J. G. DAY.

MACHINE FOR MAKING RIVETS AND BLANK SCREWS.

No. 6,578. Patented July 3, 1849.

Fig. 2

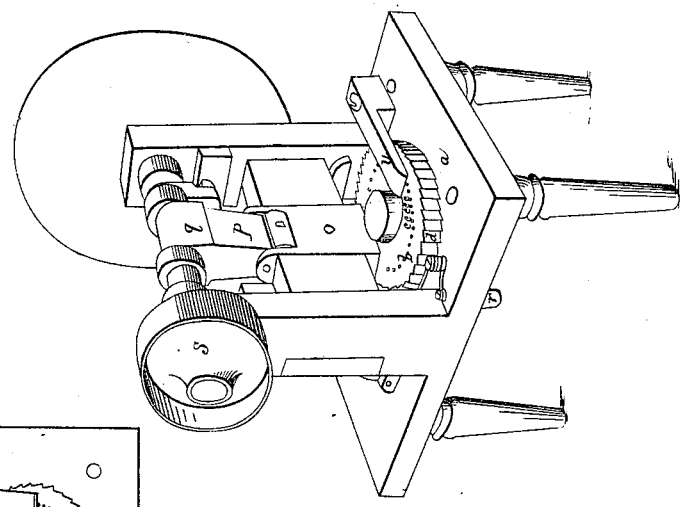

Fig. 5

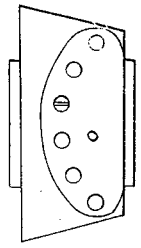

Fig. 3

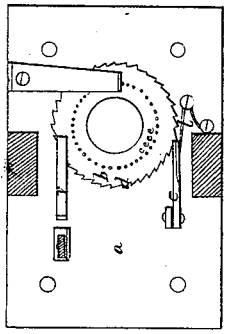

Fig. 4

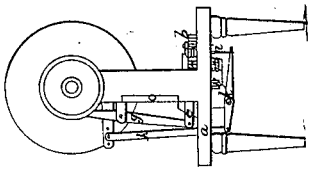

Fig. 1

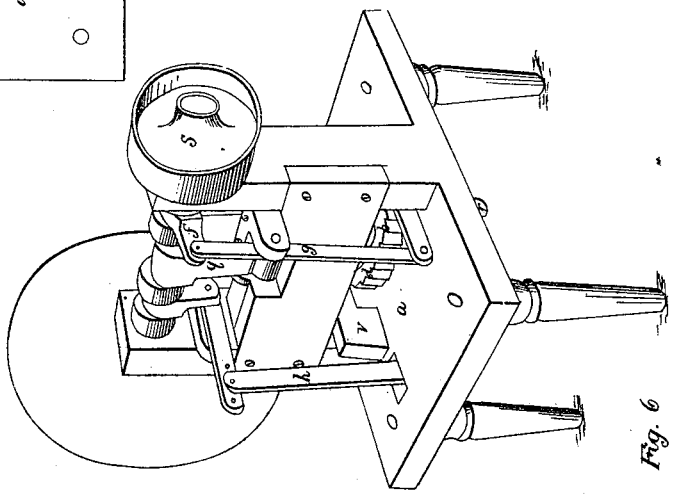

Fig. 6

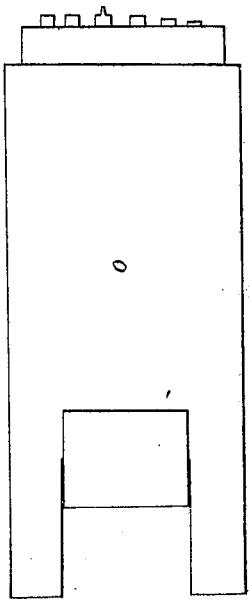

Fig. 7

Fig. 9

Fig. 8

Fig. 10

UNITED STATES PATENT OFFICE.

JACOB G. DAY, OF BROOKLYN, NEW YORK, ASSIGNOR TO JOHN L. KINGSLEY.

ROTATING DISK, BOLT, AND RIVET.

Specification of Letters Patent No. 6,578, dated July 3, 1849.

To all whom it may concern:

Be it known that I, JACOB G. DAY, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Process and Machinery for Making Blank Screws and Rivets; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view of one side. Fig. 2 is a perspective view of the opposite side. Figs. 3, 4, 5, 6, 7, 8, 9, 10, are sections as described in the specification.

The nature of my invention consists in the discovery of a speedy and useful way or process for making rivets and blank screws, with machinery therefor.

This machinery consists of a disk or circular plate having placed on its side or face a set or series of dies, each of which dies is placed equi-distant from the axis of the disk and from each other, and are intended to be brought, one to the place of feeding, and another to the place of heading, and one to the place of discharging, all at one and the same time; while at an intermediate and alternate time, the disk may revolve, and by such revolution bring the next set of dies to the respective points for the before named operations to be performed, the disk remaining at rest for the purpose of allowing such operations to take place, but cutting off the wire or rod that has been fed in, as the disk and dies revolve, and holding and conveying it until the work is complete, that is, until the rivet is headed and discharged, and so continuing their operations in succession so long as it shall be desired.

