

No. 625,347.

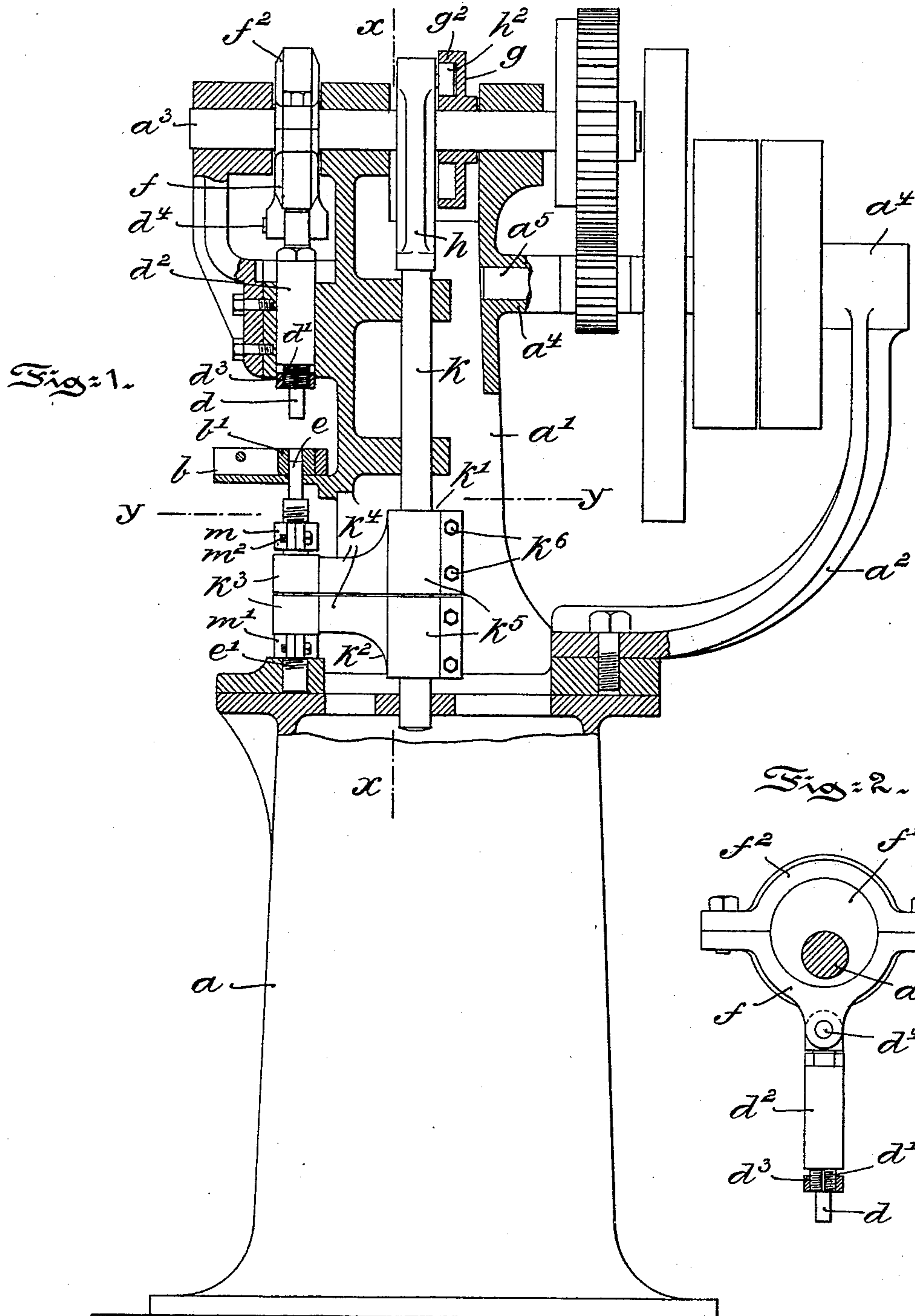
Patented May 23, 1899.

