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PATENTED NOV. 5, 1907.

C. W. SPONSEL.
SPEED INDICATOR.
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Fig. 1.

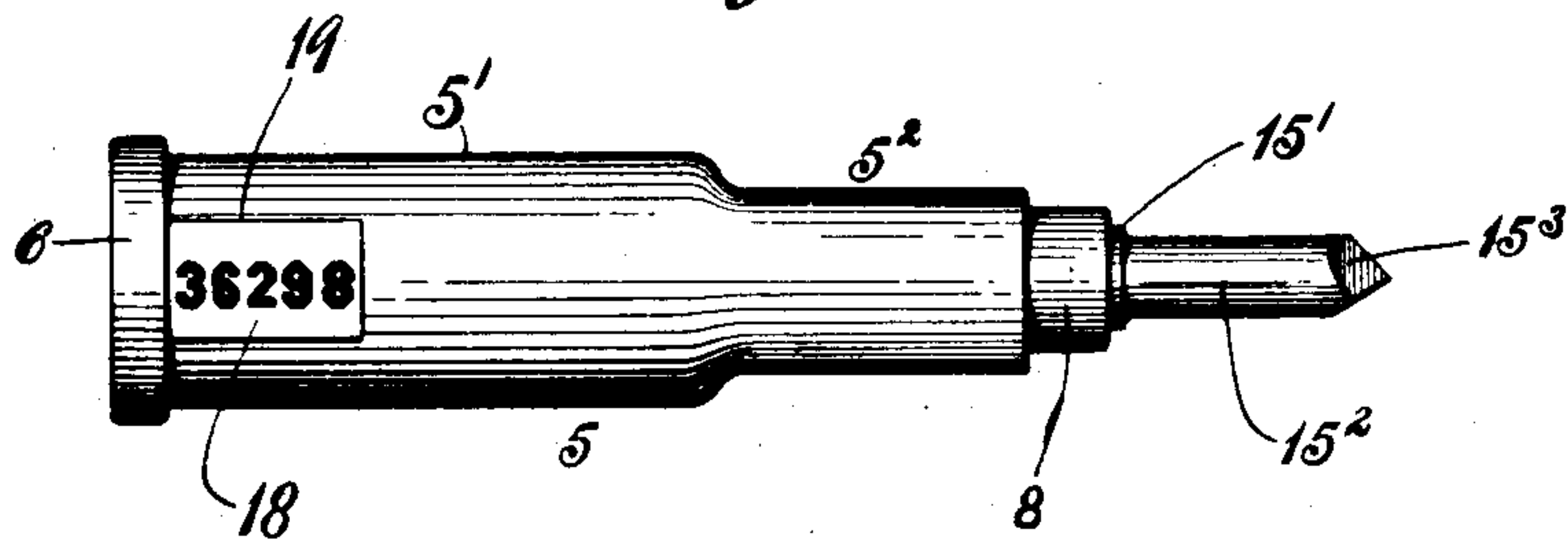


Fig. 2.

