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W. F. Nolker
and
E. H. Morgan

Imp't in Machine for Making Staples

No. 119,529.
Patented Oct. 3, 1871.

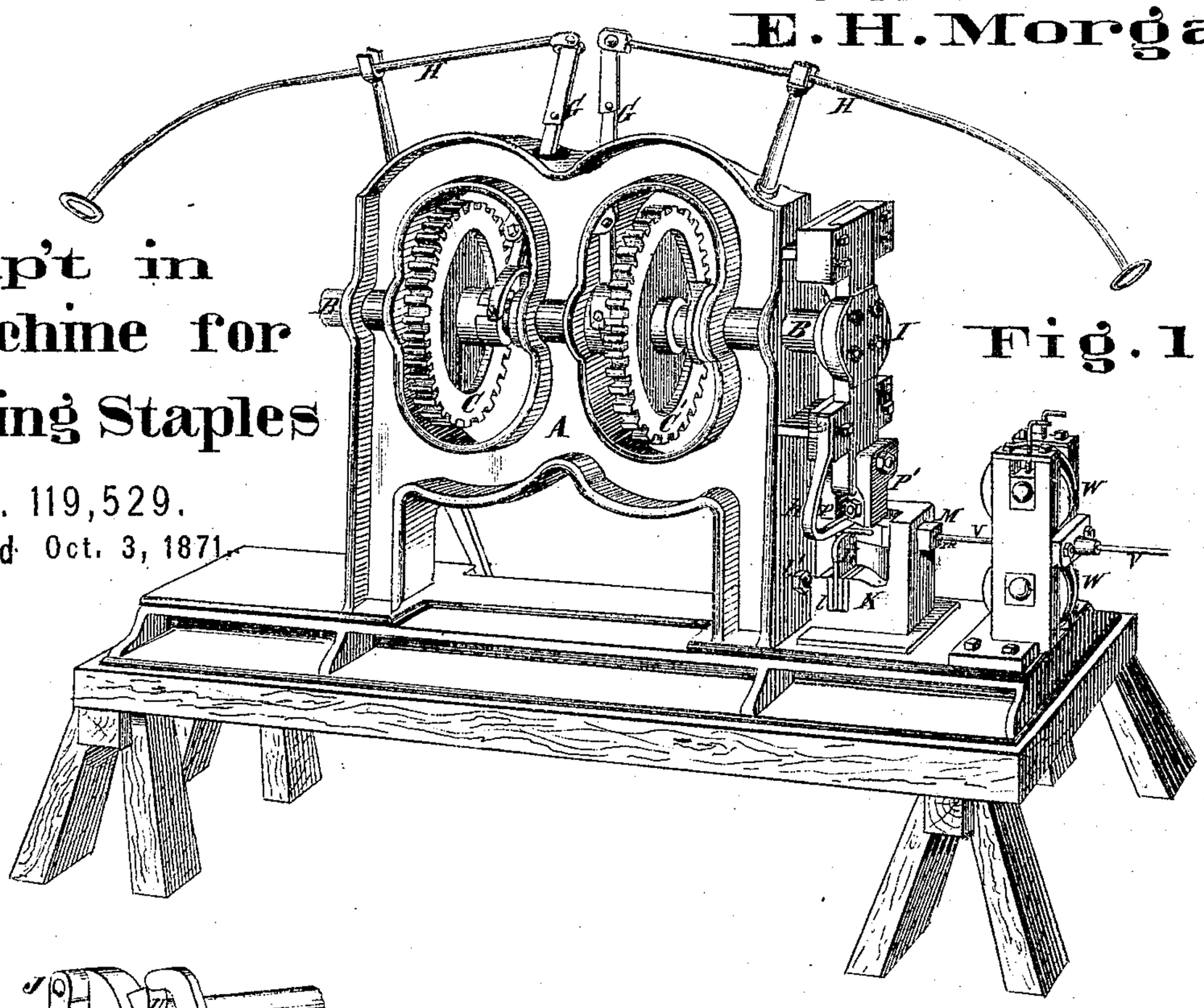


Fig. 1

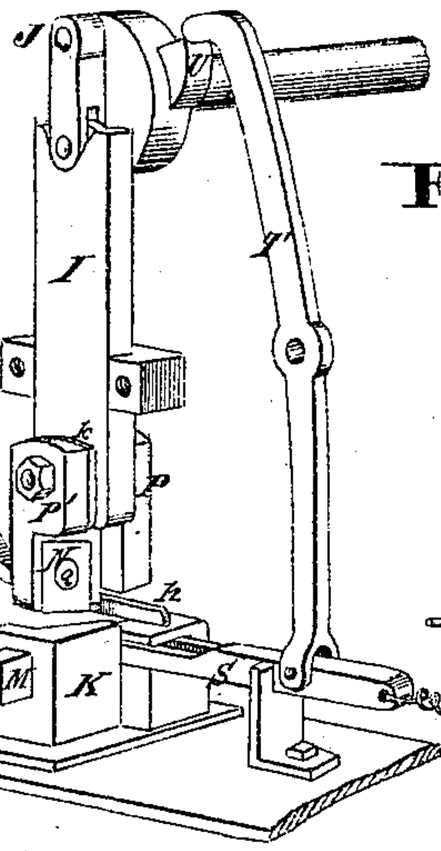
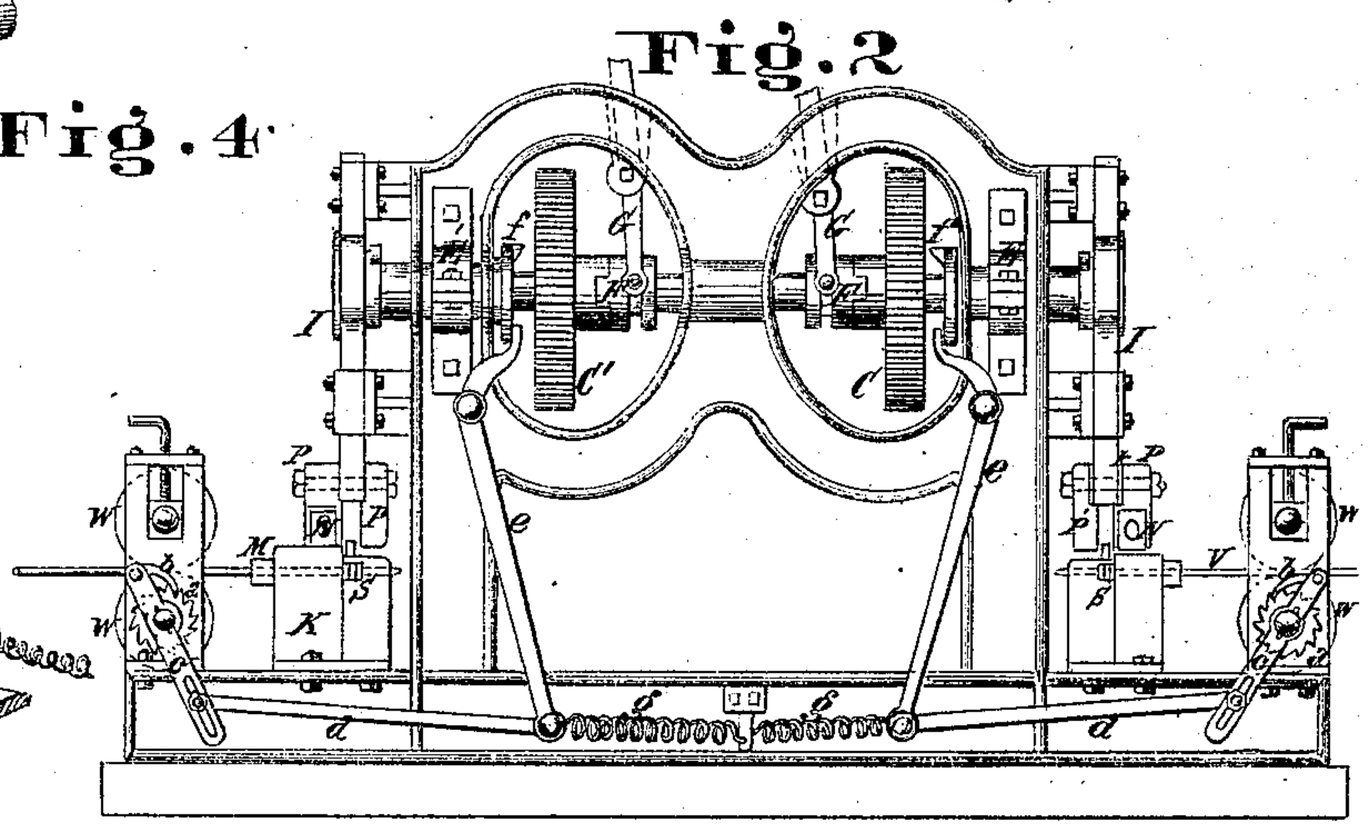


