

No. 639,081.

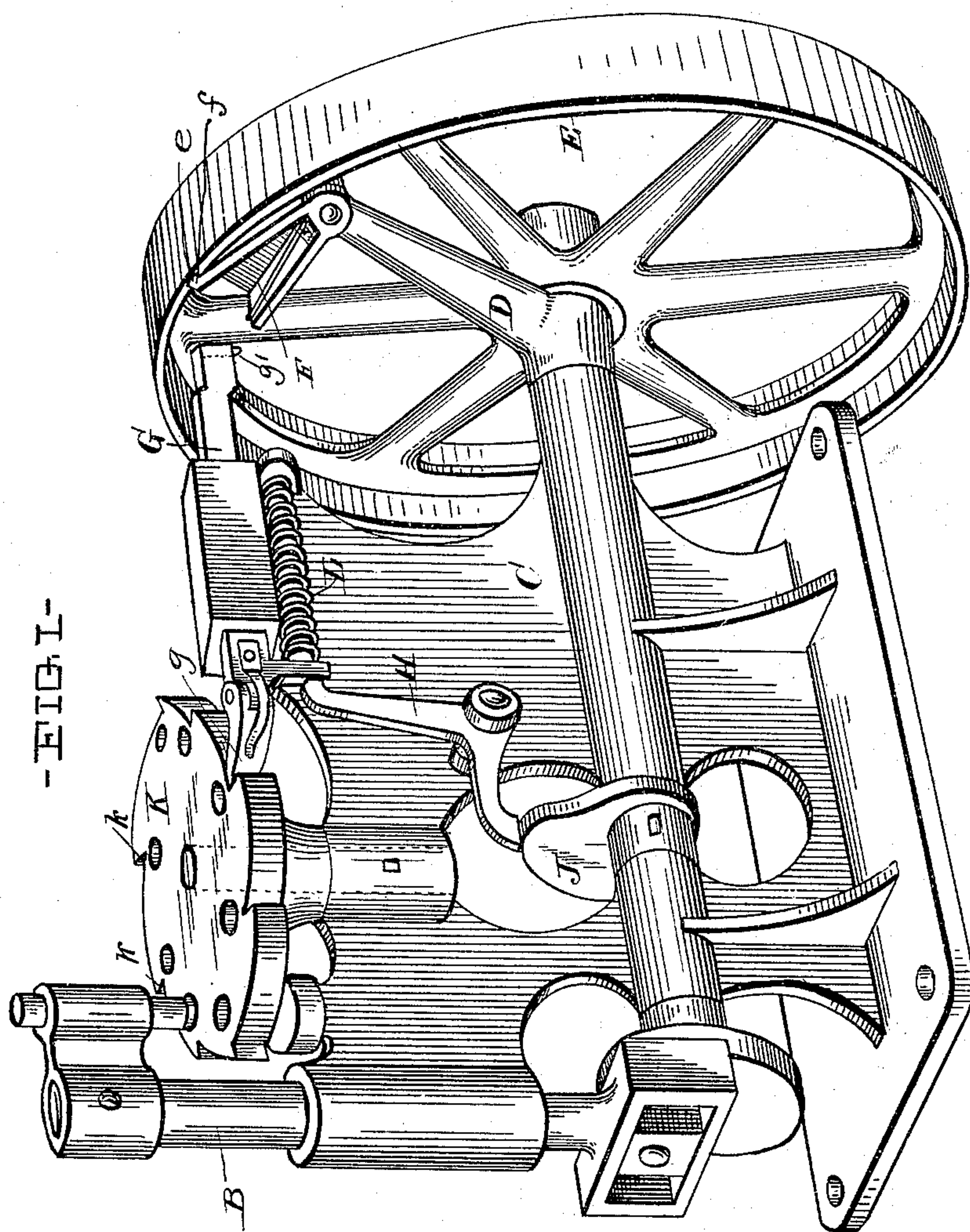
Patented Dec. 12, 1899.

W. L. MORRIS.
TRIPPING MECHANISM.

(Application filed May 5, 1899.)

(No Model.)

2 Sheets—Sheet 1



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By J. DeKay Atty.

