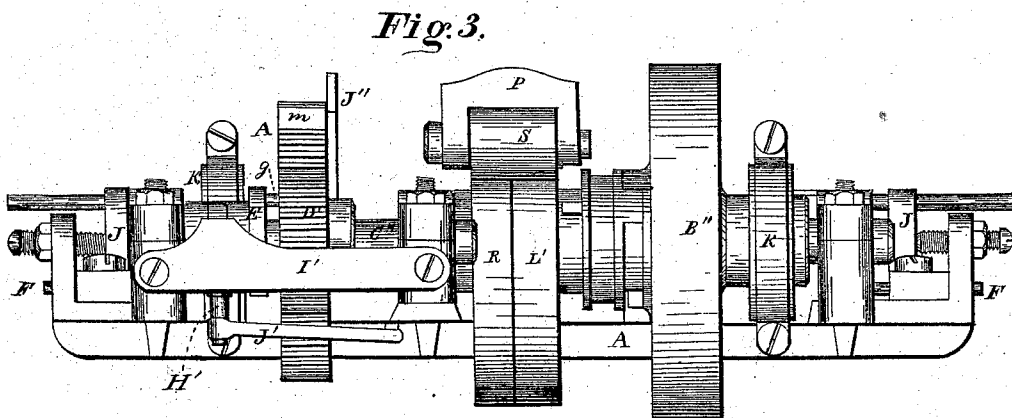
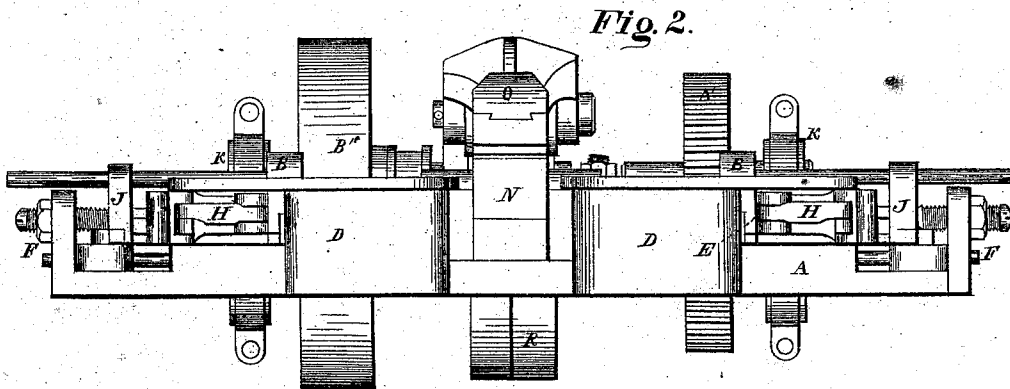
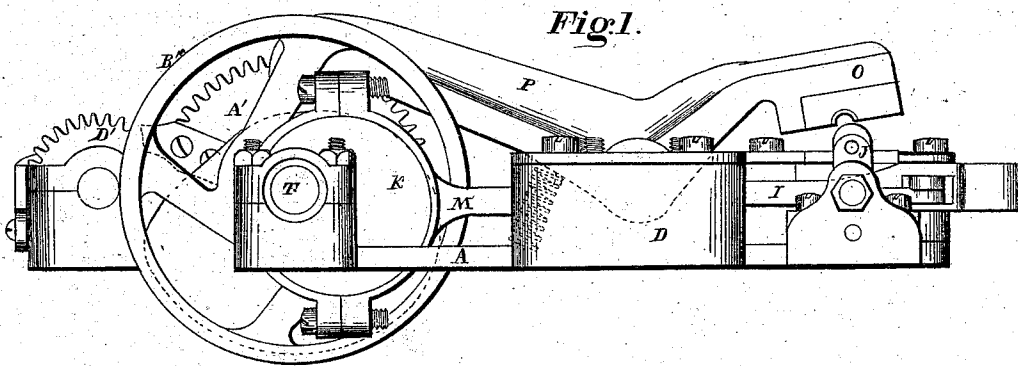


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Patented Nov. 3, 1874.

No. 156,579.



Witnesses.

