

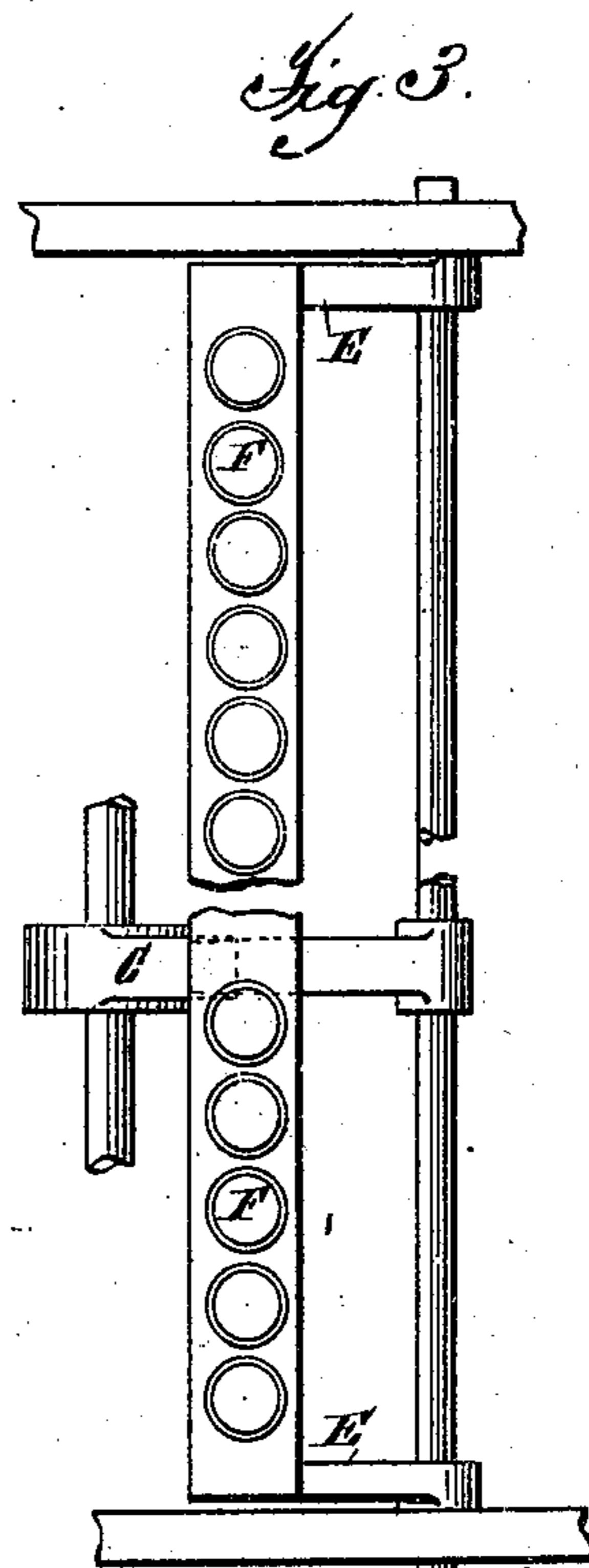
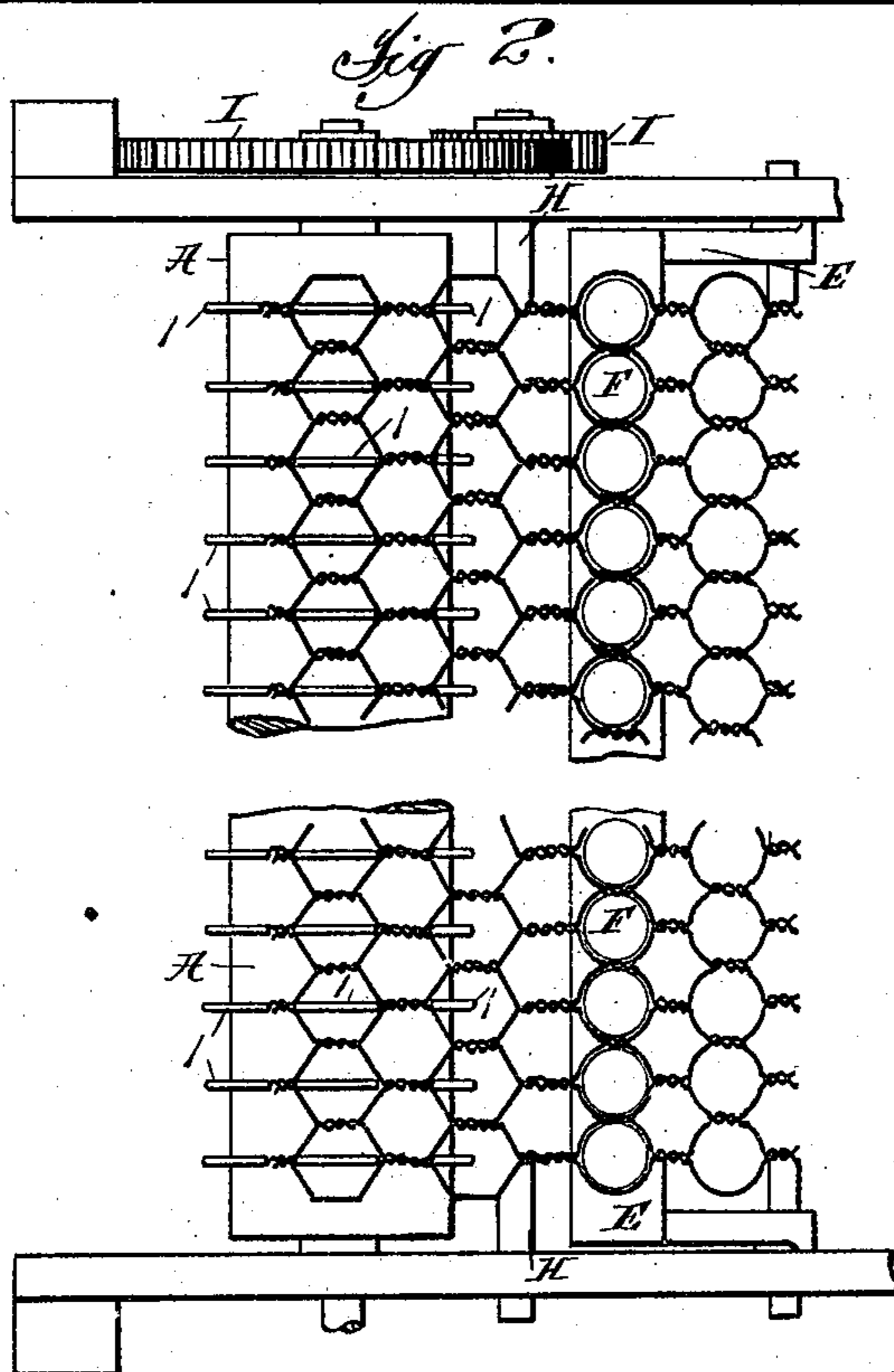
