

No. 619,072.

Patented Feb. 7, 1899.

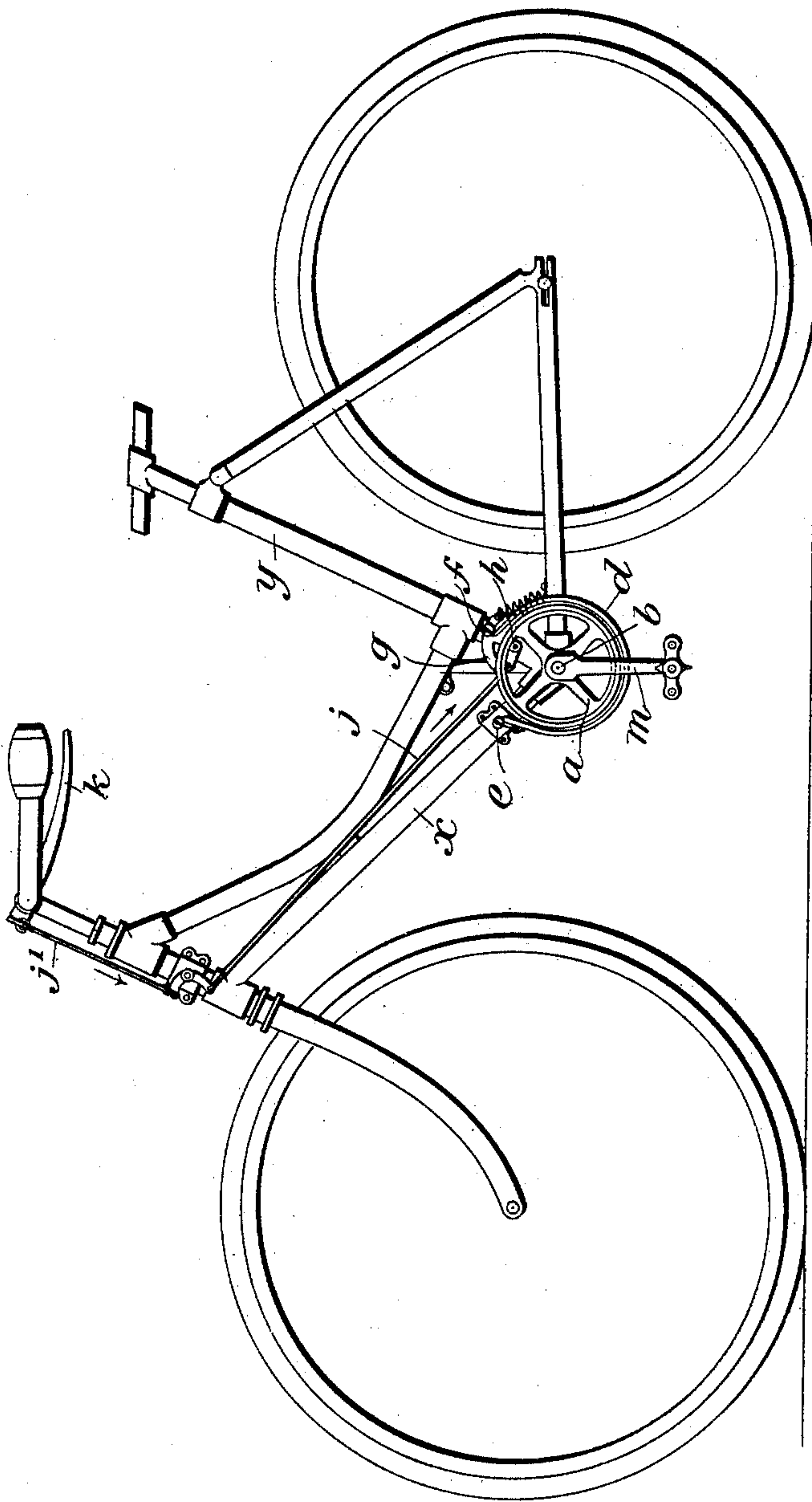
H. DARBY.
BICYCLE BRAKE.

