

H. BOLTHOFF.
CAM FOR STAMP MILLS.
APPLICATION FILED DEC. 11, 1908.

995,436.

Patented June 20, 1911.

2 SHEETS—SHEET 1.

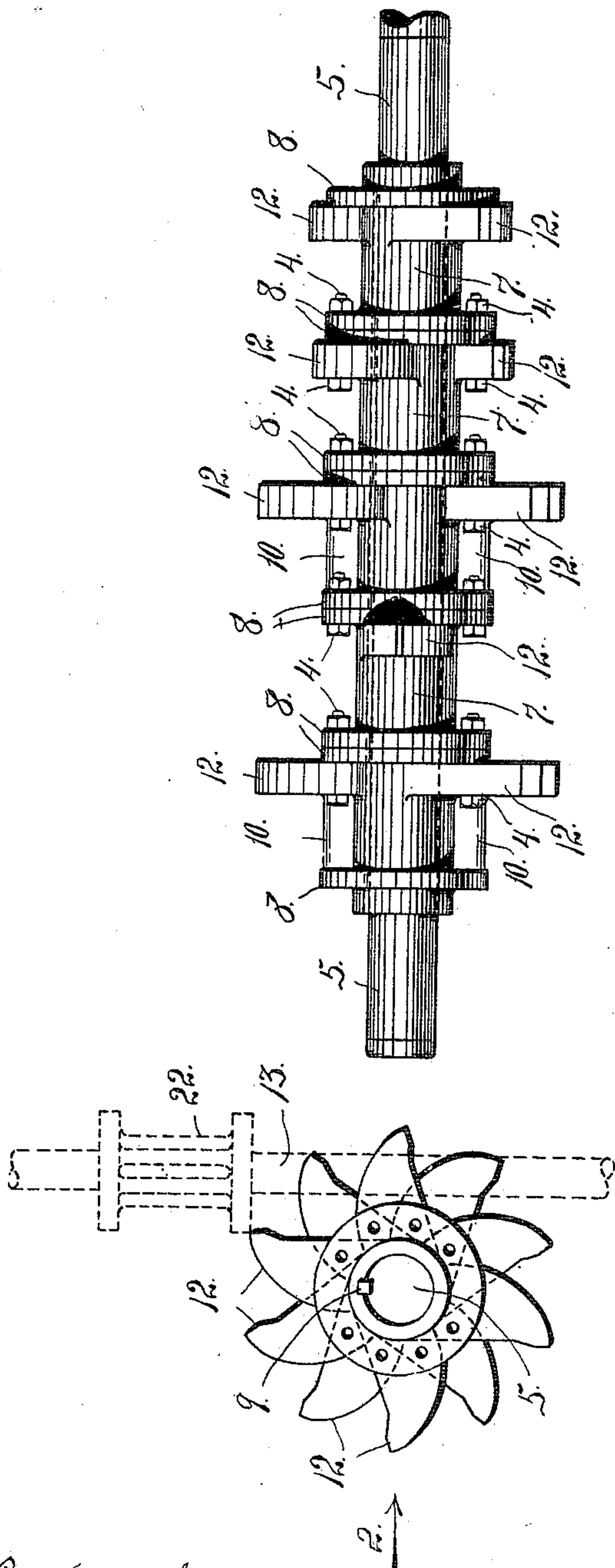


Fig. 2.

Fig. 1.

Witnesses
Otto E. Hoddick.
Ada M. Harris.

[Signature]

Inventor
Henry Bolthoff.

