N° 12,718 A.D. 1894

Date of Application, 30th June, 1894

Complete Specification Left, 30th Mar., 1895—Accepted, 29th June, 1895

PROVISIONAL SPECIFICATION.

Improvements in Automatic Printing Time Checking Apparatus.

We, JOHN THOMAS GENT, of Narborough Road, ALWYN WALTER STAVELEY, of East View, Regent Road, and ISAAC HARDY PARSONS, of 21, Narborough Road, all in Leicester, in the County of Leicester, Electricians, do hereby declare the nature of this invention to be as follows:—

This invention relates to time checking apparatus and particularly to that class of apparatus for checking workpeople's time by the insertion of checks or tickets, and the object of the present invention is to provide means whereby a permanent record of the workmen's time shall be automatically printed upon a paper band or strip by the workmen's checks upon which band time printing mechanism operated by a clock is also arranged to print without complicated mechanism.

In carrying out our invention we arrange a clock adapted to automatically print the time upon a paper band at stated times, say at intervals of five minutes, and we provide workmen's checks having numbers formed in relief thereon, the said checks, when inserted into the machine through the slot provided for the purpose, being adapted to fall against and strike the said band in order that the number of the check shall be printed thereon so as to shew what checks have been inserted, the time figures also printed upon the band enabling the time at which the various checks were inserted to be ascertained. In order to provide for this printing we may arrange an ink ribbon in conjunction with the band in such a manner that when the check strikes the inking ribbon the printing will be effected in a well known manner. In practice, however, we find it advantageous to use checks with relief figures of india-rubber and an inking pad so that the figures are imprinted upon the paper without a ribbon.

To prevent two checks from printing upon the same part of the band we provide means whereby the act of inserting a check into the machine shall move the band forward the required distance, the clock being also arranged to move the band independently before printing the time. This movement of the band is advantageously effected by arranging a ratchet wheel upon the axle of one of a pair of rollers which moves the paper band, the said ratchet wheel being moved by a pawl connected with a lever extending to the slot through which the checks are inserted. The checks themselves are each provided with an inclined surface which, when the check is inserted into the slot, acts on the said lever to move the pawl. The checks after striking the band fall into a receptacle within the machine, the chute through which the checks pass from the slot to the band being advantageously arranged in an inclined position and the chute open at the bottom side.

The time printing is advantageously effected by relief figures of india-rubber attached to the edge of a disc driven by the clock and arranged in conjunction with an inking roller.

We propose to provide with each clock a record book ruled with lines so as to form spaces into which the printed strips can be gummed.

Dated the 30th day of June 1894.

G. F. REDFERN & Co.,
4, South Street, Finsbury, London, Agents for the Applicants.

[*Price 8d.*]

COMPLETE SPECIFICATION.

Improvements in Automatic Printing Time Checking Apparatus.

We, JOHN THOMAS GENT, of Narborough Road, ALWYN WALTER STAVELEY, of East View, Regent Road, and ISAAC HARDY PARSONS, of 21, Narborough Road, all in Leicester, in the County of Leicester, Electricians, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to time checking apparatus and particularly to that class of apparatus for checking workpeople's time in which checks or tickets are dropped into a box or receptacle, and the object of the present invention is to provide means whereby a permanent record of the workpeople's time shall be automatically printed upon a paper band or strip by the workpeople's checks upon which band a time printing mechanism operated by a clock is also arranged to print without complicated mechanism.

In carrying out our invention we arrange in conjunction with a clock a time printing wheel adapted to print upon a paper band, and we provide workpeople's checks having numbers formed in relief thereon, the said checks, when inserted into the machine through the slot provided for the purpose, being adapted to fall against and strike the said band in order that the number of the check shall be printed thereon so as to shew what checks have been inserted, the time figures also printed upon the band enabling the time at which the various checks were inserted to be ascertained. In order to provide for this printing we may arrange an ink ribbon in conjunction with the band in such a manner that when the check strikes the inking ribbon the printing will be effected in a well known manner.

