

M. M. ZELLERS.
WORKMAN'S TIME RECORDER.

No. 508,461.

Patented Nov. 14, 1893.

Fig 1

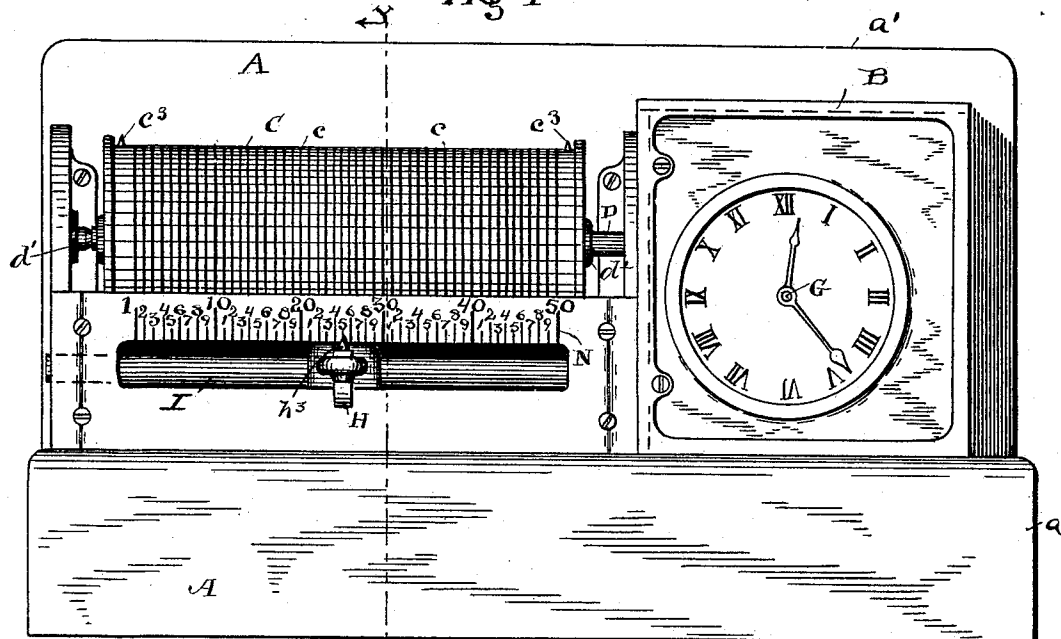


Fig 2

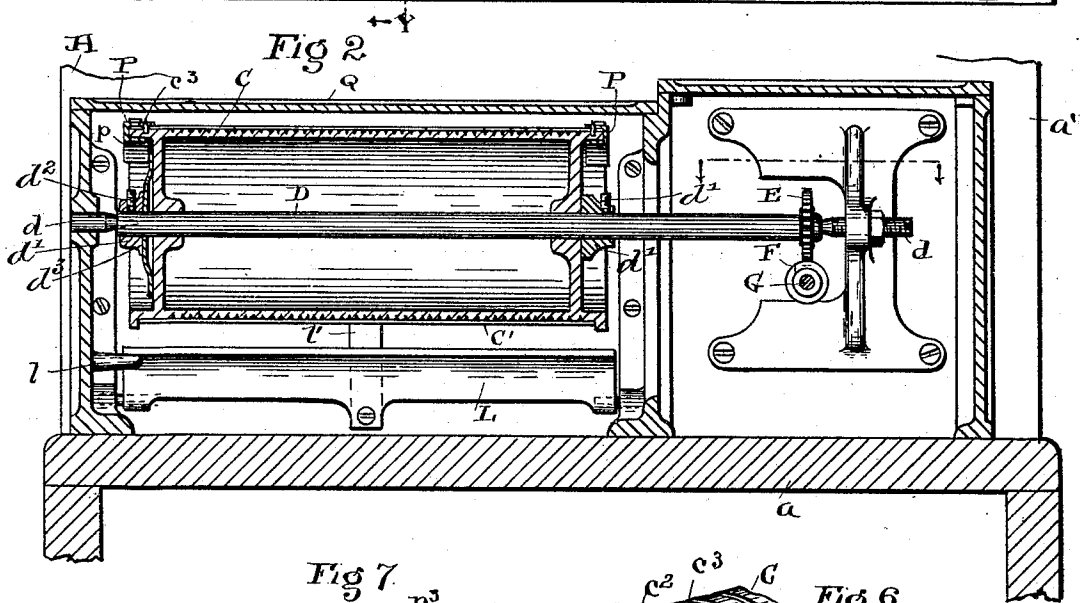


Fig 7

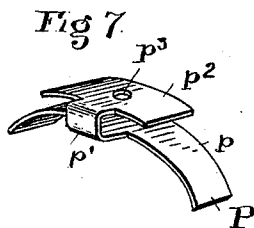
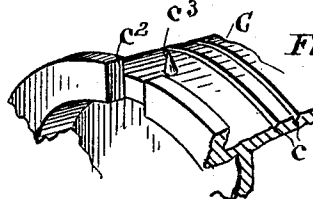


Fig 6



ATTEST

R. B. Moser.

