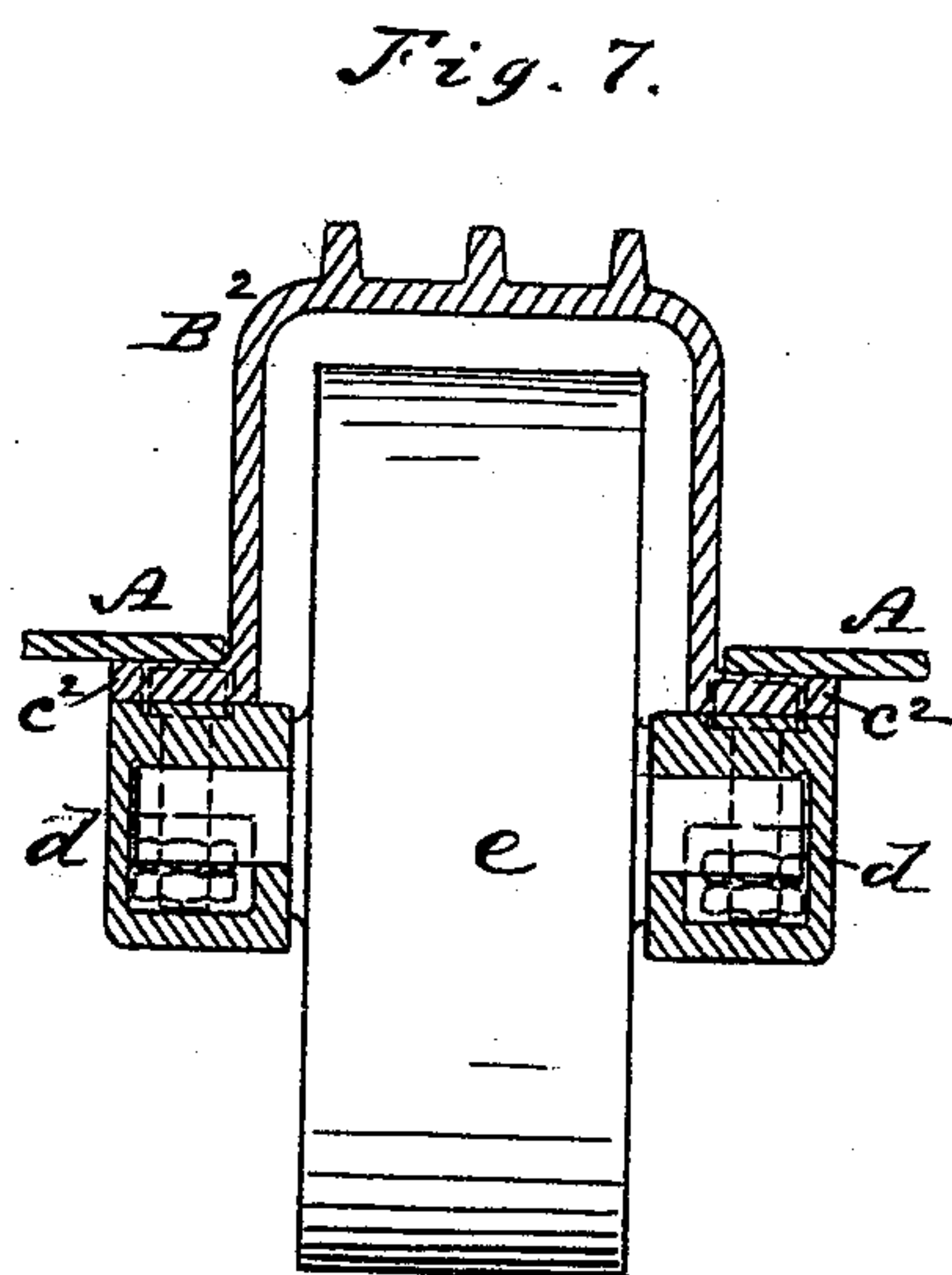
