

983,042.

J. GIRLOT.
MECHANICAL FORGING OF WHEELS OF IRON OR STEEL.
APPLICATION FILED APR. 1, 1909.

Patented Jan. 31, 1911.

2 SHEETS—SHEET 1.

Fig. 7.

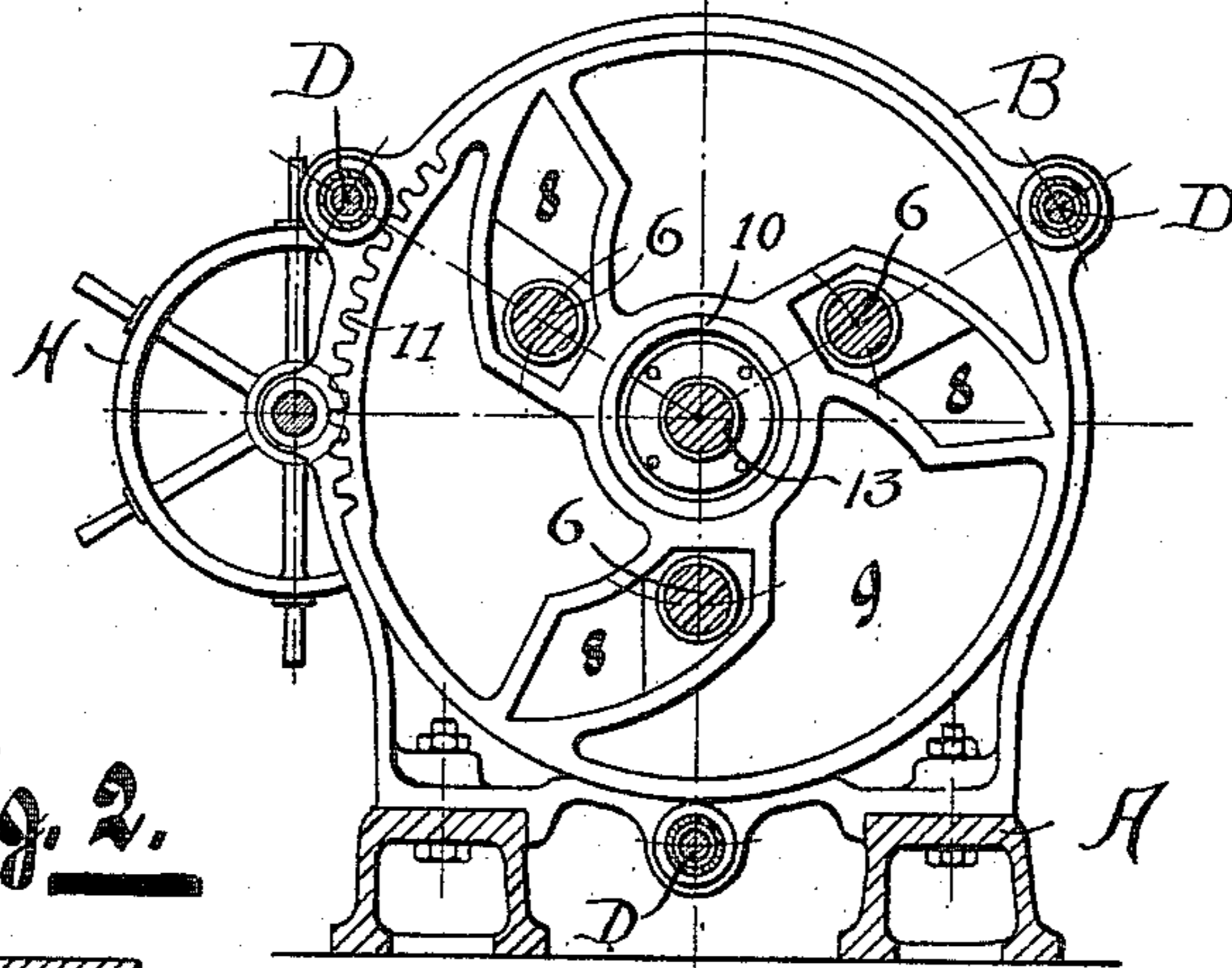


Fig. 2.

