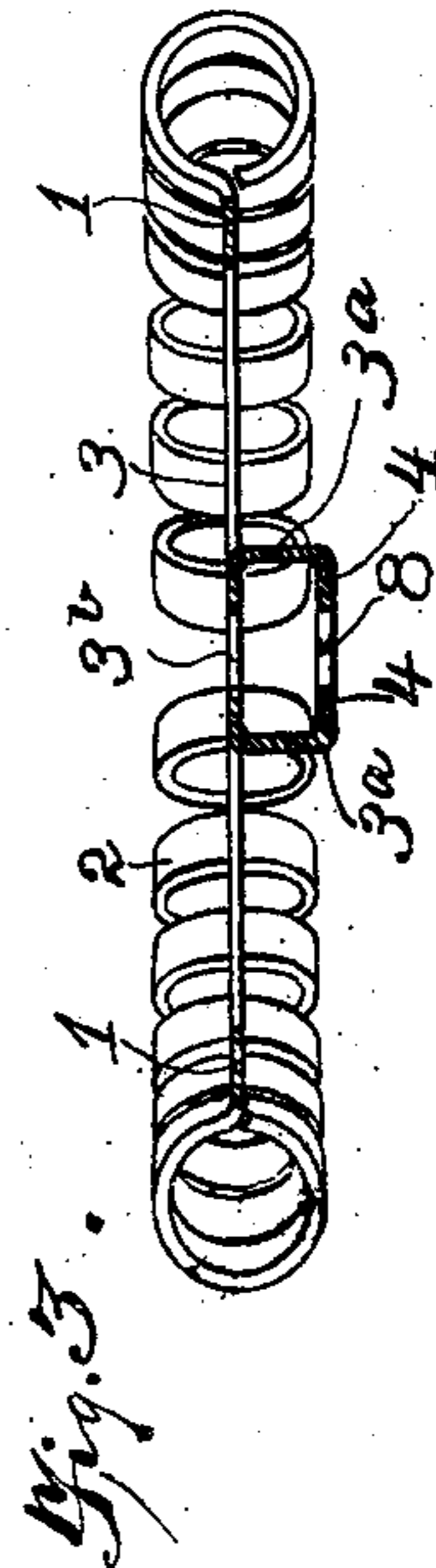