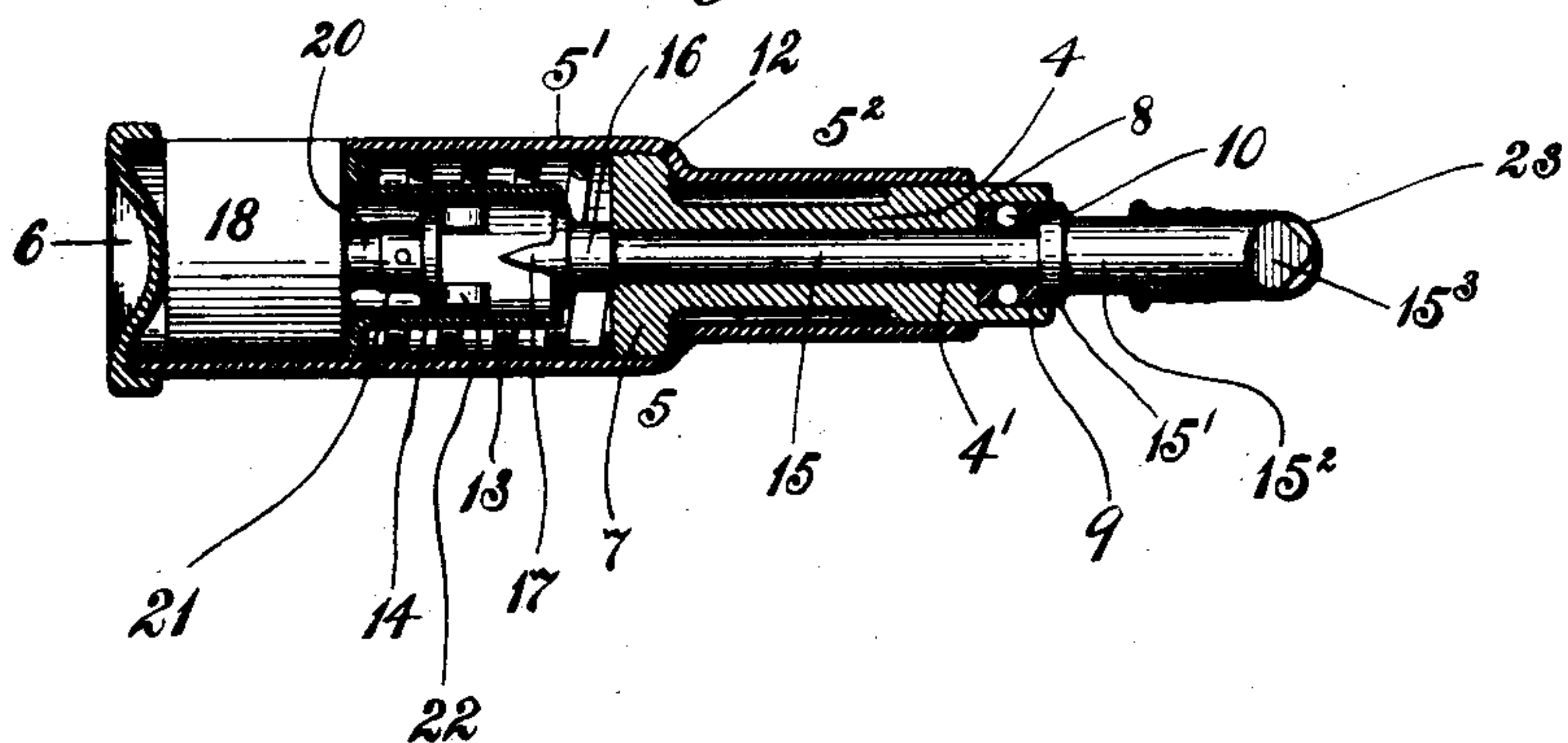
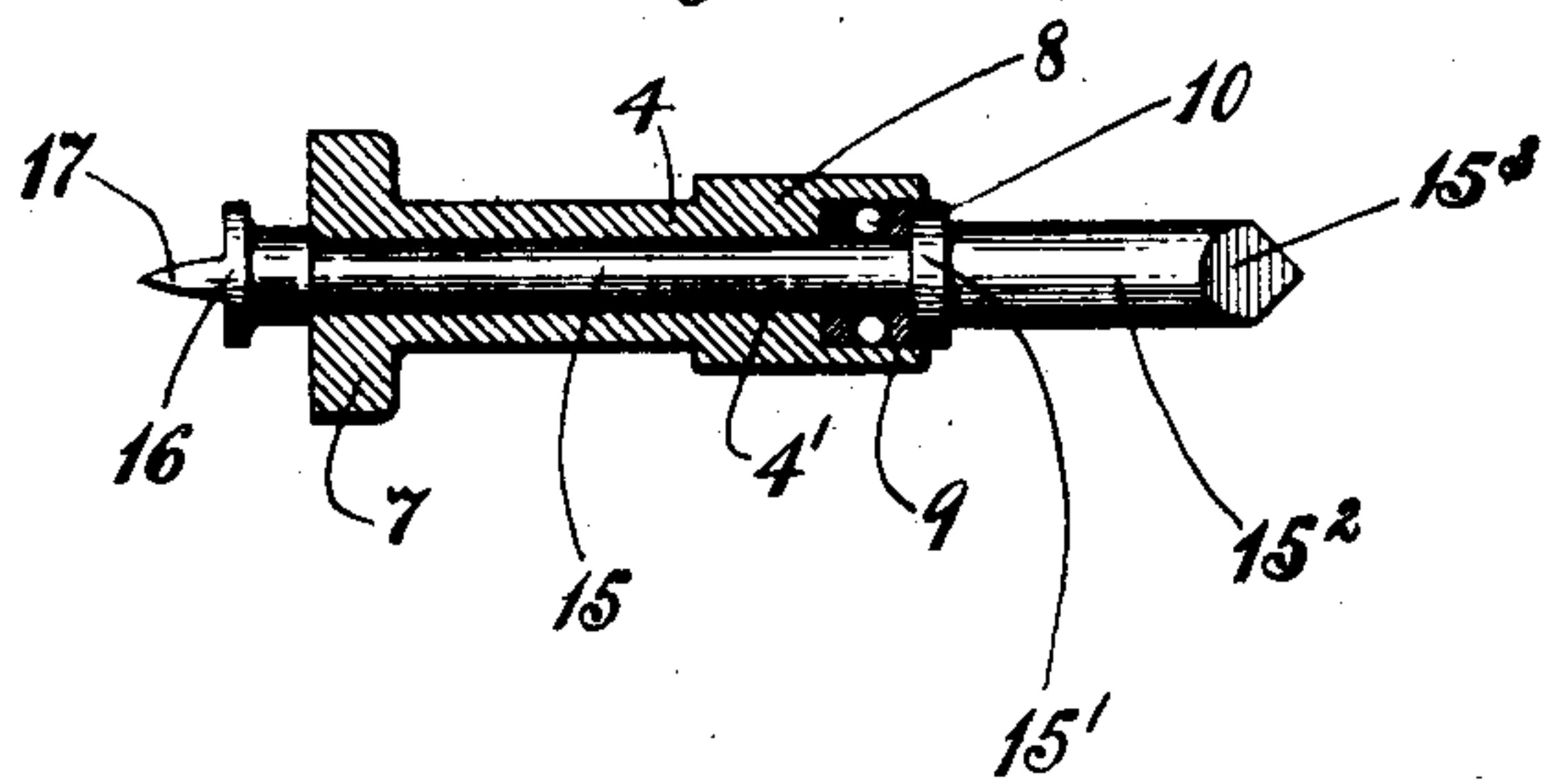


