

W. J. ENGLISH.
 TIME STAMP.
 APPLICATION FILED DEC. 13, 1905.

970,201.

Patented Sept. 13, 1910.

4 SHEETS—SHEET 1.

Fig. 1.

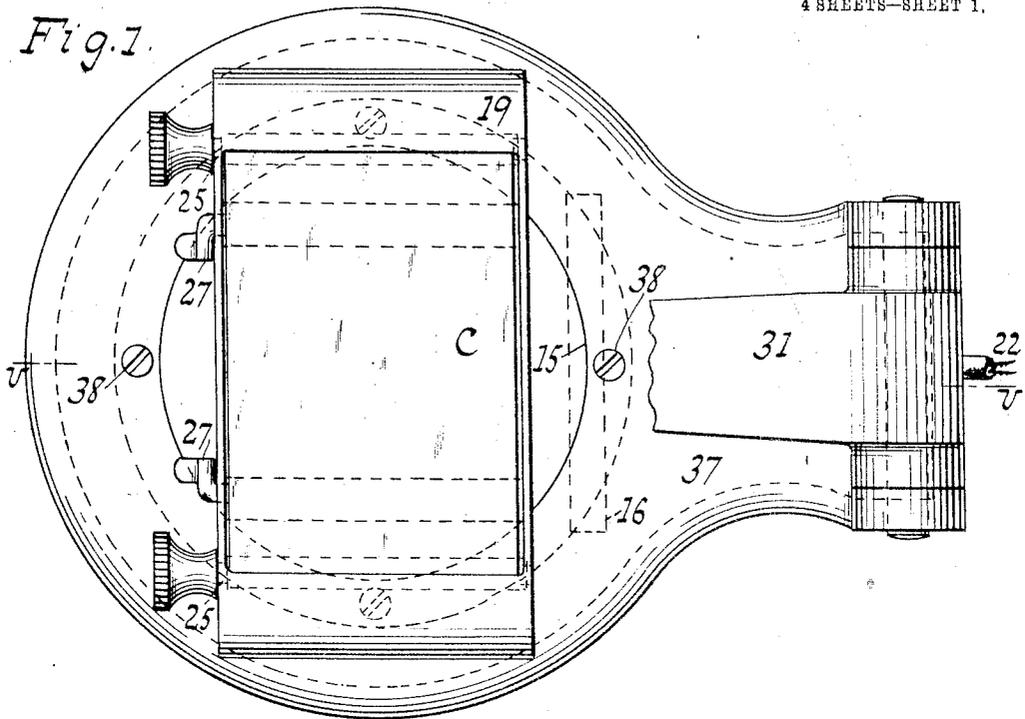
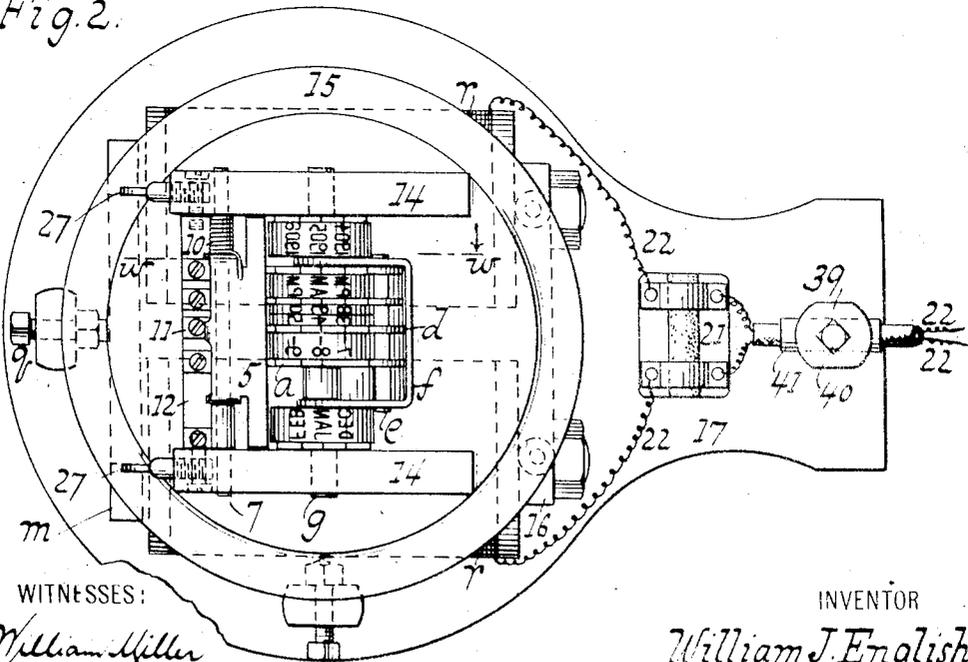


