

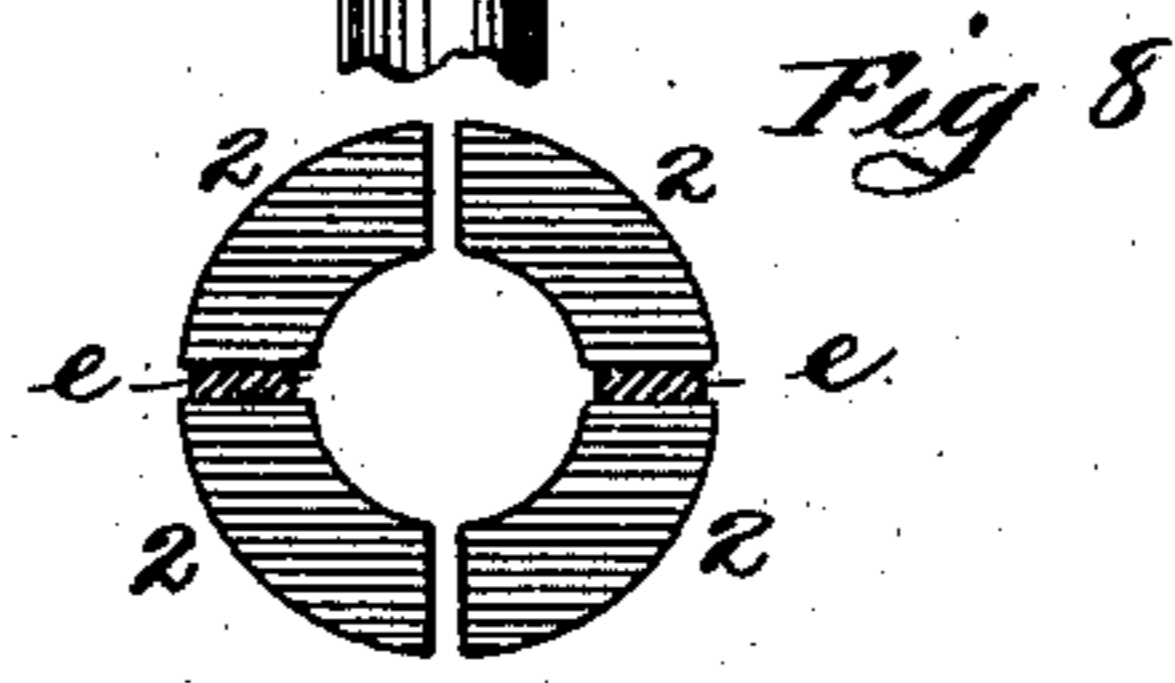
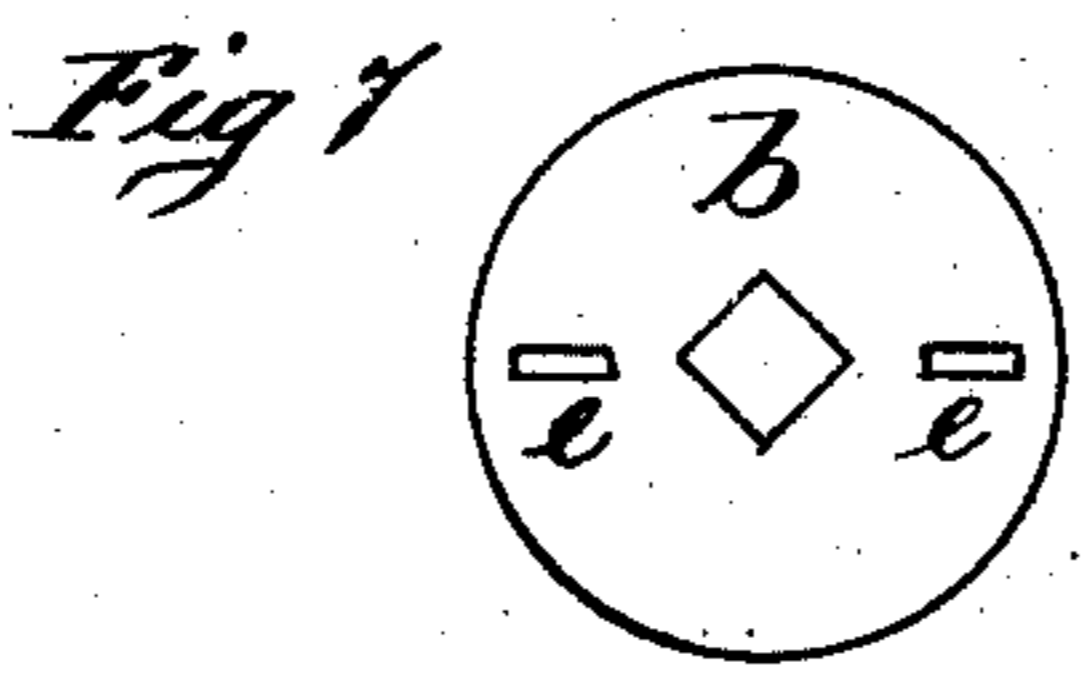
