

July 4, 1944.

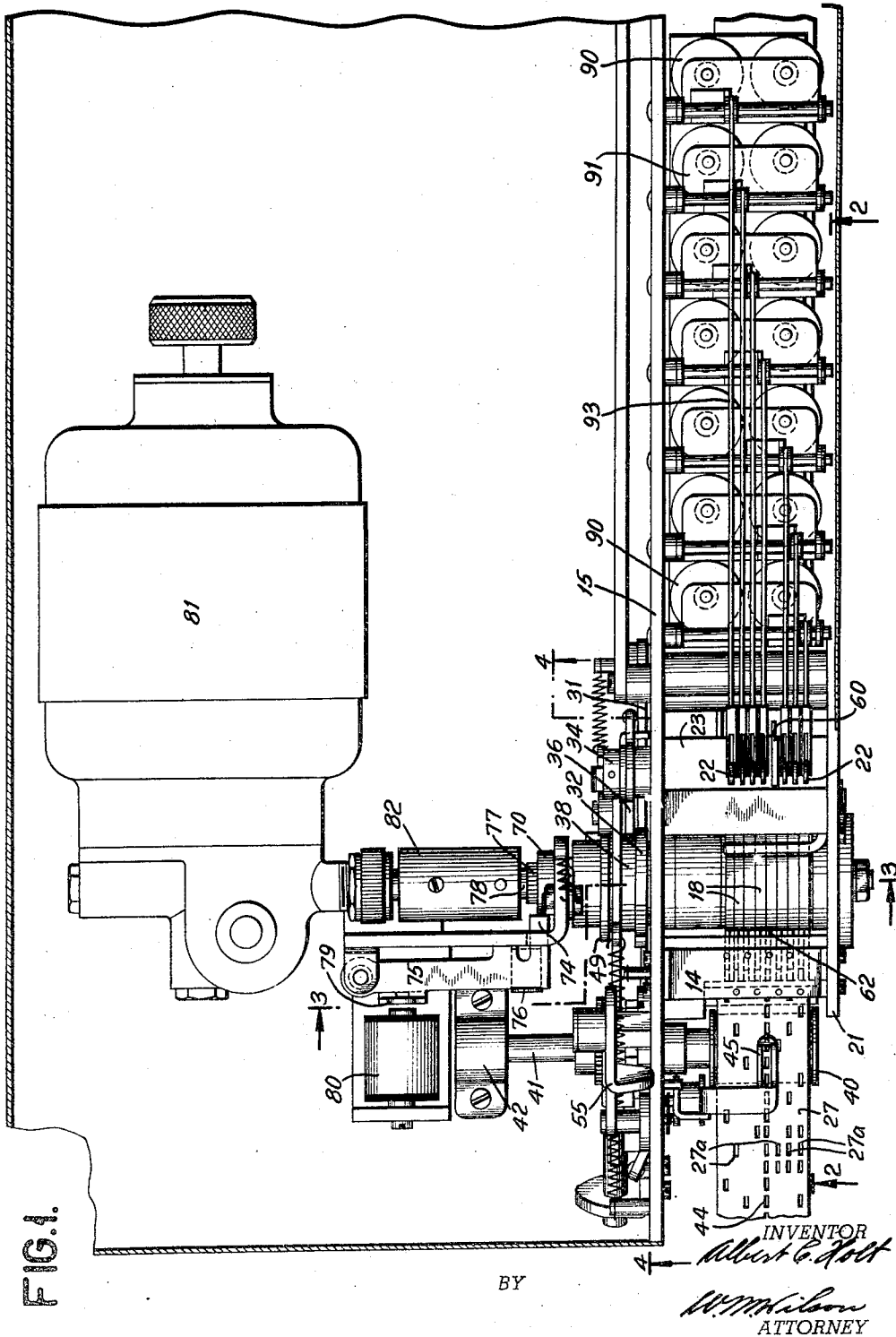
A. C. HOLT

2,353,034

PERFORATING APPARATUS

Filed April 15, 1942

4 Sheets-Sheet 1



July 4, 1944.