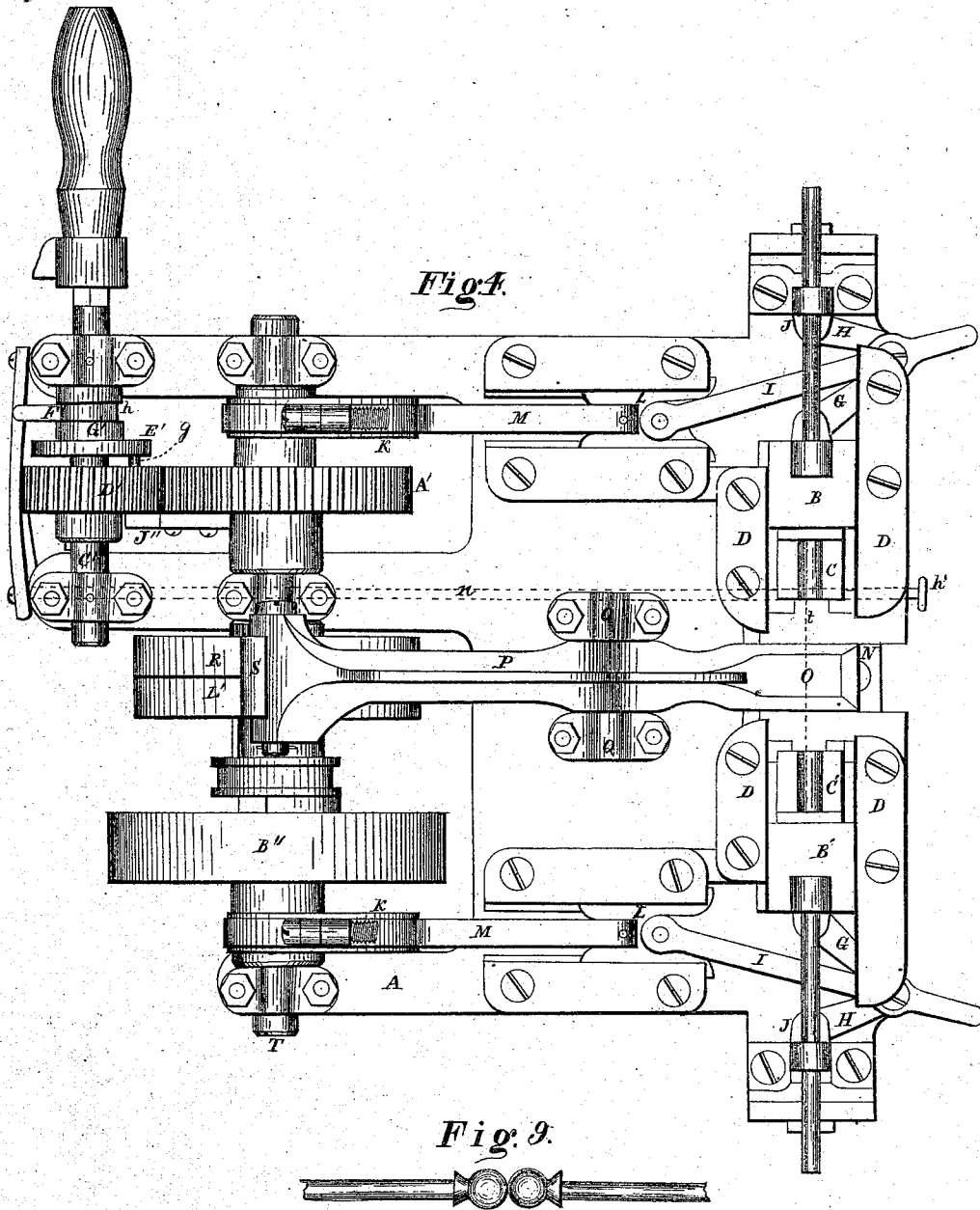
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