(Application filed July 20, 1898.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.



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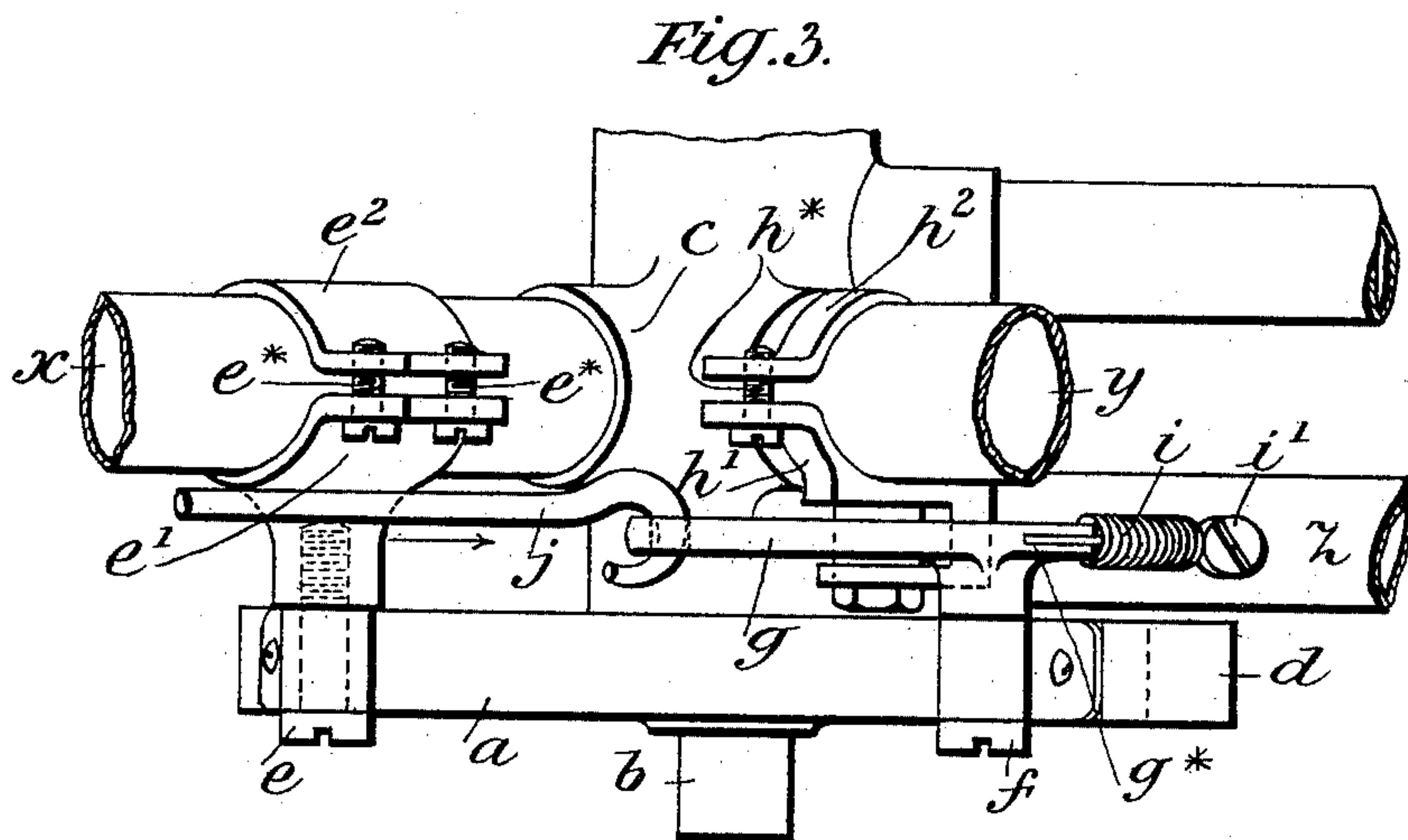
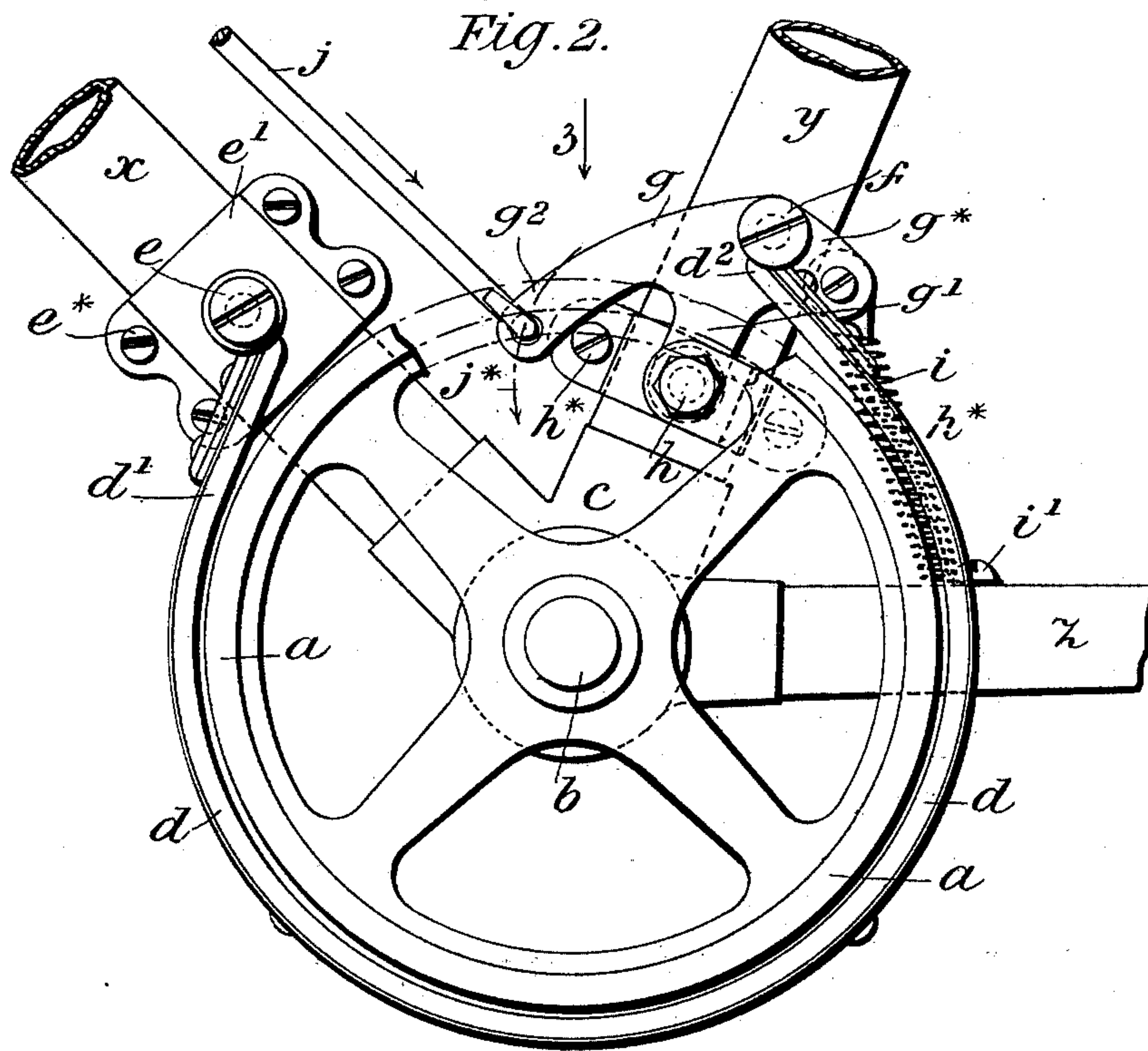
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