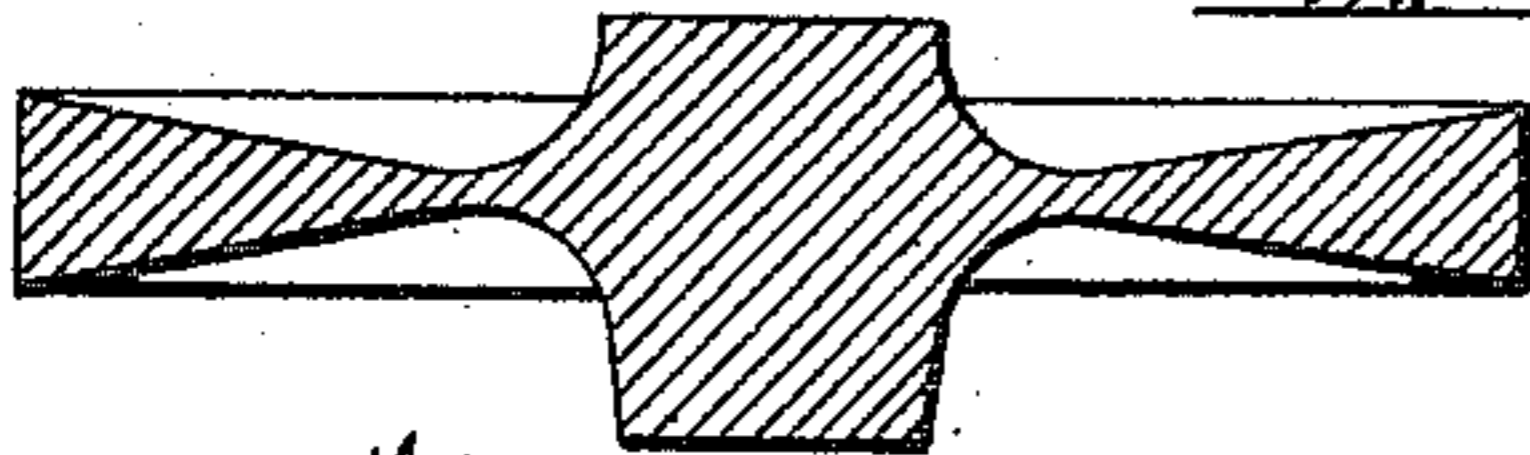


Fig. 11

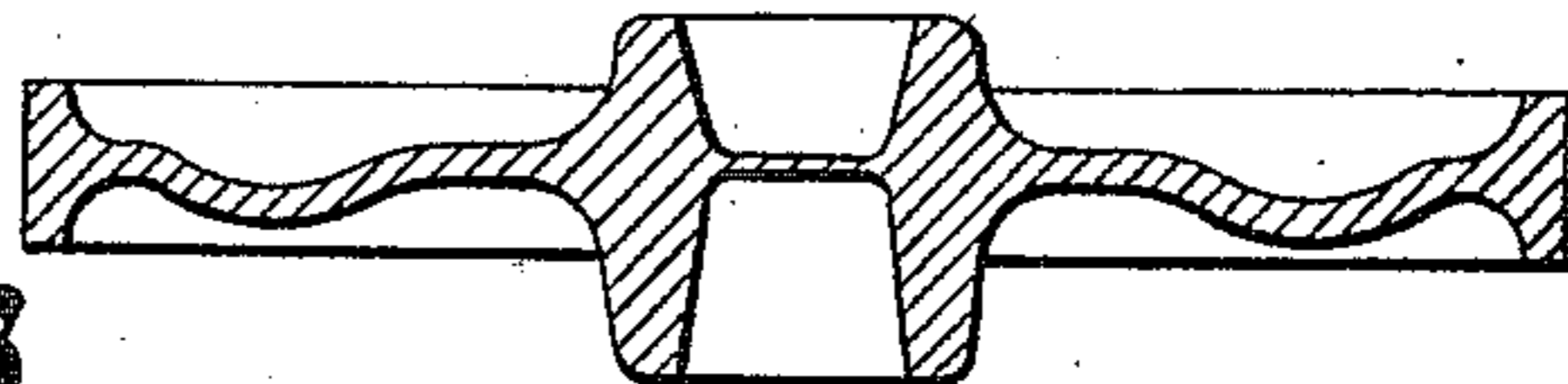


Fig. 1.