Fig. 2.



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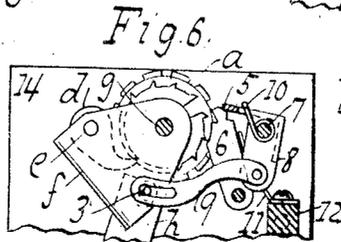
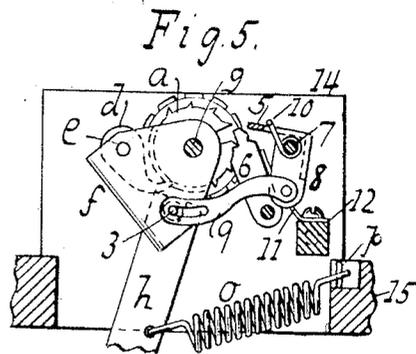
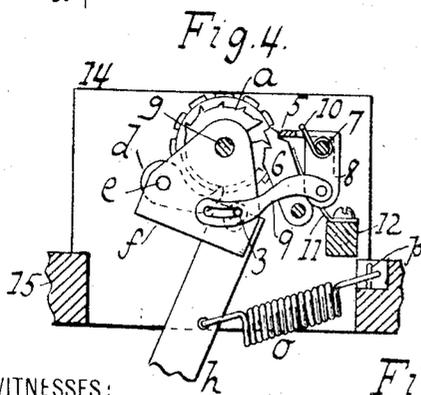
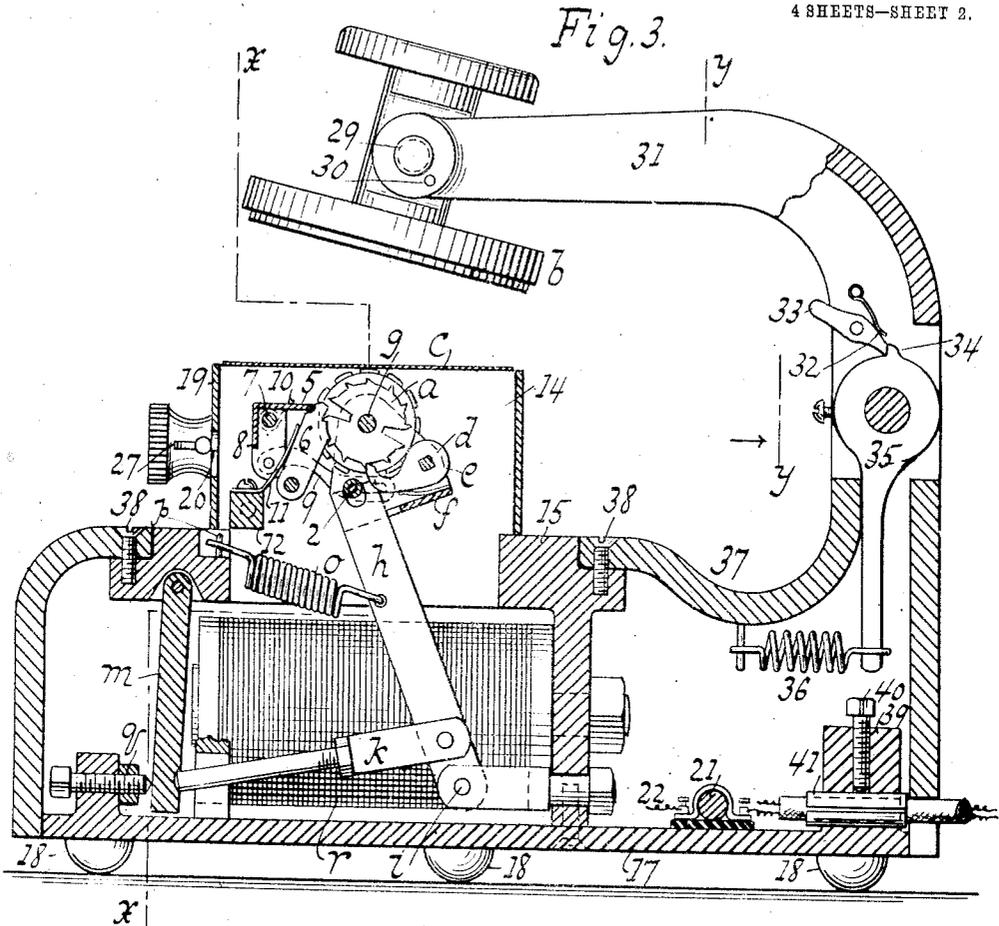
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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