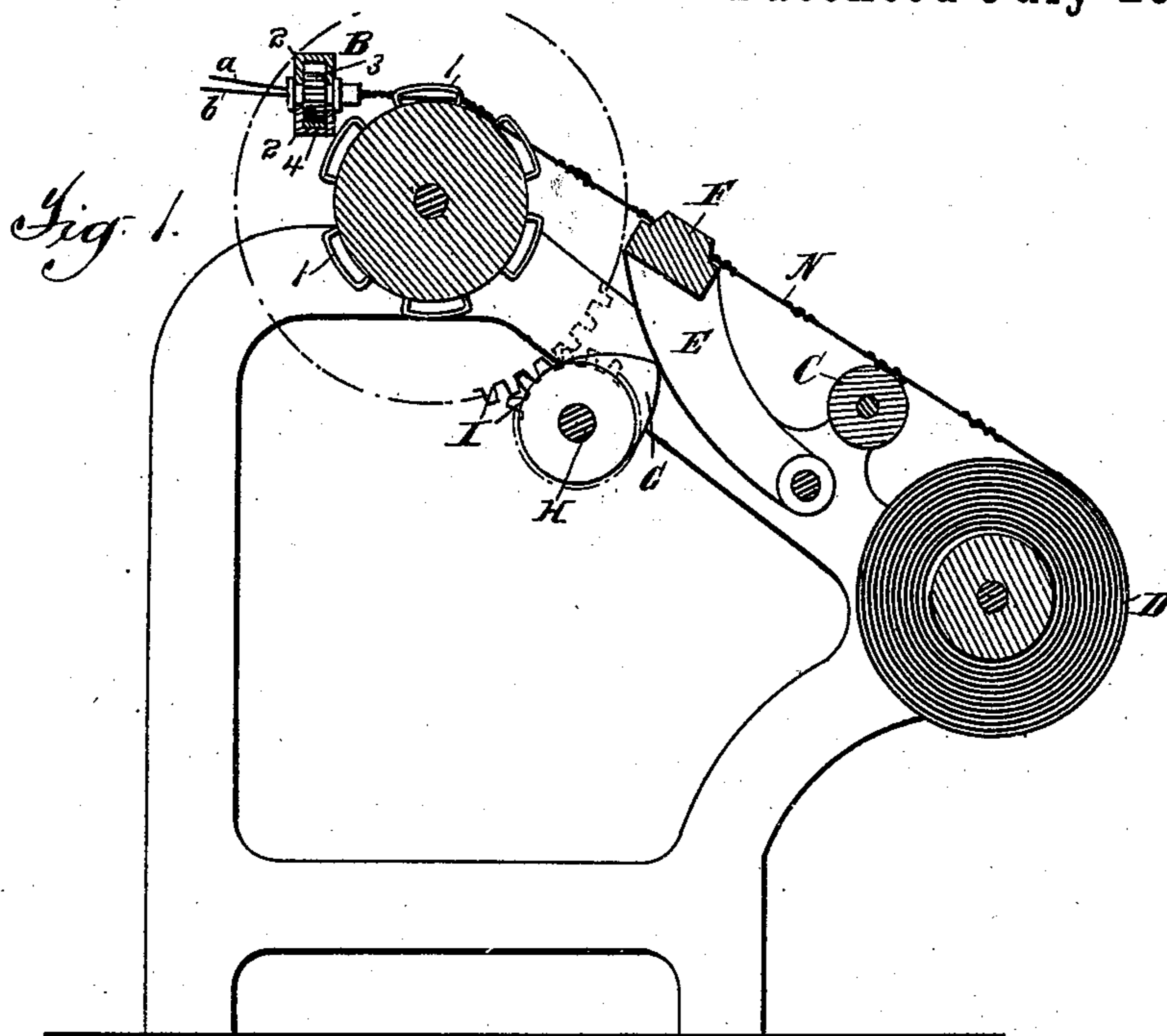
(No Model.)

