W. F. JOST.

CANNON PINION.

APPLICATION FILED FEB. 26, 1908.

900,380. Patented Oct. 6, 1908

Fig. 1.

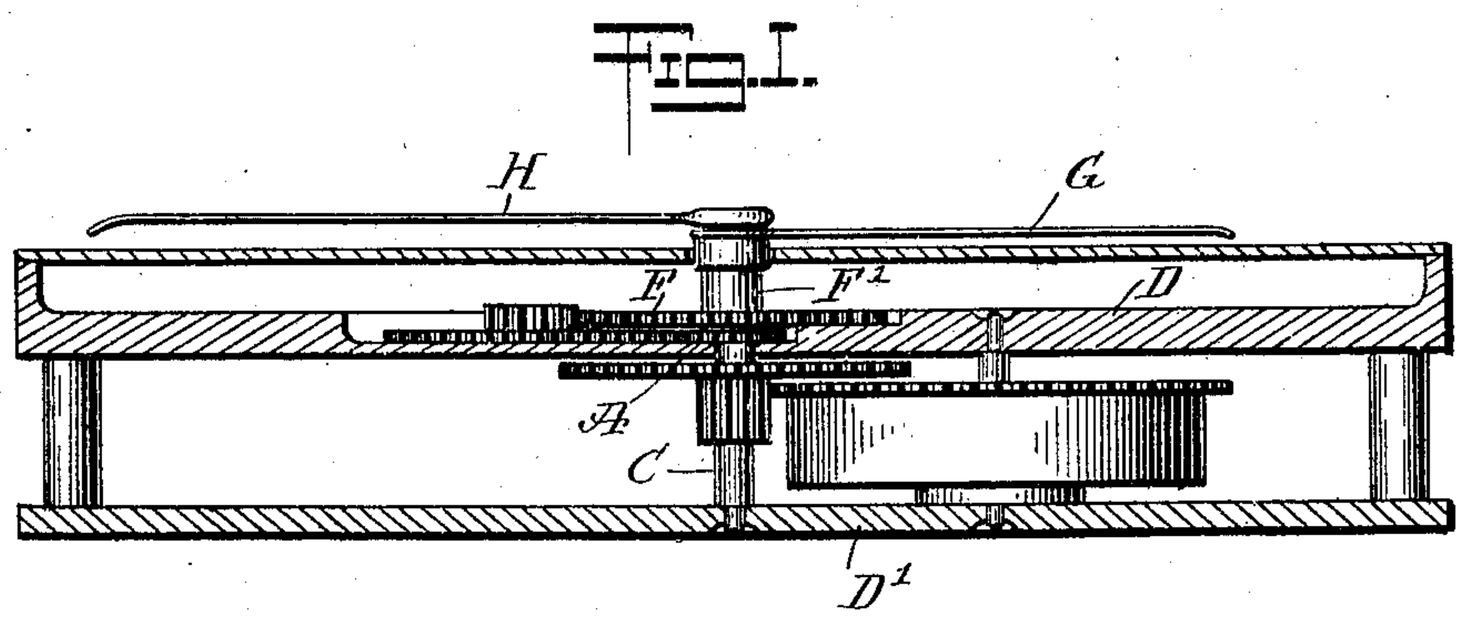


Fig. 2.

