

(No Model.)

2 Sheets—Sheet 1.

D. HAMMOND.
SHAPE METAL CUTTING MACHINE.

No. 516,737.

Patented Mar. 20, 1894.

Fig 1.

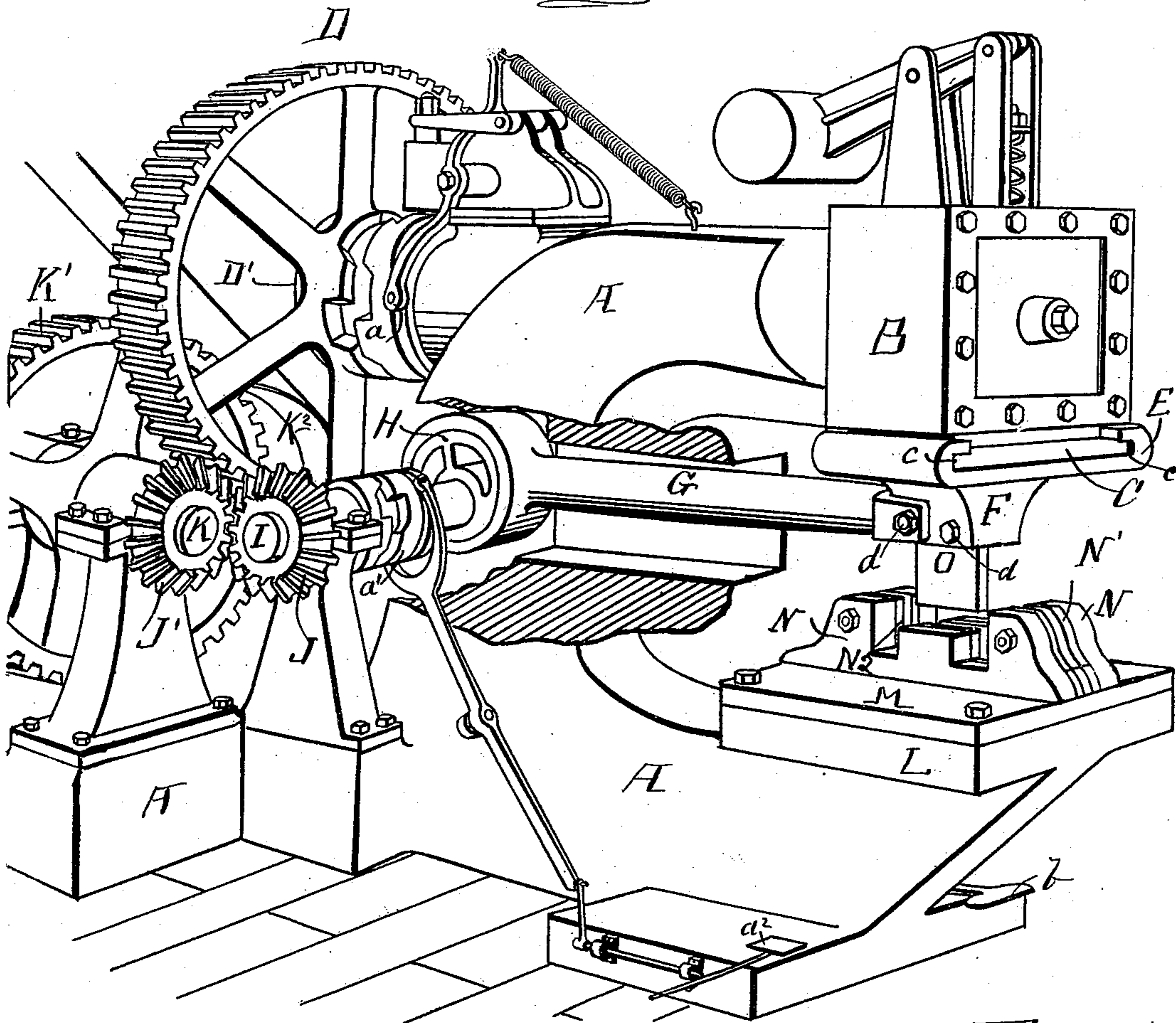


Fig. 2

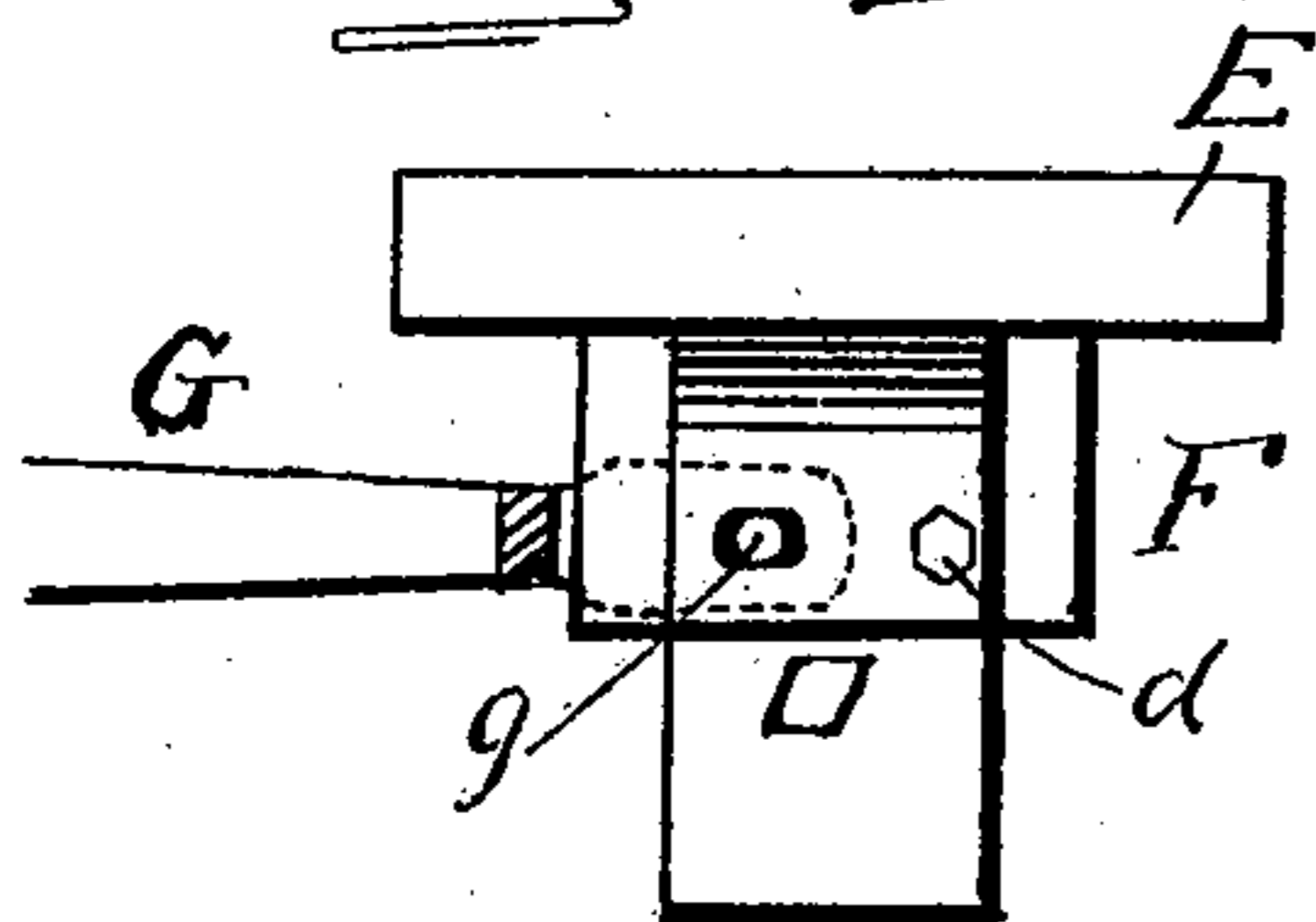


