

Oct. 27, 1925.

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W. T. BAKER

SELECTIVE SIGNALING DEVICE

Filed April 10, 1925

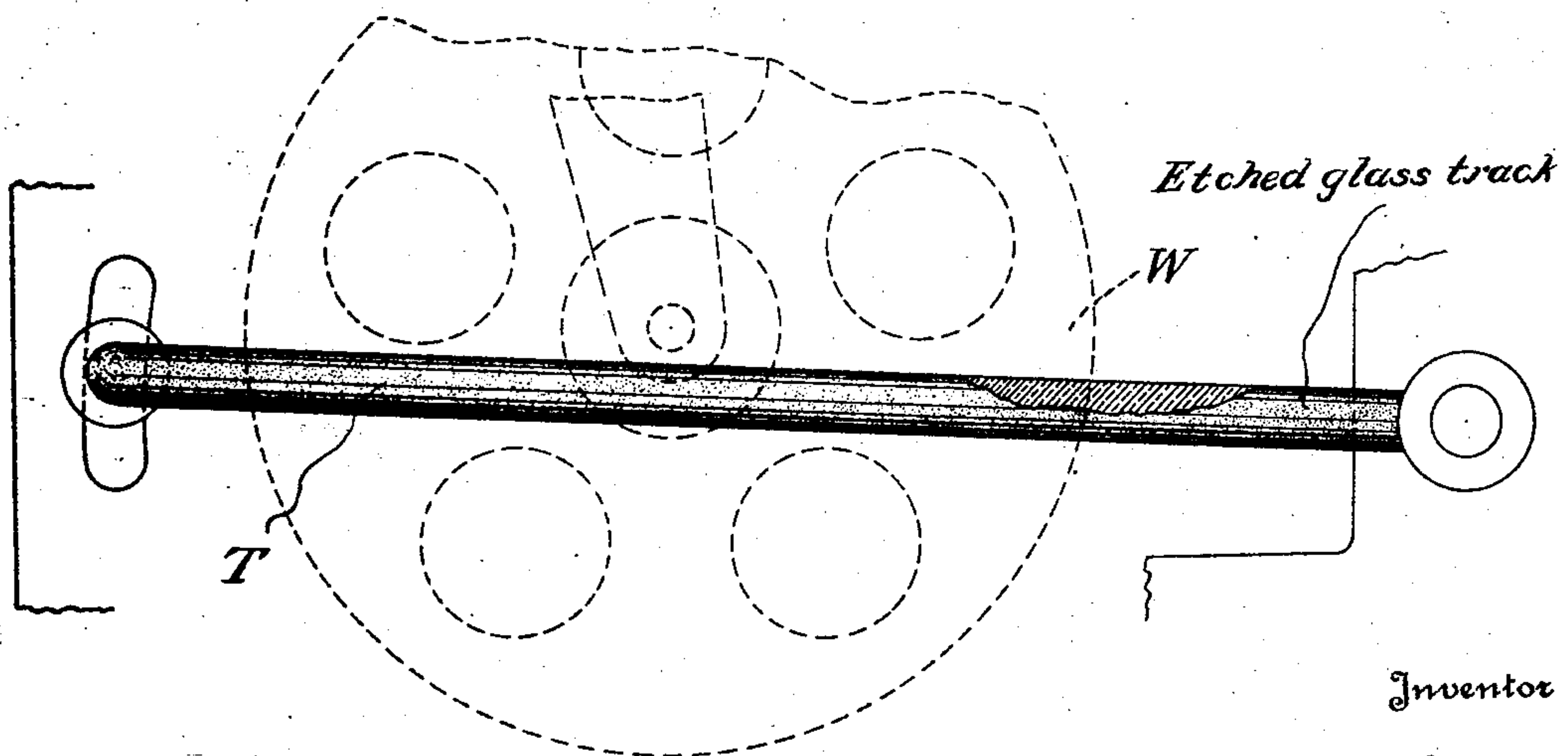
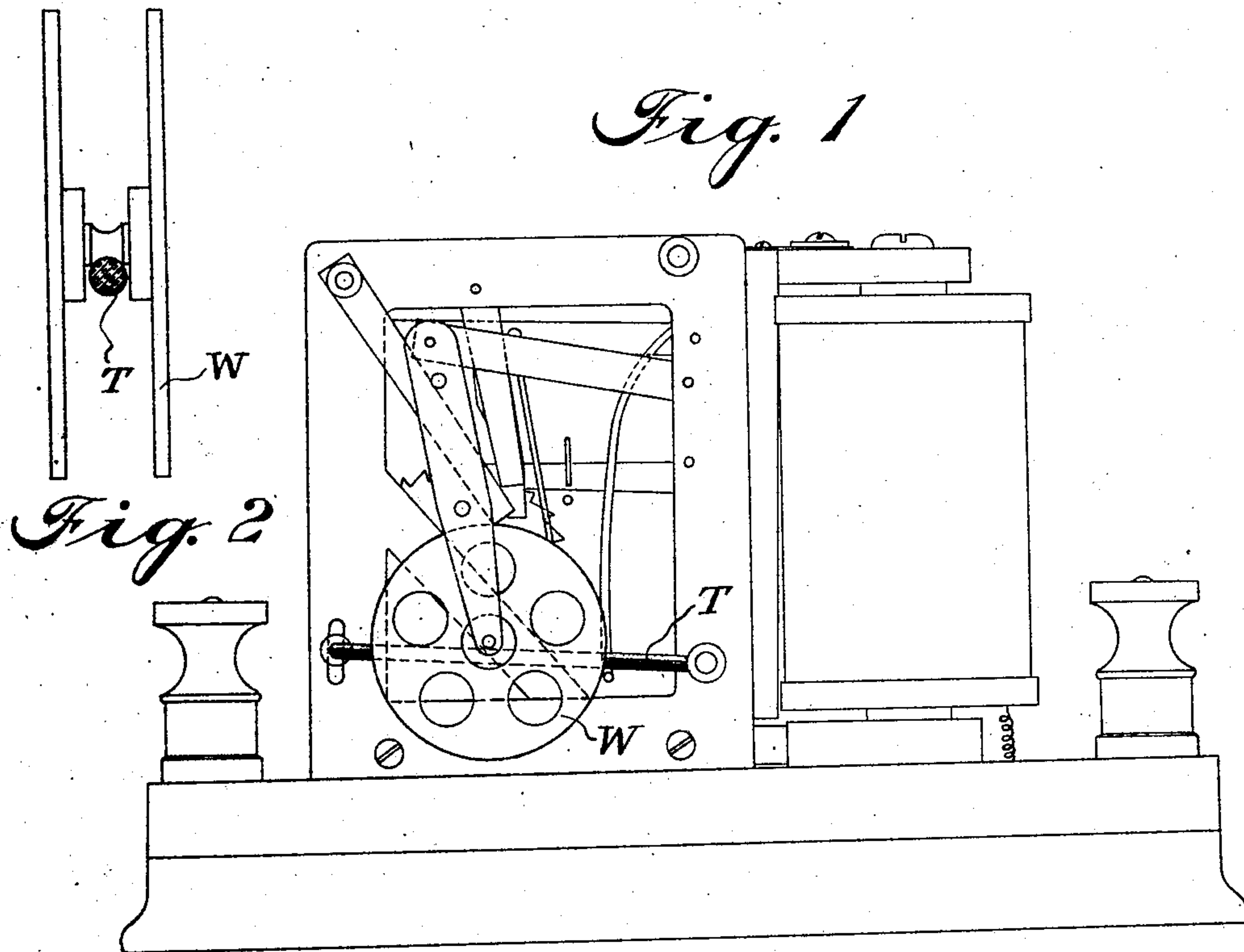


