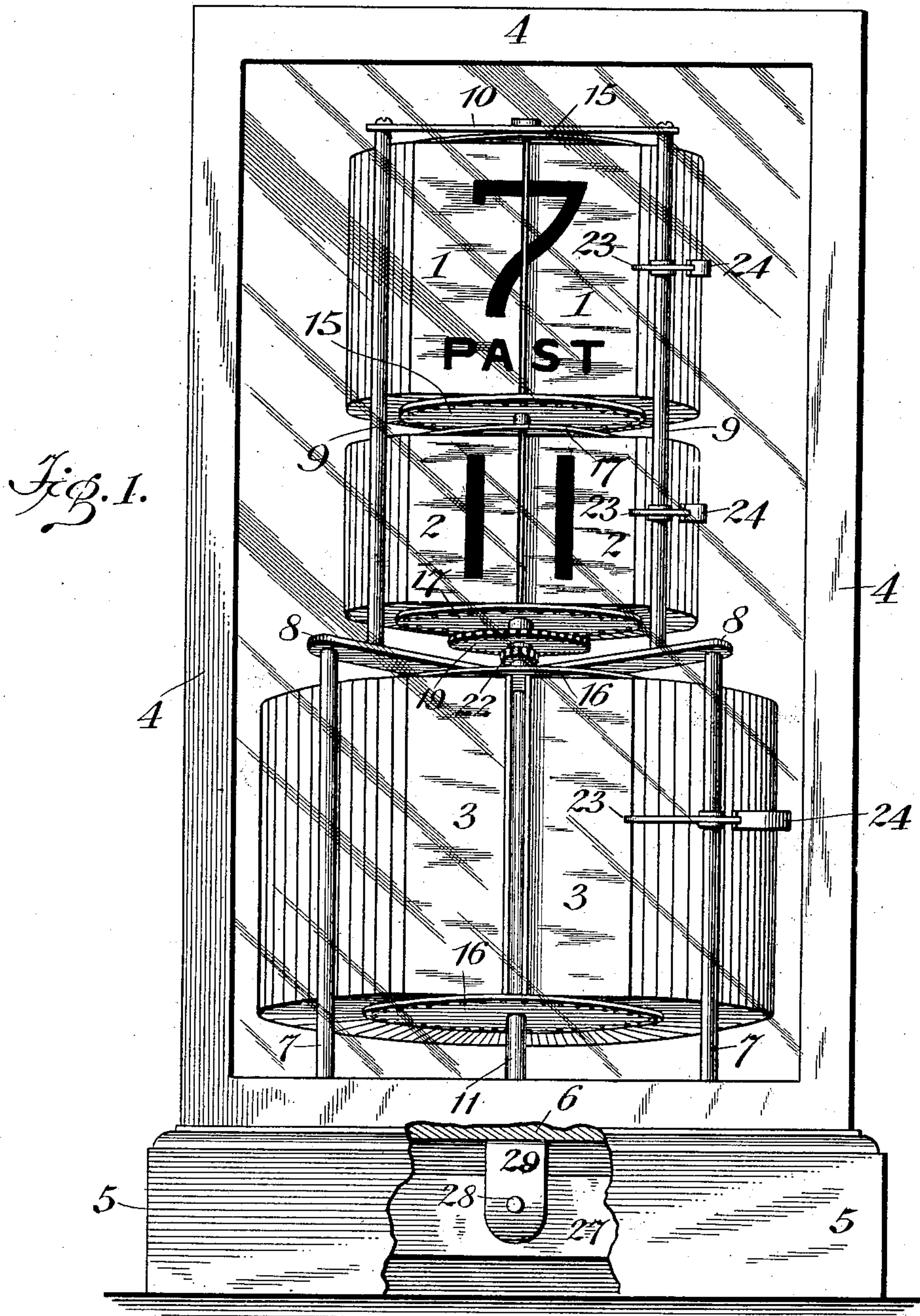


E. FITCH.
CLOCK.

APPLICATION FILED DEC. 4, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES:
A. R. [Signature]
Henry Barnes

