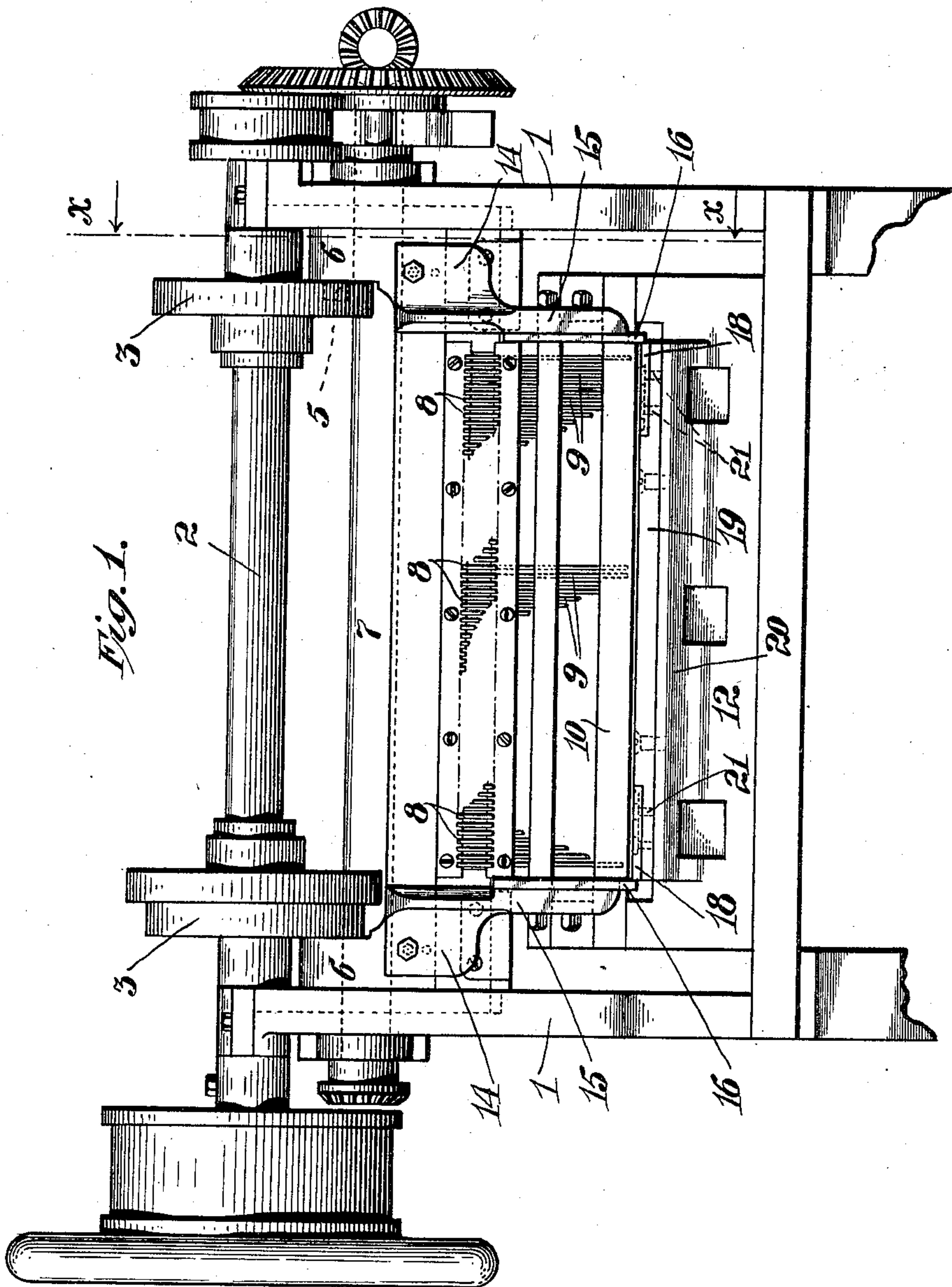


P. J. MEAHL.
MACHINE FOR MAKING PERFORATED MUSIC SHEETS.
APPLICATION FILED APR. 28, 1910.

999,328.

Patented Aug. 1, 1911.

