

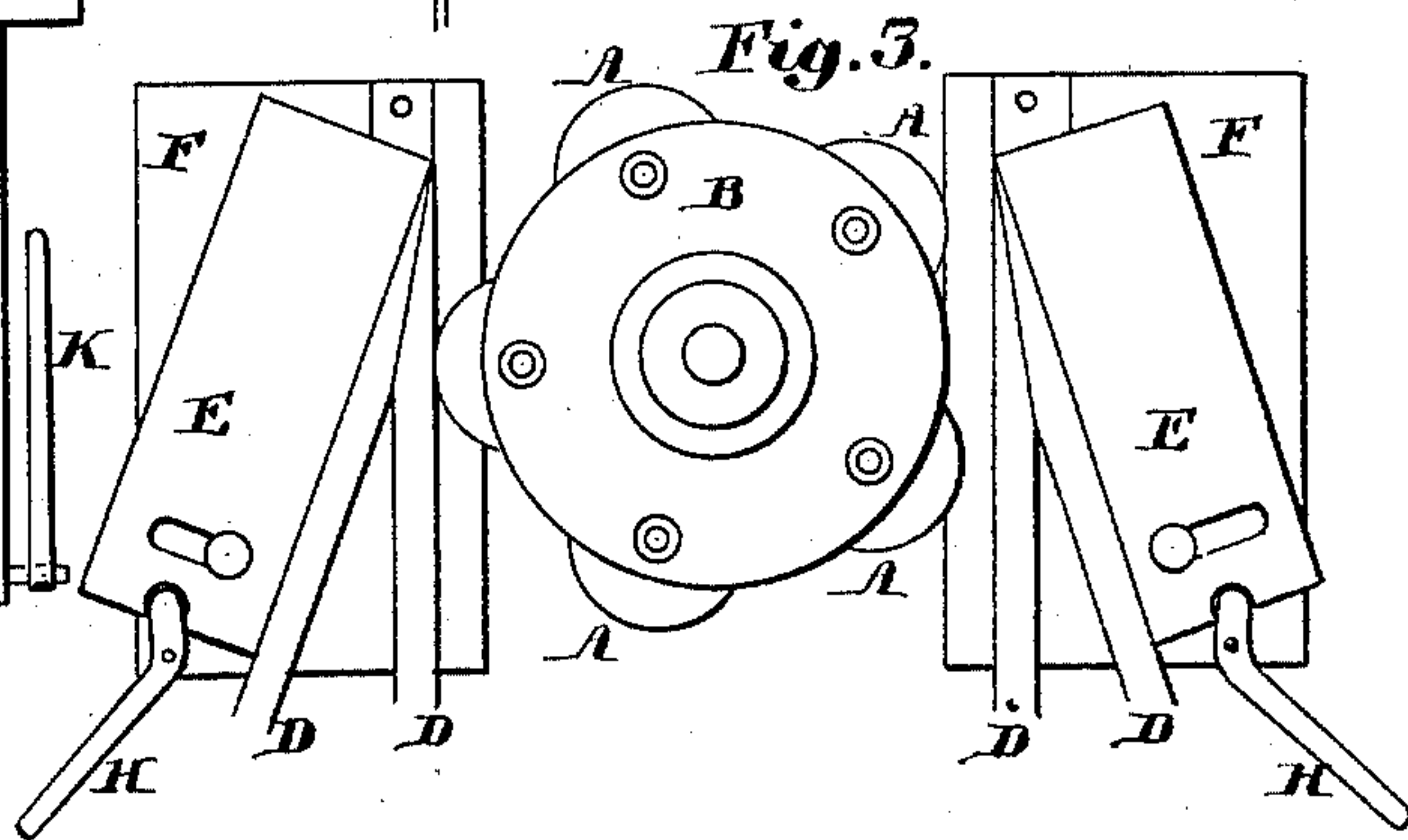
