

H. DAHL & M. MARTIN.
 SIGNALING DEVICE FOR SPEED INDICATORS.
 APPLICATION FILED OCT. 8, 1906.

961,107.

Patented June 14, 1910.

2 SHEETS—SHEET 1.

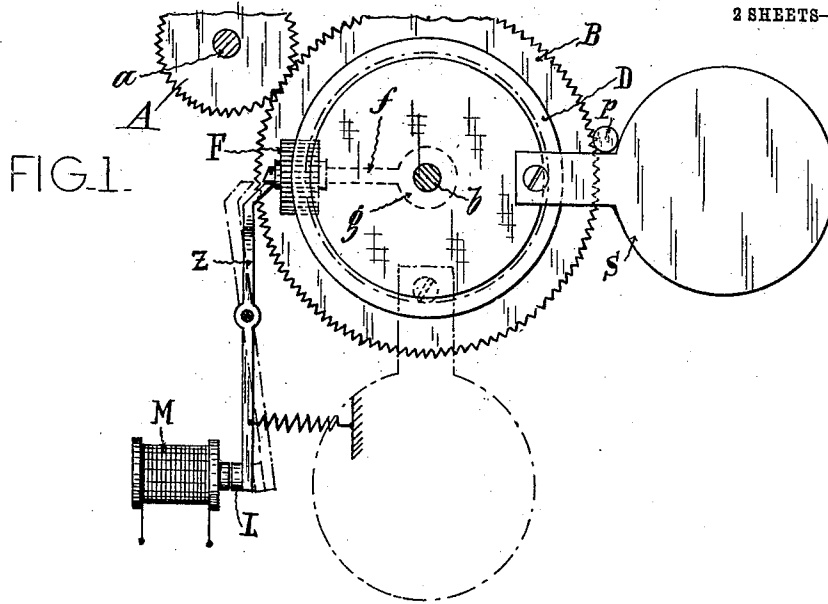
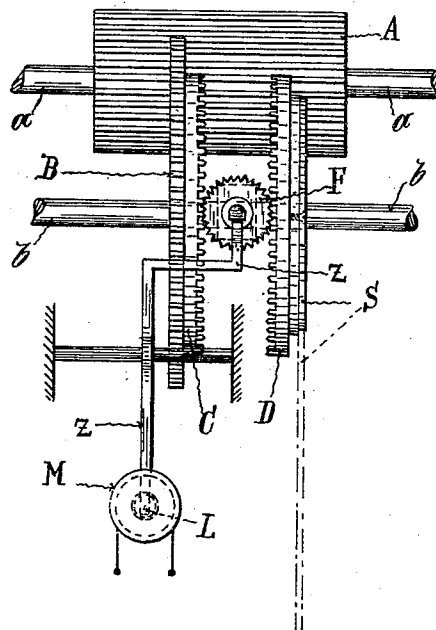


FIG. 2.



Witnesses.
Willy Kühner
Paul Martin

Inventors.
Hans Dahl
Max Martin

H. DAHL & M. MARTIN.
 SIGNALING DEVICE FOR SPEED INDICATORS.
 APPLICATION FILED OCT. 8, 1906.

961,107.

Patented June 14, 1910.