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PERFORATING APPARATUS

Filed April 15, 1942

4 Sheets-Sheet 2

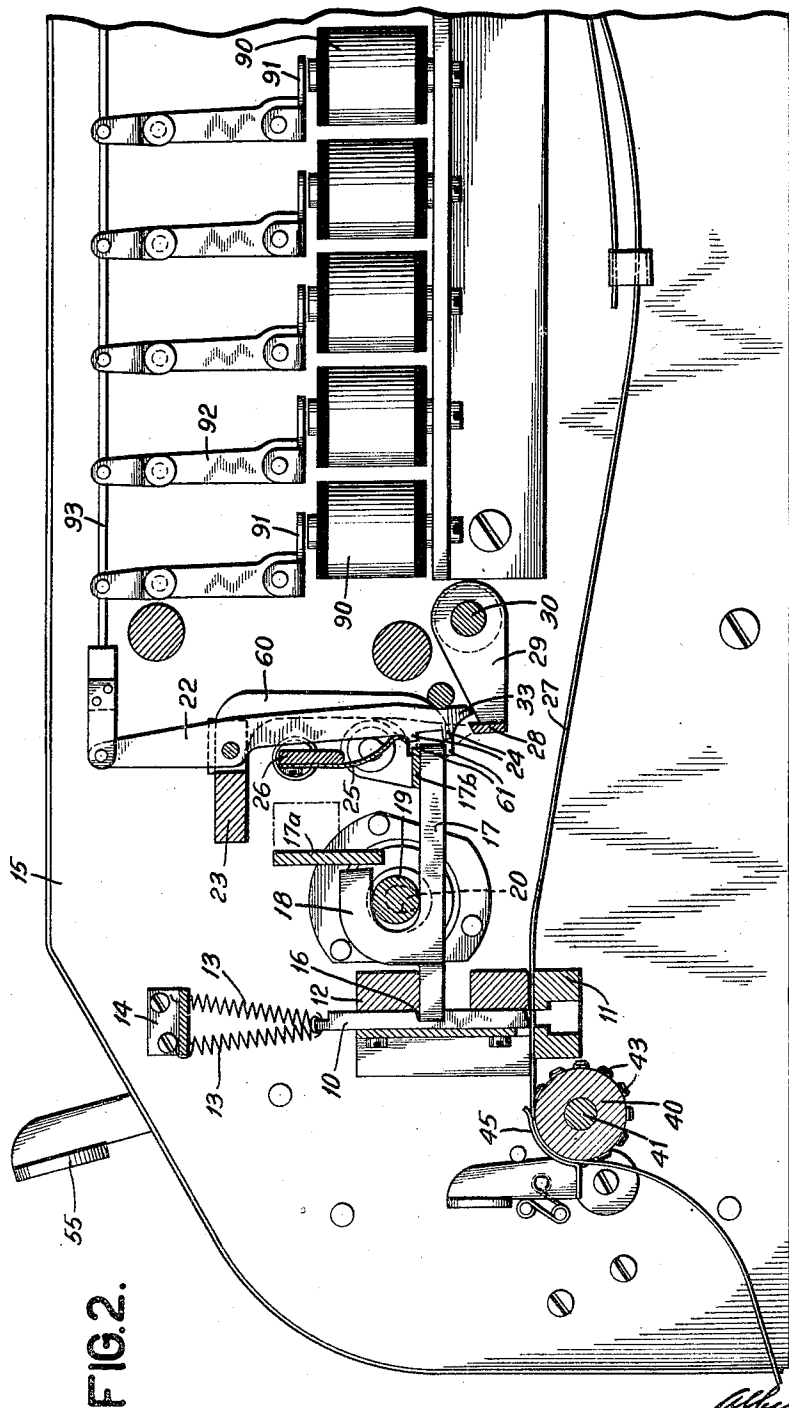


FIG. 2.

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PERFORATING APPARATUS

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4 Sheets-Sheet 3

FIG. 3.

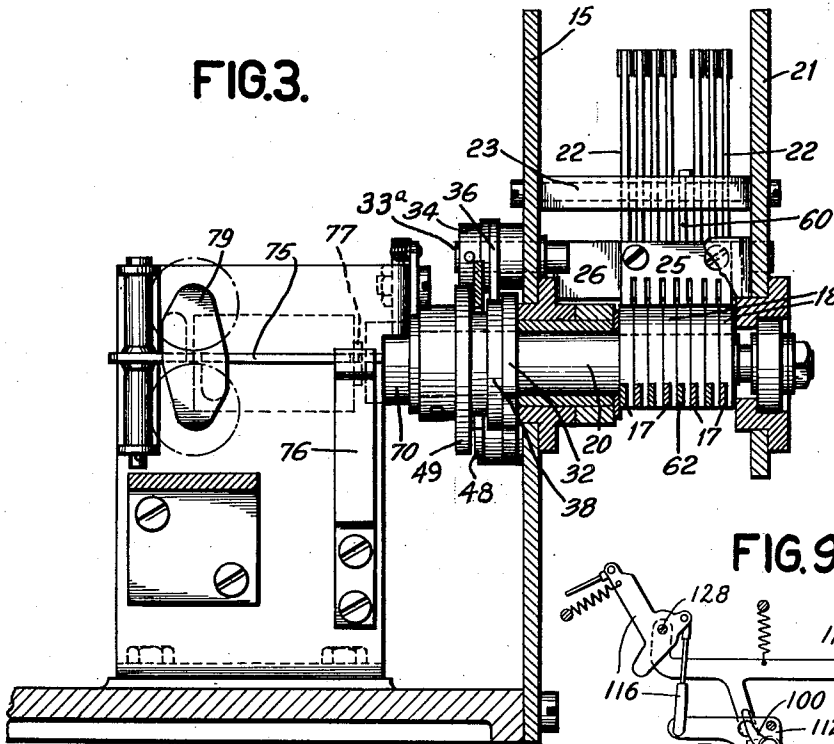


FIG. 9.

