

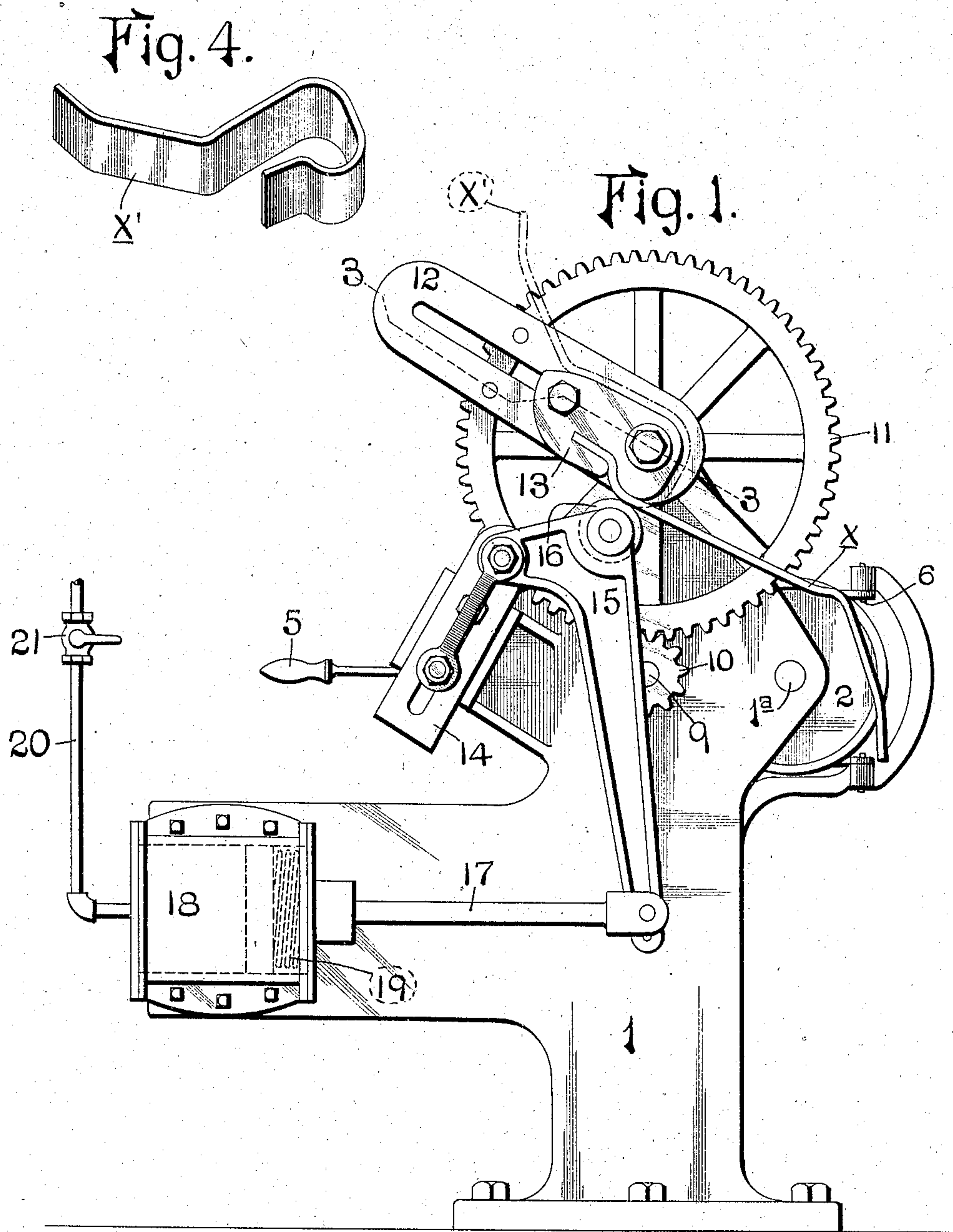
No. 791,586.

PATENTED JUNE 6, 1905.

F. M. STAMBAUGH.  
MACHINE FOR FINISHING SPRINGS.

APPLICATION FILED MAR. 7, 1905.

2 SHEETS—SHEET 1.



Witnesses

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Fig. 2.

