B. W. PEIRCE.

Making Horseshoe and other Nails.

No. 37,640. Patented Feb. 10, 1863.

Fig. 1,

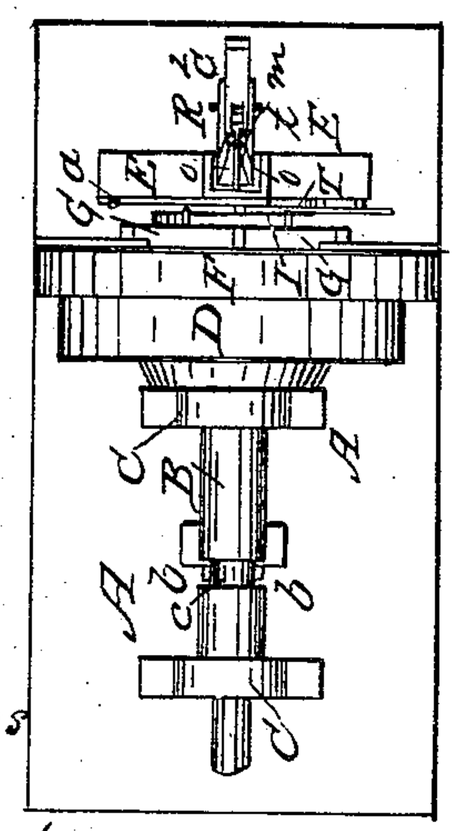


Fig. 2,

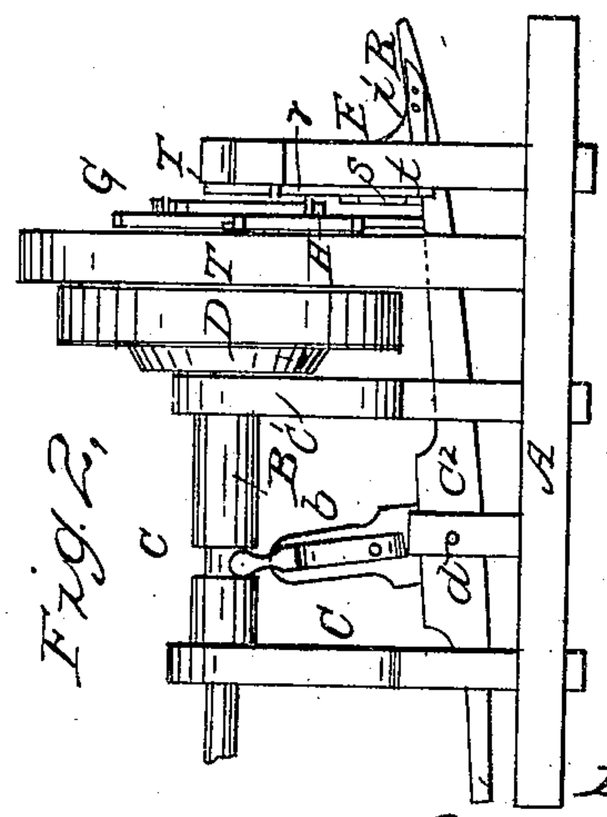


Fig. 3,

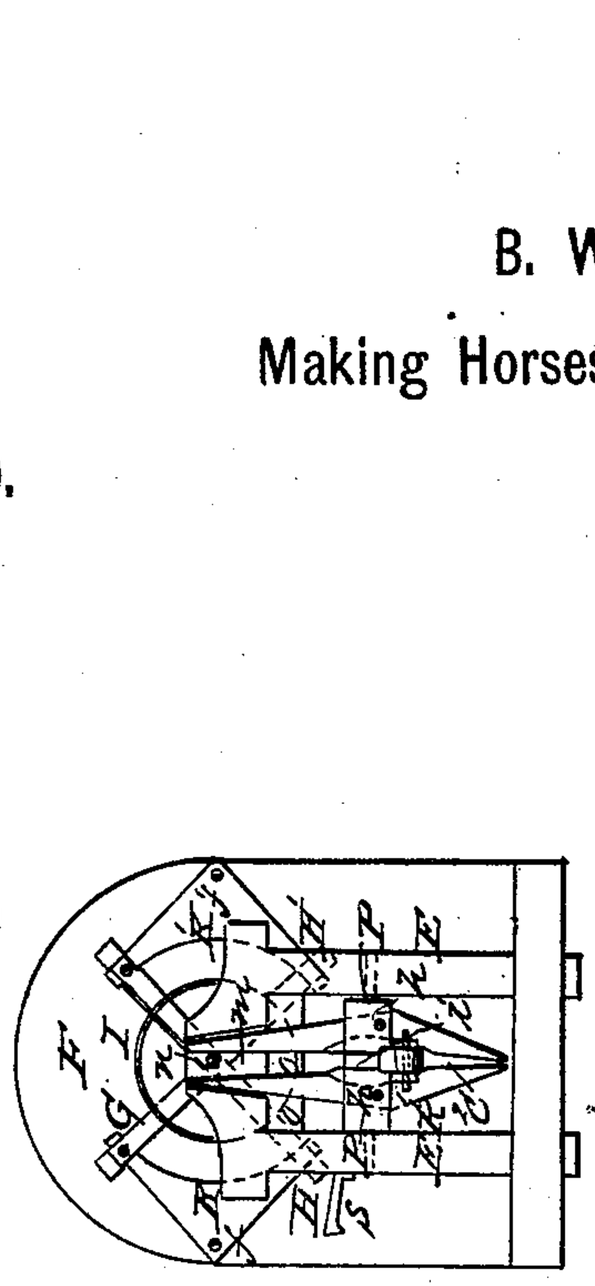


Fig. 4,

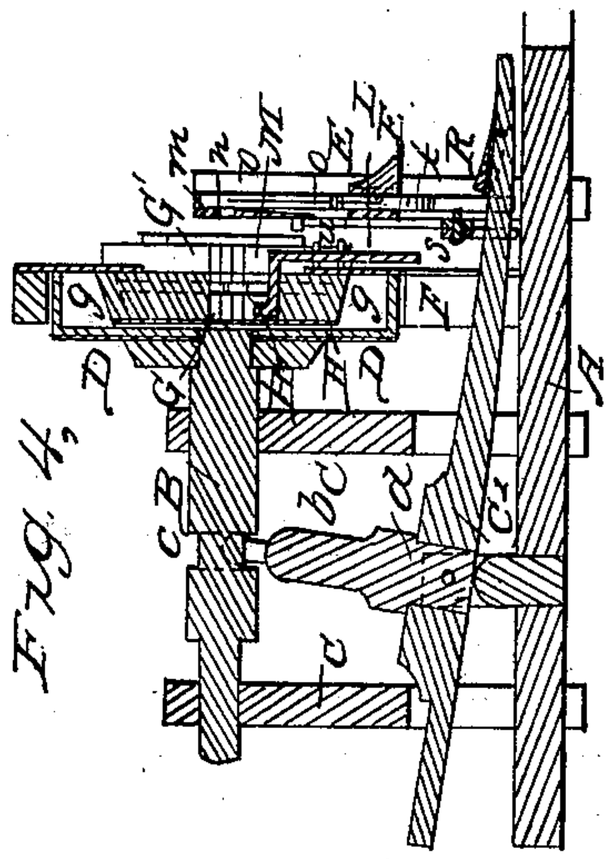


Fig. 5,

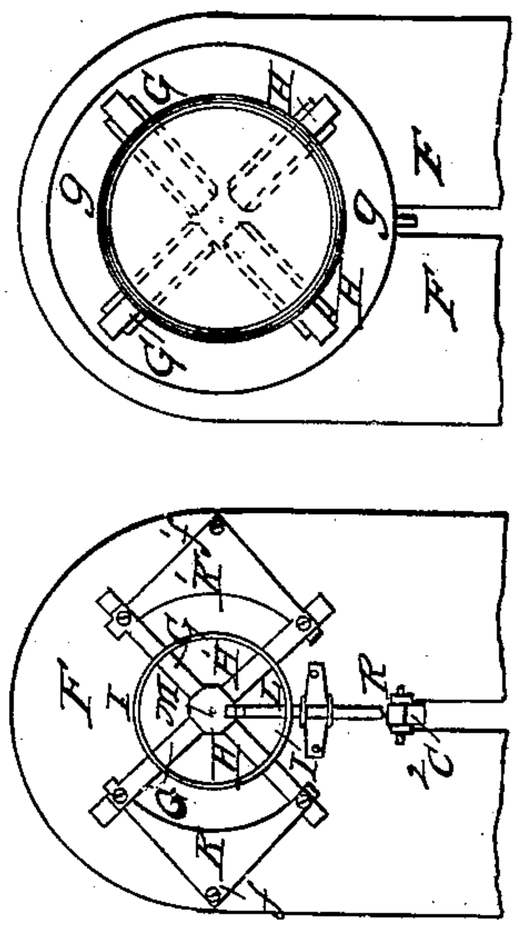


Fig. 6,

Fig. 7,

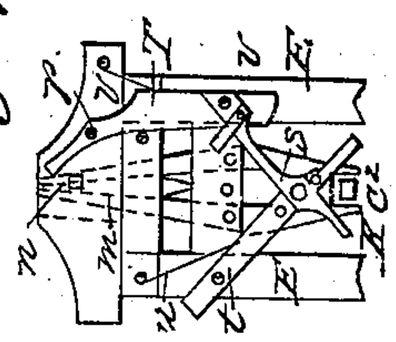
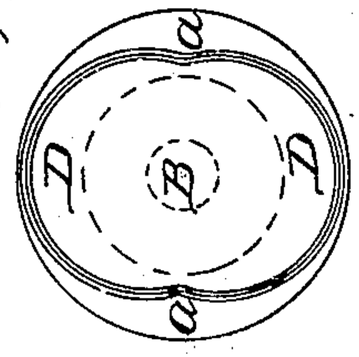


Fig. 8,



Witnesses

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BENJAMIN W. PEIRCE, OF NEW BEDFORD, MASSACHUSETTS.

IMPROVEMENT IN MAKING HORSESHOE AND OTHER NAILS.

Specification forming part of Letters Patent No. **37,640**, dated February 10, 1863.

To all whom it may concern:

Be it known that I, BENJAMIN W. PEIRCE, a citizen of the United States of America, and a resident of New Bedford, in the county of Bristol and State of Massachusetts, have invented a new and useful machine for making horseshoe or various other kinds of nails; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a side elevation, Fig. 3 a front end view, and Fig. 4 a longitudinal section, of my said machine. Fig. 5 is a front elevation, and Fig. 6 is a rear elevation, of its hammers and their carrier. Fig. 7 is a rear view of the nail-cutter and its operative mechanism. Fig. 8 is an inner side view of the rotary cam for operating the hammers or dies.

The nature of my invention consists in the combination of a rotary cam, its sliding shaft and treadle-lever, with a series of hammers or dies, a nail-discharging mechanism, and a mechanism for severing the nail from its rod; also, in the combination therewith of a gage arranged so as to operate therewith substantially as herinafter explained; also, in the combination of each pair of the hammers or dies with the other pair thereof, by means of levers, constructed and arranged as described, and a spring so applied to the dies as to cause those of either pair of them to recede from one another, while those of the other pair may be in the act of approaching toward one another.