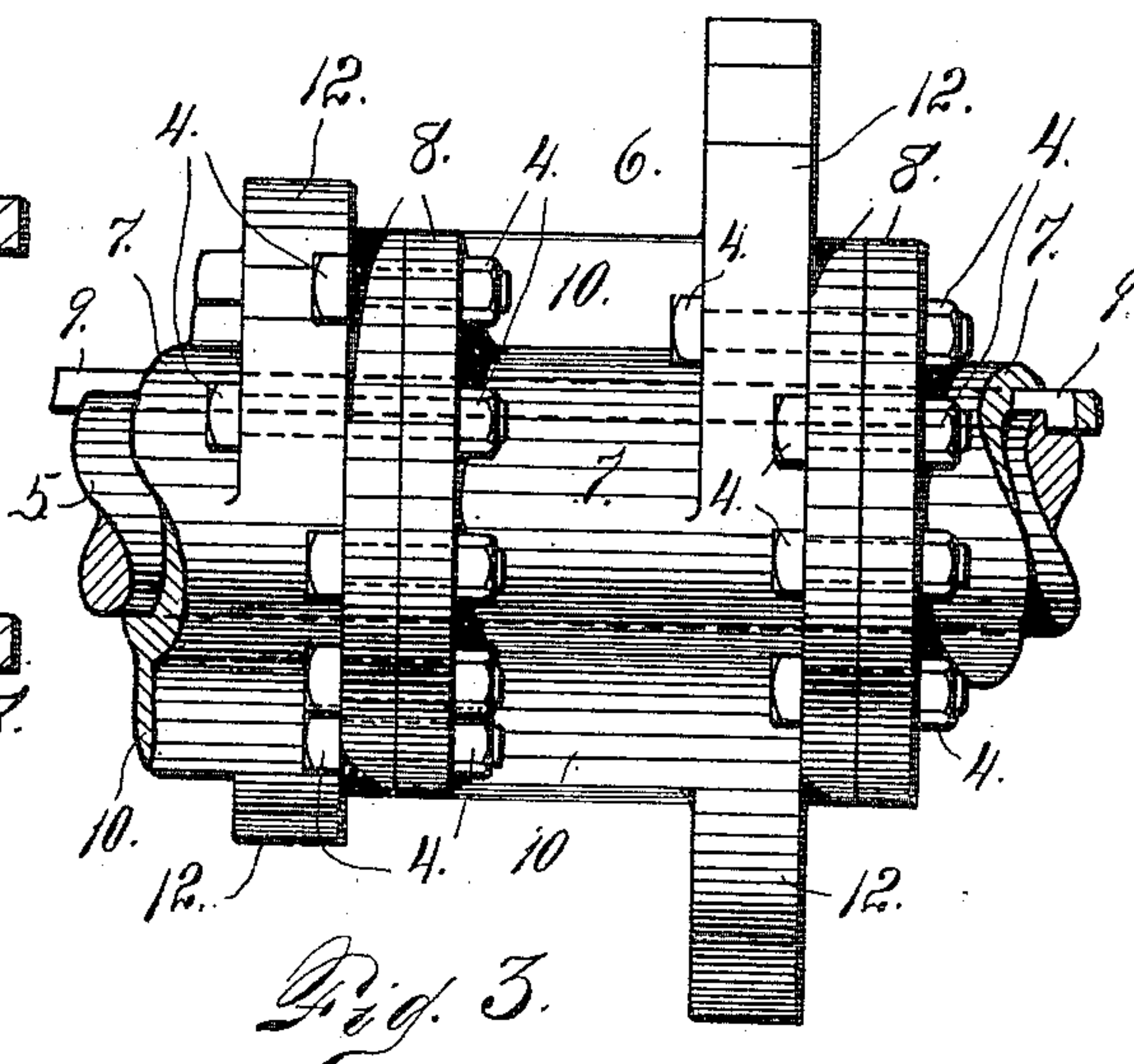