A. R. MORRIS.
TABLET FORMING MACHINE.

(Application filed Dec. 30, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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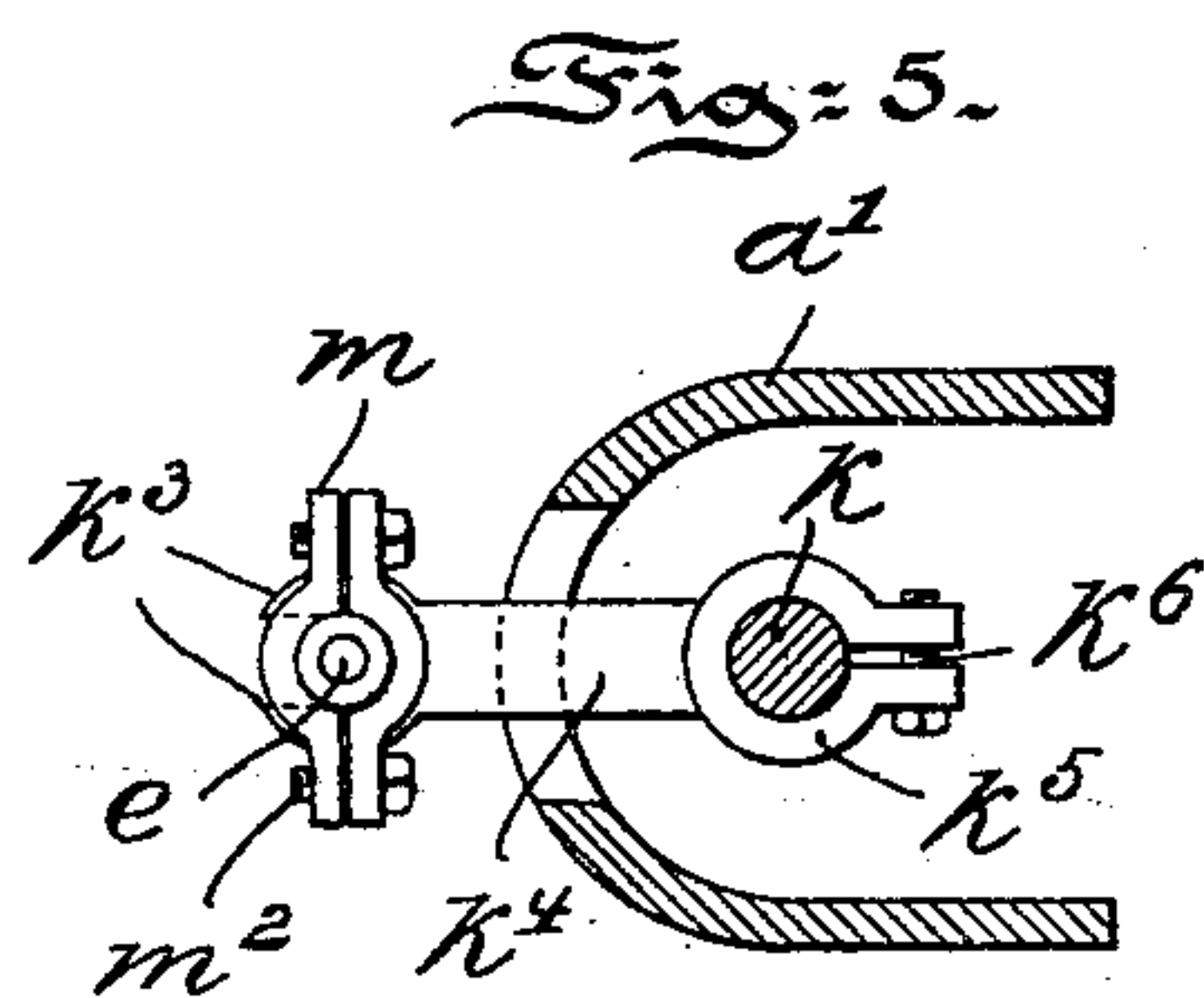
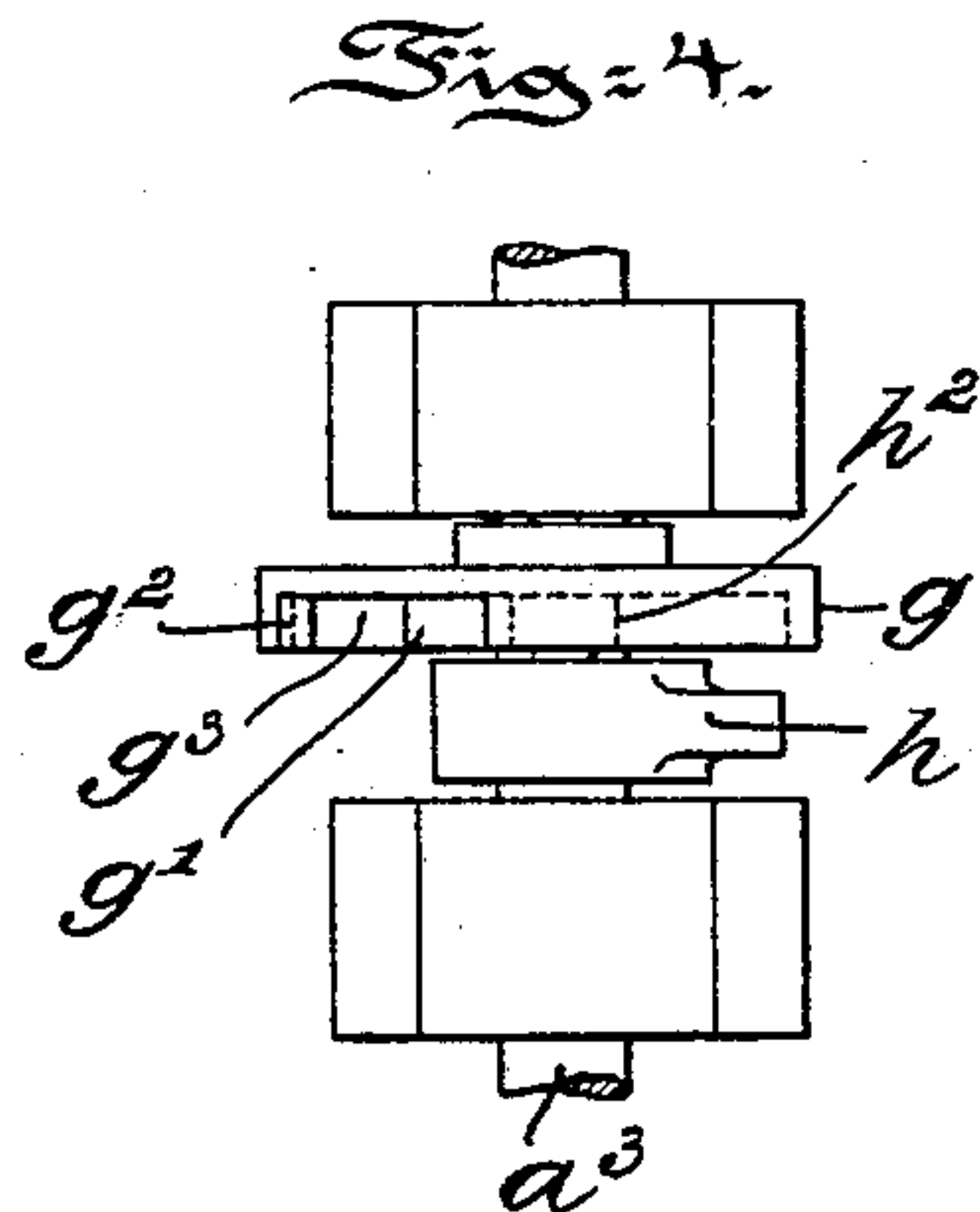
