

(No Model.)

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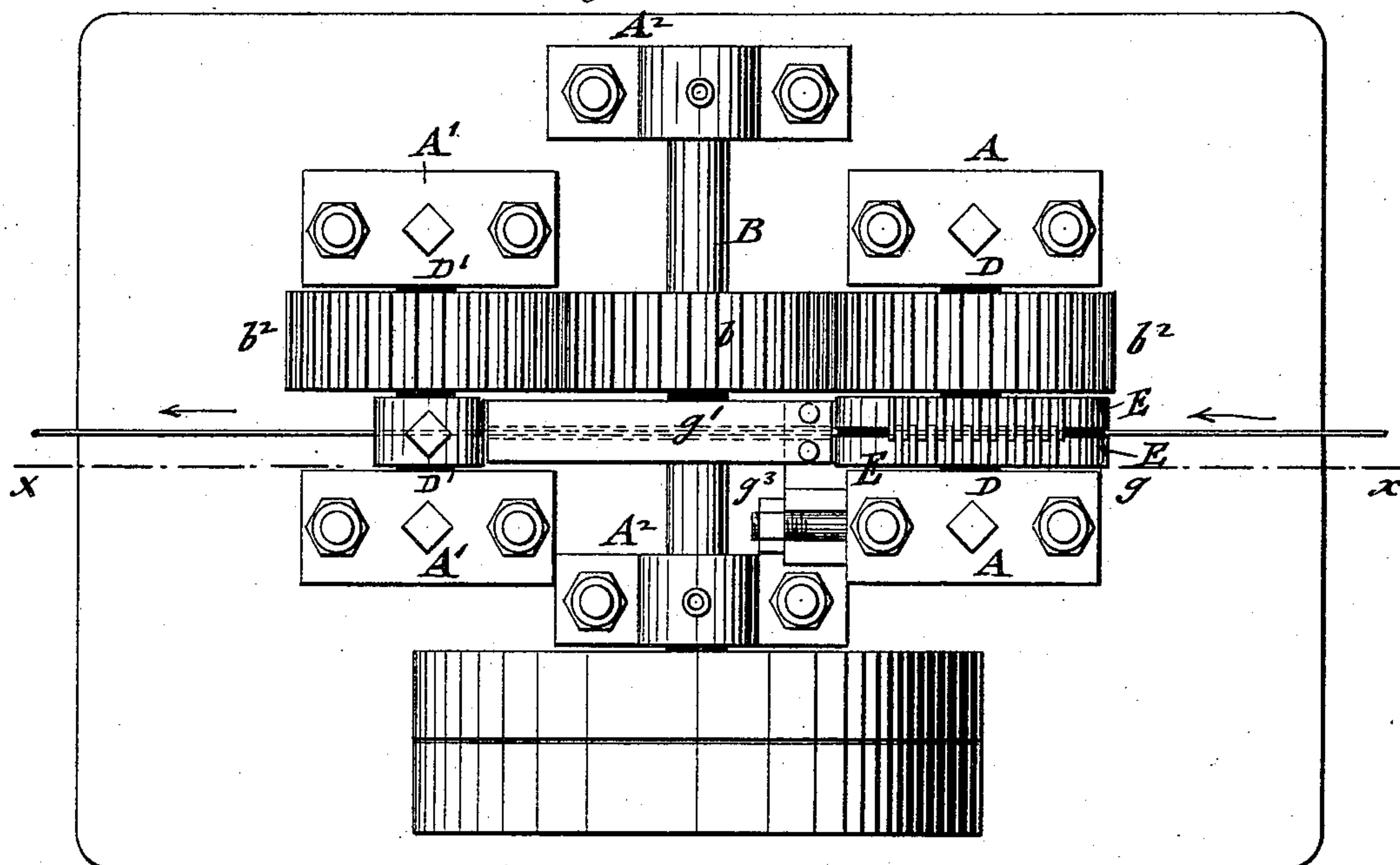
F. A. FAY.

MACHINE FOR MAKING WIRES FOR METALLIC SEALS.