Fig. 3.



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UNITED STATES PATENT OFFICE.

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SPEED-INDICATOR.

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Specification of Letters Patent.

Patented Nov. 5, 1907.

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To all whom it may concern:

Be it known that I, CHARLES W. SPONSEL, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Speed-Indicators, of which the following is a specification.

Frequently it is necessary to ascertain the speed per minute of a shaft or other object, and it is desirable to have a hand and simple tool for accomplishing this result one of such size that it may be carried about the person, for instance, in a vest pocket.

Primarily the object of the invention is the provision of a light, portable tool which may readily be applied to the shaft or other object the speed of which is to be tested, said tool carrying an indicator.

A further object of the invention is the provision of a casing of convenient size to contain the counting and indicating-mechanism, and the devices, few in number and simple in construction, for operating said mechanism.

Other objects of the invention will hereinafter be set forth.

In the accompanying drawings Figure 1 is a view in elevation of my improvement; Fig. 2 is a longitudinal vertical section thereof; and Fig. 3 is a detail view partially in section.

Like numerals designate similar parts throughout the several views.

Referring to the drawings, the numeral 5 designates a casing enlarged for the greater portion of its length at 5', and reduced to form a neck 5², said casing being preferably a single tube closed at its enlarged end by a cap 6, although it may be of different construction, if desired, without departing from the invention.

Fitted in the reduced part or neck 5² of the casing is a slidable bearing 4 having a bore 4', an inner head 7, and an outer head 8 chambered at 9 to receive an anti-friction-device 10, said bearing being reduced between the heads 7 and 8, and the head 7 thereof normally engaging a shoulder 12 formed by reducing the end of casing 5. Designated by 13 is a spiral spring fitted upon a flanged tube 14, loose within the casing, and bearing at one end against the head 7, and at its opposite extremity against the flange of said tube, as illustrated in Fig. 2.

Mounted in the bore 4' of the slidable bearing 4 is a shaft or spindle 15, having a collar 15', and a head or cylindrical enlarged portion 15² provided with a reversely-beveled tip or point 15³, shaped to fit the counter-sunk opening for the reception of the center in the end of a shaft. At the end opposite the head 15² the shaft or spindle 15 is provided with an inner clutch-head 16 having clutch-teeth 17, said clutch-head being located within the spiral spring 13, as illustrated in Fig. 2.

Designated in a general way by 18 is a counting or

indicating-device the numerals of which will appear through the slot 19 of the casing 5, as shown in Fig. 1. This device may be of any approved form suitable to be received within the casing to have its indicating-numerals show through the slot in the same, and the driving-shaft of said device is marked 20, and is provided with a clutch-head 21, having clutch-teeth 22, adapted when the device is in use to engage the clutch-teeth 17 of the spindle 15.