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ATTORNEY

INVENTOR.

Mahlon M. Zellers.

(No Model.)

2 Sheets—Sheet 2.

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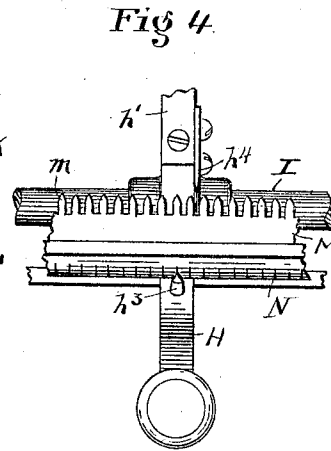
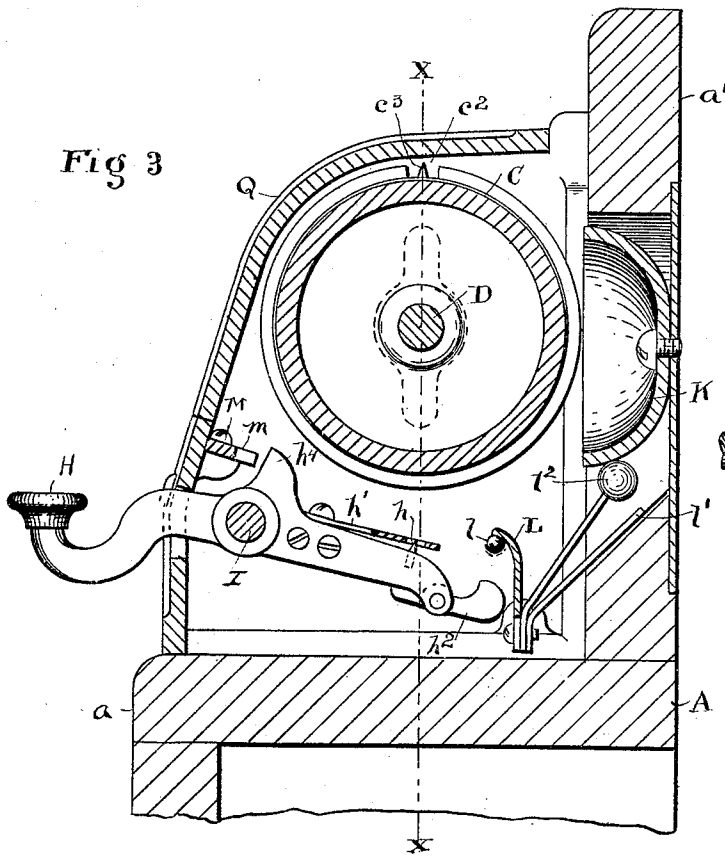


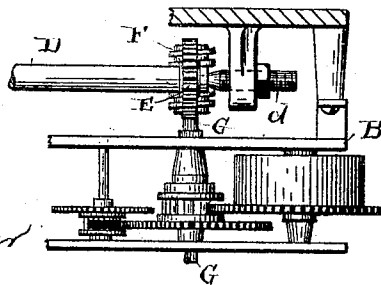
Fig 5

TIME SLIP.