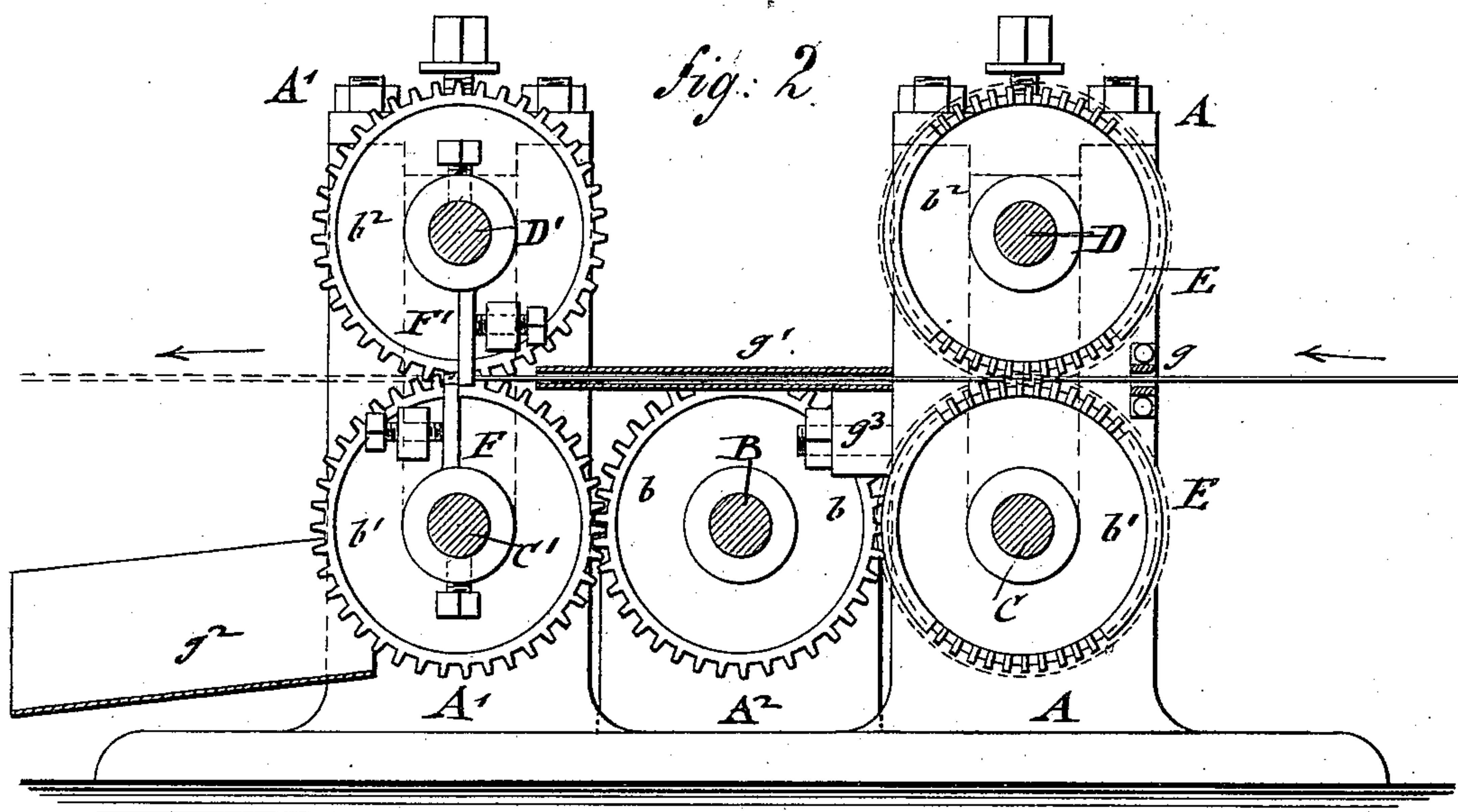
No. 326,283.

Patented Sept. 15, 1885.

