

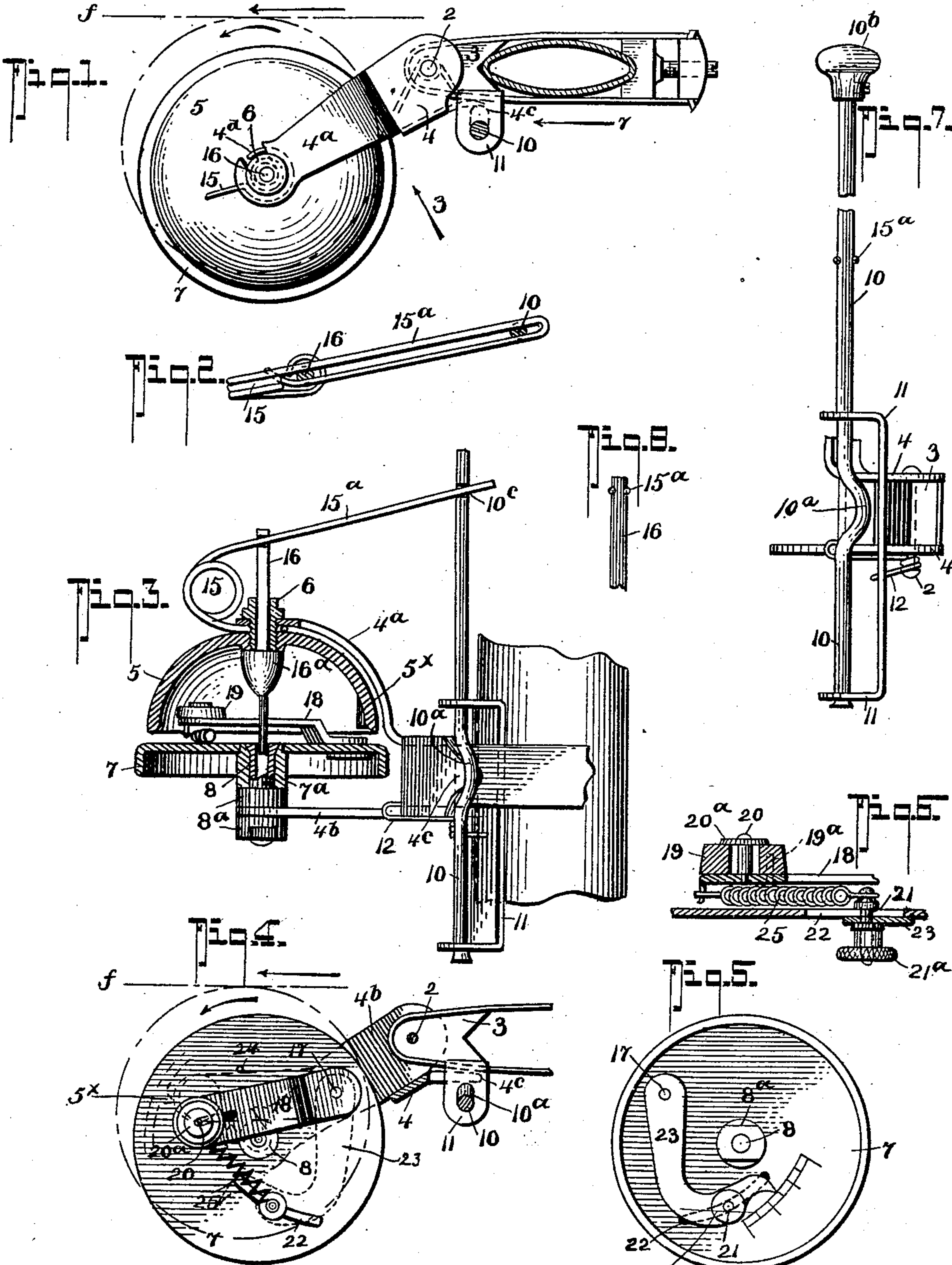
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Patented Nov. 18, 1902.

J. D. CALDWELL.
VEHICLE BELL.

(Application filed Dec. 17, 1901.)

(No Model.)



WITNESSES:

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JOHN DAVID CALDWELL, OF VANCOUVER, CANADA.

VEHICLE-BELL.

SPECIFICATION forming part of Letters Patent No. 713,954, dated November 18, 1902.

Application filed December 17, 1901. Serial No. 86,193. (No model.)