Fig. 4

Fig. 2



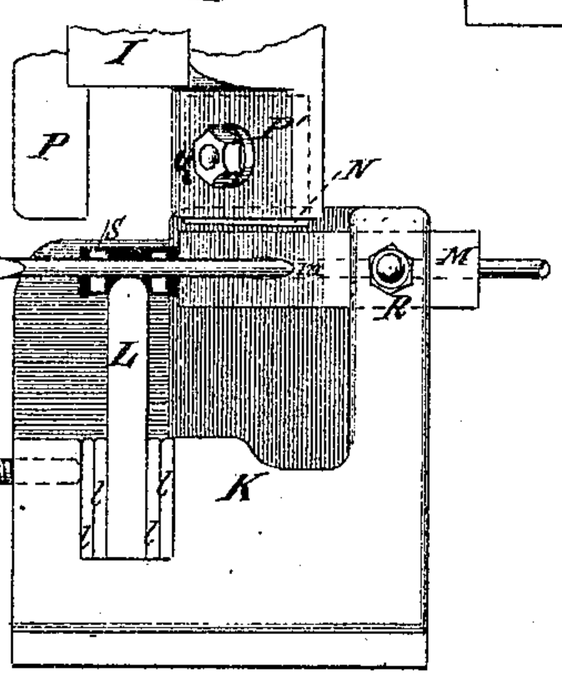


Fig. 5

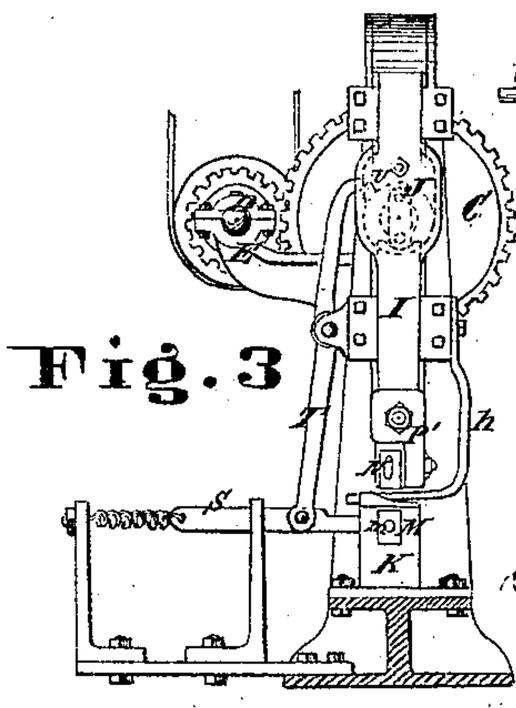


Fig. 3

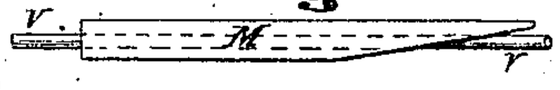


Fig. 6

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UNITED STATES PATENT OFFICE.

WILLIAM F. NOLKER AND EDWARD H. MORGAN, OF CINCINNATI, OHIO.

IMPROVEMENT IN MACHINES FOR MAKING STAPLES.

Specification forming part of Letters Patent No. 119,529, dated October 3, 1871.

To all whom it may concern:

Be it known that we, WILLIAM F. NOLKER and EDWARD H. MORGAN, both of Cincinnati, Hamilton county, State of Ohio, have invented a certain new and useful Machine for Making Staples with Sharpened Points, of which the following is a specification:

Our invention consists in certain peculiar combinations of devices by which blanks are cut with sharpened ends from a rod and bent into finished staples at one operation. Our invention further consists of certain devices for feeding the rod to the machine and throwing off the finished staple.