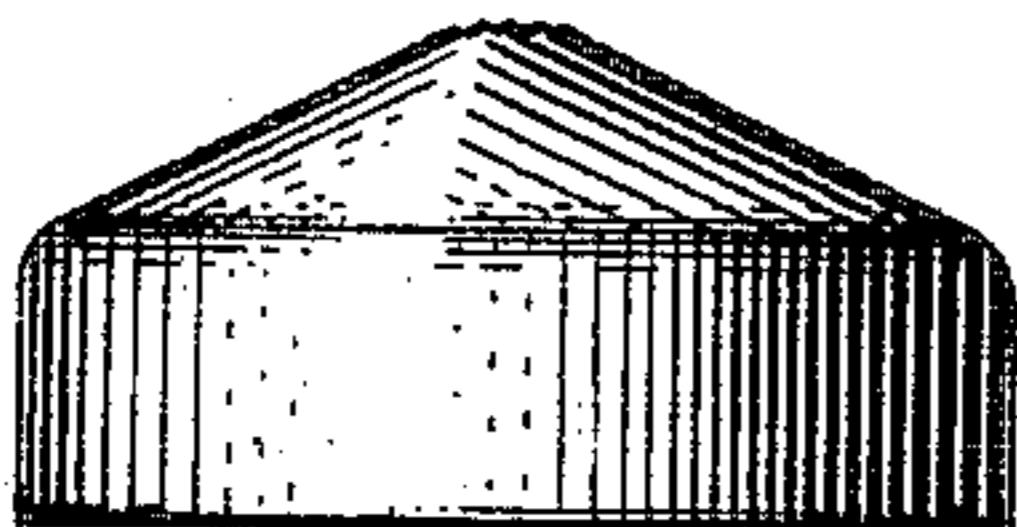


Fig. 8.