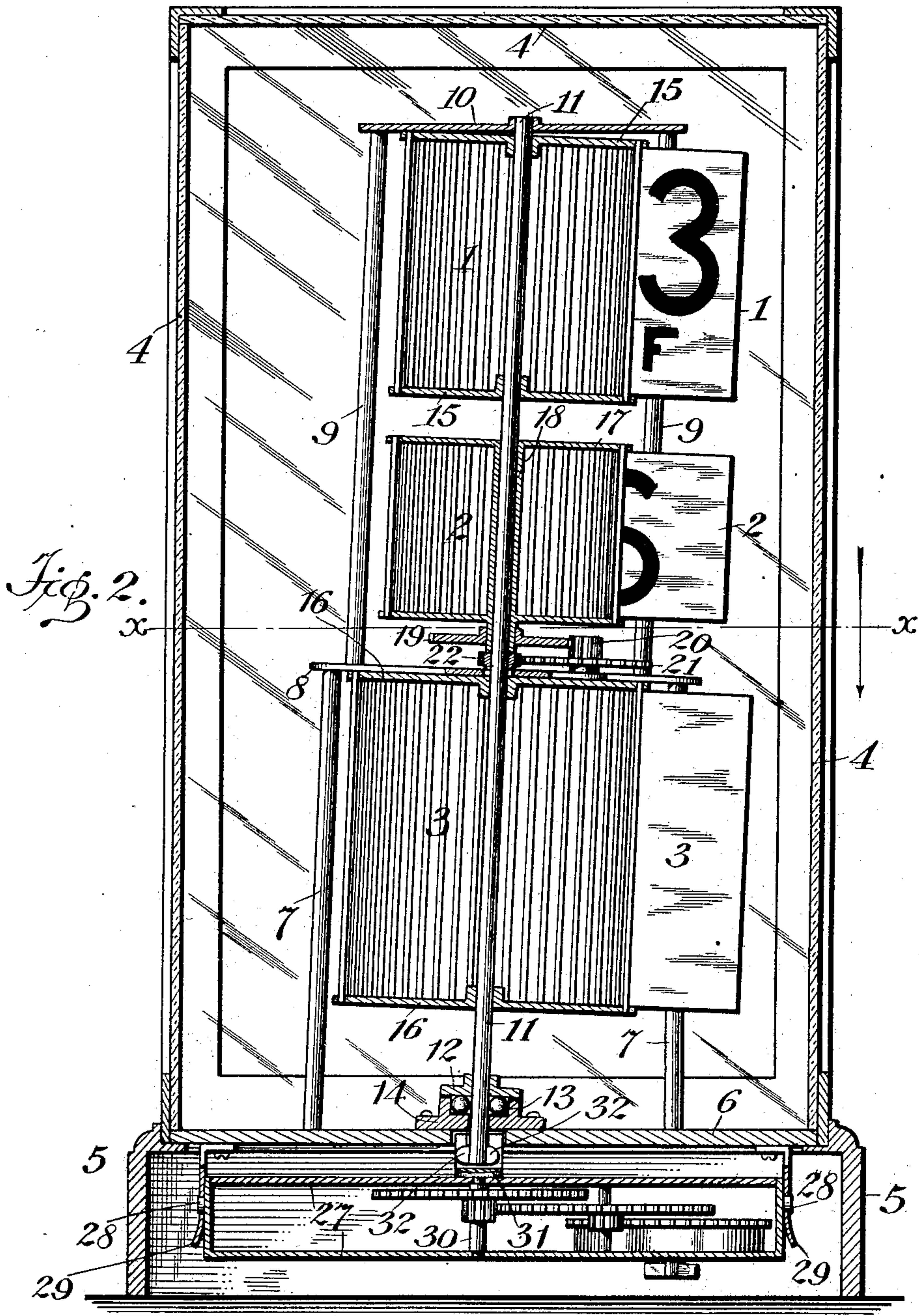
INVENTOR
Eugene Fitch
BY
Henry D. Williams
ATTORNEY

E. FITCH.
CLOCK.

APPLICATION FILED DEC. 4, 1902.

NO MODEL.

3 SHEETS—SHEET 2.



WITNESSES:

A. R. Appleman Jr.
Henry Barnes

INVENTOR

Eugene Fitch

BY

Henry D. Williams
ATTORNEY

No. 726,276.

PATENTED APR. 28, 1903.

E. FITCH.
CLOCK.

APPLICATION FILED DEC. 4, 1902.

NO MODEL.

