

(No Model.)

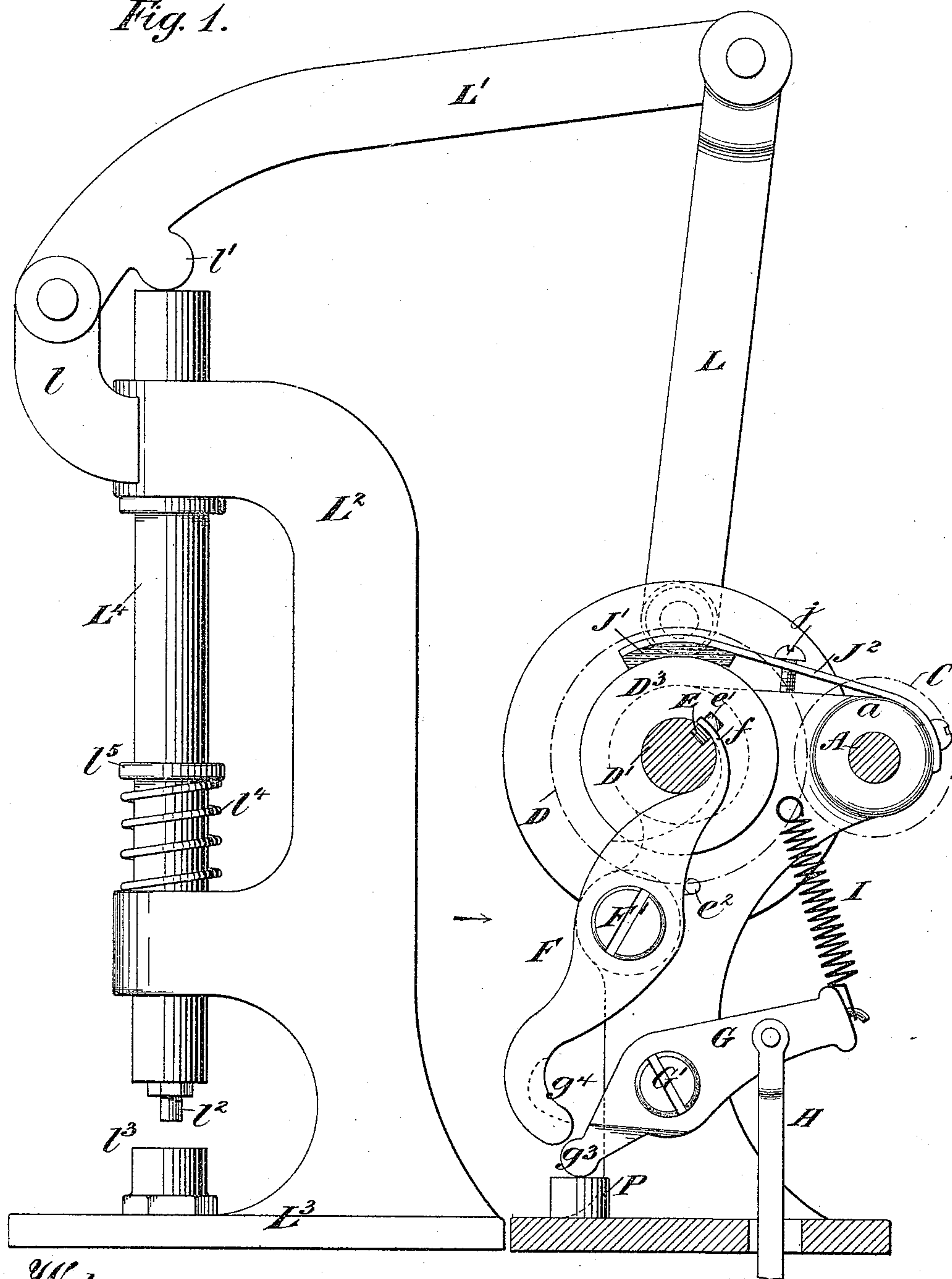
2 Sheets—Sheet 1.

E. B. STIMPSON.
STAMPING AND PUNCHING MACHINE.

No. 438,329.

Patented Oct. 14, 1890.

Fig. 1.



Witnesses:-

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Inventor:-

Edwin B. Stempson
by his attorneys
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Fig. 4.

