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PATENTED MAR. 10, 1908.

R. SCHOFIELD.
SKEWER AND BEARING THEREFOR.
APPLICATION FILED JUNE 24, 1907.

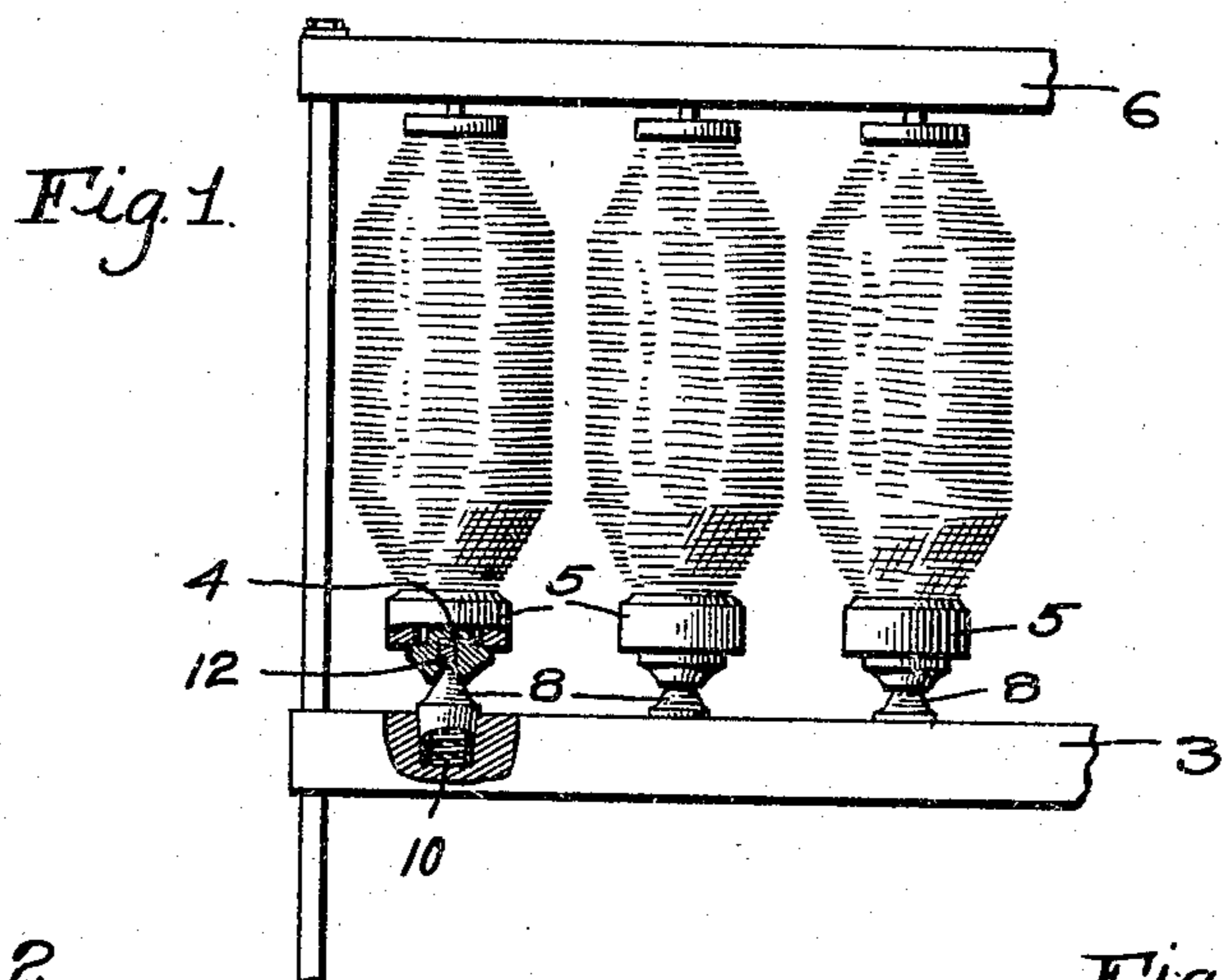


Fig. 2.