3 SHEETS—SHEET 3.

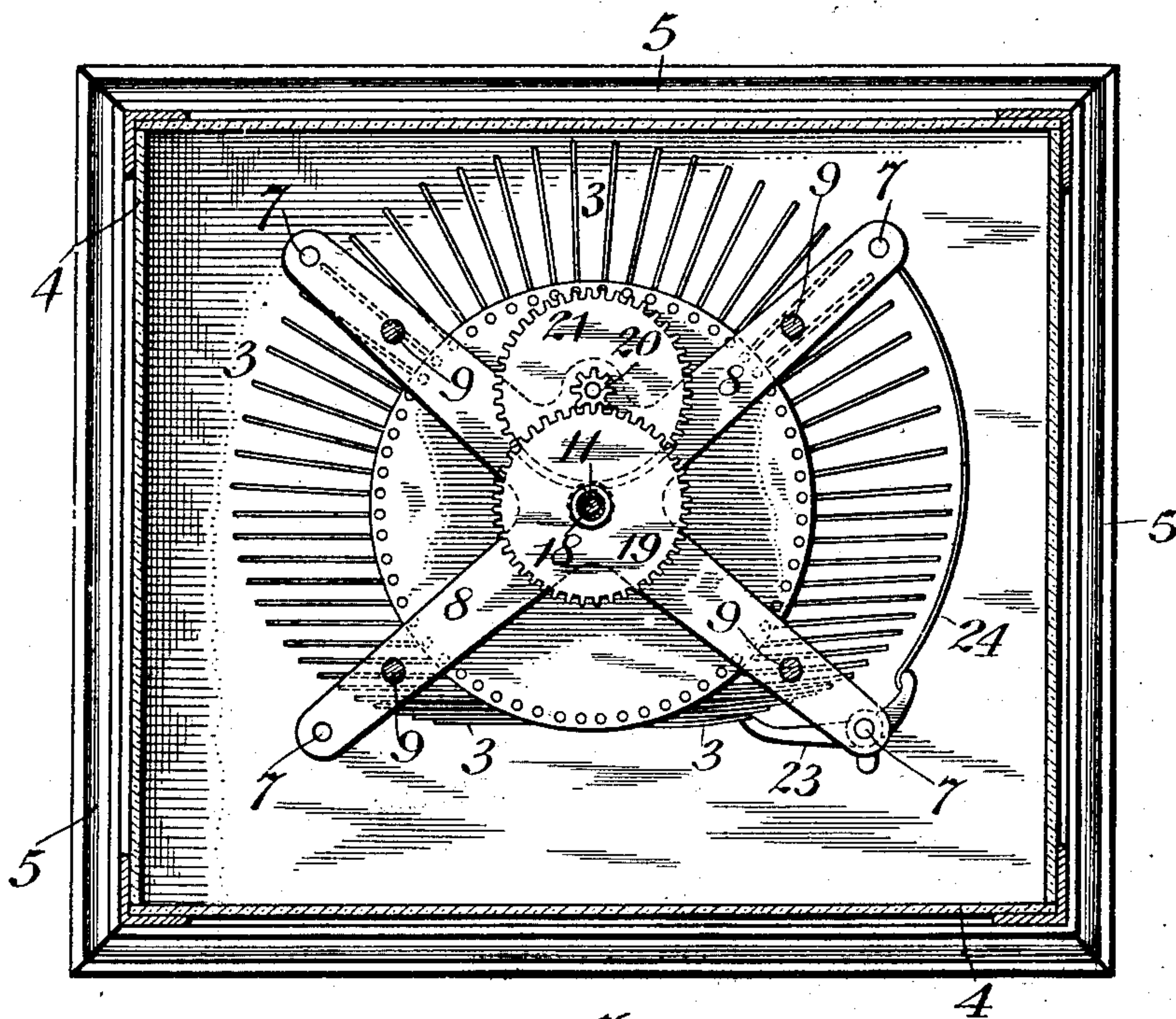


Fig. 3.

