

C. OWENS.
BUNDLING MACHINE.

APPLICATION FILED OCT. 18, 1907. RENEWED DEC. 27, 1909.

948,244.

Patented Feb. 1, 1910.

4 SHEETS—SHEET 1.

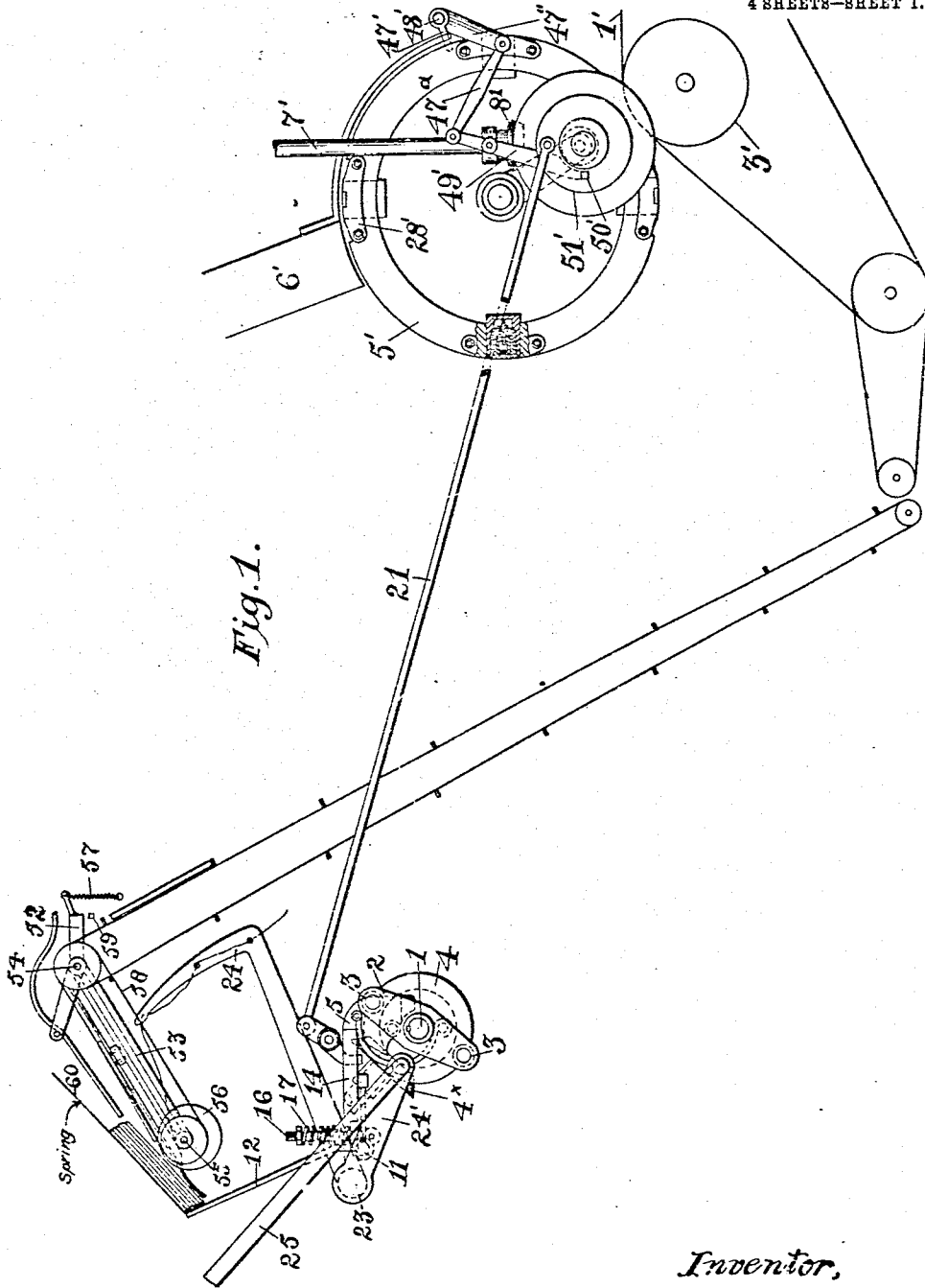


Fig. 1.