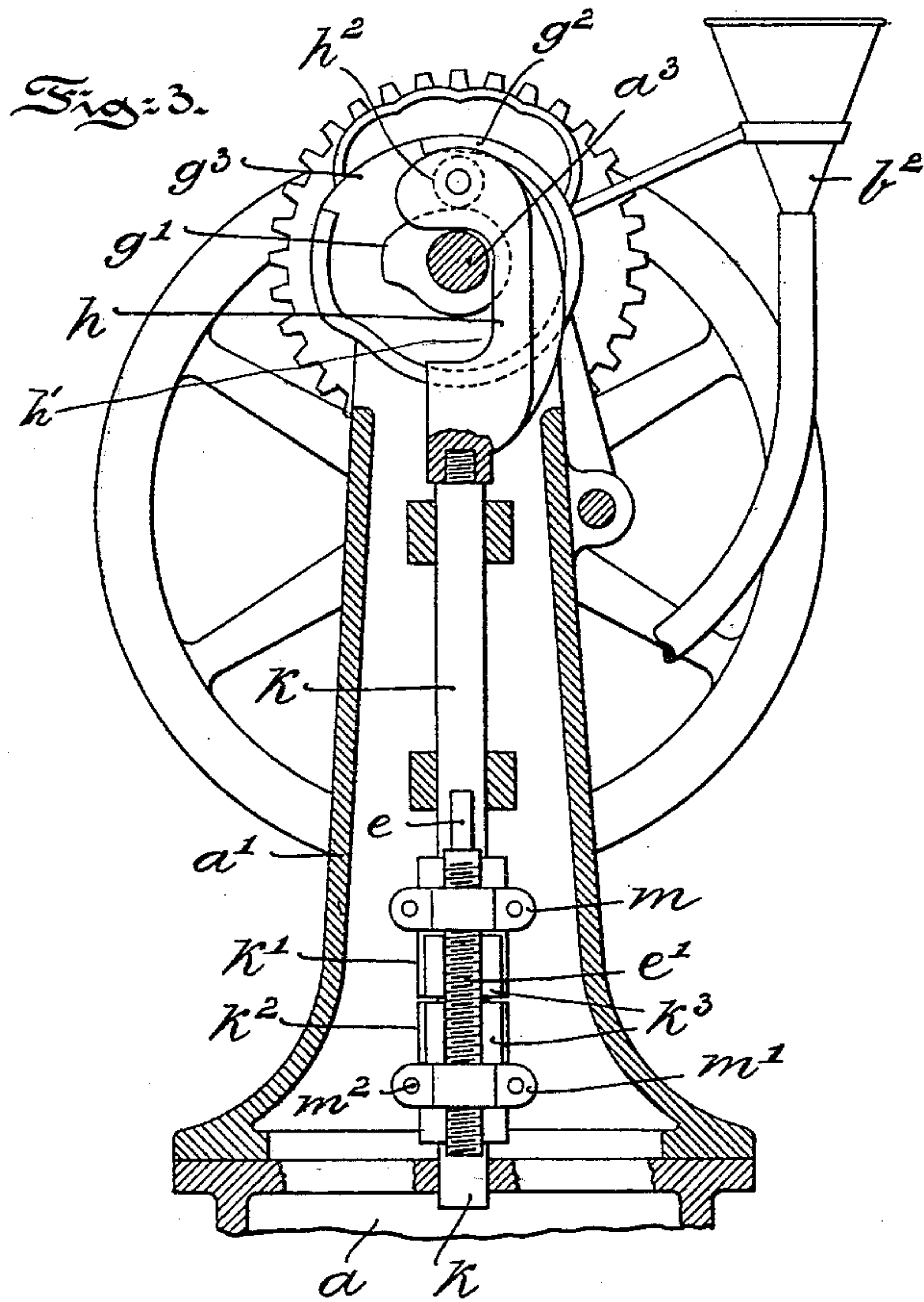
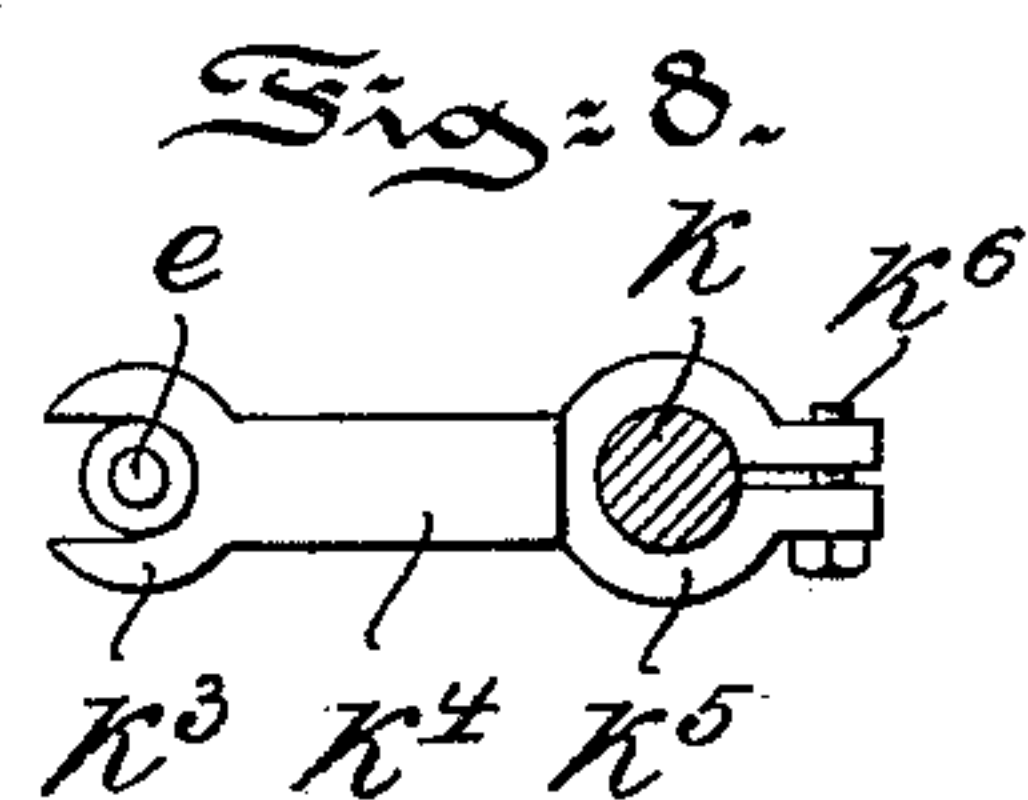