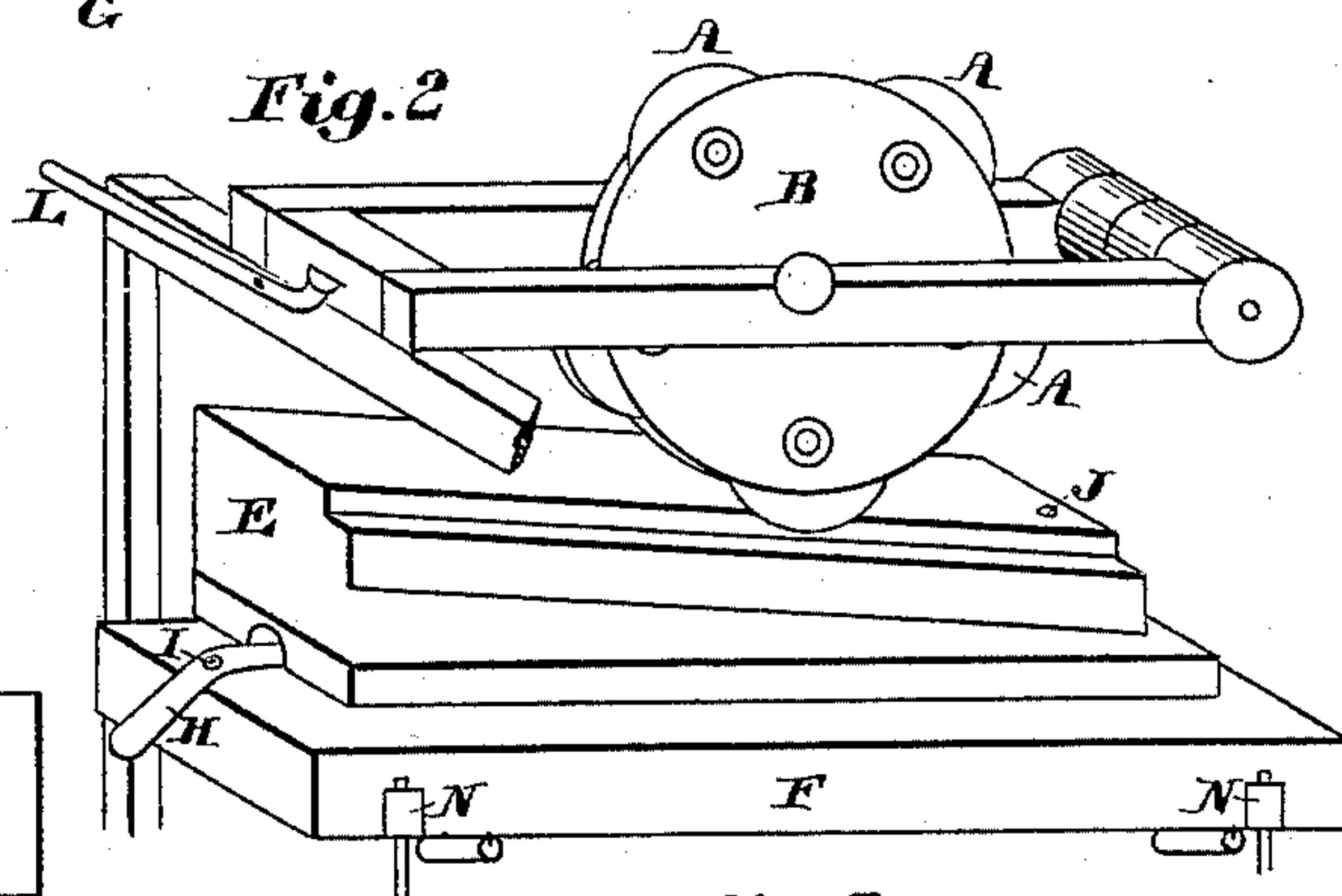
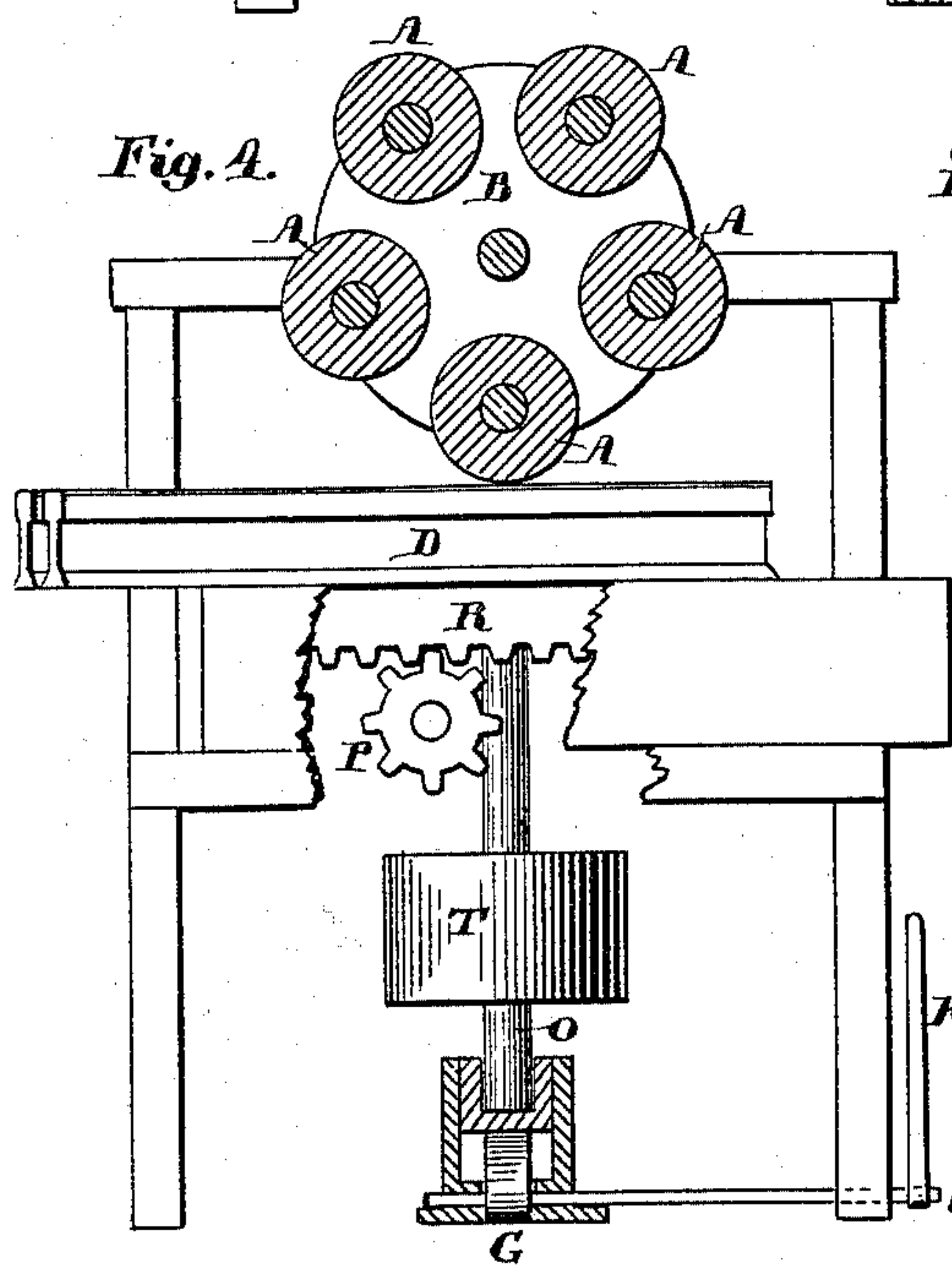