Inventor,

Charles Owens.

Attest:

Edw. L. Tolson.

Benton & Stahl.

By Spear, Middleton, Donaldson & Spear
attys.

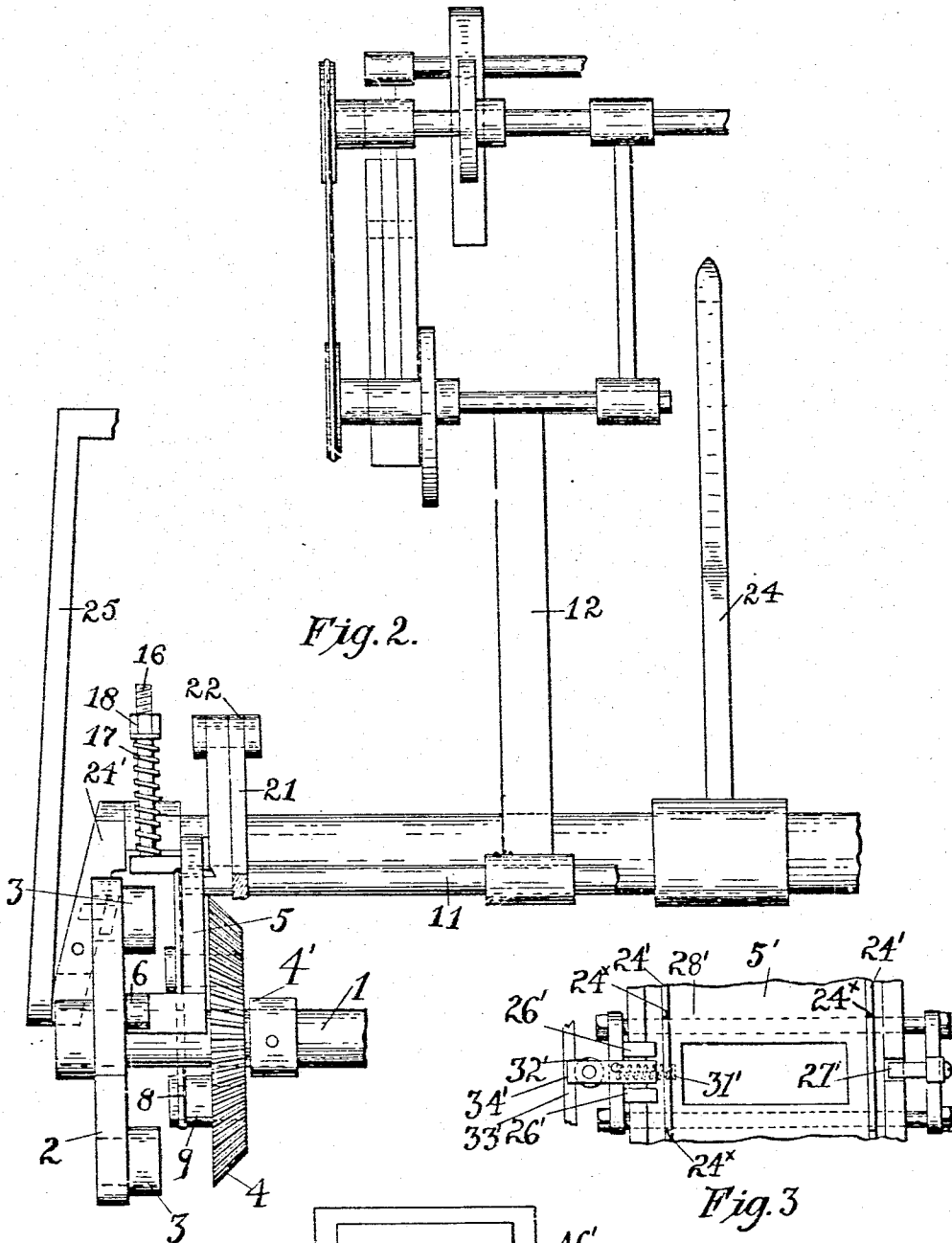
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Attest:
Benton H. Stahl.
Edw. L. Tolson.