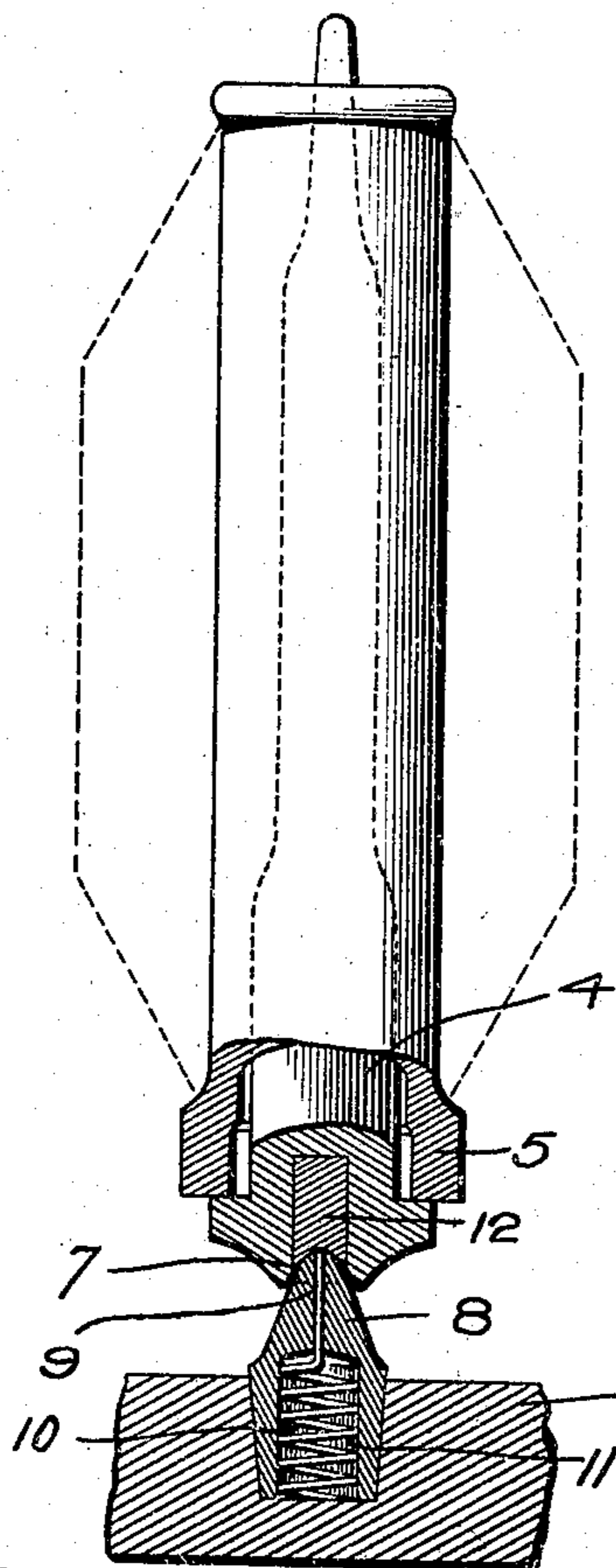
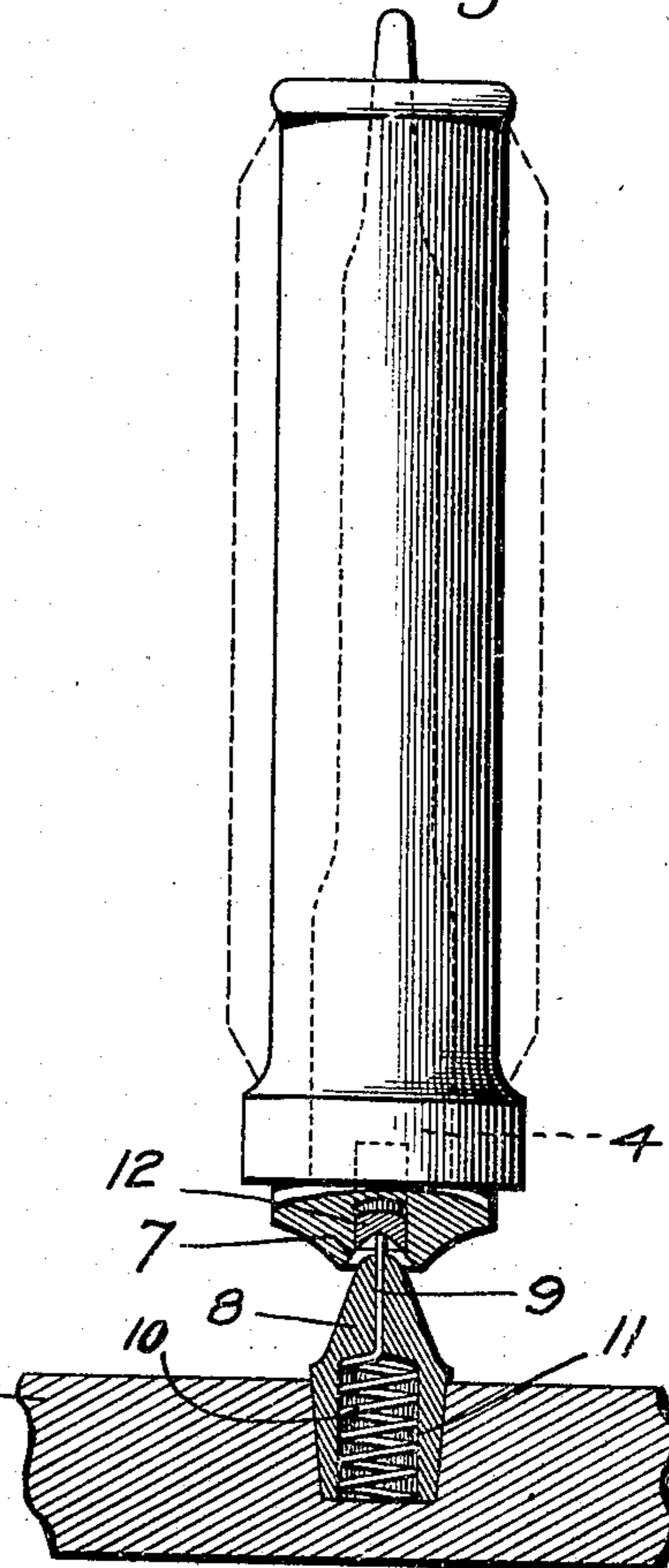