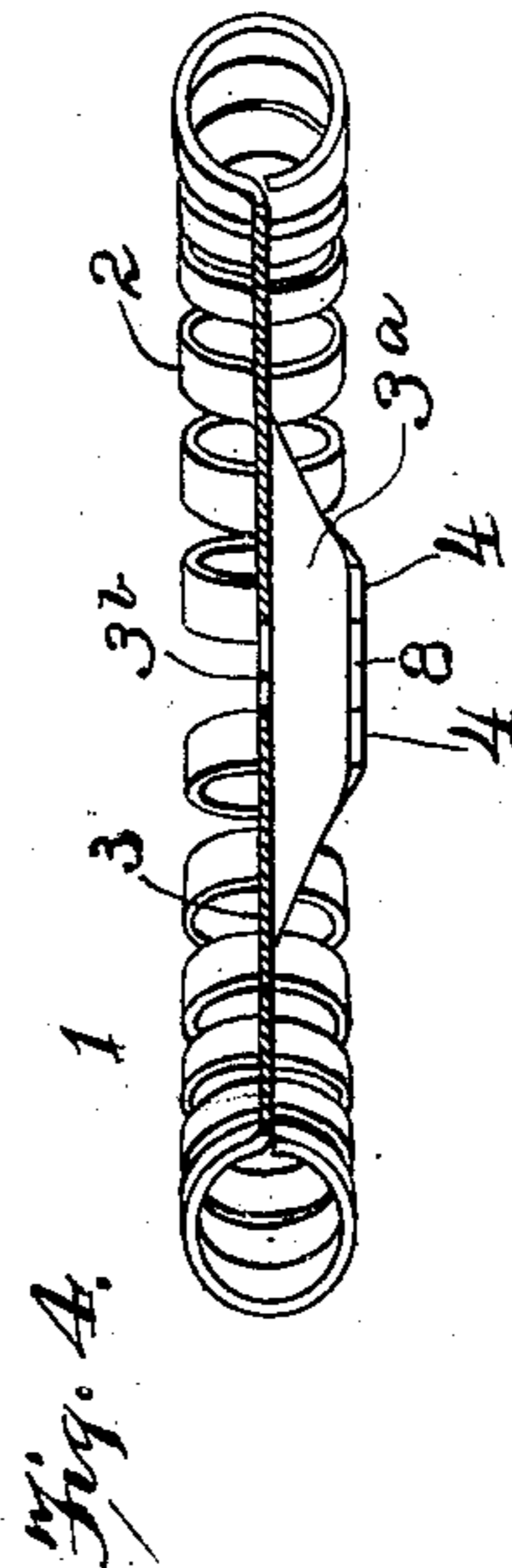