Fig. 7.

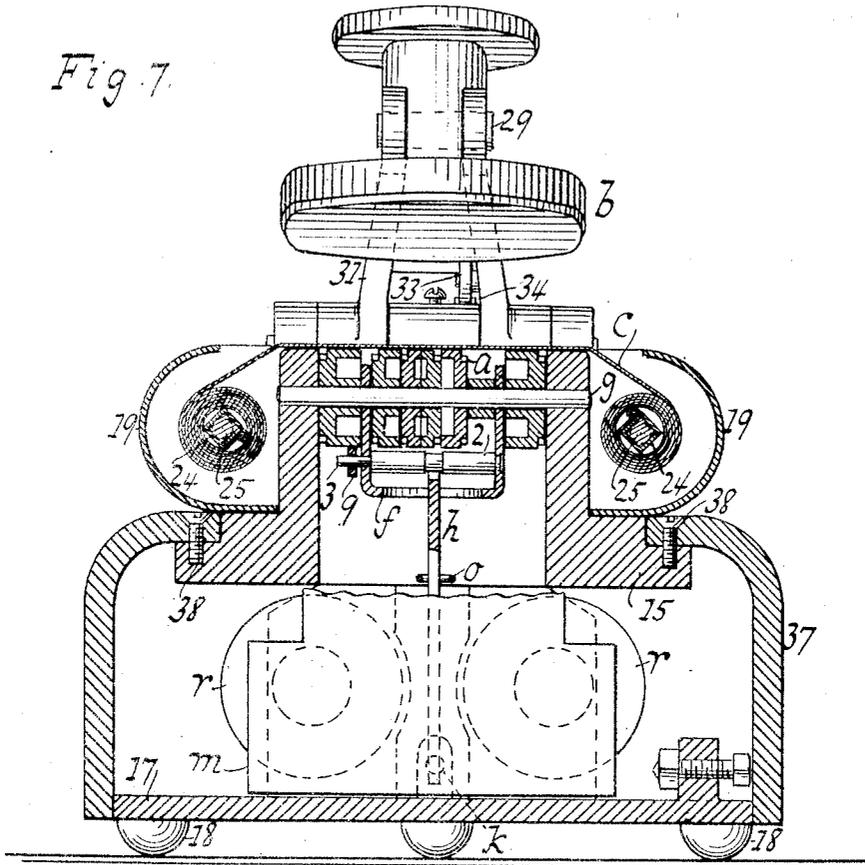
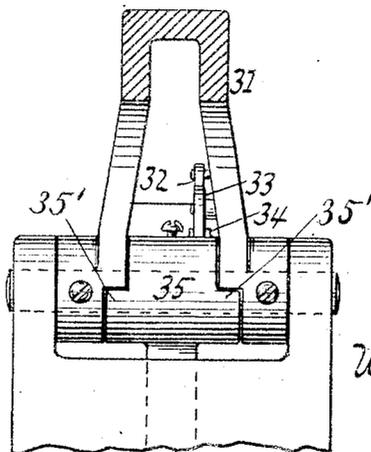


Fig. 8.