Fig. 6.

Inventor.
Charles Owens.

By *Spencer Middleton* *Wm. H. Sprou*
Attys.

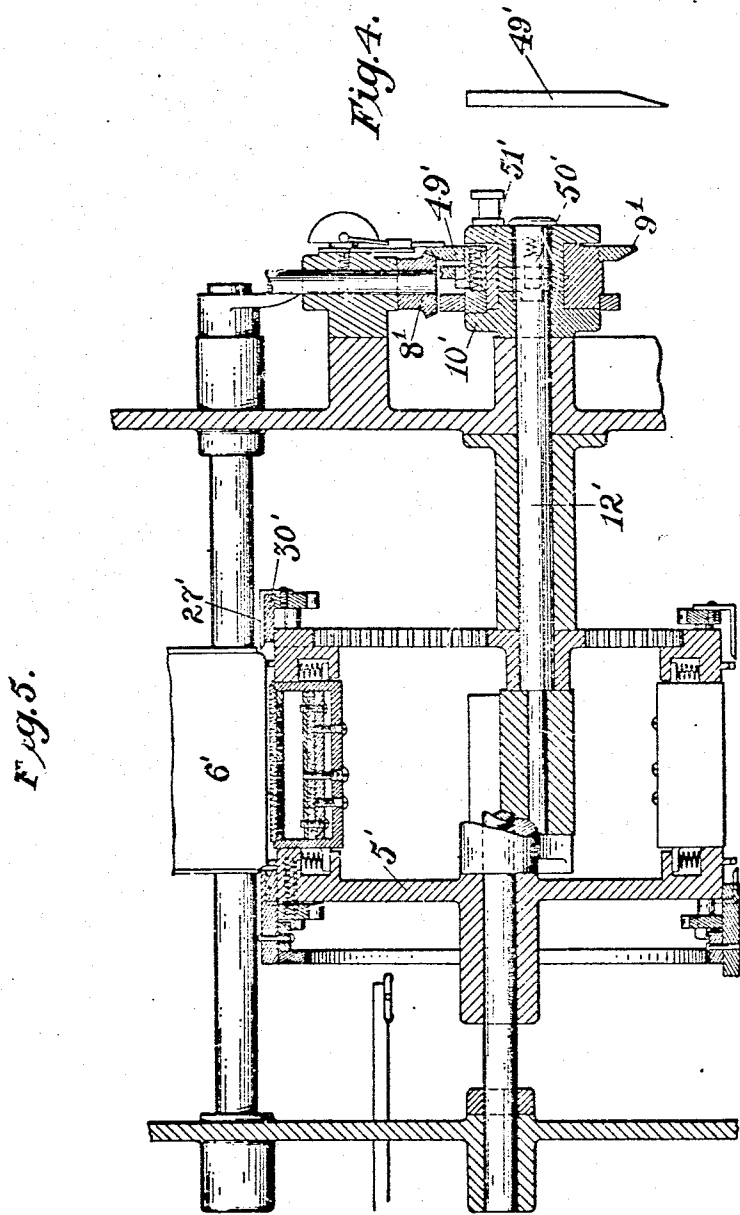
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Attest:

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Bentond Stahl.

Inventor.

Charles Owens,
By Spear, Middleton, Donaldson & Spear
attys.

