C. L. LILLEBERG.

PERFORATING MACHINE.

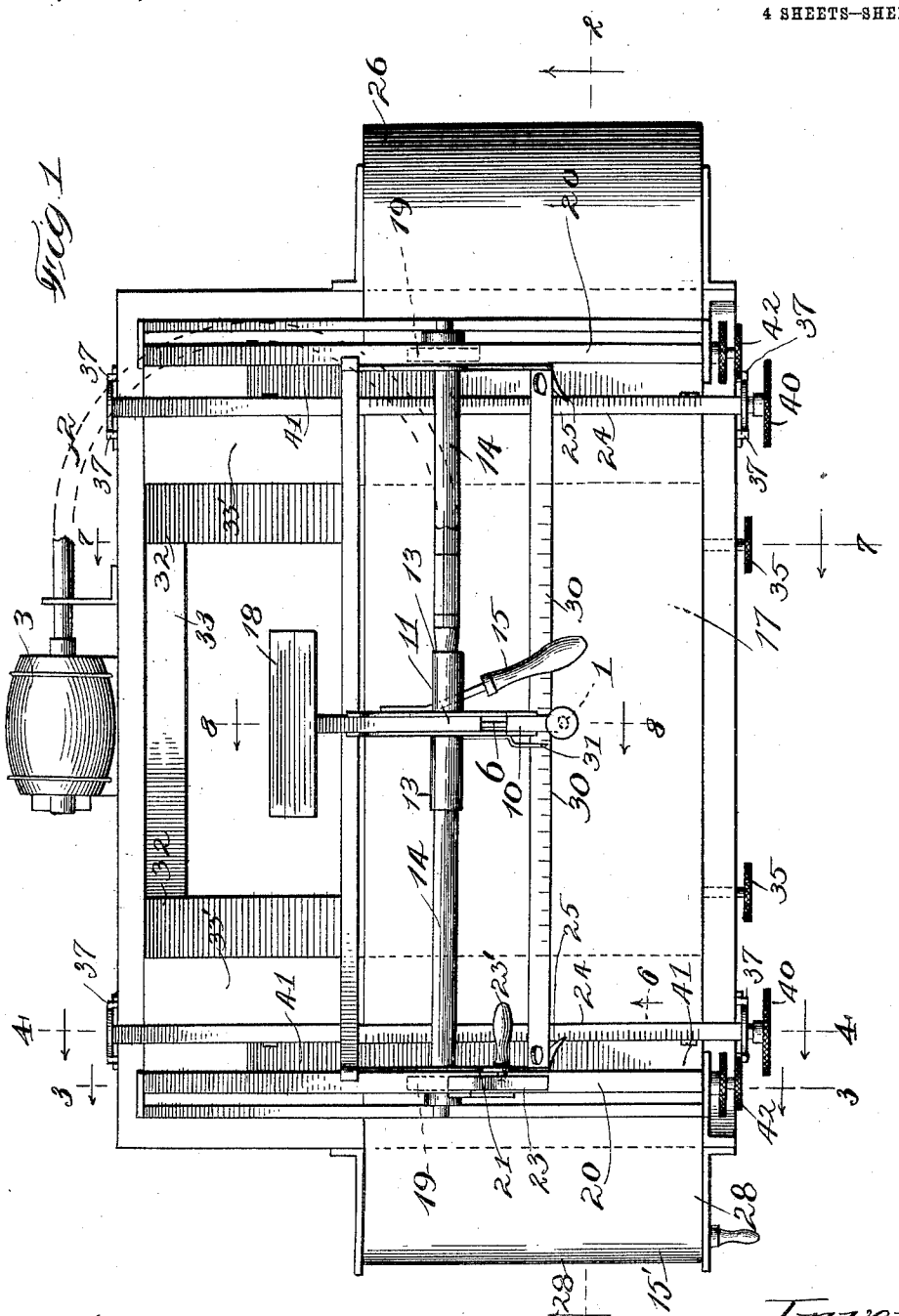
APPLICATION FILED JULY 19, 1909. RENEWED OCT. 23, 1911.

1,076,772.

Patented Oct. 28, 1913.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

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L. F. Thode

Inventor

Charles I. Lilleberg

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4 SHEETS—SHEET 2.