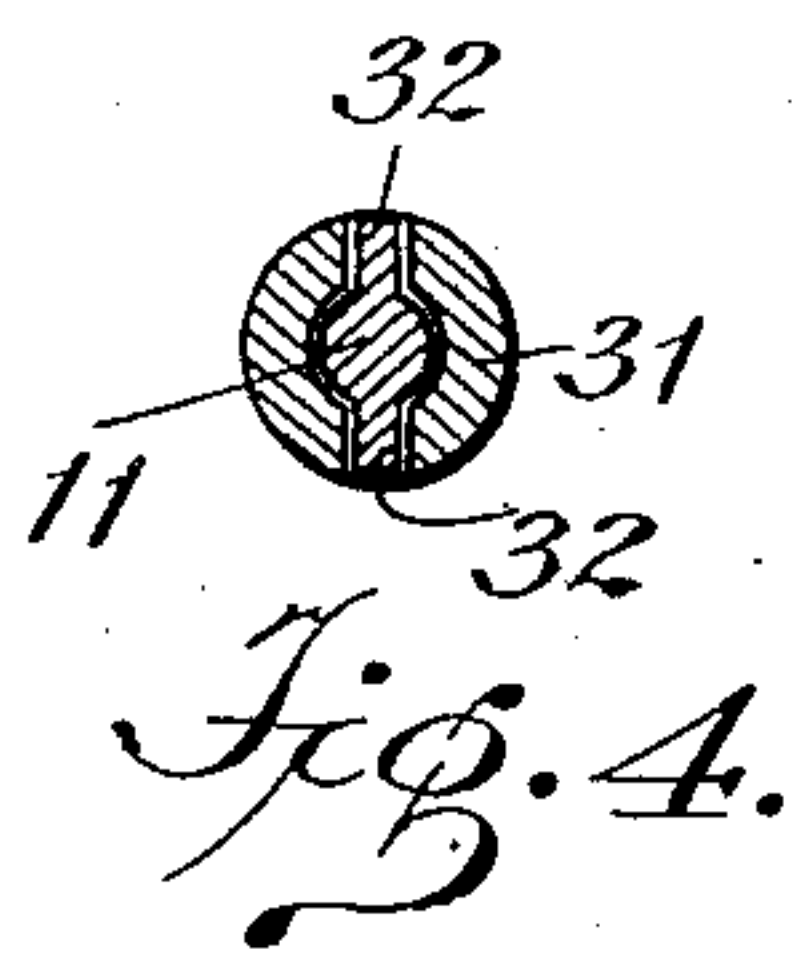


Fig. 4.

WITNESSES:

A. R. Appleman
Henry Barnes

INVENTOR

Eugene Fitch

BY

Henry D. Williams
ATTORNEY

UNITED STATES PATENT OFFICE.

EUGENE FITCH, OF NEW YORK, N. Y.

CLOCK.

SPECIFICATION forming part of Letters Patent No. 726,276, dated April 28, 1903.

Application filed December 4, 1902. Serial No. 133,805. (No model.)

To all whom it may concern:

Be it known that I, EUGENE FITCH, a citizen of the United States, residing in the borough of Manhattan, city of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Time-Indicators, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates more to time-indicators of the general class shown in my prior allowed patent application having Serial No. 106,878, and has for its object to minimize strains on the clock-movement which rotates the indicating-plates by relieving said movement of the weight of these plates and their supports and to facilitate the attachment and removal of the clock-movement.

20 I will now describe the construction of indicating apparatus embodying my invention illustrated in the accompanying drawings and will thereafter point out my invention in claims.

Figure 1 is a front elevation of the indicating apparatus with its supporting-base partly broken away. Fig. 2 is a vertical sectional elevation of the indicator, taken at right angles to Fig. 1. Fig. 3 is a horizontal section of the indicator, taken on a plane indicated by the line $x x$ in Fig. 2. Fig. 4 is an enlarged detail sectional plan of the clutch which detachably couples the main clock-movement to the driving-shaft of the indicating-plates.

35 In the apparatus shown in the drawings there are three series of indicating-plates—an upper series of plates 1, which indicate the minutes past or before the hour, a middle series of plates 2, which indicate the hour, and a lower series of plates 3, employed to exhibit advertisements. All of the plates are arranged within a glazed casing 4, which stands upon and may be fixed to a supporting open-bottomed base 5. To the floor 6 of the casing 4 are fixed the lower ends of posts 7, preferably four in number, which are connected at their upper ends to a horizontal spider-frame 8, from which rises a second series of posts 9, which are fastened at their upper ends to a top spider-frame 10. In this frame 10 is journaled the upper end of a

slightly-inclined shaft 11, which near its lower end has fixed thereon a thrust-plate 12, having its bearing on balls 13, running in or on a lower bearing 14, fixed to the frame-floor 55 6. This shaft 11 is actuated by the minute-spindle 30 of the clockwork, as hereinafter described, and makes one complete revolution in an hour.

The shaft 11 near its upper end has fixed 60 thereon a pair of disks 15 15, between which the minute-indicating plates 1 are journaled at their inner edges, and substantially similar, but preferably larger, disks 16 16 are fixed to the lower part of the shaft 11 and afford 65 bearings for the inner-edge pivots of the lower advertising-plates 3. The middle disks 17 17, to and between which the inner edges of the hour-indicating plates 2 are pivoted, are fixed to a sleeve 18, which carries a gear-wheel 19, engaging a pinion 20, turning with a gear-wheel 21 on a pintle set in the spider-frame 8, and the gear 21 engages a pinion 22, fixed to the main plate carrying and driving shaft 11, this gearing being the ordinary 75 hour-reducing gearing and causing the series of plates 2 to turn slower than the two series of plates 1 and 3 or once in every twelve hours.