Fig. 3.



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UNITED STATES PATENT OFFICE.

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SKEWER AND BEARING THEREFOR.

No. 881,202.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed June 24, 1907. Serial No. 380,476.

To all whom it may concern:

Be it known that I, ROBERT SCHOFIELD, a citizen of the United States, residing at New Bedford, county of Bristol, and State of Massachusetts, have invented an Improvement in Skewers and Bearings Therefor, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention relates to skewers for bobbins and bearings therefor, and has for its principal object to provide a novel form of bearing which is less liable to become injured during the handling of the skewers than bearings now commonly used.

The invention is illustrated as embodied in a skewer for bobbins such as are used in spinning machinery and on which roving is wound. These skewers as now commonly made are provided at their lower end with a tip or point having a bearing which rests in a cup or socket on the bearing rail of the creel, the upper end of the skewer entering an aperture in the top rail and being sustained in proper position thereby.

In order that the skewer may run properly it is essential that the bearing on the lower end of the tip thereof be small and without flaws, but in the careless handling which these skewers are apt to receive in a spinning mill, these tips very frequently become injured more or less. To avoid this objection and to provide a skewer in which the bearing cannot become easily injured, I have provided said skewer with a recess in its lower end which constitutes the bearing surface of the skewer, and have provided the creel with the projecting tip, the end of which enters the recess and forms the bearing for the skewer. Since the tip is supported by the creel of the spinning machine, it is not subjected to the rough uses to which skewers are in transportation around the mill, and because of the fact that the bearing surface on the skewer is contained within a recess in the end thereof, there is no danger of said bearing surface becoming injured.

This invention is of especial advantage in a bearing having features shown in my Patent No. 704,584, dated July 15, 1902. In said patent the tip of the skewer is provided with two bearing surfaces having different coefficients of friction, one of which is adapted to rest on the bearing on the creel when

the bobbin is empty, and the other of which rests thereon when the bobbin is full. The object of the device shown in said patent is to provide a greater friction when the bobbin is full than when said bobbin is empty, whereby the roving will pull off from the bobbin more evenly and the tendency of the bobbin to overrun is greatly reduced. In the device shown in said patent the two bearing surfaces are at the end of the tip on the skewer and are therefore exposed in such a way that they are liable to be injured during the comparatively rough handling which the skewer receives in the mill. By means of my present invention this liability is avoided for it is possible to place the two bearing surfaces of different coefficients of friction on the tip which forms a permanent part of the creel and is not subjected to rough usage and to place the bearing surface on the bobbin within the recess at the end thereof so that it is fully protected.

In the drawings wherein I have illustrated one form of my invention, Figure 1 shows a portion of a creel of a spinning machine having bobbins supported therein; Fig. 2 is a view of a filled bobbin, the lower end of it being shown in section to better show the way in which it is supported in the bearing, and Fig. 3 shows the manner in which an empty or approximately empty bobbin is supported.

The creel herein shown has the usual bearing rail 3 on which the skewers 4 of the bobbins 5 are supported, and the top rail 6 provided with guide openings into which the upper ends of the skewers are received.

It is now the common practice to make the lower end of the skewers with projecting tips which rest in recesses formed in the bearing rail 3. According to my present invention I provide the rail 3 with a plurality of tips or bearings 8 which project upwardly therefrom and provide each skewer in its lower end with a recess 7 which has within it a bearing surface to rest on and engage the end of the tip 8. The tips or bearings 8 may be made of wood, metal or any suitable material, and they are preferably permanently or fixedly secured to the rail 3. If desired the skewer may be provided with a hardwood or metal bearing member 12 which forms the bottom of the recess 7 therein and which forms the bearing surface that contacts with the tip 8, although this construction is not necessary.