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4 SHEETS—SHEET 4.

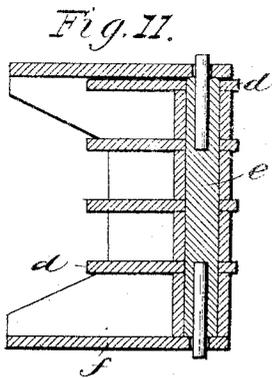
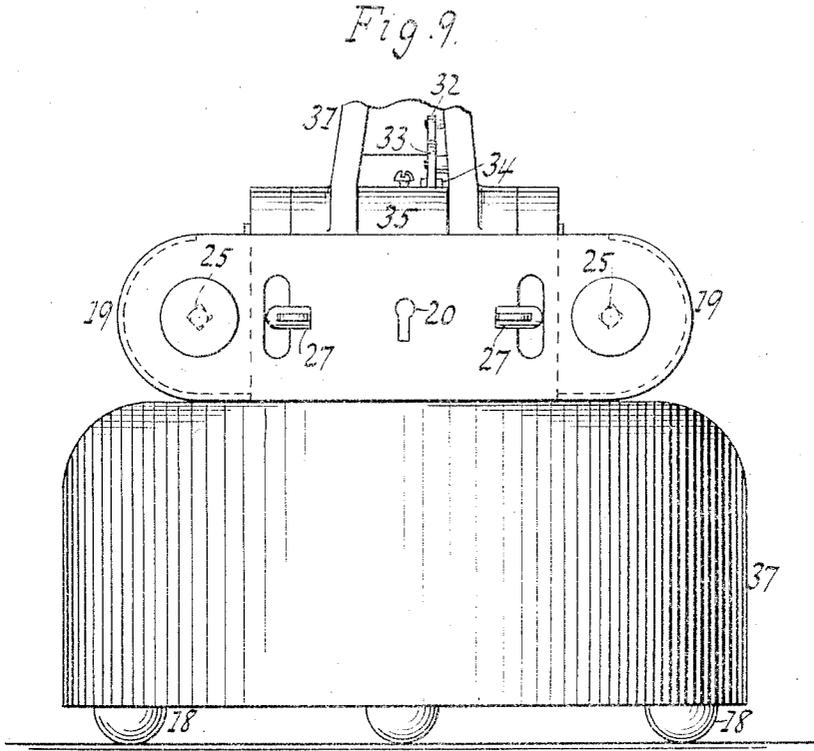


Fig. 10.

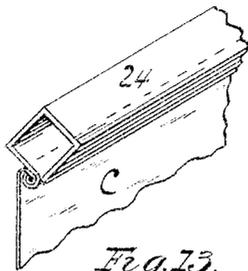


Fig. 12.

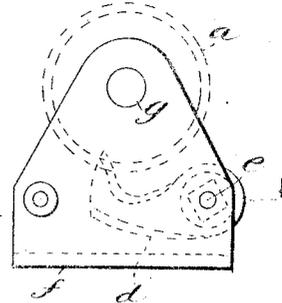
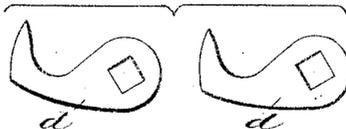


Fig. 13.



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TIME-STAMP.

970,201.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed December 13, 1905. Serial No. 291,614.

To all whom it may concern:

Be it known that I, WILLIAM J. ENGLISH, a citizen of the United States, residing at Manhattan borough, in the county of New York and State of New York, have invented new and useful Improvements in Time-Stamp, of which the following is a specification.

One object of this invention is to enable the armature actuating certain mechanism to start or respond easily or reliably on the vitalizing of the magnet.