*fig. 1.*



*fig. 2.*



WITNESSES:

*A. Schehl.*  
*Ernst Wolff*

INVENTOR

*Franz A. Fay*

BY

*Georg A. Regener*

ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

F. A. FAY.

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Fig. 3.

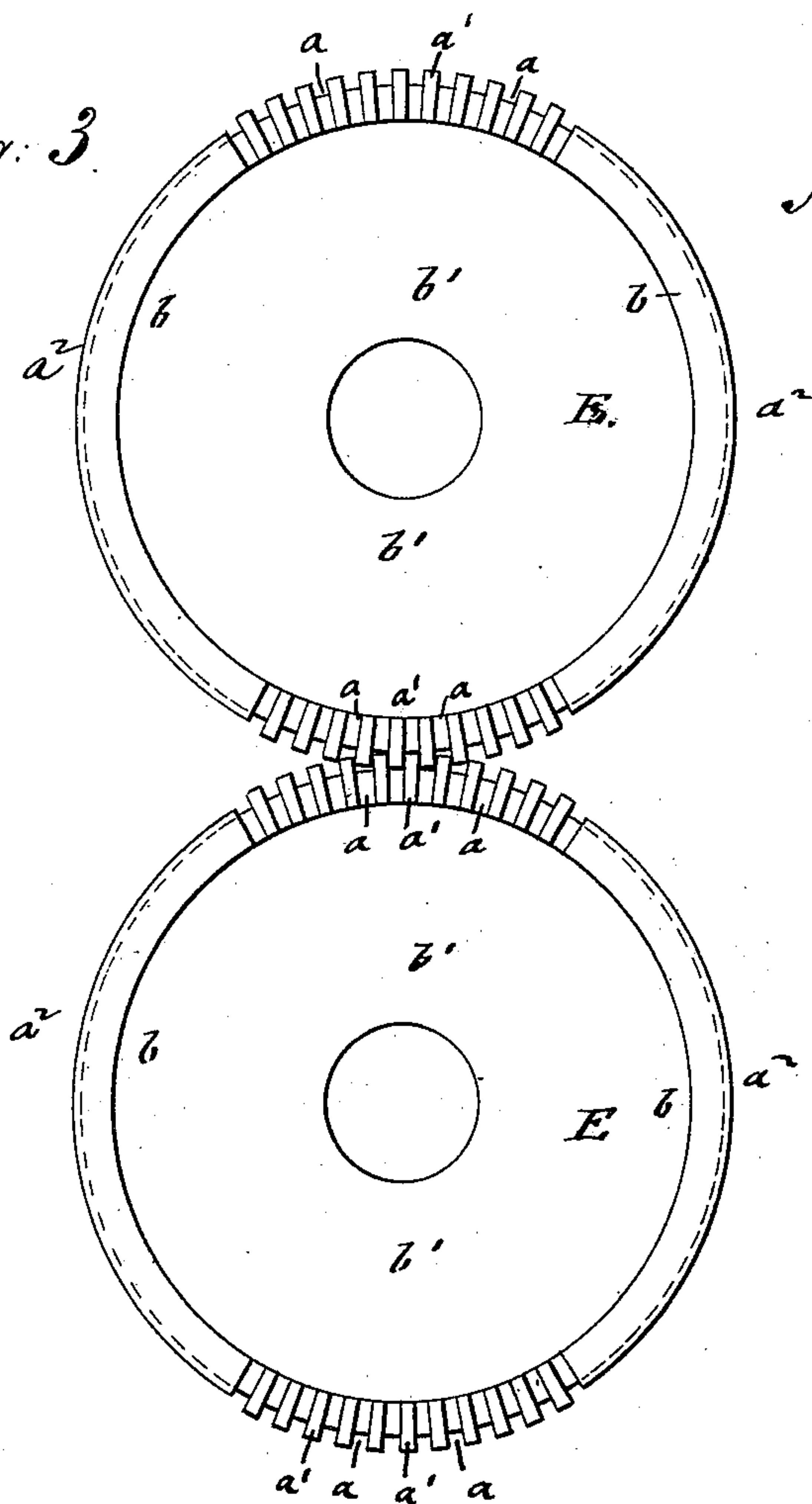


Fig. 4.

