(No Model.) 2 Sheets—Sheet 1.

P. D. DUPONT.

FORK POINTING MACHINE.

No. 315,395. Patented Apr. 7, 1885.

Fig. 1.

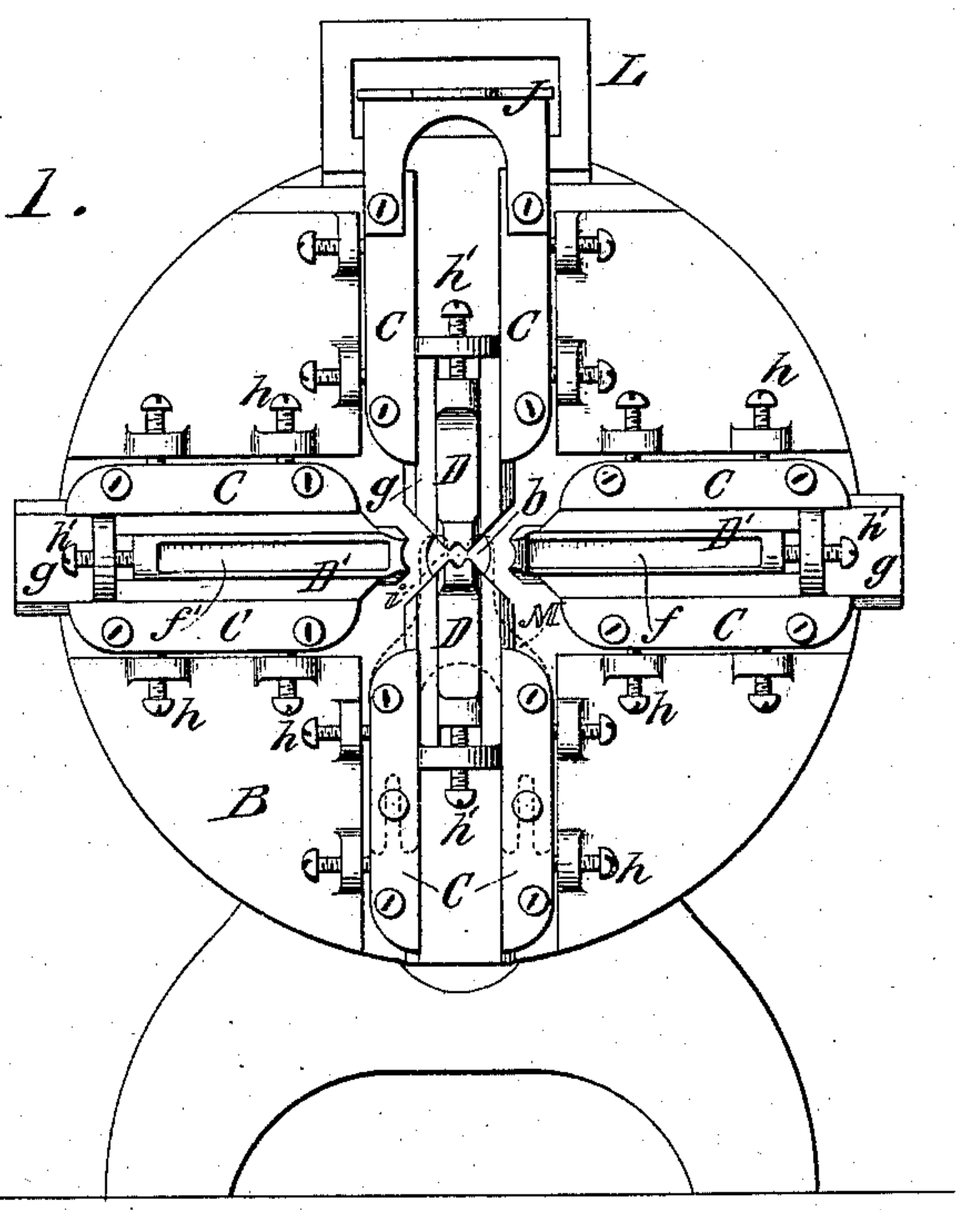
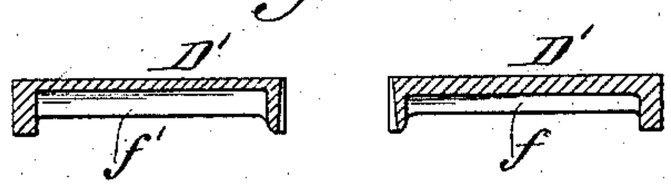


Fig. 2.