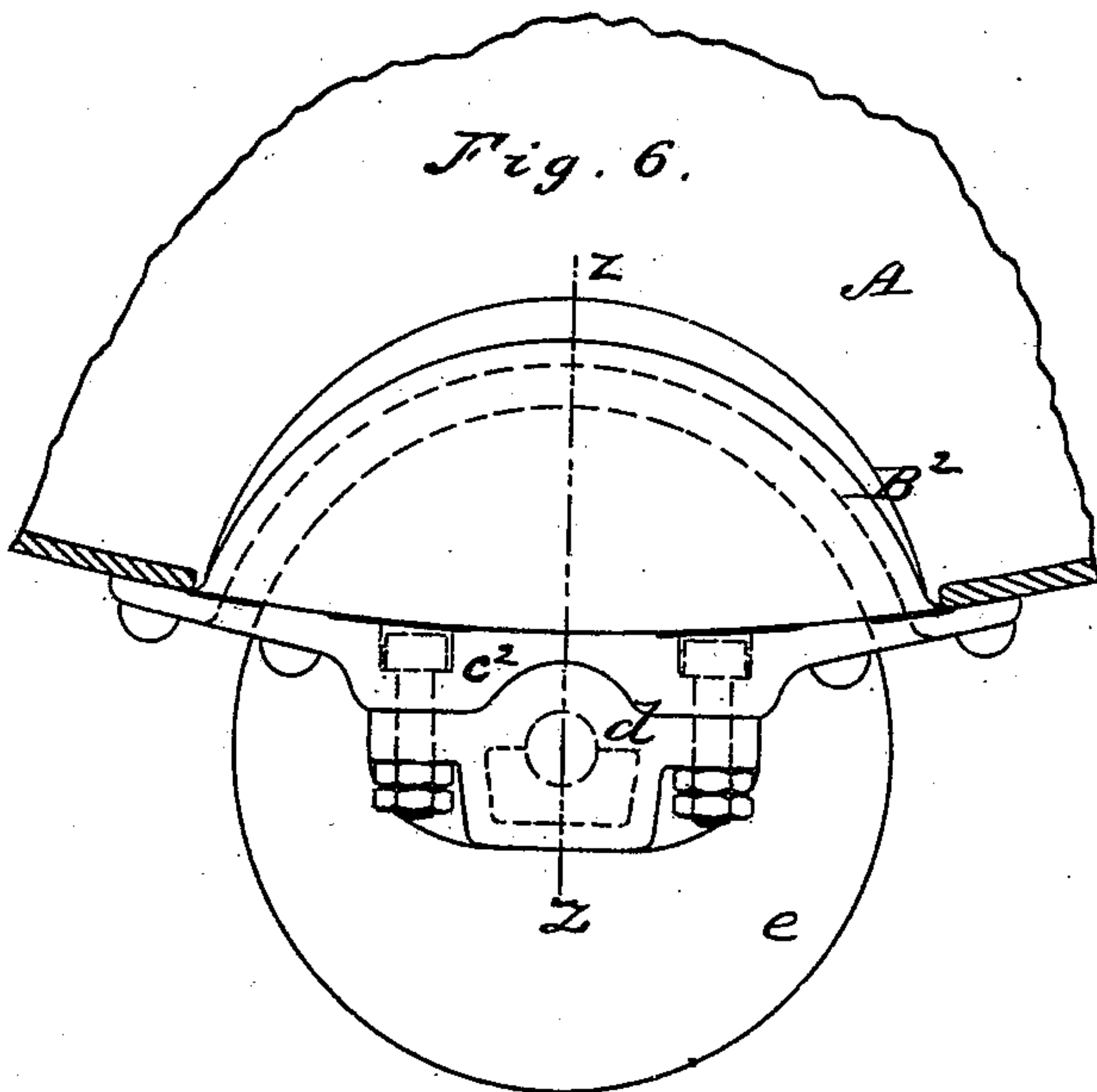
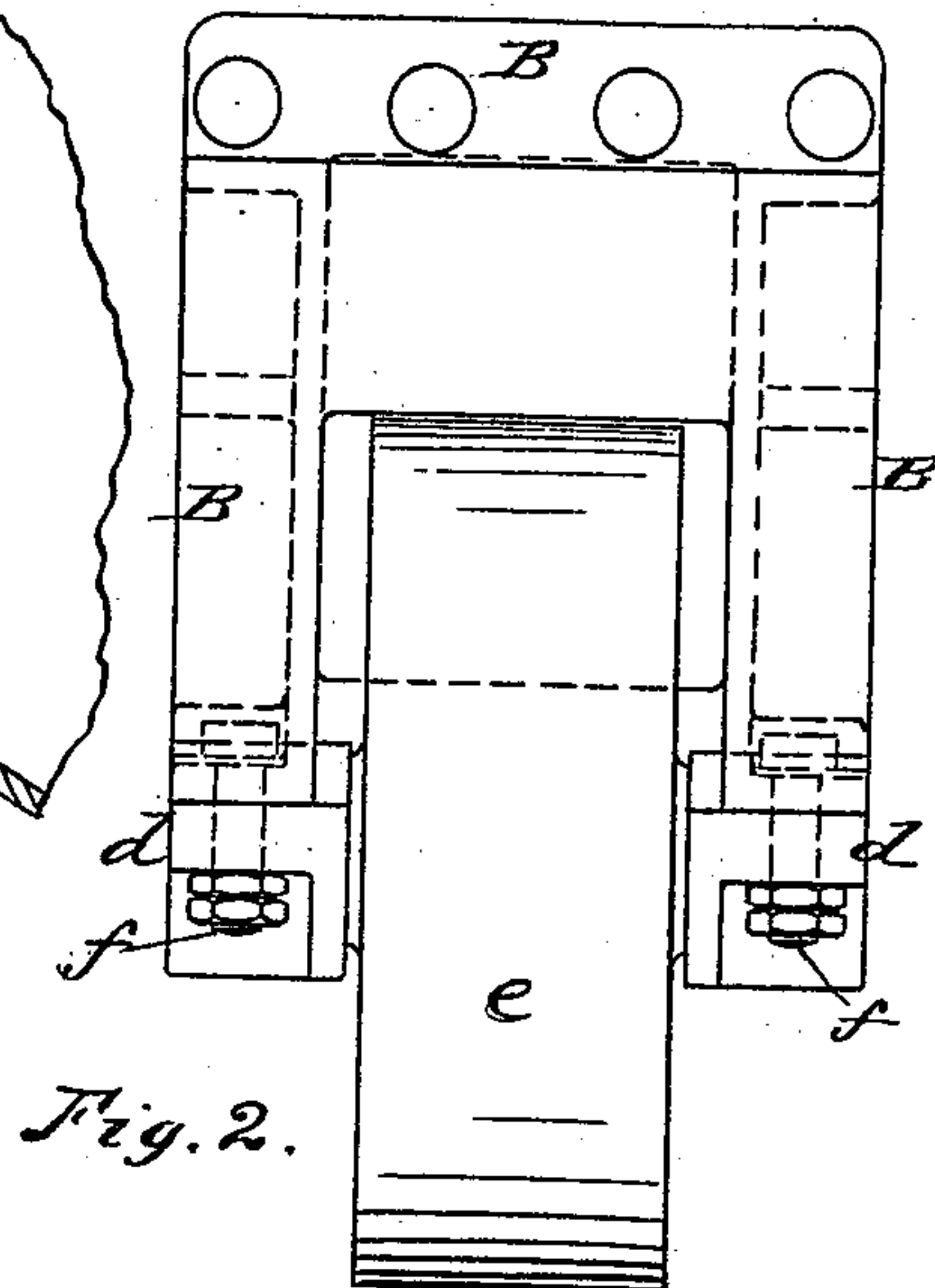