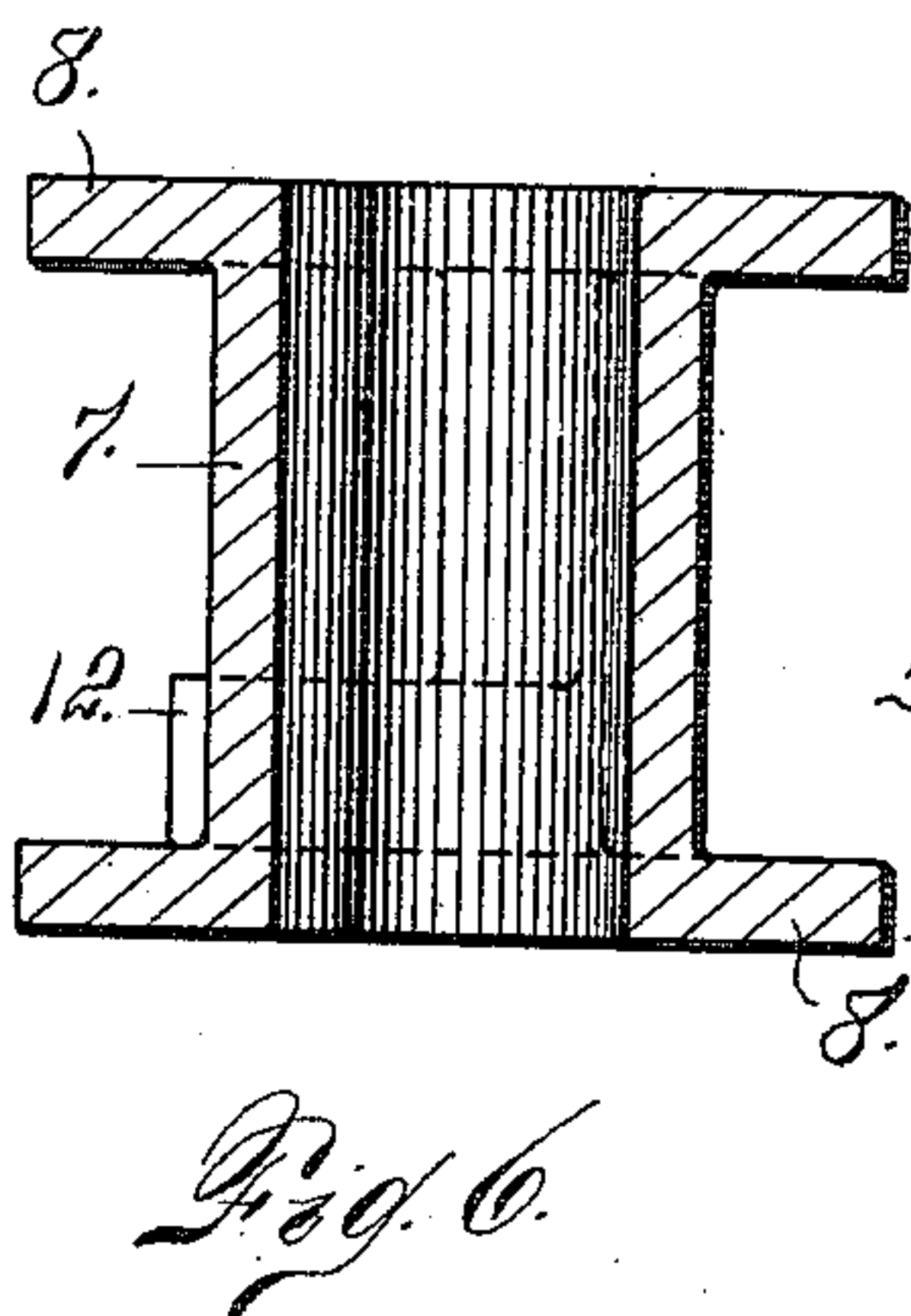
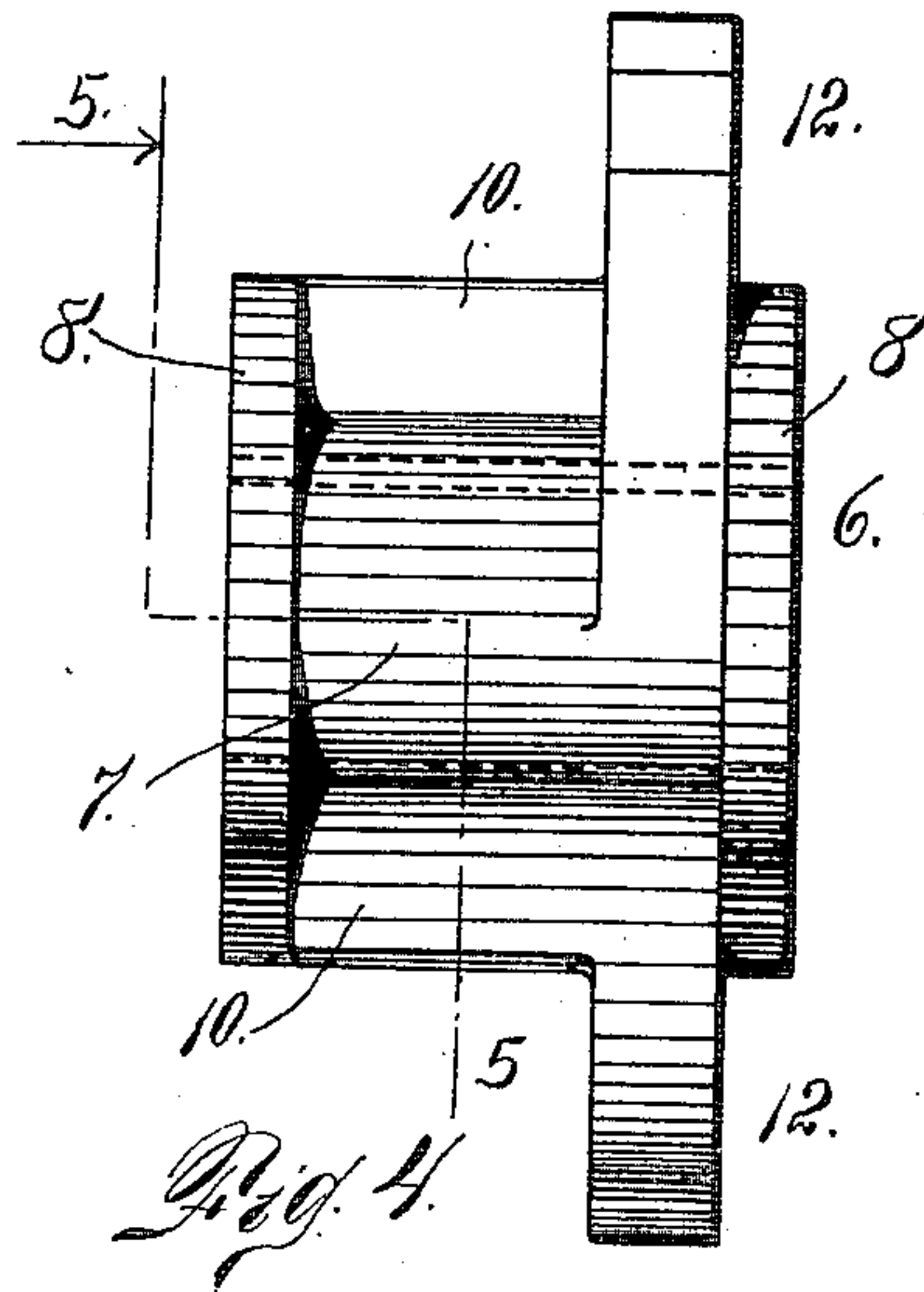