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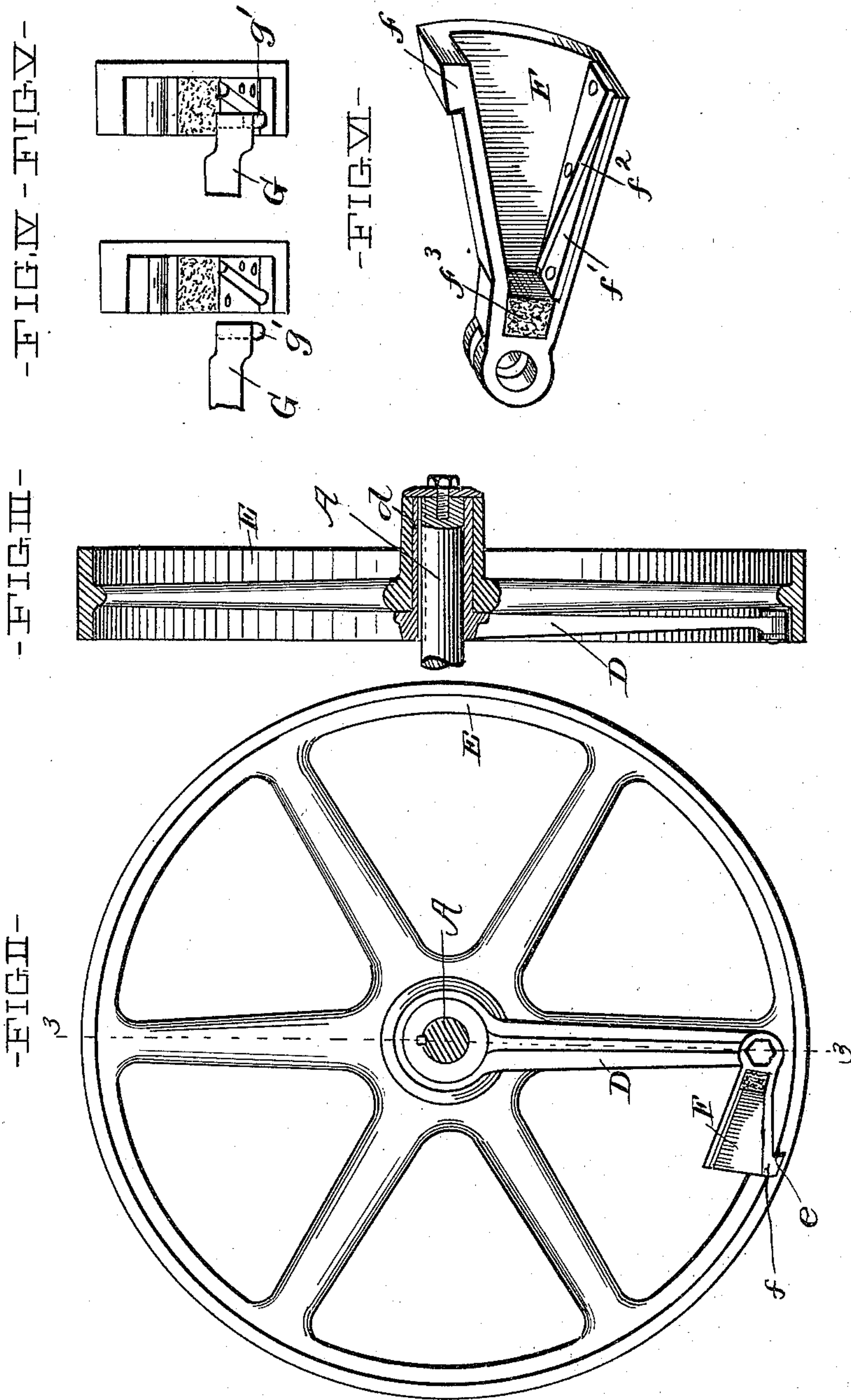
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UNITED STATES PATENT OFFICE.

WILLIAM L. MORRIS, OF CLEVELAND, OHIO, ASSIGNOR TO THE AUSTIN
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TRIPPING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 639,081, dated December 12, 1899.

Application filed May 5, 1899. Serial No. 715,657. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. MORRIS, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Tripping Mechanisms, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle so as to distinguish it from other inventions.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents a general perspective view of a device to which my improved mechanism may be applied. Fig. II represents an end elevation of the driving member and a similar view of the driven member of said device, showing also the means for connecting the two said means and constituting one of the trip members. Fig. III represents a vertical central section of said driving member, taken upon line 3 3, Fig. II, showing the driven member in partial elevation. Figs. IV and V represent enlarged detail end views of the means for connecting the driving and driven members, showing also the end of the other trip member; and Fig. VI represents a perspective view of said connecting means.

