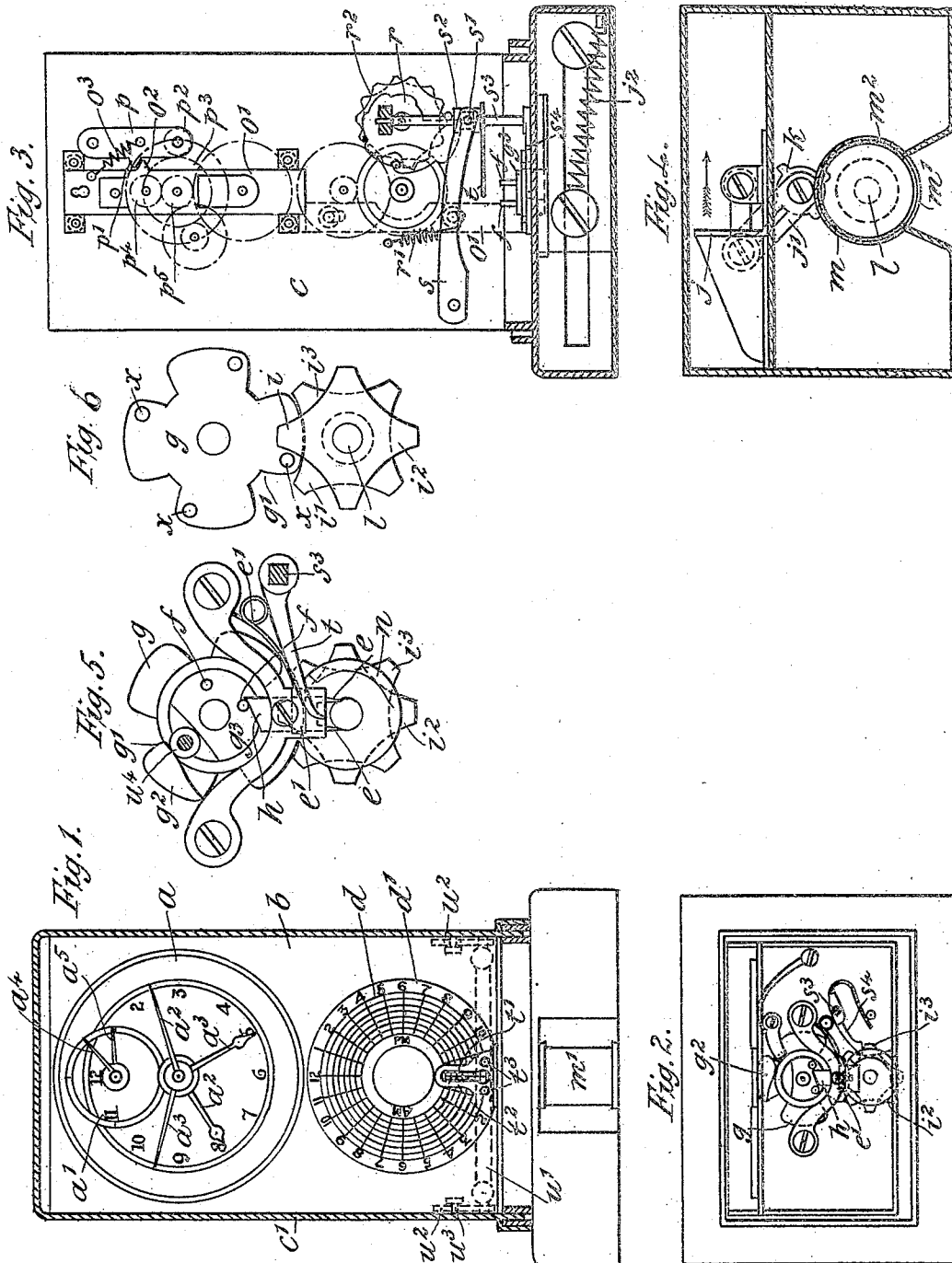


W. McMILLAN.
TIMING MACHINE FOR USE IN PIGEON RACES AND THE LIKE.
APPLICATION FILED APR. 6, 1908.

937,845.

Patented Oct. 26, 1909.

2 SHEETS—SHEET 1.



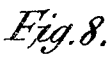
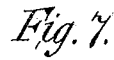
Witnesses
J. Rowley
J. M. Mellor.

Inventor
William McMillan
per J. B. Henshaw
attorney.