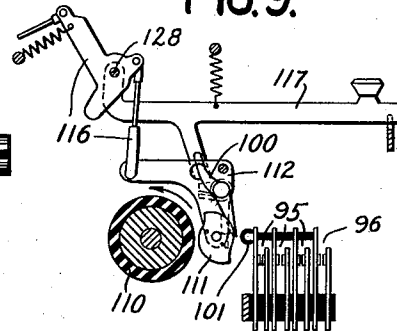
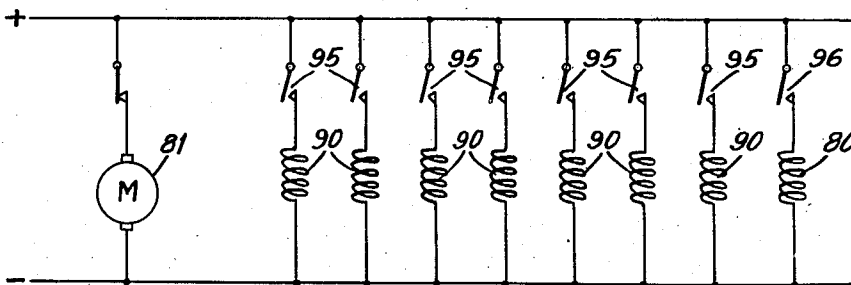


FIG. 8.



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4 Sheets-Sheet 4

FIG. 4.

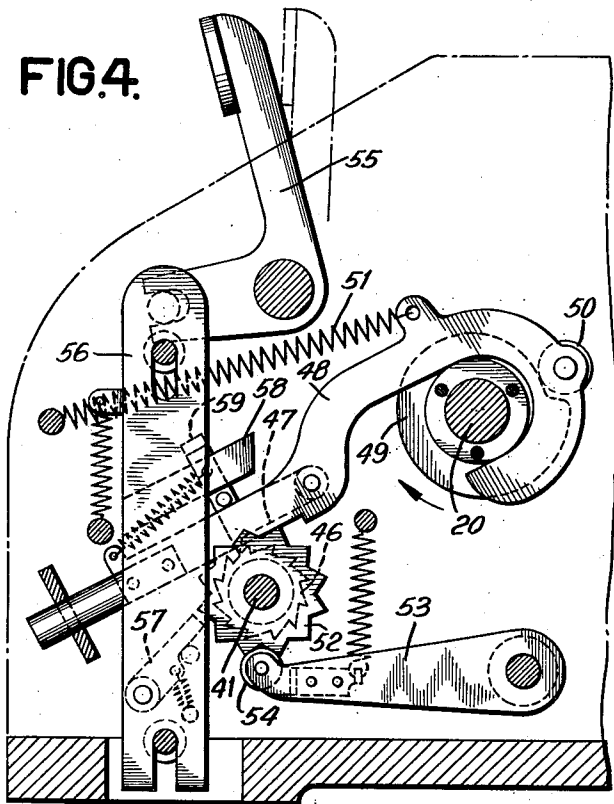


FIG. 5.

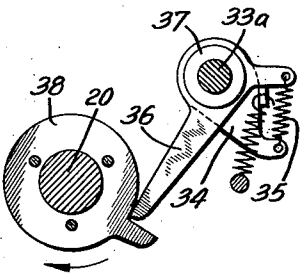


FIG. 7.

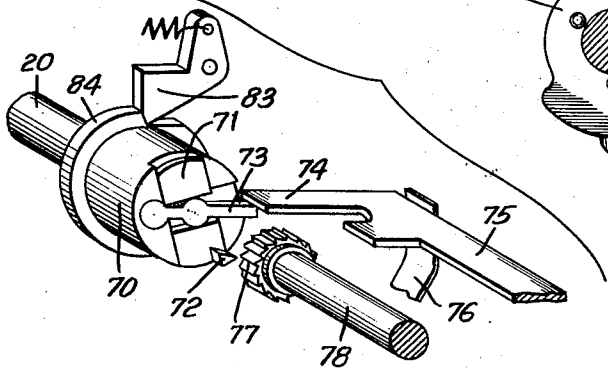
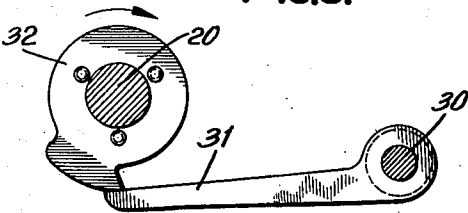


FIG. 6.



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2,353,034

PERFORATING APPARATUS

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Application April 15, 1942, Serial No. 438,973

13 Claims. (Cl. 164—113)

This invention relates to perforating means and more particularly to apparatus for perforating paper sheets or tapes at an extremely rapid rate.

