

(No Model.)

J. BRADY.

Construction of Cams for Machinery.

No. 231,145.

Patented Aug. 17, 1880.

FIG. 1.

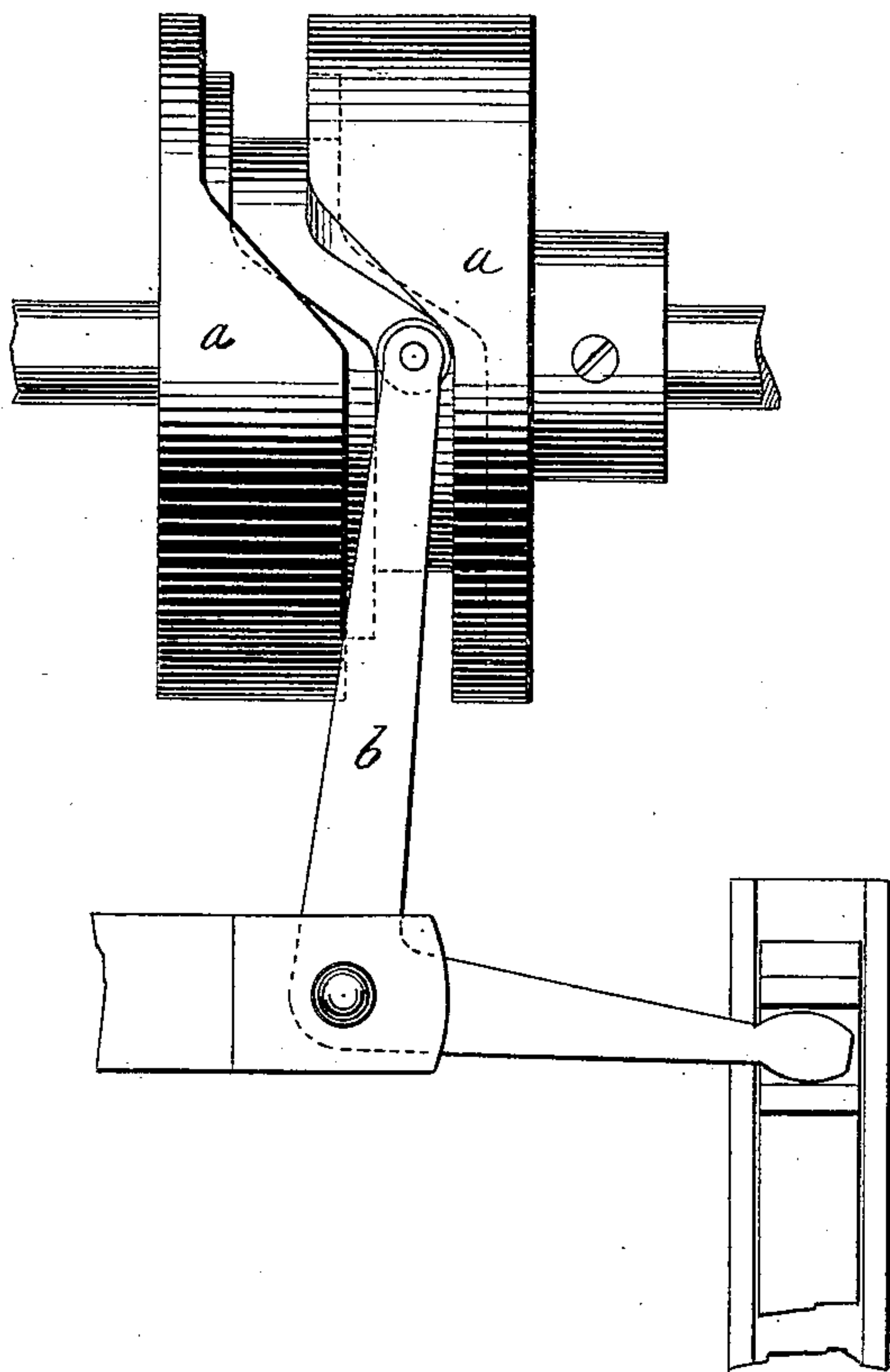


FIG. 2.