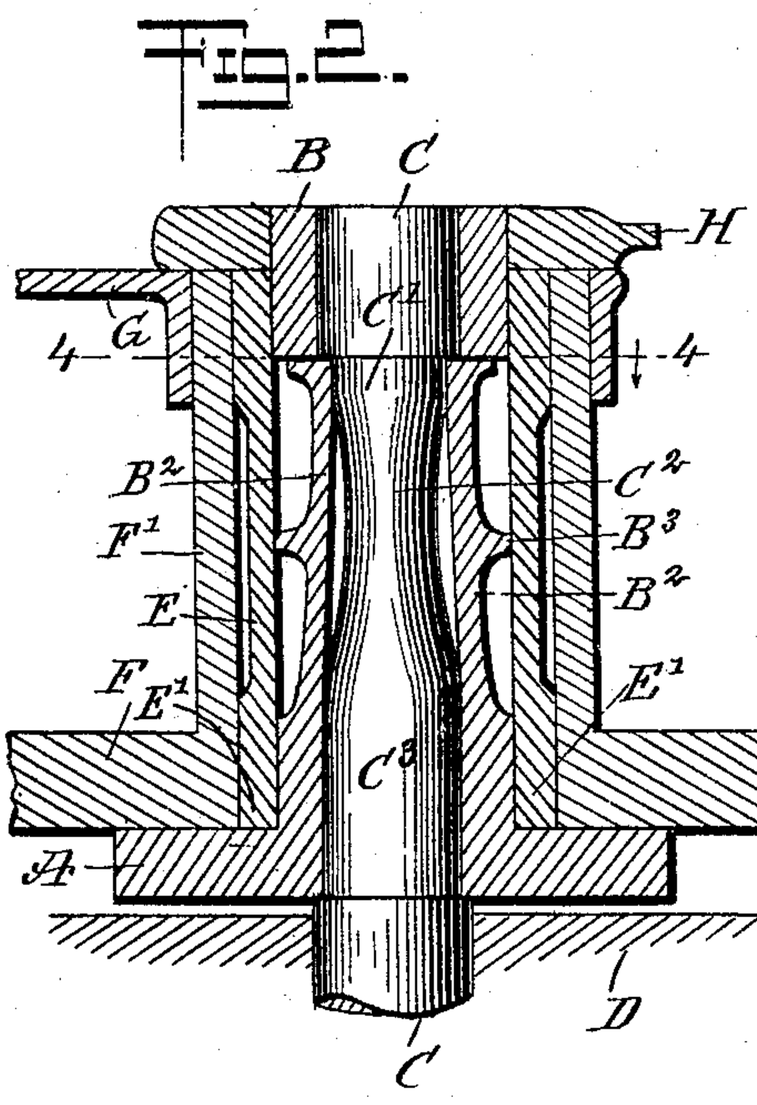


Fig. 3.

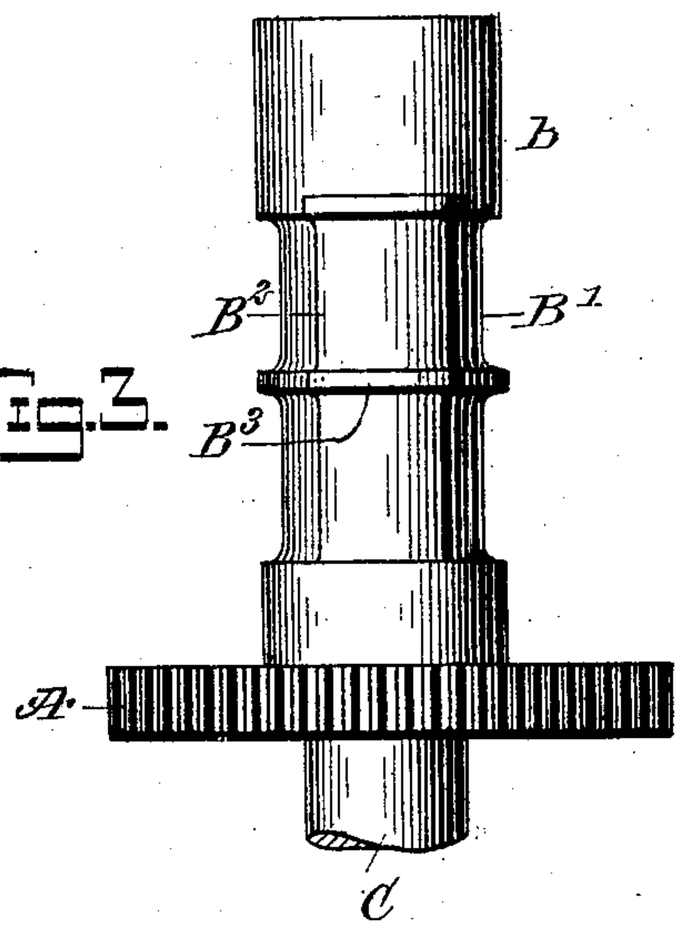
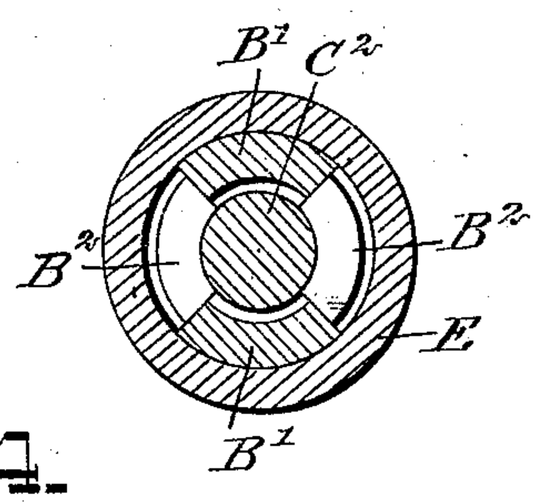