WITNESSES:

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C. Sedgwick

INVENTOR:

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ATTORNEYS.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

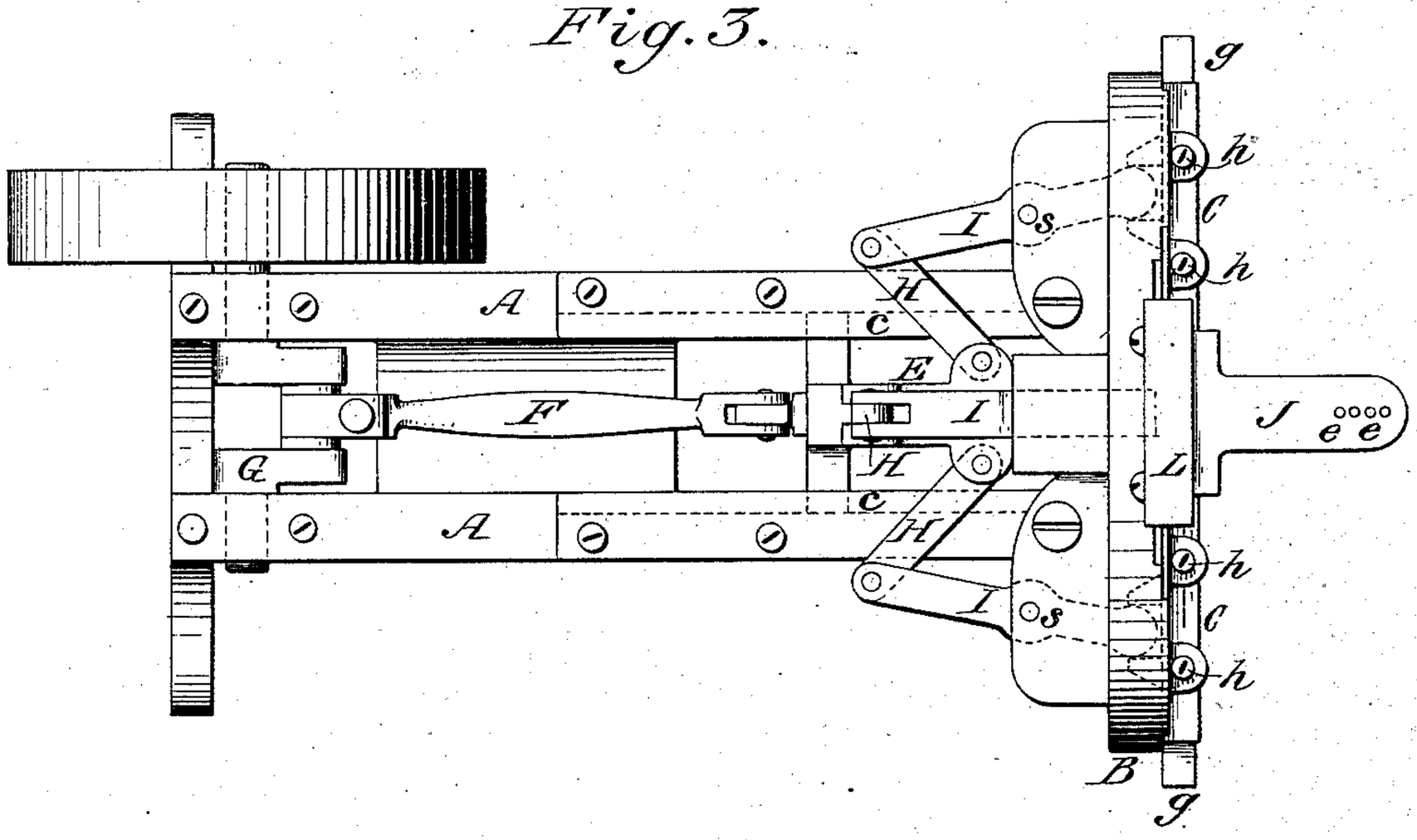
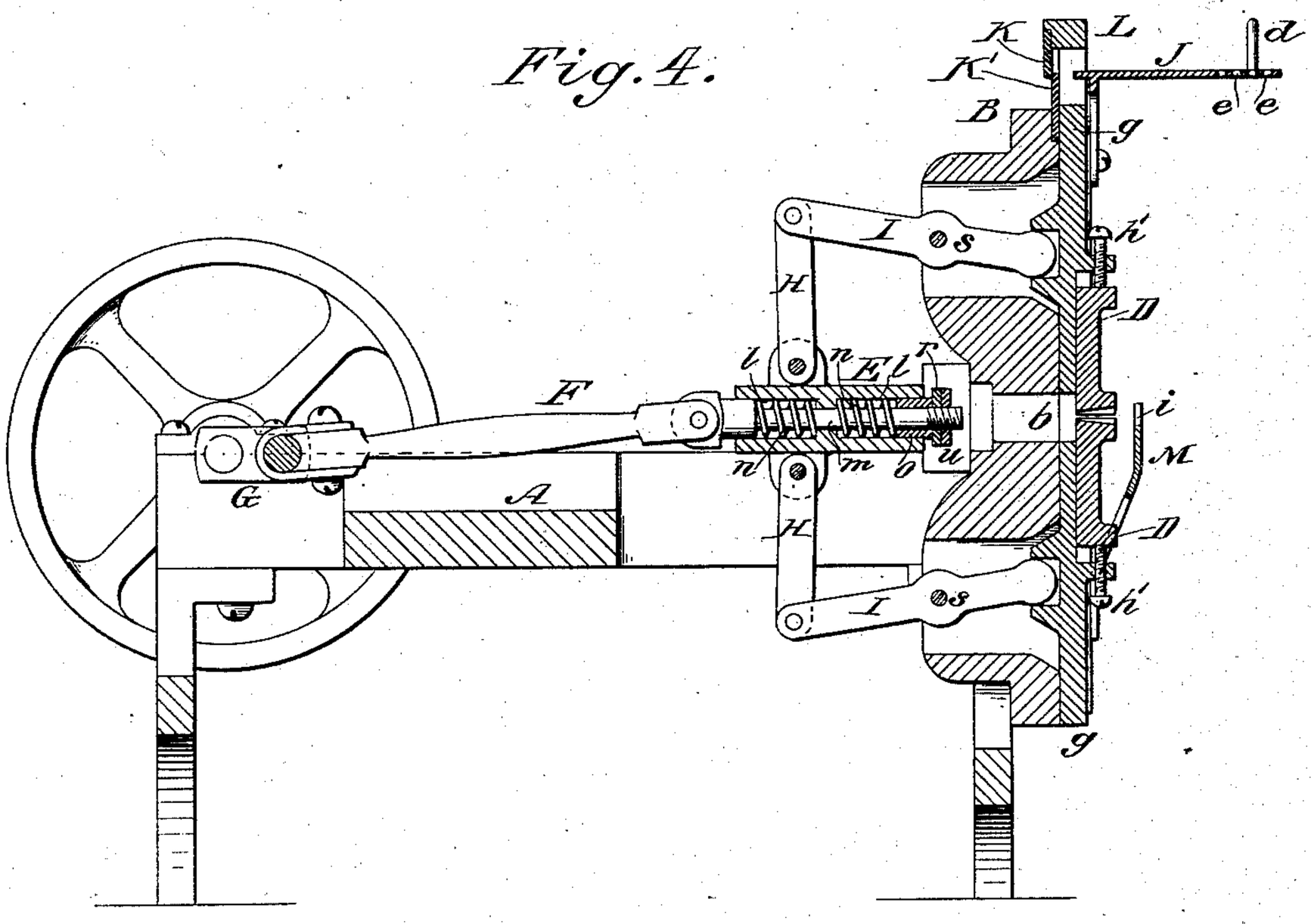