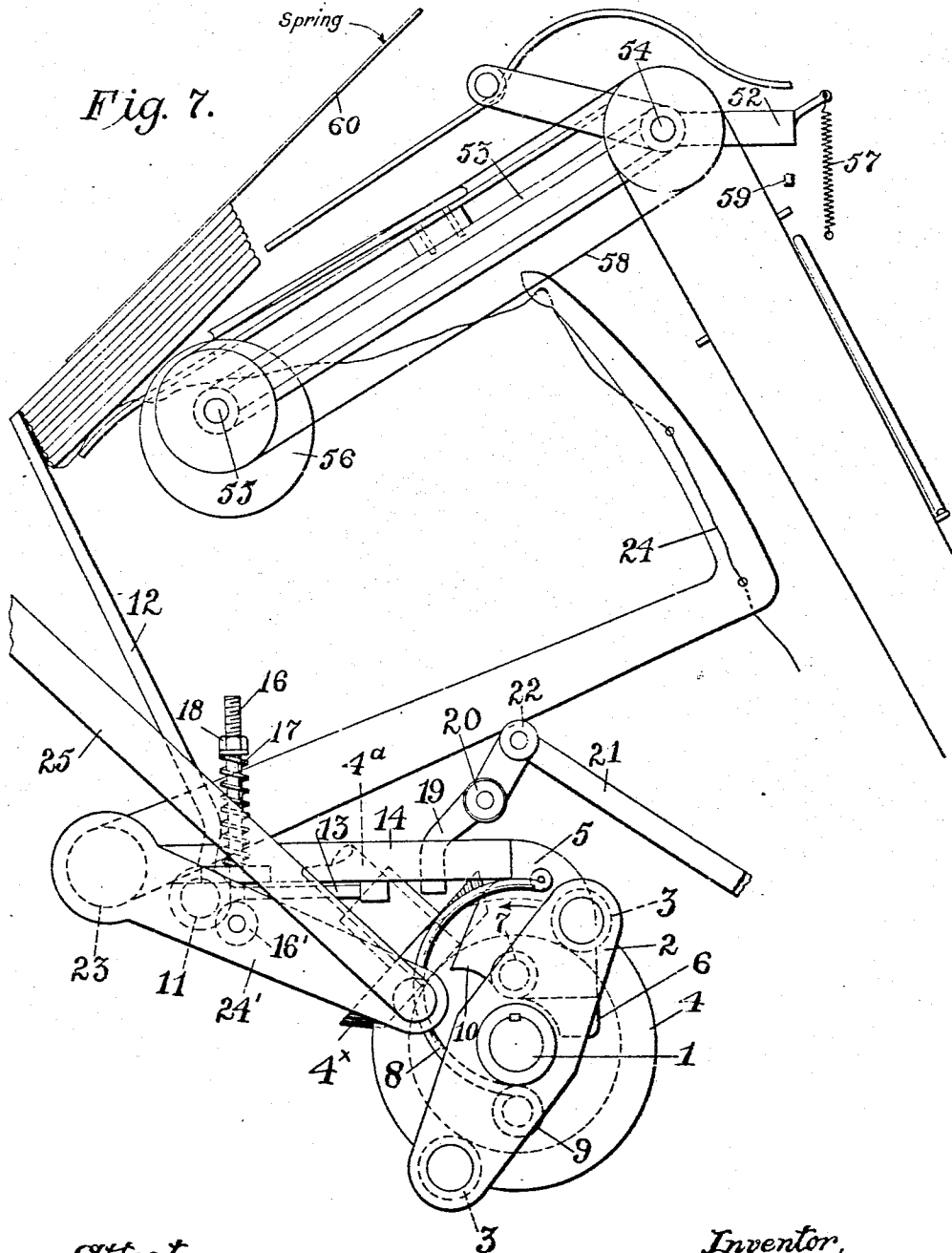
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4 SHEETS—SHEET 4.



Attest:
E. L. Tolson.
Benton H. Stahl.

Inventor,
Charles Owens.
By Spear, Middleton, Davidson & Spear
attys.

UNITED STATES PATENT OFFICE.

CHARLES OWENS, OF CHATTANOOGA, TENNESSEE, ASSIGNOR TO MONTAGUE MAILING MACHINERY CO., A CORPORATION OF TENNESSEE.

BUNDLING-MACHINE.

948,244.

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed October 18, 1907, Serial No. 398,116. Renewed December 27, 1909. Serial No. 535,150.