To prevent two checks from printing upon the same part of the band we provide mechanism whereby the act of inserting a check into the machine will move the band forward the required distance, the checks themselves being each provided with an inclined surface which, when the check is inserted into the slot, acts on the said mechanism.

To enable our invention to be fully understood we will describe the same by reference to the accompanying drawings, in which:—

Figure 1 is a front elevation of the apparatus with the doors removed to shew the mechanism:

Figure 2 is a section on the line 2—2, Figure 1; and,

Figure 3 is a section on the line 3—3, Figure 1:

Figure 4 is a plan of a portion of the top of the apparatus shewing the slot for the checks:

Figures 5 and 6 are respectively a sectional elevation and a plan of the escapement for operating the time printing wheel:

Figures 7 and 8 are respectively an elevation and a plan of one of the workpeople's checks; and,

Figure 9 is a detached view of the ratchet mechanism for operating the paper band feed-roller:

Figure 10 is a view of a portion of the paper band shewing imprinted thereon the numbers of several workpeople's checks and the time at which they were inserted in the apparatus.

a is the casing of the apparatus, *b* is the clock, and *c* is the time printing wheel which is controlled by the clock, but which, in order to relieve the clock mechanism, is arranged to be driven by an independent spring and train of wheels, the said clock and the train of mechanism for driving the time printing wheel being supported on a plate *d* common to both. The said wheel *c* which is arranged to make, say, one revolution every 24 hours is adapted to print to shew intervals of,

say, 5 minutes, the figures being suitably arranged around its periphery, for instance, upon a band *e* which is secured around the periphery of the said wheel *c*, as shewn in Figure 3, the figures being arranged upon the band in the manner shewn in Figure 3A, which is a development of a portion of the said band drawn to a larger scale than Figure 3.

In order to allow the time printing wheel *c* to move under the influence of its driving mechanism at the predetermined intervals, we provide an escapement so arranged that at each oscillation it shall let off the independent mechanism driving the said time printing wheel sufficiently to move the said wheel a distance corresponding to the distance between two sets of figures thereon. In the drawings we have represented the arrangement of a kind of anchor escapement *f* which works in conjunction with an escape wheel or disc *g* having a single pin g^1 thereon. The pallets f^1, f^2 of the escapement *f* are arranged in a manner which will be clearly understood by reference to Figures 5 and 6 so that each time the escapement is oscillated the escape wheel *g* will be allowed to turn half a revolution, the train of gearing in connection with the wheel *g* being so proportioned that half a revolution of the said escape wheel shall correspond with the distance between two sets of figures on the wheel *c*. This escapement *f* is operated from the clock through the medium of a lever *h* fixed at one end to the escapement and at the other or free end being slotted at h^1 to receive the crank-pin *i* on a disc i^1 which is suitably geared to the clock mechanism so that it shall make half a revolution during every 5 minutes and thereby operate the escapement to release the pin of the escape wheel at corresponding intervals. In Figure 1 the letters *j*, j^1, j^2, j^3 indicate the wheels through which the motion of the clock is communicated to the said disc i^1, the wheel *j* being fixed to the arbor of the minute hand.

k is the paper record band which is arranged to be unwound from a roller k^1 by means of two feed-rollers k^2, k^3, and which is passed beneath the time printing wheel *c* and is of sufficient width to receive not only the impression from the said wheel but also the number of the check. *l* is the slot in the case of the apparatus through which the checks are inserted, and l^1 is a chute which directs the checks from the said slot to the band *k*, one side of the said chute being cut away at the front of the lower part so that when the check has struck the band it will fall out of the chute into the case of the apparatus. *m*, Figures 7 and 8, indicates one of the checks which has a number in relief fixed to its lower end as at *n*, and which is V-shaped or otherwise suitably formed on one edge so that it cannot be inserted through the slot *l* in the wrong direction, the said slot being correspondingly shaped to receive the check as shewn in Figure 4.