Fig. 4.



WITNESSES

G. Robert Thomas

Rev. J. Hoosteg

INVENTOR

William F. Jost

BY Munn & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

WILLIAM FREDERICK JOST, OF POCATELLO, IDAHO.

CANNON-PINION.

No. 900,380. Specification of Letters Patent. Patented Oct. 6, 1908.

Application filed February 26, 1908. Serial No. 417,846.

To all whom it may concern:

Be it known that I, WILLIAM F. JOST, a citizen of the United States, and a resident of Pocatello, in the county of Bannock and State of Idaho, have invented a new and Improved Cannon-Pinion, of which the following is a full, clear, and exact description.

The invention relates to horology, and its object is to provide a new and improved cannon pinion securely locked to the center arbor, to prevent lifting and throwing it out of gear with the minute wheel, to provide true and even friction to carry the hands safely when the watch is running and not to interfere with the motion of the balance wheel when setting, and to allow placing or removing of the cannon pinion to and from the arbor, without springing the latter or breaking the jewels.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is an enlarged sectional plan view of a watch provided with the improvement; Fig. 2 is an enlarged sectional plan view of the improvement as applied; Fig. 3 is a plan view of the improvement, and Fig. 4 is a cross section of the same, on the line 4—4 of Fig. 2.

It is well known that in placing the cannon pinion on the center arbor or removing it therefrom, there is considerable danger of breaking the arbor jewels, as the cannon pinion has to be forced over the larger outer end of the center arbor, in order to reach the reduced arbor portion and to adhere to the same by friction and without danger of lifting. It is also known that watch dials are made thicker than necessary, in order to withstand the strain of starting the hands, as the cannon pinion is liable to lift, and the pressure incident thereto is directly exerted against the dial and hence the latter is liable to be cracked. In using cannon pinions having a thin solid wall waist-shape cannon it is not rendered safe or lasting, as it is only held by a dead friction in position on the center arbor, and hence is liable to wear and cannot be renewed with any degree of accuracy, and cannon pinions of the spring tension type, as heretofore used, are not safe, as they grip the arbor only on one side and are usually eccentric owing to the errors in making and fitting them to the arbors. It is further known that but a small percentage of the hands of a watch travel flat, owing to the point of frictional contact with the cannon pinion being midway and to the inexactness in making interchangeable parts among cannon pinions and center arbors, and the majority of workmen try to overcome the above-mentioned faults with wrong expedients.

In order to overcome the defects mentioned, the following arrangement is provided: The cannon pinion A is provided with a cannon B, mounted on the center arbor C, journaled in the usual manner in the plates D, D′ of the watch movement, as indicated in Fig. 1. A sleeve E fits onto the cannon B, and is engaged by the hub F′ of the hour wheel F, and which hub F′ carries the hour hand G. The minute hand H is attached to the outer end of the cannon B and is seated on the outer end of the sleeve E, as plainly indicated in Fig. 1. The arbor C is provided with a reduced cylindrical portion C′ and a reduced waist portion C^2 adjacent to the reduced cylindrical portion C^3. The reduced cylindrical portion C′ is a distance from the outer end of the arbor C, and the aggregate length of the portions C′ and C^2 is approximately half the entire length of the bearing of the cannon B.