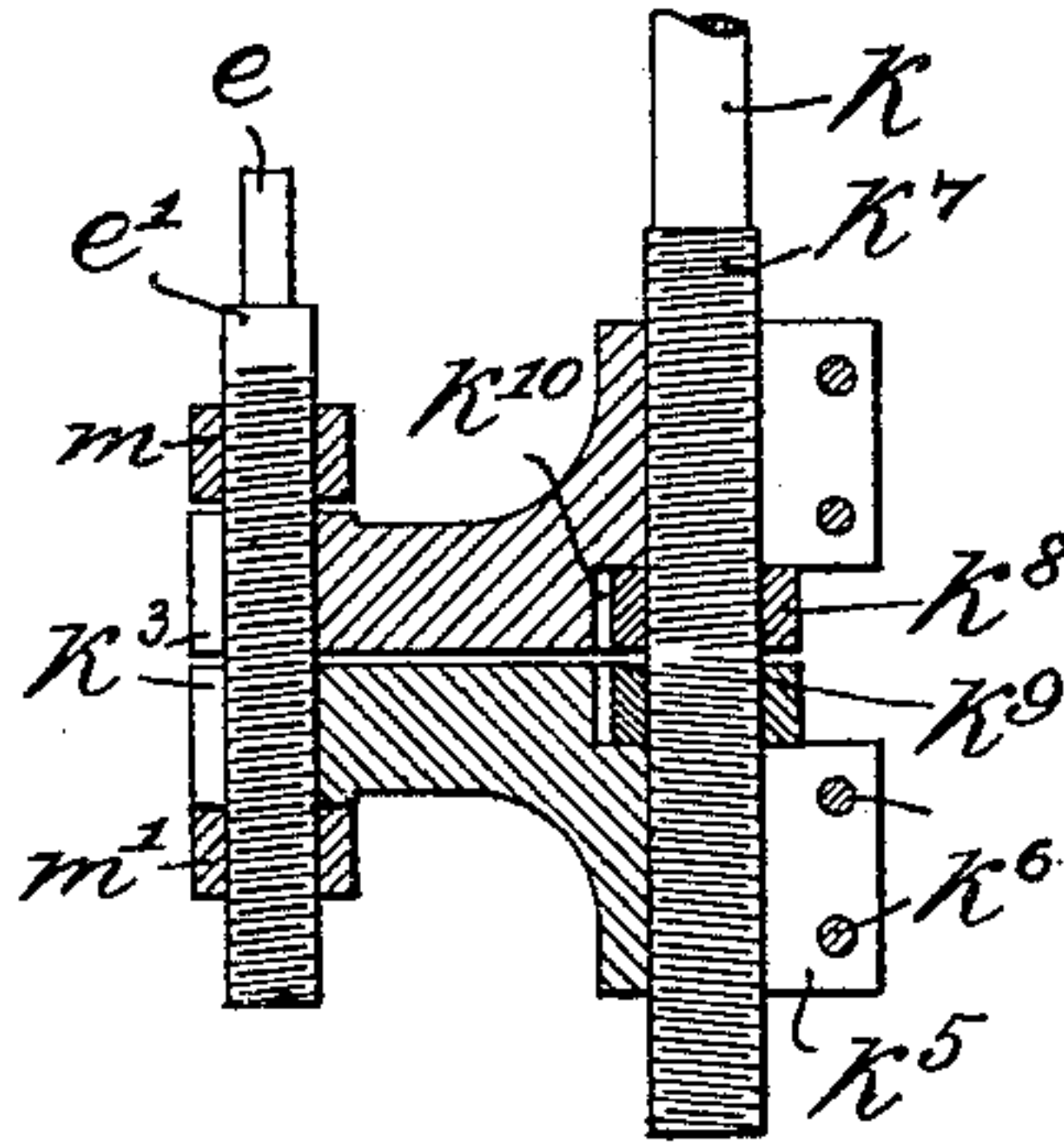
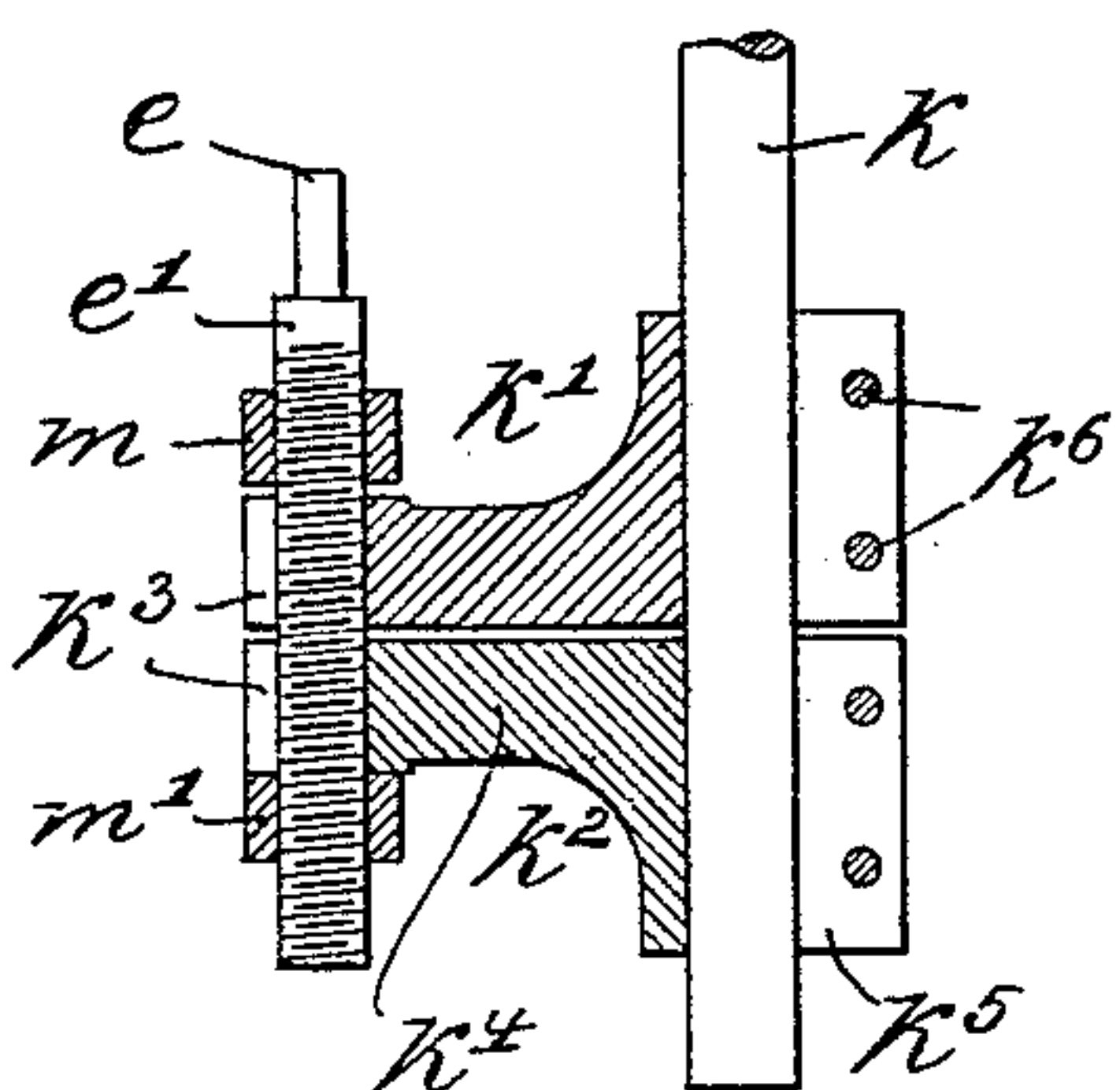