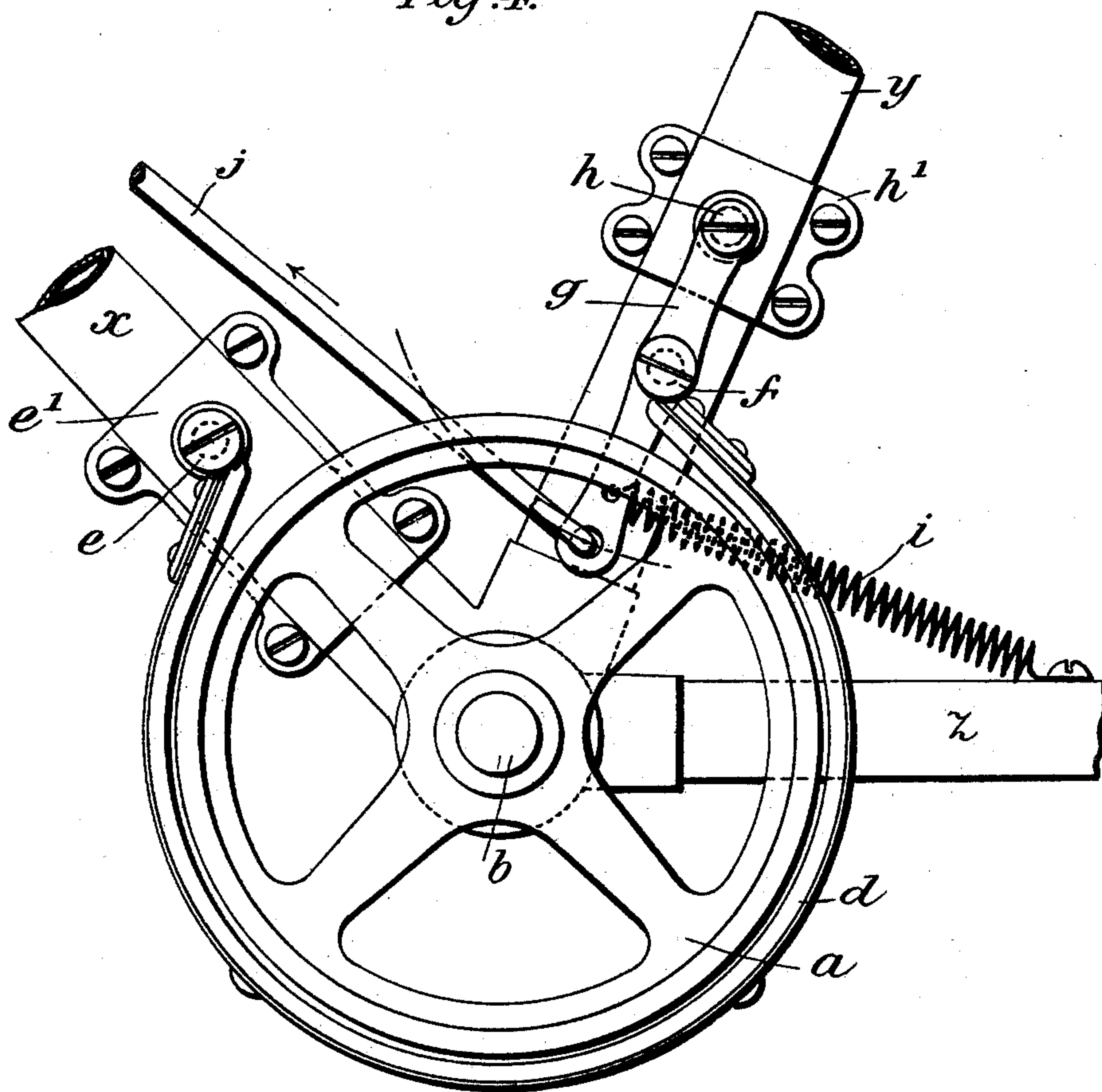
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Fig. 4.



