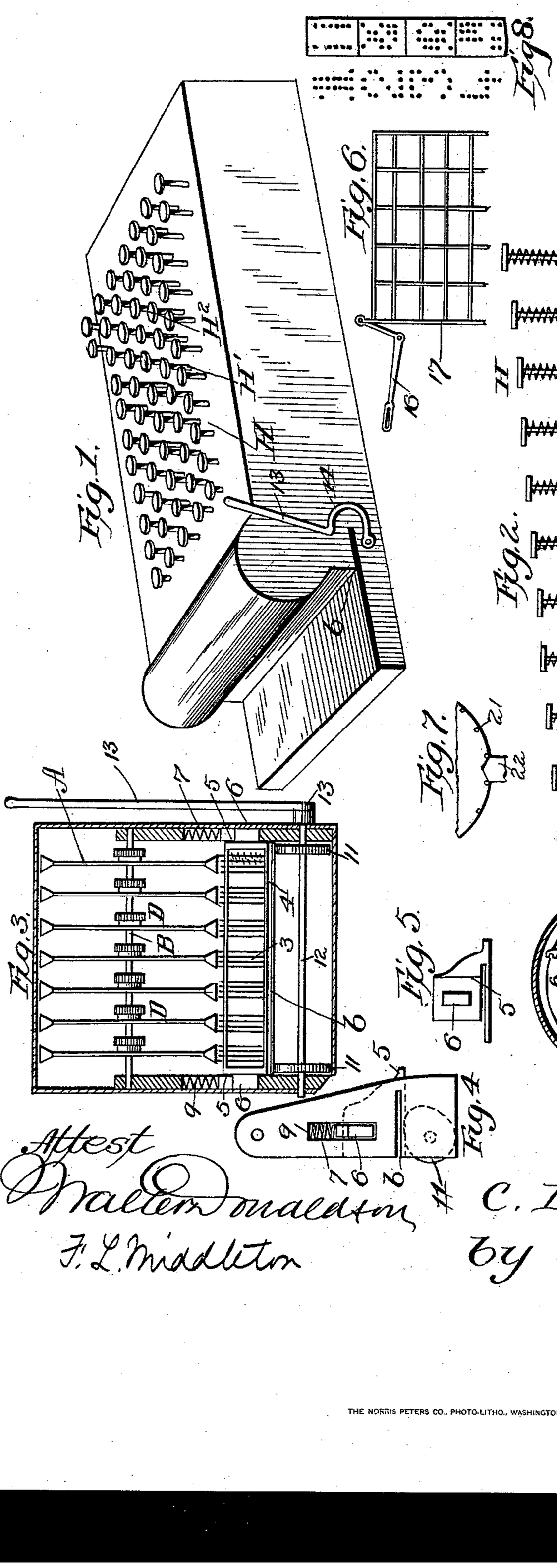
(No Model.)

C. B. WISNER.

PERFORATING APPARATUS.

No. 494,184. Patented Mar. 28, 1893.



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PERFORATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 494,184, dated March 28, 1893.

Application filed April 19, 1892. Serial No. 429,758. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE B. WISNER, a citizen of the United States of America, residing at Lowell, in the county of Lake and State of Indiana, have invented certain new and useful Improvements in Perforating Apparatus, of which the following is a specification.

My invention is an improved perforating machine for checks and the like and its principal object is to provide a machine by which a series of numbers within reasonable limit may be punched at a single operation, instead of requiring an operation of the machine for every letter or figure as is now the case.

The invention consists of a series of die wheels each being arranged to act in conjunction with a set of punches and being independently operated by means of key levers to bring in line with the punch devices the desired numbers or letters, with means for simultaneously bringing together the several sets of dies, wheels, and punches when properly aligned to cause at a single operation the punching of the desired numbers or letters.

The invention further consists in details of construction which are an important part of the present invention, these details including the mechanism for rotating the wheels and the mechanism for returning them to normal position.

In the accompanying drawings: Figure 1 is a perspective view of the perforator showing its general shape and outline. Fig. 2 is a longitudinal sectional view showing one line of keys and the connections from said keys to one of the wheels. Fig. 3 is a transverse sectional view through the series of wheels and the corresponding sets of punching wires. Figs. 4, 5, 6, and 7 represent details of construction which will be more fully hereinafter set forth. Fig. 8 is a detail view of the face of a part of one of the disk wheels.

It may be desirable to state that my invention relates to that class of perforating machines in which a series of wires or punches are used to perforate the paper, these wires being operated by a pattern which may be in the shape of projections or recesses which align with the punches or wires the said wires being forced through the check when they are brought into contact with the solid parts of the die wheels.

I have shown my invention as applied to the perforating of bank checks but its use may be enlarged if it be found desirable. I have also shown the hand mechanism for bringing together the series of wheels and punches but instead may employ a treadle operated by foot power. I employ a series of wheels each wheel containing a series of faces and each face being provided with perforations and these faces operate upon the group of punches placed centrally beneath the series of wheels and beneath these punches the check or other paper is inserted to be perforated. As the punching means is well known and forms no part of my invention this need not be particularly described.