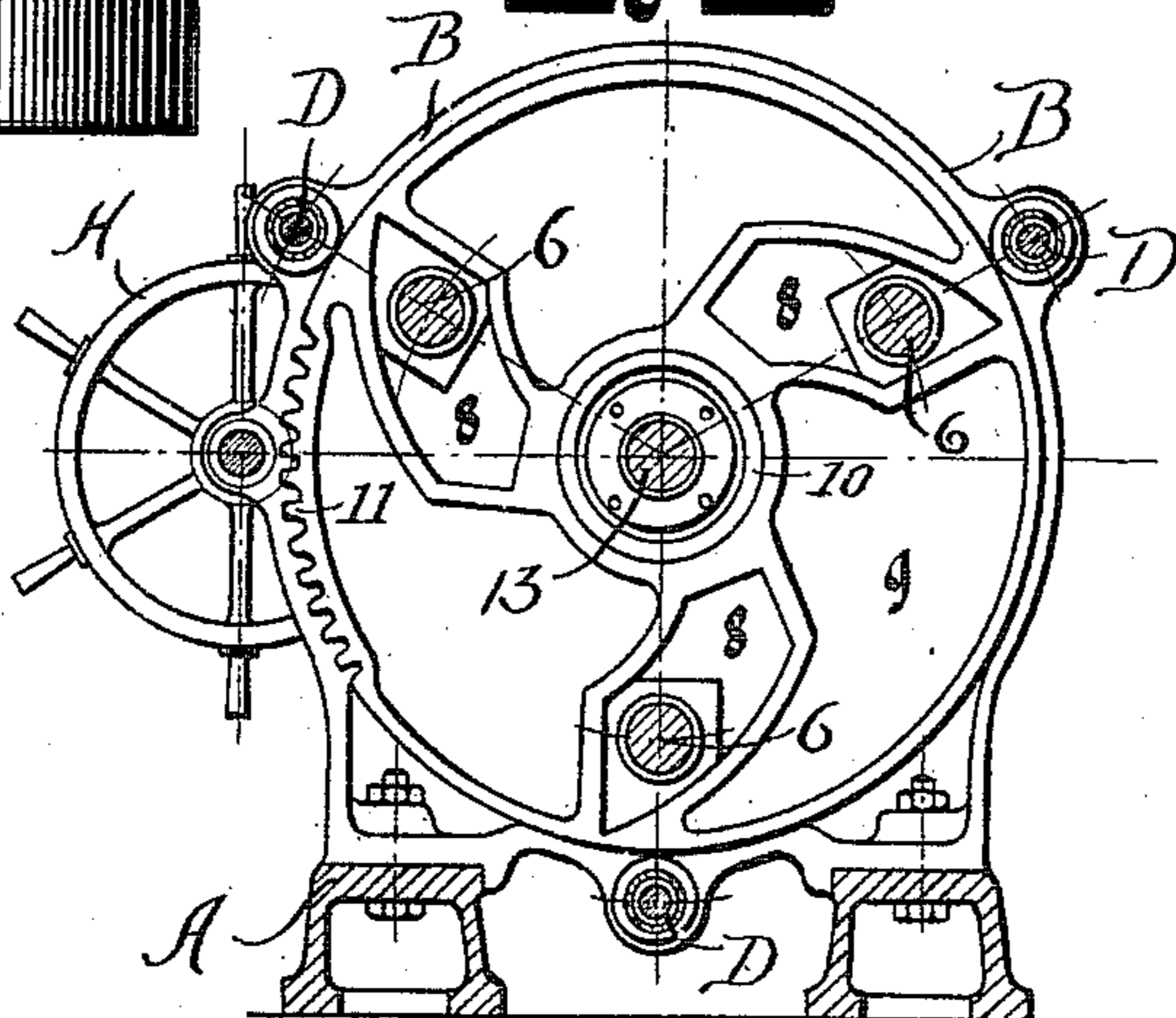
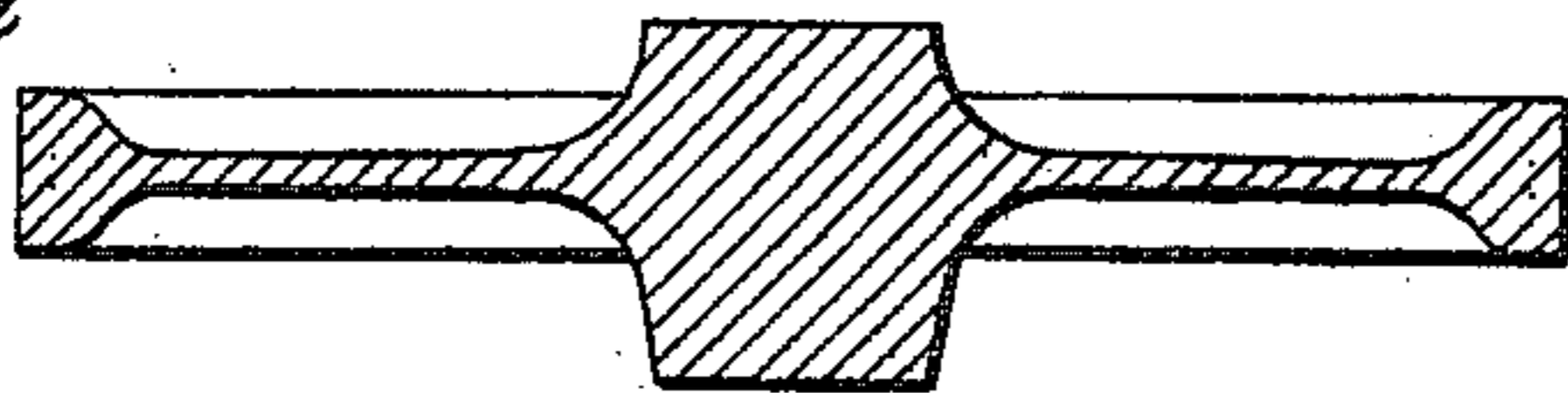


