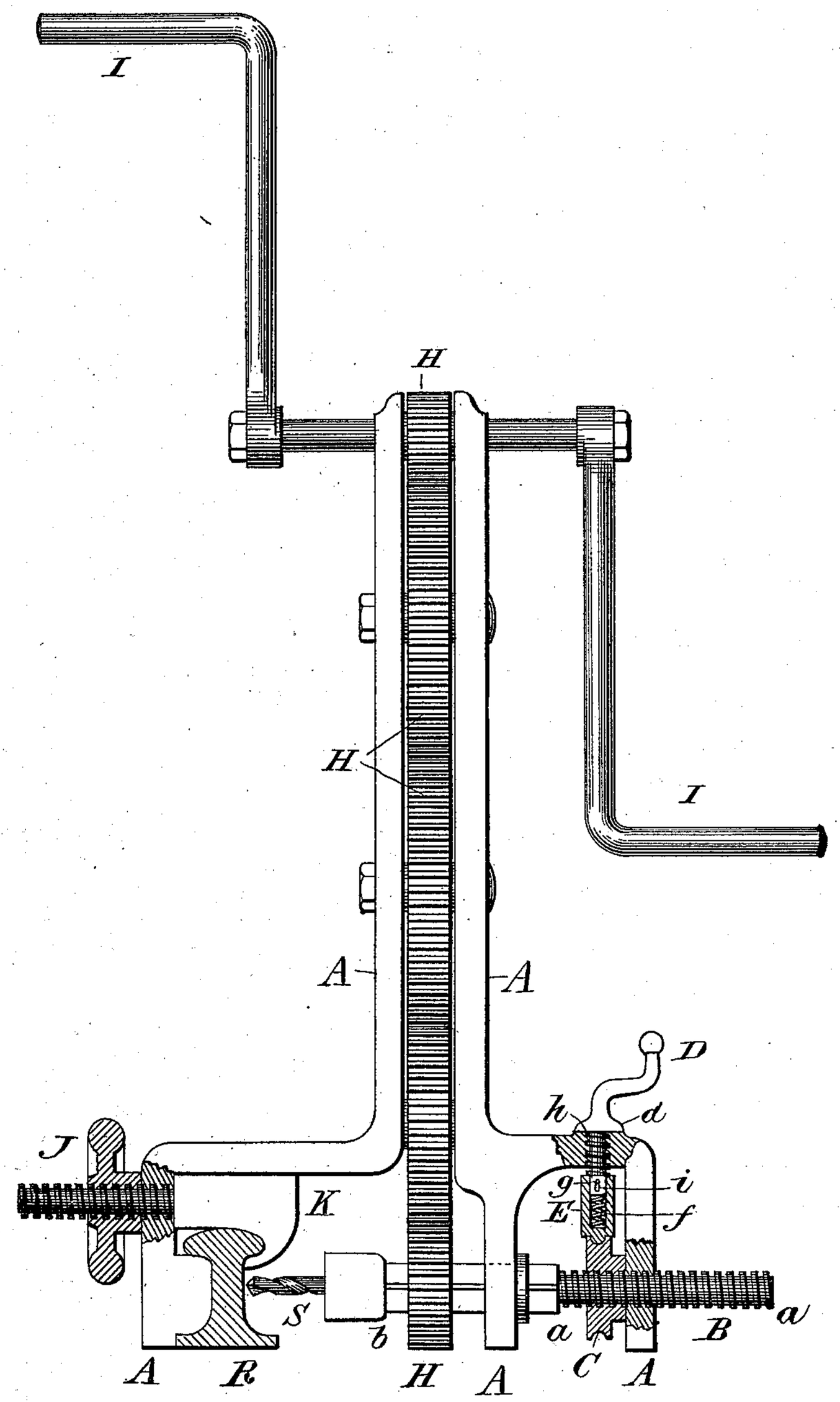
(No Model.)

J. DAVIS.

MACHINE FOR DRILLING RAILS FOR FISH BOLTS.

No. 402,310. Patented Apr. 30, 1889.



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JOHN DAVIS, OF NEW BEDFORD, MASSACHUSETTS.

MACHINE FOR DRILLING RAILS FOR FISH-BOLTS.