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Fig. 5.

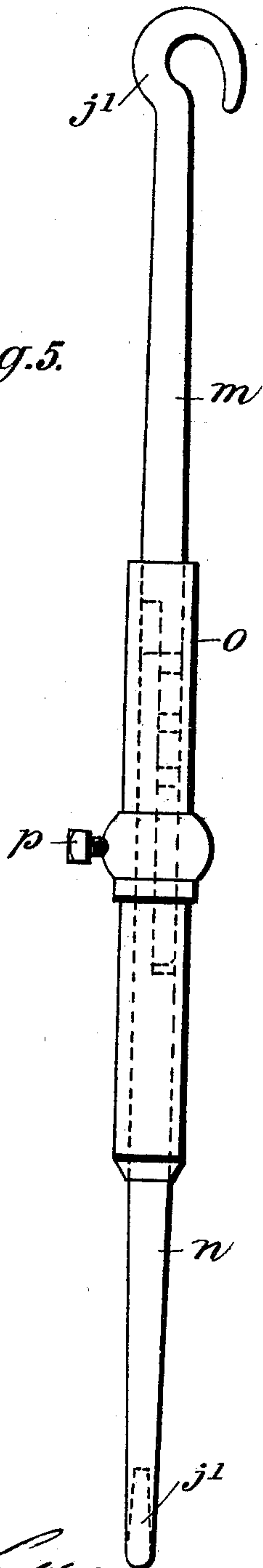
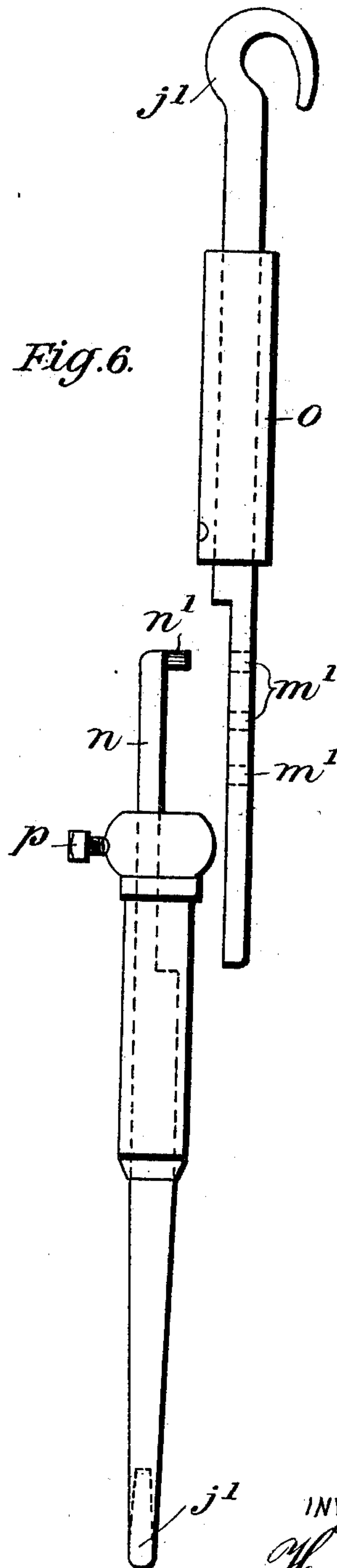


Fig. 6.



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UNITED STATES PATENT OFFICE.

HENRY DARBY, OF LONDON, ENGLAND, ASSIGNOR TO JOHN HENRY PUNCHARD, OF SAME PLACE.

BICYCLE-BRAKE.

SPECIFICATION forming part of Letters Patent No. 619,072, dated February 7, 1899.

Application filed July 20, 1898. Serial No. 686,466. (No model.)

To all whom it may concern:

Be it known that I, HENRY DARBY, manufacturer, a subject of the Queen of Great Britain, residing at 249 Pentonville road, King's Cross, London, England, have invented certain new and useful Improvements in or Relating to Band-Brakes for Bicycles or other Road-Vehicles, of which the following is a specification.

This invention relates to band-brakes for bicycles or other road-vehicles, the object being to provide a brake which will act on a band-wheel on the driving-shaft or other shaft or wheel of the vehicle, and especially on the crank-axle or driving-shaft of a safety-bicycle of the present well-known type, and, furthermore, comprising certain details of improvement in the mechanism for and manner of operating said brakes, the present invention being very effective, though simple, and capable of being easily fitted to bicycles or other road-vehicles either during building or after same have been built.