2 SHEETS—SHEET 2.

Fig. IV

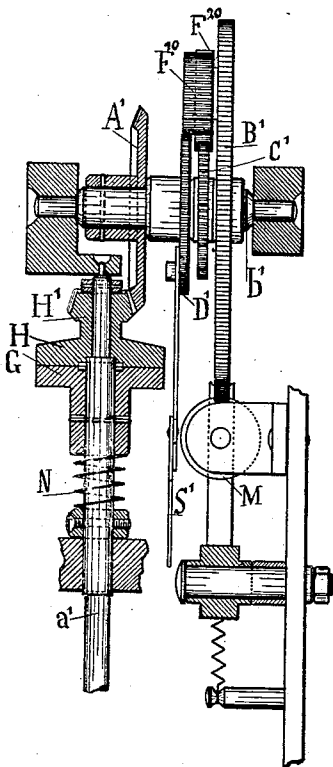
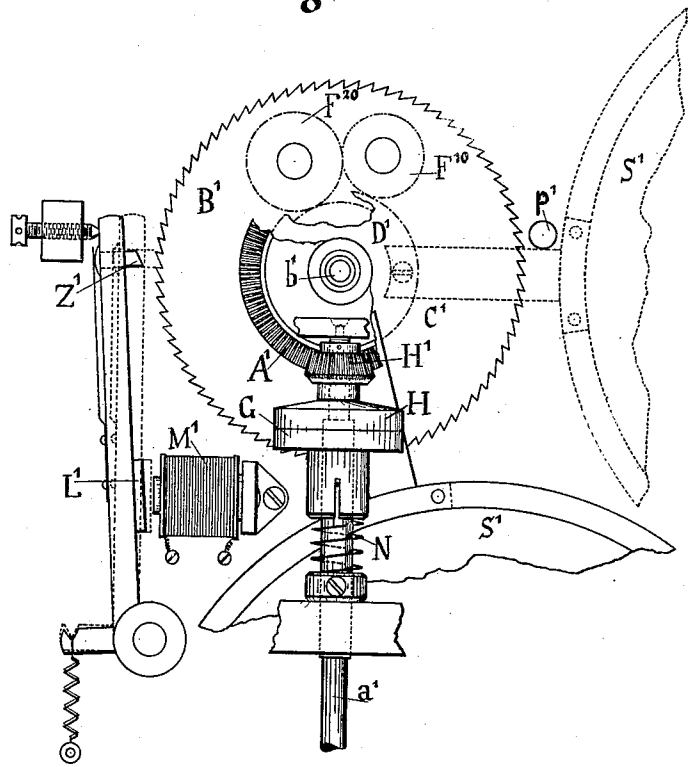


Fig. III



Witnesses.
William H. Hays
Henry Kasper

Inventors.
Hans Dahl
Max Martin

UNITED STATES PATENT OFFICE.

HANS DAHL AND MAX MARTIN, OF BERLIN, GERMANY; SAID MARTIN ASSIGNOR TO SAID DAHL.

SIGNALING DEVICE FOR SPEED-INDICATORS.

961,107.

Specification of Letters Patent. Patented June 14, 1910.

Application filed October 8, 1906. Serial No. 338,059.

To all whom it may concern:

Be it known that we, HANS DAHL, a subject of the King of Norway, and MAX MARTIN, a subject of the German Emperor, both residents of Berlin, in the Kingdom of Prussia and German Empire, have invented new and useful Improvements in Signaling Devices for Speed-Indicators, of which the following is a specification.

Our invention relates to a device for use with those speed indicators in which the signaling contrivance is actuated by the rotation of a body in such manner that the indicating part of the said contrivance can be arrested and held in its indicating position owing to its not being in rigid connection with the rotating body, a suitable device (such as a centrifugal governor), operated by the engine or machine (vehicle, etc.), effecting arrest and release of the said signal at predetermined speeds, whereby a number of successive speeds (a group) is indicated.

The subject of our present invention is a novel device by means of which the individual group signal can be actuated with the utmost reliability and at the same time with minimum expenditure of energy. By means of our invention, for instance, a group signal disk can be brought before the window of the indicator by the superfluous kinetic energy of a motor car, can be retained there and finally released, all solely through the advance and retraction of a stop through a few millimeters. The motion of this stop can be brought about in any suitable manner by means of a device whose operation depends upon the speed of the engine or machine (vehicle).

The new device consists essentially of loosely rotating toothed transmission means (such as planet gear), which on being arrested transmits the motion of the rotating body to the group signal. The signal contrivance may be furnished with a number of such group signaling members in such manner, that when the arresting device at the end of a speed group releases its mechanism, then the mechanism of the next speed group is arrested by another arresting member in just the same manner. The arresting members are actuated by the body whose speed is to be indicated in any suitable manner whether electrical or mechanical.

The invention is illustrated in the accompanying drawing, in which—

Figure 1 is a front elevation, and Fig. 2 a side elevation of one form of the device. Fig. 3 is a front elevation and part section of a modification of the device, and Fig. 4 is a side elevation and part section of the same.

In the figures certain parts have been omitted or broken away to render the drawings clearer.