The plates 1 are marked to indicate the 80 minutes past or before the hour and the plates 2 are marked to indicate the hours, five successive hour-plates containing similar indications and each indicator being marked partly on the front of one plate and partly on 85 the back of the following plate in both series of plates, the time thus indicated in Fig. 1 of the drawings being seven minutes past eleven. Any desired advertising matter may be produced on the lower series of plates, 90 which rotate with the upper plates 1, and these indications are changed every minute.

Upon each series of indicator-plates acts a stop 23, preferably pivoted to adjacent frame-posts 7 8, and each stop is pressed against 95 the front plate of its respective series by a spring 24, which presses the advance plate back upon the adjacent plates in rear sufficiently to develop a resilient force which will cause the front plate as it moves clear of the 100 stop to swing on its pivots until it comes in contact with the advance plate, and each

plate will be held in such position by gravity by reason of the backward inclination of the main shaft 11.

The number of plates employed is considerable—one hundred and twenty time-indicating plates and sixty advertising-plates in the construction shown—and I prefer to make the time-indicating plates of metal, and the weight of the plates, their carrying-disks, and the shaft 11 is necessarily considerable, and if this weight were thrown by the main shaft 11 directly on the mechanism of the clock-movement the action of the movement would be materially retarded and a powerful and expensive clock-movement would be required. According to my invention the entire weight of the main shaft and of the parts carried thereby is sustained by the thrust ball-bearing, and the rotative friction is reduced thereby to a minimum, so that a small and inexpensive clock-movement with its light impelling power may effectively actuate the indicating apparatus.

The entire clock-movement is readily removable from the apparatus, being engaged by spring-fingers 29, projecting downwardly from the floor 6 and having perforations therein in which engage the pins 28, extending from the case 27 of the clock-movement. The minute-spindle 30 has a sliding clutch connection with the main shaft 11 of the indicating mechanism, such clutch comprising a cup 31 upon the minute-spindle, slotted to receive the foot of the main shaft 11, and wings 32 32 thereon. Although the main shaft 11 is slightly inclined, the clock-movement is set horizontally, sufficient play being allowed in the clutch connection to accommodate the slight variation of alinement of the minute-spindle 30 and main shaft 11.

It is obvious that various modifications may be made in the construction shown and above particularly described within the spirit and scope of my invention.

What I claim, and desire to secure by Letters Patent, is—

1. In an indicator, the combination with a rotating part, a plurality of indicating-plates carried thereby and stops controlling the movement of such plates, such rotating part having a main shaft in approximately vertical position, of a casing having bearings for the rotating part, such bearings including a thrust ball-bearing arranged to sustain the weight of such rotating part and plates, and a clock mechanism the minute-spindle of which is connected by a clutch to the main

shaft of such rotating part so as to impart rotation to such rotating part without sustaining the weight thereof.

2. In an indicator, in combination, a rotating part, a plurality of indicating-plates carried thereby and stops controlling the movement of such plates, a casing provided with bearings for such rotating part, and a clock mechanism detachably connected to such casing and having a detachable clutch connection with the rotating part.

3. In an indicator, the combination with the main shaft 11, a plurality of indicating-plates carried thereby, stops coacting with such plates to cause them to be successively exhibited, the thrust-plate 12, balls 13, and cup 14, located in proximity to the lower end of such shaft, a support for the cup 14, a clutch at the lower end of such shaft, and a clock mechanism, one part of such clutch being carried by the shaft 11 and the other part of such clutch being carried by a spindle of the clock mechanism, substantially as set forth.

4. In an indicator, in combination, the main shaft 11, a plurality of indicating-plates carried thereby, a support for the same, a clock mechanism having a detachable clutch connection with the shaft 11, spring-fingers 29 projecting from such support and pins 28 upon the clock mechanism engaging with such fingers, substantially as set forth.

5. In an indicator, in combination the main shaft 11, disks 15 thereon near the upper part thereof, minute-indicating plates 1 carried by such disks, disks 16 thereon near the lower part thereof and advertisement-exhibiting plates carried by such disks, disks 17 on a sleeve 18 fitted to rotate on said shaft 11 and located between the disks 15 and 16, hour-indicating plates carried by the disks 17, stops coacting with such plates to cause the plates of each series to be successively exhibited, reducing-gearing between the shaft 11 and sleeve 18, a thrust ball-bearing arranged to sustain the weight of the shaft, disks and plates, and a clock mechanism connected by a clutch to the shaft 11 so as to impart rotation thereto without sustaining the weight thereof, substantially as set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

EUGENE FITCH.

Witnesses:

HENRY D. WILLIAMS,
HERBERT H. GIBBS.