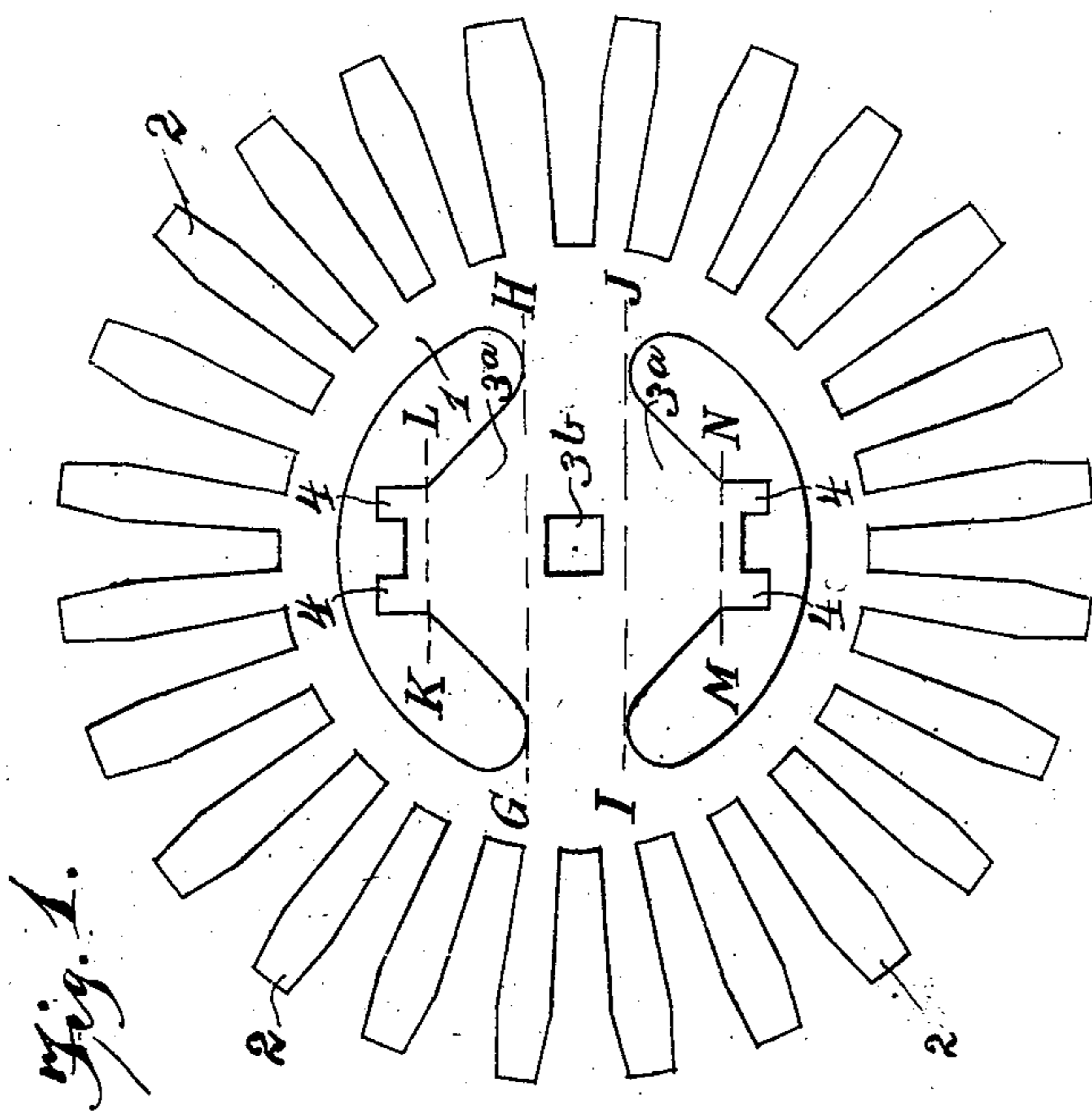
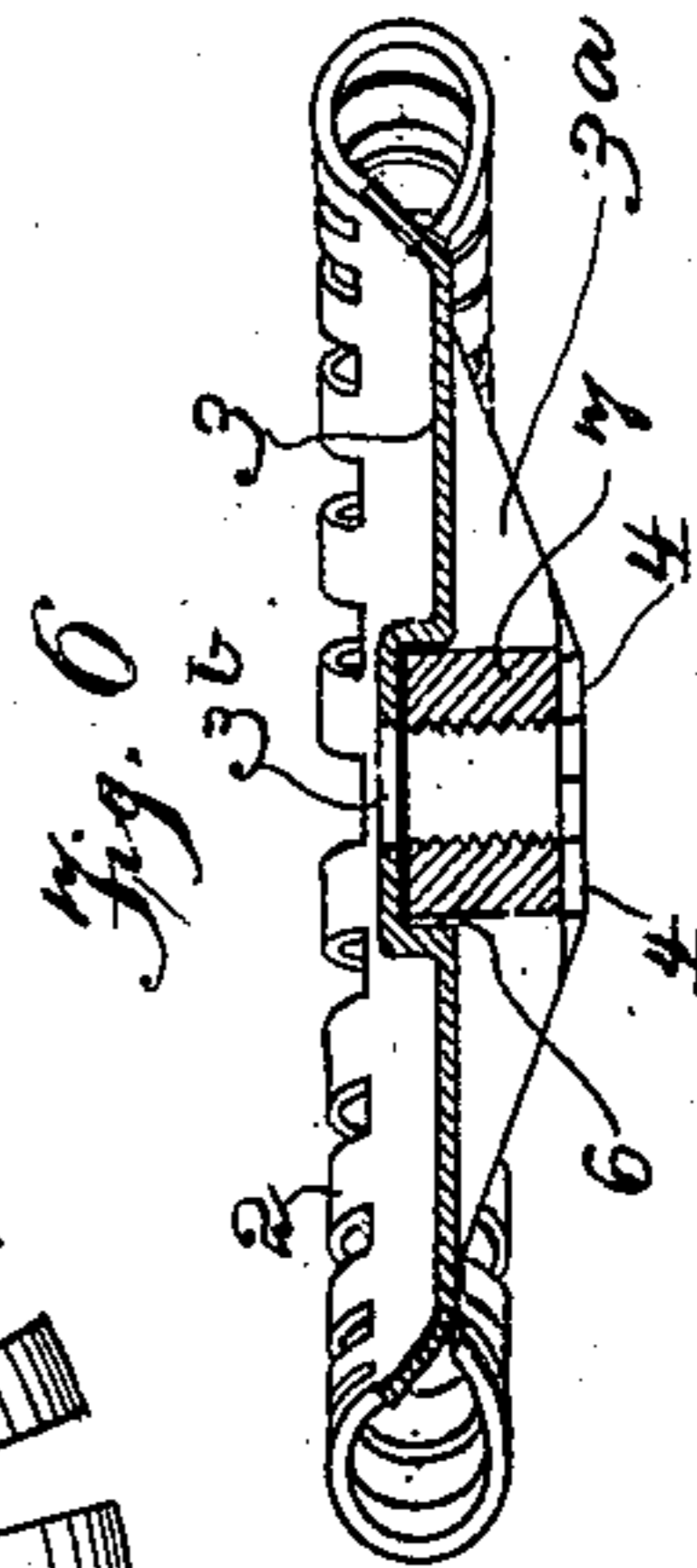