Fig: 6.

Fig: 7.



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UNITED STATES PATENT OFFICE.

ABRAHAM ROWLAND MORRIS, OF PHILADELPHIA, PENNSYLVANIA.

TABLET-FORMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 625,347, dated May 23, 1899.

Application filed December 30, 1898. Serial No. 700,705. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM ROWLAND MORRIS, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Tablet-Forming Machines, of which the following is a specification.

My invention has relation to a tablet-forming machine of the type wherein the tablet or lozenge is formed in a die by means of two oppositely-arranged plungers, and in such connection it relates to the construction and arrangement of such a machine.

The principal objects of my invention are, first, to provide a tablet-forming machine in conjunction with a lower reciprocating plunger, two adjusting-brackets located on the shaft of the plunger, whereby the movement of said plunger up or down may be regulated in the formation of tablets or lozenges of varying thicknesses, and two take-ups separately adjustable with respect to said brackets; second, to provide in such a machine, in conjunction with the shaft for operating the take-ups, a C-shaped yoke or bracket forming an extension for the shaft and adapted in operative position to inclose the power-shaft and readily removable from the machine, said yoke having a roller adapted to engage a suitable cam on the power-shaft to receive from said cam the necessary reciprocatory motion, and, third, to provide in such a machine a cam of peculiar construction for operating the said yoke, said cam having a portion of its periphery slotted or cut away to permit of the removal of the yoke and its roller from the machine.

My invention, stated in general terms, consists of a tablet-machine constructed and arranged in substantially the manner hereinafter more fully described and claimed.

The nature and scope of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a front elevational view, partly in vertical section, of a machine embodying the main features of my invention. Fig. 2 is a side elevational view of the eccentric, divided strap, and shaft for operating the upper plun-

ger. Fig. 3 is a cross-sectional view of the machine on the line $x x$ of Fig. 1. Fig. 4 is a top or plan view of the cam and yoke adapted to transmit reciprocatory movement to the lower plunger. Fig. 5 is a horizontal sectional view on the line $y y$ of Fig. 1, illustrating the upper adjusting-bracket and the upper take-up, respectively, in top or plan view. Fig. 6 is a vertical sectional view of the two adjusting-brackets and take-ups in operative position on their respective shafts. Fig. 7 is a similar view illustrating a modified form of the take-up of Fig. 6, and Fig. 8 is a top or plan view of Fig. 7.

Referring to the drawings, a represents the pedestal or base of the machine, upon which is supported the main framework a' as well as the curved bracket or standard a^2 , forming bearings a^4 for the counter-shaft a^5 of the machine. The framework a' supports the power-shaft a^3 and also a table b , in which is suitably supported a die b' , within which a pill, tablet, or lozenge is to be formed by the coaction of the upper plunger d and lower plunger e , which at certain intervals are caused to approach each other within the die to compress the loose material fed to the die.

In the drawings of the present application I have not illustrated the mechanism for conveying from the receptacle b^2 to the die b' the material to be compressed, since such mechanism forms part of a companion application filed under even date herewith and serially numbered 700,706.

The upper plunger d is preferably held in a split sleeve or chuck d' on the end of a shaft d^2 by means of a tightening-nut d^3 , and the shaft d^2 is pivoted, as at d^4 , to the lower member f of a divided strap which encircles an eccentric f' , secured to and traveling with the power-shaft a^3 of the machine. The upper member f^2 and lower member f of the strap are bolted together at their ends, and wear upon the eccentric or strap may be readily and simply taken up by tightening the bolts, and thus drawing the members of the strap together. This construction also permits of the ready withdrawal of the plunger and its shaft from the machine for the purpose of repairs, adjustment, or the like.

