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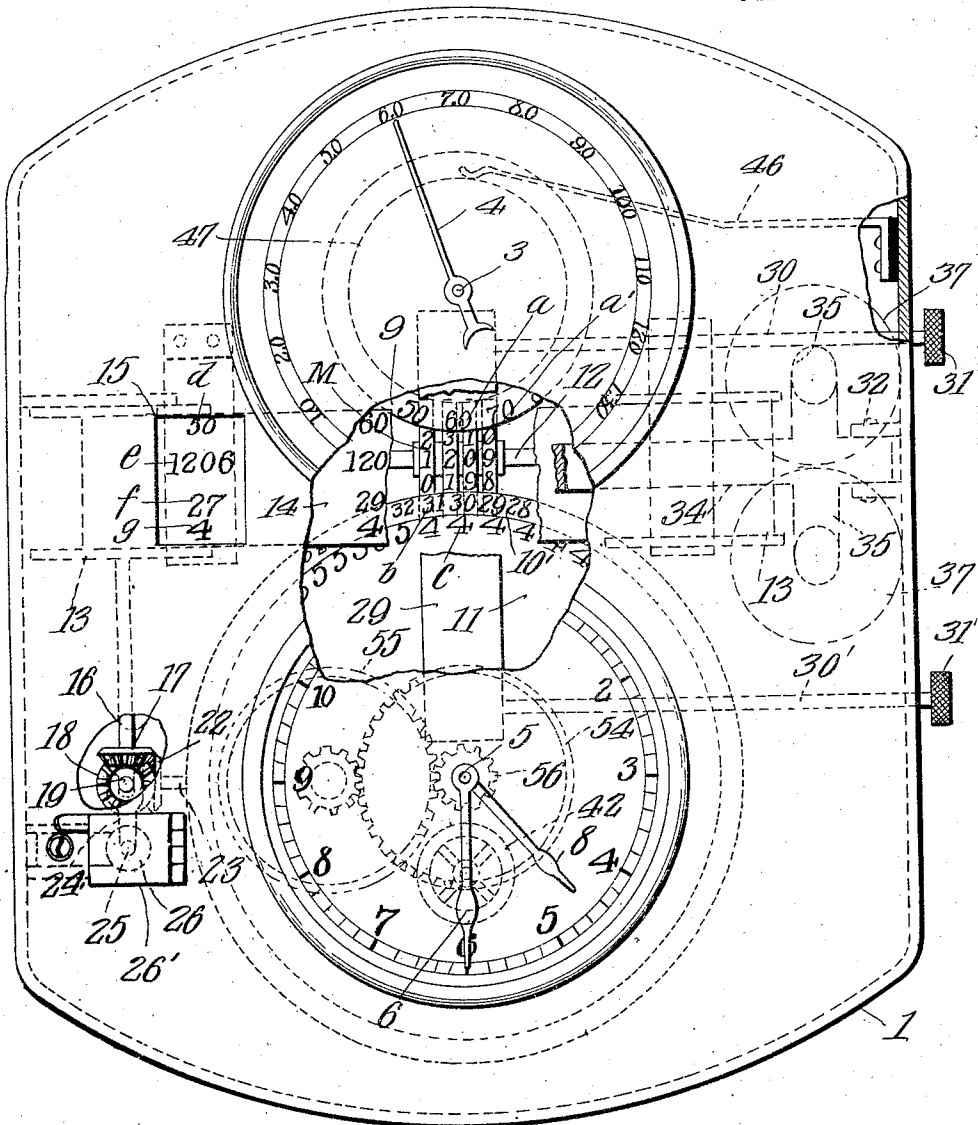


Fig. 1.

Witnesses

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SPEEDOMETER RECORDER.
APPLICATION FILED APR. 1, 1912.

1,048,503.

Patented Dec. 31, 1912.