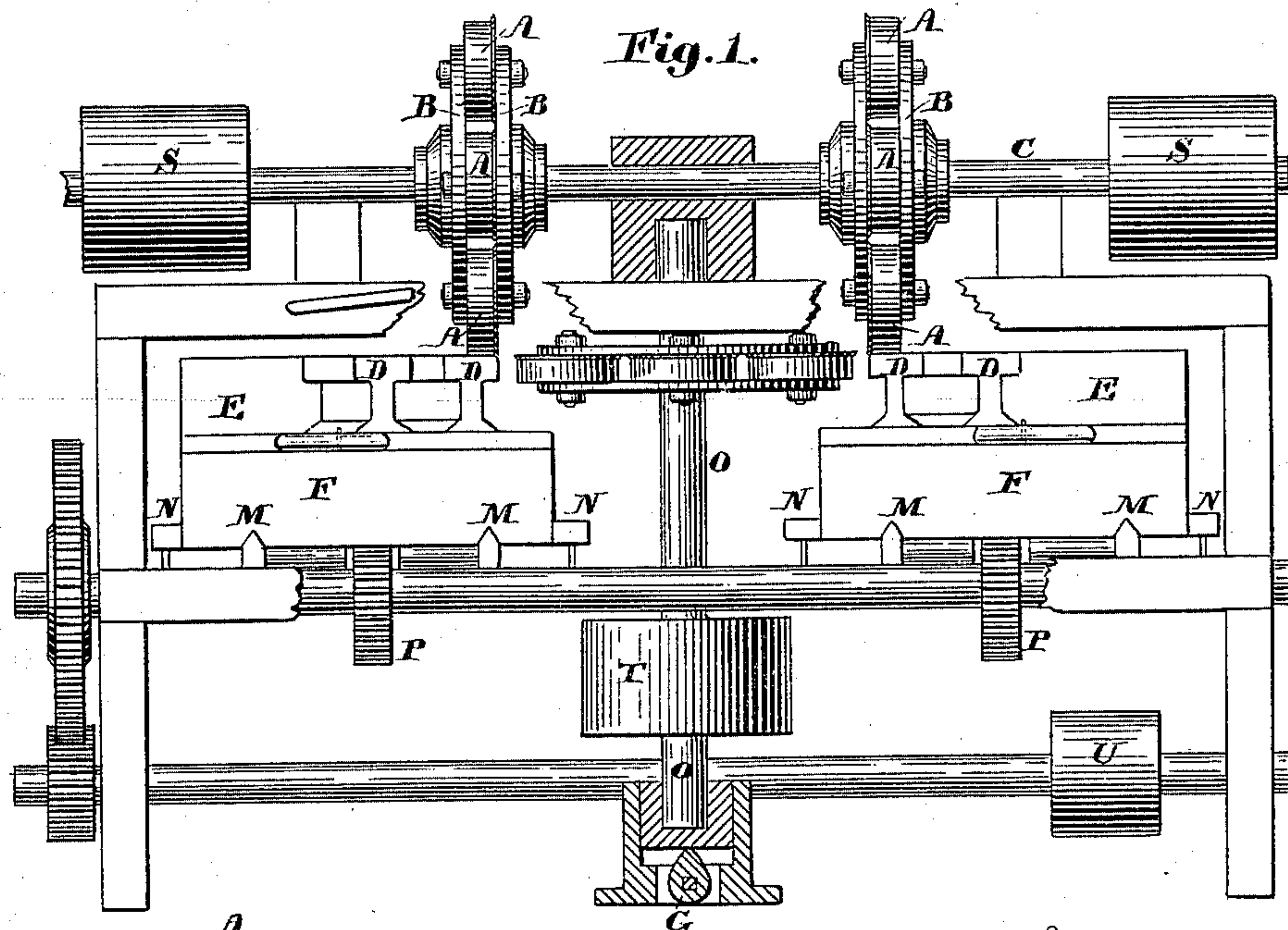
(No Model.)