SPECIFICATION forming part of Letters Patent No. 402,310, dated April 30, 1889.

Application filed June 30, 1888. Serial No. 278,714. (No model.)

To all whom it may concern:

Be it known that I, JOHN DAVIS, a citizen of the United States, residing at New Bedford, in the county of Bristol and State of Massachusetts, have invented a new and useful Machine for Drilling Rails for Fish-Bolts, when they are secured to the ties, without removing them, of which the following is a specification.

My invention precludes the necessity of stooping to operate the drill, and utilizes the power of both hands and arms of the operator in its operation.

It consists in a frame for its devices, a self-operating feed for the drills, a clamp to secure the frame to the rail, and gear-wheels to transfer the power from the cranks to the drill.

Similar letters in the drawing and in the specification indicate similar parts of the machine

The figure is an elevated sectional drawing of my entire invention.

A A A A A represent the frame for supporting the mechanism of said invention. This frame is twenty-two and one-half inches high, one and one-half inch wide, and one-fourth of an inch thick, cast of steel, ribbed on the outside of said frame the entire length, and bossed for strength where the bolts secure the two parts of the frame together.

B is the drill-shaft. This shaft is ten inches long and one inch in diameter. The end in which the drill is placed is two inches in diameter for two inches of its length. A screw-thread four and one-half inches long is turned on this drill-shaft for feeding the drill, and the shaft is square two inches of its length, where it passes through the square hole in the lower gear-wheel, and is round where it revolves in the frame.

C is the friction-wheel, which is one-fourth of an inch thick and two inches in diameter, with a groove in its periphery to admit the elastic pressure of the spiral spring in the thimble.

D is the crank-shaft, which is eight inches long and one inch in diameter, to which the cranks for operating the drilling-machine are secured.

E is the thimble on the end of the crank which produces the friction for feeding the drill.

H H H H H represent gear-wheels, which transfer the power of the operator when applied at the cranks to the drill. These wheels are all one inch thick and cast of steel, and of different diameters. The uppermost wheel is cast with the crank-shaft, and is one and one-half inch in diameter. The second and third wheels are six and one-half inches in diameter, the fourth wheel is four inches in diameter, and the fifth-wheel is three inches in diameter, with a flange cast on it one-eighth of an inch thick, and a square hole cast through its center for the drill-shaft.

I I represent cranks which are eleven inches long. The handles are four and one-half inches long. These cranks are secured to the crank-shaft, which shaft has the uppermost gear-wheel cast with it.

J is the nut-wheel; K, the clamp; R, the railroad-rail.

The nut-wheel J and clamp K are devices for permanently securing the drilling-machine to the rail, and need no further specification.

S is the drill.

From *a* to *a* is the length of the screw-thread on the drill-shaft; from *a* to *b* the length of a square on the drill-shaft. *d* is the shoulder on the crank-shaft. This shoulder prevents the operator from turning down the thimble and creating too much friction on the friction-wheel, and renders it impossible for the operator to break the machine by feeding the drill.

g is a pin passing transversely through the thimble and the end of the crank-shaft.

h is a screw-thread on the crank-shaft which connects it with the machine.

i is a mortise through the crank-shaft to prevent uneven friction of the thimble against the periphery of the friction-wheel.

The within-described drilling-machine being constructed as herein specified, and applied to a rail for the purpose of drilling transversely through it, as shown in the drawings, its utility and rapid operation may be noted.

When a rail becomes weakened at any place by fracture or otherwise, it might be quickly strengthened by affixing fish-plates at the weakened place, instead of removing it and substituting a new rail; but the ratchet-drill is found to be too slow in its operation to be practical for that purpose, and the weakened rail is removed and a new rail substituted, which frequently causes a delay of trains. It will be seen, further, that the machine-drill herein specified, by its rapid and positive operation, will obviate such contingency and lessen the cause of accidents, and save much time in drilling the rails when they are firmly secured to the ties, and such practical utility and ease of drilling may be thus considered without further specification.

I claim—

Frame A A A A A, drill-shaft B, friction-wheel C, crank-shaft D, thimble E, gear-wheels H H H H H, cranks I I, nut-wheel J, clamp K, drill S, and its other mechanism, all constructed, combined, and operated as and for the purposes set forth and described.

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