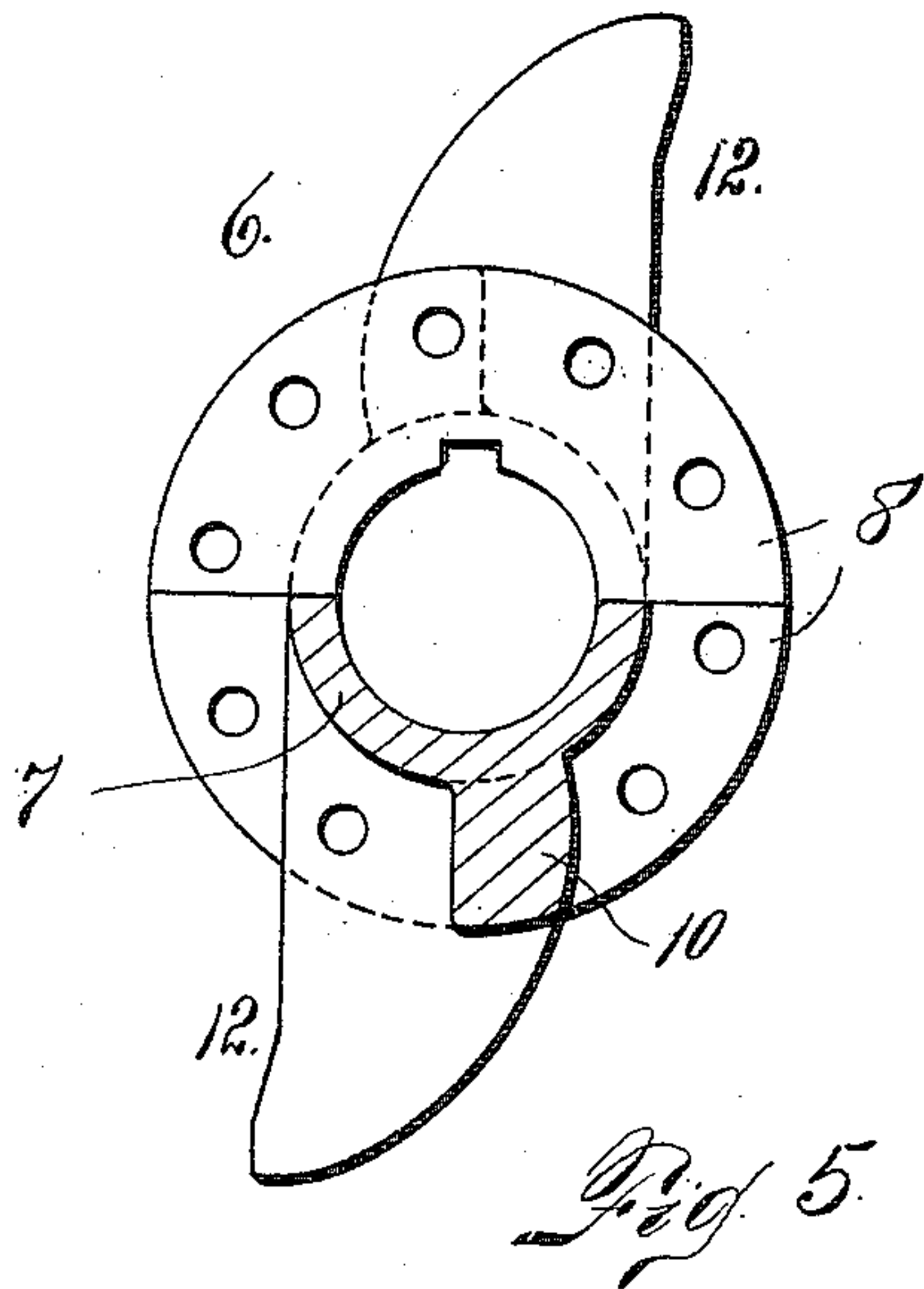
Attorney