The cannon B is provided between its ends with a reduced portion B′, approximately opposite the portions C′ and C^2, the cannon B being slotted and quartered lengthwise and midway, with two opposite arms cut off at the outer end of the same, meeting the quartering slots at the extreme outer end of the slots, to form integral jaws B^2, adapted to bear with their free ends on the cylindrical portion C′, as plainly indicated in Fig. 2. The two remaining arms form the solid part of the cannon, connecting the inner and outer ends of the same. These arms have the external lugs also, which are reduced to correspond with the size of the inner and outer end of the cannon B, allowing the sleeve to act on the lugs of the spring jaws only. The jaws B^2 are provided with external lugs B^3, approximately midway of the length of the jaws, and the lugs B^3 are adapted to be engaged by the inner surface of the sleeve E, when the latter is pushed over the

cannon B, so that the spring jaws B^2 are forced inward, to cause their free ends to bear on the reduced portion C′, as indicated in Fig. 2. It is understood that the distance between the outer ends of the lugs B^3 is somewhat in excess of the inner diameter of the sleeve E, and consequently when the latter is placed in position over the cannon B, then the spring jaws B^2 are forced inward, to cause their free ends to engage the reduced portion C′ of the center arbor C. In order to permit a convenient slipping of the sleeve E in position on the cannon B, the inner end thereof is provided with the beveled portion E′, to gradually act on the lugs B^3, with a view to force the same inward when placing the sleeve E in position on the cannon B, as above explained. Now when the jaws B^2 are caused to swing inward the heel ends of the jaws bear against the cylindrical portion C^3 of the center arbor C, thus each jaw B^2 bears at its free end as well as at its heel end on the portions C′ and C^3 of the center arbor C, to securely and safely hold the cannon in position on the center arbor C. It is understood that the bore of the cannon B corresponds to the arbor C, so that the cannon can be readily slipped in position on the arbor, and the spring jaws B^2 are not forced inward until the sleeve E is pushed over the cannon B, as above explained and illustrated in Fig. 2.

When it is desired to remove the cannon pinion it is only necessary for the workman to remove the hands and then remove the sleeve E, to allow the spring jaws B^2 to return by their own resiliency to their outermost position, thus allowing the cannon B to be readily slipped off the center arbor C.

From the foregoing it will be seen that the cannon of the pinion A is securely locked to the center arbor, to prevent lifting, and to insure a true and even tension between the cannon and the center arbor, with a view to carry the hands safely when the watch is running and not to interfere with the motion of the balance wheel when setting. It will also be noticed that by the arrangement described the cannon pinion can be readily placed in position on the arbor without danger of springing or bending the latter or breaking the jewels, and the dial of the watch can be made thinner, as no strain is exerted on the dial when starting the hands as before mentioned. The accuracy of the pinion will also allow more intimate relations with the dial train, assuring thinner made watches.

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

1. A cannon pinion having oppositely arranged spring jaws integral with the cannon and ranging lengthwise thereof, each spring jaw having an external lug, and a sleeve fitting on the said cannon and engaging the said lugs to press the jaws inward.

2. A cannon pinion having oppositely arranged spring jaws integral with the cannon and ranging lengthwise thereof, each spring jaw having an external lug, a sleeve fitting on the said cannon and engaging the said lugs to press the jaws inward, and a center arbor having a reduced portion practically engaged by the said jaws.

3. In combination, a cannon pinion having oppositely arranged integral jaws in the cannon and lengthwise thereof, each jaw having an external lug, a center arbor having a reduced cylindrical portion, and a reduced waist portion continuous to the said reduced cylindrical portion, and a sleeve fitting over the said cannon and bearing on the said jaw lugs to press the jaws inward and to move the free ends thereof into frictional contact with the said cylindrical portion of the arbor.

4. In combination, a cannon pinion having oppositely arranged integral jaws in the cannon, and extending lengthwise thereof, each jaw having an external lug at approximately the center thereof, a center arbor having a reduced cylindrical portion, and a reduced waist portion contiguous to the said reduced cylindrical portion, a shoulder being formed between said portions, and a sleeve fitting over the cannon and bearing on the lugs of the jaws, to press the jaws inward, and to move the free ends thereof into frictional contact with the cylindrical portion of the arbor, and with the ends of the jaws abutting the shoulder.

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

WILLIAM FREDERICK JOST.

Witnesses:
JAMES M. KNOWLES,
CHAS. SEAVERS.