This invention relates to details set forth in the following specification and claim and illustrated in the annexed drawing, in which:

Figure 1 is a plan view of an ink ribbon in place on a stamp and parts of the device broken off. Fig. 2 is a like view the ink ribbon having been removed. Fig. 3 is a section along *v v* Fig. 1 showing a side elevation of mechanism embodying this invention. Fig. 4 is a section along *w w* Fig. 2. Figs. 5 and 6 are views like Fig. 4 with parts in a different position. Fig. 7 is a section along *x x* Fig. 3. Fig. 8 is a section along *y y* Fig. 3. Fig. 9 is a front view with parts broken. Fig. 10 shows a manner of securing a ribbon. Fig. 11 is a section through the live pawls and their shaft as indicated in Fig. 12. Fig. 12 is a side elevation of Fig. 11 showing pawls in stepped position. Fig. 13 shows two pawls with shaft receiving holes cut so as to be stepped when mounted on the shaft as shown in Fig. 12.

In this drawing are shown type wheels *a* and an impression is produced when a sheet or surface is pressed by platen *b* onto the ink ribbon *c* over the wheels or type. These wheels are given a step by step motion by the so called live pawls *d* suitably stepped in the customary manner. These pawls are shown slipped onto a noncircular shaft *e* so as to be nonrotary or nonshiftable with respect to one another. The stepping of the live pawls is readily accomplished by punching or forming at a different angle the noncircular hole in each pawl, as seen in Fig. 13, which holes fit over the noncircular shaft *e*. If one of said live pawls should be unserviceable it is readily removed and replaced while the remaining pawls can still remain in service. The shaft *e* is held in the frame by end pins as seen in Fig. 11 and by removing these pins the shaft with the

pawls will come out of place and such pawls can be removed and changed or remounted as required. This shaft *e* can swing or rock in a live pawl frame *f* having a fulcrum or swinging point on the shaft *g* of the ratchets or type wheels. This frame is actuated by a lever *h*. This lever is shown fulcrumed at *i*. An actuating link *k* and armature *m* move the lever which latter returns under the influence of spring *o*.

As shown in the drawing the power point or connection *k* is connected to the lever near the fulcrum while the restoring spring is shown at a distance or farther away from the fulcrum. When the parts are at rest the spring *o* is slack or practically so and the armature having at this instant but slight resistance to overcome responds instantly or without fail to the vitalization of the magnet. In consequence, however, of the resultant extensive swing of the resistance point or that part of the lever engaged by the restoring spring the latter is rapidly under effective tension as the magnet moves the lever. On the current or magnet being broken the tension of spring *o* will rapidly return or snap the lever to the starting point. This lever mechanism thus starts easily and at the same time moves rapidly both on the throw and the return. The spring is hitched to a suitable point or stud *p*. A suitable stop or screw *q*, for the armature is shown to limit the play as customary.

The magnet bobbins are shown at *r* and the link *k* extends alongside or between the magnet. The live pawl actuation is thus effected by the armature pushing the link. This manner of connection has been found practical as the link *k* need only be braced against or have its end inserted into a seat or recess of the armature and is not liable to disengage while if the armature were made to pull the link for actuation, the connection between link and armature would have to be firmly made to avoid pulling out or disconnection. By having the armature arranged as shown said armature even when its hinge or pivot works loose or comes out will continue to effectively actuate lever *h*. By having the link *k* run from the armature back along or between the bobbins the structure is made compact or requires but little room. The connection *k* is adjustable in any suitable way as by being threaded with a lock nut.

110

The lever *h* at its free end or resistance point is shown concaved or forked and straddling a sleeve 2 on a pin 3 carried by the live pawl frame. A slot or seat in the sleeve holds the lever *h* steady or against wabbling. As the pawl frame is actuated the pawls *d* actuate the ratchets or type wheels in the usual manner. Springs hold the live pawls in action but allow their ratcheting back as usual with pawls.

A lock 5 and locking pawls 6 for the type wheels are provided, and the lock is released at the proper moments to allow the lock pawls to yield for the actuation of the type by the live pawls. This lock swings on a fulcrum or points 7 and an arm 8 extending from the lock is engaged by link 9, engaging the pawl frame or pin 3.