September 5, 1892.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
7 AM																	
15																	
30																	
45																	
8 00																	
15																	
30																	
45																	
9 00																	
15																	
30																	
45																	
10 00																	
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30																	
45																	

Fig 6



ATTEST

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INVENTOR

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UNITED STATES PATENT OFFICE.

MAHLON M. ZELLERS, OF KENT, OHIO.

WORKMAN'S TIME-RECORDER.

SPECIFICATION forming part of Letters Patent No. 508,461, dated November 14, 1893.

Application filed November 7, 1892. Serial No. 451,157. (No model.)

To all whom it may concern:

Be it known that I, MAHLON M. ZELLERS, a citizen of the United States, residing at Kent, in the county of Portage and State of Ohio, have invented certain new and useful Improvements in Time-Recorders; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to time recorders, and is designed more especially to keep the time of employes in shops, and the like, though it may be used for other purposes, and the invention consists in the construction, combination and arrangement of parts substantially as shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a front elevation of my improved machine, and Fig. 2 is a longitudinal vertical section thereof, taken on a line corresponding substantially to x, x , Fig. 3. Fig. 3 is a transverse section on line y, y , Fig. 1, and a corresponding view in all details, substantially, would be afforded if the said cross-section were taken on any other point of the revolving cylinder. Fig. 4 is a plan view of the sliding key lever and a fragment of the interior mechanism with which said lever is adapted to register, all substantially as hereinafter more fully described. Fig. 5 shows an end section of the paper time slip, which is designed to be rolled upon the revolving cylinder shown in several of the figures, and upon which the time record is made. Fig. 6 shows an end section of the said cylinder, and its construction to adapt the time slip holder, shown in Fig. 7, to be attached thereto, all as hereinafter fully described and set forth. Fig. 8 shows the gear connection between the clock and the cylinder.

A represents the cabinet or case which supports my invention, and is provided with a suitable base a , and back a' . This case is designed in a style to give finish and beauty to the instrument as well as serving as a support therefor.

The invention comprises two separate sets of mechanism which, however, are connected for conjoint operation. Thus, I have, first, a clock B with its usual dial and other essen-

tial elements for keeping time, and the usual clock mechanism behind the dial, which need not necessarily be shown in this connection. The other and original mechanism is comprised in the revolving cylinder C, and the parts more immediately connected operated therewith. This cylinder is provided with a central shaft D, supported in needle bearings d at its end, so that the said cylinder may be turned with as little friction as possible. A pinion E is fixed upon the inner end of said shaft and is arranged to mesh with a worm wheel F on a shaft G, which is operated by the clock mechanism. Hence, it follows that, when the clock is running, the said shaft and cylinder will be turned and timed by the movement of the clock. The connection between the said cylinder and the said shaft is such, however, that while they will revolve together when the clock is going, the cylinder may be turned upon the shaft by hand to set the cylinder to any time that may be desired. Usually the clock and cylinder will be kept in corresponding time, so that, for example, when it is seven o'clock in the morning, the time slip C' on the cylinder will be in position so that anyone coming in or going out at that time will record their time exactly on the seven o'clock point or line. When this correspondence of time has been fixed by the person who has charge of the instrument, the instrument is locked and cannot be tampered with and will not be disturbed or changed during the day. The hours and fractions of hours indicated by the clock have a corresponding impression on the time slip down to five, ten or fifteen minutes, as may be deemed desirable. These expressions or notations of time are made in figures or suitable characters along what may be termed the ends of the time slip if considered in its relation to the cylinder. The lines running around the cylinder and indicated by figures 1, 2, 3, &c., in Fig. 5, are the lines for the different persons or employes whose time is to be kept, and they make their records for the time being. Thus, if No. 25 should appear and desire to record the time of his arrival, he would slide the key lever H to his number on the number plate on the front of the machine and then depress the key and make the record. This record would be made through the puncturing needle h on