To all whom it may concern:

Be it known that I, JOHN DAVID CALDWELL, a citizen of the Dominion of Canada, residing at Vancouver, in the Province of British Columbia, Canada, have invented a new and useful Vehicle-Bell, of which the following is a specification.

My invention is for an improved vehicle-bell, which is automatically rung by the movement of the wheel. It is so designed that it may be used at the will of the rider either as a speed-bell to indicate when a certain speed for which it has been set is attained, or when required as an ordinary alarm. The advantage of such a speed-bell is obvious, for a limit of speed for bicycles or motor-cycles is usually imposed by municipal authorities and a rider with my bell may, having it set just in excess of the prescribed limit, at any time bring it into action and ascertain whether such speed is being exceeded. It is also useful to determine when racing whether the desired speed is being maintained.

In designing my bell I have aimed to bring its manufacture within the scope of factory practice, so that it may be made in quantity cheaply and yet be durable.

The action and construction of my device are fully illustrated in the drawings herewith, in which—

Figure 1 is a plan, the top spring-lever being removed to show more clearly the actuating mechanism. Fig. 2 is a plan of the spring-lever and its connections. Fig. 3 is a vertical section of my improved bell, parts being in elevation. Fig. 4 is a plan of the flanged disk or pulley and its attachment. Fig. 5 is an inverted plan of the same, showing the adjustment and indicator of the striker-controlling spring. Fig. 6 is an enlarged detail of the striker-head, showing the attachment of the controlling-spring and its connection to the adjusting-screw. Fig. 7 is a detail elevation of the actuating-stem, and Fig. 8 is a detail view showing the connection of the loop of the lever-spring to the head of the alarm-stem.

The drawings herewith illustrate the attachment of my bell to one of the front fork members of a bicycle, but with slight variation in the mode of attachment, the same

construction of the bell mechanism is equally applicable to other vehicles.

In general description my invention consists of a bracket 4, pivotally mounted by the pin 2 to the attachment 3. The projecting members 4^a and 4^b of this bracket 4 carry independently, but in rigid axial alinement, the bell 5 and the flanged disk or pulley 7, the latter being rotatably mounted and having a pivoted spring-controlled striker or hammer projected within the bell. In its normal position the bracket 4 and its attached bell and pulley are held clear of the vehicle-tire; but it is susceptible of being moved on its pivot 2, so that the pulley which carries the bell-striker may be brought into frictional contact with the wheel-tire and rotated by it, thus allowing the bell to be rung by centrifugal force when the desired speed is attained. A further movement of the stem 10, which presses down the alarm-stem 16 until a conical enlargement thereon engages and pushes aside the striker-lever and forces it against the stop, compels the striker-head to engage and ring the bell even though the speed of the vehicle may be too slow for the centrifugal effort of the striker mechanism to overcome the resistance of the controlling-spring.

The foregoing general description will enable the specific description to be easier followed and understood.

The attachment 3 is secured to the frame of the vehicle adjacent to the rim or tire of one of the wheels, and pivotally mounted to this attachment by the pin 2 is the bracket 4, carrying the bell and its ringing mechanism. This bracket is designed to be made of stamped metal, and comprises the arms 4^a and 4^b, which receive the pivot-pin and are coupled by the part 4, which is prolonged on the other side of the pivot 2 to form the short projecting piece 4^c, by means of which the whole bracket and its attachments may be moved on the pivot 2. This movement of the bracket 4, carrying the bell and the striking mechanism toward the wheel-tire, is effected by the light spring 12, coiled around the projecting lower end of the pivot-pin 2 and having one end bearing against the front edge of 4^b and the other against the guide-bracket 11. The effort of the spring and the movement of the