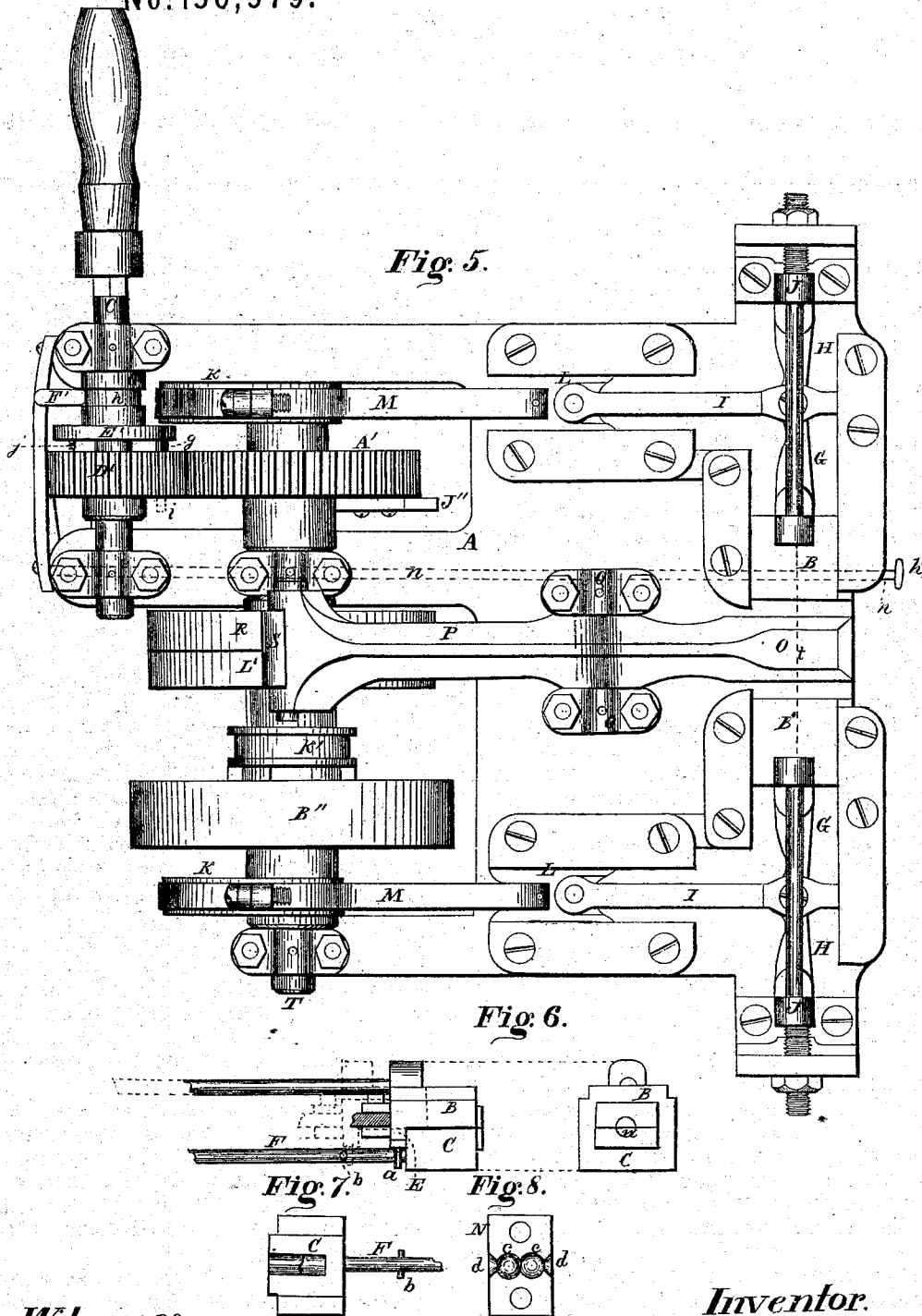
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UNITED STATES PATENT OFFICE.