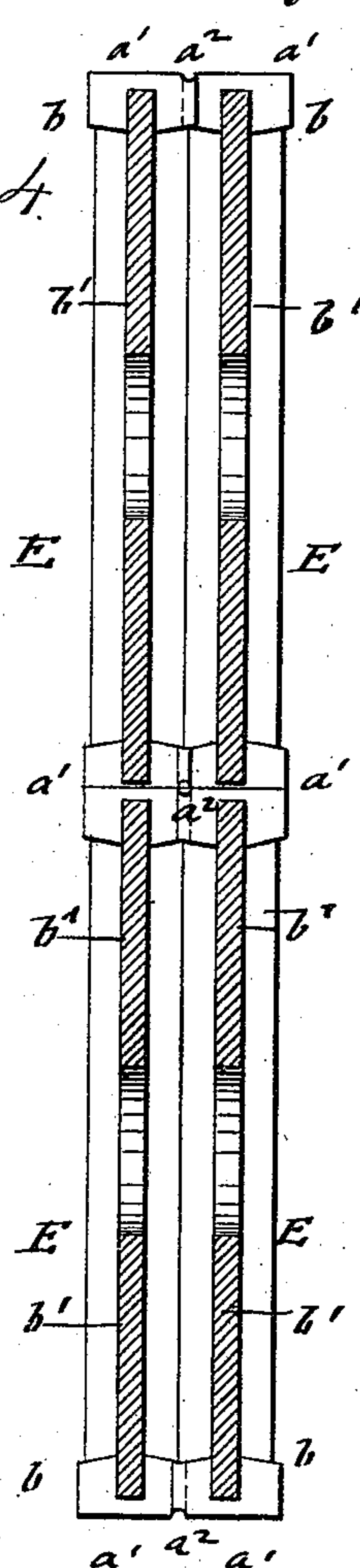
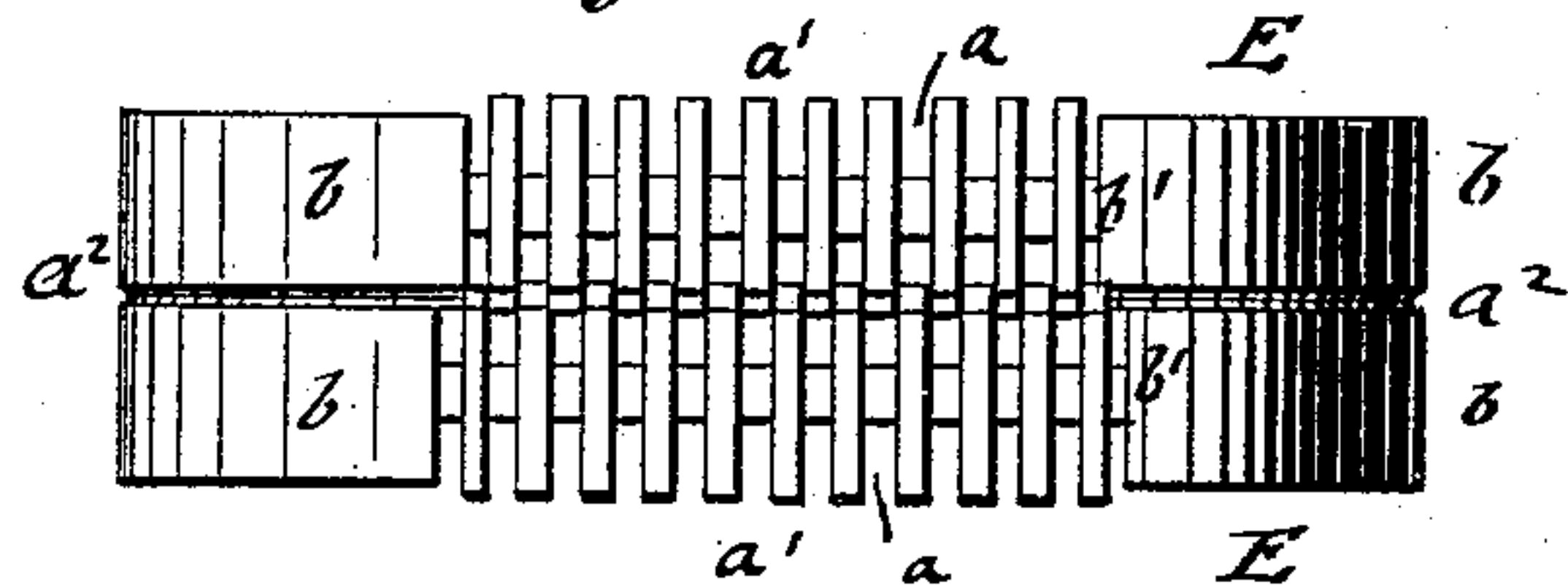