In order to move the band *k* forward each time that a check is introduced to present a clear space for the impression of the check number, we provide for operating the feed-rollers k^2, k^3 upon the introduction of the check in the following manner, that is to say, in conjunction with the slot *l* we arrange a sliding bar *o* which normally projects beneath the slot, as shewn in Figures 3 and 4, and we form each check at the end which is first introduced into the slot *l* with an incline whereby as the said check is introduced it pushes back the rod *o*. On the rod *o* is a pin or projection o^1 which acts against one arm of a spring bell-crank lever *p* formed on a shaft p^1, the other arm of the said lever engaging between projections on a vertically moving bar *q* whereby, as the said bell-crank lever is moved by the rod *o*, a vertical movement will be imparted to the said bar. At its lower end the bar *q* carries a spring-pawl *r* which engages with a ratchet r^1 (as shewn in Figure 9) on the spindle of the feed-roller k^2, in such a manner that when the said bar *q* is depressed the said feed wheel will be rotated so as to move forward the band *k*. In front of the ratchet wheel r^1 is fixed another ratchet wheel *s* the teeth of which are arranged in an opposite direction to those of the wheel r^1, and upon the bar *q* is a frame s^1 carrying a push-piece s^2 which, when the bar *q* is depressed and after the wheel r^1 has been moved a certain distance, impinges against one of the teeth of the wheel *s* to form a stop for preventing further movement of the feed-roller until the bar *q* is again raised and depressed.

In our Provisional Specification we stated that the time was printed automatically upon the paper band k at stated intervals; this arrangement, however, would necessitate the constant movement of the said paper band upon which the record is printed and also the provision of means for periodically obtaining the impression from the wheel. As it is unnecessary that the time should be printed upon the band when no checks are being introduced, we provide that it shall remain stationary, except at such times as the checks are introduced and that the printing of a check number upon the band shall at the same time cause the printing of the time.

We accomplish this as follows:—Beneath the chute l^1 we arrange a table t upon which one part of the band k will be supported when the printing of the check number takes place, and beneath the printing wheel c is arranged another table u which supports the part of the said band upon which the time indications are printed. These two tables t, u are supported upon sliding rods t^1, u^1 respectively which are connected by levers and so arranged that when a check introduced into the apparatus strikes the band k the table t will be depressed and the table u at the same time raised to push the said band into contact with the printing wheel c. v, v^1, Figure 3, are two levers through the medium of which the downward movement of the rod t^1 of the table t serves to impart an upward movement to the rod u^1 of the table u. It will thus be understood that normally the paper is out of contact with the time printing wheel c which is therefore free to move from time to time and that an impression is only taken from the wheel at such time as a check is introduced.

The manner in which the check numbers and time indications are shewn upon the band will be understood by referring to Figure 10 in which the left hand numbers are check numbers and the right hand numbers time indications.

w is an inking ribbon which is arranged to be unwound from a roller w^1 onto another roller w^2 and in its path to pass above the paper strip k but below the bottom of the chute l^1 and the time printing wheel c in a well known manner. The inking ribbon is represented as being fed along by positively rotating the roller w^2, this being effected by connecting a gear-wheel x on the roller w^2 with another gear-wheel x^1 on the spindle of the feed-roller k^2 through the intervention of the intermediate wheel x^2, whereby, each time that the feed-rollers are operated, the inking ribbon w will be moved forward with the paper band k. x^3, x^3 are guide-rods over which the inking ribbon passes.