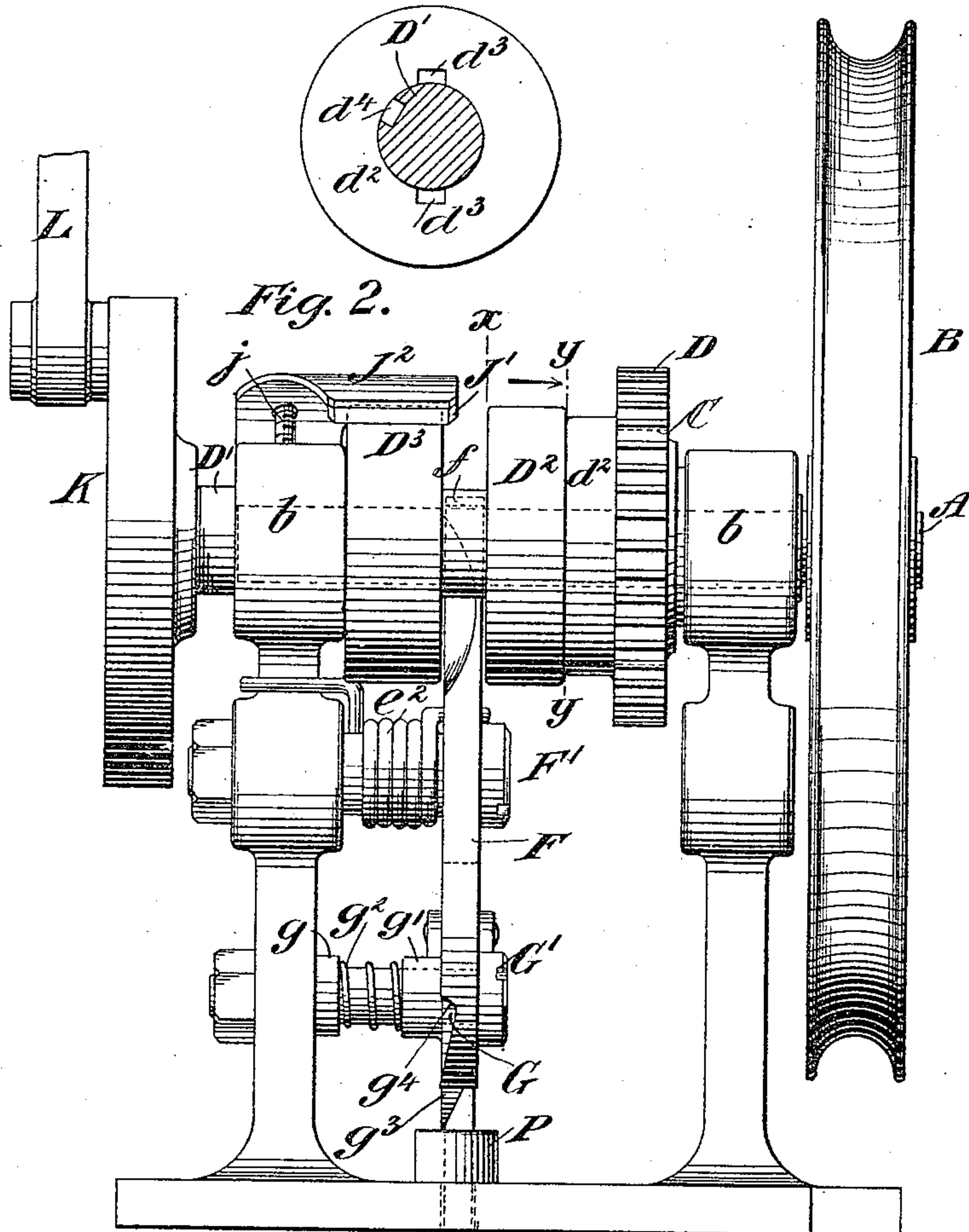


Fig. 2.