Fig. 4.



WITNESSES:
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UNITED STATES PATENT OFFICE.

PHILIPPE DÉNÉRY DUPONT, OF SUMMERVILLE, VERMONT.

FORK-POINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 315,395, dated April 7, 1885.

Application filed May 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, PHILIPPE DÉNÉRY DUPONT, of Summerville, in the county of Caledonia and State of Vermont, have invented certain new and useful Improvements in Fork-Pointing Machines, of which the following is a full, clear, and exact description.

This invention relates to machines for pointing or sharpening the prong ends of forks, including spade-forks, potato-diggers, or potato-hooks, and other fork-like agricultural implements or devices; and it consists in certain simple, durable, and effective mechanism for such purpose, the same comprising various combinations of devices, including duplicate sets of peculiarly constructed and operating radial hammers or dies, means for securing a uniform action on all the tines of a fork, and other details, whereby the pointing or sharpening may be done with great celerity and precision, substantially as hereinafter described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a front view of a fork-pointing machine embodying my invention, a front guide or gage used in it being only shown by dotted lines. Fig. 2 is a longitudinal section of two of the sliding hammers or dies, as hereinafter described. Fig. 3 is a plan view of the machine, and Fig. 4 a longitudinal vertical section thereof.

The main frame of the machine may be of any suitable construction, and is here shown as consisting of a horizontal bed, A, supported on suitable uprights, and as having at its forward end a vertical disk or plate, B. In or on the front of this plate, within guides or ways C C, are arranged radially-sliding hammers or dies D D′, four in number—that is, two vertical hammers or dies, (upper and lower,) D D, and two intermediate horizontal ones, D′ D′, all working in and out relatively to an eye or center hole, *b*, in the plate B, but consecutively as regards either pair—that is, the two vertical hammers moving toward or from each other simultaneously, while the two horizontal ones move in a reverse direction, and vice versa, whereby either pair of hammers or dies act consecutively on different sides of the outer end of the prong of a fork to point or sharpen it, the inner or pressing ends of said hammers or dies being suitably shaped, as seen more clearly in Figs. 1 and 4, to give the required point finish to the prong. The means for thus operating the series of hammers or dies consists, in part, of a horizontally-sliding stock or box, E, reciprocated by a connecting-rod, F, which is actuated by a crank-shaft, G, that may be driven by treadle, pulley, or otherwise. The horizontally-reciprocating stock or box E, that has its bearing in ways *c c* on and along the bed A, is connected with the radial hammers or dies D D′ by toggle levers or rods H and arms I, corresponding in number and arrangement with the hammers, each arm I, which is pivoted at *s* in projections on the back of the plate B, being geared by a loose end joint with its respective hammer or die, and in jointed connection with the toggle lever or bar H, by which it is worked, and these parts are so set or arranged that as either pair of hammers or dies come together to give or finish the squeeze on the end of the fork-prong the levers or bars H will approach or be in their culminating and most powerful position—that is, in vertical and horizontal positions, respectively.

Before introducing the fork to the hammers or dies D D′ to be pointed or sharpened it is passed on or over a plate, J, to a knife, K, in an upper knife-frame, L, that is moved up and down with and by the upper die, D, and is passed at its prong end between said knife and a lower fixed knife, K′, for the purpose of cutting and trimming at the same time the prongs all the same length, a pin, *d*, fitting any one of a series of holes, *e*, in the plate J, according to the length of the prongs to be cut, serving as a stop between the prongs to prevent them from being farther inserted between the knives than is necessary. This knife mechanism is important as the prongs are all shaped or formed before introducing them to the machine, and are seldom or never of the same length when brought to be pointed. If the fork were not formed as aforesaid, all the prongs could not be cut or trimmed by a single stroke of the knife.

The two horizontal hammers or dies D′ D′

are provided with longitudinal grooves *f f'* in their face for the following reason: All forks have more than one prong, and if these two dies were solid on their faces or not grooved it would be impossible for the workman to introduce any one of the series of prongs into the pointing hole or eye without crushing it, as the remaining prong or prongs would have no similar space or hole to enter. It therefore follows that with these grooves *f f'* the prongs that have not yet been pointed will not interfere with the pointing of the prong under operation or turn it out of a straight line or course, and they will also serve to stop the prong being pointed from entering in the pointing hole or eye *b* farther than is required. One of these grooves, *f'*, which may be in either one of said dies D', is made deeper than the other groove, *f*, in the other of said dies D'. The reason for this is that after pointing the prong increases in length and requires a deeper space to enter to insure the work as it is continued on the remaining prongs, being kept in a straight line or course relatively to the length of the prongs. These grooves should be made wide enough to accommodate forks of different sizes.