Referring more particularly to Figs. 1 and 2, A is a toothed drum loosely mounted on the shaft *a*, so as to be rotated by friction only. The drum A meshes with a spur wheel B, loosely mounted on an axis *b*. On the face of the spur wheel B is rigidly secured a crown wheel C. A twin crown wheel D is also loosely mounted on the axis *b* at a certain distance from the wheel C. Between the two crown wheels there is loosely mounted on the axis *b* a collar *g* having an arm *f* which forms an axis for a planet pinion F which rotates upon it and meshes simultaneously with the two crown wheels. S is a signal disk attached to the crown wheel D. When the drum A is rotated by a source of energy the motion will be transmitted to the spur wheel B and crown wheel C, so that the pinion F with its axis *f* will turn about the shaft *b* and rotate without driving the wheel D. If, however, at a certain speed the pinion F is arrested by suitable means in its planetary motion around the axis *b*, then the rotary motion of the crown wheel C will naturally be transmitted to the twin wheel D which carries the signal disk S. The latter, therefore, since it sits loosely on its axis, will leave its position of rest and be brought into the indicating position. Further rotation is then prevented by a pin *p*, whereby all the wheels are stopped since they are only driven by friction. In Fig. 1 the pinion F is arrested in the manner above referred to by the arm Z of a spring actuated lever armature L of an electromagnet M, the armature being attracted immediately the latter is excited in well-known manner by the agency of a speed regulator, as it is well known that electromagnets can be excited by a predetermined speed limit.

In the drawing a device for indicating a single group of speeds is shown. The num-

ber of such devices to be provided on the axis b will correspond with the number of groups to be indicated.

The drum A may be driven either directly or indirectly by the vehicle or by any suitable source of energy. Owing to its being rotated by friction alone, it can be readily arrested.

Referring now to the modification shown in Figs. 3 and 4, the shaft a^1 is rotated directly or indirectly by the engine or machine (vehicle) or in any other suitable manner. Upon this shaft is mounted the friction disk G. The counter friction disk H is provided with a conical pinion H^1 . Meshing with the pinion H^1 is a gear A^1 which is keyed to the axis b^1 together with another gear C^1 . Loosely mounted on the axis b^1 are the gear D^1 , which carries the group signaling disk S^1 , and the ratchet wheel B^1 . The latter carries the transmission means, viz. the intermeshing pinions F^{10} F^{20} , mounted on pins projecting from the side of the ratchet wheel B^1 . p^1 is a stationary stop pin for arresting the signal disk S^1 when the latter has reached its position of indication. Z^1 is a spring actuated pawl which is so arranged that at a predetermined speed it engages with the ratchet wheel B^1 and arrests the latter. This pin Z^1 may be actuated in any suitable manner by a device whose operation is influenced by the speed. In Fig. 3 an electromagnet M^1 is shown, which when excited attracts the lever armature L^1 by which the pin Z^1 is carried.

The operation of the apparatus is as follows:—When the engine or machine (vehicle) is set in motion the shaft a^1 with its friction clutch G rotates and transmits this motion to the gears A^1 C^1 . The latter gear will actuate the planet pinion F^{20} , which meshes with the second planet pinion F^{10} , which, again, engages with the gear D^1 from which the signal disk S^1 in its position of rest is pendent. Thus the two pinions will rotate, with the ratchet wheel B^1 which carries them, around the axis b^1 , without the

gear D^1 being rotated. If, however, at a certain speed the pawl Z^1 is caused to engage with the ratchet wheel B^1 , the latter with the pinions F^{10} F^{20} will be arrested, so that the rotary motion of the gear C^1 will be transmitted to the gear D^1 . The latter will thus rotate and will lift the signal disk S^1 to the window of the apparatus, further motion being prevented by the pin p^1 , the gear D^1 as already stated sitting loose on its axis. The signal disk will remain in this elevated position as long as the speed is contained in the speed group in question. When the speed leaves this group the pawl Z^1 is retracted from the ratchet wheel B^1 , whereby the signal disk S^1 is released and drops to its initial position, since there is no longer any power maintaining it, as the planet gears do not now transfer the motion from the gear A^1 to the gear D^1 .

It must be understood that the transmitting means may be modified in various ways, the specific constructions illustrated being shown merely by way of example.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent of the United States of America is:—

A signal apparatus, comprising in combination a gear in frictional connection with a rotating shaft, a signal, planetary gearing one member of which meshes with said gear and another member of which actuates said signal, means for arresting the motion of a third member of said planetary gearing and means for stopping the rotation of said first gear.

In witness whereof we have hereunto signed our names this 27th day of September 1906, in the presence of two subscribing witnesses.

HANS DAHL.
MAX MARTIN.

Witnesses:

WOLDEMAR HAUPT,
HENRY HASPER.