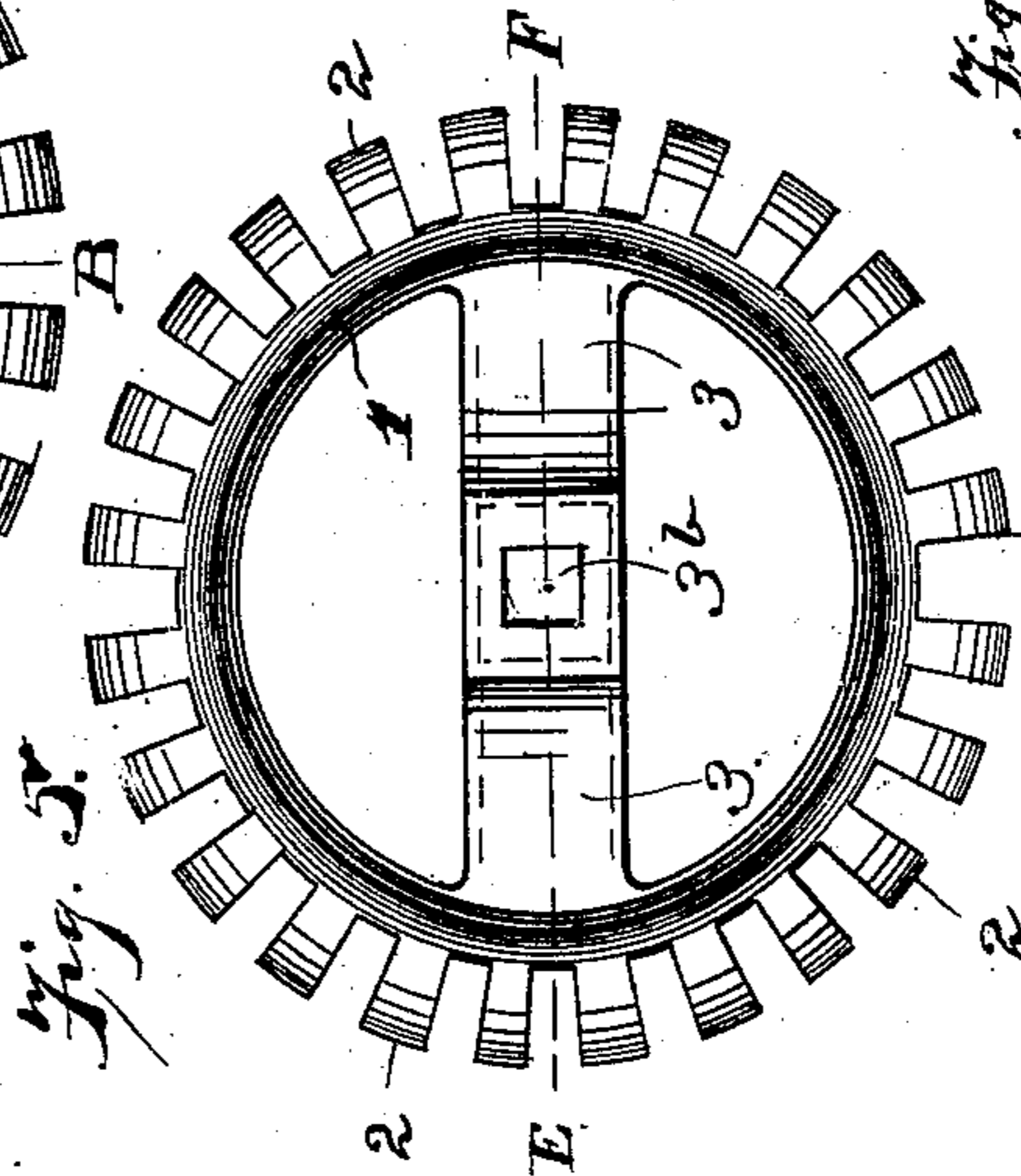