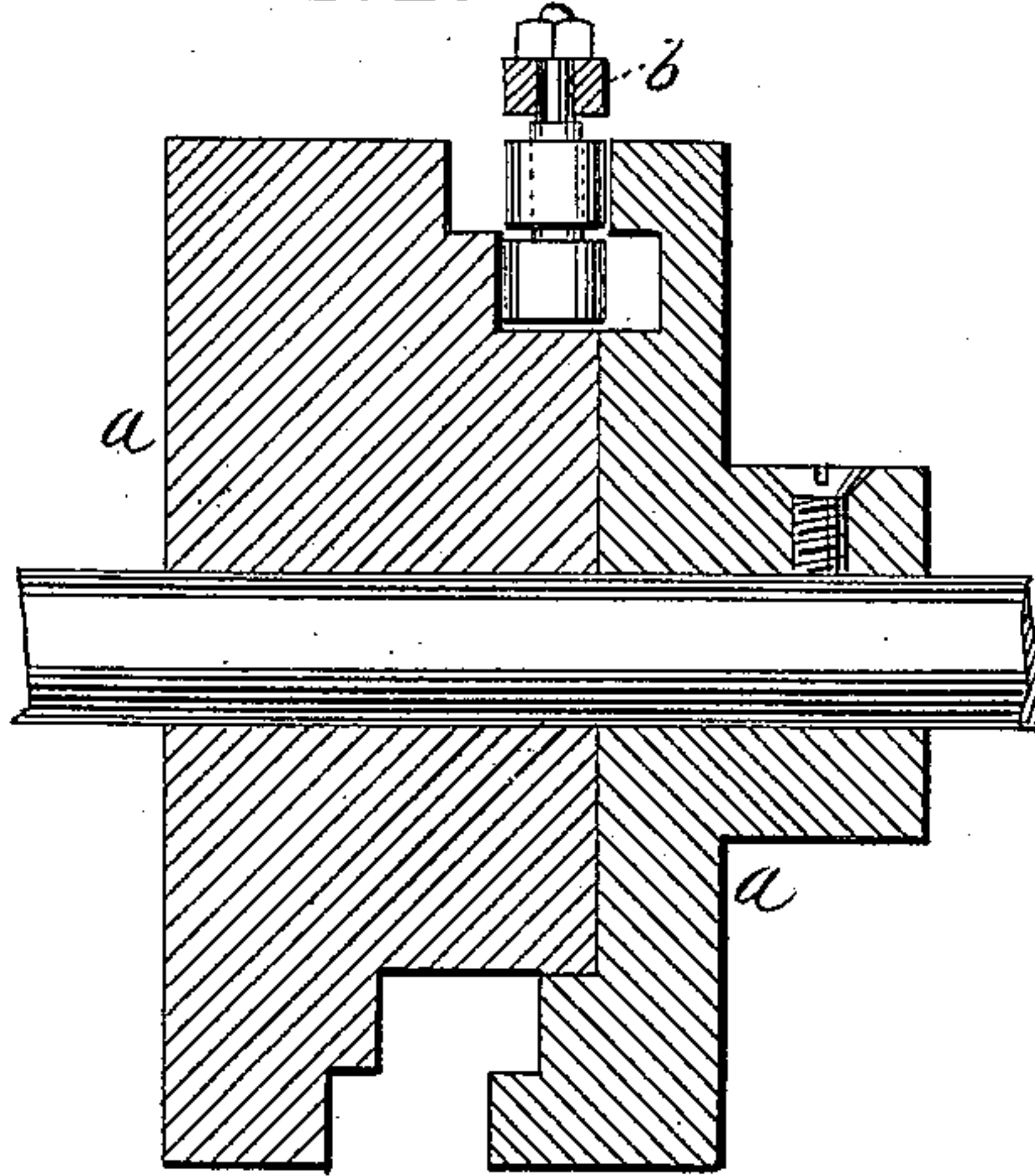