Fig. 3

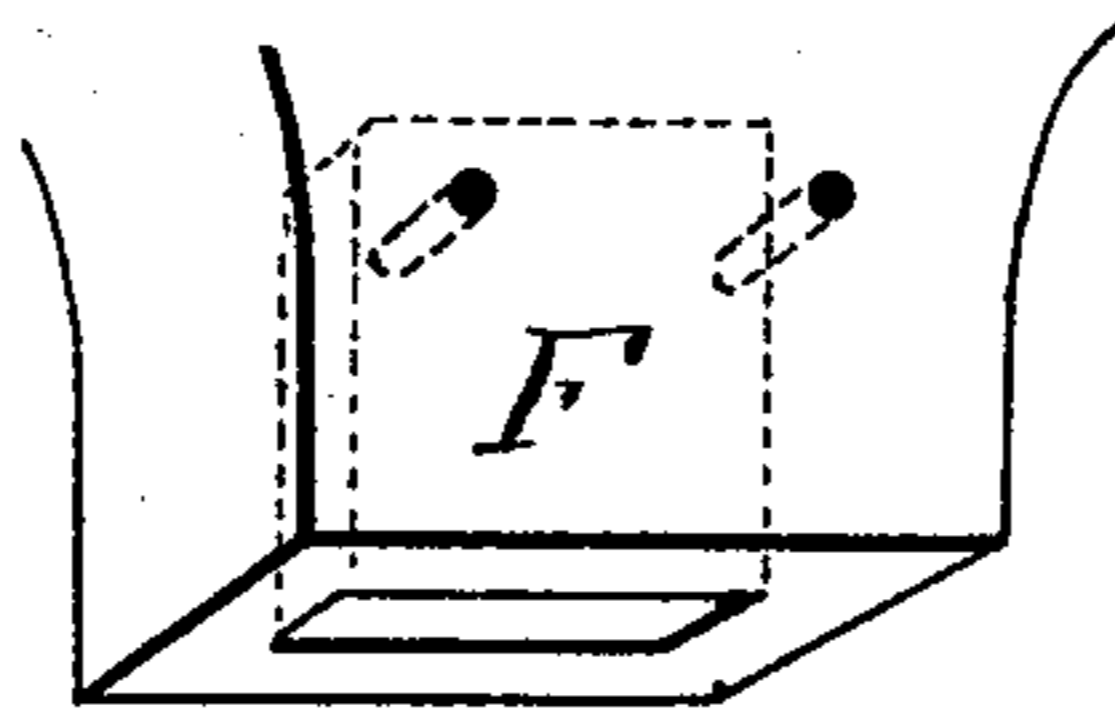
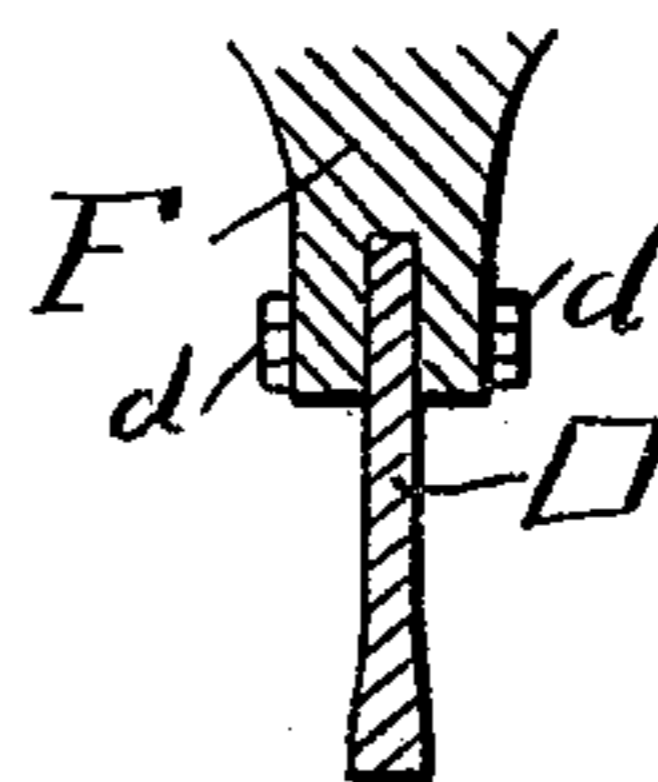