3 SHEETS-SHEET 2.

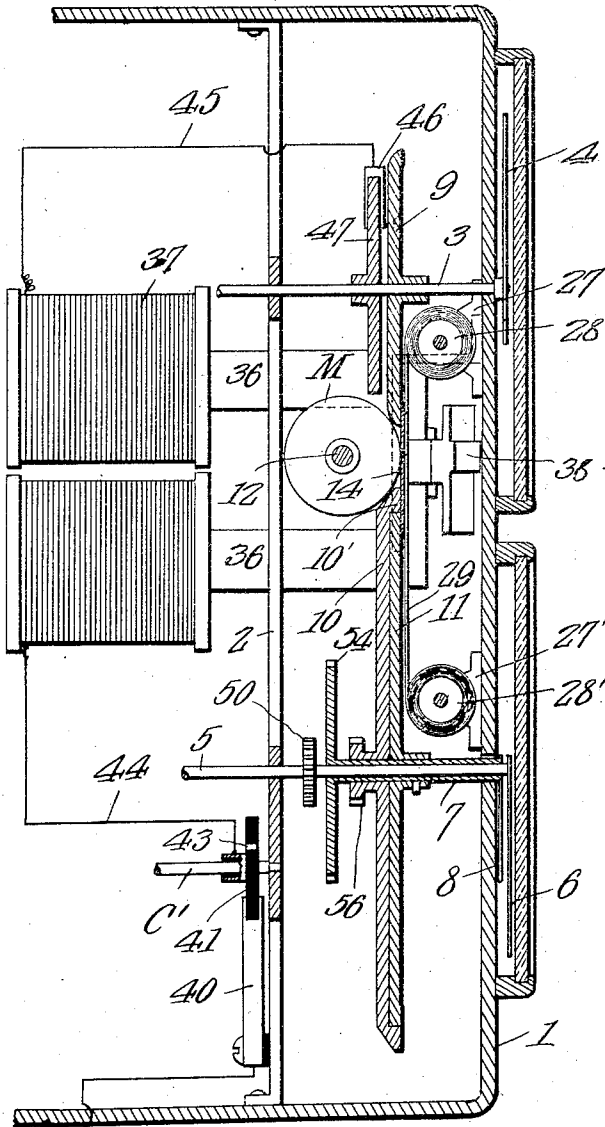


Fig. 2.

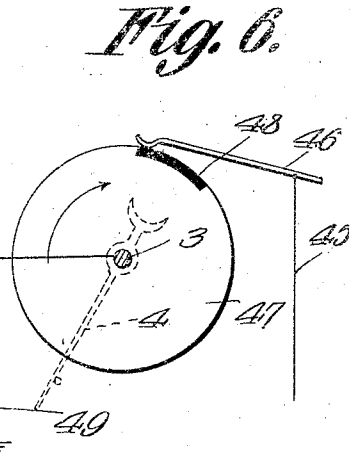


Fig. 6.

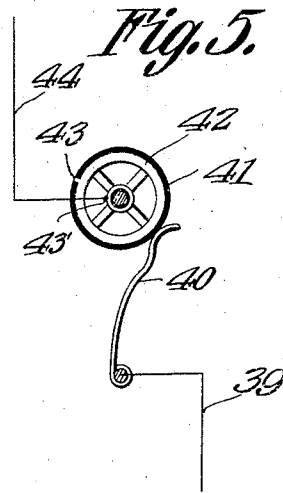


Fig. 5.

Witnesses

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3 SHEETS—SHEET 3.