Figure 1 is a perspective view of a machine embodying our invention. Fig. 2 is a side elevation of the same. Fig. 3 is an end elevation of the same. Fig. 4 is a perspective view of a portion of the machine, showing the construction of the dies and the operation of the device for pushing off the finished staples. Fig. 5 is an elevation of the dies for cutting off the blanks and forming the staple. Fig. 6 is a detached view of the lower die, with the rod from which the staples are made running through it.

A is the frame of the machine, constructed preferably to permit of staples being formed at both ends at the same time. (See Fig. 2.) A shaft, B, is journaled within the frame, which is fitted with spur-wheels C C′, and driven by a counter-shaft, D, supported in journal-bearings E E′. Clutches F, which slide on feathers on the shaft, are provided to permit of the shaft B being stopped, the wheels C C′, when the clutches are disconnected from them, simply revolving on the shaft. Levers G and rods H serve to operate clutches. As the frame is fitted with the same device at each end it will be only necessary to describe one end. The slide I, to which is attached the upper dies, is operated by a cam or crank-wrist, J. The lower die K is constructed with a form, L, over which the staple is bent, and a "steeling," M, with an angular face and aperture *m* through it, over the face of which the knife N works and cuts off the wire, the cut being of a sufficiently acute angle to give all the necessary sharpening to the ends of the staples. The knife is secured to the die P′ by bolt Q in such a way that the face of the knife is angular to match the steeling M, and will complete severing the blank, which is supported upon the former L by the time the benders P P′ come in contact therewith to bend it over said former. The upper dies P P′ are firmly secured to the slide I, and constructed to straddle the form L and force the wire-blank into the form of a staple. The form L is adjustable by means of detachable liners *l* and set-screw *l′*, and the steeling M is adjustable by sliding in the die, and set to any position by set-screw R. The dies P P′ are also adjustable by means of liners *k*. The adjustability of form L, steeling M, and dies P P′ enables the machine to make staples of any thickness of wire and of any length. S is the "pusher-off," an instrument constructed to straddle the form L and push off the finished staples when the dies P P′ are at the top of their stroke. It is operated by lever T and cam-projection U, and is so connected that it follows the form L when the latter is adjusted. The rod V, of which the staples are made, is fed to the cutting and forming-dies by means of rollers W, which are revolved at the proper time by the ratchet *a*, pawl *b*, lever *c*, rod *d*, lever *e*, and cam-projection *f*, the pawl being returned for the next feed by spring *g*. The ratchet-wheel *a* being detachable for the introduction of wheels with finer or coarser teeth, and the length of the long arm of lever *c* being adjustable, as shown, the wire can be so fed as to make staples of any desired length.

It will be seen that, as the wire or rod is fed forward for the formation of each staple, it already has one sharpened end formed by the cutting off the last staple, and when the part just fed, as seen in Fig. 5, is cut off into a blank, it has both ends sharpened, the sharpening being on opposite sides.

The same downward motion of the dies P P′ which cuts off the blank bends it into a staple over the form L, and the staple so formed, having ends sharpened by a cut on one side only and the ends sharpened on opposite sides, is adapted, when driven into place for the construction of wire-fences, &c., to spread itself at the points and prevent easy displacement or pulling out of the staple. The finger *h* serves to prevent the staple following the dies P P′ in the upward stroke.

We do not claim, broadly, the combination of two shear-blades, arranged to cut the wire obliquely, with two bending-dies, and a forming-die for subsequently bending the blank into a staple; but limit ourselves to the peculiar arrangement of

these parts, whereby the blank is cut off and bent into a staple by the down-stroke of a single follower.

We claim—

1. The arrangement, on one and the same reciprocating slide or follower, of the benders P P′ and knife N, disposed in relation to one another and to the stationary former L, and angular perforated knife M, substantially as described, and for the purpose set forth.

2. In combination with the elements of the preceding clause, the "pusher-off" S T U, connected and operating substantially as and for the purpose described.

3. In combination with the elements of the first clause of claim, the feeding mechanism W *a b c d e f g*, as described, and for the purpose specified.

In testimony of which invention we hereunto set our hands.

WM. F. NOLKER.
E. H. MORGAN.

Witnesses:
FRANK MILLWARD,
J. L. WARTMANN.