S. SEVERANCE.

Spike and Rivet Machine.

No. 43,712. Patented Aug. 2, 1864.

Fig. 1.

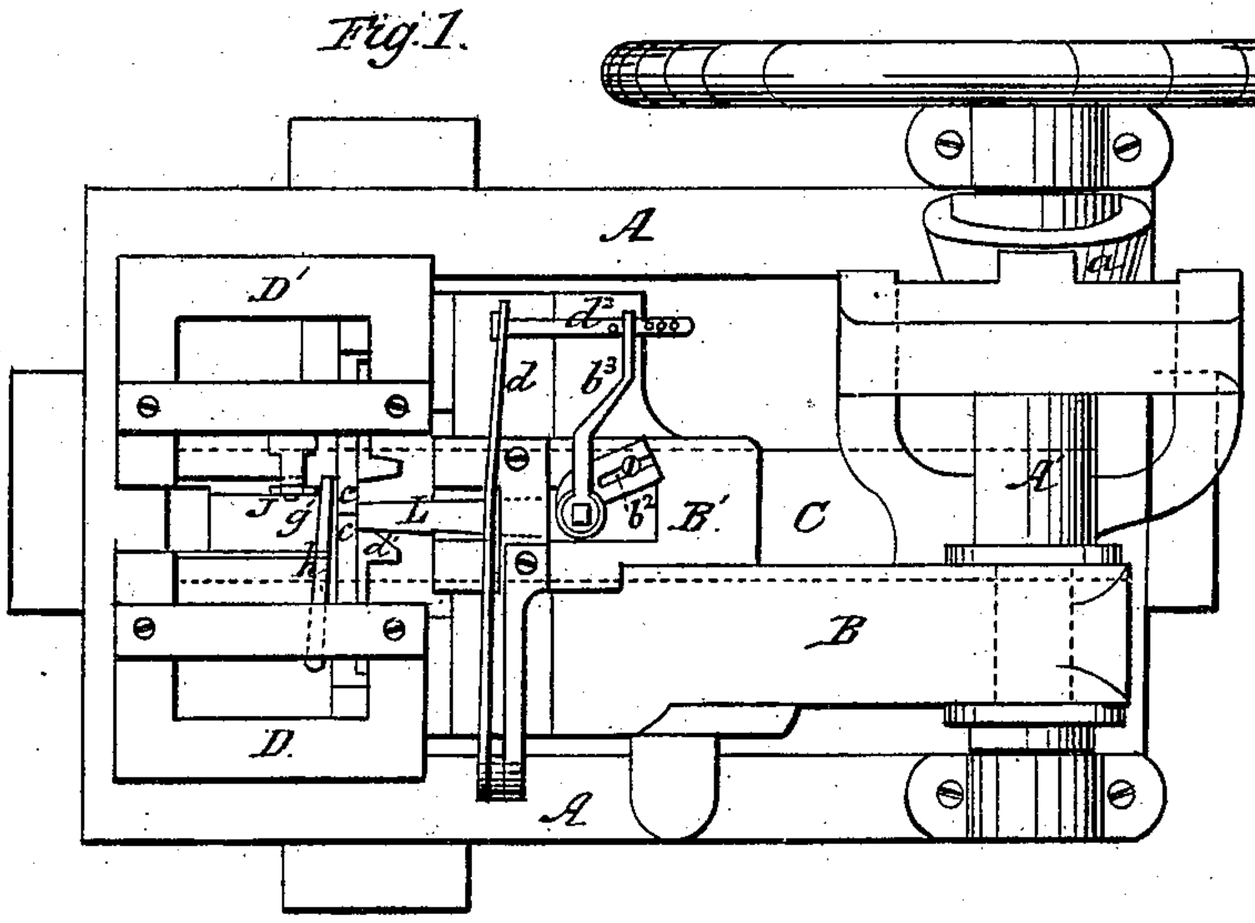


Fig. 5.

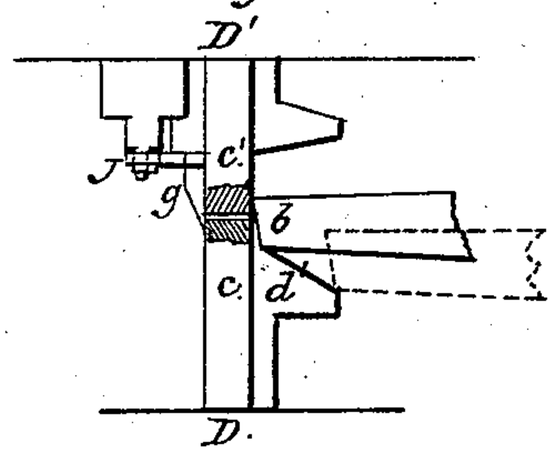


Fig. 2.