Upon the power-shaft a^3 is located a cam g , having its interior cut out to form at the cen-

ter a two-throw cam-plate g' and a peripheral rim or flange g^2 . In the groove thus formed is adapted to travel a roller h^2 , secured to a C-shaped yoke or bracket h , and as the cam
 5 revolves it is adapted to raise and lower the yoke h through its roller h^2 . The yoke incloses or partially surrounds the power-shaft a^3 , as illustrated in Fig. 3, but can be readily removed from the machine, if desired, its
 10 opening h' permitting it to slip past the shaft a^3 . The peripheral flange or rim g^2 of the cam g is partly cut away, as at g^3 , to permit the roller h^2 to slip out of the groove in said cam, and to thereby release the yoke from its
 15 connection with the said cam.

To the lower end of yoke h is secured the upper end of a shaft k , guided in the framework a' and having a reciprocatory movement conveyed to it by the yoke h . At or near the
 20 lower end of this shaft k are located the two take-ups k' and k^2 , each of which is preferably constructed as follows: The take-up consists of the forked end k^3 , body portion k^4 , and split sleeve portion k^5 , which latter portion is
 25 adapted to embrace the shaft k and to be tightly clamped thereto by means of the tightening-bolts k^6 . The two take-ups are independently adjustable on the shaft k and compensate, respectively, for the upper and lower
 30 adjustment of the lower plunger e , as well as for the wear and tear upon the yoke h or cam g . The forked ends k^3 of the two take-ups surround and slide upon the shaft e' of the lower plunger e , and their range of movement is
 35 limited by the position of the upper and lower adjusting-brackets m and m' on said shaft e' . These adjusting-brackets m and m' each consists of a split strap surrounding the shaft e' and tightly clamped thereon by means of the
 40 bolts m^2 , which when tightened draw the members of the strap together and bind them tightly to the shaft.

In the operation of the machine it is frequently necessary to change the range of
 45 movement of the lower plunger e , whereby tablets or lozenges of varying thicknesses may be produced. The simplicity of construction of my two adjusting-brackets m and m' enables this to be easily and quickly ac-
 50 complished, for all that is necessary is to loosen the bolts at one side of each strap sufficiently to permit the brackets to turn or slide on the shaft e' , after which the adjusting-brackets may be independently slid to
 55 the required position and quickly and easily locked in that position by retightening the bolts. The take-ups k' and k^2 may be simi-

larly manipulated to compensate for this adjustment or to compensate for wear and tear of the operating yoke or cam.

In Figs. 7 and 8 a modified means for adjusting the take-ups is illustrated, wherein the shaft k is reversely threaded, as at k^7 , to receive two screw-collars k^8 and k^9 , which are adapted to turn on the shaft k , the take-ups
 65 k' and k^2 being cut away, as at k^{10} , to permit the collars to turn. In this form the operator can adjust the take-ups more accurately, for instead of moving each take-up manually after the bolts have been loosened the screw-collars are advanced or lowered on the shaft
 70 k to indicate the position the take-ups should occupy.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine of the character described, a lower reciprocating plunger, two adjusting-brackets located on the shaft of said plunger, a second shaft, means for reciprocating said
 80 second shaft, and two take-ups each comprising a forked end portion sliding on the shaft of the plunger, a body portion and a split sleeve portion surrounding the second shaft and adapted to be clamped thereon, substantially as and for the purposes described.

2. In a machine of the character described, in combination with a main power-shaft and a lower reciprocating plunger, a shaft and intermediate connections adapted to operate
 90 said plunger, a C-shaped yoke secured to said shaft and adapted to surround the power-shaft and to be withdrawn therefrom, and means, controlled by the power-shaft, for raising and lowering said yoke, substantially as and for the purposes described.

3. In a machine of the character described, in combination with a main power-shaft, a lower reciprocating plunger, a C-shaped yoke and intermediate mechanism for reciprocating
 100 said plunger, a roller carried by said yoke and a cam secured to said shaft in which the roller is guided, and said cam having a peripheral flange partly cut away to permit of the withdrawal of the roller from said cam, substantially as and for the purposes described.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

ABRAHAM ROWLAND MORRIS.

Witnesses: "

J. WALTER DOUGLASS,
 THOMAS M. SMITH.