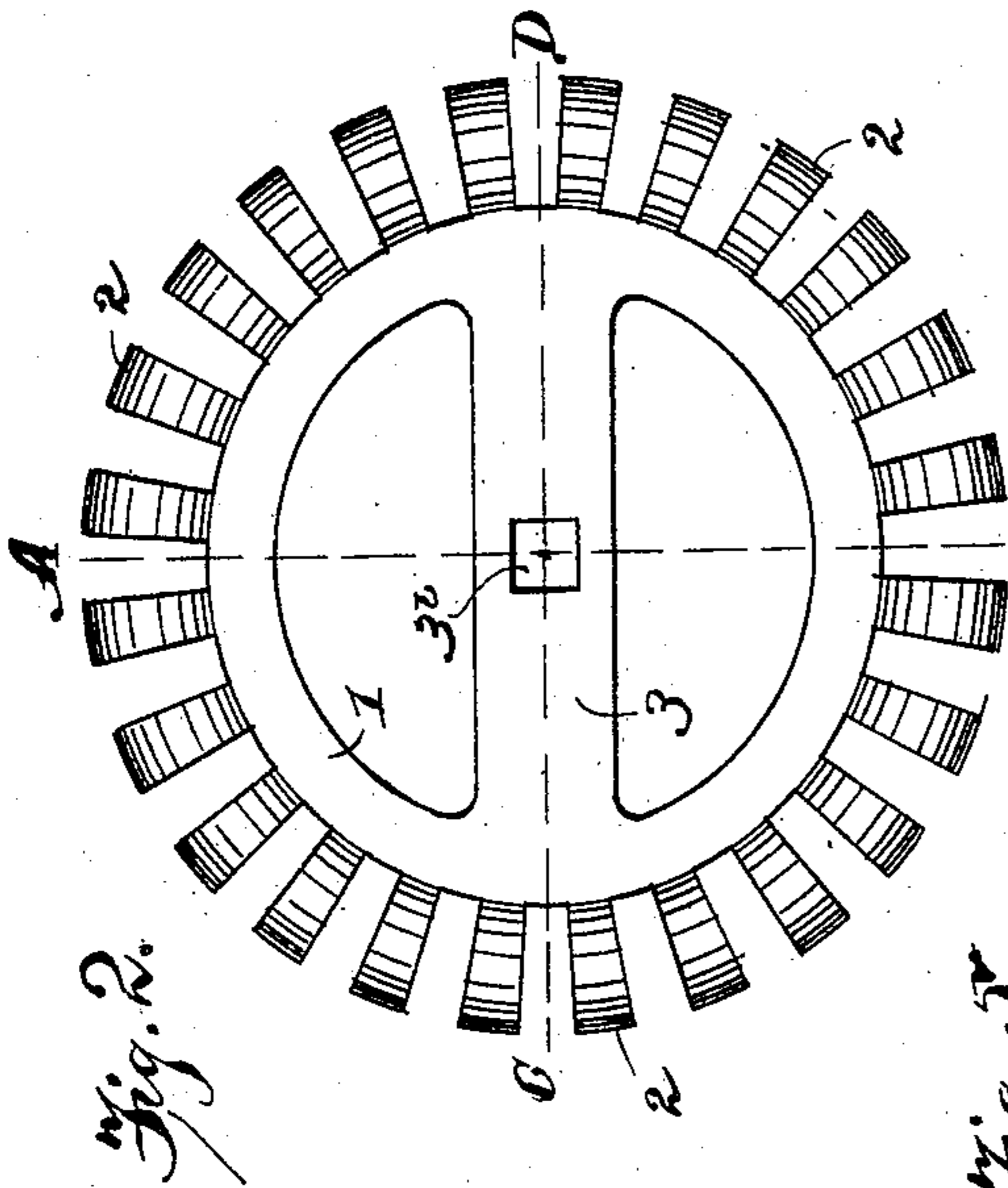