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Inventor
William Mc Millan
per J. B. F. Penet
attorney.

UNITED STATES PATENT OFFICE.

WILLIAM McMILLAN, OF MARKET HARBOUROUGH, ENGLAND.

TIMING-MACHINE FOR USE IN PIGEON-RACES AND THE LIKE.

937,845.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed April 6, 1908. Serial No. 425,434.

To all whom it may concern:

Be it known that I, WILLIAM McMILLAN, watchmaker, a subject of the King of Great Britain and Ireland, and residing at 7 Nithsdale avenue, Market Harborough, in the county of Leicestershire, England, have invented certain new and useful Improvements in Timing-Machines for Use in Pigeon-Races and the Like, of which the following is a specification.

This invention relates to improvements in machines for timing or recording the results of pigeon races and the like.

The said machine records seconds, minutes, hours and days, and is operated by an ordinary clockwork and lever movement with two sets of hands and suitable gearing for the same. This gearing is so arranged that one set of hands can be disengaged and stopped at any desired instant; for instance when the bird is timed in, while the primary hands continue their motion.

In the accompanying drawings, illustrating my invention, Figure 1 is a front elevation of the machine with the outer case in section. Fig. 2 is a plan of the base of the machine, the case being removed. Fig. 3 is a vertical sectional elevation with the front plate removed. Fig. 4 is a horizontal section of the box-shaped base looking from below. Fig. 5 is a plan, to an enlarged scale, of the double needle mechanism, and Fig. 6 is a plan of the locking cam gear. Fig. 7 is a front elevation partly in section with the dial plate and outer case removed and the front gear wheel partly broken away to show the parts behind, and Fig. 8 is a vertical cross section of the machine.

Referring to the drawings a is an ordinary clock face or dial carried by the front plate b , and a' is the seconds indicator.

a^2 are the primary or ordinary hands of the clock, and a^3 are the two extra hands. a^4 is the ordinary seconds hand and a^5 the independent seconds hand. The latter is turned up at the end so as to engage and turn with the hand a^4 . The said hands are operated by the ordinary clockwork carried between the front plate b and the back plate c , the whole being inclosed in an outer case c' .

d is the paper dial geared directly to the large wheel of the timepiece and divided radially, as shown, into 24 hour spaces and concentrically into seven day spaces.

e is the double needle, see Fig. 5, which is operated for puncturing the outer space or

edge d' of the dial so as to produce a double puncture mark, by means of two pins f fixed to a disk g^3 and bearing against the inclined surface of a slide h , carrying the double needle e , upon each $\frac{1}{4}$ revolution of the locking cam or disk g caused by the movement of ratchet lever j' , Fig. 4, engaging with the toothed wheel k to whose axis the cam or disk g is rigidly fixed. The pin x on cam g bears against the tooth i on the wheel i^2 causing said wheel to rotate one-eighth of a turn, then tooth i' is engaged by the notch g' of the cam g which rotates it another one-eighth of a turn, locking wheel i^2 in that position by special shape of cam g and wheel i^3 until a further movement of ratchet lever j' is made. On the same axis l as wheel i^2 and moving with it is carried the circular box m formed with the segmental opening m' and revolving in the fixed box m^2 also formed with a similar opening. The wheel i^2 carries a cam or projecting ridge n which upon each revolution bears against a tongue o formed on the lower end of a vertically sliding plate o' thus slightly raising the latter for disconnecting or stopping the independent hands a^3 and a^5 . This is accomplished by means of the pivoted levers g which as the slide is raised are caused to turn on their axes and by their forked arms g' engaging with sleeves g^2 to which the hands a^3 and a^5 are fixed, the hooked ends of the latter are drawn back clear of the hands a^2 and a^4 while the sleeves g^2 are forced against the plate of the timepiece, thus braking them and causing them to stop while the hands a^2 and a^4 continue to revolve. The slide o' also acts upon the independent hour hand by means of a tooth o^2 on the said slide bearing against a projection p' on a pivoted arm p thus causing the latter to be forced back so as to disengage a pinion p^2 carried by the same, from the toothed wheels p^3 , p^4 . One of these wheels is always in gear with the center wheel spindle of the timepiece and revolves with it while the other is loose and only revolves when the pinion p^2 is in gear with both. Simultaneously with this disengaging motion a stop p^4 comes into action and, by the raising of the slide o' , to which the stop is fixed, bears against the said wheel thus stopping its motion.