As above stated, and as will be evident from the drawings, the bearing 4 slides with the neck-portion 5² of the casing and the inner head thereof is normally held against the shoulder 12 by the spring 13. When, however, the head 15³ of the spindle 15 is applied to the shaft or other object the speed of which it is desired to ascertain the push of the hand in which the device is held against the end-cap 6 of said casing will cause the bearing 4 to slide inward within the casing, and connection will thereby be made between the clutch-teeth 17 of the spindle or shaft 15 and the clutch-teeth 22 of the shaft for driving the counting and indicating-mechanism.

To prevent injurious end-thrust against the extremity of the shaft or spindle 20, the flanged-tube 14 is made of sufficient length to engage the head 12 of bearing 4 when the clutch-teeth are interlocked and thus to act as a stop, and prevent any binding of the parts of the indicator 18 when, as stated, the device is in use.

After the speed of the shaft or other object has been ascertained, the device is withdrawn from the shaft, and the spring 13 then immediately forces outward the bearing 4 in which the spindle 15 is journaled and restores the parts to normal conditions with the clutch-teeth disengaged, as illustrated in Fig. 2.

Anti-friction devices of any sort may be substituted for the ball-bearings 9 to reduce the friction of the parts, and as they operate in the usual way further description thereof is deemed unnecessary.

A cap or sheath 23 may be applied to the part 15² of the spindle 15 if desired to prevent interference of the conical head or point 15³ with the wall of the pocket in which the article may be carried.

Changes may be made in various details of the mechanism without departing from the invention, and any suitable counting or indicating device may be substituted for that illustrated. Computations may be made in any usual way according to the style of the counting-device or indicator employed without departing from the invention.

Having thus described my invention what I claim is:

1. A speed indicator comprising a casing, a counting and indicating-device, a bearing slidable within the casing, a spindle carried by the bearing for engaging the device the speed of which is to be ascertained, and clutch-elements for engaging said spindle with the counting and indicating-device.

2. A speed indicator comprising a casing, a counting and indicating-device carried by said casing, a device movable with relation to said casing, means for engaging said movable device with the counting and indicating-
 5 device when the movable device is applied to an object the speed of which is to be ascertained and a stop for preventing end-thrust of the movable device and its engaging means against an element of the counting and indicating device.
- 10 3. A speed-indicator comprising a casing, a counting and indicating-device carried by said casing, a bearing slidable with relation to said casing, a spindle movable in a bore of the bearing, and carrying at one end a device for engaging
 15 an object the speed of which is to be ascertained, and at its other end a clutch and means for disconnecting said clutch from the counting and indicating-device.
- 20 4. A speed-indicator comprising a casing, a bearing slidable in said casing, a spindle rotatable in a bore of the bearing, a clutch-element carried by the spindle, and a counting and indicating-device actuated by said clutch-element.
- 25 5. A speed-indicator comprising a casing, a bearing slidable in the casing, a spindle rotatable in a bore of the bearing, and shaped on one end to engage an object the speed of which is to be ascertained, a clutch-element on the
 spindle, a counting and indicating-device, a shaft for actuating said device, and a clutch-element carried by said shaft, and adapted to engage the clutch-element of the
 30 spindle.
6. A speed-indicator comprising a casing having a slot, a bearing slidable in said casing, a spindle rotatable in a
 bore of the bearing and shaped on one end to engage an object the speed of which is to be ascertained, a clutch-
 35 element on the spindle, a counting and indicating-device visible through the slot of the casing, a shaft for actuating said device, a clutch-element carried by said shaft and adapted to engage the clutch-element of the spindle, and means for disengaging said clutch-elements.
7. A speed-indicator comprising a casing, a counting and indicating-device mounted within the casing, a bearing
 40 slidable within the casing, a tube within the casing, a spring surrounding the tube, and engaging one end of the bearing, a spindle rotatable within the bearing, and having a device at one end adapted to engage an object the speed of which is to be ascertained, a clutch-element on the op-
 45 posite extremity of the spindle, and a clutch-element carried by a member of the counting and indicating-device.
8. The combination, with a casing, of a flanged tube loose within a part of said casing, a spring surrounding
 50 said tube, and bearing at one end against the flange thereof; a bearing slidable in the casing, said bearing having a bore; a spindle rotatable in the bore, and having a head at each extremity; a shaft-engaging-device rigid with one of the spindle heads; and a clutch-element rigid with the
 55 other spindle-head, said clutch-element being adapted to engage an element of the counting and indicating-device.
- In testimony whereof I affix my signature in presence of two witnesses.
- CHARLES W. SPONSEL.
- Witnesses:
 F. E. ANDERSON,
 LOUIS F. WHITMAN.