No. 862,153.

PATENTED AUG. 6, 1907.

A. M. GOW.  
HAND WHEEL.

APPLICATION FILED JUNE 18, 1906.



Witnesses:  
Wellington M. Blum  
Gertrude M. Beckman.

By his Attorney

Inventor  
Alexander M. Gow  
James T. Watson

# UNITED STATES PATENT OFFICE.

ALEXANDER M. GOW, OF DULUTH, MINNESOTA.

## HAND-WHEEL.

No. 862,153.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed June 18, 1906. Serial No. 322,193.

To all whom it may concern:

Be it known that I, ALEXANDER M. GOW, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Hand-Wheels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to wheels and has special reference to the class of wheels known as hand wheels. The essential elements of a hand wheel are the hub, the rim and some rigid connection between the hub and the rim. The rigid connection usually consists of two or more spokes. In order that a hand wheel may be securely fastened to a spindle, it is necessary that the hub be of considerable thickness; the spokes must be of sufficient strength to withstand not only the torsional stress to which they are subjected in the normal operation of the wheel, but also the unusual and excessive stresses that occur in case a wrench or hammer is used to start the wheel. It is very desirable that the rim be so constructed as to afford a good grip for the hand, to avoid slipping in the grasp and to avoid cutting the hand, and it is also desirable that the construction of the rim be such that it will not become hot in case the wheel is used on a valve controlling the flow of hot fluid. The merits of this invention lie in the fact that all these characteristics are incorporated in a wheel of this construction.

The invention consists of the constructions, combinations and arrangements of parts hereinafter described and claimed.

Referring to the drawings, Figure 1 is a plan view of the material of the wheel as stamped from a thin sheet of metal. Fig. 2, is a plan view of a finished wheel. Fig. 3, is a section of the wheel on the line A—B of Fig. 2. Fig. 4, is a section of the wheel on the line C—D of Fig. 2. Fig. 5, is a plan view of a modified form of said wheel. Fig. 6, is a section of said modified form of the wheel, on the line E—F of Fig. 5.

Similar figures refer to similar parts in all the figures.

1, is a ring, having outwardly directed radial fingers, 2, formed thereon. A diametrically directed strip 3 extends across the center of said ring and has formed thereon the wings 3<sup>a</sup>, from which rings extend the lugs 4. The strip 3 is preferably apertured at its center, the contour of said aperture preferably being non-circular as at 3<sup>b</sup>. In the finished wheel, the radial fingers, 2, are bent to tubular, or nearly tubular form, to compose a practical and convenient rim, most clearly

as shown in Figs. 3, 4, and 6. The wings are bent on the lines G—H, and I—J of Fig. 1, and the lugs are bent on the lines K—L, and M—N of Fig. 1, so as to cooperate with the central portion of the strip 3 to form the hub of the wheel, the construction being such that a considerable space will exist between the lugs 4 and the central portion of the strip 3, thus providing the required thickness for the hub.

In the modified form shown in Figs. 5 and 6, the strip 3, is, at its center, pressed oppositely from the direction in which the wings are bent, so as to form a recess 6 for the reception of one end of a nut 7, or equivalent filling for the space between said lugs 4 and the body of the strip 3. When said lugs 4 are bent toward each other from opposite sides of the plane A—B of the wheel shown in Fig. 2, or from opposite sides of the plane E—F of the wheel shown in Fig. 5, they cooperate to inclose a passage 8 for the spindle (not shown), upon which said wheel may be mounted. The construction of the wings is such that when bent to form the finished wheel, they will be approximately V-shaped in longitudinal section. It will be obvious that the portions of the strip 3 between the hub and the ring 1, operate as spokes and that the bending of the wings at right angles to the plane of the strip 3 produces a U-shaped cross section of great strength. The ring 1, is shown as dished, which form is preferably adopted as affording greater strength, and also for the reason that the hand is in such case more readily kept from contact with the center of the wheel.

Having now described my invention, what I claim is,

1. A single piece wheel comprising a ring, an outer rim of tubular cross section, spokes, and a hub whose one end is composed of metal bent into parallelism with its other end and spaced therefrom.

2. A wheel comprising a ring, a series of radially disposed fingers integral with said ring and extending outwardly therefrom and forming a rim of greater thickness than the material of which said ring and fingers are composed, spokes integral with said ring, and a hub integral with said spokes, said integral hub being of greater thickness than the material of which it is composed.

3. A wheel comprising a ring, a series of radially disposed outwardly extending fingers integral with said rim and forming a rim of greater thickness than the material of which said fingers and ring are composed, spokes integral with said ring and of greater thickness than the material of which they are composed, and a hub integral with said spokes, said integral hub being of greater thickness than the material of which it is composed.

In testimony whereof I hereunto affix my signature, in presence of two witnesses.

ALEXANDER M. GOW.

Witnesses:

JAMES T. WATSON,  
EDW. B. RYAN, Jr.