In the drawings, A is the frame of the machine, while B is a rotary shaft supported by two standards, C C′, in such manner as to be capable of rotating laterally and being slid endwise within such standards, or in suitable bearings applied thereto. On the inner end of the shaft B there is a fixed or cam wheel, D, which is chambered on its side, and has the peripheries of such chamber cam-shaped, as shown at *a a* in Fig. 8. A vertical bifurcated arm, *b*, extends upward from a treadle-lever, C^2, and enters a groove, *c*, made around in the shaft B. This lever turns in a vertical plane and on a fulcrum, *d*, and extends forward through and in front of a third standard or upright frame, E, arranged in advance of the cam-wheel D, as shown in the drawings. There is a fourth standard or puppet-head, F, arranged between the said cam-wheel and the frame E. The said standard or die-carrier F carries two sets of hammers, G G′ H H′, which are arranged with respect to one another, and all of them are connected to one circular spring, I, as represented in Fig. 5. Each hammer or die should be so adapted to its carrier as to be capable of sliding freely back and forth in a direction longitudinally of such die, and each die of one set is connected with another die of the other set by one of two bent levers, K K′, which are arranged on the face of the carrier F, as shown in Fig. 5. The two levers are pivoted to the dies, and have their fulcra *f f′* supported by the carrier. The dies project into an annular recess, *g*, formed within the carrier, (see Fig. 6,) and of a size to receive the cam-wheel D, whose office is to alternately force the dies of each pair of dies toward one another. A gage, L, shaped as shown in Figs. 4 and 5, is arranged on the front face of the carrier and below the dies, and extends into a recess or cavity, M, made in the carrier, as shown in the drawings. This gage slides freely in vertical directions, and is raised upward by the treadle-lever, and falls by its own gravitating power. A pair of jaw-levers, O O, is arranged within a rocker-shaft, P, which is placed horizontally within the standard E. The fulcra *h h* of the two jaw-levers are supported by the shaft P, which has a projection or arm, *i*, extended from it and over the treadle-lever, as shown in Figs. 3 and 4. Furthermore, a tripper, R, is hinged to the treadle-lever, and serves, during the elevation of the front arm of the said lever, to bear against the lower arms of the jaw-levers and force them toward the cam-wheel, the upper or superior arms of the said jaw-levers being simultaneously forced in an opposite direction. A further elevation of the treadle-lever will cause it to act against the arm *i*, so as to tilt the shaft P and the jaw-levers in opposite directions—that is, to cause the jaws or upper arms of such jaw-levers to be moved toward the dies and up against a head or plate, *m*, through an aperture, *n*, of which the nail-rod is passed in order to be properly introduced between the dies. The jaws of the nippers or jaws-levers are pressed apart from one another by means of springs *o o*, arranged between the levers; and, furthermore, the

jaws are closed by the action of the treadle-lever against the lower arms of the jaw-levers during a descent of such levers. A cutter, T, for separating the nail from the rod, is arranged on the rear face of the standard E, as shown in Figs. 1 and 7. It is a lever working on a fulcrum, *p*, and so as to pass across the inner end of the aperture *n*. Such lever is retracted by a spring, *r*, and is forced in the opposite direction during an upward movement of the treadle-lever, which is brought against a lever-pitman, *s*, which is arranged with respect to the lever-cutter as shown in Fig. 7, and has its fulcrum supported by a swing-lever, *t*. A spring, *u*, forces down the swing-lever and its pitman-lever. This pitman works against a stud, *v*, projecting from the lower arm of the lever-cutter T. The working-faces of the dies are to have such forms or shapes as will cause them to impart the requisite form to the nail, giving it by their pressure a point and a head.

In the operation of this machine the rotary shaft B and its cam-wheel are supposed to be kept in rapid revolution. While the front arm of the treadle-lever is elevated to its highest position, a nail-rod is to be introduced through the aperture *n* and upon the gage L until the inner end of the rod may abut against the projection *w* of the gage, such gage by the treadle-lever being elevated or forced up to a proper position to remove the rod. After it has gaged the distance for the rod to pass between the dies, the gage will drop downward, the fall of it taking place during depression of the treadle-lever. By so depressing the treadle-lever the shaft B will be moved longitudinally, so as to force the cam-wheel into action upon the dies, after which the treadle-lever is to be raised. During its elevation the nail formed on the rod will be withdrawn from the dies and be severed from the rod, the jaw-levers O O performing the function of withdrawing it. They also serve to hold the nail-rod firmly in place while the dies may be in operation on it.

I claim—

1. The combination of the rotary cam D, its sliding shaft B and treadle-lever C, with a series of hammers or dies, G G′ H H′, a nail-discharging mechanism, and a mechanism for severing or cutting the nail from its rod, the whole being substantially as hereinbefore described.

2. In combination therewith, the gage L, arranged and operating substantially as specified.

3. The combination of each pair of dies with the other pair thereof by means of the levers K K′, constructed and arranged as described, and the spring I, applied to the dies in manner and so as to cause the dies of either pair of them to recede from one another, while those of the other pair may be in the act of approaching one another.

BENJ. W. PEIRCE.

Witnesses:

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