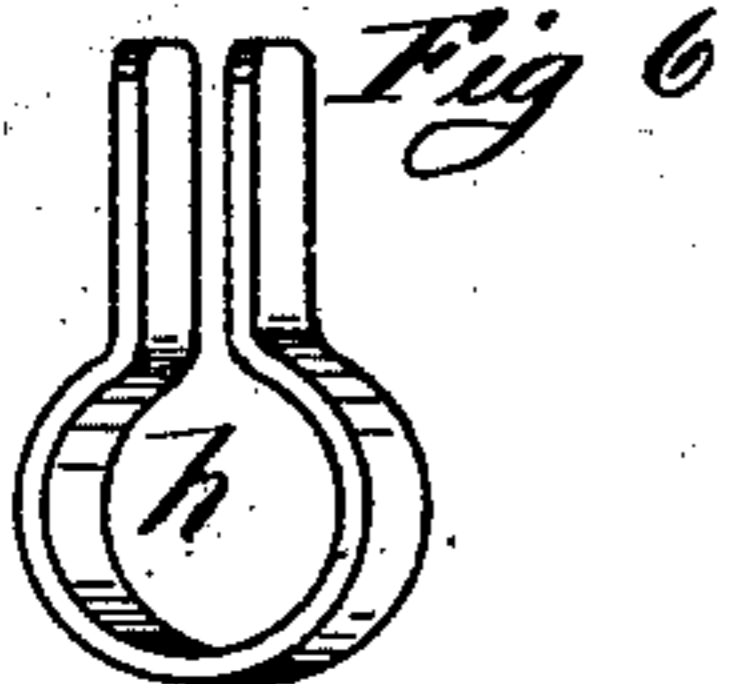