When the live pawl frame moves from the position shown in Fig. 4 to that shown in Fig. 5, the live pawls are moved to come to another tooth on the ratchets and the lock is moved to free the lock pawls. When the live pawl frame returns from the position shown in Fig. 5, the live pawls rotate the ratchet or type wheel, the lock pawls being free to give as indicated by the position in Fig. 6. The lock pawls are there shown as having come under the lock or holding the latter open but in returning to the position shown in Fig. 4 the lock can again come to engagement. The link 9 has a slot or loose connection with the pin 3 to allow the live pawls certain play without releasing the lock. As a lock pawl or pawls on the actuation of a type wheel swings back more rapidly than the released or raised lock descends the lock pawl comes under the released lock and the latter is held clear until the lock pawl comes back to engagement when the lock again comes to its place. The lock is engaged by a returning spring 10 normally holding the lock to engagement. The lock pawls have their springs 11 mounted on a shaft 12 which can be turned or set so that the lock pawls will be held with the requisite spring pressure more or less to engage their ratchets. The type wheels have their shaft *g* supported in a frame whose side pieces or risers 14 are cast or supported on a base piece 15. By having this piece symmetrical or circular or disk shaped the wheels can be placed as desired, either with the shaft *g* extended in a forward and back direction, or transversely from side to side of the machine. As the armature swings on the base piece and the spring connection *p*, bobbins *r* and link motion fulcrum *i* are carried by this base piece or a depending portion 16 thereof the entire type and wheel frame is set. This entire type wheel frame or base piece is suitably fastened to the main base 17. This main base can have suitable slip pads or soft supporting projections of rub-

ber or the like indicated at 18 to allow the device to be placed at any locality without shifting or scratching.

The inclosing case 19 for the wheels and pawls has a hole 20 to allow access to the pawl lock or its tail piece 8 to be engaged to free the lock and permit the type wheels to be set. The inclosing case is slipped or pressed onto the base piece 15 and held by fastenings 27 as presently explained. Any tool such as a wire or the like passed through the hole 20 to the arm 8 of the lock 5 will lift or move the latter out of engagement. The hole 20 can be made in form of a key hole for the sake of appearance but any hole giving access to a tool will answer. A shunt 21 is shown extended between the conductors 22 of the vitalizing current. This shunt is of high resistance carbon or the like. When on the break of the primary current a self induced current is produced the latter can escape across the conductors or rather the shunt. This shunt acts on the plan of a lightning arrester providing a short cut across the space between conductors. Such a non-inductive shunt will have the effect of causing the current in preference to making the circuit through the contact and thus making a destructive spark, to pass through the non-inductive shunt and thus neutralize itself. A mixture of plumbago and clay is suitable for a high resistance shunt and is known in the trade.

The ink ribbon shown at *c* has each end respectively clamped or connected to a non-circular tube or sleeve 24 adapted to slip onto its noncircular shaft 25. The sleeves 24 are placed in frame 19 and the shafts 25 slipped through shaft bearing perforations in the frame in which bearing the shaft can rotate. The turning of one shaft or another will wind the ribbon on one or another of the sleeves. The ribbon is readily secured without sewing and in a rapid manner by having an edge or lap of the sleeve 24 clamped down upon an end of the ribbon or upon a wire about which the ribbon end is lapped. In Fig. 10 is shown a ribbon end secured without sewing. The frame 19 is adapted to be set over the wheels and held by fastenings 27 which can be turned to align with or to extend across slots in the frame as the latter is to be released or held to its place.

The time stamp wheels or type are of any suitable kind, usually comprising one hour disk, two minute disks, one meridian disk and two date disks, as also month and year disks. Two seconds disks can be added if desired.