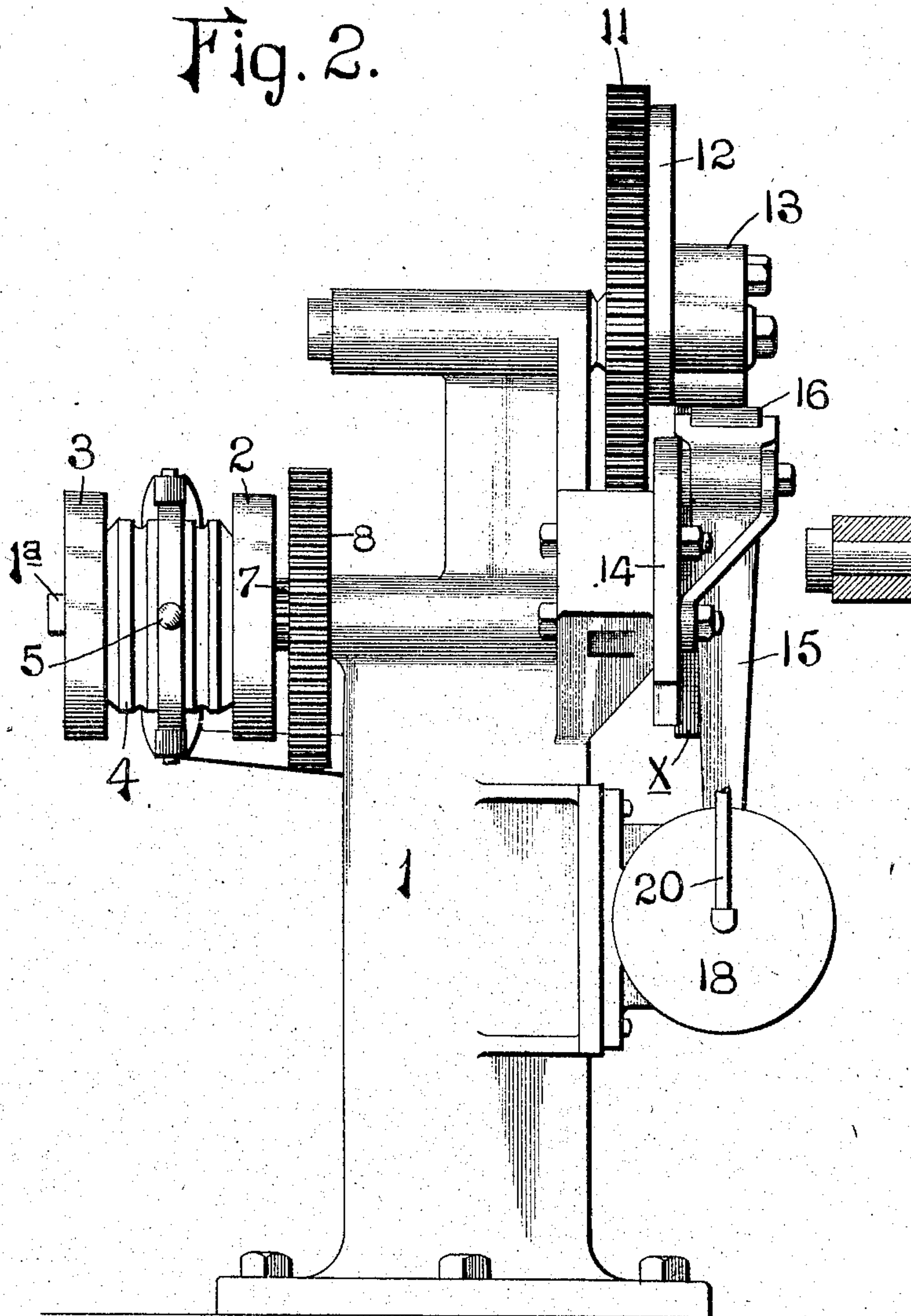