Fig. 3. x

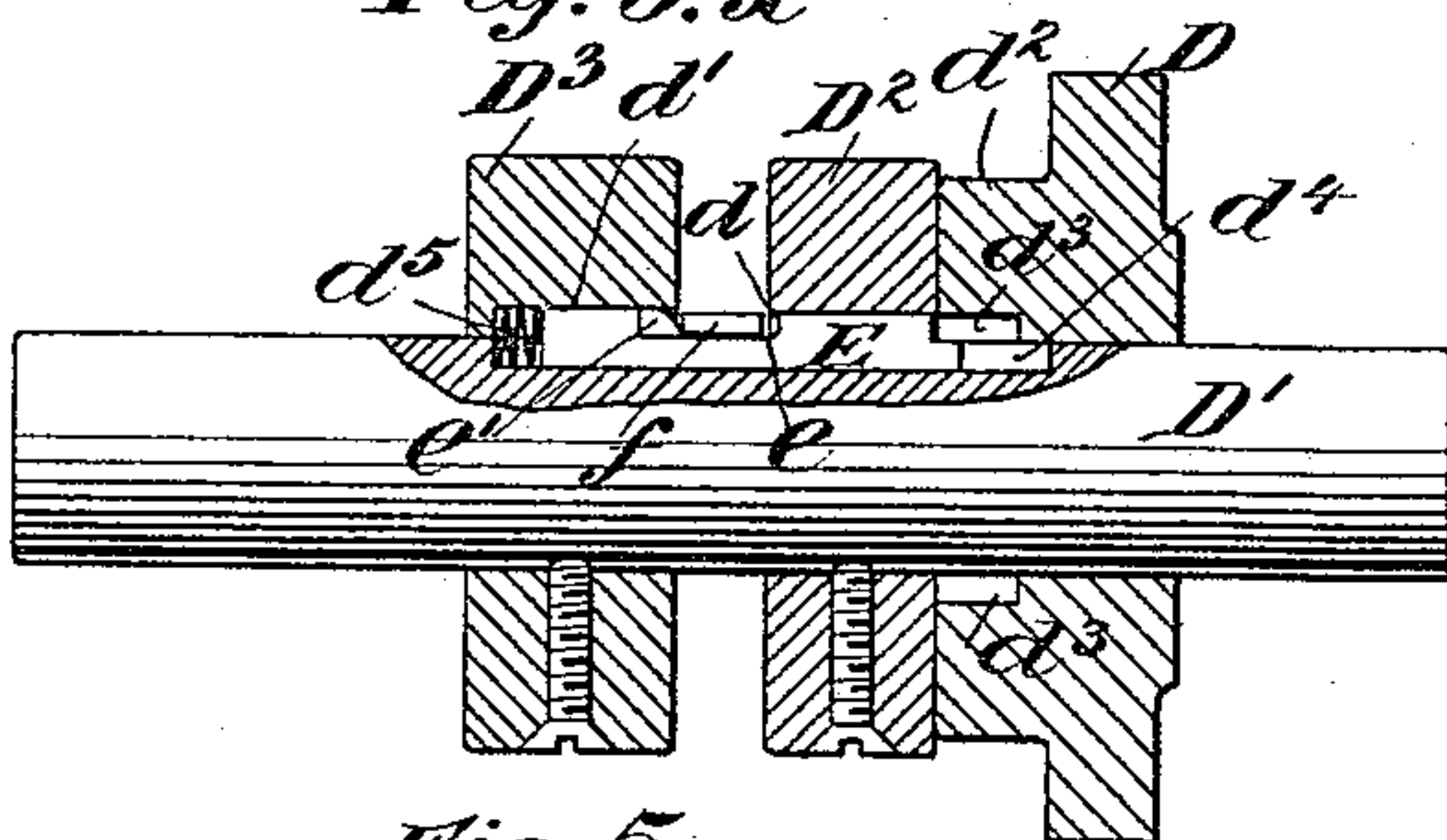


Fig. 5.



Witnesses:-

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UNITED STATES PATENT OFFICE.

EDWIN B. STIMPSON, OF BROOKLYN, NEW YORK.

STAMPING AND PUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 438,329, dated October 14, 1890.

Application filed March 4, 1890. Serial No. 342,541. (No model.)

To all whom it may concern:

Be it known that I, EDWIN B. STIMPSON, of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Stamping and Punching Machines, of which the following is a specification.

My improvement is designed to effect the stamping or punching of holes in leather, metal, or other suitable material, and setting of eyelets and similar operations, and the object is to cause a single operation of the punch or similar tool by power after the machine has been brought into condition for such operation by the hand or foot and to automatically stop the machine after such operation.

I will describe in detail a machine embodying my improvement, and then point out the novel features in claims.

In the accompanying drawings, Figure 1 is an aside elevation, partly in section, of a machine embodying my improvement, the section being taken on the line $x x$, Fig. 2. Fig. 2 is an end elevation looking in the direction of the arrow, Fig. 1, certain of the parts shown in Fig. 1 being omitted in order to save space. Fig. 3 is a view showing a shaft partly broken away and certain members of a clutch in section, certain other members being shown in full lines. Fig. 4 is a section of the same shaft and of a certain gear-wheel employed, the section being taken on the line $y y$, Fig. 2, and looking in the direction of the arrow, Fig. 2. Fig. 5 is a detail showing a certain locking-key comprised in the clutch.