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UNITED STATES PATENT OFFICE.

HENRY BOLTHOFF, OF DENVER, COLORADO.

CAM FOR STAMP-MILLS.

995,436.

Specification of Letters Patent. Patented June 20, 1911.

Application filed December 11, 1908. Serial No. 466,986.

To all whom it may concern:

Be it known that I, HENRY BOLTHOFF, citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Cams for Stamp-Mills; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in cams more especially adapted for use in the operation of stamps in stamp mills, my object being to provide a cam construction which shall increase the possible rapidity of the drop of the stamp, and also increase the distance of drop. In the constructions heretofore employed for this purpose, the ordinary S-cam has been employed. When the cam arm of the last named construction is in position to receive the tappet of the stamp, it is curved upwardly whereby the stamp is interrupted in its drop at a relatively high point. In my improved construction provision is made whereby the stamp is allowed to drop to a relatively low point, and allowing the stamp to drop several inches farther than where the ordinary cam is employed.

My improved cam is provided with a collar having flanges projecting outwardly therefrom in opposite directions, each flange merging at one extremity into the face of the adjacent cam arm. This flange is considerably longer in the direction of the axis of rotation than the width of the cam; or, in other words, extends beyond the cam arm, thus forming a support for the tappet of the stamp, before the cam arm proper would be in position to receive the tappet of the stamp stem. Hence this flange forms a support for the tappet of the stamp stem when in a lower position than would be possible if the cam face alone were employed. This flange, therefore, forms the initial stop for the tappet the latter, however, being gradually lifted from the flange and carried upwardly by the cam arm. The cam arms are also made relatively straight, whereby the stamp is raised more quickly to a given height and released, than where the old con-

struction of cam is employed, thus increasing the possible number of drops of the stamp within a given time.

Having briefly outlined my improved construction, I will proceed to describe the same in detail, reference being made to the accompanying drawing in which is illustrated an embodiment thereof.