Fig. 3

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UNITED STATES PATENT OFFICE.

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SELECTIVE SIGNALING DEVICE.

Application filed April 10, 1925. Serial No. 22,148.

To all whom it may concern:

Be it known that I, WILLIAM T. BAKER, a citizen of the United States, residing at Westwood, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Selective Signaling Devices, of which the following is a specification.

This invention relates to signaling apparatus intended principally for use in connection with telegraphic and telephonic signals.

This improvement is especially useful in signaling devices of the type disclosed in U. S. Patents Nos. 906,523 and 1,004,566 and hence for illustrative purposes I have shown my device as applied to the mechanism of the first-mentioned patent. Apparatus of this type embodies a slow-acting contact device which comprises a retarding or inertia wheel adapted to roll along an inclined rod or track. The time required to traverse the track determines the length of the actuating impulse which must be applied to the electro-magnetic tripping mechanism of the apparatus in order that the signaling contacts shall be closed by the inertia wheel at the end of its travel. If a shorter impulse is transmitted to the apparatus the inertia wheel will only travel a portion of the distance along the track and hence will not close the contacts. Following each impulse the inertia wheel is quickly slid back to initial position in the manner described in said patents. The inertia wheel is necessarily of small dimensions and rests lightly upon the track. It must roll freely along the track and yet it must not slide as this would destroy the accuracy of the time-period determined by its travel. As pointed out in the second-mentioned patent, the track rod has heretofore consisted of a polished steel wire and the axle of the inertia wheel is also made of polished steel. The rod is circular in cross-section and the axle is shaped to accurately fit over the upper side of the rod. In order that there shall be just sufficient frictional contact between the polished steel surfaces of the wheel axle and the track rod to cause the wheel to roll without any sliding movement it was found necessary that there should be a film of oil over the track and hence it has long been the universal practice to apply a little oil to the rod peri-

odically. This introduced other difficulties however, because in spite of the fact that the apparatus was housed under a glass cover, dust and dirt gradually collects upon the oiled surface and the oil dries out and becomes gummy thereby exerting a drag upon the inertia wheel and eventually causing it to stick thus rendering the apparatus inoperative. It is also found in practice that the steel track rods wear down, thereby losing their circular cross-section, which produces an excessive retarding action upon the wheel.

The necessity for extreme accuracy in the timing or governing device in apparatus which must respond to very slight differences in the lengths of the impulses as used for instance in transmitting the telegraphic code, will be readily appreciated. Any appreciable variation in the frictional contact between the wheel and the track rod introduces a factor of uncertainty.

The object of my invention is to provide a track having a surface that inherently produces the proper frictional contact with the wheel to cause a rolling motion devoid of any slipping or sliding action while allowing the wheel to roll freely with a speed depending upon the angle of inclination of the track. Also to provide a wear-resistant surface which will maintain its original shape and cross-sectional area through long periods under constant use. After a long series of experiments over an extended period in which a large number of materials were employed including ivory, bamboo, and phosphor bronze, I finally tried glass. A track made of polished glass was found to be too smooth to produce the desired results. I then conceived the idea of producing a frosted surface by an etching process, thus giving the appearance of ground glass. Upon using glass tracks having such a frosted or etched surface in selective signaling apparatus above referred to, I found that they possessed all of the desired qualities, eliminated the defects and overcame the difficulties heretofore encountered. The frosted glass surfaces produce just the right amount of frictional contact with the inertia wheels and require no lubrication. After months of constant use these glass track rods show no apparent wear.

In the accompanying drawings Fig. 1 is a side elevation of the apparatus described

in Patent No. 906,523, with my glass track substituted for the rod 47 therein; Fig. 2 is an end view of the retarding or inertia wheel, such as illustrated in Fig. 8 of said patent and showing the manner of bearing on the track; and Fig. 3 is an enlarged detail view of the track rod of etched, frosted or ground glass.

I have indicated the etched or frosted glass track rod at T and the inertia or retarding wheel at W. The manner in which the wheel functions as a timing element in selective signaling apparatus is well understood by those skilled in this art and is clearly described in the patents above mentioned. The inertia or retarding wheel W is preferably formed of two disks connected by an axle having a central groove conforming to the circular outline of the track as indicated in Fig. 2. It is evident that my invention is not restricted to any particular manner of obtaining an etched, frosted or ground surface nor to a track consisting of a solid glass rod, since it is obvious that

I may make the rod tubular and may use glass, quartz or rods or tubes of other materials having a vitreous coating upon which the above desired surface may be produced.

I claim:—

1. In a selective signaling apparatus having a timing mechanism including a retarding or inertia wheel, an inclined track upon which said wheel is adapted to roll consisting of a vitreous rod having an etched or ground surface.

2. In an apparatus of the class described, the combination with an inertia or retarding wheel, of a track upon which said wheel is adapted to roll having an etched or ground vitreous surface.

3. In a selective signaling apparatus having a timing element including a retarding or inertia wheel, a track upon which said wheel is adapted to roll comprising a glass rod having an etched or ground surface.

In testimony whereof I affix my signature.

WILLIAM T. BAKER.