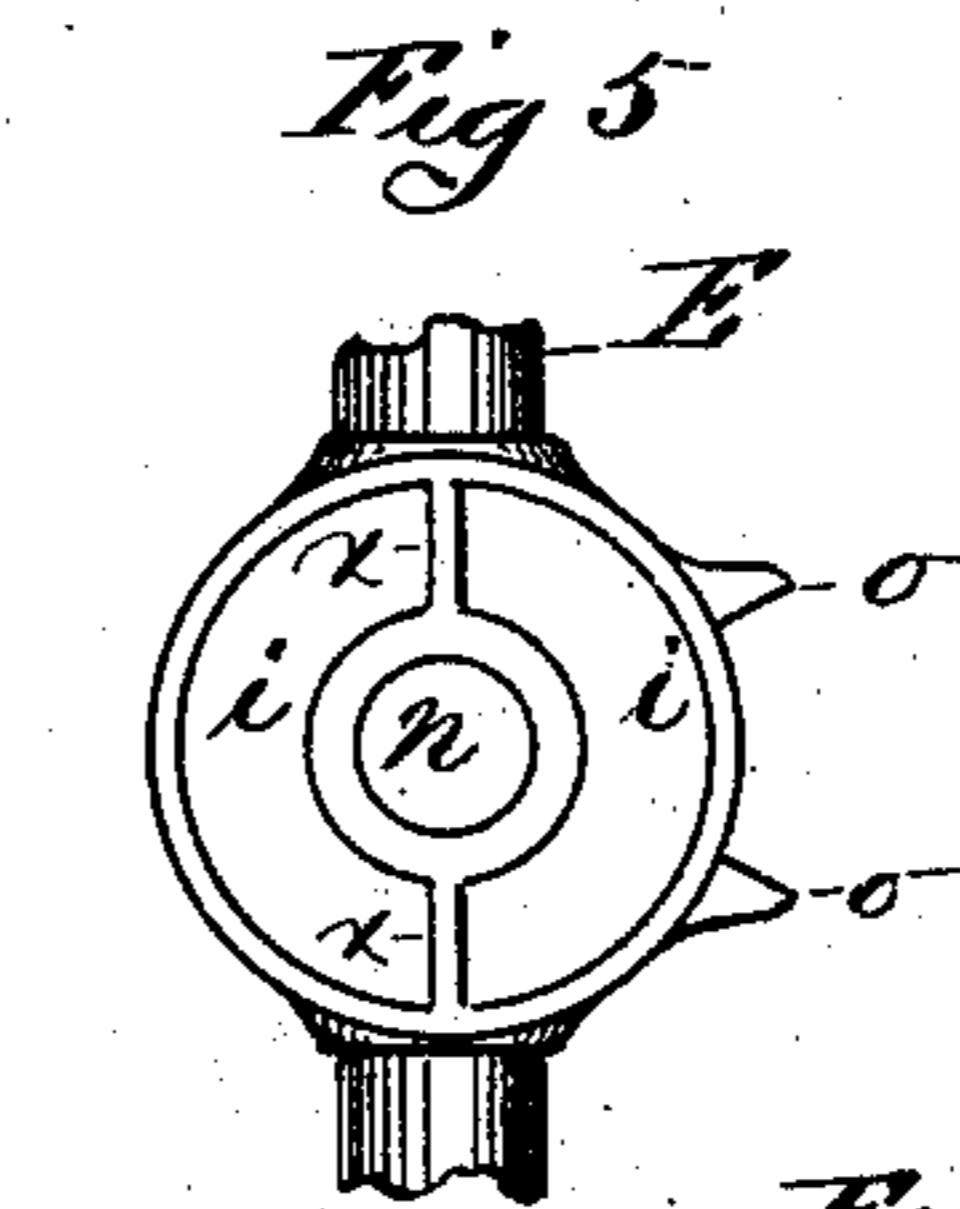
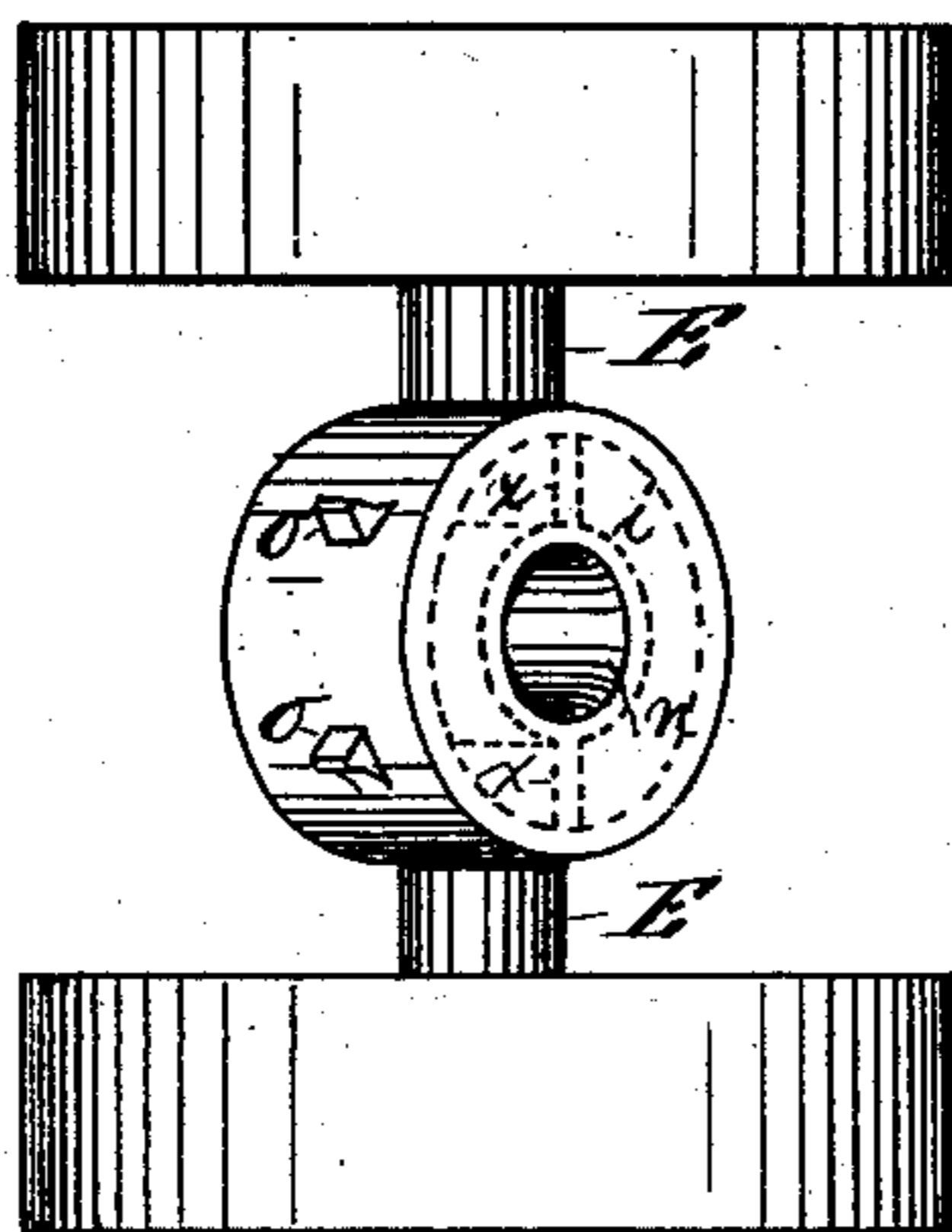