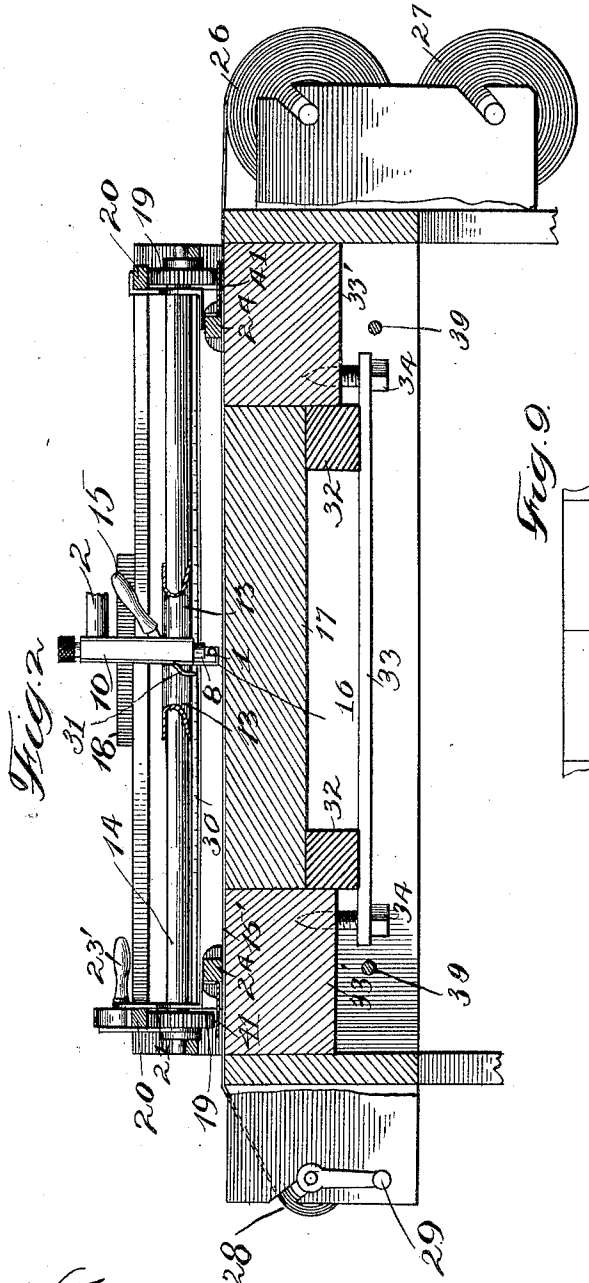



Fig. 2.

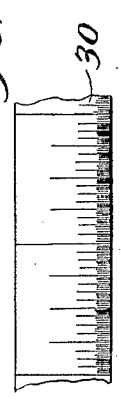



Fig. 9.

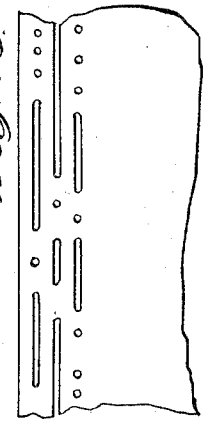


Fig. 10.

Witnesses:

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L. F. Stuhr

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4 SHEETS—SHEET 3.

Fig. 3.

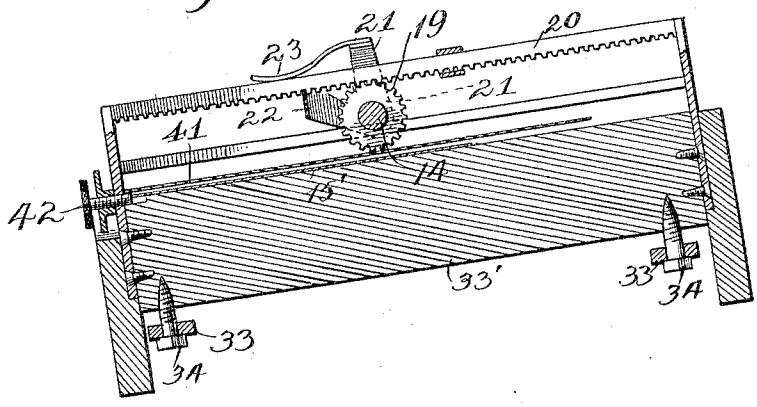



Fig. 4.

