2 Sheets—Sheet 1.

L. KIRKUP.

BOLT HEADING MACHINE.

No. 52,494. Patented Feb. 6, 1866.

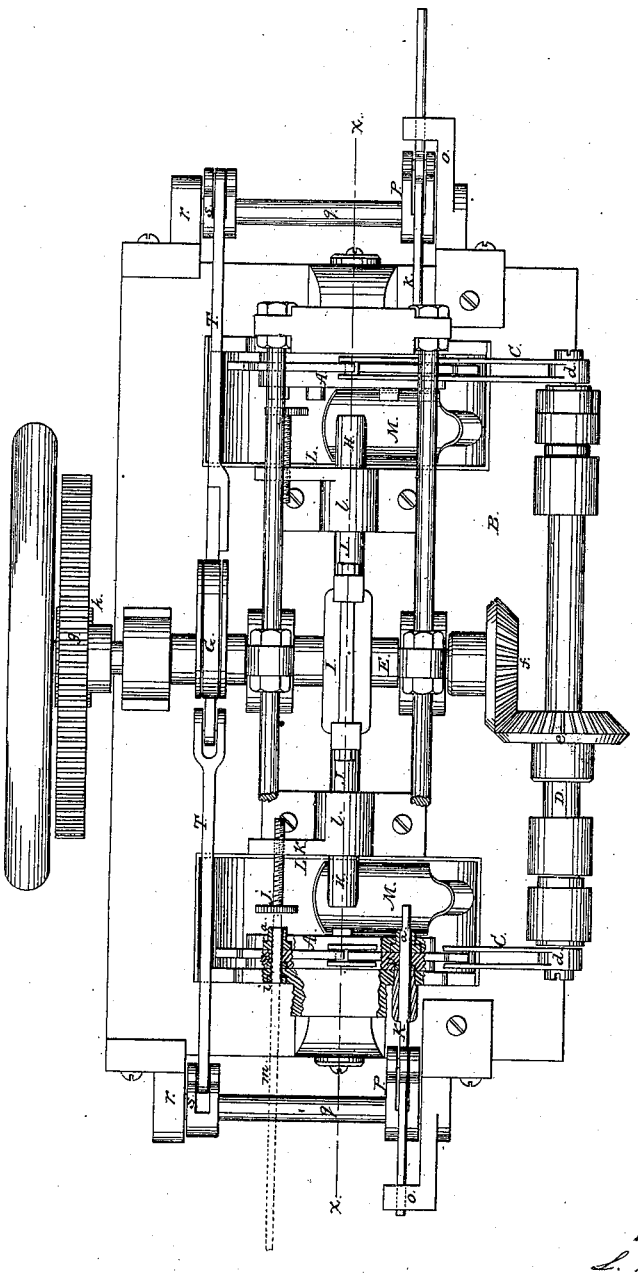

Fig. 1.

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2 Sheets—Sheet 2.

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BOLT HEADING MACHINE.

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Fig. 3.

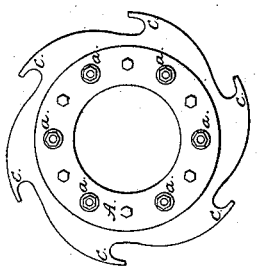


Fig. 2.

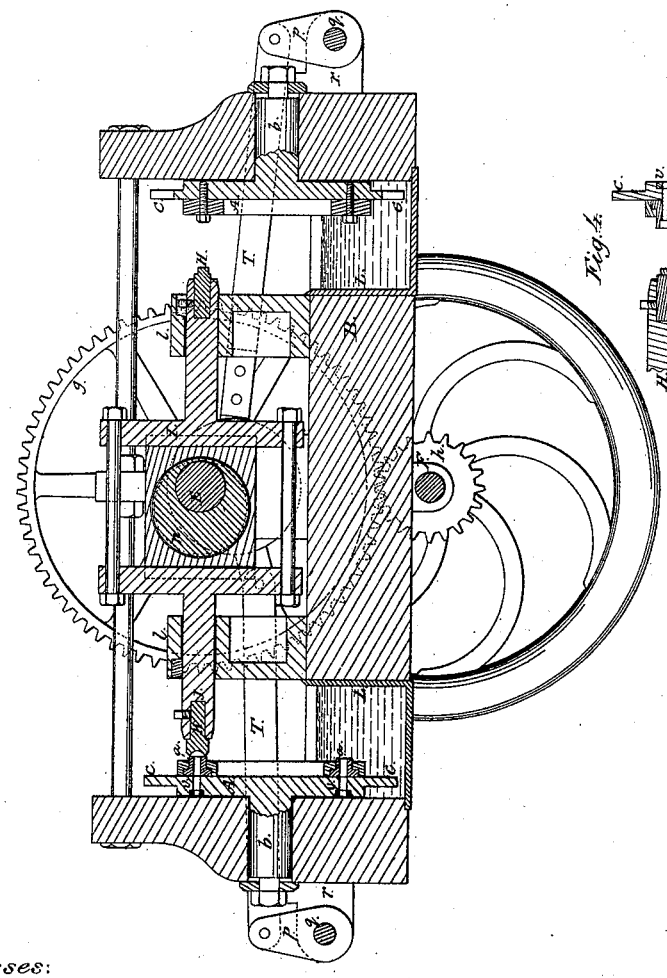
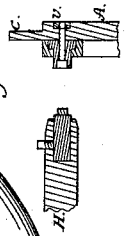


Fig. 4.



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UNITED STATES PATENT OFFICE.

LANCELOT KIRKUP, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE AMERICAN BOLT AND RIVET COMPANY OF NEW YORK.

IMPROVEMENT IN BOLT-HEADING MACHINES.