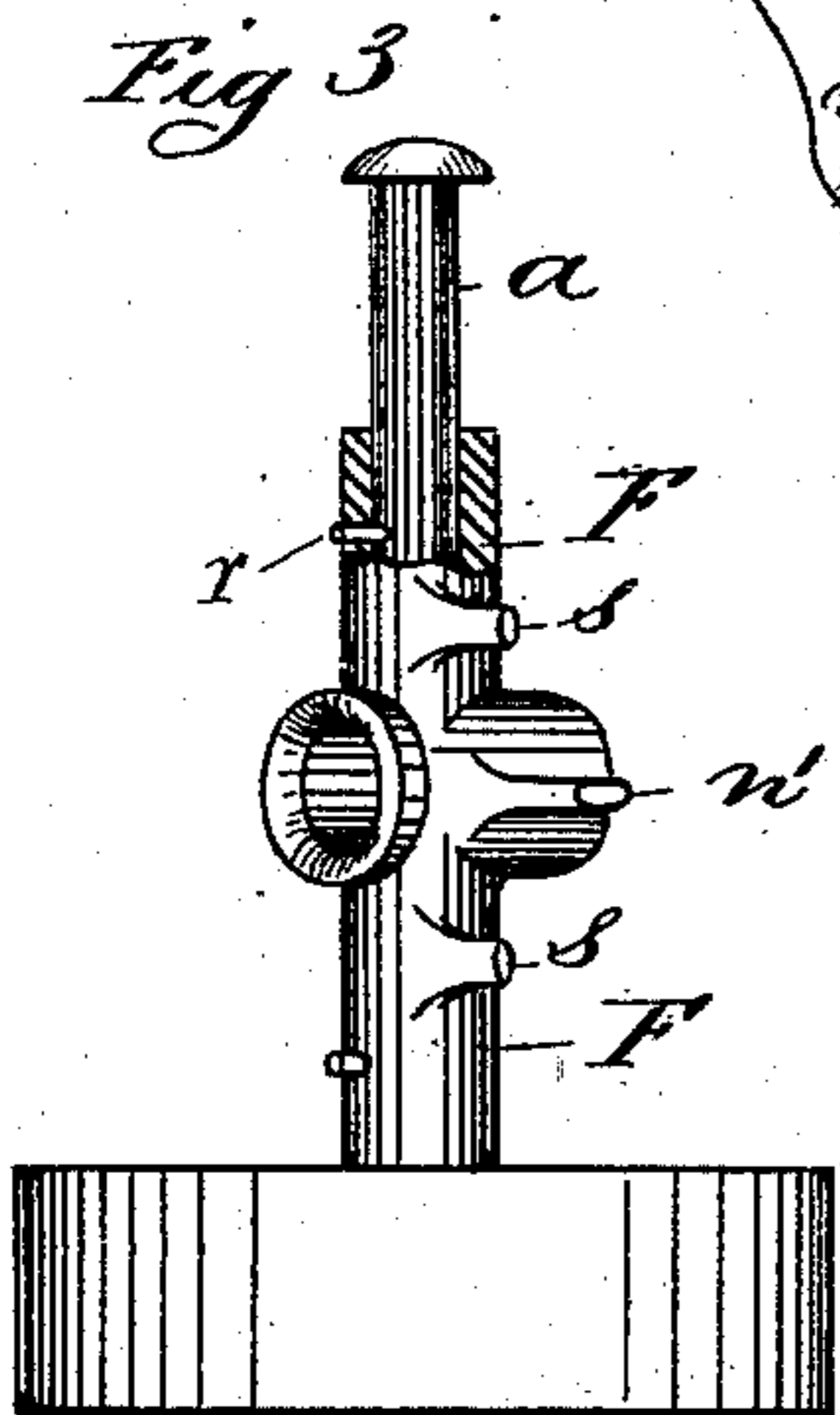
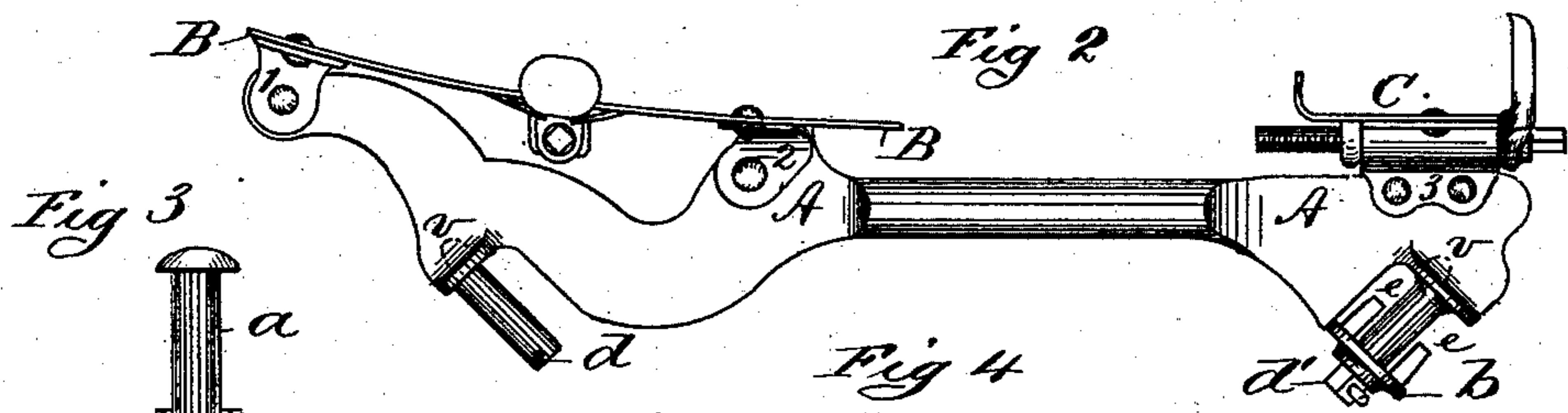
