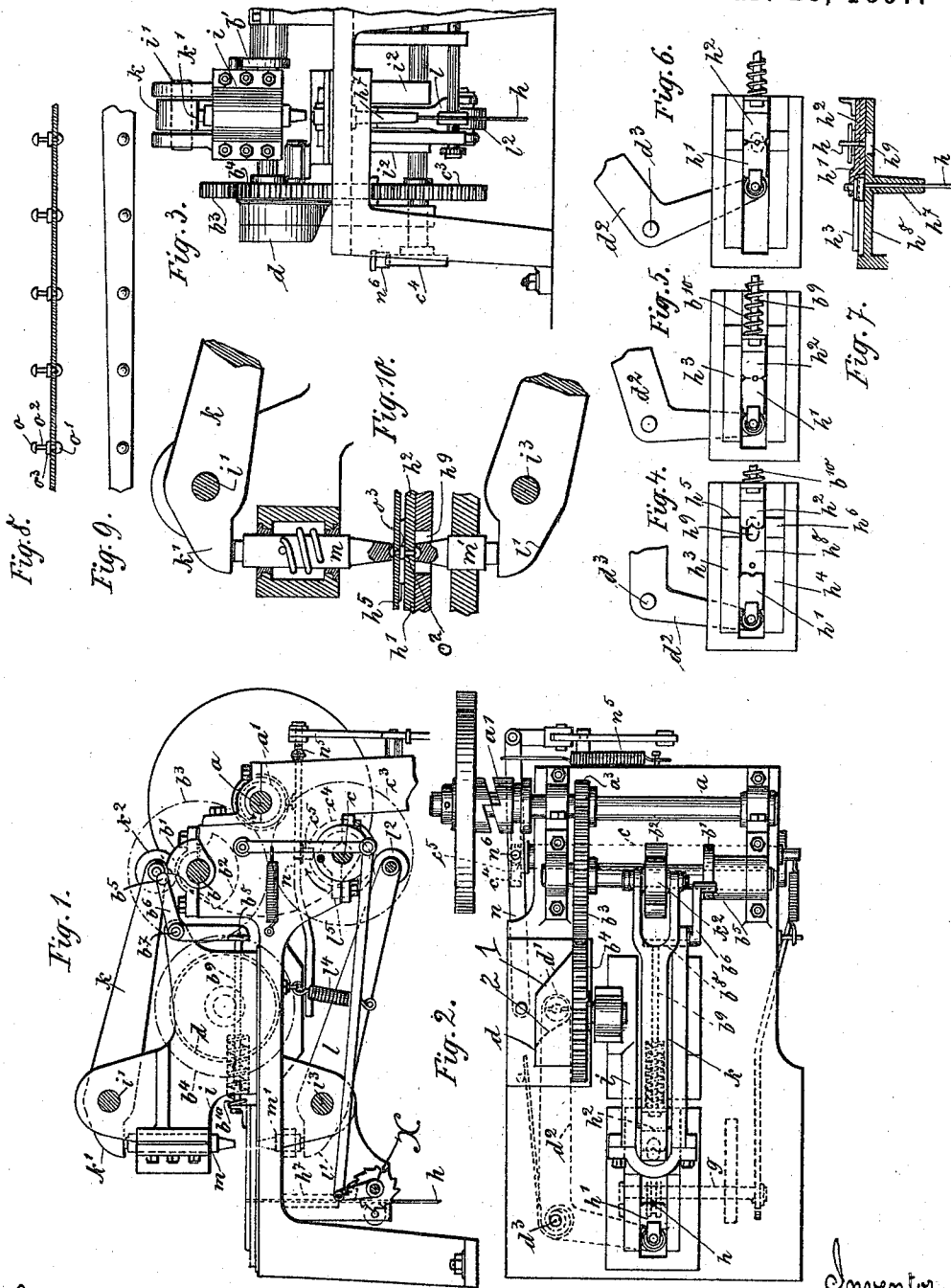


(No Model.)

H. FUCHS.
RIVETING MACHINE.

No. 579,478.

Patented Mar. 23, 1897.



Witnesses
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UNITED STATES PATENT OFFICE.

HUGO FUCHS, OF BERNBURG, GERMANY.

RIVETING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 579,478, dated March 23, 1897.

Application filed February 28, 1896. Renewed February 17, 1897. Serial No. 623,901. (No model.) Patented in Germany February 11, 1894, No. 78,091.

To all whom it may concern:

Be it known that I, HUGO FUCHS, a subject of the Duke of Anhalt, residing at Bernburg, in the Duchy of Anhalt, German Empire, have invented certain new and useful Improvements in Riveting-Machines, of which the following is a specification.

This invention has been patented in Germany, No. 78,091, dated February 11, 1894.

The invention refers to a machine for the manufacture of rivets from a strip or length of wire fed automatically to a machine which cuts off and rivets one extremity of the same to a plate of metal.