The hammers or dies D D' do not directly fit or slide within the ways C, but are secured in carriers *g*, that fit or slide therein, and have combined with them opposite side adjusting-screws, *h h*, and an outer end adjusting-screw, *h'*, to place the dies in the position required relatively to the center pointing hole or eye, which should be in the same horizontal line as the cavity *i* in a stationary front guide or gage, M, within which the prong, while being pointed, rests, in order that the pointing may be done in a true straight line and in good shape.

It is intended to point or sharpen the several prongs of a fork in regular order or succession, one at a time, during one and the same heat. To prevent breakage of the machine, in case of a prong while in position to be pointed becoming too cold to be worked, I give a spring thrust and pull to the sliding stock or box which operates the hammers D D', as follows: Thus, said stock or box E has a cylindrical aperture, *l*, made in it from opposite ends horizontally, into and through which is fitted a rod, *m*, to the rear end of which the operating connecting-rod F is jointed. This rod *m* has springs *n n* combined with it within the stock or box E in such manner that the thrust and pull of the rod F on the sliding stock or box E is made through the intervention of said springs, thereby allowing the hammers or dies D D' to yield in case of the work getting too cold to work while in the machine. The rod *m* of this spring-transmitting device is of reduced diameter between its ends; or, in other words, is constructed with an enlarged portion where it fits and enters the cylindrical aperture at its rear end, and is provided with a nut or sleeve, *o*, at its opposite end, that also fits and enters the cylindrical hole at the front or reverse end of the box. This provides for the guiding of said rod and its retention in the box when the springs *n n* are being worked. The sleeve *o* is backed or held in place by a nut, *r*, arranged to screw on the front end of the rod *m*, and by a lock-nut, *u*, outside of the nut that forms a head to the sleeve *o*. The springs *n n* bear at their outer ends against the enlarged rear portion of the rod *m* and the sleeve *o*, and at their inner ends against opposite faces of a fixed stop in the box E. To prevent irregularity in the working of the machine by reason of this thrust and pull spring-transmitter, all that is necessary before starting the machine is for the workman to tighten up by the nuts *r u* the rod *m* on the springs, so that there will be no yield when all is working right; but in case of the machine becoming blocked, by reason of a fork-prong becoming too cold to work, or from any other cause, then the springs *n n* will yield to the extra strain, and by the sliding of the rod *m* relieve the hammers or dies and prevent breakage of the machine.

Apart from this adjustable safety transmitter, however, the machine, unlike others, does not rest on springs, and is so simple that it will scarcely ever need repair. It points all the prongs of any kind of fork after a single heating of all of them, thus showing a great gain of time, fuel, and labor as compared with the separate heating of the prongs under the ordinary slow hand process, in which the workman points each prong separately; also, it points the fork after it has been formed or shaped, which it has been found impracticable to do by hand, and the fork is rapidly completed without passing through a series of hands to first point and then form or shape. Said machine, too, will work forks having any number of prongs, trims or cuts them of the same length much more certainly than can be done by hand, and after the work is done there will be no necessity to polish the prongs on an emery-wheel before hardening, as heretofore done, and it will not only do its work better, but so rapidly as to very materially, indeed, reduce the cost of agricultural and other like forks of different kinds.

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

1. In a machine for pointing or sharpening the prongs of forks and other like articles, the combination, with the pointing dies or hammers D and D', arranged to alternately approach and recede from each other in pairs, as described, of a reciprocating slide or sliding stock having combined with it a spring-transmitter and devices connecting the same with the sliding dies or hammers, essentially as and for the purpose herein set forth.

2. The reciprocating stock or box E, provided with opposite end spiral springs, *n n*, in combination with the rod *m*, one or more ad-

justing-nuts, *r u*, the driving connecting-rod F, the toggle levers or rods H, the pivoted arms I, and the radially-sliding dies or hammers D D′, arranged for operation together alternately in pairs, substantially as shown and described.

3. In combination with the fork-prong pointing or sharpening dies D D′, the plate J, with its adjustable stop *d*, and the knives K K′, essentially as and for the purpose specified.

PHILIPPE DÉNÉRY DUPONT.

Witnesses:

ELISHA MAY,

EMILE TARDIVEL.