Fig. 4



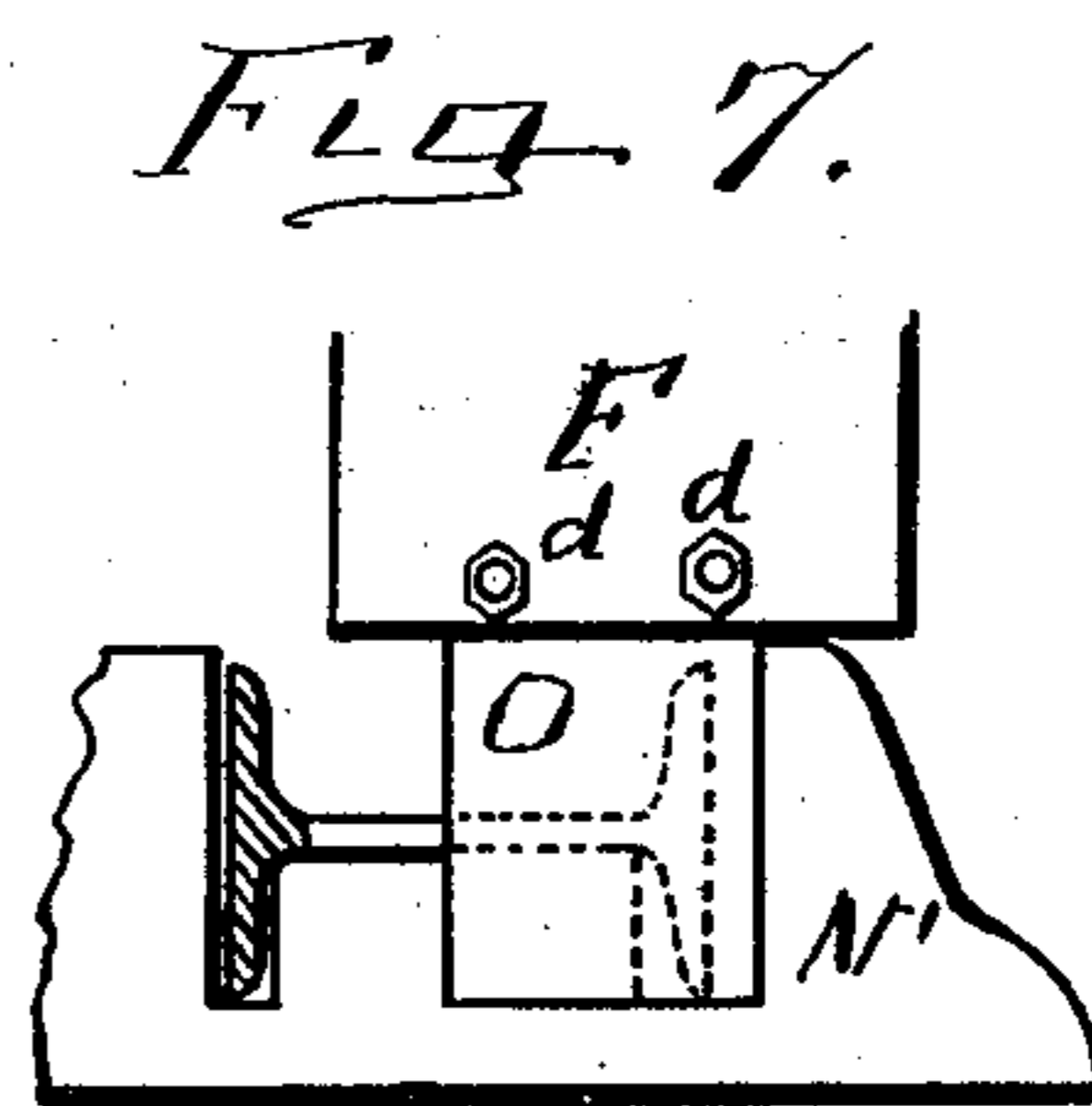
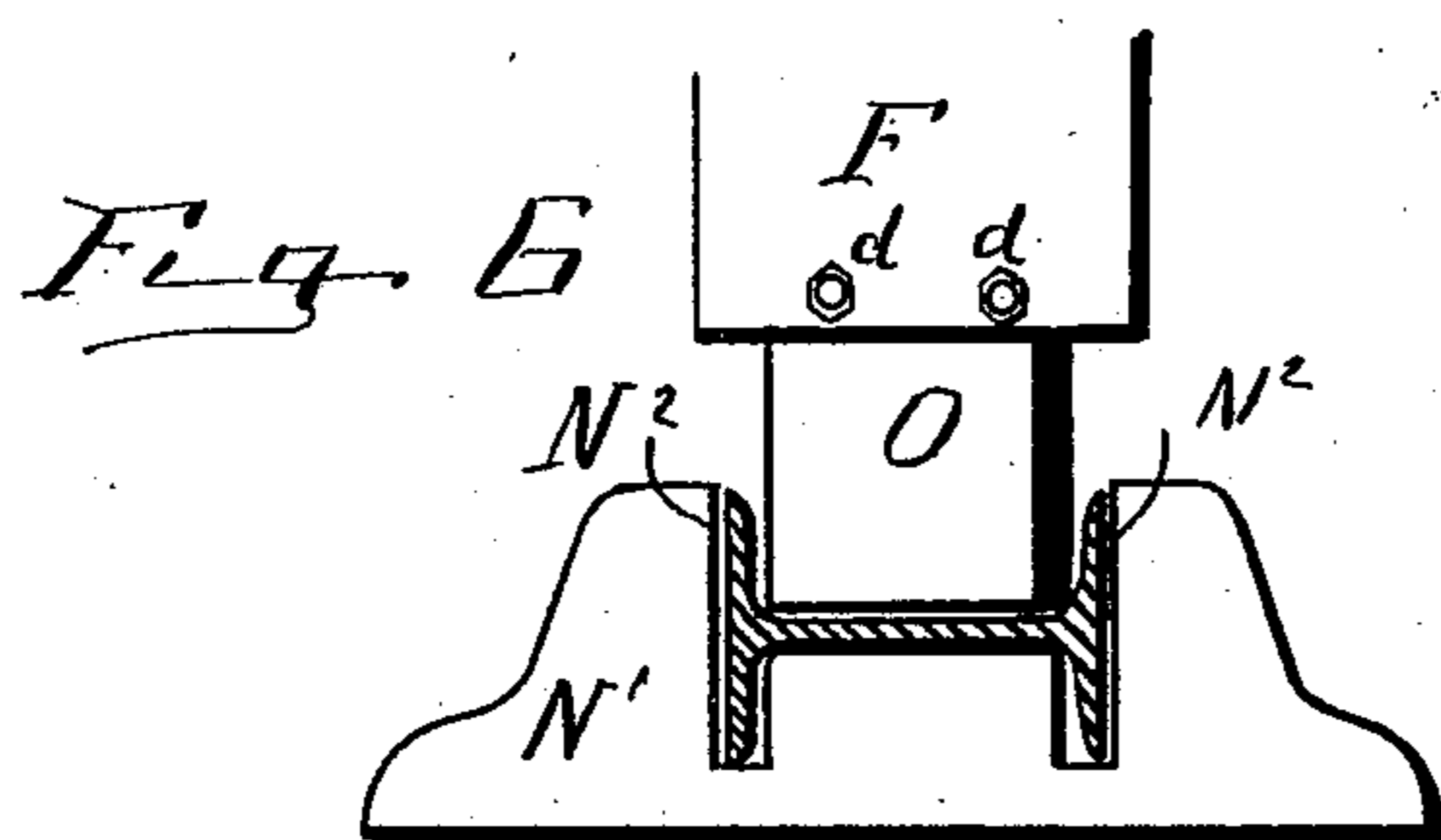
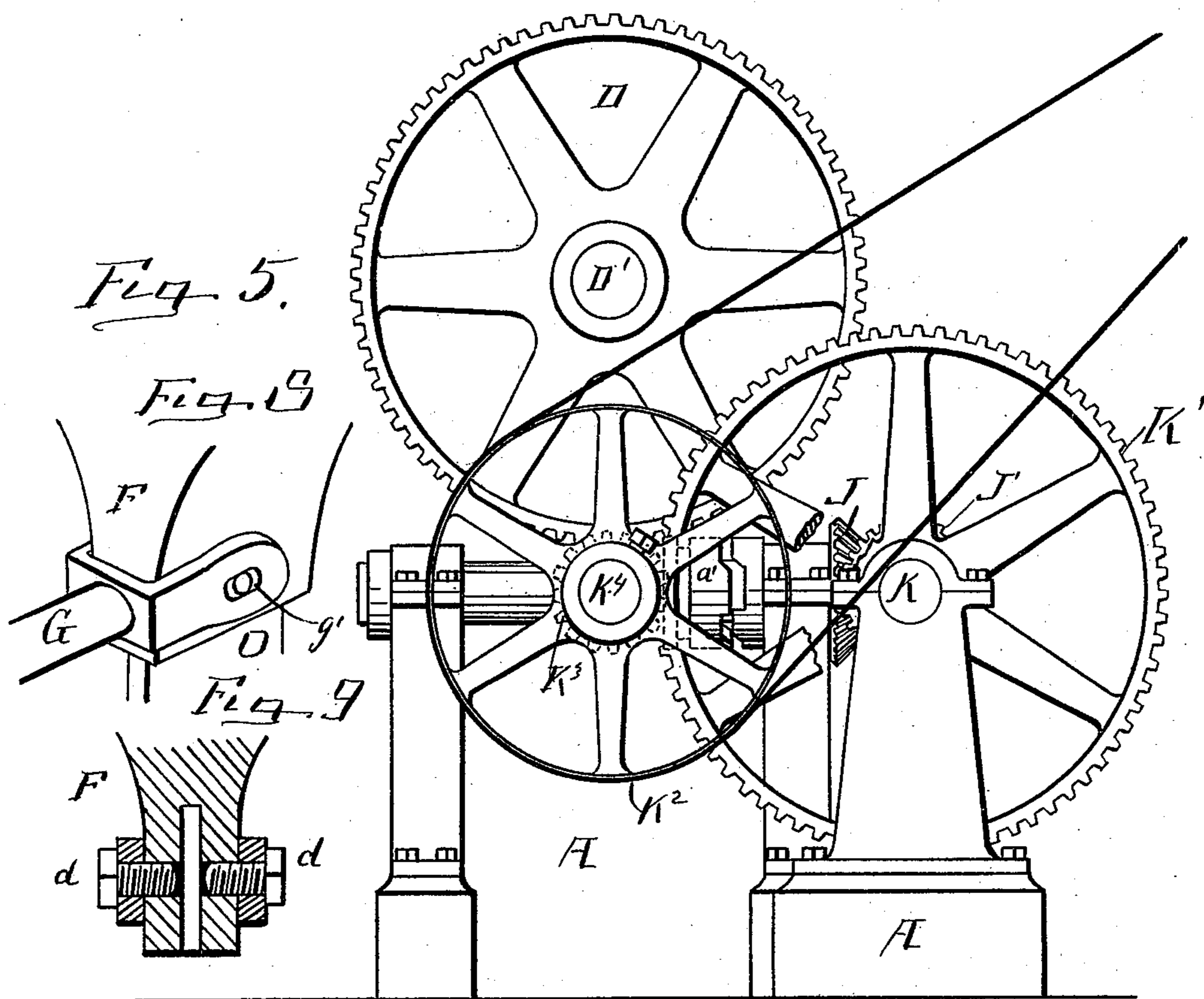