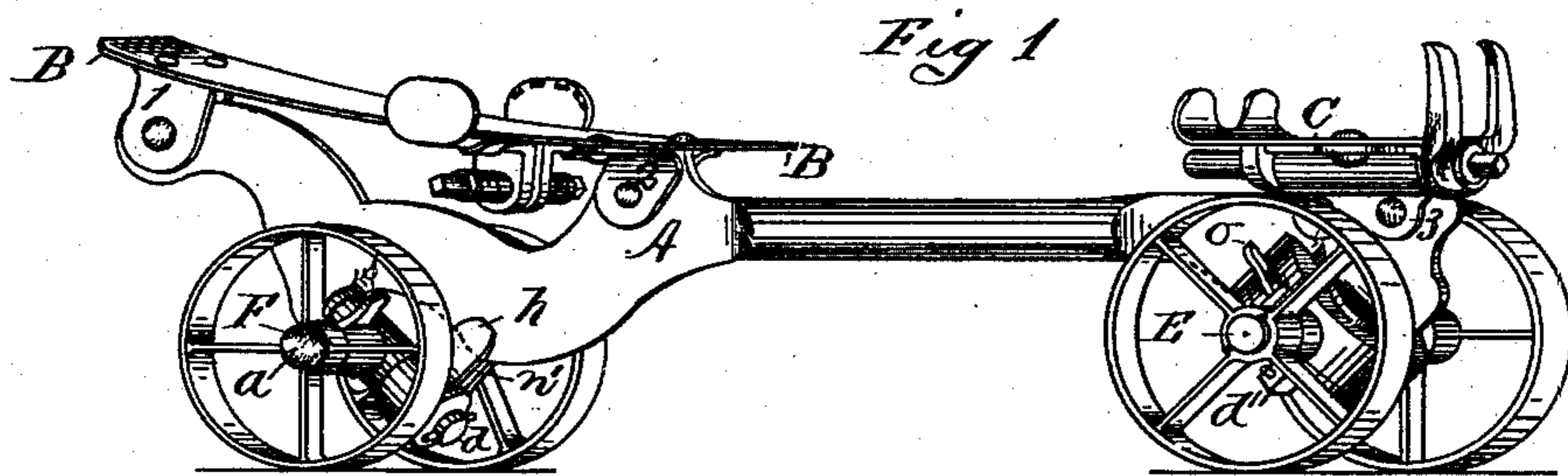
(Model.)