An object of the present invention resides in the provision of an improved perforating apparatus whereby the perforating elements are selectively called into action for perforating sheets at extremely high speeds.

To this end, a plurality of punch elements are provided, which are pivotally connected to one of the ends of related interposers. Suitable latching means, one for each interposer, are disposed in close proximity to the other ends of the related interposers, which latching means are selectively positioned to engage and latch the said interposers. Cyclically operable eccentric means are arranged to actuate or oscillate the interposers so as to cause the latched interposers to operate the connected punch elements. Cyclically operable locking means are also provided for maintaining the positioned latching means, engaging the related interposers, in latching positions, and for preventing the normally disposed latching means from being inadvertently positioned so as to be moved in the paths of the oscillated interposers. In addition thereto, cyclically operable means are rendered operative to positively restore the latching means from the said latching positions to their normal positions, whereby the latching means remain out of the paths of the oscillated interposers. In the present embodiment, start-stop control means are provided for controlling the operations of the perforating apparatus, so that normally, the eccentric means, the interposers and connected punch elements are at rest. Provision is made for operating the said control means so as to actuate the punch elements as soon as the selections of the positionable latching means are made.

Therefore, another object of the present invention resides in the provision of punch elements pivotally connected to related actuated or oscillated interposers, which elements are operated whenever the said interposers are latched by related latching means.

Another object of the present invention resides in the provision of locking means for maintaining the individual latching means in latching positions, upon selective operations of the latter, and for preventing displacement of undesired latching means during the operations of the eccentric actuating means.

Another object of the present invention re-

sides in the provision of means for positively resetting the said latching means to a normal position, upon completion of the punching operations, and after restoration of the said locking means to a normal position whereby the displaced latching means is released.

Still another object of the present invention resides in the provision of start-stop control means for rendering the eccentric means and interposers operative upon operations of the said latching means.

Other objects of the invention will be pointed out in the following description and claims and illustrated in the accompanying drawings, which disclose, by way of example, the principle of the invention and the best mode, which has been contemplated, of applying that principle.

In the drawings:

Fig. 1 is a plan view of the tape perforating unit.

Fig. 2 is a sectional view of the perforating unit taken along the lines 2—2 of Fig. 1.

Fig. 3 is a sectional view taken along the lines 3—3 of Fig. 1.

Fig. 4 is a sectional view taken along the lines 4—4 of Fig. 1 showing the tape feeding means.

Fig. 5 is a detail view of the cam control means for the resetting means.

Fig. 6 is a detail view of the cam control means for the locking means.

Fig. 7 is an exploded view of the start-stop clutch means.

Fig. 8 is a simplified wiring diagram.

Fig. 9 is a side elevation of a key actuated contact operating mechanism.

Referring now to Figs. 1, 2 and 3, the perforating apparatus is shown to include individual punch elements 10, one for each column of perforations, and a common die block 11. The punch elements are slidably arranged in a common punch guide block 12 and are normally held in raised positions by means of individual springs 13. The said springs are supported by a bracket 14 which is suitably secured to side plate 15. The said punch guide and die blocks are also suitably secured to the side plate 15. Each punch element 10 is provided with a recess 16, into which recess is placed one end of a positionable interposer 17 having a yoke portion 18. An individual interposer 17 is provided for each punch element 10. An elongated cam or eccentric 19 is carried by, or if desired, formed on shaft 20, which shaft is suitably journaled in the side plate 15 and end plate 21. The eccentric 19 is located within the bows of the yokes of the individual

and adjacently arranged interposers to support and actuate or oscillate the said interposers. Normally, during the rotation of the eccentric, the interposers are moved downwardly and upwardly (as viewed in Fig. 2) by the supporting eccentric about the pivotal connections formed by the ends of the interposers engaging the recesses of the related punch elements. Under these conditions, it is seen, that the free ends of the interposers are partially rotated, first in one direction and then the other direction, or stated in other words, the said free ends of the interposers are oscillated. Suitably disposed stop guides 17a and 17b are provided to maintain proper alignment of the said oscillated interposers.

Individual latch arms 22 are provided, one for each interposer, and are pivotally mounted in a slotted guide block 23 secured to the said side and end plates. Near the lower end of each latch arm, a pair of spaced latching fingers 24 are provided, which fingers are disposed in close proximity to, but normally held out of the path of the rotatable ends of the interposers by means of a slotted leaf spring 25 secured to a reset bail 26. The bail 26 is rotatably mounted on the said side and end plates, and is elongated sufficiently to permit engagement of the bail with all the latch arms 22. Spring 25 is elongated sufficiently so that the individual slotted sections engage the related latch arms.