In this drawing, Figure 1 is an end view of a shaft equipped with a series of my improved cams. In this case the cam shaft is shown in operative relation with the stamp stem, which is indicated by dotted lines. Fig. 2 is an elevation of the cam shaft with the cams mounted thereon. This is a view looking in the direction of arrow 2 Fig. 1. Fig. 3 is a fragmentary view of the cam shaft, showing a cam mounted thereon. In this view the manner of connecting the cams to the shaft is illustrated, the parts being shown on a larger scale. Fig. 4 is a detail view of one of the cams, shown on the same scale as in Fig. 3. Fig. 5 is a section taken on the line 5—5 Fig. 4, viewed in the direction of the arrow. Fig. 6 is a section taken axially through the collar of one of the cams.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 indicate a shaft upon which is mounted a series of cams, each of which is designated in its entirety by the numeral 6. These cams are so arranged as to properly distribute upon the shaft the power incident to the lifting of a battery of stamps. Each cam is provided with a collar 7, having circumferential flanges 8 at its opposite extremities. These flanges are provided with bolt holes through which bolts 4 are passed, whereby the adjacent flanges are connected with each other. The cam collars are all connected to rotate with the shaft by means of a feather or key 9. Each collar is provided on two opposite sides with laterally projecting abutments 10, which merge into the cam arms 12 at one extremity, while their opposite extremities extend to the flange 8 remote from the cam arms. These abutments 10 are of sufficient area to form a support or stop for the tappet 12 of the stamp stem 13. The face of each abutment, which is adapted to engage the tappet 12, is in a horizontal position whereby it is adapted to receive the tappet considerably before the cam arm would be in position

for that purpose, and hence the stamp is allowed to drop to a position considerably lower than would be the case if the cam arm formed the only support or stop for the
5 tappet 12.

Attention is called to the fact that the cam arms 12 are relatively straight and short, whereby the time required to raise the stamp a given distance and release it,
10 is less than that required where the ordinary construction of cam is used, since, in the latter case, the length of the cam face is considerably longer than in the case of my improved cam, without increasing the
15 lift of the stamp.

From the foregoing description the use and operation of my improved stamp mill cam will be readily understood, and need not be explained further in detail.

20 By reason of the fact that the cam collars are provided with flanges 8, which are connected with the bolts 4, as heretofore explained, the cam shaft is reinforced or strengthened and given great rigidity, since
25 the cam collars are keyed to the shaft throughout its length. The tappets of the stamp stems being initially engaged by the flanges or abutments 10 of the cam collars, the impact resulting from the engagement
30 of the tappet with the cam is reduced to a minimum or practically overcome, since the cam arm in reality does not engage the tappet until after it rests upon the flange 10 of the collar. By reason of this fact the strains
35 on the cam shaft incident to the operation of the stamps is greatly reduced as compared with constructions where the ordinary cam is employed, since the initial engagement of the tappet with the cam is at a
40 point relatively close to the axis of the shaft, after which the tappet is engaged by the

cam arm which performs the stamp lifting function.

Having thus described my invention, what I claim is:

1. A cam, comprising a collar provided with laterally extending curved flanges and relatively straight cam arms, having curved faces merging into the said flanges at one extremity thereof, and abutting circumferential flanges arranged on the opposite ex-
50 tremities of the collar, the cam arms having their curved faces flush with the corresponding curve of the flanges.

2. The combination with a shaft, of a series of cams mounted thereon, each cam comprising a collar, cam arms projecting in opposite directions from one extremity of the collar, and abutments or flanges having faces merging into the faces of the cam
60 arms, but projecting beyond said arms, the collars of the various cams having abutting circumferential flanges and means for connecting the collars of the various cams, substantially as described.

3. The combination with a shaft, of a series of cams mounted thereon, each cam comprising a collar, cam-arms projecting in opposite directions from one extremity of the collar, and abutments or laterally extending flanges having faces merging into the faces of the cam-arms and projecting beyond the said arms, the collars of the various cams having abutting circumferential flanges, and means for connecting the col-
70 lars together, substantially as described.

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

HENRY BOLTHOFF.

Witnesses:

A. J. O'BRIEN,
A. EBERT O'BRIEN.