To permit of readily introducing the paper band k between the feed-rollers k^2, k^3 and of drawing the said band through the feed-rollers quickly if desired, the upper feed-roller k^3 is mounted on one end of a lever y on the other end of which a spring y^1 acts so as to normally hold the roller k^3 towards the roller k^2 with a spring-pressure, and a cord or rod y^2 is attached to the end of the lever y adjacent to the spring y^1 so that by pulling the said cord or rod the lever will be moved to raise the roller k^3 away from the roller k^2.

z is a screen of canvas or other material attached at one edge z^1 to the bottom of the case and at the other edge to a pillar z^2 projecting from the back of the case, the said screen serving to break the fall of the checks dropping from the chute l^1 as they fall into the bottom of the apparatus.

If desired, an aperture may be formed in the casing through which the checks, after they have made a record in the machine, will pass so that they can be again returned to the workmen.

The record strips obtained by means of our machine, as hereinbefore described, are advantageously pasted into a book specially ruled to receive them.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. Time checking apparatus wherein a record band or strip is arranged in connection with time printing mechanism controlled by a clock, and in conjunction

with which workpeople's checks adapted to print upon the band are employed in such a manner that the time at which a check is dropped into the apparatus is recorded, substantially as described.

2. In time checking apparatus in which the number of the workman's check and the time at which such check is dropped are printed upon a record band, the employment of a time printing wheel operated by clock mechanism arranged to be let off by a clock, substantially as described.

3. In time checking apparatus wherein the workpeople's check numbers and the time are adapted to be printed on a record band or strip, the arrangement of mechanism substantially as hereinbefore described, whereby when a workman's check is making an impression, an impression is being made from the type on the time wheel, as set forth.

4. In time checking apparatus wherein the workman's check number and the time are printed upon a record band or strip, the arrangement of feed mechanism in conjunction with the slot through which the checks are introduced into the apparatus in such a manner that each time a check is introduced the record band or strip is moved substantially as, and for the purpose, described.

5. The manufacture and use of the improved time checking apparatus consisting of the parts constructed and combined substantially in the manner hereinbefore described and illustrated in the accompanying drawings and operating as, and for the purposes, set forth.

Dated this 29th day of March 1895.

G. F. REDFERN & Co.,
4, South Street, Finsbury, London, Agents for the Applicants.

London : Printed for Her Majesty's Stationery Office, by Darling & Son, Ltd.—1895

A.D. 1894. JUNE 30. N.º 12,718.

GENT & *others'* COMPLETE SPECIFICATION.

(2 SHEETS)

SHEET 1

SHEET 2

Fig. 1.

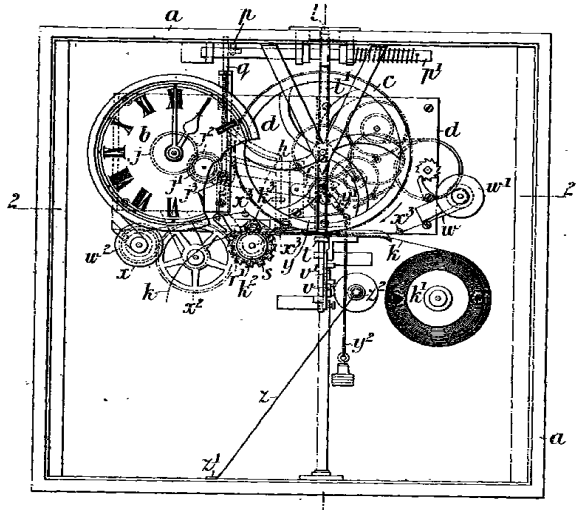


Fig. 2.

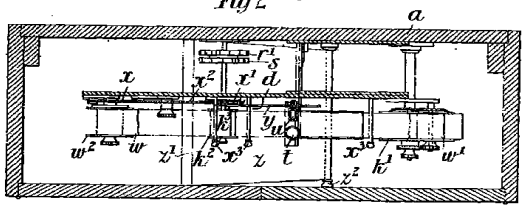


Fig. 9.

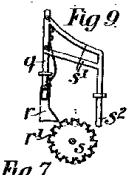


Fig. 7.

Fig. 8.