Whenever it is desired to operate a punch element 10, the related latch arm is partially rotated, in a clockwise direction (as viewed in Fig. 2), against the action of the said leaf spring 25, so that its latch fingers 24 engage and latch the free end of the related interposer. It should be mentioned, at this time, that, in the present embodiment, the shaft 20 carrying the eccentric 19 is not constantly rotated, but operated in a start-stop fashion, and that the latch arms 22 are arranged to be positioned to latch the desired interposers before the rotated eccentric displaces or oscillates the said interposers. Thus, upon latching of an interposer 17 and rotation of the eccentric 19, the said interposer is positioned, by the eccentric, about the pivotal connection formed by the latch arm and the latched end of the interposer, to force the related punch element 10 downwardly (in Fig. 2), thereby causing the sheet, such as a paper tape 27, interposed between the said guide and die blocks, to be perforated. The eccentric 19 is shaped so that the lower end, or cutting edge, of the displaced punch element is forced through the paper tape, and then retracted therefrom immediately and restored to the normal position shown in Fig. 2.

Locking means are also provided for holding the displaced latch arm or arms in a latched position, and for preventing displacement of undesired latch arms during the rotation of the eccentric. This means comprises a locking bail 28, which is common to all latch arms 22, and which is suitably secured to an arm 29, which arm 29 in turn is fixed to shaft 30. Shaft 30 is rotatably mounted on said side and end plates, and also has affixed thereto a spring urged cam follower arm 31, (also see Fig. 6) cooperating with cam 32 secured to the start-stop shaft 20. Cam 32 is shaped so that normally (with the shaft 20 in a stop position) the locking bail 28 is held in a position so as to be out of the path of the extension 33 of each latch arm 22. Upon displacement of the desired latch arms in the

said latching position, and upon rotation of shaft 20, the follower arm 31 drops from the high portion of the cam 32 to permit the locking bail 28 to be raised (in Fig. 2) in the path of the said latch arm extensions, thereby engaging the said extensions of the displaced latch arms and locking them in the latching position, as shown in dotted outline in Fig. 2. This position of the said locking bail also prevents any faulty displacement of the normally positioned latch arms, since the bail is now effective to engage the extensions of any latch arms which inadvertently might be displaced during the rotation of shaft 20, thereby blocking further clockwise rotation of these latch arms, and preventing engagement of the latching fingers 24 and the latching ends of the related interposers 17. The said raised position of locking bail 28 is maintained until near the end of the cycle of rotation of shaft, when the high portion of cam 32 again engages the follower arm 31 to lower the said bail. Obviously, the said bail must be lowered before the latch arms 22 are positively restored by the action of the said reset bail 26. In practice, it has been found desirable to maintain the locking bail 28 in the said raised positions from the 12° point to the 285° point in the cycle of rotation of shaft 20.

For this arrangement, it is preferred to render the reset bail 26 operative from the 303° point to the 352° point in the said cycle. The said bail 26 is secured to shaft 33a (also see Fig. 3) journaled in the side plate 15, which shaft has affixed thereto a spring urged arm 34. Arm 34 is resiliently connected by means of spring 35 to a cam follower arm 36 secured to sleeve 37, which sleeve is loosely mounted on shaft 33a. In this manner follower arm 36 is constantly urged against cam 38 secured to shaft 20. Said cam 38 is effective, near the end of each cycle of rotation of shaft 20 to partially rotate the follower arm 36 and shaft 33a in a counterclockwise direction (Fig. 5) to cause the bail 26 and attached spring 25 to be partially rotated in a counterclockwise direction to positively urge and restore the latch arms 22 to the normal position out of the path of the latching ends of the related interposers 17, as shown in Fig. 2.

Suitable means for intermittently advancing the paper tape 27 are provided, which means in the present arrangement are operated near the end of each cycle of rotation of the said shaft 20. Specifically, the paper feeding mechanism is called into action from the 334° point to the 356° point in each cycle. The paper tape 27 is intermittently fed from a suitable supply roll (not shown) to the punching station by feed roll 40 secured to shaft 41, which shaft is suitably journaled in side plate 15 and a suitable support 42. Said feed roll 40 is provided with centrally located and equally spaced teeth 43 for engaging the centrally located feed perforations 44 in the tape 27. A positionable arcuately shaped tape finger guide 45 is provided to hold the tape against the said feed roll. Shaft 41 has secured thereto a ratchet wheel 46 (also see Fig. 4) which is advanced by a spring urged cooperating pawl 47 pivotally mounted on a suitable cam follower arm 48, which arm cooperates with cam 49. Cam 49 is shaped so as to move the follower arm 48 sufficiently to the right (as viewed in Fig. 4) so that pawl 47 is positioned ahead of one of the teeth of ratchet wheel 46. Approximately, at the 334° point in the cycle, the cam roller 50 drops from the high point of cam 49 permitting the follower arm 48 to be

moved towards the left (Fig. 4), by means of spring 51, thereby causing the pawl 47 to engage a tooth of the ratchet wheel and advance it one step, in a counterclockwise direction. Thus, the tape 27 is advanced to present the next position thereon to the punching station. Yieldable locking means are provided to hold the feed roll 40 in the advanced position, which comprise the cam wheel 52 secured to shaft 41 and the spring urged pivotally mounted detent arm 53 provided with a roller 54 riding on the said cam wheel.