Figure 1 shows a profile view of the machine. Fig. 2 is a plan thereof, and Fig. 3 a front view. Figs. 4, 5, 6, and 7 show details of the wire-cutting devices, the first three figures showing plan views of the dies in different positions and the latter a sectional view. Figs. 8 and 9 show views of the strip with the rivets in place. Fig. 10 is a detail sectional view of the riveting devices.

As soon as the clutch a' has been thrown into gear by means of a foot-lever power is transmitted through ordinary mechanism from the driving-shaft a to feed the wire h for a determined length. After the wire is thus fed it is cut off the proper length by a cutting device consisting of a cutting-die h' and a counter-die h^2 , both held in position by the flanges h^3 h^4 and shifting upon the table h^8 . The cutting-die h' is actuated by the angle-lever d^2 , which turns around a vertical pivot d^3 and carries a roller at its extremity. This carrying-roller is dependent upon the action of the curved disk d , connected with the toothed wheel b^4 . The latter is put in motion by the main shaft a through the wheels b^3 a^3 . The cutting-die h' commences to work when the counter-die h^2 has come next to the aperture h^9 in the tables and next to the piece of wire projecting through the same. It then cuts off the piece of wire projecting through the aperture h^9 , while at the same time the counter-die h^2 moves back and holds the cut-off piece of wire with the aid of the cutting-die h' . The counter-die h^2 is fixed to the rod b^9 , which is guided straight and is operated by the spring b^{10} and by the side arm b^8 of the angle-lever b^6 , pivoted at b^7 .

The lever b^6 carries a roller b^5 on its upper arm, which is operated by the cam b^1 . The operation of shaft b and shaft a is caused by the toothed wheels b^3 and a^3 . After the cutting-die h' has cut off the piece of wire it brings the same over the opening h^9 of the table h^8 and between the riveting-plungers m m' , during which operation the counter-die h^2 presses firmly against the piece of wire.

In the riveting apparatus the upper plunger m is worked by the smaller lever-arm k' of the lever K , which oscillates on the shaft i' , and the carrying-roller k^2 of which is operated by the cam b^2 of the shaft b . The lower plunger m' is worked in the same manner by the short arm l' of the lever l , pivoted on the shaft i^3 , and the carrying-roller l^2 of which is operated by the cam b^5 of the shaft c , against which the carrying-roller is held by the spring l^4 . The working of these plungers m m' is regulated in such a manner that the plunger m presses the piece of wire against the plunger m' . While the piece of wire is over the opening h^9 , as shown in Figs. 6 and 7, the machine is automatically put out of gear by the fact that the pin n^6 of the lever n sinks into the recess c^5 of the disk c^4 , connected with the shaft c , by the action of the spring n^3 , whereby the clutch a' releases the corresponding clutch of the driving-disk and the machine is stopped. The workmen will now have time to slip the perforated plate in which the stay-rivet is to be inserted over the end of the wire h , resting the plate upon the supporting projections h^5 h^6 . If the plungers m m' are then put in operation, they will form the heads o o' , Fig. 8. The stem o^3 , Figs. 8 and 10, of the bolt will remain upright between the dies h' h^2 , Figs. 8 and 10, and a third flange or rib o^3 will be formed at a point on the rivet directly beneath the plate equal to the thickness of the projections h^5 h^6 , as the metal can freely spread sidewise, and this rib forms a counter-holder for the head o' . This rib or flange o^3 , together with the head o' , holds the rivet to the metal strip, leaving the stud o^3 and head o projecting for engaging any other part to be attached to the strip.

When the riveting is completed, the riveting-plungers m m' move together again. The cutting-die h' then moves backward alone, in

order that the plate can be removed, and the counter-die h^2 will again locate next to the aperture h^7 , after which the described operation is completed.

5 As shown in Fig. 1, the wire is fed step by step through rollers operated step by step by pawl-and-ratchet mechanism X, which is in turn actuated through connections to the working parts of the machine.

10 The construction of the disk d for operating the cutting-die lever is shown in Fig. 2, one inclined edge being represented at 1, while the other inclined edge is shown in dotted lines at 2, adjacent to the roller on the lever
15 d^2 and ready to act thereon.

The article produced by my machine and shown in Figs. 8 and 9 may serve as a lacing strip or steel for use in corsets, the projecting parts of the rivets serving as lacing-studs.

20 I claim—

1. In a riveting-machine for forming and setting rivets in metal or like strips the combination of the cutter for the wire, and plun-

gers, rests for the strip to receive the rivets having a space between their opposing ends of 25 greater width than the diameter of the rivet-shank, said parts operating to form the heads o, o' and the intermediate flange or rib o^3 , substantially as described.

2. In combination, the cutter h' and holder 30 h^2 , the rests h^5, h^6 above the cutter and arranged to receive and hold the strip at a distance from the cutter and the plungers m, m' with operating means therefor to form the heads and the intermediate flange o^3 , the said 35 plungers operating on each side of the cutter and holder while the same are holding the wire stud o^2 , substantially as described.

In testimony whereof I have signed my name to this specification in the presence of 40 two subscribing witnesses.

HUGO FUCHS.

Witnesses:

JULIUS MUTH,
M. C. MUTH.