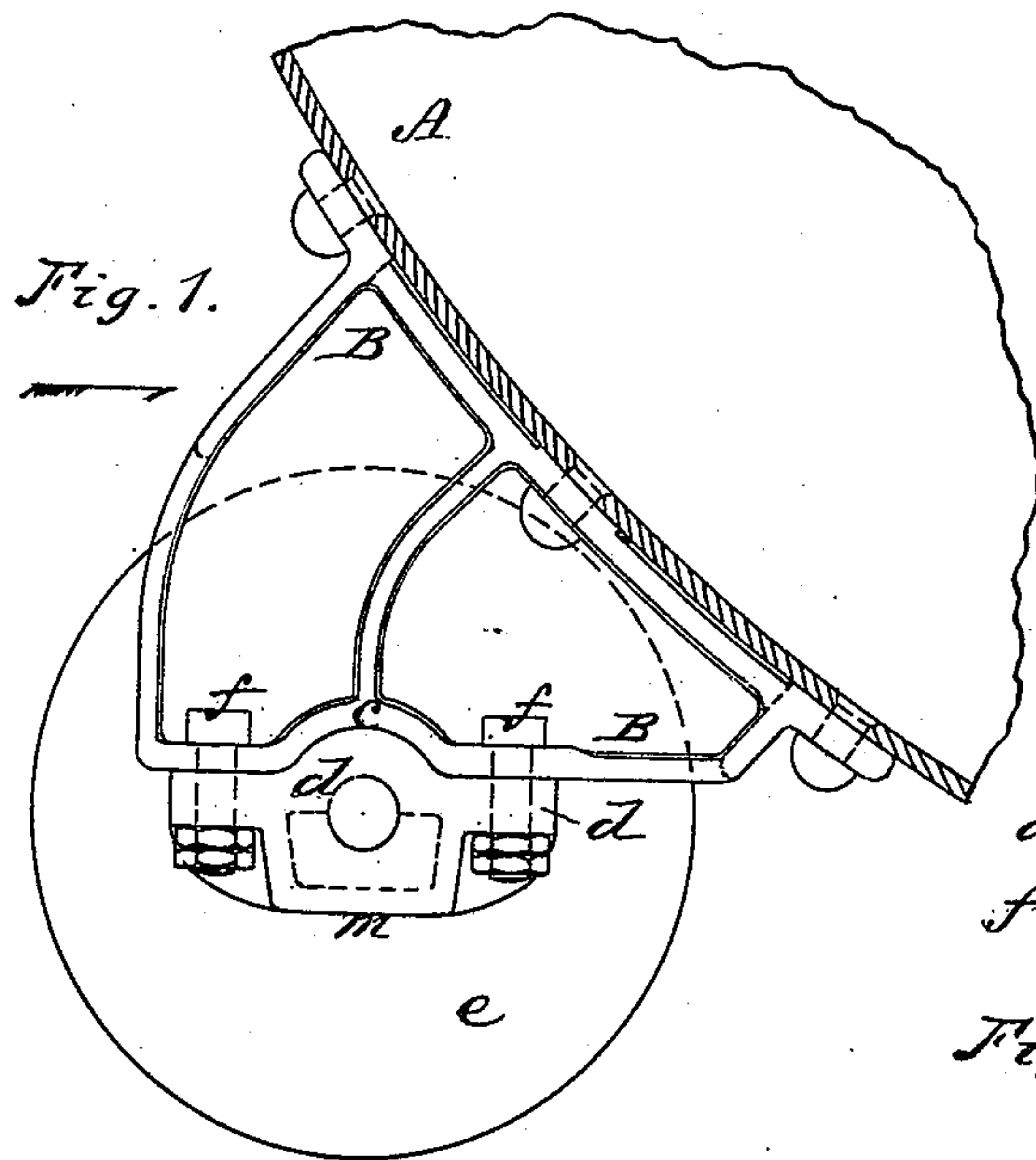


