patent, is—

A metal packing consisting of two spirals

adapted to fit one within the other, the coils of said spirals having inclined engaging faces, and the diameters of the outer and inner peripheral portions of the inner spiral being less than the diameters of the outer and inner peripheral portions of the outer spiral, forming a spiral oil receiving channel on the outer and inner portions of the packing, extending continuously from one end of the packing to the other substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

HERMANN FRIESE.

Witnesses:

HERMANN SCHOLZ,
FRANTZ ULP SOFF.