With this type of tape feeding and locking means, it is possible, when desired, to feed the tape in a reverse direction, step by step. Manually operable lever 55 is provided for this reason, and is pivotally mounted on the side frame 15. Lever 55 is connected, by a pin and slot arrangement, to member 56 which is slidably mounted on side plate 15. Member 56 carries a spring urged, pivotally mounted pawl 57 and a camming element 58. Thus, when lever 55 is partially rotated in a clockwise direction, as viewed in Fig. 4, member 56 is raised causing pawl 57 to engage one of the teeth of cam wheel 52 and position it one step in a clockwise direction, and consequently causing the feed roll 40 to feed the tape one step, in the reverse direction. While the member 56 is being raised, the camming element 58 is effective to engage a bent over portion 59 of the pawl 47 to raise the latter above the ratchet wheel 46 so as to permit the reverse rotation of the said ratchet wheel and feed roll.

From the description up to this point, it is understood, that, at the start of each cycle of rotation of shaft 20, the latch arms 22 are positioned in any desired combination so as to be partially rotated, in a clockwise direction (Fig. 2), in order to latch the free ends of the related interposers 17. Next, the locking ball 28 is operated to engage and lock the displaced latch arms 22 in a latched position, during a major part of the cycle, and to prevent further latching operations by the remaining latch arm or arms during this cycle. Eccentric 19 is then effective to oscillate the latched interposers 17 causing the connected punch elements to be operated to perforate the paper tape 27, in accordance with the selected combination of operated punches, while the said tape is at rest at the punching station (see perforations 27a). Near the end of the cycle, after the punching operation, that is, when the punch elements are withdrawn completely from the paper tape and restored to the normal position shown in Fig. 2, the locking ball 28 is restored to its normal position, and the reset ball 26 is rendered operative to restore the latch arms to their normal positions, thereby releasing the latching ends of the related interposers. The tape feeding mechanism is also rendered operative, near the end of the cycle to advance the paper one step, thus presenting the next punching position on the tape to the said punch elements.

It should be mentioned, at this time, that the centrally located perforations 44 are not originally provided in the paper tape 27, but are formed therein during each punching operation. For this purpose, a special latch arm 60 (see Figs. 1, 2 and 3) is provided, which is fixedly secured to the slotted guide block 23. This latch arm is also provided with latching fingers 61 similar to latching fingers 24, which fingers 61 constantly grip or engage the latching end of the related interposer 62, so that, during each punching operation, the said interposer 62 is effective to operate the connected punch element, similarly as

described hereinabove. In this way, the centrally located feed perforations 44 are formed in the paper tape. It is to be noted, that latch arm 60 is not provided with an extension 33 as latch arms 22, and obviously there is no need for it, since latch arm 60 always remains in a fixed position. Also, it is to be noted in Fig. 2, that this special latch arm 60 is arranged and disposed so as not to be engaged by or interfere with the said operations of the reset ball 26 and associated leaf spring 25.

In order to control the start-stop operations of shaft 20, a well known type of electromagnetically controlled, one-revolution clutch means is provided. For a detailed description of the clutch mechanism, reference should be made to U. S. Patent No. 2,206,646 issued to Schneider, July 2, 1940. Accordingly, the brief description to be given is deemed sufficient for complete comprehension of the present invention. In Figs. 1, 3 and 7, this clutch means is shown to comprise an annular member 70 which is secured to shaft 20. A slidable and spring urged dog member 71 is disposed in a suitable channel formed in the said annular member, which dog member is provided with a single tooth 72. A dog lift lever 73 is pivotally mounted in the annular member 70, and is disposed in a suitable channelway formed in the slidable dog member 71. The free end of the said dog lift lever extends beyond the periphery of the annular member 70 and normally is positioned against a stop 74 formed on the suitably pivoted arm 75, which arm normally is urged by leaf spring 76 so that the said stop 74 is in the path of the dog lift lever 73. With the described elements of the clutch means in this position, the dog lift lever 73 is effective to hold the dog member 71 so that the single tooth formed thereon is out of the path of a ratchet wheel 77, secured to constantly rotated shaft 78, and disposed in close proximity to the annular member 70. Secured to the said pivoted arm 75 is an armature 79 of an associated and suitably disposed magnet 80; which armature, upon momentary energization of magnet 80, positions the stop 74 of arm 75 out of the path of the dog lift lever 73, thereby releasing the latter and permitting the dog member 71 to be positioned so that its tooth 72 engages the ratchet wheel 77. Shaft 78 is constantly rotated by means of motor 81, the shaft of which is connected to shaft 78 by a suitable coupling device 82. In this manner, shaft 20 is rotated. Upon completion of a cycle of rotation of shaft 20, the dog lift lever 73 is urged against the said stop 74 to disconnect the tooth 72 of the dog member from the constantly rotated ratchet wheel 77, thus preventing further rotation of this shaft. Suitable locking means are provided for this described clutch, and comprise a suitably disposed, spring urged pawl 83 cooperating with a suitable notch formed in the flange 84 of the annular member.