Similar letters of reference designate corresponding parts in all the figures.

A designates a main or driving shaft journaled in suitable bearings a . Upon this shaft is mounted a driving-wheel B, which is driven by a belt from any suitable source of power.

Mounted upon the shaft A is a gear-wheel C. (Shown in dotted lines in Fig. 2 and in outline in Fig. 1.) This gear-wheel meshes with a gear-wheel D, which gear-wheel is mounted upon a shaft D', journaled in suitable bearings b upon the main frame. Rigidly secured upon the shaft D' are two disks D² D³. The disk D² is provided with a transversely-extending slot d . (Shown more clearly in Fig. 3.) This slot extends wholly through the disk in a direction parallel with the axis of the latter.

The disk D³ is provided with a transversely-extending recess d' , which recess does not, however, in this instance extend wholly through the disk. The recess is arranged parallel with the axis of the disk, and is in line with the slot d in the disk D².

The gear-wheel D is provided with a hub d^2 . This hub has arranged upon its side thereof recesses d^3 , of which I have shown two, but of which I may use any desired number. These recesses are open against the shaft and extend parallel with the axis of the gear-wheel. Within the shaft D' is arranged a longitudinally-extending recess d^4 .

E designates a locking-key. (Shown more clearly in Fig. 5.) This key is arranged within the recess d^4 of the shaft D' and extends through the slot d in the disk D² and into the recess d' in the disk D³. It rotates with the shaft and the disks. Within the recess d' , and the rear of the key E, is arranged a coil-spring to d^5 . The tendency of this coil-spring is to always force the key E into such position that it will extend into one of the recesses d^3 in the gear-wheel D. The gear-wheel D is loose upon the shaft D'. When the key E is moved forward in such position that it will extend into one of the recesses d^3 in the hub of the gear-wheel, a clutch is formed by which rotary motion will be imparted to the shaft D'. The key E, however, is normally held out of engagement with the gear-wheel D, so that the driving-wheel B and the gear-wheels C D may rotate continuously without imparting motion to the balance of the machine until the key has been released to form the clutch, as described.

The key E is normally held out of engagement with the gear-wheel D by means of a detent F, which detent is about centrally pivoted upon a stud F', mounted in a portion of the main frame. The upper end of the detent is provided with a curved toe f , said curve being in about the arc of the shaft D'. Such curved toe extends over the shaft D' and between the disks D² D³.

It will be observed that the key E is provided about midway in its length with a notch e , one side of which notch is substantially rectangular, while the other side has a beveled or wedge-shaped portion e' . Normally the curved portion f extends into the notch e ,

and thus prevents the key from moving into one of the recesses d^3 in the wheel D. It is thus held by means of a coil-spring e^2 , coiled about the stud F' and bearing at one end upon one edge of the detent F and at the other end against a portion of the main frame. The resistance offered by this spring tends to hold the curved portion f within the notch e upon the key.

In order to release the detent F, I employ a trip G, which trip is pivoted upon a stud G' , secured in a portion of the main frame. Upon the stud, adjacent to the frame, is a ring-shaped portion g , and upon the trip G is a ring-shaped portion g' , which may slide freely along upon the stud. Between said ring-shaped portions is a light coil-spring g^2 . The lower end of the trip G is provided, as here shown, with a rounded portion g^3 , and the lower end portion of the trip is beveled upon one side to substantially a knife-edge at the extremity of the rounded portion g^3 , as shown more clearly in Fig. 2.

The lower arm of the detent F is shown as curved round and extends downwardly toward the rounded portion g^3 of the trip. It is normally in line with said rounded portion, as shown more clearly in Fig. 2. Upon the side of the detent which is opposite the bevel portion of the trip is a recess g^4 , also shown more clearly in Fig. 2.