E. H. BARNEY.

Roller Skate.

No. 235,666.

Patented Dec. 21, 1880.



Witnesses  
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# UNITED STATES PATENT OFFICE.

EVERETT H. BARNEY, OF SPRINGFIELD, MASSACHUSETTS.

## ROLLER-SKATE.

SPECIFICATION forming part of Letters Patent No. 235,666, dated December 21, 1880.

Application filed March 10, 1880. (Model.)

*To all whom it may concern:*

Be it known that I, EVERETT H. BARNEY, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Roller-Skates, of which the following is a specification.

My invention relates to skates which are adapted to be used upon floors and other smooth surfaces rather than upon ice; and the objects of my invention are to so combine metallic or other rollers and roller-supporting devices, together with metallic sole and heel plates, upon a metallic frame as to produce an improved skate of this class in relation to lightness, strength, and symmetry of proportions; to provide improved retracting-springs for the axles and improved axle-skins, and to adapt to such skates screw-clamp fastenings in place of straps. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my entire skate. Fig. 2 is a side elevation of the skate with the wheels and axles removed therefrom. Fig. 3 is a view of the forward axle, partly in section. Fig. 4 is a view of the rear axle with both wheels thereon. Fig. 5 is a view of the under side and central portion of the rear axle. Fig. 6 is a view of the forward axle-retracting spring. Fig. 7 is a plan view of the two-armed rear axle-plate; and Fig. 8 is a plan view of box-springs fitting the hollow central portion of the rear axle, showing between the segments thereof the ends of the two arms of the rear axle-plate.