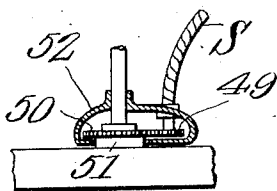
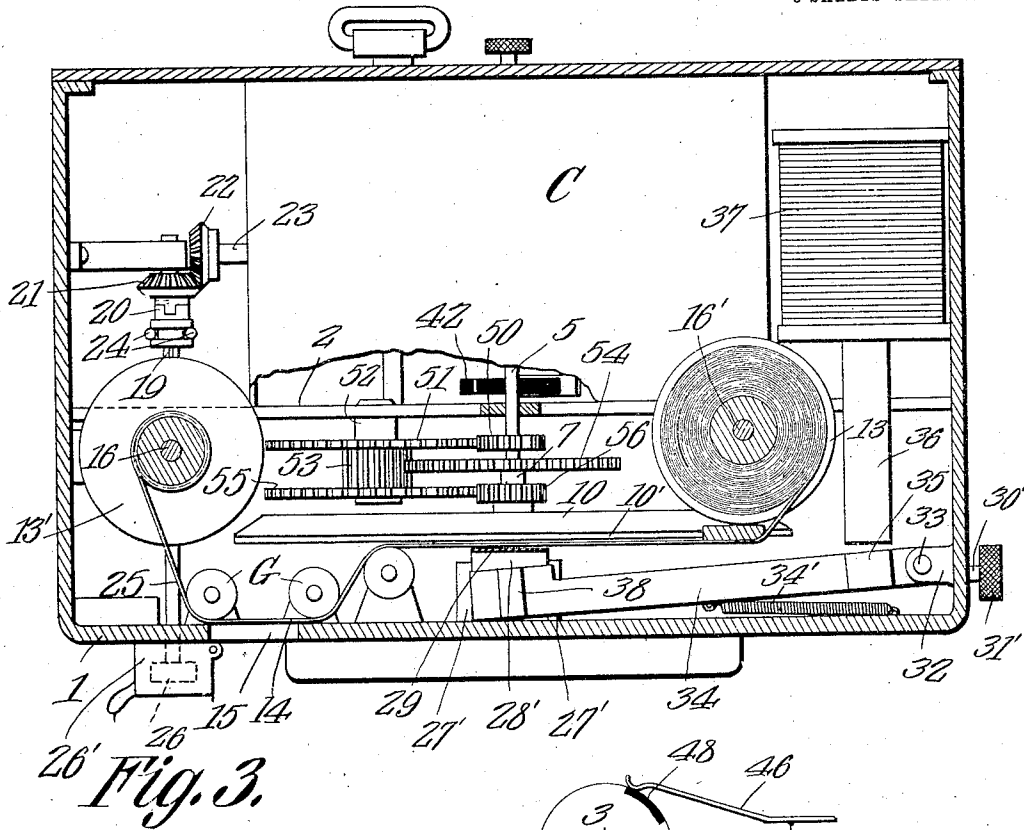
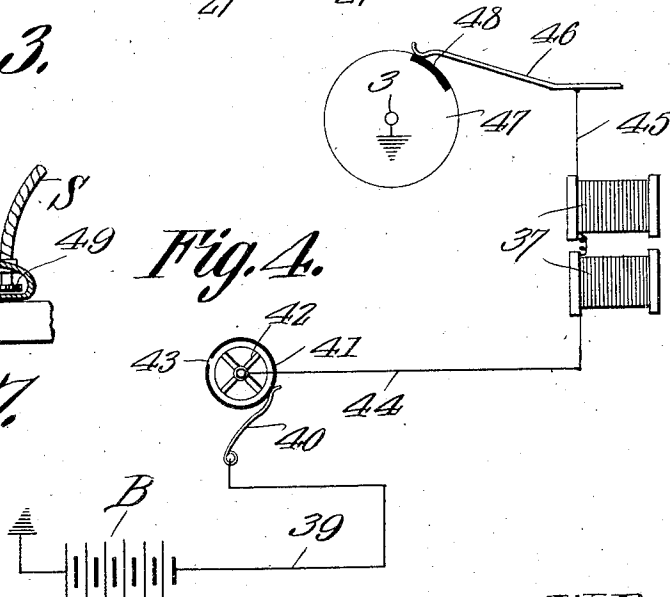


Fig. 7.

Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

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SPEEDOMETER-RECORDER.

1,048,503.

Specification of Letters Patent.

Patented Dec. 31, 1912.

Application filed April 1, 1912. Serial No. 687,749.

To all whom it may concern:

Be it known that I, ARTHUR W. DENNIS, a citizen of the United States, residing at Jacksonville, in the county of Duval and State of Florida, have invented a new and useful Speedometer-Recorder, of which the following is a specification.

The present invention relates to improvements in speedometer recorders, the primary object of the invention being the provision of a recording mechanism in the form of a continuous tape and printing mechanism, whereby a visual record of the rates per hour, the sum total of the distance traveled, and the hour and minute of such record, is actuated through the speedometer mechanism, the mileage recording mechanism and through the medium of a clock.