The platen is adjustable being mounted on a pin 29 which is shown tapered so that when the platen is aligned and the pin driven into place the platen will not shift. A steady pin 30 can be added if desired to lock the

platen when alined. The hinged arm 31 carrying the platen has a locking pawl 32 which prevents the platen or its arm 31 jumping up to an excessive distance on the rebound or rapid operation. This pawl 32 has a releasing trigger or thumb piece 33 to free the pawl when desired from the pawl engaging shoulder 34 on the shaft 35. The returning spring for this shaft is shown at 36. The shaft or hub part 35 of the returning arm has shoulders 35' which engage shoulder parts or offsets on the hub part of the arm 31. As spring 36 returns part 35 its shoulders 35' will return or lift the arm 31. When the pawl 32 is freed the platen or its arm can be swung up or out of the way for allowing access to the type mechanism for setting or other purpose. A cover or case 37 is shown held to its place by two screws 38 which can be readily released for uncovering or giving access to any portion as desired.

The conductors 22 before referred to are led off in the form of the usual cord to the source of electricity. This cord is shown extended through a stud or projection 39 on base 17. A screw or bolt 40 is run through a tap in the stud and jams or clamps the cord or a split sleeve or collar 41 about the cord. If the stamp is carried by the cord 22 the screw 40 or collar 41 will take up the strain and prevent the conductors at the part joining the magnets from being pulled or torn.

What I claim as my invention and desire to secure by Letters Patent, is:

1. A time stamp having live pawls and a live pawl frame, a slotted sleeve, a pin for supporting the sleeve on the frame, an actuating lever extended into the slot in the sleeve, a link connected to the pin, a lock engaged by the link, locking pawls against which the lock is made to squarely sit so as to be rigidly held thereby, and ratchets engaged by the live and locking pawls.

2. A time stamp comprising live pawls and a live pawl frame, a link loosely connected to the frame by a pin and slot connection, a lock engaged by the link, locking pawls disconnected from and engaged by the lock, and ratchets engaged by the pawls.

3. A time stamp comprising a live pawl frame and an actuating armature therefor, a noncircular rock shaft in the frame, pawls fixed to the shaft to rock together or swing in unison, ratchets actuated by the pawls, a lock actuated by the frame, locking pawls for the ratchets engaged by the lock, springs for the locking pawls and a supporting bar for the springs capable of being set or turned for regulating the tension of the springs.

4. A time stamp comprising an inner casing having time printing mechanism mounted thereon, and an outer casing surround-

ing said inner casing and horizontally adjustable at different angles therewith and having mounted thereon an arm carrying a platen vertically movable above the time printing mechanism.

5. A time stamp having a case, wheel actuating pawls and mechanism in the case, locking pawls, a pivot back of the locking pawls, a releasing link, a lock mounted on the pivot and having arms, one of which is extended from the pivot to the locking pawls to sit squarely thereagainst when such pawls engage the wheels and the other of which is connected to the releasing link and is accessible from the exterior so that it can be actuated by hand or by a hand tool or pusher for enabling the lock to be freed or disengaged.

6. A time stamp having wheels and wheel actuating pawls, locking pawls for the wheels, a lock mounted independently of the locking pawls and made to brace or butt thereagainst to positively hold the locking pawls, and means for releasing the lock and moving the actuating pawls.

7. A time stamp having a platen and swinging arm therefor, a shaft with returning spring to which the arm is pivoted or hinged, and a releasable pawl or lock arrangement for preventing rebound or excessive rise of the platen or arm, and allowing the arm to be released and moved out of the way when required.

8. A time stamp having ribbon winding shafts, sleeves mounted on the shafts to turn therewith, and ribbons connected to the sleeves, the latter having edges or lap portions to clamp a ribbon end without sewing, said sleeves and shafts being noncircular so as to engage one another to rotate together.

9. A time stamp having a live pawl frame with noncircular shaft, and pawls having variously inclined holes to engage the shaft and hold the pawls stepped, said pawls being mounted upon a common shaft but not secured to one another so that when the shaft is removed and the pawls are slipped off the shaft they are separable from one another.