Like letters refer to like parts in the different views.

The metallic frame A constitutes a support for the sole-plate B and for the heel-plate C, which plates are secured to said frame by the riveted brackets 1 2 3. The metallic screw-clamping devices shown on the sole-plate are fully described in the United States Patent to Coe and Sniffen, dated May 3, 1859, No. 23,826, extended April 29, 1873, for seven years; and the metallic screw-clamping devices shown on the heel-plate are such as are shown and described in my United States Patent dated February 19, 1878, No. 200,424. The strong intermediate portion of frame A between the forward and rear wheels of the

skate, which is sufficiently rigid to insure uniform vibrating action in both axles when the skate is rocked laterally, also permits of constructing the sole and heel plates of separate light metallic plates, and said construction and combination of the frame A and plates B and C conduce to make those essential portions of the skate light, strong, and symmetrical. Under the sole and heel plates the frame A is made of a considerable width vertically, as shown, and onto those portions are fixed the axle-bolts  $d d'$ , the latter being of one piece with the frame, and inclined, as shown. The front axle-bolt,  $d$ , is round from end to end, and provided with a pin-hole, as shown; but the rear one,  $d'$ , is square at its lower end, and likewise has a pin-hole pierced through it. Fitted to said squared end of bolt  $d'$ , so that it cannot turn thereon, is the rear axle-plate,  $b$ , having the arms  $e$  projecting from its inner face, as seen in Fig. 2.

The rear axle, E, is constructed with an annular chamber,  $i$ , surrounding the bolt-hole  $n$  therein, and said annular chamber is divided into two portions, as shown in Fig. 5, by the spring-abutments  $x x$ . The relative depth of chamber  $i$  as compared to the diameter of axle E is shown in Fig. 4.

When the axle E is in place on bolt  $d'$ , as in Fig. 1, the upper face of the cylindrical box-like foundation on said axle-surrounding chamber  $i$  (seen in Figs. 1, 4, and 5) bears against a flange on frame A at the base of said bolt, and the axle-plate  $b$ , with its arms  $e e$  projecting into chamber  $i$  midway between the spring-abutments  $x x$ , is placed on the lower square end of bolt  $d'$ , covering the open side of chamber  $i$ , and is secured in that position by a pin or other suitable means.

It will be seen that when axle E and plate  $b$  are placed upon bolt  $d'$ , as above set forth, chamber  $i$  is divided into four compartments by the spring-abutments  $x x$ , which are fixed therein, and by the inwardly-projecting arms  $e$ , which are fixed to plate  $b$ , and with no interposed resistance between arms  $e$  and said abutments axle E may vibrate freely within certain limits on bolt  $d$ . Therefore, to cause said axle to be held with a certain force in a position at right angles to frame A, I interpose in chamber  $i$ , between the said abutments  $x$  and the fixed arms  $e$  on plate  $b$ , a resilient material,

either of rubber or a suitable metallic steady-  
ing and retracting spring, which acts between  
said arms and abutments, pressing them apart,  
causing the axle to be held as aforesaid, and  
operating it on bolt  $d'$ , and causing it to swing  
to a position at right angles to frame A.

Fig. 8 is a plan view of a series of rubber  
segments, 2, of proper dimensions to fit into  
chamber  $i$ , adapted to be placed therein be-  
tween said arms and the abutments  $x$ , to act as  
springs for the purpose above set forth, and  
in said figure is shown the position of arms  
 $e$  between the segments, the open spaces be-  
tween them providing places for the said abut-  
ments  $x$ . The said segments 2 may be re-  
placed with a rubber ring of suitable dimen-  
sions to fit chamber  $i$ , and adapted to receive  
into holes perforated longitudinally in its ends  
projecting posts in said chamber in place of  
said abutments  $x$ , and suitable arms on plate,  
to fit said holes, instead of arms  $e$ .