J. R. MOORE.

MACHINE FOR THE MANUFACTURE OF RAILROAD FROGS.

No. 509,442.

Patented Nov. 28, 1893.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN R. MOORE, OF TOPEKA, KANSAS.

MACHINE FOR THE MANUFACTURE OF RAILROAD-FROGS.

SPECIFICATION forming part of Letters Patent No. 509,442, dated November 28, 1893.

Application filed June 20, 1892. Serial No. 437,420. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. MOORE, a citizen of the United States, residing at Topeka, in the county of Shawnee and the State of Kansas, have invented a certain new and useful Improvement in Machines for the Manufacture of Railroad-Frogs, of which the following is a specification.

The object of my invention is to provide a machine that will weld railroad frogs at a higher temperature than they can be welded by hand, and at the same time finish the frogs so that they will be ready for use after the machine has operated upon them.

The invention consists of a movable frame running on rollers operated by power, and carrying on the frame a peculiarly shaped anvil, and having near said anvil rotary disks turning on shafts, carrying a series of collars used for hammering and welding and shaping the frog.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a view of the front of the entire machine. Fig. 2 is a perspective view showing anvil and one of the revolving hammers mounted on a disk. Fig. 3 shows the two anvils with the horizontal revolving hammer between them, and a frog inserted on the end to be welded lying upon the anvil. This is a top view. Fig. 4 is a sectional view showing the circular hammer, the frog on the anvil, the rack and pinion wheel movement under the anvil that moves the carriage upon which the anvil rests.

In the drawings, A represents the loose hammer collars, being small, revolving circular disks, loosely mounted around the rim of the large disks. There are five in number on each wheel.

B B represent a pair of revolving disks carrying the hammer collars rotating around and between the rims. There are two sets of perpendicular disks B B and one horizontal set of disks B B.

C is a horizontal shaft upon which the vertical hammers revolve.

D D are sections of the frog in course of operation, being pieces of steel rails sawed, and fastened together ready for welding.

E is the end of an anvil, upon which the frog is welded.

F F are the carriages upon which anvils rest. The carriage F is run by rack and pinion wheel underneath, upon rollers, and runs between roller guides. This carriage carries the anvil and supports it under the hammers, and returns it from the same by reversing the operation of the power as applied underneath.

G is a cam at the bottom of the perpendicular shaft O, for the purpose of dropping the hammers which are in a horizontal plane so as to strike the web of the rail, or by raising the cam to throw the hammers on the T part of the rail. By turning the cam G at a right angle the shaft O is raised.