The present invention is as follows, and by way of example I will proceed to describe same with reference to the drawings hereunto annexed as applied to an ordinary safety-bicycle with chain driving-gear and having a "drop" frame, or what is known as a "lady's" machine.

Figure 1 is a side view of a lady's bicycle having a band-wheel and band-brake fitted thereto according to the present invention. Fig. 2 is a local view, on a greatly-enlarged scale, of said band-wheel and band-brake and connected mechanism. Fig. 3 is a plan view of Fig. 2—i. e., looking in the direction of the arrow 3, Fig. 2. Fig. 4 is a similar view to Fig. 2, showing a modified arrangement. Figs. 5 and 6 show the construction of the brake-rod j' , adjustable as to its length.

A band-wheel a is fixed on the crank-axle or crank driving-shaft b on either or both sides of the bottom bracket c , or, if desired, this band-wheel a may be fixed or formed on the sprocket-wheel (not shown) on said driving-axle b . In the case illustrated the band-wheel a is mounted on the opposite side of the bottom bracket to the chain driving-wheel. (Not shown.) Around or partly around this

band-wheel a a band-brake d is provided, one end d' of said band-brake d being pivoted or secured to a fixed point—viz., a laterally-extending pin e , carried on a suitable clip or device capable of being clipped or adjustably secured in any suitable position on the lower tube x of the drop-frame, such clip or clipping appliance being of any suitable character advantageously adapted to be readily sprung over or placed in position on said tube x and then screwed up tightly thereon by means of a screw-nut or pinching screw or screws. For instance, such pin e may advantageously be carried, as shown in the drawings, on a mount consisting of two parts e' and e^2 , adapted to be screwed together by the screws e^* , by which means the clip can be firmly fixed in the desired position on the tube x . The other or operated end d^2 of said band-brake d is pivoted or otherwise suitably attached to a laterally-extending pin f , like a crank-pin on a rocking arm or bell-crank-like device g , one end or arm g' of which device g is pivoted or adapted to oscillate on a pin h between the center b and the perimeter of the band-brake wheel a , this point h being advantageously just a little within said perimeter, (see Figs. 1 and 2,) the pin or support h on which said crank or rocking arm g turns being carried on an adjustable clip or device capable of being clipped or fixed onto the lower end of the saddle-pillar y at any desired distance from the bottom bracket c . For instance, a clip in two parts $h' h^2$, (similar to the aforesaid clip $e' e^2$), carrying the pin h , may be firmly fixed to the tube y by the pinching-screws h^* . Thus each mount e and f , carrying the ends d' d^2 of the band-brake d , respectively, is capable of adjustment by means of the aforesaid independent clips or clipping devices $e' e^2$ and $h' h^2$, this provision of these independent clips supporting the two ends of the brake-band d having many advantages, especially as they enable band-brakes according to the present invention to be fitted to existing machines, although, if desired, in building new machines with the present improvements applied thereto such mounts may be formed on or permanently attached to the frame.

The aforesaid crank or rocking arm or lever g is extended beyond said crank-pin f , and such extension g^* is advantageously curved rearwardly, and at this curved or outer end g^* has one end of a spring i connected thereto, the other end of such spring i being fixed at i' to the frame—i. e., to the back forks z —so that the tendency of such spring i is therefore to pull said rocking arm g rearwardly and thereby hold the brake-band d "off."

