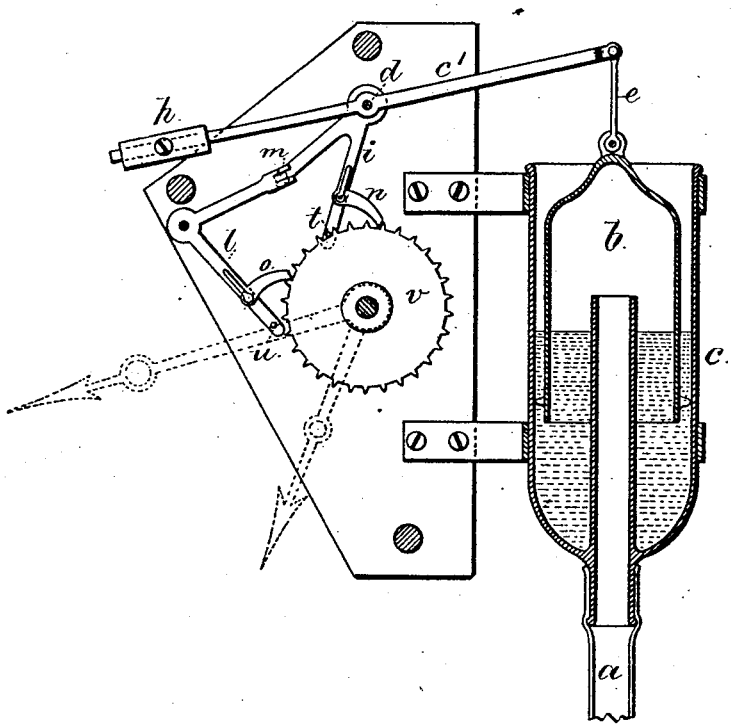
H. J. WENZEL.

Transmitting Time Movement to Distant Dials.

No. 196,404. Patented Oct. 23, 1877.




Witnesses

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# UNITED STATES PATENT OFFICE.

HERMANN J. WENZEL, OF SAN FRANCISCO, CALIFORNIA.

## IMPROVEMENT IN TRANSMITTING TIME-MOVEMENTS TO DISTANT DIALS.

Specification forming part of Letters Patent No. **196,404**, dated October 23, 1877; application filed August 28, 1877.

*To all whom it may concern:*

Be it known that I, HERMANN J. WENZEL, of San Francisco, in the State of California, have invented an Improvement in Clock-Movements, of which the following is a specification:

In Letters Patent No. 140,661 a device is shown and described whereby several time-pieces are actuated synchronously by means of air conveyed through tubes from a central motor or time-piece. The present invention relates to the mechanism of the distant time-piece.

The air acts upon an inverted cup in a vessel containing mercury, glycerine, or other liquid, and causes said cup to rise and fall, and gives motion to a lever that acts in turn upon two levers provided with pawls and stops, that give rotation to one of the wheels of the clock-movement.

In the drawing, my improvement is illustrated by a sectional elevation.

*a* is a tube, that is connected with the central motor or time-piece, and the air is forced through this tube and into the inverted cup *b*, and exhausted therefrom by means of the apparatus set forth in said Letters Patent No. 140,661 by other suitable means.

The lower part of the cup *b* sets within the liquid in the vessel *c*, to prevent the escape of air from said cup, and the action of the air alternately forced in and exhausted from the cup gives an up-and-down motion to said cup, and also to the lever *c'*, to which it is connected by the link *e*. This lever is provided with a counterpoise at *h*, to balance the weight of the cup *b*, and lessen the amount of air required to move it.

The lever *c'* is upon the shaft *d*, and upon said shaft there is a bent lever, *i*, connected to a second bent lever, *l*, by a pin and slot at *m*. There are pawls *n o* and stop-pins *t u* upon the levers *i l*, respectively, and said pawls engage with teeth upon the wheel *v*, that is one of the wheels of the clock-movement.

As the cup *b* rises, the lever *i* is moved by the lever *c'*, and the pawl *n* turns the wheel *v* half the distance between two teeth. The wheel is now stopped by the pin *t* coming against said wheel, and prevents it being moved too far. During this time the lever *l* has been moved, the pawl *o* drawn back, and the stop *u* moved away from the wheel *v*.

When the cup *b* descends, the reverse operation takes place, the pawl *o* turns the wheel until arrested by the stop *u*, and the pawl *n* is drawn back and the stop *l* moved away from the wheel, so as to be ready to act when the cup *b* rises again.

By this arrangement the parts move with but little friction, and the clock-movement is operated with the utmost regularity.

I claim as my invention—

The levers *c' i l*, pawls *n o*, stops *t u*, and wheel *v*, in combination with the vessels *b c* and air-tube *a*, substantially as and for the purpose specified.

Signed by me this 17th day of August, A. D. 1877.

H. J. WENZEL.

Witnesses:

E. V. TUTTLE,

CHAS. T. STANLEY.