A. E. BROWN.
TUB OR BUCKET FOR HOISTING AND CONVEYING MACHINES.
No. 426,763.
Patented Apr. 29, 1890.



Witnesses
M. C. Dunne
Edw. D. Leary.

Inventor
Alex. E. Brown
By J. N. McIntire
Att'y.

(No Model.)

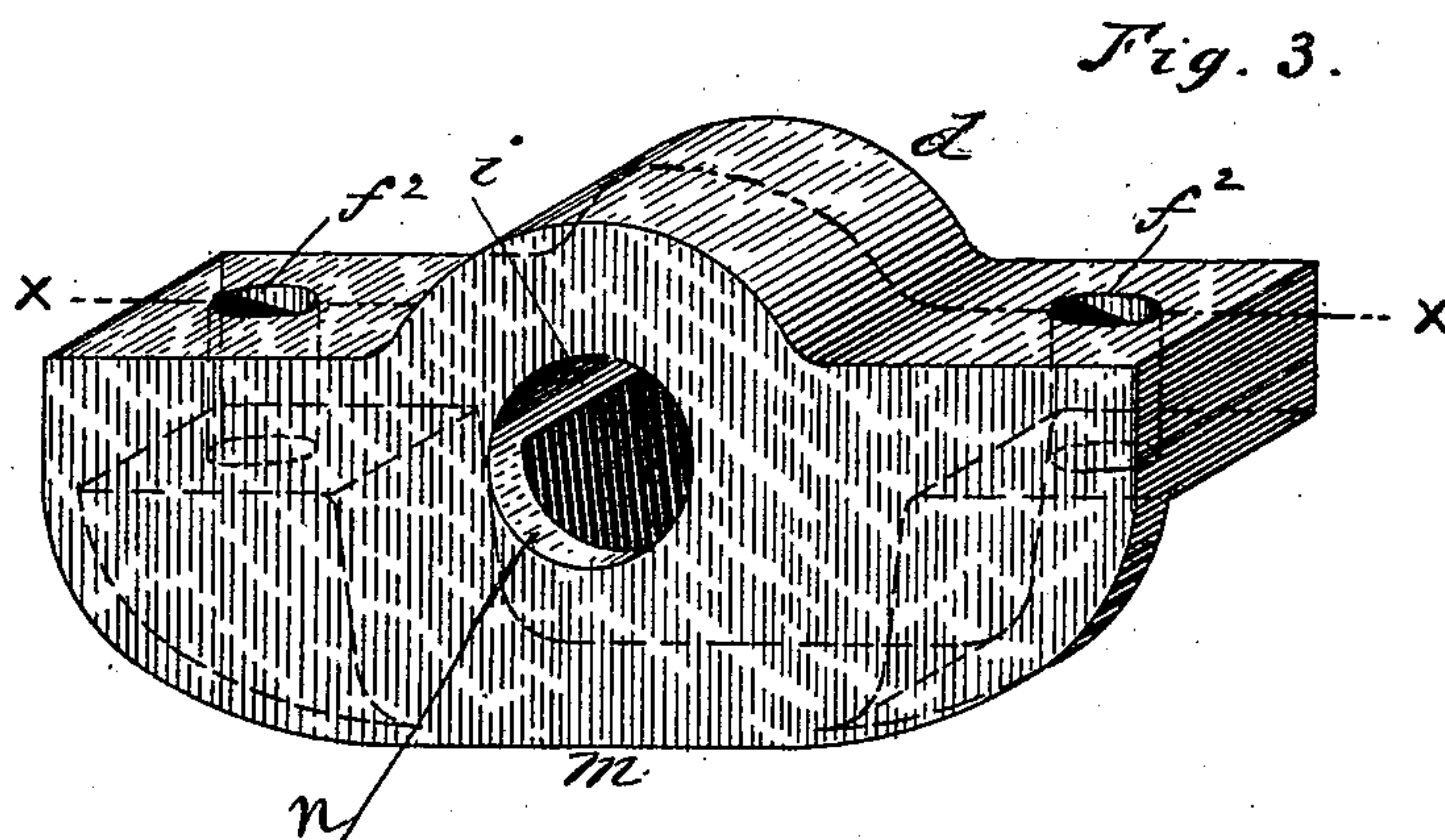
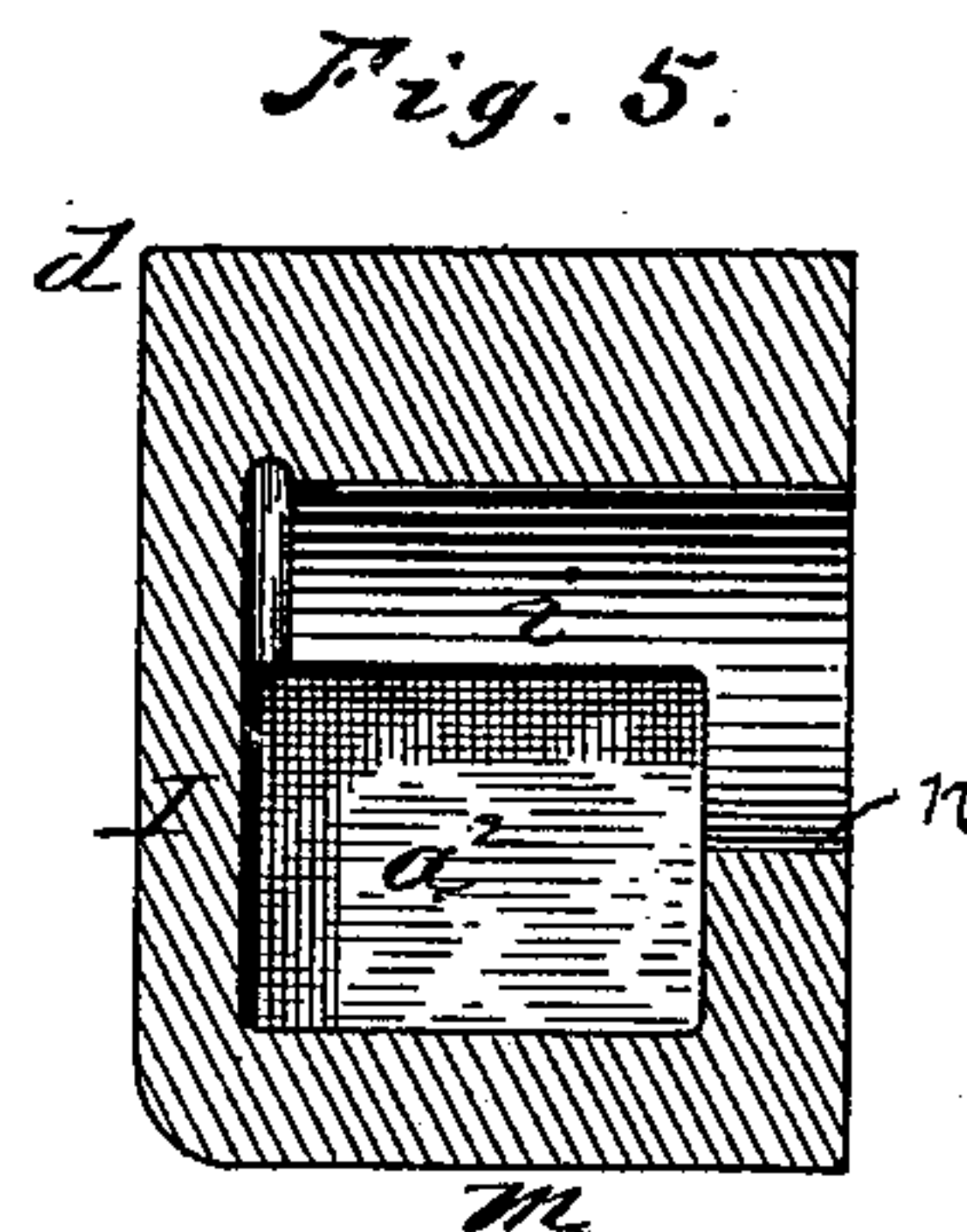