H designates a treadle-rod extending to a treadle, (not shown,) by which the trip G may be rocked. When the trip is rocked to cause the rounded portion g^3 to rise, such rounded portion will contact with the lower end of the trip F and rock the latter upon its fulcrum. This action will cause the curved portion f to be withdrawn from the notch e in the key E. The key will then be shoved forward by the action of the coil-spring d^5 , and the wheel D being rotated rapidly the key will quickly find its way into one of the recesses d^3 . Thus a clutch will be formed, as previously described, and rotary motion will be imparted to the shaft D' . Said rotary motion, however, only continues during one rotation of the shaft D' . The stopping of said shaft at the end of a single rotation is accomplished automatically in the following manner: When the trip G has been sufficiently rocked to cause a somewhat extended rocking of the trip F, the rounded portion g^3 of the trip will be swung into the notch g^4 in the trip. When the treadle is released, the rounded portion g^3 will move outwardly from said notch, owing to its bevel and the light resistance offered by the spring g^2 , so that the trip G may move along upon the stud G' . This movement occurs very quickly, and as soon as the rounded portion g^3 has passed the lower end of the trip F it will be returned to its normal position beneath said end by the spring g^2 . The quick rocking of the trip in a direction contrary to that in which it is moved by the treadle H is accomplished by a spring I, secured at one end to the frame and at the other end to the

outer extremity of the trip. As soon as the detent is released from the trip it is at once sprung back into its normal position by the spring e^2 . As the shaft D' is rotated, the beveled portion e' of the key will contact with the curved portion f of the trip, thus forcing the key out of engagement with the trip G and breaking the clutch.

I have shown a stop P beneath the rounded portion g^3 of the trip, which prevents a too extended downward movement of said rounded portion.

In order to cause the sudden stopping of the rotation of the shaft D' , I have shown bearing upon the disk D^3 a brake J' , arranged upon one end of a stiff flat spring J^2 , which spring is secured near the other end to a portion of the frame. An adjusting-screw j , passing through said spring and bearing upon the top of the frame, may be operated to vary the resistance offered by said brake. Upon the outer extremity of the shaft D' is a crank K, to the pin of which is pivoted a link L. This link is pivotally connected near its other end to a lever L' . The lever L' is fulcrumed upon a projection l , extending from a frame L^2 , which frame L^2 extends upwardly from the base or plate L^3 . The underside of the lever L' is provided with a rounded projection l' , which bears upon the top of a plunger L^4 , working in suitable bearings in the frame L^2 . This plunger bears at its lower end a punch l^5 , adapted to co-operate with a die l^3 . A spring l^4 , arranged between one of the bearings of the frame L^2 and a collar l^5 thereon, tends to hold the plunger L' in a constantly-elevated position.

It will be readily seen that the rotation of the shaft D will cause a single rotation of the crank, and consequently a single operation of the punch.

Although I have shown my improvement as applied to the operation of a punch of ordinary construction, I wish it to be understood that I do not limit myself to such use, but may apply it to various other uses, such as stamping, riveting, eyeletting, &c.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine for stamping, punching, and similar uses, the combination, with a constantly-driven main shaft, of a gear-wheel on said shaft, a second shaft, a gear-wheel loosely mounted on said second-named shaft and deriving motion from the gear-wheel first named, said second-named gear-wheel constituting one member of a clutch, a longitudinally-movable key mounted on said second-named shaft, constituting another member of the clutch, a spring acting on said key to force it into engagement with the gear-wheel, a detent operating normally to maintain said key out of engagement with the gear-wheel, and a trip acting upon the detent to withdraw it and permit the key to engage the gear-wheel, substantially as specified.

2. In a machine for stamping, punching,

and similar uses, the combination, with a constantly-driven main shaft, of a gear-wheel on said shaft, a second shaft, a gear-wheel loosely mounted on said second-named shaft 5 and deriving motion from the gear-wheel first named, said second-named gear-wheel constituting one member of a clutch, a longitudinally-movable key mounted on said second-named shaft, constituting another member of 10 the clutch, a spring acting on said key to force it into engagement with the gear-wheel, a detent operating normally to maintain said key out of engagement with the gear-wheel and provided near its lower end and upon 15 one side with a notch, and a horizontally-movable rocking trip acting upon the detent to move it in one direction and provided near its lower end with a beveled portion, all substantially as and for the purpose specified.

20 3. In a machine for stamping, punching, and similar uses, the combination, with a

constantly-driven main shaft, of a gear-wheel on said shaft, a second shaft, a gear-wheel loosely mounted on said second-named shaft and deriving motion from the gear-wheel first 25 named, said second-named gear-wheel constituting one member of a clutch, a longitudinally-movable key mounted on said second-named shaft, constituting another member of the clutch, a spring acting on said key to 30 force it into engagement with the gear-wheel, a detent operating normally to maintain said key out of engagement with the gear-wheel, a trip acting upon the detent to withdraw it and permit the key to engage the gear-wheel, 35 a friction-wheel on said second-named shaft, and a brake acting on said friction-wheel, substantially as specified.

EDWIN B. STIMPSON.

Witnesses:

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