H is a lever pivoted on the carriage and working in a slot on the end of the anvil, for the purpose of shifting that end of the anvil closer to the horizontal revolving hammer.

I is a pivot fulcrum upon the carriage, upon which fulcrum I the lever H is pivoted and works. J is a pivot on the other end of the carriage, upon which the anvil is pivoted.

K is a lever rigidly attached to cam G, by which lever cam G is turned and shaft O raised or lowered.

L is a lever pivoted above the anvil to the front end of the frame, adapted to raise one end of the frame which carries the vertical hammers, the other end of that frame being hinged; and by pressure upon the handle or lever L the frame which carries the vertical hammer is slightly raised at the end, giving a lighter touch of the hammers as they revolve above the anvil.

M M are guides to regulate the carriage and hold it in place. They are fastened to the frame underneath, and are like inverted V's.

N N are roller guides which cause the carriage F to move in its proper place.

O is a perpendicular shaft upon which the horizontal hammers revolve.

P is a pinion wheel mounted on a horizontal shaft underneath the carriage, and working on a rack in the carriage.

R is a rack secured to the bottom of the carriage, for the purpose of moving the carriage backward and forward, registering with the pinion wheel P.

S is a pulley upon shaft C, conveying power to the vertical revolving hammers.

T is a pulley upon vertical shaft O for the purpose of conveying power to turn the horizontal hammers.

U is a pulley upon a lower horizontal shaft. Said pulley is for the purpose of moving the carriages upon which the anvils rest, by cog wheel connection, giving forward and backward motion to the carriages.

To operate my machine: A rail is cut as near the proper shape for forming a frog as possible, and then bolted to a similar rail, forming a frog ready to be welded. The frog thus bolted together is heated to about 1,000° Fahrenheit; a flux is applied; the frog is heated to about 2,000° Fahrenheit, and placed on the anvil. The carriage is started in motion under the hammers; power is applied, and the disks revolve at about sixteen hundred revolutions per minute. There being five hammers on each disk from eight thousand to ten thousand blows per minute are struck. As the frog is being inserted on the anvil the horizontal hammer strikes on the side of the frog and the circular hammers strike on the top of the frog, one being about three inches in advance of the other so as to prevent their striking each other. Reverse motion is then given, the carriage is shifted, and the frog is withdrawn and laid upon the anvil upon the other side of the machine. The horizontal hammer strikes the other side of the frog, and by shifting the cam G the horizontal hammers are raised or lowered, and the web of the rail is beaten and welded; or the T head of the frog is beaten and welded as desired in the proper shape. As the frog is laid upon the anvil the side next to the hammer of the anvil is carried in the same plane, so that it presents the surface of the frog at the same point to the rotary hammers. Should it be desired to obtain greater concussion by the horizontal hammer the lever H is slightly shifted so as to throw the anvil on its pivot, and force the frog closer to the hammers. If the vertical hammers strike too heavy a blow, the lever L on the end of the frame is raised, carrying with it the vertical hammers, and by means of this lever the weight of the blow can be regu-

lated as desired. Different sized rails and different shaped frogs can be welded and made by this machine.

I do not claim as new the using of rotary hammers upon disks as applied to the rails, as the same was secured in the patent issued to myself and J. G. Mills, in a machine for patching railway rails, No. 160,536, dated March 9, 1875, and I do not want to limit myself to the use of the three rotary hammers; for as many hammers can be used as is desired.

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

1. In a machine for making railroad frogs vertical revolving hammers in combination with the anvil underneath the same, a movable carriage under the anvil, guides for the carriage, pinion wheel on shaft under the carriage, rack registering in pinion wheel which rack is under the carriage and secured thereto, vertical shaft carrying horizontal revolving hammers, cam support to the same whereby the horizontal hammers can be raised or lowered, a lever attachment by which the height of the vertical revolving hammers can be adjusted, and a lever attachment for the anvil by which it can be drawn against or from the horizontal revolving hammers, all substantially as described.

2. In a machine for making railroad frogs a disk carrying collar hammers pivoted around the rim of said disk which disk revolves in a vertical plane, in combination with a disk carrying collar hammers pivoted around the rim of said disk which disk revolves in a horizontal plane, an anvil underneath the vertical disk, a movable carriage under the anvil, guides for the carriage, pinion wheel on shaft under the carriage, rack registering in pinion wheel which rack is under the carriage and rigidly secured thereto, lever to raise or lower the horizontal hammer, and lever to operate the anvil and bring it closer or farther from the horizontal revolving hammers, all substantially as described.

JOHN R. MOORE.

Witnesses:

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