To all whom it may concern:

Be it known that I, CHARLES OWENS, citizen of the United States, residing at Chattanooga, Tennessee, have invented certain new and useful Improvements in Bundling-Machines, of which the following is a specification.

My invention relates to means for bundling magazines, periodicals or other articles which are to be sent out to different sections of the country or to club lists.

It is the object of my invention to provide means whereby the articles will be arranged in bundles and will be joined by a tying mechanism, said means cooperating with mechanism such as that disclosed in an application for Letters Patent of the United States filed by Charles Owens and Alexander Lyle, June 2/06, No. 319,974.

In carrying out the invention the tying mechanism employed is substantially that now used on a grain binding machine.

The invention consists in the features and combination and arrangement of parts hereinafter described and particularly pointed out in the claims.

In the accompanying drawings: Figure 1 is a side view of the invention. Fig. 2 is a view of a portion of Fig. 1 looking from the left thereof. Fig. 3 is a plan view of a part of the drum of the addressing machine with which the present invention is associated. Fig. 4 is a detail view of the clutch connection between the main part of the addressing machine and the present improvement. Fig. 5 is a longitudinal sectional view through the drum and associated parts. Fig. 6 is a detail view of one of the controlling plates. Fig. 7 is an enlarged view of part of Fig. 1.

Referring to Fig. 1, 1 indicates a constantly driven shaft on the end of which is mounted the clutch and knoter operating mechanism and it is to this clutch mechanism that my invention particularly relates. On this shaft 1 is fixed an arm 2 carrying a roller 3 at each end. A bevel gear 4 is loosely mounted on this shaft being held in position by a collar 4'. At the rear of this bevel wheel a tripper 5 is pivoted upon a stud 7. This tripper or clutch is under tension of a spring 8 attached thereto and to a stud 9 on the bevel gear 4, the tendency of said spring being to move the tripper or clutch in the direction of the arrow, Fig. 7, and to throw out the stud or portion 6

of said tripper clutch into the path of the constantly revolving rollers 3, 3. Normally the clutch 5 is held by a stop 14 which stop is pivotally mounted as will hereinafter appear.

11 is the shaft journaled in the frame of the bundler and having supporting arms 12 extending upwardly therefrom on each side of the tying or knotting needle 24 and adapted to receive thereagainst the bundle or the articles to be bundled and tied together. The shaft 11 also has a tripping arm, 13, one end of which rests beneath the stop 14. The needle arm 24 turns about the shaft or point 23 and it has connected therewith a crank arm 24' which is connected with the knoter mechanism by the crank rod 25. The stop 14 is pivoted at its inner end on the shaft 23. The stop 14 is placed under tension by a spring 17 surrounding the bolt 16 which is pivotally connected to the stud 16' on the inner side of the crank arm 24', the said bolt being threaded and having a nut 18 by which the tension of the spring may be regulated and thus the pressure upon the stop 14 changed as desired.

In Fig. 1 is shown a series of wrapped magazines or other articles resting against the supporting arms 12, these arms being substantially the same in function and arrangement as those against which the bundle of grain rests in the ordinary grain binder. When a sufficient number of articles have been fed against the arms 12 to overcome the resistance of the spring 17 movement will be imparted through the shaft 11 and trip arm 13 and the stop arm 14 will, by the movement of the arms 12, be raised clear of the clutch member 5 and the spring 8 then asserting its force will throw the clutch member 5 down until the shoulder 10 thereof strikes the hub of the arm 2. This movement of the trip or clutch 5 will throw out the portion thereof carrying the stud 6 so that said stud will now lie in the path of the rollers 3, and as soon as one of these rollers contacts with the stud 6 the same will be set in motion, thus rotating the gear 4 and motion is imparted from this gear through a pinion 4*, a shaft 4* to the tying and ejecting means for the bundle and the parts are then returned to normal position with the stop 14 across the path of the trip clutch 5. As soon as this occurs the parts are then brought into the position shown in Fig. 1, the en-

gagement of stud 6 and the roller 3, being released and the binding mechanism brought to a position of rest.