Fig. 5.



WITNESSES:

A. Schehl.

Ernst Wolff.

INVENTOR

Franz A. Fay

BY

Joseph Raegenner

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

FRANZ A. FAY, OF BROOKLYN, NEW YORK.

## MACHINE FOR MAKING WIRES FOR METALLIC SEALS.

SPECIFICATION forming part of Letters Patent No. 326,283, dated September 15, 1885.

Application filed November 13, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, FRANZ A. FAY, of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Machines for Making Shackle-Wires for Metallic Seals, of which the following is a specification.

The object of this invention is to furnish a simple and effective machine for making wire shackles for the metallic seals for which Letters Patent of the United States have been granted to E. J. Brooks under date of June 27, 1876, No. 179,261; and the invention consists of two pairs of rollers, which are arranged vertically above each other and provided at two or more portions of their circumference with edge grooves for the wire, and at the intermediate portions with alternating indentations and projections, that intermesh with the projections and indentations of the other rolls. The wire to be formed is fed from the shaping-rolls to cutting-knives which rotate at the same speed as the shaping-rolls, so as to cut off the proper length of shackle.

In the accompanying drawings, Figure 1 represents a plan of my improved machine for making wire shackles for metallic seals. Fig. 2 is a vertical longitudinal section of the same on line  $x\ x$ , Fig. 1. Figs. 3, 4, and 5 are a side view, a vertical transverse section, and a plan of the shaping-rolls, drawn on a larger scale; and Fig. 6, an enlarged side view of a shackle-wire made on the machine.

Similar letters of reference indicate corresponding parts.

Referring to the drawings,  $A\ A'$  represent the supporting-standards of my improved machine for making shackles for metallic seals.  $A^2\ A^2$  are shorter standards arranged immediately between the standards  $A\ A'$ , for supporting the driving-shaft  $B$  of the machine. A gear-wheel,  $b$ , on the driving-shaft  $B$ , meshes with gear-wheels  $b'$ , of equal size, on two lower shafts,  $C\ C'$ , which are supported in bearings of the standards  $A\ A'$ . The gear-wheels  $b'$  of the lower shafts,  $C\ C'$ , mesh with gear-wheels  $b^2$ , of equal size with the wheels  $b'$ , on the upper shafts,  $D\ D'$ , which are supported in bearings of the standards  $A\ A'$  vertically above the shafts  $C\ C'$ . By the intermeshing of the gear-wheels  $b\ b'\ b^2\ b^2$  the same speed is imparted to the shafts  $C\ C'$  and  $D\ D'$ .

To each shaft  $C$  and  $D$  is applied a pair of shaping-rolls,  $E\ E'$ , all of the same size, while to the shafts  $C\ D'$  are applied the radial cutters  $F\ F'$ , which latter are provided with laterally-beveled cutting-edges, as shown in Fig. 2.