The illustrated device to which my invention is applied is a punching or stamping machine in which a revolving disk is employed containing a number of female punch members, or, in case the device be used for stamping purposes, a number of dies in which a heavy pressure is required to perform the desired work, necessitating a rigid connection with the driving means and the consequent exact successive registering of the male punch member with the female member or the stamp with the die, and in which a failure to properly register obviously involves the subjection of the metal of the machine to excessive strains resulting in destruction of the apparatus. It is therefore necessary to provide means for automatically stopping the machine

in the event of improper relationship of the male and female punch members or the stamp and die.

The operating-shaft A, which drives the reciprocating rod B, is mounted in a suitable bearing in the frame C and has keyed upon a projecting end an arm D, formed with a sleeve *d*, upon which latter is loosely journaled a driving member or pulley E. The inner side of the pulley-hub is cut away so as to permit the end of the arm D to project to within a short distance of the inner side of the contiguous rim portion, as shown in Fig. III. Upon the end of said arm is pivoted a trip-latch F, formed with a lug *f*, (see Fig. VI,) which engages a notch *e*, formed on the inner side of the wheel-rim, as shown in Fig. II. It has been found in practice that no other means for holding the pivoted trip-latch F in engagement with the notch *e* is required further than the frictional resistance offered by the contact of the lug *f* with the lateral surface of said notch, due to the constant pull of the connecting-latch against said surface. Said latch is further formed or provided with a plane *f'*, inclined to the rotary path of the latch during its engagement with the pulley, said plane being provided with a groove *f''*, diagonally traversing it, as shown in Fig. VI. In other words, said plane forms an angle with a tangent to a circle described by the point of intersection with said plane of the axis of arm D or a line parallel therewith and in the plane passing through the axis of the pulley E and perpendicular to the plane of rotation thereof at such point of intersection. A rubber buffer *f'''* is secured in the inner portion of said latch, as shown in said Fig. VI. Sliding in a bearing and contiguous to the pulley-rim is the second trip member or bar G, which is actuated positively toward the pulley by means of a bell-crank lever H, fulcrumed upon the frame C, as shown in Fig. I, and having separable connection with and operated by means of a cam J, keyed to the operating-shaft A. A spring-actuated dog *g* is secured to the end of the said bar and engages ratchet-teeth *k*, formed in the periphery of the rotatable plate K, in which are formed the female punch members or the dies, as the case may be. A spring L actu-

ates the rod in the direction opposite that given it by the cam J and effects the intermittent rotary movement of the plate. The bar G is made of a length such that it is normally caused to project into the path of the inclined plane at all times excepting during the apposition of the end of said bar and said plane—that is, at or near the end of the stroke effected by the spring L, as shown in Fig. IV.

10 Said bar end is formed with a projection or lug *g'*, adapted to engage the groove in the plane, as shown in Fig. V.

By means of the above arrangement it is seen that should the spring L, by accident or interference, fail to bring the plate K into a position for the proper operation of the male punch or stamp the bar end will remain in the path of the inclined plane, and the consequent engagement of the two will cause the latch to become disengaged from the driving-pulley and the pulley and arm thus become disconnected, thereby throwing the operating-shaft out of engagement with the driver and stopping the machine. Such stopping

25 hence prevents the punch or stamp from descending and injuring the mechanism and the blank work. The engagement of the bar with the groove causes the former to be quickly drawn into the wheel and so held, thus insuring the required action.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means covered by any one of the following

35 claims be employed.

I therefore particularly point out and distinctly claim as my invention—

1. The combination of a driving member, a driven member, connecting means for said

40 two members capable of disconnection and consisting of a pivoted member on one of said

first-named members and engaging the other, means for disconnecting said two members, yielding means for moving the disconnecting means out of the path of the connecting means, and mechanism for giving said disconnecting means a positive movement into the path of said connecting means, said movement of said disconnecting means being such as to cause the same to be out of such path during its apposition with said connecting means, substantially as set forth.

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2. The combination of a driving member, a driven member, connecting means for said two members capable of disconnection and consisting of a pivoted member on one of said first-named members and engaging the other, said pivoted member provided with an inclined plane, and means projecting into the path of said connecting means for engaging said inclined plane to disconnect the driving and driven members on the alteration of the relative position of said disconnecting means and the driving means from the normal, substantially as set forth.

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3. The combination of a driving member, a driven member, means for connecting said two members and capable of disconnection, said means consisting of a pivoted latch mounted upon one of said members and engaging the other, said latch formed with a plane inclined to the path of the latch and formed with a diagonally-traversing groove; a reciprocating member actuated to project into the path of said plane, having a separable connection with its actuating means, and having means for engaging said groove, substantially as set forth.

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Signed by me this 26th day of April, 1899.

80 WILLIAM L. MORRIS.

Attest:

D. T. DAVIES,
A. E. MERKEL.