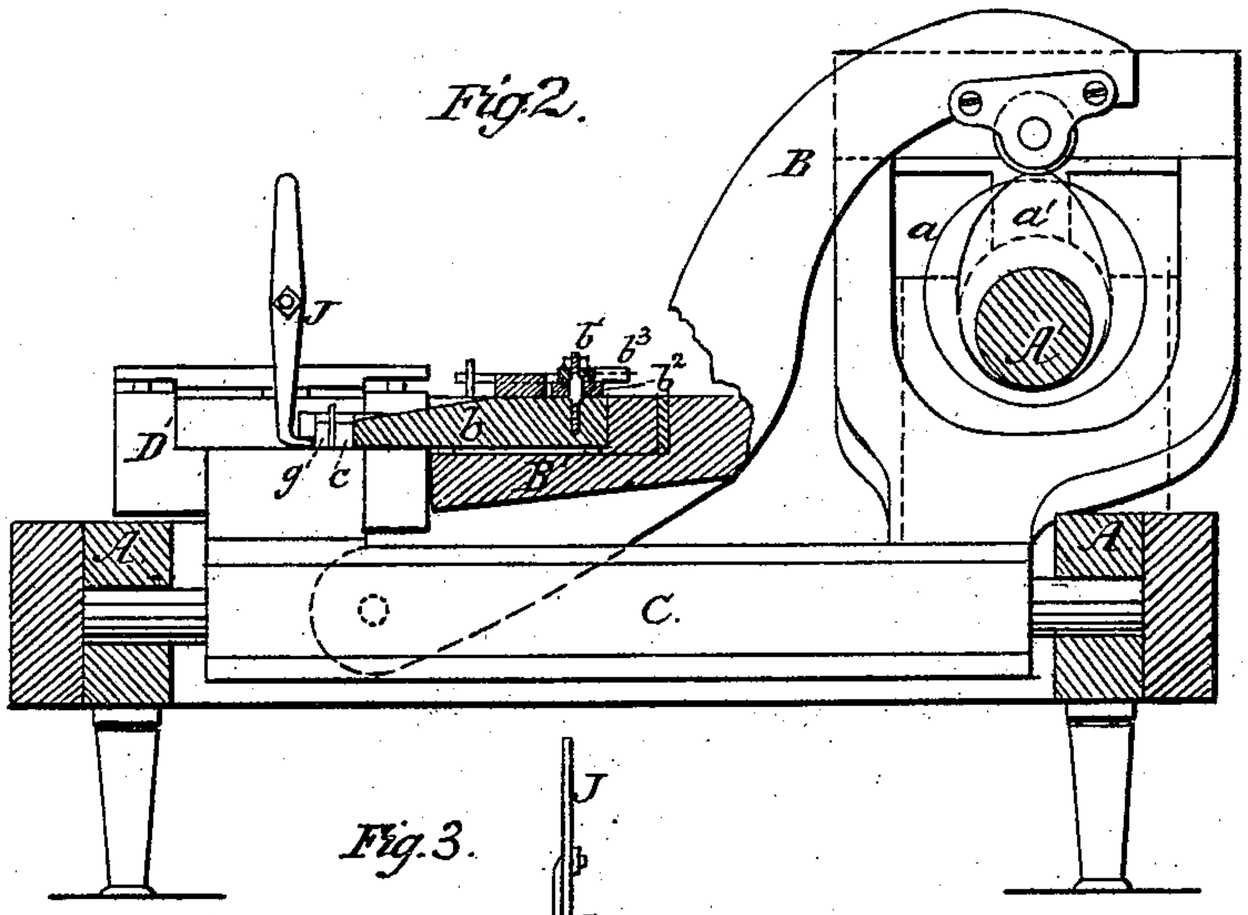


Fig. 3.