A further object of the present invention is the provision of printing dials disposed respectively in operable relation to the speedometer dial and pointer, the minute and hour arbors of a clock, and a total mileage counter, a strip of material, such as paper being fed in front of said type dials and acted upon at predetermined periods by a platen mechanism for causing the type upon the dials to present an impression upon said strip of paper to produce a permanent and visual record of the average per hour, the total mileage, and the hour and minute of the printing operation, and consequently the time at which the total number of mileage was completed.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings—Figure 1 is a front elevation of a speedometer with a portion of the forward casing thereof broken away to show the type of the various recording and registering mechanisms. Fig. 2 is a section taken on line 2—2 of Fig. 1. Fig. 3 is a section taken on line 3—3 of Fig. 1. Fig. 4 is a diagrammatic view of the electrical circuit and mechanism for actuating the printing platen. Fig. 5 is an enlarged detail view of the electrical control for making and breaking the circuit to actuate the printing platen.

Fig. 6 is a detail view of the cut out mechanism for rendering the electrical circuit inoperative when the speedometer is at rest. Fig. 7 is a detail view of the casing to prevent tampering with the gears at the wheel hub and lower end of the flexible shaft.

Referring to the drawings, the numeral 1 designates the speedometer casing which is provided with the usual flexible shafting S which controls both the speedometer mechanism and the mileage mechanism. Mounted within the casing, is the clock mechanism C, and a frame 2, said frame 2 having journaled therein in the upper portion thereof the speedometer pointer carrying arbor 3, which carries the pointer 4, while the forward extension 5 of the minute hand arbor of the clock carrying the minute hand 6 is also journaled in the frame 2 and the forward portion of the casing 1. An auxiliary hour arbor or sleeve 7 is mounted forwardly of the frame 2 within the casing 1 and carries the hour hand 8.

Mounted for rotation with the shaft 3 is the speed printing dial 9, while mounted for rotation with the minute hand arbor 5 through the gears 50, 51, 55 and 56 is the minute printing dial 10, provided with the offset rim 10' which carries the type, as clearly shown in Fig. 1. The hour indicating dial 11 is keyed to rotate with the hour hand sleeve 7 and receives its motion from the gears 53 and 54, so that the dials 10 and 11 and the respective minute and hour hands 6 and 8, are operated through the clock mechanism C and are at all times in proper step.

A shaft 12 is operably connected through the flexible shaft S so that the mileage may be recorded upon the counter M, which is constructed similarly to a Veeder counter and carries the desired type, and as herein shown records up to 9,999 miles.

As clearly shown in Fig. 1, the type *a*, *a'*, *b*, and *c*, form the printing type, respectively for the miles per hour, the sum total of distance traveled, the minute after the hour and the hour.

In order to properly secure a printed record of the various items enumerated, the respective spools 13 and 13', which constitute the supply and winding spools for the record tape 14, are properly journaled upon the respective shafts 16 and 16' and have the tape 14 fed in front of the respective type and about the guide rolls G, so that the

printed record will be visually exhibited through the aperture 15 in the face of the casing 1. By this means the respective numerals indicating the miles per hour as d , the sum total of mileage e , the minute after the hour f , and the hour g will be clearly seen through the aperture 15 as shown in Fig. 1.

In order to impart to the record tape 14 the proper feeding movement, the shaft 16 has mounted upon its lower end a bevel gear 17, which meshes at all times with the bevel gear 18 carried upon the shaft 19, said shaft 19 having upon its inner end a bevel pinion 21 which meshes at all times with the bevel pinion 22 carried by the shaft 23 and operably connected to the minute hand arbor within the clock C. Mounted upon the shaft 19 is a clutch 20 having the yoke 24 carried by the sliding shaft 25 which by means of the button 26 projecting forwardly of the casing 1 may be thrown out when the vehicle is not traveling to prevent the tape being wound on the spool 13' by the clock mechanism.