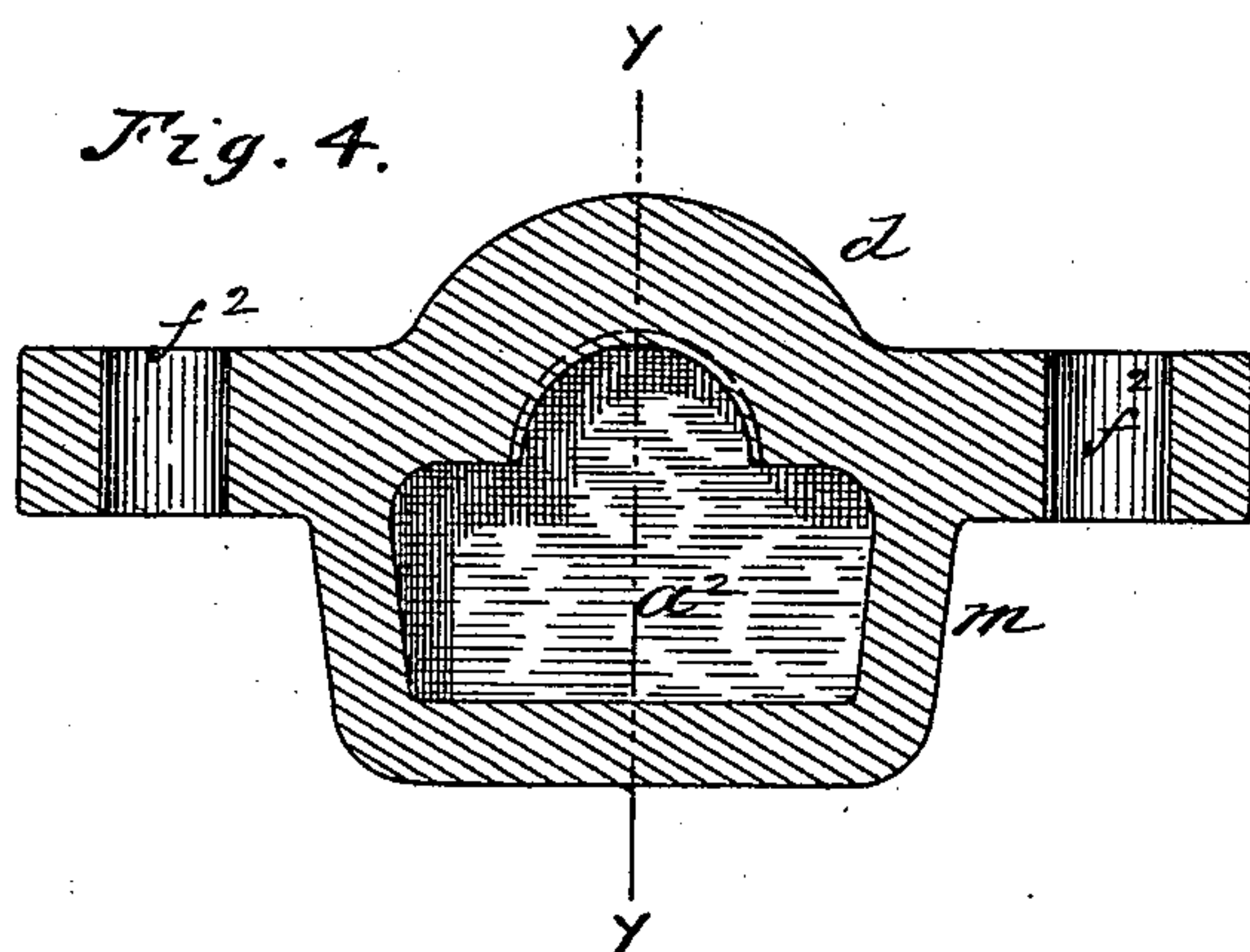
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UNITED STATES PATENT OFFICE.