W. C. ORR.

METHOD OF AND MACHINE FOR MAKING WIRE NETTING.

No. 502,084.

Patented July 25, 1893.



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# UNITED STATES PATENT OFFICE.

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## METHOD OF AND MACHINE FOR MAKING WIRE-NETTING.

SPECIFICATION forming part of Letters Patent No. 502,084, dated July 25, 1893.

Application filed August 23, 1888. Serial No. 283,600. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER C. ORR, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented a new and useful Improvement in Methods of and Machines for Making Wire-Netting, of which the following description, in connection with the accompanying drawings, is a specification.

Like letters and numerals represent like parts.

This invention relates to wire netting, its object being to provide an improved method and machine whereby a greater variety of shapes and greater uniformity in the meshes may be obtained than have heretofore been possible.

The most common form of wire netting is that known to the trade as hexagon netting, in which four sides of each mesh are formed of single wires, while each of the remaining two sides are formed of double wires twisted together. The method heretofore employed in the manufacture of wire netting of this kind, is as follows:—The wires to form the netting are arranged in pairs and drawn through orifices in blocks carrying half gears, which are rotated in such a manner that the wires of each pair are twisted together the required number of times. The blocks and half gears are then moved laterally in opposite directions half the distance between the twists in the wire netting, so that each half gear comes opposite the next adjacent half gear, thus forming a series of new pairs of wires, which are then twisted together as before. A reverse lateral movement is then imparted to the blocks and half gears, thus restoring them to their original positions and reforming the original pairs of wires. The wires are drawn through the blocks by a shaping or draw off roll which carries pins or staples which take a bearing at the end of the twist at the junction of the wires, as they are spread to form the next succeeding mesh, and thus the movement of the roll draws enough wire from the spools or other supply to make the next twist and complete the mesh, the pins or staples being placed at the right distance apart to form meshes of the required size. A machine operating as described is

shown in United States Letters Patent No. 417,934, dated December 24, 1889. The only shape of mesh obtainable by this method is the hexagonal, which, however, may be made more or less perfect by drawing a greater or less quantity of wire from the supply, but, as there is but one pin or staple for each mesh or half mesh, the mesh is very liable to be uneven, and it is very difficult to obtain a perfect web of netting of even hexagonal form.

By my improved method I am able to produce wire netting having uniform meshes of any shape desired, and I obtain this result by stretching the meshes after their formation on formers so constructed as to give the desired shape to the meshes. This method may be carried out by any suitable attachment to the machine in which the netting is first formed, or by an independent machine, but I prefer to employ a series of suitable formers between the shaping or draw off roll and the winding roll, and force the formers into the meshes of the netting as it passes to the winding roll.