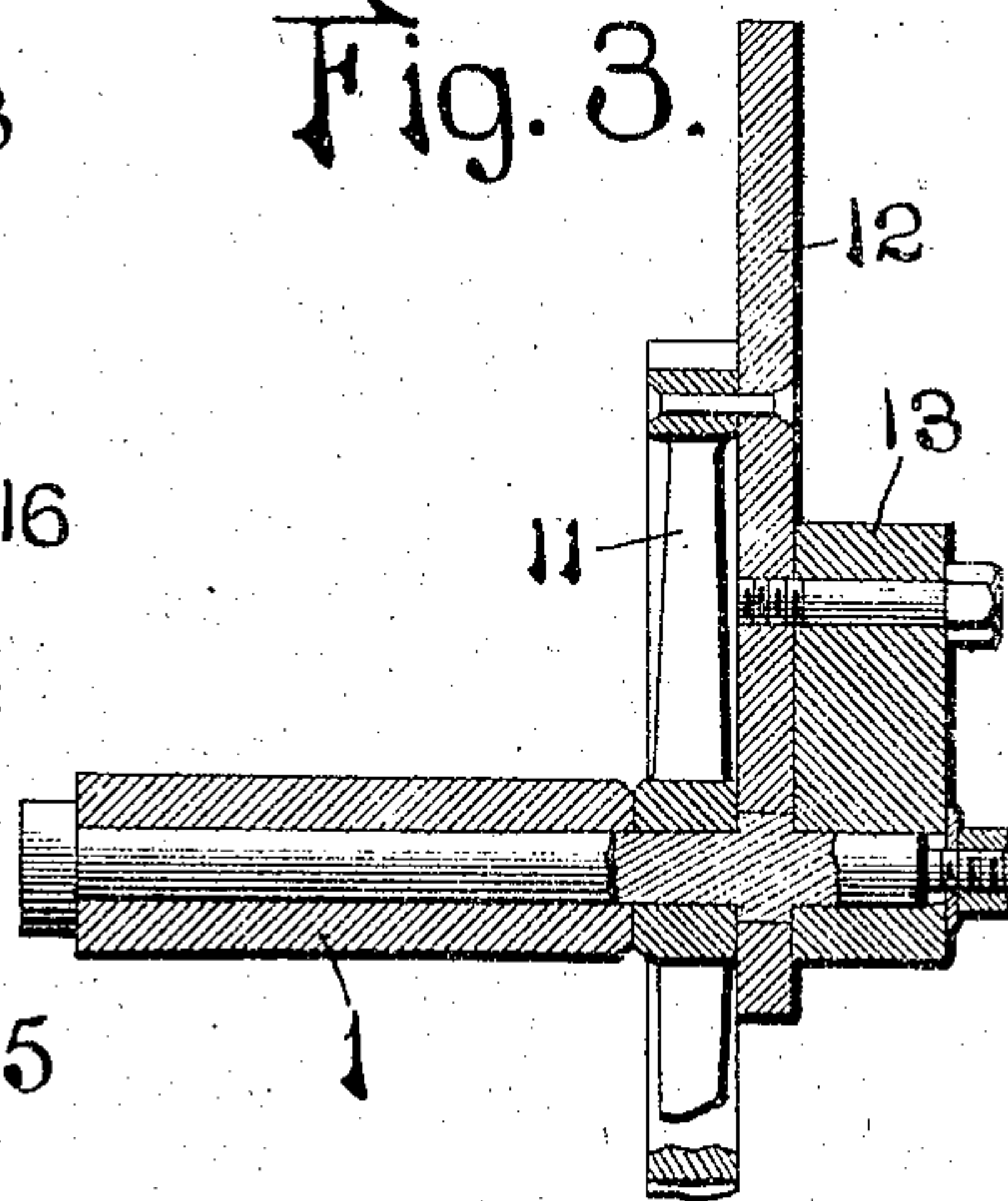