ALEXANDER E. BROWN, OF CLEVELAND, OHIO.

TUB OR BUCKET FOR HOISTING AND CONVEYING MACHINES.

SPECIFICATION forming part of Letters Patent No. 426,763, dated April 29, 1890.

Application filed February 14, 1890. Serial No. 340,413. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER E. BROWN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Tubs or Buckets for Hoisting and Conveying Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

As is well known to those skilled in the art or familiar with the use of the tubs or buckets employed in the various kinds of hoisting and conveying machines, it is important and desirable, among other things, to have such hoist-buckets as simple and durable as possible in their construction with reference to all the details thereof, and as such buckets are usually heavy and are subject to rough usage in the handling of coal, ore, and other material with which they may be charged it is very desirable, among other things, to have the rollers or wheels which are usually attached to the lower portions of such buckets, and the devices by which they are held in place, made as strong and durable as possible.

My present invention relates particularly to certain novel features in the construction and arrangement together of the parts of a dump-bucket more directly associated with the wheels thereof, and may be said to consist, essentially, in the novel features of construction which will be found hereinafter more fully described, and which will be more particularly pointed out and more clearly defined in the claims of this specification.

My improvements are of course applicable either separately or in the aggregate to either self-dumping or other hoist-buckets of one or another form which are provided with a greater or less number of wheels.

For the purposes of illustrating the application to some such bucket of my present improvements I have selected that kind of automatic dump-bucket which happens to be shown and described in Letters Patent granted to me March 17, 1885, No. 314,101, and I have shown only so much of this kind of bucket in the drawings forming part of this specification as seems to be necessary for the purpose of making clear my present invention.

To enable those skilled in the art to under-

stand and practice my improvements, I will now proceed to describe the same more particularly, referring by letters to the accompanying drawings, in which—

Figure 1 is a partial side view showing that portion of an approved form of automatic dump-bucket (such, for instance, as shown in my patent before referred to) which carries that one of the three larger wheels that is mounted in a projecting metallic stand bolted to the exterior of the body of the bucket. Fig. 2 is a back view or elevation of the parts shown at Fig. 1, looking in the direction indicated by the arrow at Fig. 1. Fig. 3 is a perspective view of a separate bearing-box casting detached from the projecting stand of the bucket and drawn on a considerably enlarged scale. Fig. 4 is a vertical central section at the line $x x$ of Fig. 3. Fig. 5 is a vertical cross-section at the line $y y$ of Fig. 4. Fig. 6 is a partial side view of the same bucket a portion of which is seen in side elevation at Fig. 1, but showing that portion of the bucket to which are attached the pair of wheels which are mounted to run partially within housings which project inwardly from the bottom portion of the bucket. Fig. 7 is a detail section at the line $z z$ of Fig. 6.

In the several figures the same part wherever it appears will be found designated by the same reference-letter.

A is the body portion of the dump-bucket, made, as usual, of heavy sheet metal, and B represents the metallic stand, which is bolted to and projects exteriorly of the curved bottom of the bucket-body, and in which is mounted the wheel e . This wheel, which is preferably made hollow and provided with an axle or arbor which is fast to the wheel, has the projecting ends or journal-like portion of its axle mounted in metallic bearing-boxes d , which are, as clearly shown, securely bolted to the under sides or extremities of the leg-like portions of the metallic stand B. Each one of these journal-boxes d , which is secured, as illustrated, to one of the depending portions of the metallic stand B by means of suitable bolts f , has its middle portion nearly cylindrical, preferably as shown, the upper curved part fitting into a curved depression c in the lower part of one of the leg-like portions of the stand B, while its lowermost curve

portion m (see Figs. 3, 4, and 5) comprises interiorly an oil or lubricant receptacle a^2 , all as will be presently more fully explained. As will be readily understood by reference again to Figs. 3, 4, and 5, each one of these journal-boxes has its internal receptacle entirely closed up at one side, as shown at I, Fig. 5, and has said receptacle so formed or shaped as to present or constitute at i a semi-cylindrical bearing-surface, or, in other words, a half-bearing, for contact with the uppermost half of one of the cylindrical journals of the wheel e , the lower half of said journal being supposed to run merely in contact with the lubricant contained in the lowermost portion of said internal receptacle, or that part of the receptacle which constitutes, as before remarked, the oil-box a^2 . It will be understood that by the use of two such metallic journal-boxes, each one secured through the medium of its perforations f^2 (see Figs. 3 and 4) and the securing-bolts f (see Figs. 1 and 2) to the extremities of one of the leg-like portions of the metallic stand B, not only are perfect bearings afforded for the journals of the wheel-axle, but these bearings whenever injuriously worn may be either one or both removed and replaced by duplicate castings or new journal-boxes at comparatively small cost, and without having to throw the dump-bucket into disuse for any material length of time, whereas, when a portion of the journal-bearing was afforded, as heretofore, by some part of the metallic stand B, any wear to the bearings requiring any renewal or improvement would necessitate the removal for repairs of the entire wheel-stand B.