Fig. 3.

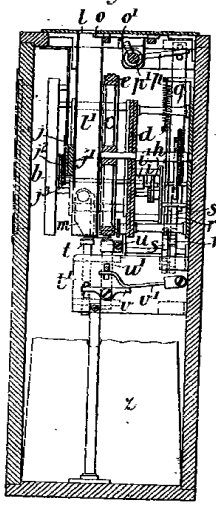


Fig. 4.

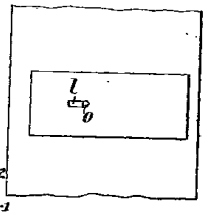


Fig. 10. *Fig. 3a.*

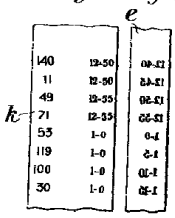


Fig. 5.

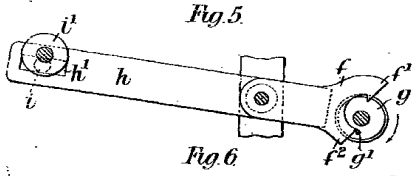
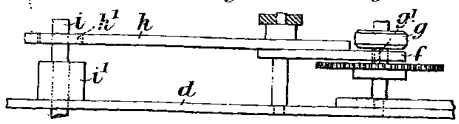


Fig. 6.



[This Drawing is a reproduction of the Original on a reduced scale.]

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SHEET 1.

Fig. 1.