In the case illustrated the device g is rocked and the band d thereby applied to the wheel a by means of the rod j , pivoted to the arm g^2 of the bell-crank-like device g , and by putting said brake-operating rod j in compression by any suitable connection from the brake-lever k on the handle-bars or by other suitable means thereby the said arm g^2 (of the device g) is forced downward in the direction of the arrow j^* (see Fig. 2) and thereby the pin f is swung or moved toward the pin e , and consequently the brake-band d is by a very small movement of the rod j caused to tightly grip around the brake-wheel a , or instead of the brake-operating rod j being put in compression the same may by any suitable mechanism be put in tension, and the lower end of said brake-rod j in such case would be connected to the rear or curved end g^* of the device g , (the arm g^2 being dispensed with,) so that when the brake-operating rod j is pulled up or moved forwardly by the brake-operating handle or lever in any suitable manner—for instance, as hereinafter described—thereby the device g is rocked forwardly and the band d applied to the wheel a , or this rocking device or crank arrangement g may be rocked or pulled forwardly, (against the action of the aforesaid spring i ,) so as to put on the brake by any suitable means operated in any suitable manner by the rider. For instance, the brake-lever k on the handle-bars may be caused to pull up the vertically-descending rod j' , Fig. 1, on the head, (instead of forcing the same down, as usual,) and this may be done in any suitable manner, but advantageously by prolonging said brake-lever k to the opposite side of the head or steering post and there pivoting same. For instance, the same may be hinged or pivoted to a suitable clip attached to the handle-bar, and the vertical descending rod j' , hooked or attached direct to said brake-lever k , would thus be pulled up direct by the latter, the lower end of said descending rod j' being connected to a bell-crank (not shown) carried on an adjustable mount clipped to the head of the machine, another rod or connection passing direct from said bell-crank to the aforesaid rearwardly-curved end g^* of the crank or rocking device g , by which the band-brake is applied, as hereinbefore explained.

Fig. 4 shows the band-brake d carried at the points e and f , which latter are respectively mounted or supported on clips e' and

h' , fixed to the tubes x and y , respectively, in a similar manner to that described with reference to Figs. 1 to 3, only in the case illustrated in Fig. 4 the lever or crank device g is pivoted at the point h outside the perimeter of the brake-wheel a , the brake-operating rod j being put in tension and thereby applying the band d to the wheel a , the spring i , connected with the back forks z , serving to normally hold the brake off, this modification being shown for the purpose of illustrating that the band-brake d , supported on adjustable clips or mounts, such as e' e^2 and h' h^2 , may be used in other manner to that shown in Figs. 1 to 3.

In carrying the present invention into practice I find it advantageous to attach (by brazing, riveting, bolting, or in other suitable manner securing) the pedal-crank m rigidly to the brake-band wheel a in a similar manner to that in which the other crank (not shown) is now usually attached to the chain-wheel, as is well-known and will be readily understood in the cycle trade. This attachment of the pedal-crank m to the brake-wheel a forms no part separately, however, of the present invention.

In Figs. 5 and 6 I have illustrated the vertically descending rod j' formed adjustable in its length, Fig. 5 showing the two parts locked and held together to form a rigid vertical rod, while Fig. 6 shows the two parts separated. In order to make the said vertical descending rod j' adjustable in its length between the brake-operating lever k on the handle-bars and the aforesaid bell-crank (not shown) near the fork-crown, according to the present invention I may form the same in two parts m and n , the ends of which overlap some distance where they meet, one such overlapping end m being provided with a series of holes m' and the other overlapping end n with a corresponding projection n' (or projections) adapted to enter in such hole or holes m' , and when these two overlapping ends m and n have been laid together in the required position a loose sleeve o is then slid over same and same is there held in position, so as to lock and hold these overlapping ends m and n closely together, and advantageously provided with means to hold said sleeve o firmly in position—for instance, by screwing—or same may be provided with a set-screw or pinching-screw p or lock-nut or other suitable means; or these overlapping ends m and n may be provided with angular teeth or have two racks adapted to fit closely together, so that when laid together and secured by the sleeve o aforesaid thereby the length of said vertically-descending rod j' can be vertically adjusted.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, I declare that what I claim is—

In a brake, the combination with the frame of a vehicle provided with a bottom bracket and with frame-tubes diverging therefrom, a

shaft journaled in said bracket and a band-wheel mounted on said shaft, of independent clips mounted on the diverging tubes of said frame on each side of the bearing for said shaft,
5 means for adjusting the clips independently on said diverging tubes, a brake-band supported at each end of said clips, and means for

applying the brake-band to said band-wheel, substantially as set forth.

HENRY DARBY.

Witnesses:

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