bell-carrying bracket 4 are controlled by the stem 10, vertically slidable in the guides 11, fixed to the attachment 3. This stem being the means for operating the bell may be carried to any suitable position for the rider and further provided with the necessary guides or supports. In a bicycle, for example, such would be provided in a clamp secured to the handle-bar where the knob 10^b would be convenient to the hand. In its extreme upward position the stem 10 opposite the tongue 4^c is provided with an inwardly-projecting bend 10^a, by which the tongue 4^c is pressed back, and the bracket-arms 4^a and 4^b, carrying the bell and its striking mechanism, are withdrawn from the tire, (represented by the line *f* in Figs. 1 and 4.) The bell 5 is attached to the under side of 4^a by the shouldered screw 6, threaded into the crown of the bell, while between the bell and 4^a is secured the eye of the spring 15, the free end 15^a of which is looped and engages a notch 10^c in the actuating-stem and similarly the alarm-stem 16. This spring 15 thus serves the double purpose of maintaining the stems 10 and 16 at their extreme upward position, but further acts as a lever, communicating the vertical movement of the stem 10, reduced, to the alarm-stem 16, the purpose of which will be described later. To the upper side of 4^b is rotatably mounted in axial alinement with the bell the flanged disk or pulley 7. This pulley has at its center the boss 7^a and is mounted on the spindle 8, which has a countersink head at the upper end and is threaded at the lower end, being secured to the bracket member 4^b by the two nuts 8^a on the threaded portion. The apertures in both 4^a and 4^b are open at the front, as 4^d, to facilitate removal. On the upper face of the pulley 7 is mounted on the pivot 17 the striker-arm 18, slightly cranked upward to bring its free end within the bell, and at this free end is the striker 19, loosely secured by the pin 20 and the washer 20^a. A pin 19^a projects from the lower side of the striker and engages in an elongated aperture in the arm 18, thus preventing the striker from turning while allowing it free movement endwise of the arm, which permits it to move inwardly sufficiently to pass the striking projection 5^x, with which it contacts in the process of ringing.

Attached to the extreme end of the arm 18 is the controlling-spring 25, the other end of which is secured to the head of a screw 21, which is movable in the curved slot 22 and may be fixed in any desired position in it by the knurled nut 21^a on the under side. By this means the tension of the controlling-spring may be varied to suit the speed at which it is desired the bell shall ring. A pivoted indicating-lever 23 shows, by means of a graduated scale, the speed the spring is set for. 24 is a stop-pin which checks the striking-arm when it has moved far enough to ring the bell.

In order to ring the bell as an alarm, I pro-

vide a stem 16, slidable through the center of the attaching-screw 6 and connected at its upper end within the loop of the spring-lever 15. Just within the crown of the bell this stem is provided with a conical enlargement 16^a and below this is again reduced to the smaller diameter for a sensible distance before it enters an axial hole in the spindle 8 for steadiment and support. Thus during the first part of the downward movement of the actuating-stem 10 the spring 12 is by the removal of the bend 10^a from contact with the tongue projection 4^c allowed to force the pulley 7 against the tire. A further downward movement of 10, while not affecting the contact of 7, presses the enlargement 16^a of the alarm-stem against the side of the striker-arm 18 and forces it toward the stop 24.

From the foregoing description it will be seen that when a rider wishes to know whether he is exceeding the maximum speed desired he only has to push downwardly the stem 10^b, which by the connections already described brings the pulley 7 into frictional engagement with the tire of the wheel, and if the speed be greater than the ringing device is set for the centrifugal force of the free end of the arm 18 and the striker 19 will overcome the resistance of the spring 25, which will cause the end of the arm to move outwardly sufficiently for the striker 19 to contact with the striking projection 5^x of the bell, thereby causing the bell to ring. When it is desired to sound an alarm, the stem 10 is pushed downwardly still farther, which by means of its connection (through the spring-lever 15^a) with the alarm-stem 16, carrying the conical portion 16^a, the said conical portion is brought into contact with the inner side of the arm 18 and forces it outwardly independent of centrifugal force until the ringer 19 contacts with the striking projection 5^x of the bell, which gives the desired alarm.

Having now particularly described my invention, what I claim as new, and desire to be protected in by Letters Patent of the United States, is—

1. In a combined speed-indicator and alarm, a bracket pivotally attached to the frame of the vehicle adjacent to the tire of one of its wheels; a bell secured to such bracket; a flanged disk or pulley rotatably mounted in axial alinement with the bell, and adjacent to the striking edge; a spring-controlled striker connected to the upper surface of the pulley and projecting within the bell; and means whereby the bracket may be moved on its pivot to bring the pulley into frictional contact with the tire or rim of the vehicle-wheel in combination with independent means for bringing the striker into ringing-contact with the bell, whereby the pulley is rotated and the striker impelled into ringing-contact with the bell when a determined speed is attained; or an alarm sounded independently of the centrifugal force of the ringing device.