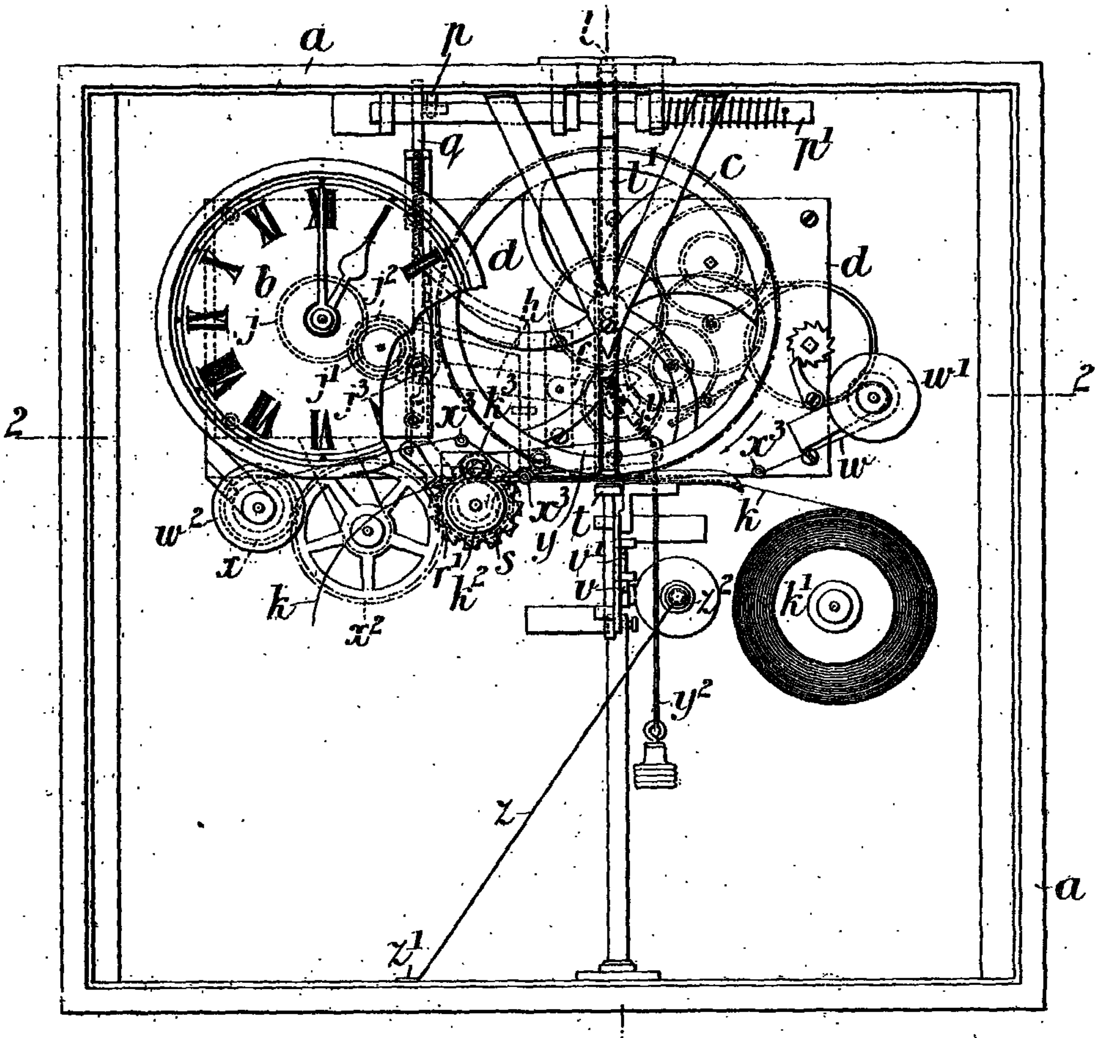
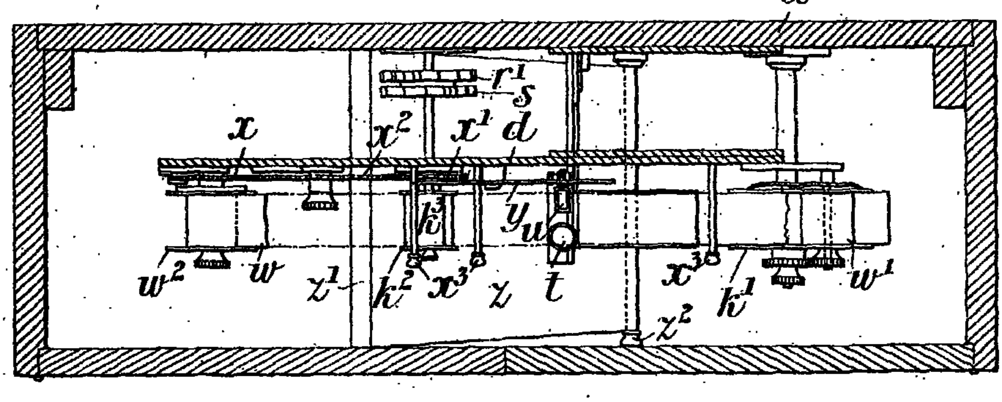


Fig. 2.