It will be observed from the above that the operation of the binding mechanism depends upon sufficient weight of articles being brought to bear upon the arms 12.

In addition to the trip for operating the stop arm 14 from the arm 12 I provide means whereby the said stop may be operated at predetermined intervals, which may be either regular or irregular. For this purpose I provide a trip 19 extending beneath the stop 14, said trip being pivoted at 20 and having a rod 21 connected with its end 22, the other end of said rod being connected with the clutch mechanism of the addressing machine, such as disclosed in the above application and such as is disclosed sufficiently in Figs. 1, 3 and 5 to lead to a clear understanding of the present invention. This addressing machine comprises generally a drum 5' having gripper mechanism to receive stencils from a hopper 6' to carry these stencils between the said drum and an impression platen 3' to which the magazine to be addressed is conveyed by a belt 1'. The gripper mechanism is shown in Fig. 5 and comprises a frame work 28' movable across the drum, a part of which is shown in said figure, said frame work carrying a finger 27', said finger cooperating with finger 26' fixed to the drum for holding the stencil to the drum to be carried thereby for imposing on the magazines in passing the platen.

The frame 28' has lateral movement being pressed by a spring 31' to normally cause the finger 27' to grip the stencil and being pressed back to allow the stencils to fall into position from the hopper 6 by means of a roller 32' connected with a part of the frame, said roller running upon the track 33'. Supposing the stencil to be in position on the drum and the frame carrying the finger 27' pushed toward the right by the roller 32' bearing upon the track 33'. Now when the roller moves off of the track 33' the spring will assert its force to move the frame toward the left causing the finger 27' to grip the stencil and also moving the said stencil leftward to be engaged by the fingers 26'. The finger 27' is associated with an abutment 30' which bears on the edge of the stencil and effects its lateral movement under the fingers 26'. Now, for causing the bundling operation to be performed at predetermined intervals I provide plates of special form, shown in Fig. 6, having a recess at 46' so that when one of these plates is fed from the hopper on to the drum the abutment 30' of the gripper mechanism, by entering this recess will allow the gripper frame an excess movement toward the left which will bring the projecting end of the abutment 34', which car-

ries the roller 32' into position to strike the trip arm secured on the shaft 48' which through an arm 47' link 47* and trip lever 49' will cause the bundling operation to be performed, and of course, by spacing these notched plates at either regular or irregular intervals, in a series of stencils the bundling operation will take place at regular or irregular intervals making large or smaller sized bundles according to the requirements of the work.

The rod 21 before described connects with a face wheel or disk 51' which is loose on the shaft 12' of the drum of the addressing machine. This disk is connected at intervals, that is when the bundle is to be tied and discharged by a clutch pin 50' with the drum 10' which is fixed to the shaft 12' of the addressing machine and rotates constantly therewith.

The lever 49' above described has a beveled end to engage and control the said clutch pin 50' and it normally holds this clutch pin retracted so that the disk 51' with the rod 21 and the clutch 2, 3, 5, 6 of the bundling mechanism is at rest while the addressing machine drum is in operation to take the stencils from the hopper 6' and impose them on the magazines as they pass between the addressing machine drum and the platen 3'. When, however, one of the specially recessed stencils or plates shown in Fig. 6 is taken from the hopper 6' with the drum and the gripper mechanism operating in conjunction therewith derives its extra movement laterally due to the recess in said stencil or plate the lever 49' through the described connections will be withdrawn from the pin 50' and then the said pin 50' will connect the disk 51' with the constantly rotating drum 10' and through the rod 21 the stop 14 will be operated to release the clutch lever 5 and through the mechanism described the bundling and tying mechanism will be operated. It will be obvious of course, that this operation of the parts will take place at any desired intervals in accordance with the occurrence of the specially recessed stencils at the gripper mechanism of the drum.

The main drum of the addressing machine is operated by the shaft 7' having thereon the gear wheel 8' which meshes with the gear wheel 9' fixed on the drum 10'.