The number of wheels depends upon the number of characters which it is desired to punch at one operation; for instance six wheels would allow punching of checks containing six figures; five wheels five figures or less; four wheels, four figures or less, and so on, this number being inclusive of the end characters such as the dollar mark or pound mark and the star or dash usually perforated at the end of the amount, and I do not limit myself in this connection as more or less of the wheels may be used according to the work required of the machine. These wheels are freely mounted upon a central shaft B the wheels being indicated at A. They are all alike and their faces are provided with the proper perforations to cause the punches to form the characters from 1 to 0 and may include also the dollar mark, the pound mark and a star or dash as desired. Each one of these wheels is independently operated by means of a gear wheel D which meshes with the segmental rack *c* on the long lever *d* pivoted at the end of the frame as at 1, there being an independent lever for each wheel. Each lever is operated through the depression of a line of keys H, H′ H^2, &c., which correspond as to the characters upon their faces to the characters which may be perforated through the medium of the wheel controlled by said keys. The movement of the keys is transmitted to the levers through angular dogs G which are slotted to receive the pins on the lower ends of the key stems. The dogs are pivoted at 2 and are of

such length relatively to each other that the depression of one key or the other will move the lever *d* through the dog a sufficient distance to rotate the corresponding wheel so as to bring the character represented by the key to a position directly above the group of punches; that is, the dog at the extreme right near the fulcrum of the lever *d* is longer than the others and through this the lever is given its maximum movement to bring the star mark into place. Each wheel of the series is provided with a similar set of keys according to the characters on the face of the wheels and similar connections for bringing into line with the groups of punches any one of the operating faces of the wheel. Thus when it is desired to punch a certain amount the operator manipulates one key of the first row of keys to bring into line that face containing the dollar mark or pound mark and then successively he operates the other wheels to bring in line the other figures in their respective relation and finally operating the last wheel to bring into line the star or dash or like character, and when in this position the check being placed beneath the line of punches through the opening *b* shown in Fig. 1, the entire series of wheels are brought into contact with the sets of punches and the entire amount is perforated at one operation. The wheels are held in position for this action by reason of the peculiar form and arrangement of the dogs the lower ends of which are moved to the left of the vertical plane of the pivot thus acting to lock the lever down automatically. The key is also held down and the operator can tell by glancing at the depressed keys whether or not the proper characters are in alignment to be punched. The die wheels and punches are brought together preferably by the upward movement of the punches 3 which are carried in the punch frame 4 which comprises the end castings 5 having studs 6 entering vertical slots 7 in the side castings 8 of the frame. Springs 9 in the slots press the punch frame normally downward. The punch frame with its castings have the slit *b* for receiving the check. The frame is raised by cams 11 on a shaft 12 the end of which projects at one side and carries a hand lever 13 the operation of which causes the high parts of the cams to raise the punch frame, the spring action of which resulting from the pressure allows the bottom plate to grip the check and hold the same while the punches coming in contact with the die wheels are forced down through the check, some of the punches entering the perforations in the die wheel and thus remaining without effect on the check. The hand lever is bent at 14 to permit the free introduction of the check. As the punch frame rises its rear portion strikes the ends of bars 15 lifting them and through the connection 16 operating the wire frame 17 longitudinally so that the strands of said wire frame will move the lower ends of any of the dogs which may have been operated and thus release them, but it will be understood that this does not take place until the punch frame is nearly at the limit of its upward movement and the punch wires have fully engaged the perforations of the die wheels so that the farther upward movement will release the dogs while the die wheels are still retained in proper alignment by the punches engaging therewith. As soon as the punch frame descends (by throwing the hand lever back) and the punches are disengaged from the wheels, the springs 18 raise the levers and return the die wheels to normal position as shown, in which position the dies present perforations to all of the punch wires. The keys are provided with light springs which serve to lift them with their dogs as soon as the wire frame releases the latter. As the punch frame descends the wire frame is returned to normal position by any suitable means preferably springs 20. The wire releasing frame is located over the series of levers.

In order to more accurately align the die wheels they may be provided with pins 21 as shown in Fig. 7 between which centering studs or pins 22 enter said studs being carried by the punch frame. The punch frame may be raised by any suitable connections to a treadle if desired.

I claim as my invention—

1. A perforating machine consisting of sets of punches, a series of die surfaces in alignment with said punches controlling and determining the punching operation, and a series of key levers with connections for each die surface, substantially as described.

2. The combination with a series of punches, a series of die wheels controlling and determining the amount of the punches, key levers and connections for independently operating each of said wheels, means for bringing the wheels and punches into contact simultaneously and means for restoring the wheels to normal position when released from the punches, substantially as described.

3. In combination the wheels, the means for rotating the die wheels independently, and locking them automatically in their moved position, the punches, means for making contact between the wheels and the punches with connections for automatically releasing the locking device when said contact is established the said wheels being returned to normal position automatically when released from the punches, substantially as described.

4. In combination, the punches, a series of die wheels, the series of keys for each wheel, an operating connection between each series of keys and each wheel said connection being common to them all and arranged to be moved to different degrees by the said keys, substantially as described.

5. In combination, the punches, a series of die wheels having pinions, the levers having the racks engaging therewith, a series of keys for each lever and the angular dogs between

the keys and the levers, substantially as described.

6. In combination, the punches, the series of die wheels, the keys, the levers with connections to the wheels, the automatic locking means, devices for moving the punches and wheels into contact, the connections to the locking means for releasing them when the contact is established and the means for returning the wheels to normal position after the contact is broken, substantially as described.

7. In combination, the die wheels, the means for rotating the wheels comprising the keys, the levers with the automatic locking dogs between the punches with means for making the punches and wheels contact with each other, the frame for releasing the dogs and the operating connections thereto.

8. In combination, the die wheels the levers with operating connections thereto, the keys, the interposed locking dogs, the vertically movable punches with operating means therefor, and the connections for releasing the dogs including the wire frame, substantially as described.

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

CLARENCE B. WISNER.

Witnesses:

JOHN HACK,

E. H. CROOK.