FRANKLIN LEONARD, OF CLEVELAND, OHIO.

IMPROVEMENT IN MACHINES FOR MAKING CAR-COUPLING PINS.

Specification forming part of Letters Patent No. 156,579, dated November 3, 1874; application filed February 16, 1874.

To all whom it may concern:

Be it known that I, FRANKLIN LEONARD, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Machine for Making Railway-Car Coupling-Pins; and I do hereby declare that the following is a full, clear, and complete description thereof, reference being had to the accompanying drawings, making part of the same.

Figure 1 is a side view of the machine. Fig. 2 is a front view. Fig. 3 is a view of the rear end. Figs. 4 and 5 are plan views.

The other views are detached sections, to which reference will be made.

Fig. 9 is a view of two coupling-pins made by the machine.

Like letters of reference refer to like parts in the several views.

This machine is designed for making railway-car coupling-pins; and the special object of the same is to facilitate the production of the pins by making two at once from one piece or bar of iron.

The construction and operation of the machine are as follows:

On the frame A are arranged two pairs of slides, B B' C C', Fig. 4. The slide C is fitted in the bottom of the ways or guides D, in which it has a reciprocating movement. The slide B is also fitted in the ways or guides above the slide C. Said slide C is operated in one direction by the slide B by means of a lip or flange, E, Figs. 2 and 6, projecting downward from the slide B over the end of the slide C, as shown in the detached view, Fig. 6. The slide is operated in the opposite direction by a pin, a, Fig. 6, projecting from the flange E, in its engagement with a pin, b, secured in the guide-rod F of the lower slide C. The slide B is operated by the arms G H. One end of the arm G is pivoted to the slide B, whereas the other end is pivoted to the connecting-rod I. To the rod I is also connected one end of the arm H. The other end of said arm is connected to the standard J. K, Figs. 1 and 5, is an eccentric for operating the arms G H, to which it is connected by the intervening rod I, cross-head L, and pitman M. Both pairs of slides are constructed, arranged, and operated substantially in the same way, differing only in position. Between the two pairs of slides is arranged a stationary die, N, Figs.

2 and 4, a detached view of which is shown in Fig. 8. On one side of the face of said die is sunk a cavity the shape of the head and collar of a coupling-pin; also, on the opposite side of the face of the die is sunk a similar shaped cavity. The heads c of the pins are close together, and of which d are the collars. In the face of the head or die O of the lever P are formed the prints of coupling-pin heads and collars corresponding to the prints in the face of the stationary die, with which they co-operate for forming the coupling-pin head. The lever referred to is hung on trunnions in the stays Q, and is operated by a cam, R, Fig. 5, on the face of which a friction-roller, S, Fig. 3, in the end of the lever runs. Said cam is mounted on the shaft T, carrying the cam R, cog-wheel A', and pulley B''. On the shaft C'', carrying the pinion D' whereby the cog-wheel is driven, is loosely fitted, so as to slide thereon, a wheel, E'. From the side of the wheel projects a pin, g, into and through the side of the pinion D', close to the side of which the wheel works, as shown in Figs. 4 and 5. The wheel E' referred to is shifted toward and away from the pinion by a shifter consisting of the finger F', Fig. 4, lodged in the groove h of the collar G' attached to the wheel. The finger projects from a shaft, H', Fig. 3, supported in the bar I'. To the lower end of the shaft is secured an arm, J', to the outer end of which is attached a rod, extending along under the machine to the front side, within reach of the operator. Said rod is indicated by the dotted lines n, Figs. 4 and 5.

It will be observed that several of the teeth of the cog-wheel A' are cut away, leaving a blank space, m, Fig. 3. To the side of the wheel, at the blank space, is secured an arm, J'', Figs. 3 and 5. The purpose of the blank space in the wheel, and of the arm, will presently be shown.

The practical operation of the above-described machine is as follows: A bar of iron of a length to make two coupling-pins is heated in the middle. The bar is then laid under the die O, which is raised for that purpose, as shown in Fig. 1. The ends of the bar rest in the grooves of the slides C C', whereas the heated middle part lies across the die N. A bar thus placed in position for heading is indicated by the dotted line t, Figs. 4 and 5. Now, as the machine is operated the two slides B B'

simultaneously move toward the die, sliding upon and over the lower slides C C', (which, at this time, are at rest,) and covering the ends of the bar. When the slides B B' have moved so far as to reach the ends of the slides C C' the two slides C C' are moved forward together, in company with the slides B B', until they reach the sides of the die, as shown in Fig. 5. This forward movement of the slides C C' is effected by the flange or lip E, Fig. 6, above referred to, which, as the slides B B' move forward over the slides C C', will, at the proper time, reach said slides C C' and carry them forward toward the die. This simultaneous movement of the two pairs of slides toward each other upsets the bar at the heated part lying on the die, thereby increasing the amount of metal for making the heads and collars of the pins.