Fig. 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

FRANCIS M. STAMBAUGH, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE AMERICAN BRAKE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

## MACHINE FOR FINISHING SPRINGS.

SPECIFICATION forming part of Letters Patent No. 791,586, dated June 6, 1905.

Application filed March 7, 1905. Serial No. 248,850.

*To all whom it may concern:*

Be it known that I, FRANCIS M. STAMBAUGH, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Machines for Finishing Springs, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevational view of my improved machine. Fig. 2 is a side elevational view. Fig. 3 is a sectional view on the line 3 3 of Fig. 1, and Fig. 4 is a detail view of a finished spring.

This invention relates to a new and useful improvement in machines for finishing leaf-springs used in connection with air-brake couplings.

The object of this invention is to construct a simple and powerful machine which will effectually bend the metal into the desired shape, so that the springs will all be uniform.

The particular machine shown in the accompanying drawings gives to the springs their finished shape, said springs being initially formed by another machine, shown in a companion application filed by me of even date herewith and serially numbered 248,847. The machine shown in my said companion application forms the metal into the shape shown at  $\alpha$ , the metal in such shape while still hot being placed in position on the former of the present machine, after which air is admitted to the cylinder to force the roller against the spring and bind the spring to the former, a suitable clutch-lever being then operated to impart power to the former and rotate the same, so as to form the spring in its ultimate or final shape, (shown at  $\alpha'$  in Fig. 4.)

In the drawings, 1 indicates a suitable frame in which there are bearings for the movable parts of the machine. In this frame 1 is mounted a shaft 1<sup>a</sup>, on which are loosely arranged the oppositely-rotating pulleys 2 and 3, said pulleys coöperating with a clutch member 4, having a handle 5, whereby said clutch,

which is splined to the main drive-shaft, may engage either of the pulleys 2 or 3 to drive said shaft in one direction or the other at the will of the operator. This handle 5 is fulcrumed at 6 to a bracket extending from the frame 1, as shown in Fig. 1. On the main drive-shaft 1<sup>a</sup> is a pinion 7, meshing with a gear 8, mounted on a counter-shaft 9, said shaft carrying at its forward end a pinion 10, meshing with a gear 11, mounted on a suitable shaft journaled in the frame 1.

Gear 11 has a slotted block 12 secured thereto, on which block is mounted a former 13. This former is provided with a seat for the spring-blank  $\alpha$ , as shown in Fig. 2, the former being shaped to the desired contour of the finished spring, which is shown in its bent position by dotted lines in Fig. 1.

14 indicates a slotted block adjustably mounted on a bracket extending from the frame 1, said block forming an adjustable mount for a lever 15, which is fulcrumed therein. Lever 15 is appropriately formed so as to carry a roller 16 adjacent the former 13. The lower end of lever 15 is slotted to receive a cross-pin in the end of a piston-rod 17, whose inner end is provided with an appropriate piston operating in a cylinder 18. A spring 19 is arranged in front of the piston, so as to return the same when the pressure therebehind is relieved, such return movement of the piston withdrawing the roller 16 from the former.

20 is a pipe leading from some suitable source of compressed-air supply and provided with a three-way valve 21 to admit and exhaust pressure to and from the cylinder behind the piston.

The operation of the device is as follows: Assuming that the parts are in the positions shown in Fig. 1 and the blank  $\alpha$  is placed in the former, the valve 21 is opened to admit pressure behind the piston, which moves forward, compressing the spring 19 and forcing the roller 16 against the spring-blank. Handle 5 is now operated to rotate the former, and in so doing the spring-blank is forced to hug the same closely, the yielding pressure



behind the piston permitting the roller to accommodate the irregularity of the shaping-former. When the desired portion of the revolution is made—that is, when the spring is shaped to the desired form—the handle 5 is moved in the opposite direction, so as to reversely rotate the former, and at the same time the valve 21 is manipulated to exhaust the pressure from behind the piston in cylinder 18. The parts are thus returned to normal position, when the finished spring may be removed and a new blank inserted in the former for another operation.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a metal-bending machine, the combination with a former shaped to receive and hold the blank, means for rotating said former, a lever fulcrumed in juxtaposition to said former and carrying a roller bearing upon the blank so as to cause said blank to hug the former and partake of the contour thereof, and a fluid-actuated piston connected to said lever; substantially as described.

2. In a metal-bending machine, the combination with a former shaped to receive and hold the blank, means for rotating said former, a lever fulcrumed in juxtaposition to said

former and carrying a roller bearing upon the blank so as to cause said blank to hug the former and partake of the contour thereof, a fluid-actuated piston connected to said lever for moving the same in one direction, and a spring coöperating with said piston for moving the lever to its home position; substantially as described.

3. In a metal-bending machine, the combination with a rotatable former, of power mechanism for driving the same in opposite directions, a clutch for engaging either of said power mechanisms with the former at the will of the operator, an adjustably-mounted lever carrying a roller adjacent to said former, a cylinder containing a piston whose rod is connected to said lever, a spring coöperating with said piston to return the same to home position, and a valve for controlling the admission and exhaust of pressure to and from the cylinder behind the piston; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 3d day of March, 1905.

FRANCIS M. STAMBAUGH.

Witnesses:

EDWARD WILSON,  
GEORGE BAKEWELL.