By having each one of the separate journal-boxes d entirely closed up at one side, as seen at I, the two journals of the wheel-axle when in working condition are practically inclosed within the boxes to the exclusion of the coal-dust and other gritty material which always pervades the locality at which the buckets of hoisting and conveying machines are usually employed, and I am enabled to thus practically inclose the journals of the wheel against the injurious effect of coal and other dust by reason of the employment of the separate journal-boxes d , one of which may be first slipped onto each of the projecting journals of the wheel-axle and the two then properly placed in position relatively to the leg-like portions of the stand B and there securely bolted, as shown.

Of course the formation of each one of the journal-boxes d with the oil-box or lubricant-receptacle a^2 adds greatly to the efficiency of the wheel portion or device of the bucket, and as the use of the wheel is such that only the top half of the axle need be provided with a bearing-surface I am enabled to readily afford this oil-box in my improved contrivance, the narrow bearing-surface at n , (see Fig. 5,) afforded to the under portion of the axle by that part of the journal-box the circular bearing-surface of which is continuous, being suf-

ficient to maintain the axle and journals of the wheel in the proper position when the wheels are in a condition of disuse, or, in other words, when the wheels are not in use to support the weight of the hoist-bucket.

In the use of the separate removable journal-box castings d in connection with the inwardly-projecting stands or housings B^2 employed for each one of the two wheels that usually run within such housings in the kind of bucket shown the form or shape of the casting may be slightly different, by preference, from the form employed in connection with the wheel used in the stand B, that projects outwardly from the bottom portion of the bucket, as illustrated at Fig. 1. The form of separate and removable journal-box, however, which I have shown secured by bolts f to the lower outwardly-projecting portions c^2 of the housing B^2 at Figs. 6 and 7, as the lower portion of such housing is properly shaped, is made substantially similar to the journal-boxes applied to the outwardly-projecting stand B shown at Fig. 1, and it will be understood, of course, that neither the precise form of the separable journal-box nor the material of which it may be composed is essential to the main part of my invention, which is based upon the idea of having a complete or entire journal-box for each journal of the wheel-axle that is simply removably secured to that part of the dump-bucket contrivance in connection with which the wheel is to be used, so that whenever from wear or other cause it may be necessary to renew the boxes of any one or more of the wheel-axle journals this may be done readily and economically by the substitution of a new or duplicate part.

In practice for a given-sized bucket or given form of wheel-stand I have these removable journal-boxes made of cast-iron from a given pattern and have their bearing-surfaces bored out and the holes for the attaching-screws drilled, &c., in such manner that of any number of duplicate parts any one will fit in the same place or be applicable to the same wheel-stand.

Wishing it to be distinctly understood that in carrying my invention into effect either one or all of the structural peculiarities of the improved journal-boxes may be used, according as circumstances may require, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with any one of the wheel-stands or wheel-carrying devices of a hoisting-bucket, a separate and removable journal-box operating, when secured to the wheel-stand, to afford a proper bearing-surface for the journal of the wheel carried by said wheel-stand, all substantially in the manner and for the purposes hereinbefore set forth.

2. In a dump-bucket wheel device, the combination, with a stand or housing for the attachment of the wheel device to the bucket, of removable journal-boxes, each one of which is adapted to accommodate one of the later-

ally-projecting journals of the wheels and is entirely closed up on the outer or exposed side, to prevent the ingress of dust to the journal and its bearing-surface in the journal-box, all substantially as hereinbefore set forth.

3. In a dump-bucket wheel device, the combination, with the stand or housing for the attachment of the wheel device to the bucket, of removable journal-boxes, each one of which is adapted to accommodate one of the laterally-projecting journals of the wheel, and is

formed with the half-bearing *i* and the lubricant-receptacle or oil-box *a*², located below the said half-bearing, all in substantially the manner and for the purposes hereinbefore set forth.

In witness whereof I have hereunto set my hand this 18th day of January, 1890.

ALEX. E. BROWN.

In presence of—

CHAS. W. KELLY,

C. B. KRAUSE.