Fig. 3.

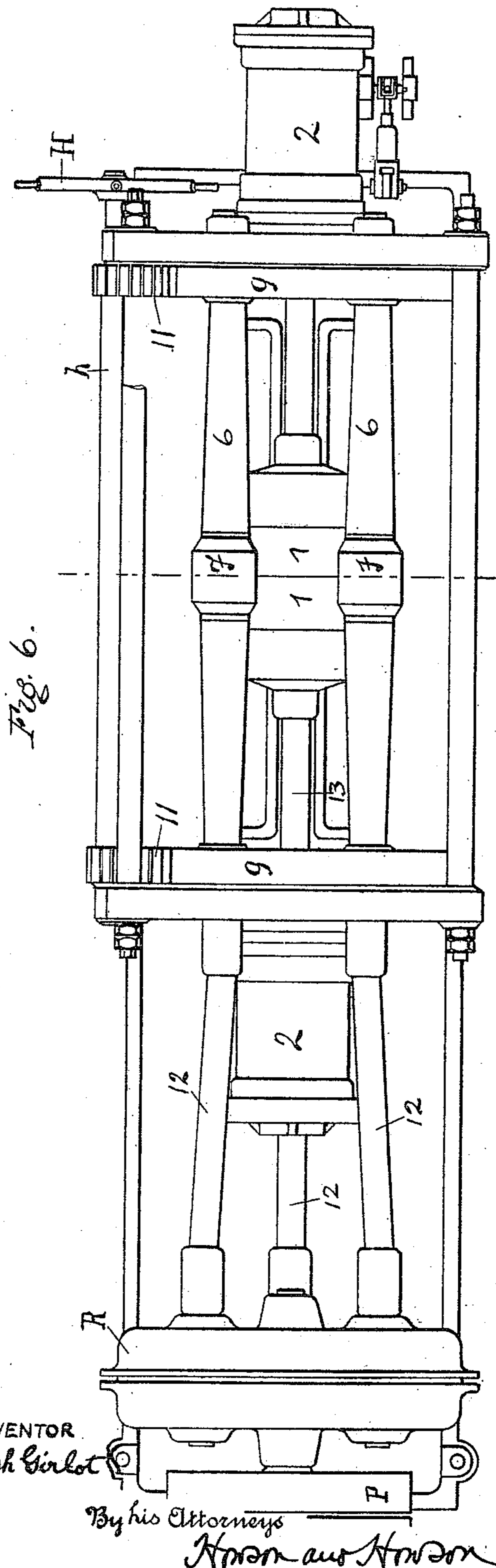
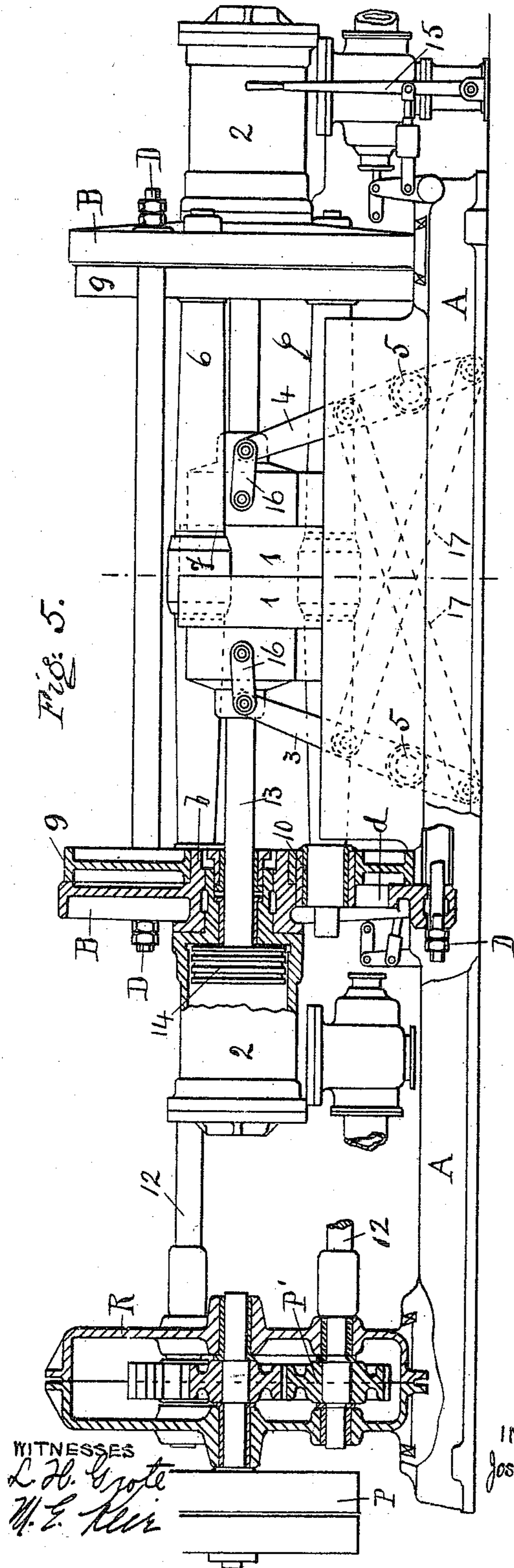


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UNITED STATES PATENT OFFICE.

JOSEPH GIRLOT, OF LAEKEN, BELGIUM.

MECHANICAL FORGING OF WHEELS OF IRON OR STEEL.

983,042.

Specification of Letters Patent.

Patented Jan. 31, 1911.

Application filed April 1, 1909. Serial No. 487,262.

To all whom it may concern:

Be it known that I, JOSEPH GIRLOT, residing at Laeken, Belgium, have invented certain new and useful Improvements in the Mechanical Forging of Wheels of Iron or Steel, of which the following is a specification.