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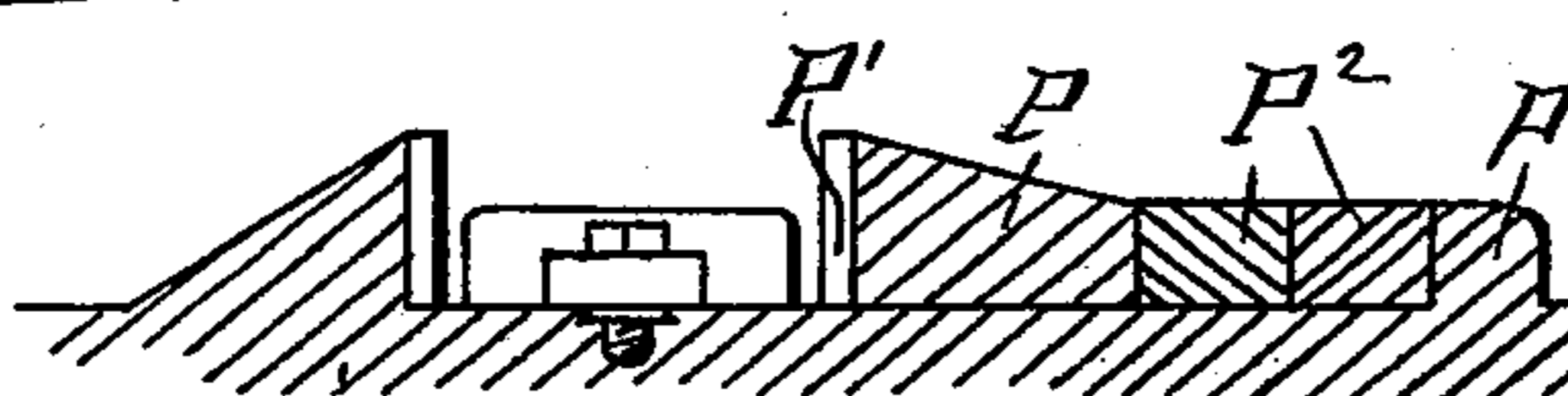
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E. A. Smith
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Inventor.