Mounted upon the inner face of the forward portion of the casing, are the two journaling brackets 27 and 27', which carry the ribbon carrying rollers 28 and 28', the ribbon 29 of the form usually employed in connection with typewriters, being so disposed as to pass upon the outer face of the recording tape 14 so that the tape is between the type of the respective dials and cylinders and said ribbon 29. In order to actuate the ribbon to move the same and present a new inking surface when necessary, the respective shafts 30 and 30' are extended through the side of the casing 1 and have mounted thereon the respective milled disks 31 and 31', whereby the said ribbon may be fed from one roll to the other manually.

In order to cause the type to be impressed upon the tape 14, lugs 32 are formed upon the interior of one of the side walls of the casing 1, as clearly shown in Fig. 3, and pivoted at 33 is the platen carrying lever 34, which by reason of the spring 34', is normally held with its free end toward the front of the casing. The lever 34 is also provided with the oppositely disposed armature 35 which is disposed in front of the cores 36 of the electromagnets 37, the energization of said electromagnets, as will presently appear, causing the attraction of the armature 35 toward the cores 36 so as to bring the platen end 38 of the platen carrying lever 34 into quick and sudden engagement with the ribbon 29 so as to force the same against the record tape 14 and the type of the shafts and cylinders, thus causing an imprint upon the record tape 14 as clearly shown through the aperture 15 in Fig. 1.

In order to properly energize the electromagnets 37, this energization being preferably once every minute, so as to give a printed record upon the tape 14, once every minute, the same is actuated through the second hand arbor C' of the clock mechanism, the circuit being closed once every minute through the medium of the batteries B which are grounded to the casing 1 at one side, and have leading from the opposite side thereof the conductor 39 which is connected to the insulated contact arm 40, the free end of said contact arm 40 being in wiping contact with the periphery 41 of the wheel 42 which is keyed upon and insulated from the second hand arbor C', said periphery being made up of strip of insulation and the metal contact 43. This wheel 42 has electrical contact therewith a brush 43' which is connected to a conductor 44 and the electromagnet 37, another conductor 45 being connected to the switch contact plate 46 whose free end is normally in engagement with the contact disk 47, keyed upon and rotatable with the speedometer pointer arbor 3, and thus grounded through the mechanism of the speedometer within the casing. The disk 47 is provided with the block of insulation 48, so that when the speedometer pointer indicates zero, the mechanism being at rest, the switch 46 will rest upon the block of insulation 48 and thereby open the circuit so that the continued movement of the second hand arbor C' will not close the circuit to energize the electromagnet 37. However, upon the starting of the vehicle and the consequent operation of the speedometer, the disk 47 will be rotated so that the block of insulation 48 will be thrown out of contact with the free end of the switch 46, thus permitting when the metal contact portion 43 of the wheel 42 carried by the second hand arbor C of the clock mechanism, comes in contact with the spring contact 40, the completion of a circuit as just before described to energize the electromagnets 37 and consequently operate the platen lever 34 to bring the platen 38 into engagement with the ribbon 29 and press the ribbon and tape 14 into contact with the type of the various disk and cylinders, so that a printed record is formed as clearly shown through the aperture 15 of the casing, as viewed in Fig. 1.

Although with the present form of mechanism, the tape 14 is fed continuously, thereby rendering it necessary to have a plurality of type as c of the same character, to indicate the hour, inasmuch as the dial 11 is moved with the hour arbor sleeve 7 continuously, it is evident that the hour dial and the tape 14 may be operated intermittently, in consonance or coincidentally with the operation of the platen lever 34, so that a clean record will be printed.

In order to prevent tampering with the

knob 26 a casing 26' is provided, the same being held in the position as shown in Figs. 1 and 3, by a pad or other lock, the key of which is retained by an authorized party.

5 In Fig. 7, the gears 49 and 50, mounted upon the lower end of the flexible shaft S and the wheel hub 51, respectively, are covered by a casing 52, which will prevent access to the gears and thus prevent tampering with the shaft S that might tend to make it inoperative.

From the foregoing description taken in connection with the drawings, it is evident that with a record printing mechanism as herein shown in combination with a clock mechanism and a speedometer and mileage mechanism, that a printed record of the various movements of an automobile or the like may be recorded every minute, or in fact at any predetermined time as desired, so that an undisputed tabulation is kept upon the movement of the vehicle at each minute or at a predetermined time, so as to indicate the rate of speed the vehicle is traveling at such time, and the sum total of mileage traversed up to that period, the minute and hour being recorded simultaneously.