In my Letters Patent No. 775,815, dated November 22, 1904, and No. 876,709, dated January 14, 1908, I have described and claimed machines for the forging of metal, and more particularly metallic rings, by the employment of a system of parallel rollers which rotate and impart a rotary movement to the ring to be forged, while simultaneously two hammers reciprocating parallel with the axis of the rollers are caused to strike on the opposite faces of the ring. Said machines are adaptable for application to the forging of other circular objects than rings, as for example, circular disks.

My present invention consists of certain improvements in the construction of forging machines of the character referred to, and in the accompanying drawings I have shown my invention as embodied in a machine which is especially designed for the forging of car wheels.

In Figures 1, 2, 3 and 4, I have illustrated the successive shapes produced in the successive steps of forging a car wheel by the employment of the machine forming the subject of my present invention; Fig. 5 shows my improved machine in side elevation, partially in section; Fig. 6 shows the same in plan; Fig. 7 is a transverse section showing the rollers adjusted to their extreme inward positions; Fig. 8 is a similar view showing them adjusted to their extreme outward positions.

As in my prior patents, the machine includes a bed A, with longitudinally reciprocating hammers 1, 1, and rollers 6, 6, and with fixed heads B, B, on the bed A, but in this case the bearings for the rollers in these heads are at opposite ends of the rollers, and the hammers 1, 1 are between said heads. These heads are bolted together by the rods D, D. In radial slots *d* (Fig. 5), in these heads B, B are guided bearings 10 for the rollers 6, 6, which bearings are also guided in curved or cam slots 8 in disks 9 (Figs. 5, 7 and 8) mounted upon hubs *b*, *b*, of the heads B, B. Means are provided for turning these cam disks 9 through sufficient of an arc to move the bearings 10 from their

innermost position shown in Fig. 7 to their outermost position shown in Fig. 8, according to the diameter or desired diameter of the wheel or other object to be operated on. In the drawings I have shown as an adjusting means a handwheel H on a longitudinal rod *h* mounted in suitable bearings in the heads B, B and having pinions to gear into segmental gears 11 in the peripheries of the disks 9.

The several rollers 6, three being shown in the drawings, are rotated from pulleys P through gears P¹ in a box R, and between the several gears in this box and the several rollers 6 are flexibly connected coupling rods 12, which while conveying rotary motion to the rollers 6, will permit the bearings of the latter to be radially adjusted as above described. At the parts of these rollers where the circular metallic object is to be operated on, the rollers are provided with removable sleeves 7 to permit different diameters to be operated on.

The hammers 1, 1, which are to be reciprocated between and parallel with the rollers 6 are in this case adapted to be fluid operated, being mounted upon rods 13, with pistons 14 working in cylinders 2 carried by the heads B. Suitable valve means 15, will be provided to admit the fluid pressure, such as steam, to either end of each cylinder.

In order that the two hammers 1, 1 may be guided to always strike alike at the point where the metal is held and rotated by the rollers 6, 6, I prefer to provide a system of interconnected levers 3 and 4, pivoted at 5, 5, to the frame and connected at their upper ends through links 16 to the respective hammers 1, 1, while the lower end of each lever below its pivot is connected by a cross rod 17 to the other lever above the pivot of the latter, as shown in Fig. 5.

In using the described mechanism for making car wheels for example, three or four machines or sets of hammers will preferably be required to produce from the shape, Fig. 1, first the shape Fig. 2, then the shape Fig. 3, and finally the shape Fig. 4.

I claim as my invention—

1. In a machine for forging circular objects of metal, a set of rollers to act on the periphery of the object and rotate it, in combination with a pair of hammers to reciprocate longitudinally of the rollers and fluid-operated pistons to actuate said hammers.

2. In a machine for forging circular objects of metal, a set of rollers to act on the periphery of the object and rotate it, removable sleeves on said rollers and reciprocating
5 hammers to act upon the ends of the metal object between the rollers.

3. In a machine for forging circular objects of metals, a set of rollers to act on the periphery of the object and rotate it, in combination with a pair of hammers to reciprocate longitudinally of the rollers and a system of levers interconnecting said hammers, to guide the latter, substantially as described.
10

4. In a machine for forging circular ob-

jects of metal, a set of rollers to act on the periphery of the object and rotate it, and a fixed bed and heads having bearings for the opposite ends of said rollers, in combination with a pair of reciprocating hammers, between said heads, substantially as described. 15 20

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses.

JOSEPH GIRLOT.

Witnesses:

GUSTAVE PIERRY,

EMILE NUYTS.