10. A time stamp having an electromagnet, a stud separate from the conductor attachments for the reception of the cord formed by the magnet conductors or leads, and a screw or nut in the stud to clamp or hold the cord and keep the conductors loose between such stud and the conductor attachments so as to prevent strain or pull on said cord being transmitted from the external portion of said cord beyond the stud or to the attachments.

11. A time stamp having wheel supporting risers, and a cover releasably connected to the risers, a platen carrying arm pivoted to the cover, a returning arm extended from said pivot, a returning or lifting spring con-

ected to the returning arm, and a releas-
able coupling connection between the arms
for allowing the platen carrying arm to be
swung up or raised without moving the re-
turning arm.

5 12. A time recorder comprising an elec-
tro-magnet, time indicating wheels and a
swinging pawl carrier mounted above the
electro-magnet, a lever pivoted at its lower
10 end between the coils of the electro-magnet
and making connection at its upper end with
the pawl carrier, an actuating link pivoted
at one end to the lever near its fulcrum and
bearing at its other end against the inner
15 face of the armature of the electro-magnet,
and a spring connected to the lever near its
upper end and acting thereon in a direction
opposed to the action of the electro-magnet.

20 13. In apparatus of the character de-
scribed, the combination with an electro-
magnet of a series of printing wheels mount-
ed vertically above said magnet and opera-
tively connected therewith by a vertically
disposed lever pivoted at its lower end be-
25 tween the coils of said magnet.

14. In apparatus of the character de-
scribed, the combination with a pawl and
ratchet mechanism of a spring pressed piv-
oted dog and a lock timed and operating to
30 engage the back of said dog when the latter
moves forward between two teeth of the
ratchet and to withdraw from such engage-
ment preliminary to and to bear against the
end of said dog during the movement of
35 said ratchet.

15. In apparatus of the character de-
scribed, the combination with a pawl and
ratchet mechanism of a spring pressed piv-
oted dog adapted to engage said ratchet be-
40 tween two adjacent teeth, a lock adapted to
engage the back of said dog to lock it be-
tween the teeth of said ratchet, and means
for withdrawing said lock from engagement
with said dog preliminary to and holding it
45 out of locking engagement therewith during
each advance of said pawl.

16. In apparatus of the character de-
scribed, the combination with a ratchet and
means for intermittently rotating the same
50 of a pivoted dog adapted to bear simultane-
ously against the back of one tooth and the
face of an adjoining tooth of said ratchet

and a lock timed and operating to release
said dog preliminary to, remain out of lock-
ing engagement with said dog during, and 55
lock said dog between the teeth of said
ratchet after, each movement of the ratchet.

17. In apparatus of the character de-
scribed, the combination with a pawl and
60 ratchet of a pivoted dog adapted to bear
simultaneously against the back of one tooth
and the face of an adjoining tooth of said
ratchet, a lock adapted to engage said dog
to lock it between two teeth of said ratchet,
65 and means for withdrawing said lock from
such contact preliminary to and holding it
out of locking contact during the rotary
movement of said ratchet.

18. In apparatus of the character de-
scribed, the combination with a pawl and 70
ratchet mechanism of a pivoted operating
lever, a helical spring which is operatively
connected with said lever at a distance from
its fulcrum and is substantially slack and
inert when said lever is at the limit of its 75
forward movement, and an electro-magnet
which is adapted when energized to act upon
said lever near its fulcrum to rock the lever
backward against the action of said spring.

19. In apparatus of the character de- 80
scribed, the combination with a pawl and
ratchet mechanism of an operating lever
which is pivoted at or near one end and at
the other end is operatively connected with
the pawl and ratchet mechanism, a helical 85
spring which is operatively connected with
said operating lever at a distance from its
fulcrum and is substantially slack and inert
when said lever is at the limit of its forward 90
movement, and an electro-magnet the arma-
ture of which is pivoted at one side of the
core and on the opposite side is operatively
connected by an actuating link with the op-
erating lever near its fulcrum and which is 95
adapted when energized to rock said lever
backward against the action of said spring.

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

WILLIAM J. ENGLISH.

Witnesses:

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EDWARD WIESNER.