Fig. 10. *David Hammond*

By *And W. Bond*
Attorney



UNITED STATES PATENT OFFICE.

DAVID HAMMOND, OF CANTON, OHIO.

SHAPE-METAL-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 516,737, dated March 20, 1894.

Application filed December 26, 1893. Serial No. 494,695. (No model.)

To all whom it may concern:

Be it known that I, DAVID HAMMOND, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Shape-Metal-Cutting Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1, is a perspective view of the machine proper, showing parts broken away. Fig. 2 is a view of the cutting blade, showing the same attached to its socket or arm, also showing the eccentric bar or pitman properly attached thereto. Fig. 3, is a detached perspective view of the blade socket arm. Fig. 4, is a vertical section of the socket and its cutting blade. Fig. 5, is a rear end view of the machine. Fig. 6, is a view, showing the position of the cutting blade with reference to the dies, also showing the location of an I beam, when placed in proper position to be cut. Fig. 7, is a similar view, showing the cutting blade passed downward through the web, and moved laterally so as to cut one of the flanges of the I beam. Fig. 8, is a perspective view, showing a portion of the cutting blade socket or arm, and illustrating the eccentric arm or pitman attached thereto. Fig. 9, is a vertical section of the blade socket or arm showing the cutting blade removed. Fig. 10, is a sectional view of the die flange, and plate showing an adjustable die block and dies.

The present invention has relation to shape metal cutting machines, and it consists in the different parts and combination of parts, hereinafter described, and particularly pointed out in the claims.

Similar letters of reference indicate corresponding parts in all of the figures of the drawings.

In the accompanying drawings A, represents the body of the machine, which is constructed in the ordinary manner, reference being had to properly attaching and adjusting my improvements.

The casing or shell B is provided with the ordinary machinery to impart an up and down

movement to the plunger head C, which machinery is propelled by the wheel D.

To one side of the wheel D and upon its shaft D' is located the interlacing clutch *a*, which interlacing clutch is operated in the ordinary manner by means of the treadle *b*.

To the plunger C, is attached the sliding head E, to which sliding head is securely attached the cutting blade socket arm F, which cutting blade socket arm is preferably formed integral with the head E.

For the purpose of causing the head E, to follow the up and down movements of the plunger C, the head E, is provided with the grooved flanges *c*, which grooved flanges embrace the sides of the plunger head C, substantially as illustrated in Fig. 1.

To the socket or arm F, is pivotally attached the eccentric pitman or arm G, which arm is attached to the eccentric H in the ordinary manner.

To the eccentric shaft I, is securely attached the beveled pinion J, which beveled pinion meshes with the beveled pinion J', said beveled pinion J' being securely attached to the shaft K, which shaft K, is provided with the wheel K'.

For the purpose of communicating rotary motion to the wheels D and K', the pulley K² and the pinion K³, are provided. The pinion K³, is illustrated in dotted lines Fig. 5, and is located upon the power shaft K⁴.

It will be understood that various styles of gearing can be used to impart rotary motion to the eccentric shaft I without departing from the nature of my invention, inasmuch as the only object to be accomplished is to impart rotary motion to a shaft, provided with an eccentric, which shaft is located substantially at right angles to the main shaft of the machine.