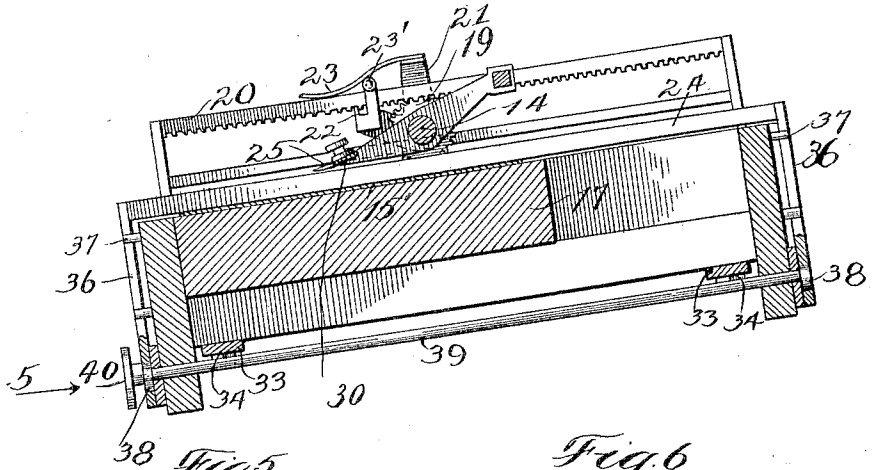



Fig. 5.

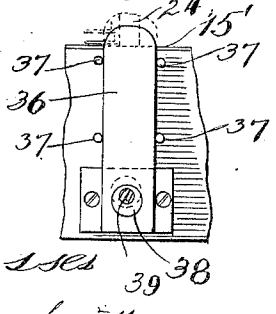
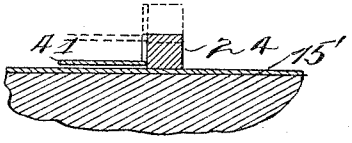



Fig. 6.




Witnesses

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C. L. LILLEBERG.

PERFORATING MACHINE.

APPLICATION FILED JULY 19, 1909. RENEWED OCT. 23, 1911.

**1,076,772.** Patented Oct. 28, 1913.

4 SHEETS—SHEET 4.

Fig. 7

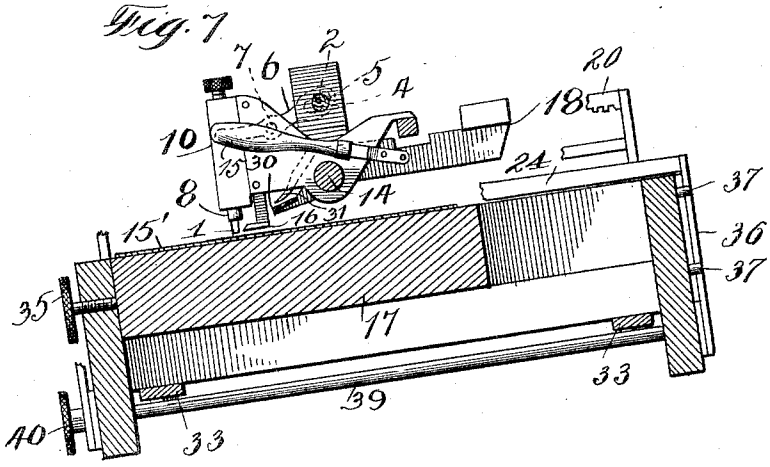
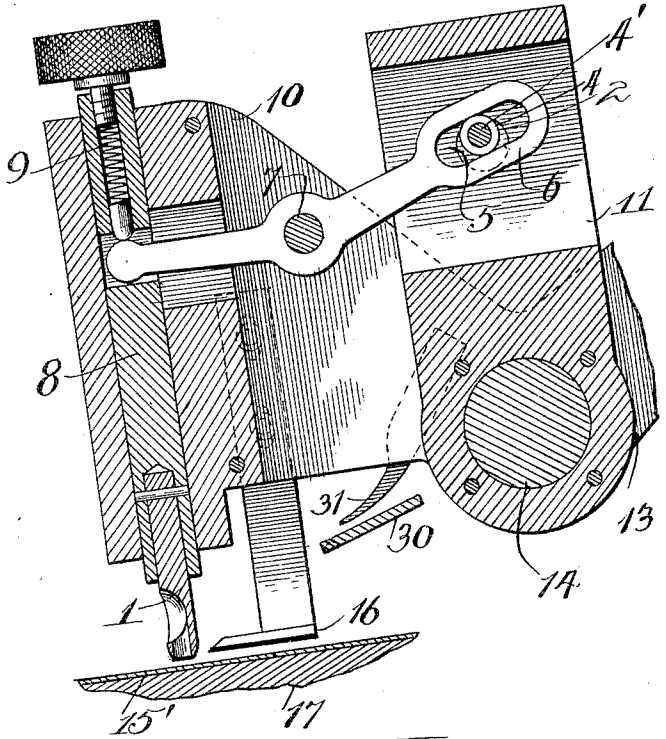