The wire from which the shackle-wires are made is guided from a suitable reel through a fixed guide-eye,  $g$ , of one of the standards  $A$ , first to the shaping-rolls  $E\ E'$ , then from the same through a horizontal guide-tube,  $g'$ , through between the cutting-knives  $F\ F'$ , by which the shackle-wires are cut off and dropped onto an inclined delivery-spout,  $g^2$ . The intermediate horizontal tube,  $g'$ , is supported on a bracket,  $g^3$ , that is attached to one of the standards  $A\ A'$ , as shown clearly in Figs. 1 and 2. The guide-tube  $g'$  is arranged in line with the shaping-rolls  $E\ E'$  and the cutting-knives  $F\ F'$ . The distance between the shaping-rolls  $E\ E'$  and the cutting-knives  $F\ F'$  is so arranged that for each revolution of the shaping-rolls and cutting-knives one shackle-wire is completed and cut off.

The four shaping-rolls  $E\ E'$  are so constructed with alternating projections and indentations at portions of their circumference that the shackle-wire shown in Fig. 6 is produced thereby. The shaping-rolls are shown in detail in Figs. 3, 4, and 5, and are arranged in two pairs, one pair being located on the lower shaft,  $C$ , the other pair vertically above the same on the upper shaft,  $D$ . The rollers of each pair are arranged sidewise of each other. The circumference of the rolls  $E\ E'$  is equal to the length of the shackle-wire to be made, the rolls being provided at those parts of their circumference where the indentations are to be formed in the shackle-wire with alternating depressions  $a$  and projections  $a'$ , which extend across the width of the rolls in such a manner that they mesh with the projections  $a'$  and depressions  $a$  of the adjoining rolls and of the other pair of rolls. The remaining portions of the circumference of the rolls, which are not provided with alternating projections and depressions, are grooved at their adjoining edges to a depth corresponding to one-half the thickness of the wire. By the edge grooves  $a^2$  of the four shaping-rolls the wire is guided and moved forward by the rotation of the rolls. The toothed portions of the rolls feed the wire



forward and impart by their intermeshing projections and indentations the peculiar alternating indentations to the shackle-wire shown in Fig. 6.

5 Heretofore steel rolls the surface of which was engraved so as to produce the required indentations in the shackle-wires were used; but these steel rolls were expensive, especially as they were soon worn out after a number of  
10 wires had been shaped, so that they had to be replaced by new ones. To overcome this objection the shaping-rolls are arranged in pairs, each being provided with a circumferential ring of steel, *b*. Into the adjoining faces of  
15 the rings the edge grooves *a*<sup>2</sup> for the wire, as well as the alternating projections *a*<sup>1</sup> and indentations *a*, or toothed portions, are cut, which are extended across the width of the rolls.

This arrangement has the advantage that  
20 on the wearing out of the projections and indentations the rolls can be removed from the shafts and recut by filing off the circumferential steel rings of the rolls. This is repeatedly done at one side of the steel rings of the rolls  
25 until the steel rings are flush with the web *b*<sup>1</sup>, after which the rolls are reversed and the alternating projections and indentations cut into the opposite side of the rings, so that this side can be used until it is entirely worn off,  
30 after which the rolls are thrown away, having performed their function. By this arrangement it is possible to use the same set of rolls for making a large number of wire shackles  
35 of the type described without the heavy expense for new steel rolls.

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

1. In a machine for making wire shackles for metallic seals, a set of shaping-rolls consisting of a pair of upper rolls and a pair of lower  
40 rolls, the rolls of each pair being arranged adjoining each other and provided with circumferential rings having at two or more portions edge grooves, and at intermediate portions  
45 with alternating projections and indentations, that mesh with the indentations and projections of the other rolls, substantially as set forth.

2. In a machine for making wire shackles for metallic seals, a shaping-roll consisting of  
50 a web and a circumferential steel ring, being grooved at two or more portions of its circumference with edge grooves, and at the intermediate portions with alternating projections and depressions, substantially as set forth. 55

3. The combination of four shaping-rolls, arranged in pairs and provided with edge  
60 grooves at two or more parts, and with alternating projections and depressions at intermediate portions of its circumference, with an intermediate guide-tube and rotating cutters, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

FRANZ A. FAY.

Witnesses:

PAUL GOEPEL,  
SIDNEY MANN.