On the outside of the casing surrounding  
chamber  $i$  are fixed two stop-blocks,  $o$ , (seen  
in Figs. 1, 4, and 5,) which serve to limit the  
vibratory movement of axle E on bolt  $d$  by  
striking against the side of frame A when said  
axle has swung around as far as it may be re-  
quired to. The wheels of the axle E are se-  
cured thereon by a pin and washer in the usual  
way. At the base of pins  $d'$ , I provide pock-  
ets  $v$  for holding a lubricating material.

F is the forward axle, and is adapted to op-  
erate on bolt  $d$ , so far as to vibrate thereon  
under frame A in like manner to axle E; but  
its retracting and steadying spring is of differ-  
ent construction and application to that whose  
action, in governing the movements of axle E,  
has just been described. Axle F has a free  
vibratory movement on bolt  $d$ , within the limits  
permitted by the position of the stop-blocks  $s$   
on the axle, which strike against the sides  
of frame A when said axle swings around on  
said bolt.

The bolt-socket on axle F is of tubular form,  
as shown in Figs. 1 and 3, and is provided with  
an arm,  $n'$ , projecting at right angles there-  
from, and when said axle is placed on bolt  $d$   
a spring,  $h$ , Fig. 6, is put upon the lower end  
of said bolt-socket, with arm  $n'$  interposed be-  
tween the parallel arms of said spring, but not  
reaching to the ends of them. Said parallel  
arms of spring  $h$  are of sufficient length beyond  
the end of arm  $n'$  to extend up against the sides  
of frame A, as seen in Fig. 1, causing axle F  
to be held firmly at right angles to frame A,  
while the end of arm  $n'$  may swing clear of  
the lower edge of said frame. Thus when  
axle F swings on bolt  $d$  arm  $n'$  is caused to  
press against one of the parallel arms of spring  
 $h$ , forcing it away from the side of frame A  
and from its opposite arm, which bears against

the opposite side of said frame; but when the  
force which caused axle F to swing on said  
bolt ceases to act the said arm of spring  $h$   
springs back against the side of frame A, caus-  
ing said axle to reassume a position at right  
angles to the frame.

The usual construction of the devices for  
fastening the wheels or rollers of skates of this  
class upon their axles causes more or less in-  
convenience to the wearer by providing pins  
upon which their garments get caught, and to  
obviate that difficulty I provide such a con-  
struction of the axle-skein as is shown in Fig.  
3. In said construction I bore into the ends  
of the axles, as shown, and make the skein  
 $a$  in the form of a half-round-headed bolt,  
which I fit into the bored-out end of the axle,  
and drive a pin,  $r$ , through the axle and skein,  
to secure the parts firmly together after the  
wheel is in place on the skein, between the  
head thereof and the end of the axle. The  
aforesaid manner of constructing said skein  
provides such a smooth exterior form and  
finish beyond the end of the wheel-hub as  
quite obviate the above-named difficulty, aris-  
ing from the use of pins and similar devices.  
The swinging of the axles of this skate on  
their bolts  $d$   $d'$  by the lateral rocking motion  
of the frame A, and consequent inclination  
sidewise of said bolts, is a well-known result  
of such constructions, and hence the opera-  
tion of the combined parts of this skate re-  
quires no further description.

What I claim as my invention is—

1. The combination, with the skate-frame  
and its inclined bolt, of a detachable armed  
plate,  $b$ , the axle E, provided with chambers  
adapted to receive said arms, and springs ar-  
ranged in said chambers between abutments  
thereof and the arms of the plate, substan-  
tially as set forth.

2. The combination, in a roller-skate, of the  
frame A and axles E F, provided with stops  
 $o$   $s$  and springs  $h$   $i$ , the frame extending be-  
tween said stops and constituting bearings  
therefor, substantially as set forth.

3. The combination of the frame, its inclined  
axle-bolt, axle having a hub receiving said  
bolt and provided with a lug,  $n'$ , and spring  
 $h$ , embracing the hub and having arms ex-  
tending past the lug and overlapping the  
frame, substantially as set forth.

4. The combination, with a roller-skate frame,  
of an axle recessed at each end, and axle-skeins  
each fitting and secured in one of said recesses  
and provided with a stationary head securing  
one of the wheels, as set forth.

EVERETT H. BARNEY.

Witnesses:

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