Fig 8




Witnesses:

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# UNITED STATES PATENT OFFICE.

CHARLES L. LILLEBERG, OF CHICAGO, ILLINOIS.

## PERFORATING-MACHINE.

1,076,772. Specification of Letters Patent. Patented Oct. 28, 1913.

Application filed July 19, 1909, Serial No. 508,445. Renewed October 23, 1911. Serial No. 656,215.

*To all whom it may concern:*

Be it known that I, CHARLES L. LILLEBERG, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Perforating-Machines, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to machines for perforating sheet material, and is of particular service in forming perforated sheets that are to be used in connection with tracker-boards.

The machine of my invention is designed particularly for the manufacture of master sheet music, in order that it may be used in the manufacture of the sheet music which is to be used directly in tracker-board musical instruments, though I do not wish to be limited to the use of the machine for the manufacture of master sheet music.

Specifically stated, my invention comprises a sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable by hand over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, manually controlled means permitting the punch while operating to be brought into and out of operative relation with the sheet, and means for locating the guide in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

I do not wish to be limited, however, to all of the details of construction described above which enter into the preferred embodiment of my invention, the above specific description being given in order that the general aspects of the preferred form of machine may be known before the preferred form of the invention is described in connection with the accompanying drawings, in which—

Figure 1 is a plan view of the machine. Fig. 2 is a sectional view on line 2 2 of Fig. 1. Fig. 3 is a sectional view on line 3 3 of Fig. 1. Fig. 4 is a sectional view on line 4 4 of Fig. 1. Fig. 5 is a view in the direction of arrow 5 of Fig. 4. Fig. 6 is a cross-sectional view of a detail, on line 6 6 of Fig. 1. Fig. 7 is a cross-sectional view on line 7 7 of Fig. 1. Fig. 8 is a cross-sectional view on line 8 8 of Fig. 1, of a part of the mechanism appearing upon this line. Fig. 9 is a view indicative of a measuring scale that may be employed to determine the lengths of the perforations. Fig. 10 is a view of a portion of the product sheet after being operated upon by the punching mechanism.

Like parts are indicated by similar characters of reference throughout the different figures.

The sheet-perforating machine includes a punch 1, of suitable formation, operated by driven mechanism, presently to be described, and which is interposed between the punch and some suitable form of driving device, such as a flexible shaft 2, operated by any suitable form of prime-mover or power device, such as an electric motor 3. The driven mechanism includes a collar 4 surrounding a pin $4^1$ carried by the shaft 2 but eccentric with respect thereto, the collar 4 engaging the parallel walls of a slot 5 formed in one end of a punch-operating-lever 6 pivoted at 7, the other end of said lever 6 being in engagement with a reciprocating plunger 8 to which the punch 1 is removably secured. The adjustable spring mechanism 9 is employed for the purpose of affording yielding engagement between the lever 6 and the plunger 8, the end of the lever 6 that engages said plunger entering a slot in the plunger, as indicated clearly in Fig. 8. The eccentric 4 causes the lever 6 to oscillate, and said lever, in oscillating, causes the reciprocation of the plunger 8 and the punch 1 carried by the plunger. A frame-work 10 carries the parts 6 7 8 and 9. There is secured to this frame-work, a bar 11, that carries bearings for the shaft 2, the part 11 thus carrying the eccentric 4, which is mounted upon the shaft 2. Although the frame portions 10 and 11 are preferably separably formed, they are, in any event, preferably rigidly related to each other. The frame element 10 is provided with sleeves 13, which inclose a guide-shaft 14, the sleeves 13 desirably having cylindrical bores to receive the shaft 14, correspondingly cylindrically shaped. The element 14 constitutes a guide for directing the travel of the punch and the driven mechanism that operates the punch over the sheet to be perforated, this rod 14 being supported at its ends in a manner to be hereinafter set forth, by some suitable means, such, for example,