After the operation just described and after the gripper mechanism on the addressing drum passes by the trip finger or arm 47' the lever 49' returns to normal position so that when the disk 51' has made a revolution the pin 50' connecting the same with the constantly operating drum 10' will be withdrawn by riding up the incline on said lever 49' and the trip 19 will thus be restored to its normal position so as not to interfere with the return of the stop 14 to

its normal position ready to arrest the clutch member 5 and thus throw out of operation the tying mechanism.

Reverting to the act of taking the stencils from the hopper by the drum it may be observed that the lowermost stencil is deposited from the hopper so as to lie in a depression in the ribs 24' said depression lying between the points 24'. The lateral movement of the gripper frame primarily is to cause the finger 27' to catch over the stencil and also to cause the abutment 30' to move the stencil laterally causing its edge to be forced under the fixed gripping fingers 26'.

From the above it will be seen that the machine may operate to make the bundles of uniform size or the mail may be divided into bundles of unequal size and weight depending on the arrangement of the notched plates or addressers within the hopper.

I have shown in Figs. 1 and 7 an arm 52 connected with the frame or arm 53, which has pivotal movement at the point or shaft 54 and carries at its free end a shaft 55 on which is secured eccentrics, one of which is shown at 56, these eccentrics being arranged to bear upon the magazines or other articles to feed them forward into place against the arm 12. The arm 52 is connected with a spring 57 the tendency of which is to swing the frame or arm 53 upwardly to keep the eccentrics pressed against the bottom of the magazine or magazines. The eccentrics are driven through a belt 58. A stop 59 determines the upper limit or position of the frame 53 with the eccentric or eccentrics.

When no magazines are in the bundler the swinging frame with the eccentrics will be in its upper position adjacent the spring 60. As the magazines are fed into the bundler against the arm 12 the swinging frame 53 is depressed and at all times the eccentrics bear with uniform pressure against the underside of the magazines or pile of magazines within the bundler, allowing the pile to vary in size.

I claim as my invention.

1. In combination in a machine of the class described means for tying up the bundles, means whereby the tying means is operated to make bundles containing uniform numbers of articles and automatically operating means for making up bundles of varying numbers of articles; said automatically operating means controlling the tying means, substantially as described.

2. In combination, a clutch, connections leading to the tying mechanism controlled by said clutch means for throwing the said clutch into operation when the bundles have

reached a predetermined uniform number of articles and means controlling the said clutch to make bundles of varying numbers of articles according to the club lists, substantially as described.

3. In combination, a clutch, connections controlled thereby leading to the tying mechanism, a stop for holding said clutch inoperative, means for releasing said clutch from the stop when the bundles have been formed of uniform numbers of packages and means for releasing the clutch from the said stop when the bundles have reached the various numbers of articles according to the club lists, substantially as described.

4. In combination in a machine of the class described, connections leading to tying mechanism for making up a bundle, a clutch controlling said connections, addressing mechanism, means for feeding stencils or plates, and magazines thereto, a specially formed stencil to determine the time of operation of the tying mechanism, said specially formed stencil or plate being placed in the series of stencils, a rotary disk, connections to be operated when the specially formed plate arrives at a certain point to rotate the said disk, a trip for the clutch of the tying mechanism, and a connection to operate the said trip from the said disk, substantially as described.

5. In combination in a bundler for magazines and the like, the swinging frame or arm under spring tension and an eccentric or eccentrics carried thereby for pressing upon the lower sides of the magazines, said swinging frame yielding to accommodate itself to different numbers of magazines, substantially as described.

6. In combination in a bundler, a swinging arm under spring pressure, means for feeding the magazines over the said swinging arm, means carried by the swinging arm for bearing upon the magazines to feed them forward, and an arm 12 against which the magazines bear, substantially as described.

7. In combination in a bundler for magazines and the like, a yielding frame arranged below the path of the magazines, and means carried by the said frame for engaging the lower sides of the magazines to feed them forward, and means against which the magazines are fed to be arranged in bundles, substantially as described.

In testimony whereof, I affix my signature in presence of two witnesses.

CHARLES OWENS.

Witnesses:

C. C. PARIS,
ALBERT LAZARD.