It will be evident to those skilled in the art, that various types of control means can be employed for selectively positioning the latch arms 22, and thereby control selectively the operations of the punch elements 10. One type of control means will now be described, and comprises, as shown in Figs. 1 and 2, a plurality of individual magnets 90. Connected to each armature 91, of the related magnet 90, is an arm 92 provided with a loosely connected link 93 extending to and suitably connected with one of the latch arms 22. Each armature is connected

to one of the latch arms in the said manner, so that, upon energization of a magnet 90, the attracted armature 91 positions the attached link 93 to the right, as viewed in Fig. 2, thereby causing the related latch arm 22 to be positioned in the described latching position.

Any of the known controlling means can be employed for controlling the operations of the punch control magnets 90, and the clutch control magnet 80. In the simplified circuit diagram, Fig. 8, individual control contacts 95 are shown for connecting the related punch control magnets 90 to a power supply circuit, and contacts 96 for connecting the clutch control magnet 80 to the said supply circuit. The contacts 95 can be operated individually or in any desired combination to cause energization of the punch control magnets 90, thereby causing the paper tape or sheet to be perforated accordingly. It is preferred to have the contacts 96 closed at the same time one or more of the contacts 95 are closed, so that the clutch mechanism is operated and effective to connect the punch shaft 20 to the constantly rotated shaft 78. Contacts 95 and 96, for example, can be controlled accordingly, by means of the well known perforated tape analyzing means employed in printing telegraph systems, or, if preferred, can be controlled by means of well known types of keyboard controlled devices. One example of a suitable keyboard controlled device is shown in U. S. Patent No. 2,165,237 to C. R. Doty, dated July 11, 1939. In Fig. 9 of the present application a single view of a keyboard device of this type for operating the control magnet contacts 95 and the clutch magnet contacts 96 is shown. The key 117 pivoted on a stationary member 128 operates a trip arm 100 of a well known form of power driven type bar actuating mechanism. This mechanism includes a cam 111 journaled upon one arm of an operating lever 112, in position to engage a power driven roller 110, when released by the trip lever 100. The lever 112 is connected by a linkage 116 to a type bar mechanism not shown in the drawings. As the cam 111 revolves in contact with the roller 110, it engages a roller 101 of a related group of contacts 95. Each cam 111 has a particular group of the contacts 95 associated with it, the group being different for the different cams. Thus, when a particular key lever 117 is actuated, a certain combination of the contacts 95 is closed. There is associated with each group of contacts 95 a contact 96 which controls the circuit of the clutch magnet 80. Thus, each time a group of selecting magnets 90 is energized, the clutch control magnet 80 is also energized, the timing being such that the operated latches 22 are engaged with the related levers 17 before the eccentric 19 begins to rotate.

While there have been shown and described and pointed out the fundamental novel features of the invention as applied to a single modification it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art, without departing from the spirit of the invention. It is the intention, therefore, to be limited only as indicated by the scope of the following claims.

What is claimed is:

1. Perforating apparatus comprising a plurality of punch elements, a plurality of interposers, one for each punch element, each interposer having a yoke portion and having one end of the

interposer pivotally connected to a related punch element, a rotatable eccentric disposed within the bows of the yoke portions of the said interposers for supporting and actuating the latter, a plurality of pivoted latch arms, one for each interposer, each of said arms having a pair of spaced latching fingers normally positioned in close proximity to, but out of the paths of, the other ends of the related interposers and an extension portion disposed below the said latching fingers, means to control the positioning of the said pivoted arms so that the associated latching fingers engage and latch the said other ends of the related interposers for causing the latched actuated interposers to operate the connected elements, positionable locking means for said latch arms, and means to position the said locking means whereby the latter cooperates with the said latch arm extension portions so as to lock the positioned latch arms in latching positions and to prevent the positioning of undesired latch arms into latching positions.

2. Perforating apparatus comprising a plurality of punch elements, a plurality of interposers, one for each punch element, each interposer having a yoke portion and having one end of the interposer pivotally connected to a related punch element, a rotatable eccentric disposed within the bows of the yoke portions of the said interposers for supporting and actuating the latter, a plurality of pivoted latch arms, one for each interposer, each of said arms having a pair of spaced latching fingers normally positioned in close proximity to, but out of the paths of, the other ends of the related interposers, and means to control the positioning of the said pivoted arms so that the associated latching fingers engage and latch the said other ends of the related interposers thereby causing the latched actuated interposers to operate the connected punch elements.