as a handle 15, secured to the frame 10. Such frame and the parts mounted thereupon and fixed with relation thereto may be moved along the guide rod 14 so as to govern the places where the punch 1 is to be applied to the sheet $15^1$ that is to be perforated. By means of the sleeves 13 and the rod 14, not only may the punch and the driven mechanism operating the same be moved along the rod 14, but such elements may be turned upon the rod to cause the punch to work upon the paper or to be clear of the paper, whereby it will not be necessary to stop the operation of the punch when it is desired to prevent it from cutting the paper, when the punch is to be shifted to a new location. The extent to which the punch may be approached toward the paper is determined by a presser-foot 16, adjustably secured to the frame 10, the presser-foot to be adjusted to permit the punch to pass through the paper and to extend through the paper to as small an extent as practicable, there being a punch block 17 below the punch to support the paper and hold it in position to be perforated by the punch.

It will be seen that the mechanism which I have so far described is such that it will enable me to form perforations in the paper $15^1$ not only of the exact size of the punch, but also of any selected reasonable length and at selected distances apart, it being possible to cause the presser-foot 16, while in engagement with the paper $15^1$, to slide over the paper during the time that the punch 1 is operating, so that the punch may form elongated slots or perforations in the paper. It is also apparent that when one perforation has been completed, the frame 10 may be turned upon the rod 14 so as to remove the punch 1 out of operating range with respect to the paper, whereafter the punch may be shifted to a new position, and thereafter lowered within operating range of the paper, the punch preferably continuing its reciprocations during these movements. In order to lighten the work of the operator, the frame 10 and parts moving therewith, which mainly lie upon one side of the guide-rod 14, are partially balanced by a counterweight 18.

I have thus described mechanism by which slots of selected size and selected spacing may be formed in the sheet to be perforated lengthwise thereof, and I will now describe means whereby the mechanism mentioned may be employed to form other parallel lines of perforation. To this end, I preferably employ means for locating the guide-rod 14 in different positions transversely of the sheet to be perforated, on which account the mountings at the ends of the rod are changeable in position. In the preferred embodiment of the invention, the rod 14 has spur-gears 19 upon its ends, which mesh with superposed rack-bars 20 extending transversely of the machine. The guide-rod 14 is held in each of its positions to which it is transversely adjusted, by means of detaining mechanism, shown most clearly in Figs. 3 and 4, where I have indicated a bracket 21 carrying a detent 22 engaging the teeth of a rack-bar 20, and therefore being disposed upon the lower side of said rack-bar, said bracket also carrying a leaf-spring 23 engaging the upper surface of said rack-bar and being under tension, so as to press the detent 22 upwardly, it being understood that said bracket 21 is free to rotate upon the rod 14, in order that the spring 23 may exert upper tendency upon the detent 22. A handle $23^1$ (Figs. 1, 3 and 4) is secured to the bracket 21 for the purpose of pressing the detent 22 downwardly against the force of the spring 23 to release the locking engagement of said detent and the engaging rack-bar 20, in order to permit thrusting action laterally exerted upon the rod 14 to move said rod laterally. The lateral movement of the rod 14 is uniform throughout, owing to the spur-gears 19 and the rack-bars 20 engaging the same. When the guide-rod 14 has been moved to the desired transverse position, the handle $23^1$ is released, whereby the detent 22 is brought into engagement with the teeth of the associated rack-bar 20 to hold the rod 14 in its position of transverse adjustment. The teeth of the rack-bars 20 are so proportioned and spaced as to permit of the ready adjustment of the rod 14 to the exact positions it is to occupy. Scale-bars 24 coöperate with indexes 25 (which move transversely of the machine with the guide-rod 14) are also provided accurately to determine the positions to which the punch may be transversely moved. It is to be understood that parallel lines of perforations in the sheet to be cut are spaced apart distances corresponding to spaces between tracker-board openings in connection with which the sheet is to be used. In each new position of the rod 14, the punching operations which have hitherto been described may be performed. The movements of the punch longitudinally of the machine are limited by the sleeves 13, so that the punch may always be above the punching block 17. The movements of the guide-rod 14 transverse of the machine are limited by the rack-bars 20, so that a punch cannot be moved laterally beyond the punch block. The paper is desirably fed through the machine toward the left, a roll 26 from which paper that is to be perforated is drawn being indicated, a fresh roll 27 being indicated below. After each length of paper is perforated, the paper is wound upon the roll 28 by means of a crank 29, whereupon a new length of paper is perforated, this

process being continued until the desired perforations have been formed throughout the sheet of selected length.