2. In a vehicle speed-indicator, a bracket for the same pivoted to an attachment on the frame of the vehicle, laterally adjacent to one of its wheels; a light spring tending to
 5 press the pulley of the striking mechanism into frictional contact with the tire; a projecting tongue on the bracket on the opposite side of the pivot to the supporting-arms of the bell and its striking-pulley; an actuating-stem slidable vertically in contact with
 10 the projecting tongue; a projecting bend in the stem opposite the tongue when the stem is in its extreme upward position; a suitable guide for the actuating-stem and a spring
 15 whereby the stem is maintained in the upward position, and the bell-striking pulley held off the wheel-tire.

3. In a vehicle speed-indicator having a gong portion with a striking projection on
 20 its inner edge; a pivoted bracket supporting the same; a flanged disk or pulley rotatably mounted on the same bracket; a striker-arm pivoted toward the outer edge of the pulley; a striker-head loosely attached to the free
 25 end of the arm, and projecting within the bell; a spring controlling the centrifugal effort of the striker-arm, and a check-pin to arrest the movement of the arm when the striker is within ringing distance of the bell.

30 4. In a vehicle speed-indicator having a centrifugal striking mechanism driven by frictional contact with the wheel-tire; a plate carrying said mechanism; a spring to control the centrifugal effort of the bell-striker; a
 35 clamping-screw to which one end of the spring is secured; a slot wherein such screw may be moved and the tension of the spring varied, and a pivoted indicator on such screw, by
 40 which the speed corresponding to the various tensions may be shown.

5. In a vehicle speed-indicator having a spring-controlled centrifugal striking mechanism; a striker-head constructed of a flattened frustum loosely mounted on a pin, and
 45 means whereby the head is prevented from turning while allowed a limited movement radial to the circle of the bell.

6. In a vehicle speed-indicator wherein the bell and its striking mechanism are independently supported in axial alinement on a pivoted bracket connected to the frame of the vehicle, and the bell rung by the centrifugal
 50 action of a pivoted striker on a disk rotated by contact with the tire of the vehicle-wheel; a stem slidable axially through the bell-attaching screw; a conoidal or conical enlargement on this stem, within the bell, of such
 55 dimensions that after a definite axial movement, the enlargement will engage the side of the striker-arm and press it so that the
 60 striker will engage a ringing projection on

the inner edge of the bell; a spring secured to the crown of the bell, the free looped end of which is connected to the outer end of this stem, and prolonged to be similarly connect-
 65 ed to the actuating-stem, which allows the striking-gear to be pressed into frictional contact with the tire of the wheel.

7. In a vehicle speed-indicator of the class described, the attachment-piece 3; pivot 2; 70 bracket 4; bell-supporting arm 4^a; pulley-supporting arm 4^b; actuating-tongue 4^c; actuating-stem 10, with projecting bend 10^a; stem-guide 11; bell 5, with striking projection 5^a; attaching-screw 6; alarm-stem 16 slidable
 75 therethrough with conoidal enlargement 16^a; spring 15, secured by eye between bell and support 4^a by screw 6, and having free looped end 15^a connected to stems 16 and 10; the flanged disk or pulley 7, rotatable on spindle
 80 8, attached by screws 8^a to bracket-arm 4^b; the pivoted striker-arm 18; striker 19; controlling-spring 25; adjusting-screw 21 movable in the slot 22; the stop-pin 24 and indicator 23; all substantially as and for the pur-
 85 poses specified.

8. A combined speed-indicator and alarm for the purposes described, comprising a gong, a striking mechanism, adapted to be moved into frictional contact with a movable part
 90 of the vehicle, said striking mechanism including a striker normally held out of operative position and adapted to be moved into an operative position by centrifugal force, when the moving part with which the striking
 95 mechanism coöperates reaches a predetermined speed, in combination with means for ringing the bell to sound an alarm, independent of the predetermined speed of the vehicle and the centrifugal force of the ringing mechanism consequent thereupon, as set forth. 100

9. In a vehicle-bell of the character described, the combination with a supporting member, a swingable bracket, a bell mounted thereon, and including a striking mechanism,
 105 having a disk for supporting the striker and adapted to be moved into frictional contact with the vehicle-wheel tire, whereby to engage the gong by centrifugal action, a tension device for holding the striker normally
 110 from a striking operation, and a manually-operated means for moving the striker into contact with the bell-gong, substantially as described.

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

JOHN DAVID CALDWELL.

In presence of—

ROWLAND BRITAIN,
 EILEEN WEBBER.