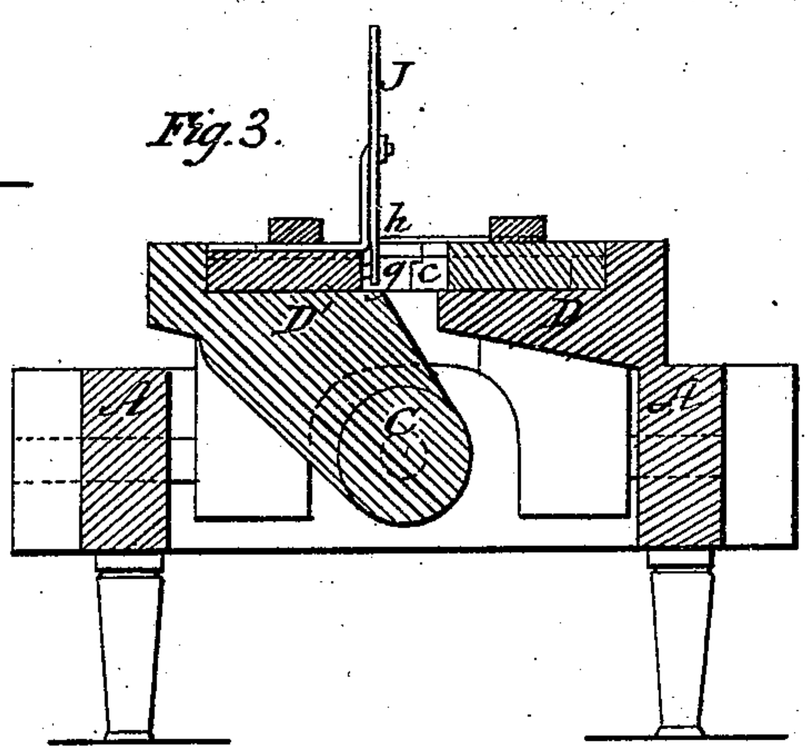
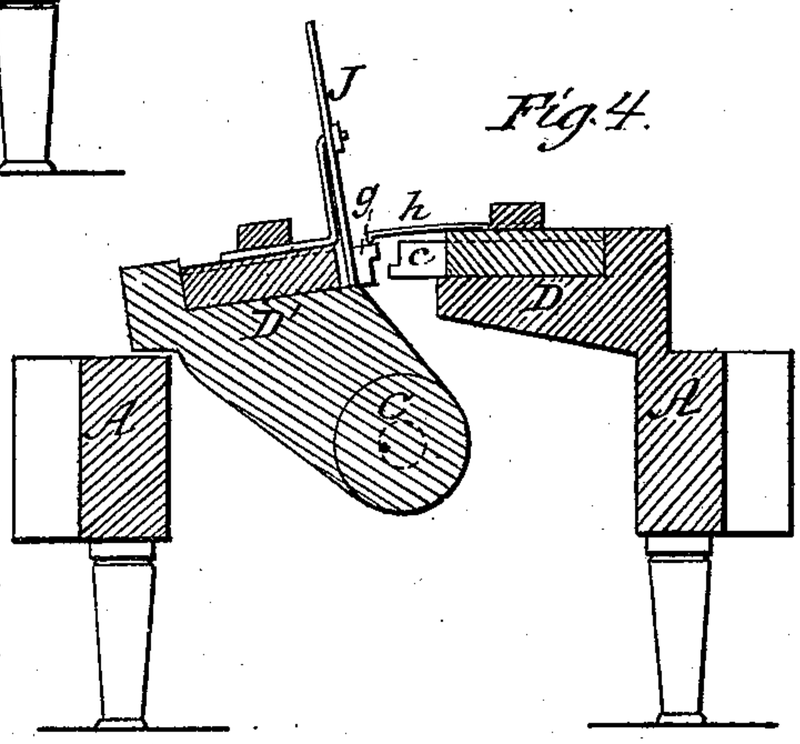


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

SAMUEL SEVERANCE, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR MAKING SPIKES.

Specification forming part of Letters Patent No. **43,712**, dated August 2, 1864.

To all whom it may concern:

Be it known that I, SAMUEL SEVERANCE, of Pittsburg, Allegheny county, State of Pennsylvania, have invented a new and Improved Machine for Making Spikes and Rivets; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a plan view of my improved machine. Fig. 2 is a vertical longitudinal section, taken through the center of Fig. 1. Figs. 3 and 4 are transverse vertical sections showing the vibrating die-carrier in two positions. Fig. 5 is a detail view of the gripping-jaws and heading-tool.

Similar letters of reference indicate corresponding parts in the several figures.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

In the accompanying drawings, A represents the frame of the machine, and A′ a horizontal transverse cam-shaft carrying two cams, *a a′*, one of which, *a′*, operates upon the curved arm B of vibrating bed B′, and the other, *a*, gives a vibrating or oscillating motion to the longitudinal shaft C, to which the head, carrying one of the gripping-tools is affixed, as clearly shown in Figs. 2, 3, and 4.