By locating the bearing surface on the skewer within a recess said bearing surface is fully protected and will not be injured during any of the rough usage to which the skewer may be subjected.

In the present embodiment of my invention I have shown a specially-constructed tip which involves a main and an auxiliary bearing, the main bearing being constructed to produce a greater friction between itself and the skewer than is produced by the auxiliary bearing. The auxiliary bearing is designated 9 and it is preferably yieldingly mounted and normally projects beyond the main bearing 8. The yielding support for the auxiliary bearing is such that it will support the empty bobbin, but is insufficient to support the filled bobbin, and as a result when the bobbin is empty, the skewer is supported by the auxiliary bearing only, while when the bobbin is full the yielding support for the auxiliary bearing gives thereby permitting the skewer to rest against the main bearing 8. In the present form of my invention this auxiliary bearing 9 is yieldingly sustained by a spring 10 which is received in a recess 11 within either the main bearing 8 or the rail 3 as desired, and as a simple embodiment of the invention the auxiliary bearing 9 may be made integral with the spring 10, one end of the spring being bent to form said auxiliary bearing. Preferably this auxiliary bearing will be arranged axially of the main bearing 8 as shown.

The spring 10 has such a tension that it will sustain the weight of an empty bobbin but will be compressed by the weight of a full bobbin. When, therefore, a bobbin is filled and placed on its skewer the weight of the bobbin and the material thereon will compress the spring 10, as shown in Fig. 2, thereby allowing the skewer to rest firmly on the end of the tip 8. In this case there is a maximum amount of bearing surface between the skewer and the tip, as will be obvious.

When the bobbin is nearly empty the spring 10 will slide the auxiliary bearing 9 in the tip 8 thereby projecting the end thereof beyond the tip and lifting the skewer from the tip, as shown in Fig. 3. When this occurs the skewer will be supported on the auxiliary bearing 9 only. When the skewer is thus supported, it will have a minimum amount of friction on its bearing, as will be obvious. If desired the main bearing 8 and the auxiliary bearing 9 may be so constructed as to have different coefficients of friction (although this is not essential), the main bearing having the greater coefficient of friction, and the auxiliary bearing the lesser.

When my invention as herein illustrated is in practical use the bobbin will not overrun when the roving is being drawn from a filled bobbin because there is sufficient friction between the skewer and its supporting

member to prevent such overrunning, while, when the bobbin is nearly empty the friction of the skewer on the bearing will be reduced so as to obviate any danger of breaking the roving. Furthermore, by reason of the construction the bearing surface on the skewer is completely protected so that it will not become injured by any rough handling of the skewer.

It is not essential to the invention that the special form of tip herein shown having the main and auxiliary bearing should be employed, although I prefer this construction because of the manifest advantages in preventing the bobbin from overrunning.

Although I have shown the invention herein as embodied in a skewer and its bearing, yet it will be obvious that the invention is not necessarily limited to a skewer.

I have shown herein only one form of my invention and have not attempted to show all embodiments thereof.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. The combination with a skewer having a recess in its lower end provided with a bearing surface, of a main bearing for engaging said bearing surface, and a yieldingly-mounted auxiliary bearing also adapted to engage said bearing surface.

2. The combination with a skewer having a bearing surface at one end, of a bearing separate from the skewer and on which it rests, said bearing having two separate bearing surfaces of different coefficients of friction, and means governed by the weight on the skewer to determine which bearing shall be operative.

3. The combination with a skewer formed at one end with a bearing surface, of a main and an auxiliary bearing for the skewer, and means to bring the auxiliary bearing into operative position for supporting the skewer as the load on the skewer decreases.

4. The combination with a skewer having a recess in one end provided with a bearing surface, of a main and an auxiliary bearing for the skewer, each adapted to engage the bearing surface thereof, and means to bring the auxiliary bearing into operative position as the load on the skewer decreases.

5. The combination with a skewer having a bearing surface at one end, of a main bearing for engaging said bearing surface, and a yieldingly-mounted auxiliary bearing also adapted to engage said bearing surface on the skewer.

6. The combination with a skewer having a bearing surface at one end, of a main rigidly mounted bearing therefor and a spring-pressed auxiliary bearing, said skewer resting on the main bearing when it is loaded and on the auxiliary bearing when it is unloaded.

7. The combination with a skewer having

a bearing surface at one end, of a creel having main and an auxiliary bearing for the skewer, the main bearing having a greater bearing surface than the auxiliary bearing surface, and means to bring the auxiliary bearing into operative position as the load on the skewer decreases.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ROBT. SCHOFIELD.

Witnesses:

EDWARD T. BANNON,
MAY L. SAWYER.