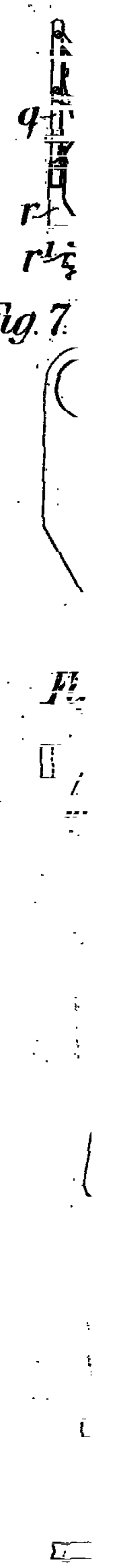


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Fig. 9

Fig. 3

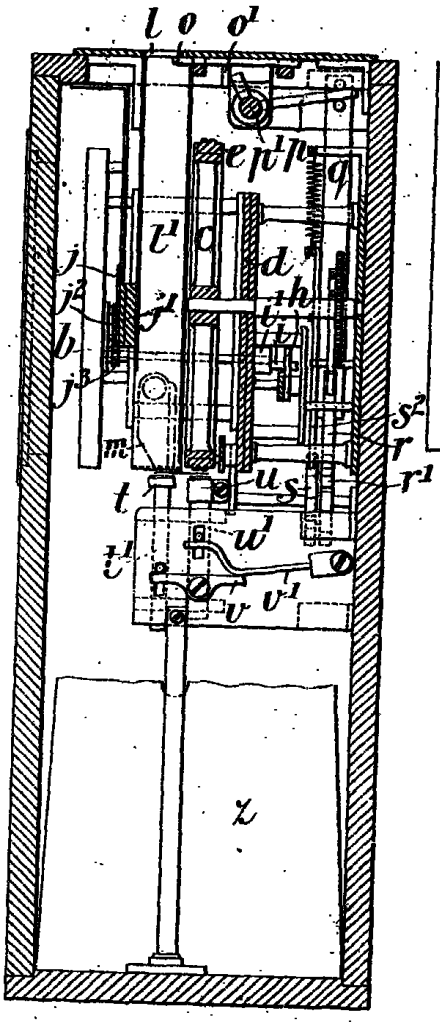


Fig. 4

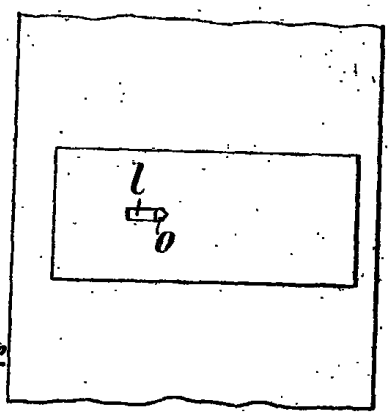


Fig. 10 Fig. 3a

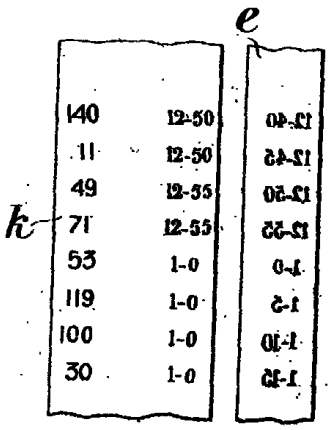


Fig. 5

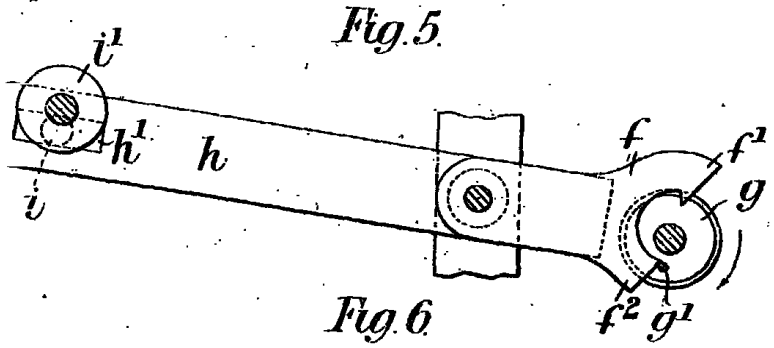
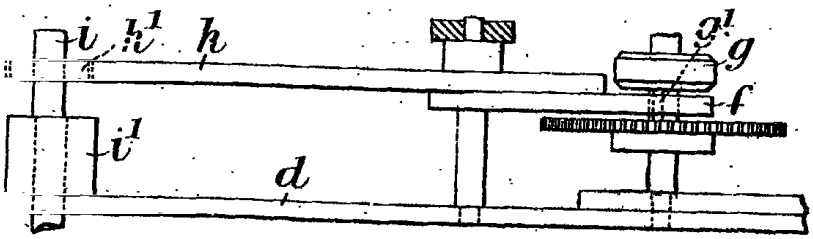


Fig. 6



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