3. Perforating apparatus comprising a plurality of punch elements, a plurality of interposers, one for each punch element, each interposer having a yoke portion and having one end of the interposer pivotally connected to a related punch element, a rotatable eccentric disposed within the bows of the yoke portions of the said interposers for supporting and actuating the latter, a plurality of pivoted members, one for each interposer, each of said members having latching means normally positioned in close proximity to, but out of the paths of, the other ends of the related interposers, and means to control the positioning of the said pivoted members so that the associated latching means engage and latch the said other ends of the related interposers thereby causing the latched actuated interposers to operate the connected punch elements.

4. Perforating apparatus comprising a plurality of punch elements, a plurality of interposers, one for each punch element, each interposer having a yoke portion and having one end of the interposer pivotally connected to a related punch element, a rotatable eccentric disposed within the bows of the yoke portions of the said interposers for supporting and actuating the latter, a plurality of positionable latching members, one for each interposer, said latching members being normally positioned in close proximity to, but out of the paths of, the other ends of the related interposers, and means to control the positioning of the latching members so as to engage and latch the said other ends of the related interposers thereby causing the latched actuated in-

terposers to operate the connected punch elements.

5. The invention set forth in claim 4 wherein locking means are provided and control means therefor whereby the locking means is rendered effective to lock the positioned latching members in latching positions and to prevent the positioning of undesired latching members into latching positions.

6. The invention set forth in claim 4 wherein resetting means are provided and control means therefor whereby the resetting means is rendered effective to reset the latching members from the latching positions to said normal positions.

7. The invention set forth in claim 4 wherein start-stop control means are provided for effecting the rotation of the said eccentric for one revolution for each punching operation.

8. Perforating apparatus comprising a punch element, an interposer connected to said punch element, latching means, means to effect engagement of the latching means and interposer to latch the latter, rotatable means to cause actuation of the latched interposer to effect operation of the connected punch element, start-stop control means for rendering the said rotatable means operative for a cycle of rotation, and cyclically operable means controlled by the said rotatable means to lock the said latching means in latching position.

9. Perforating apparatus comprising a punch element, an interposer connected to said punch element, latching means, means to effect engagement of the latching means and interposer to latch the latter, rotatable means to cause actuation of the latched interposer to effect operation of the connected punch element, start-stop control means for rendering the said rotatable means operative for a cycle of rotation, cyclically operable means controlled by the said rotatable means to lock the said latching means in latching position, and cyclically operable means controlled by the said rotatable means for resetting the latching means from the latching position to a non-latching position at a time in the cycle when the said locking means is ineffective.

10. Perforating apparatus comprising a plurality of punch elements, a plurality of interposers, one for each punch element, each interposer having one end pivotally connected to a related punch element, a rotatable eccentric, said eccentric being rotatably connected, at all times, to said interposers for actuating the latter and normally oscillating the said other ends of the interposers, a plurality of individually positionable latching members, one for each interposer, said latching members being normally positioned in close proximity to, but out of the paths of, the other ends of the related interposers, and means to selectively control the positioning of the latching members so as to engage and latch the said other ends of the related interposers, thereby causing the latched actuated interposers to operate the connected punch elements.

11. Perforating apparatus comprising a plurality of punch elements supported for individual operative movements; a plurality of levers, one for each punch element, each punch element being pivotally connected to one part of the related lever; actuating means operating upon a second part of each lever to normally oscillate said lever idly about their pivotal connections with the related punch elements; individual latching members for the respective levers, normally disengaged therefrom, but individually movable to engage a third part of their respective levers, to provide fulcrums therefor; and means for selectively moving said latching members to engaging position, whereby a following operation of said actuating means will oscillate any latched levers about the fulcrums provided by their respective latching members.

12. Perforating apparatus comprising a plurality of punch elements supported for individual operative movements; a plurality of levers, one for each punch element, each punch element being pivotally connected to one part of the related lever; actuating means operating upon a second part of each lever, to normally oscillate said levers in unison idly about their pivotal connections with the related punch elements; a group of individual latching members for the respective levers, normally disengaged therefrom, but individually movable to engage a third part of their respective levers, to provide fulcrums therefor; and means for simultaneously moving selected latching members of said group to engaging position, when said levers are in a certain position, whereby a following operation of said actuating means will oscillate any latched levers about the fulcrums provided by their respective latching members.

13. Perforating apparatus comprising a plurality of punch elements supported for individual operative movements; a plurality of levers, one for each punch element, each punch element being pivotally connected to one part of the related lever; actuating means operating cyclically upon a second part of each lever, to normally oscillate said levers in unison idly about their pivotal connections with the related punch elements; a group of individual latching members for the respective levers, normally disengaged therefrom but individually movable to engage a third part of their respective levers, to provide fulcrums therefor; means for simultaneously moving selected latching members of said group to engaging position, when said levers are in a certain position, whereby a following operation of said actuating means will oscillate any latched levers about the fulcrums provided by their respective latching members; and locking means operated in timed relation to said actuating means to lock the engaged latching members and the unengaged latching members in their respective positions during one cycle of said actuating means.

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