What is claimed is:

1. In a speedometer recorder, a printing mechanism, comprising an annular type ring having facial type, two concentric annular type rings below and spaced therefrom, said last two rings being provided with facial type, and a plurality of disks interposed between the first annular ring and the concentric rings, the faces of the type of the rings and disks when in printing position being in the same facial plane.

2. In a speedometer recorder, a printing mechanism, comprising an annular type ring having facial type, two concentric annular type rings below and spaced therefrom, said last two rings being provided with facial type, a plurality of disks interposed between the first annular ring and the concentric rings, the faces of the type of the rings and disks when in printing position being in the same facial plane, and an impression receiving tape disposed in parallel with the facial plane of the type when in presentation position.

3. In a speedometer recorder, a printing mechanism, comprising a vertical frame, two parallel shafts mounted in the frame, a type ring carried by the upper shaft, two concentric type rings carried by the other shaft, the first ring and the last two rings being mounted to provide an intervening space between the adjacent edges thereof, and a plurality of type disks disposed to project the type, when in type presentation position, between the first and the two concentric rings, the type of all of the rings and disks when in presentation position being in the same facial plane.

4. In a printing mechanism for a speedometer recorder, a casing, a vertical frame disposed in the casing, two parallel shafts journaled in the frame, a type ring carried by the upper shaft, two concentric rings carried by the other shaft, the first ring and last two rings being mounted to provide an intervening space between the adjacent edges thereof, a plurality of type disks disposed to project the type, when in type presentation position, between the first and the two concentric rings, the type of all of the rings and the disks when in presentation position being in the same facial plane, and a printing tape mounted in the casing and disposed for movement in front of the presented type of the rings and disks.

5. In a printing mechanism for speedometer recorders, a casing, a speed printing type dial mounted in the casing, the type of said dial being upon the outer face thereof adjacent the periphery, two nested time printing type dials mounted in the casing below the first dial, the type thereof being in the same facial plane as the type of the speed printing dial, the two nested dials being below and in spaced relation to the first dial, and a plurality of mileage printing type disks disposed to present the type in the same facial plane but between the first type dial and nested type dials.

6. In a printing mechanism for a speedometer recorder, a casing, a speed printing type dial mounted in the casing, two nested time printing type dials mounted in the casing below the first dial, the two nested dials being below and in spaced relation to the first dial, a plurality of mileage printing type disks disposed to present the type in the same facial plane but between the first type dial and nested type dials, an ink-tape disposed to travel and overlap the presented type of the respective dials and disks, and spools carrying the said tape.

7. In a printing mechanism for a speedometer recorder, a casing, an auxiliary frame mounted in the casing, an upper shaft journaled in the auxiliary frame and the casing, a type carrying dial mounted upon said shaft and provided with a plurality of facial type near the periphery thereof, two concentric sleeves mounted in the lower portion of the frame, a type carrying dial connected to and rotatable with each sleeve, each dial being provided with a plurality of facial type adjacent the periphery thereof, said type being presented in the same facial plane as the type of the first dial, and a plurality of type carrying disks disposed to present the type between the first type dial and the last two type dials and in the same facial plane therewith.

8. In a printing mechanism for a speedometer recorder, a casing, an auxiliary frame mounted in the casing, an upper shaft jour-

naled in the auxiliary frame, a type carrying dial mounted upon said shaft and provided with a plurality of facial type near the periphery thereof, two concentric sleeves
5 mounted in the lower portion of the casing, a type carrying dial connected to and rotatable with each sleeve, each dial being provided with a plurality of facial type adjacent the periphery thereof, said type being
10 presented in the same facial plane as the type of the first dial, a plurality of type carrying disks disposed to present the type be-

tween the first type and the two last type dials and in the same facial plane therewith, and an impression tape disposed to travel in front of the presented type of the respective
15 dials and disks.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ARTHUR W. DENNIS.

Witnesses:

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F. W. DENNIS.