the key lever H, and at the same time he would ring the bell or gong K to give notice that the time has been recorded. A guard spring h' protects the needle point h when the key is not in use, and a short pivoted gravity finger h^2 on the end of the key lever H bears against the curved plate L when the puncturing occurs and presses the same back a sufficient distance, so that when the finger h^2 passes the said plate L, the said plate will be thrown forward against its stop l by the spring l' , and cause the hammer l^2 to strike the bell and give the desired alarm. The plate L extends the full length of the cylinder C, and is curved, as shown, to give the bell hammer sufficient throw to make the required sound. Said plate is supported in suitable pivots at its ends and lower edge, as seen in Fig. 2, and a stop l at one end limits its forward movement. When the key lever drops to its normal position, as seen in Fig. 3, the finger h^2 likewise drops to the position shown in said figure by reason of the superior gravity of its head. Obviously, other means than those here shown between the key and bell may be substituted and be within the spirit of the invention. That is to say, instead of having the plate L as a bearing point for the finger h into whatever position the key lever may be moved in respect to the cylinder, there might be something else substituted for said plate to cause the bell to be rung, and so also of the finger h^2 .

In order that there need not be special precaution taken by the person who wishes to record his time, to get the pointer h^3 exactly upon the center of the figure denoting his number, I have provided a toothed rack M along the inside of the case in front of the cylinder and above the said key lever, and formed the same with teeth m , beveled laterally to a point so as to leave space between any two teeth opposite the corresponding number or figure on the indicating plate N. Then co-operating with this rack, is a tooth h^4 on the key lever, which is beveled from its engaging point and adapted to pass between the teeth when the key is depressed. If, therefore, the key lever be not brought carefully to the right center in the first place, it will be brought there by this means before the puncturing of the paper occurs, and this makes it more easy and convenient to make the record right than it would be without some such centering mechanism.

The cylinder C has a series of grooves c about its surface corresponding to the point where the puncturing needle strikes and to the numbers on the index plate N at the front of the instrument, and the time slip is stretched over the cylinder with its number lines c^4 corresponding to these grooves or channels c . Hence, when the puncturing needle strikes the paper it enters one of these grooves or channels and leaves a clean perforation, and at the same time is not injured by the stroke.

To secure the paper or time slip on the cyl-

inder, I employ a pointed tooth c^3 at each end thereof and a paper holder P. This holder has a spring portion p adapted to be sprung against the inner side of the projecting rim of the cylinder, as seen in Fig. 2, and the said rim has a notch or recess c^2 adapted to receive the shank p' of the holder P, so that the top engaging portion p^2 thereof may be brought down upon the paper over the pin c^2 , which passes through the perforation p^3 in the holder. The spring p exercises an inward tension and causes the part p^2 to bear firmly upon the paper and hold it in place, and, yet, the construction is such that the said holder P may be easily relieved from the paper to allow the same to be removed and a new time slip placed in the cylinder.

It is designed that the cylinder C shall be inclosed, so that no one who is not authorized can enter the instrument and tamper with it, and by preference a hinged glass cover Q is used for this purpose; this discloses the cylinder and the operations inside but closes it against outside interference.

Among the advantages of this construction may be mentioned, especially, the use of a single key lever sliding on the rod or bar I, the whole length of the cylinder C, and serving for all to register with whether the number be large or small. This saves the expense of a key for each person, and enables me to make a much more compact and simple machine than would be possible with a multiplicity of keys. The key H is normally free to slide along the rod I to any desired position, and the records can be rapidly and reliably made. The machine also, by reason of its small size and simplicity of construction, and its consequent cheapness, may be duplicated or multiplied in larger shops where workmen are on different floors or where for any reason two or more machines are desirable, and it can be used with no less advantage where only a few persons have reason to keep a time record, substantially as described.