For a full understanding of my invention a detailed description of the preferred form of machine embodying the same will now be given, reference being had to the accompanying drawings forming a part of this specification, in which—

Figure 1 is a vertical section of the twisting end of a machine for forming hexagonal netting, showing such parts of the machine as are necessary for illustrating my invention. Fig. 2 is a broken plan view of the same. Fig. 3 is a detail plan of the formers.

Referring now to said drawings, A is the shaping or draw off roll provided with the staples or pins 1 by which the meshes of the netting are engaged, and B is the twisting means for the series of wires *a b* forming the netting N, the latter passing from the shaping roll over the leading roll C to the winding roll D. This twisting means may be of any suitable construction, but consists preferably of the sliding bar 2 carrying the half gears 3, and the sliding rack 4 by which the pairs of half gears are rotated, this being the common construction in this class of machines.

Between the shaping and leading rolls is a frame E pivotally mounted to oscillate to and

from the netting, and carrying upon its face next the netting a series of formers F shown as corresponding in shape to the meshes to be produced. These formers F are preferably made tapering, as shown, so as to more readily enter and be withdrawn from the meshes, and act as wedges to force the wires of the meshes to the shape desired. The frame E carrying the formers F is oscillated to force the formers into the meshes of the netting by means of a cam G carried by a shaft H mounted in the frame of the machine and driven from the shaping roll A by gears I, or in any other suitable manner. The frame is returned by its weight, or a spring or other means may be employed if desired.

The operation of the machine will readily be understood from the drawings and the following brief description: The netting N leaves the shaping roll A with meshes of the usual hexagonal form, but, as it passes to the leading roll C, the frame E is oscillated by the cam G to force the tapered formers F through alternate rows of meshes, thus changing the shape of the meshes to agree with that of the formers, all as clearly shown in Fig. 2.

While I have shown the formers as carried by a frame which is oscillated to force the formers through the meshes and I prefer this construction, it will be understood that the construction and special method of operation of this part of the machine may readily be varied without departing from the principle of my invention. Thus the formers may be moved to and from the netting by a reciprocating instead of an oscillating movement, and it is apparent also that a construction the equivalent of that shown might readily be produced in which the netting should be moved toward the formers instead of the reverse. The formers, also, if desired, may be carried by a cylinder which rotates in position to force the formers through the meshes, and withdraw them on the further rotation of the cylinder.

The formers are shown as constructed of solid blocks, but may be of any other suitable construction, such as series of pins at short intervals apart so arranged as to give the shape to the meshes, or strips of metal may be bent to the required shape and secured to the frame. The formers are shown as circular, but it will be understood that they may be of any form desired, and may either be made removable from the frame so that formers of other shapes may be substituted, or the mesh may be changed by substituting frames carrying formers of other shapes.

While the formers will generally be constructed of the same shape as the meshes to be produced, certain shapes of meshes may be produced by using formers differing in shape from the meshes, and such a construction is within my invention. If desired, a number

of rows of formers may be employed instead of operating upon a single row of meshes.

While my invention has been shown as applied to a machine for producing hexagonal netting, it will be understood that it is applicable also to machines in which meshes of other shapes are produced, and that, if desired, the apparatus embodying my invention may constitute a machine entirely independent of the machine by which the netting is made, and netting from various machines reformed thereby.

What I claim is—

1. The improvement in the art of making wire netting which consists in forming the meshes of the netting and then stretching the meshes on formers determining the shape of the meshes to be produced, substantially as described.

2. The improvement in the art of making twisted wire netting which consists in twisting the wires to form the meshes of the netting and then stretching the meshes on formers to change the shape of the meshes, substantially as described.

3. The combination with means for feeding wire netting, of a series of formers, determining the shape of the meshes to be produced and means for forcing the meshes of the netting over the formers, substantially as described.

4. The combination with means for feeding wire netting, of a series of formers corresponding in shape to the meshes to be produced, and means for forcing the meshes of the netting over the formers, substantially as described.

5. In a machine for making wire netting, the combination with the mesh forming mechanism and the winding roll, of a series of formers determining the shape of the meshes to be produced placed between the mesh forming mechanism and winding roll, and means for forcing the meshes of the netting on the formers, substantially as described.

6. The combination with the shaping or draw off roll and twisting mechanism of a machine for making hexagonal netting, of a series of formers over which the netting passes after it leaves the shaping roll, and means for forcing said formers into the meshes to change the shape of the latter, substantially as described.

7. The combination with means for feeding wire netting, of a series of tapering formers determining the shape of the meshes to be produced, and means for forcing the meshing of the netting over the formers, substantially as described.

WALTER C. ORR.

Witnesses:

WM. ORR,  
A. D. CARNAGY.