I arrange a table (*a*) upon which I place a disk (*b*) having its several dies (*c*) and its outer edge being in the form of a ratchet (*d*) and may be caused to revolve by the pawl (*e*) or any equivalent mechanism. This may be understood more clearly by referring to Fig. 3 of the drawings, this being a plan of these parts; although the same parts are known by the same references in all the drawings. Above the table is the main shaft, from which is conveyed motion to all parts of the machine. A double acting crank (*f*) by an intermediate connecting lever (*g*) acts upon the pawl (*e*) to cause the disk to revolve at the proper time, and to the proper distance; while a somewhat similar arrangement bears a like relation through its connecting rod (*h*) to the discharger (*i*) worked by an intermediate lever (*k*). At the back of the pawl (*e*) is a spring (*l*) which keeps the pawl up to its work at all times; there is, besides, a strong coiled spring as (*m*) Fig. 4 to keep the disk in its place firmly to the table, a planing tool as (*n*) is used to plane off and level the head after the header or meshing tools have done their work; this tool may be constructed with a projecting point or lip to fit in a recess in the face of the disk, and this lip will cut the nick in the head of the screw. This planing tool is placed immediately in front of the discharger. Behind the discharger is a stop or gage piece (*v*) placed in an oblique position, which serves the double purpose of a gage for the length of wire to be cut off, and as a clearer to throw off the work from the disk, after it has been discharged from the dies. I will here add that I have intended to use, if necessary, a lock-up for my disk; this would regulate the disk by stopping its motion at one precise place at each stop, in case it should fall a trifle short or overreach the desired point by the inaccurate action of the pawl. This lock-up may be applied in many ways, but can be well applied by attaching a wide piece to the end of the discharging lever and upon it placing two pins instead of one; one of these could have a long leveled or taper point to enter one of the dies, and thus as it is pushed into the full size, will bring the disk to the exact place to receive the other (the discharging pin) this discharging pin is for operating upon a headed rivet to discharge it.

Figs. 5 and 6 are enlarged views of the heading hammers or header, the first being an end view of the under side as placed, and the second a side view. This hammer has several hammer faces to act upon as many rivets or blank screws, and gives by this means as many blows upon each one as there are of these faces; that is, one acts upon the head of the rivet in one die at one blow, and the same one acts upon the next rivet after one move of the disk and so on, while the one acted upon first is acted upon by the second hammer face and so on to the finish. This hammer is known in the other figures of the drawings as (O) and is worked by a connection (*p*) to an eccentric

or crank (*q*) by which it is raised and lowered in its operation, and presses or crushes down the metal and forms a head in the rough where a flat head is to be formed, while the round head is produced by a hollow or concave in the face of the hammers. When a blank screw is to be made the die will be like the one shown at Fig. 7, and when it is planed off, will produce a head like Fig. 8.

The roundheaded rivet will be as seen at Fig. 10 produced by a hammer face as Fig. 9. I have used two three or more of these hammer faces as before stated for the more perfectly pressing and consolidating the metal, as it might not be perfectly solid by a single blow, particularly when the metal is used in a cold state as is generally the case for blank screws, while heated metal is most generally used for rivets. I also use one hammer having a chisel face which may be pressed into the head and form a nick when it is desired to form nicks.

I provide a tube as (*r*) through which the wire or rod may be fed to the die in the disk, and which does the further duty of one half of the shears for the cutting off the wire or rod, the die itself being the other half of said shears. The rods or wire may be fed in by hand or by any convenient machinery in many ways, such apparatus being common to machines for these purposes.

The operation of my machine will be better understood by saying that the machinery is set in motion by power applied at the pulley (*s*). I commence feeding wire or rods through the tube into the dies while the disk is at rest. Next, the disk of dies move around (always in the same direction) and cut off the wire, which has been fed in until it meets the hereinbefore named gage (*v*). This revolving action brings a second die which is also fed in; and so on, until each die will be filled as intended; as the dies continue to fill and cut off, they pass on, and one after the other meets the header and subsequently the discharger when one after the other is discharged, all the other operations being performed in the progress, and between the feeding and discharging.

Having fully described my machine, its application and the contemplated uses and means of using the same for making blank screws and rivets, and heading and nicking screws.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The arranging a set of dies upon a disk, or any equivalent thereto, equi-distant from the axis of the disk, and from each other, so that by giving to the disk an intermittent progressive revolving motion, a die may be brought to each of the several places for receiving the several actions of feeding, heading, and discharging simultaneously, (while the disk remains at its rest, or lock up,) and also cuts off a rod at the time of its revolving, or progressive motion, when the disk, and dies, are combined with any apparatus for heading and discharging rivets, &c.

2. I claim the combination of a disk of dies having an intermittent progressive revolving motion, with an apparatus for heading rivets, and such like articles, whether the latter be constructed in the precise manner described, or by any equivalent mechanism, that will produce a like result.

3. I claim the combination of a disk of dies having an intermittent revolving motion, with an apparatus for knocking out or discharging rivets from the dies.

4. I claim any common and well known feeding apparatus or any equivalent thereto, combined with a heading and discharging apparatus and a disk of dies having an alternating or intermittent revolving motion for the purpose of conveying the dies from one position to another as required, the machine herein described being applicable and competent to perform the several operations when fed with wire or rods as set forth.

5. I claim the use of the several hammers to give several blows upon the same rivet, and for nicking screws, as well as the planing process, of nicking, as applied to a revolving disk of dies in combination with the heading, feeding, discharging, and other apparatus and operations of the machine, all of which are hereinbefore described and set forth.

JACOB G. DAY.

Witnesses:
J. L. KINGSLEY,
I. P. PIRSSON.