In the prior art it has been customary to outline in pencil the exact locations of the perforations that are to be formed in the paper and thereafter to punch out these perforations thus defined by means of a hand-punch. With the machine as preferably constructed, I may dispense with the necessity of previously marking the locations of the perforations to be formed, and to this end I use a scale-bar 30, suitably secured at its ends, and an index 31 (Fig. 8) moving over the scale and with the punch. A skilled operator will know how long to make the slots or perforations in the sheet to be perforated (a partially perforated sheet being shown in Fig. 10), in order that these perforations may be proportional to the notes that are being copied into the sheet, the scale 30 being marked in divisions that are proportional to the measures, which divisions, in turn, are each subdivided proportionally to the notes that may occur in the measures. There may be different scales 30 having different divisions and subdivisions, to suit the character of the music that is being copied into the sheet to be perforated, to which end the scales 30 are removably secured in position.

The punch block 17 is mounted upon strips 32 supported by bars 33 and screws 34, whose heads support the bars and whose stems project through the bars 33 into the blocks $33^1$, by which arrangement the punch block 17 may be vertically adjusted, by turning the screws 34, when its upper surface has been worn away by the action of the punch.

It is apparent that the punch will operate in fixed lines extending longitudinally of the machine, on which account it is natural that ridges and grooves would be formed in the punch block 17 by the punch. In order to prevent the formation of ridges and grooves in the punch block, I provide means for adjusting the punch block laterally of the machine, which means may reside in thumb-screws 35 (Figs. 1 and 7) that act to force the somewhat tightly held block 17 laterally. The scale-bars 24 also desirably serve to hold the paper flat upon the punch block, on which account these scale-bars are made vertically adjustable, so as to permit their movement upwardly with respect to the rest of the machine when a fresh length of paper is to be fed to the machine. To this end, each bar 24 desirably has the mounting means illustrated clearly in Figs. 4 and 5, that include the downwardly projecting plates 36, that are adapted to move transversely to the plane of the punch block and which are directed in their travel by pins 37. These plates 36 are engaged by eccentrics 38 near their lower ends, a rod 39 carrying the eccentrics and having a knurled terminal 40, by which the rod may be rotated and the eccentrics actuated to elevate and lower the plates 36, and, consequently, the associate scale-bar 24. In order to guard the paper from contact with the spur-gears 19, the bars 24 also carry plates 41 lying close to the bottom planes of said bars and lying beneath the said spur-gears. The paper is gaged in its travel from one roll to another by means of adjustable screws 42, whose inner ends abut a longitudinal edge of the paper, for the purpose stated.

While I have herein shown and described one embodiment of my invention and have particularly described details and characteristics of construction, I do not wish to be limited to the embodiment of the invention illustrated, as changes may readily be made without departing from the spirit of the invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable by hand over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, manually controlled means permitting the punch while operating to be brought into and out of operative relation with the sheet, and means for locating the guide in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

2. A sheet-perforating machine including a punch movable by hand over the sheet to be perforated, a guide for directing the punch in its movement over the sheet to be perforated longitudinally of the sheet, mechanism for operating the punch in its various positions, manually controlled means permitting the punch while operating to be brought into and out of operative relation with the sheet, and means for locating the guide in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

3. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, manually controlled means permitting the punch while operating to be brought into and out of operative relation with the sheet, and means for locating the guide in

differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

4. A sheet-perforating machine including a punch movable over the sheet to be perforated, a guide for directing the punch in its movement over the sheet to be perforated longitudinally of the sheet, mechanism for operating the punch in its various positions, manually controlled means permitting the punch while operating to be brought into and out of operative relation with the sheet, and means for locating the guide in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

5. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable by hand over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, manually controlled means permitting the punch to be brought into and out of operative relation with the sheet, and means for locating the guide in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

6. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, manually controlled means permitting the punch to be brought into and out of operative relation with the sheet, and means for locating the guide in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

7. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable by hand over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, a mounting for the punch and mechanism permitting their bodily movement to bring the punch into and out of operative relation to the sheet, and means for locating the guide in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

8. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable by hand over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, a mounting for the punch whereby it may be brought into and out of operative relation to the sheet, and means for locating the guide in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

9. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable by hand over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, and means for locating the guide in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

10. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, a mounting for the punch and mechanism permitting their bodily movement to bring the punch into and out of operative relation to the sheet, and means for locating the guide in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

11. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, a mounting for the punch whereby it may be brought into and out of operative relation to the sheet, and means for locating the guide in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

12. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, and means for locating the guide in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

13. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable by hand over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, and manually controlled means permitting the punch while operating to be brought into and out of operative relation with the sheet.