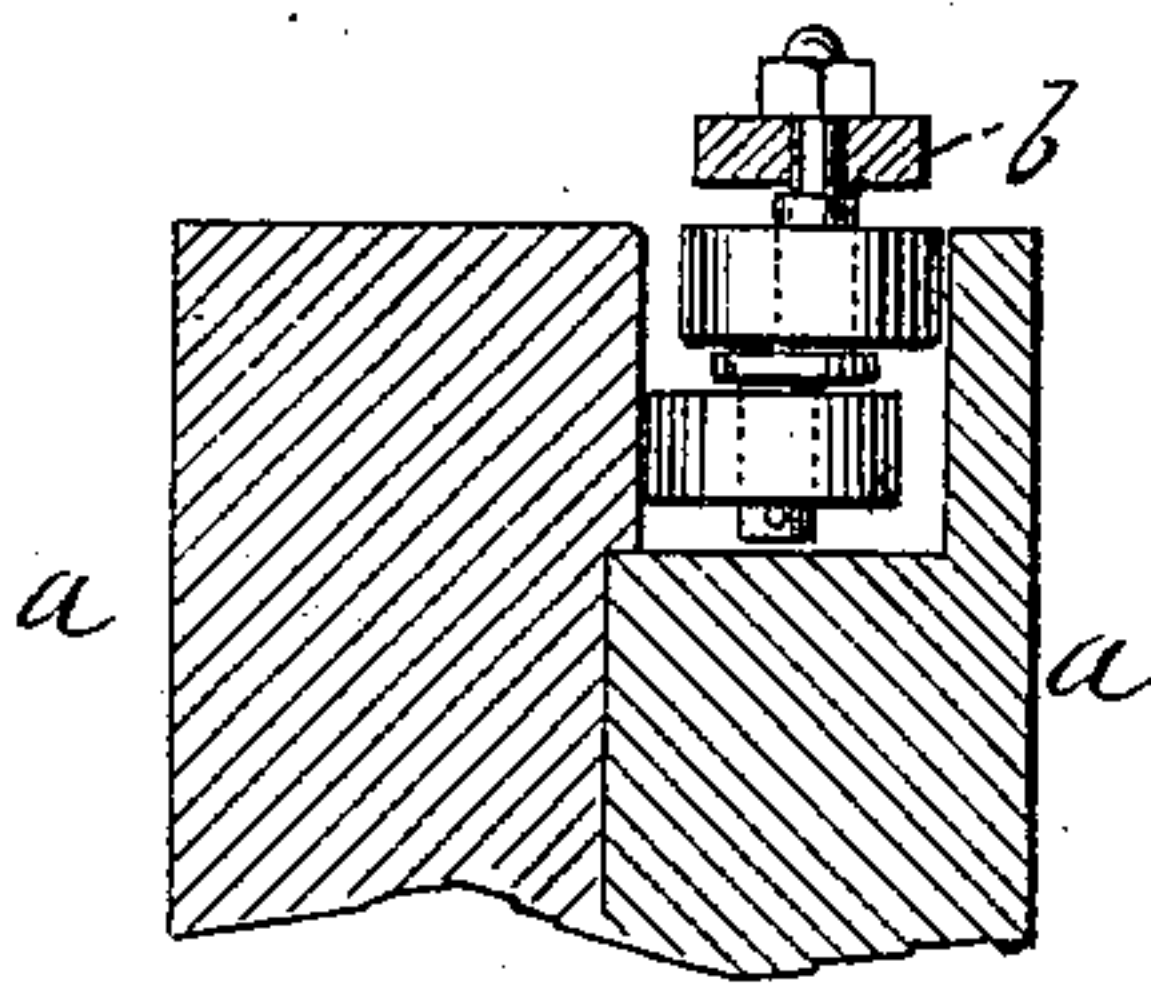