In order that the time cylinder may be set to any time desired to correspond with the time of day denoted on the clock, and then held to be rotated by the shaft D so as to keep time, the said cylinder is locked or held at its ends by sleeves or thimbles d' having set screws d^2 , and at one end there is a dish shaped spring d^3 between the said thimble and the end of the cylinder. Usually I fasten the thimble at this end upon the shaft D in the place where it is to remain, and as for that matter this particular thimble might be made rigid with the said shaft and serve the same purpose, and then I fasten the thimble d' at the other end as tightly against the head of the cylinder as may be necessary to make the desired friction engagement between said cylinder and thimble and shaft to cause them all to rotate together. If the cylinder is to be turned independently of the shaft it can be turned without releasing either of the thimbles or collars, and the said thimbles or

collars may be released to turn the cylinder, and then tighten it again just as occasion may require. Obviously, there might be other means adopted for this purpose and I do not wish to be confined to the special means here shown, but it will be remembered that the pinion E on the shaft D is rigid therewith and meshes in a worm wheel, so that the said shaft cannot turn without the co-operation of the gear mechanism. This renders it necessary that the cylinder C should be movable independently of the shaft so as to adjust the time slips thereon with the time of day, as herein described.

15 Having thus described my invention, what I claim is—

1. In a time recorder, a revolving cylinder covered with a time slip and a rod parallel with said cylinder, in combination with a key lever pivoted between its ends on said rod and free to slide thereon and having a puncturing point at its inner end to pierce the said time slip, substantially as set forth.

2. In a time recorder, a cylinder having grooves at intervals between its ends and a time slip about the cylinder having characters running consecutively from end to end of the cylinder and corresponding to said grooves, in combination with a pivoted puncturing key lever, and a support on which said lever is free to slide, substantially as set forth.

3. In a time recorder, the revolving time slip cylinder and a rod parallel to said cylinder forward of and below the same, in combination with a key lever pivoted between its ends on said rod and free to slide thereon and having its inner end extending beneath said cylinder and provided with a puncturing point, and means to prevent said lever from sliding on its support when puncturing occurs, substantially as set forth.

4. The machine herein described having a time slip cylinder in combination with a key lever pivoted between its ends and having a puncturing point h and a projection h^4 on its top, and a notched plate M with which said projection h^4 engages when registration is made, substantially as set forth.

5. In a time recording machine, the time slip cylinder, the key lever constructed to pivot and slide on its support and having a movable finger on its inner end, in combination with the longitudinally arranged plate

with which said finger engages when the key lever is depressed, and sounding mechanism actuated by said plate, substantially as set forth.

6. In the machine described, the time slip cylinder having a series of grooves and clock mechanism to turn said cylinder, in combination with a pivoted and sliding key lever, a plate having a series of notches corresponding to the grooves in said cylinder and a projection on the key lever to engage in said notches, substantially as set forth.

7. The main casing having a longitudinal opening at its front and an index having consecutively arranged characters along said opening, a revolving cylinder having grooves matching said index characters and a plate having notches matchingsaid grooves and said index characters, in combination with a registering key lever extending through the said opening in the main casing and supported to slide and register at any given point between the ends of the said cylinder and constructed to engage in the said notched plate when registration occurs, substantially as set forth.

8. The machine described having a shaft for the time cylinder geared with actuating mechanism, the time cylinder on said shaft and adjustable rotarily to fix it with the time of day, and a time slip around the cylinder having time marks at the end of the cylinder, substantially as set forth.

9. In a time recording machine, a cylinder having a tooth on its periphery at its end, in combination with a spring clamp —P— for the time slip constructed substantially as shown with a spring part — p — beneath the edge of the cylinder and the part — p^2 — with a hole to engage over the said tooth, substantially as set forth.

10. The time cylinder and the time slip about the same, in combination with a separate clamp fitting the end of the cylinder, said clamp having a spring portion p , and an overlapping portion p^2 bearing upon the said time slip at the end of the cylinder, substantially as set forth.

Witness my hand to the foregoing specification.

MAHLON M. ZELLERS.

Witnesses:

H. T. FISHER,
GEORGIA SCHAEFFER.