The longitudinally-oscillating bed B′ is adapted for receiving within a recess, as shown in Figs. 1 and 2, the heading-tool *b*, which is pivoted at its rear end by a vertical pin, *b*, to an adjustable plate, b^2, which will admit of said header being moved longitudinally and set in any desired position with reference to the gripping-tools *c c′*. The pivot-pin *b′* is secured rigidly to the header *b*, and it is also secured to one end of an arm, b^3, which is acted upon by a transversely-arranged spring, *d*, that holds the acting end of the header *b* in contact with the beveled head *d′*, which head is thus caused to operate as a guide for giving the header a lateral movement as it advances to its work of forming a head on a metal rod, which is confined between the gripping-tools or dies *c c′*, as shown in Fig. 5, wherein the operation just described is indicated by the two positions of the heading-tool. This inclined surface of the guide or head *d′* gives a positive lateral movement to the acting end of the header, and causes it to upset or to turn the end of the rod on one side, and thus form the head. The forward or acting end of the heading-tool may be beveled in such manner that when this end abuts against the sides of the jaws or dies *c c′* its surface will be parallel therewith, or nearly so, or there may be a slightly-tapering opening left between the end of said header and the anvil-surfaces of the jaws *c c′*, which, in conjunction with a depression made in said jaws, will cause the header to form a very good hook-head spike.

The connecting rod or strap d^2 is so applied to the ends of arm b^3 and spring *d* that the force of this spring can be increased or diminished at pleasure or taken off altogether, as will be hereinafter further described.

D D′ represent two tool rests or boxes, within which the gripping-jaws *c c′* are firmly secured by means of blocks and, if desirable, wedges. One of the rests, D′, is affixed to the rock-shaft C, as shown in Figs. 2, 3, and 4, while the other, D, is immovably attached to the frame A. The abutting ends of the gripping-jaws *c c′* are adapted for receiving round or square rods of metal to be headed, and when the jaws are closed these rods are firmly held in place until the head is formed or until the heading-tool commences to recede from said jaws.

A beveled cutting-tool, *g*, is applied on one side of the movable gripping-jaw *c′*, as shown in Figs. 2, 3, and 5. This cutter abuts closely against the vertical side of the jaw *c′*, against which it is firmly held by a long shank or neck that enters loosely a hole in one of the adjustable blocks on the tool-rest D′, so that said cutter may be adjusted in an endwise direction and made to cut off the spike or bolt from the stock at every advancing movement of the jaw *c′*, or set back out of the way so as not to cut off the spike. The object of making such a provision for the cutter is that when railroad-spikes are made in the machine (blunt-pointed) one blow of the header *b* will be sufficient to turn over and complete the head, after which the spike drops down; but when it is desired to make bolts or rivets in the machine it is necessary that the header should strike several times before finishing the head, and hence it is necessary to apply the cutter *g* in such manner that it can be thrown out of and into action at pleasure. To operate said cut-

ter, a hooked spring, *h*, is secured at one end to rest D in such manner that the opposite or hooked end will overhang the cutter *g* and impinge upon this cutter when the spring is pressed upon. When the two jaws *c c'* are together, and the retractor *h* brought down upon the cutter it will remain stationary during the recession of the tool-rest D' and its tool *c'*. The hooked end of the upright lever J is now moved behind the shoulder of cutter *g*, which keeps this cutter in operative position. When it is desired to throw the cutter out of action again, the hooked end of lever J is moved back out of the way and the cutter slides back into its former position. This lever J is a straight rod, having a hook or rectangular portion formed on one end. It is pivoted to a bracket projecting from the vibrating tool-rest, and when this lever is not in immediate use it hangs vertically and out of the way of the jaws or spike-rod, which is introduced between them.

The operation of my machine may be briefly described as follows: A heated bar of "round" or "square" iron is inserted between the gripping-jaws *c c'*, and its end pushed far enough through to allow the header to bend over and form a good head on the spike. The jaw *c'* and its cutter *g* advance, and the blank is severed from the bar and confined on all sides except that portion which is to be formed into a head. The heading-tool advances toward the blank, and is at the same time moved laterally so as to bend over the metal and press it into shape at one operation; but in making bolts and rivets with very large heads it is necessary to cause the header to strike the blank two or three times for the purpose of giving the head a good shape, and at the same time to make it large enough, which could not be done if the blank was severed from the bar at the first stroke of the gripping-jaw, as in the operation of making hook-headed spikes. In the operation of making bolts the cutter *g* is brought into action after the head is formed on the rod, and a portion cut off as above described.

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

1. The means, substantially as herein described, for giving a lateral movement, simultaneously with its advancing movement, to the heading-tool *b*, for the purpose set forth.

2. Adapting spike and bolt or rivet machinery for making heads of various sizes on the rods by the employment of an adjustable cutter, *g*, applied, operated, and operating substantially as described.

3. The combination of the gripping-jaws *c c'*, pivoted header *b*, guide *d'*, and cutter *g*, operating substantially as specified.

4. The combination of the retractor *h* and the lever J with an adjustable cutter, *g*, substantially as and for the purposes described.

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Witnesses:

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