r is the cam or snail used for shifting the single needle from one annular space on the paper dial d to the other, thus indicating the

day of the week. This is accomplished by means of a pin s' on the end of a pivoted lever s bearing against and kept in contact, by a spring r' , with one of the steps of the snail r and also engaging with a sliding sleeve s^2 , traveling along a vertical pin s^3 of rectangular section, and which pin is operated by a lever s^4 engaging with the cam wheel i^3 connected to and driven by the wheel i^2 . The spring r' may be wound around the spindle of pivoted lever s instead of being connected to the latter as shown. The sleeve s^2 carries the single needle t , and as the pin s^3 is turned by the said wheel it causes the needle also to turn toward the dial d and puncture the latter, the point of the needle passing through the vertical slot t' of a bracket t^2 placed just in front of the dial, the double needle points also similarly passing through the holes t^3 when puncturing the outer circle of the dial. The snail r is operated and locked by the double cam wheel r^2 in a similar manner to the cam g and wheels i^2 , i^3 , before described, the only difference being in the number of notches and teeth.

The operation of the machine is as follows:—The sliding lever j , Fig. 4, working in an open portion of the base, is pushed by the operator in the direction of the arrow thus causing the ratchet lever j' to turn the wheel h a quarter of a revolution which thus gives the cam g , the wheels i^2 , i^3 , and box m also a quarter turn, thus causing a cam-piece or path g^2 on the cam or disk g to bear against or engage with a short arm u carrying a roller u^4 and fixed to a cross-pin u^1 so as to turn the latter and with it the hooks u^2 at each end of the same thereby engaging the said hooks with pins u^3 on each side of the case c' and so locking the latter and preventing access to the machine until it is again unlocked. This action also causes one of the pins f to press against the inclined surface of the slide h so as to force the latter outward and with it the double needle e against the action of the spring e' , which needle punctures the dial d on its outer edge d' thus producing a double mark. The wheel i^2 at the same time actuates the single needle t for puncturing the dial and indicating the day and hour, as before described, at which the apparatus is locked. Upon the release of the lever j the spring j^2 brings it back to its former position of rest. The second movement of the lever j as before gives another quarter of a turn to the box m so as to bring the opening m' opposite the opening in the fixed box m^2 , thus opening the box in readiness to receive the race mark. The wheel i^2 also actuates the needle t for puncturing the dial at the correct hour and day. After the race mark is placed in the

box the lever j is again operated as before so as to cause the cam n on the wheel i^2 to bear against and raise the tongue o and slide o' , thus disconnecting the hands a^2 and a^3 as before described, recording the exact time on the dial by the needle t at which the hands are stopped, and closing the box m . The fourth movement of the lever j frees the hooks u^2 so as to unlock the case, operates the double needle e for puncturing the edge of the dial and actuates the needle t as before for indicating the hour and day. This operation also releases the slide o' thus permitting the same to be drawn down by the action of a spring o^3 for throwing the independent hands into gear and starting their working again, the box m being at the same time, given another quarter of a turn. The box m is locked in each of its four positions, after movement of the lever j by the special shape of the cams or wheels i^2 and g which actuate it and cannot be moved in either direction unless by the operation of the lever j , each movement being recorded on the paper dial.

Having now fully described the nature of my said invention, what I claim and desire to secure by Letters Patent is:

1. The improvements in timing machines for pigeon races and the like comprising a double needle, a slide carrying the same, a rotating disk, two pins carried by the latter for operating said slide, a timepiece operating a paper dial marked with radial and concentric lines between which the dial is perforated by the said needles, a circular box containing the race mark, a fixed box within which the circular box revolves, and a sliding lever working in the base of the machine for operating the mechanism, substantially as described.

2. In timing machines for pigeon races and the like the combination of an inclosing case, pins on each side of the same, pivoted hooks engaging with the pins and a cam acting upon the said hooks for locking and unlocking the case at each revolution of the said cam, substantially as described.

3. In timing machines for pigeon races and the like the combination of a timepiece, hands a^2 fitted to the same, a vertical slide o' , a revolving cam n operating the same, pivoted levers g acted upon by said slide, sliding sleeves q^2 engaged with and actuated by said levers, and extra or independent hands a^3 , a^4 fixed to said sleeves, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

WILLIAM McMILLAN.

Witnesses:

HUGH M. BONNAUD,
WALTER W. BALL.