FIG. 3.



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CONSTRUCTION OF CAMS FOR MACHINERY.

SPECIFICATION forming part of Letters Patent No. 231,145, dated August 17, 1880.

Application filed June 29, 1880. (No model.)

To all whom it may concern:

Be it known that I, JAMES BRADY, of Brooklyn, Kings county, New York, have invented certain new and useful Improvements in the
5 Construction of Cams for Machinery, of which the following is a specification.

This invention relates more especially to grooved cylindrical cams in which a roller attached to the part to which the action of the
10 cam is transmitted runs in the groove of the cam. In this form of cam as heretofore made a certain amount of play always exists between the roller and the groove, as the roller must be made somewhat smaller than the
15 groove to avoid bearing on both sides thereof, and if this play is prevented by making the roller a full fit for the groove, it then bears at both sides and produces great friction, which neutralizes all advantages to be gained by the
20 use of a roller.

Now, my invention aims to so construct such cams as to prevent all play between the roller and groove, as well as to prevent undue friction between the same, and thus enable such
25 cams to produce accurate and positive motions in an easy and efficient manner.

To this end the main feature of my invention may be stated to consist in providing the part actuated by the cam with two independent rollers, placed one above the other, and
30 each bearing independently on opposite sides of the groove, and also in making the groove of a stepped or rabbeted form in cross-section, with an independent roller-bearing upon opposite sides and steps of the groove, as hereinafter fully set forth.

Figure 1 of the drawings annexed presents a plan view of an ordinary cylindrical grooved cam and a part vibrated or actuated thereby
40 constructed according to my invention. Fig. 2 is a vertical section thereof; and Fig. 3 is a similar view to the latter, representing a modification.

As illustrated in the drawings, the body *a a*
45 of the cam may be constructed in any suitable or approved manner, and the groove thereof may have any form of continuation according to the motion required to be produced, as will be readily understood, and the lever *b* or other
50 part actuated by the cam is of course engaged at its free end with the groove of the cam.

Now, according to my invention, I form the groove of the cam of stepped or rabbeted form in cross-section, as shown in Fig. 2 and by full and dotted lines in Fig. 1, the steps being
55 arranged coincident at opposite sides of the groove, as shown, and in lieu of fitting the engaging end of the actuating part *b* with one roller to engage the groove, two distinct rollers are employed, each free to rotate independently on the stud which connects them to the
60 part *b*. These rollers are placed one above the other, sufficiently separated so as to revolve independently without contact with each other, and they are both of a diameter exactly equal
65 to the distance between the two most salient portions or steps of the groove, and one roller bears against one of these steps and the other against the opposite step at diametrically-opposite positions, as seen best in Fig. 2. It will
70 thus be seen that by this construction there can exist no appreciable play between the cam-groove and the actuated part, for the latter is in constant engagement with both sides of the cam-groove by independent roller-bearings,
75 which obviate all undue friction, and furthermore cause the opposite inclines of the cam to come into instant action alternately on the rollers in true time, thus rendering the motion of the actuated part smooth and easy, as well
80 as accurate and positive, relatively to the changes of the cam, and also requiring less power and enabling the cam to be driven with greater rapidity.

If desired, the rollers may be made slightly
85 tapering, and the bearing-edges of the cam-groove correspondingly inclined, so that wear may be counteracted by adjusting the rollers up or down in the groove in a well-known manner.
90

In some cases the cam-groove may be of ordinary form, as seen in Fig. 3, while the independent rollers on the actuated part may be arranged slightly eccentric to each other, or
95 in stepped position, one bearing on one side of the groove and the other on the opposite side, with substantially the same effect as in the first case. This modification, however, is not specially recommended, but may be adopted in special cases.
100

From the above description those acquainted with mechanics will, without further state-

ment, readily appreciate the advantages of
cams thus constructed, especially for sewing,
engraving, or other machinery where rapid,
accurate, and easy motions are required.

5 What I claim as my invention is—

1. The combination, with a grooved cam, of
a part actuated thereby provided with two or
more independent engaging-rollers placed one
above the other, both fixed on said actuated
10 part and engaged with said groove at the
same point, and each bearing independently
on opposite sides of the groove, substantially
as herein shown and described.

2. A grooved cam constructed with a groove
of stepped form in cross-section, in combina- 15
tion with a part actuated thereby provided
with two independent rollers engaged with
said groove, and each bearing upon opposite
steps of the groove, substantially as and for
the purpose set forth.

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Witnesses:

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