Specification forming part of Letters Patent No. **52,494**, dated February 6, 1866.

To all whom it may concern:

Be it known that I, LANCELOT KIRKUP, of the city of Brooklyn, in Kings county, State of New York, have invented a new and Improved Machine for Making Bolts, Rivets, Spikes, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of the specification.

This invention relates to a machine which may be properly termed a "double rivet, bolt, and spike machine," and which serves to make by one revolution of its main shaft two rivets, bolts, spikes, or similar articles of the same or of different kinds—that is to say, both ends of the machine can be employed to make rivets or bolts or spikes at the same time, or one end may be used to make rivets and the other bolts or spikes at the same time.

In the accompanying drawings, Figure 1 is a plan or top view of this machine, some parts being shown in section. Fig. 2 is a longitudinal vertical section of the same, the line *x x*, Fig. 1, indicating the plans of section. Fig. 3 is a detached front elevation of one of the revolving disks carrying the dies. Fig. 4 is a detached sectional view of the punch and dies.

The principal working parts of my invention are two disks, A, each perforated with a number of holes, *a*, which serve as sockets for the dies. These disks revolve on axles *b*, which have their bearings in the end pieces of the frame B, and they are made of iron, steel, or any suitable material. An intermittent rotary motion is imparted to said disks by means of slotted rods C, (see Fig. 1,) which catch over teeth *c* in the periphery of the disks, and to which the required motion is given by cranks *d* mounted on the ends of a shaft, D, or by any other suitable means. The number of teeth on the periphery of the disk is equal to the number of sockets in the same, and the throw of the cranks *d* is so adjusted that for each revolution of the shaft D each of the disks is turned for one tooth.

The shaft D has its bearings in suitable standards rising from the frame A, and motion is imparted to it by means of beveled gear *e f* from the main shaft E. On this shaft is mounted a large cog-wheel, *g*, which gears in a pinion, *h*, of the driving-shaft F, to which motion is imparted by any suitable motor.

The rods *m*, from which the rivets, spikes, or bolts are to be manufactured, and which are shown in red outline in Fig. 1, are fed in through suitable holes *i* in the end pieces of the frame A, and these holes are so situated that they are opposite to one of the sockets in the disks, so that a rod introduced through one of said holes passes also through the disk until its end strikes the gage-screw *j*. Such a gage-screw, *j*, is arranged opposite to each of the holes *i*, being tapped into a lug or bracket, *k*, on the frame B in such a position that by screwing it in or out the length of the rod *m* projecting beyond the inner surface or face of the appropriate disk can be regulated according to the work to be produced. As the disk revolves by the action of its slotted rod *c*, that portion of the rod *m* inside the end piece of the frame B is cut off and carried opposite the punch H, the operation of cutting the rod being produced by the action of the disk against the edge of the hole *i* in the end piece of the frame B, each hole being made in a piece of hardened steel which is inserted in or otherwise secured to the end piece of the frame, and the holes in the disks being lined with steel, thimbles being inserted, as shown in Fig. 2.

Each of the disks A is provided with its own punch, and these punches are secured in the ends of rods J, which move back and forth in suitable boxes *l* secured to the platform of the frame B, motion being imparted to said rods by an eccentric, *n*, which is mounted on the main shaft E, and which acts in a yoke, I, to the opposite sides of which the rods J are connected.

The faces of the punches are formed to correspond to the head of the rivet, bolt, spike, or other article to be produced, and punches of different shape are provided, which can be readily inserted in their sockets in the rods J. And in the same manner the dies in the disks A are made movable, and dies of different shapes are provided to suit the various articles to be produced upon this machine.

By the action of the punches H the pieces of the rods *m* are provided with heads of any

desired size or shape, and by the next motion of the disks those dies which contain the finished rivets, bolts, or spikes are carried opposite the pusher-rods K, which pass in through suitable holes in the end pieces of the frame B, and which serve to push the finished rivets, &c., out of the disks. Said pusher-rods are guided in the holes in the frame and in other holes in brackets O secured to the frame, and a reciprocatory motion is imparted to them by means of arms P, which are mounted on rock-shafts *q*. These rock-shafts have their bearings in suitable lugs *r* secured to the ends of the frame B, and the requisite motion is imparted to them by an eccentric, G, which is mounted on the main shaft E, and which connects with arm *s* on the rock-shafts by means of rods T, as shown in Fig. 1 of the drawings.

In manufacturing bolts or spikes with square, hexagonal, octagonal, &c., heads it may be necessary to subject the blanks to two operations in order to give to the heads the desired shape. In this case the heads are made round by the first operation—say at one end of the machine—and the final shape is given to them by passing them through the machine a second time—say at the other end—and the heading-dies used in this second operation are formed as shown in Fig. 4.

To prevent the disks A from getting hot by coming continually in contact with the heated metal rods I have arranged the said disks so that they pass through troughs L filled with water or other suitable cooling medium. These troughs are inserted in suitable cavities in the frame B, or said cavities themselves may form the troughs, if desired. By the use of these troughs the dies and cutting-edges of the disks retain their temper for a long time, and the machine works correctly and without difficulty or undue strain.

The rivets, bolts, or spikes, on being discharged from the dies by the action of the pusher-rods, drop into suitable chutes M, which conduct them to any desired receptacle.

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

1. The arrangement of two die-carrying disks, A, one on either end of the frame B, in combination with suitable punches H, with a yoke, I, and eccentric *n*, or their equivalents, constructed and operating substantially as and for the purpose specified.

2. The troughs L, in combination with the die-carrying disks A, arranged substantially as and for the purpose specified.

LANCELOT KIRKUP.

Witnesses:
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