The eccentric shaft I, is provided with the interlacing clutch *a'*, which interlacing clutch is operated by the treadle *a*², and the bars attached thereto; but it will be understood, that various devices can be used for operating the interlacing clutch *a'* without departing from the nature of my invention, as the only object to be accomplished is to throw the eccentric H in and out of gear, for the purpose hereinafter described.

To the bed L, is securely attached the die plate M, which die plate is provided with the flanges N, which flanges hold the dies N', said dies being substantially of the form shown in 5 in Figs. 1, 6, and 7.

For the purpose of providing a means for cutting the flanges of I beams or channel bars, the dies N' are provided with the vertical edges N². To the socket arm F, is rigidly attached the cutting blade O, by means 10 of the bolts d. For the purpose of providing a cutting blade that will be easily operated as hereinafter described, and at the same time provide a cutting blade, having three 15 cutting edges the central portion of said blade is formed somewhat thinner than the edges, substantially as illustrated in Fig. 4. In use a cutting blade, such as O, is attached to the socket F, by means of the bolts d, or their 20 equivalents, and the bar or beam designed to be cut, is placed in the position illustrated in Figs. 6 and 7, when a down stroke is given to the cutting blade by pressing the treadle b, and when the cutting blade has reached its 25 lowest point, and before it has been elevated, the treadle a², is pressed downward, thereby imparting a rotary motion by means of the interlacing clutch and the eccentric shaft, which in turn gives the cutting blade O, a 30 horizontal reciprocating movement, and as said cutting blade is moved in one direction, the flange at the side of the cutting edge of the knife will be cut, and as the cutting blade is moved in the opposite direction, the opposite flange of the I beam or channel bar will 35 be cut, thereby completely cutting off the beam. It will be understood that one complete revolution of the eccentric will move the cutting blade horizontally toward each of the side flanges thereby cutting both flanges 40 of the I beam or channel bar.

It will be understood that the up and down movement of the plunger C, must be a true vertical one, and for the purpose of allowing 45 for the arc described by the pivoted end of the pitman G, as the plunger moves up and down, a slot g, may be formed in the socket F, as illustrated in Fig. 2, or the slot g' may be formed in the yoked end of the pitman G, 50 as illustrated in Fig. 8, as it will be understood that it is immaterial as to the location of the slot, as the same object can be accomplished by the use of either.

It will be understood that by my peculiar 55 arrangement I am enabled to give to the cutting blade O, two distinct and independent

movements; one of said movements being a true up and down, and the other a true horizontal movement, thereby providing a means for cutting the webs and flanges of I beams or channel bars, or other irregular shaped beams without moving or changing the position of the beam or bar after it has been once placed in position.

In Fig. 10, I have illustrated an adjustable die-block, which consists in providing the removable block P, which block is provided with a set of dies, such as P', said block and dies being securely held against lateral movement by means of the filling blocks P², which 7 filling blocks may be of any desired size, and are placed between the die block P, and the flange P³.

Having fully described my invention, what I claim as new, and desire to secure by Letters 7 Patent, is—

1. The combination of the body A, provided with the casing or shell B, having located therein, a reciprocating plunger provided with the sliding head E, having the arm or 8 socket F, the cutting blade O, rigidly fixed to the socket arm, the pitman G pivoted to the arm F, the eccentric H, and means for imparting rotary motion to the eccentric, the bed plate L, and the dies N', substantially 8 as and for the purpose specified.

2. The combination of the body A, provided with the shell or casing B, the plunger C, carrying the sliding head E, having the socket arm F, the cutting blade O formed 9 somewhat thinner in its central portion, and means for imparting vertical and horizontal reciprocating movement to the cutting blade, and dies located below the cutting blade, substantially as and for the purpose specified.

3. The combination of the body A, provided with the casing or shell B, the reciprocating plunger, C, carrying the sliding head E, having the socket arm F, and cutting blade O, the eccentric arm G, pivoted to the arm F, the beveled pinions J and J', the wheel K', the interlacing clutch a' and means for operating said clutch, and the dies N', substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

DAVID HAMMOND.

Witnesses:

E. A. C. SMITH,
F. W. BOND.