14. A sheet-perforating machine including a punch movable by hand over the sheet to be perforated, a guide for directing the punch in its movement over the sheet to be perforated longitudinally of the sheet, mechanism for operating the punch in its various positions, and manually controlled means permitting the punch while operating to be brought into and out of operative relation with the sheet.

15. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, and manually controlled means permitting the punch while operating to be brought into and out of operative relation with the sheet.

16. A sheet-perforating machine including a punch movable over the sheet to be perforated, a guide for directing the punch in its movement over the sheet to be perforated longitudinally of the sheet, mechanism for operating the punch in its various positions, and manually controlled means permitting the punch while operating to be brought into and out of operative relation with the sheet.

17. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable by hand over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, and normally controlled means permitting the punch to be brought into and out of operative relation with the sheet.

18. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, and manually controlled means permitting the punch to be brought into and out of operative relation with the sheet.

19. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable by hand over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, and a mounting for the punch and mechanism permitting their bodily movement to bring the punch into and out of operative relation to the sheet.

20. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable by hand over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, and a mounting for the punch whereby it may be brought into and out of operative relation to the sheet.

21. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable by hand over the sheet to be perforated, and a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet.

22. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, and a mounting for the punch and mechanism permitting their bodily movement to bring the punch into and out of operative relation to the sheet.

23. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, and a mounting for the punch whereby it may be brought into and out of operative relation to the sheet.

24. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable over the sheet to be perforated, and a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet.

25. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable by hand over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, manually controlled means permitting the punch while operating

to be brought into and out of operative relation with the sheet, and means for locating the punch in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

26. A sheet-perforating machine including a punch movable by hand over the sheet to be perforated, a guide for directing the punch in its movement over the sheet to be perforated longitudinally of the sheet, mechanism for operating the punch in its various positions, manually controlled means permitting the punch while operating to be brought into and out of operative relation with the sheet, and means for locating the punch in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

27. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, manually controlled means permitting the punch while operating to be brought into and out of operative relation with the sheet, and means for locating the punch in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

28. A sheet-perforating machine including a punch movable over the sheet to be perforated, a guide for directing the punch in its movement over the sheet to be perforated longitudinally of the sheet, mechanism for operating the punch in its various positions, manually controlled means permitting the punch while operating to be brought into and out of operative relation with the sheet, and means for locating the punch in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

29. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable by hand over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, manually controlled means permitting the punch to be brought into and out of operative relation with the sheet, and means for locating the punch in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

30. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, manually controlled means permitting the punch to be brought into and out of operative relation with the sheet, and means for locating the punch in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

31. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable by hand over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, a mounting for the punch and mechanism permitting their bodily movement to bring the punch into and out of operative relation to the sheet, and means for locating the punch in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

32. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable by hand over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, a mounting for the punch whereby it may be brought into and out of operative relation to the sheet, and means for locating the punch in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

33. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable by hand over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, and means for locating the punch in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

34. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of

the sheet, a mounting for the punch and mechanism permitting their bodily movement to bring the punch into and out of operative relation to the sheet, and means for locating the punch in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

35. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, a mounting for the punch whereby it may be brought into and out of operative relation to the sheet, and means for locating the punch in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

36. A sheet-perforating machine including a punch, driven mechanism for operating the punch, said punch and mechanism being together movable over the sheet to be perforated, a guide for directing the travel of said punch and mechanism over the sheet to be perforated longitudinally of the sheet, and means for locating the punch in differing positions transversely of the sheet, whereby a plurality of rows of perforations longitudinally of the sheet may be formed in the sheet.

In witness whereof, I hereunto subscribe my name this 29th day of June A. D. 1909.

CHARLES L. LILLEBERG.

Witnesses:
G. L. Cragg,
L. G. Stroh.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."