The ends of the bar abut against the ends of the grooves, and the grooves at the same time prevent the bar from bending while being upset for the purpose above specified. By the time the slides have reached the die and upset the bar the upper die or hammer comes down upon the lower die, thereby forming the heads and collars on the bar between them, thus making two coupling-pins, the heads of which are connected to each other by a very thin ligament of iron, which is easily broken for separating the pins. The heads and collars having been formed the slides are now moved back from the dies. In this backward movement the slides B B' move first and simultaneously. The lower slides C C' remain still until the pins *a*, Fig. 6, depending from the flanges or lips E of the slides B B', reach the pins *b* projecting from the guide-rods F of the slides C C'. This engagement of the pins *a* with the pins *b* carry the slides C C' back from the die to the position they first had for receiving the bar, and as shown in Fig. 4. At the time the slides begin to recede from the die the hammer or upper die O commences to rise and is at its full height by the time the slides are entirely back. The movement of the slides, together with the co-operation of the hammer, are completed during one revolution of the cog-wheel A', which ceases to rotate when the blank space *m*, Fig. 3, comes around to the pinion D'. The pinion continues to revolve while the wheel and the machine are at rest. This suspension of the operation of the machine is to give time to remove from the slides and die the coupling-pins made, and for the introduction of another bar to be headed and collared as was the one removed. Another bar on being placed in position, as above described, the machine is again operated by engaging the pinion with the cog-wheel A'. This is effected as follows: The operator pushes on the button *n'* of the rod *n*, Fig. 5, which, as above-said, passes along under the machine to the arm J', Fig. 3, to which it is connected. This operates the wheel E', Fig. 5, by pushing it close to the side of the pinion, which will

cause the pin *g* to project through the pinion, as indicated by the dotted lines *i*. Said pin, as the pinion revolves, comes under the arm J'', which will turn the cog-wheel so far as to cause its engagement with the pinion, thereby causing the operation of the machine, as and for the purpose abovesaid. On ceasing to push upon the rod *n* the pin *g* is drawn back into the pinion by the receding of the wheel E' from the pinion, effected by the spring *j*, Fig. 5, interposed between the two. By the time the blank space in the cog-wheel has returned again to the pinion the operation of upsetting the bar by the slides and forming the heads thereon by the dies have been completed and the machine is again at rest, as there is no engagement of the cog-wheel and pinion at the blank space. The expansion and contraction of the arms H G, actuated by the eccentric and connecting rod I, causes the reciprocating movement of the slides. In the event it may be expedient to work the die O without the operation of the rest of the machine, it can be done by running a belt on the pulley B'', which, by a shifting arrangement attached to the wheel K', can be clutched to the cam L', Fig. 5, a duplicate of the cam R. The lever P can thus be worked independently of the rest of the machine for flattening down the heads of the pins, should flat-headed pins be required. For this especial purpose the heads may be flattened down by placing them on the plain surface of the die used for shaping the heads and collars.

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

1. The slides B and C, as arranged to co-operate in combination with the slides B' and C', for gathering or upsetting the stock in a bar, for forming thereon the heads and collars of coupling-pins, in the manner substantially as described, and for the purpose set forth.
2. The slides B and C, as arranged to co-operate conjointly with the slides B' and C', in combination with the dies N O, substantially in the manner as described, and for the purpose specified.
3. The combination of the cog-wheel A', pinion D', spring *j*, pin *g*, arm J'', wheel E', arm J', and rod *n*, in the manner as described, and for the purpose set forth.
4. The dies N O, having therein the prints *c c* and *d d*, for forming the heads and collars of railway-car coupling-pins in couples, substantially in the manner as described.
5. The combination of the arms H G, slides B C, flange or lip E, pin *a*, guide-rod F, and pin *b*, connecting-rod I, and eccentric K, in the manner as described, for the purpose set forth.
6. The wheel E', spring *j*, and pin *g*, in combination with the pinion D', cog-wheel A', and arm J'', in the manner as and for the purpose specified.

Witnesses: FRANKLIN LEONARD.

W. H. BURRIDGE,
E. HESSENMUELLER.