2 SHEETS—SHEET 1.



Attest:
Raymond Richardson
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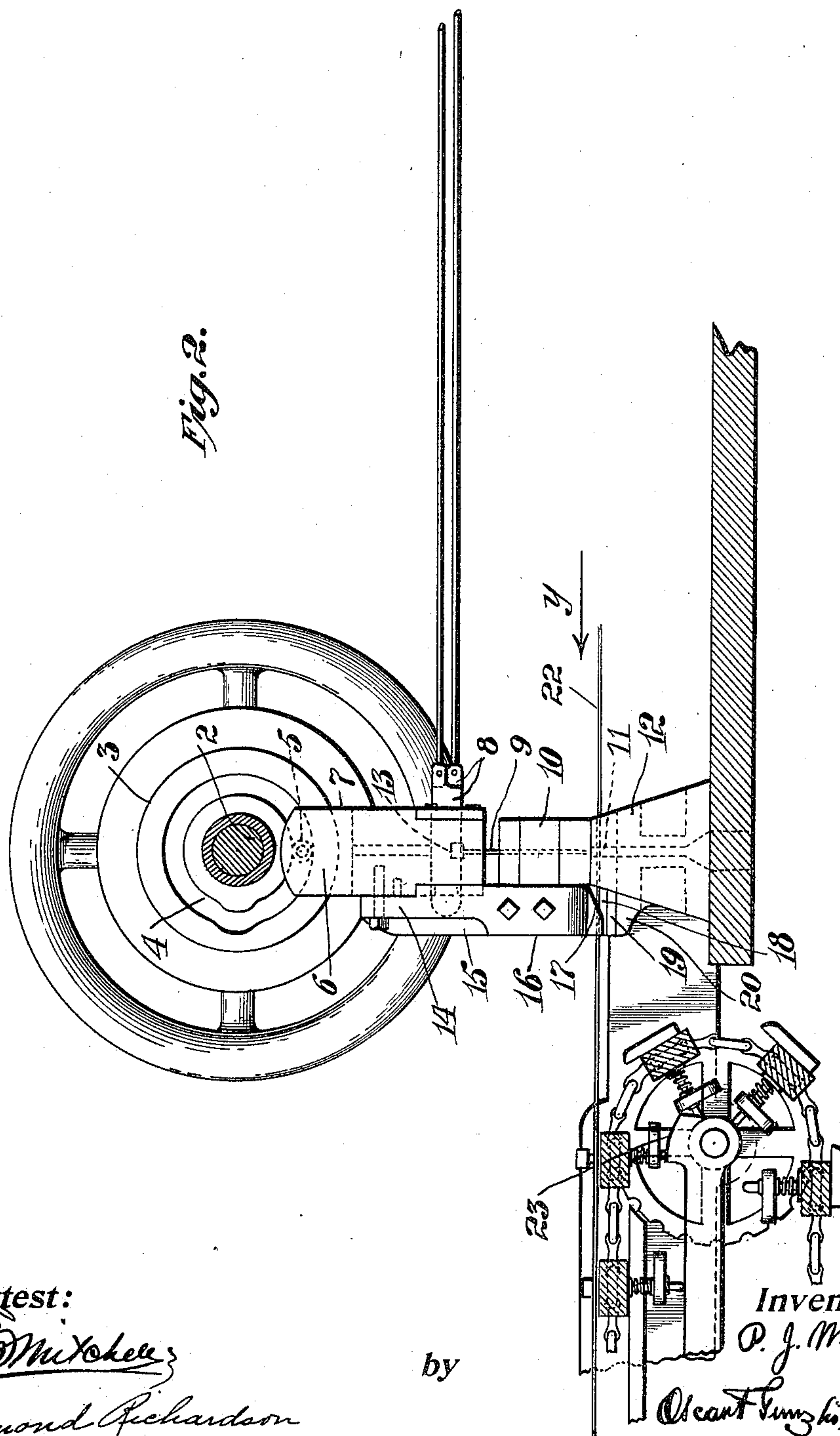
Inventor:
P. J. Meahl
by *Oscar F. Tins* Atty

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by

Inventor:
P. J. Meahl
Olcutt & Sons, Attys

UNITED STATES PATENT OFFICE.

PHILIP JACOB MEAHL, OF BAYONNE, NEW JERSEY.

MACHINE FOR MAKING PERFORATED MUSIC-SHEETS.

999,328.

Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed April 28, 1910. Serial No. 558,193.

To all whom it may concern:

Be it known that I, PHILIP JACOB MEAHL, a citizen of the United States, and a resident of Bayonne, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Machines for Making Perforated Music-Sheets, of which the following is a specification.

This invention relates to improvements in machines for making perforated music sheets.

In making perforated music sheets strips of paper are fed step by step through a suitable machine which punches step by step openings of greater or less length into slots according to the corresponding slots in the master-sheet which controls the operation of the punches in the perforating machine.

The perforations are made by the machine only when the paper is at rest, and the paper is passed forward in the interval between two successive steps, and necessarily the punches are always raised when the paper is passed forward as otherwise they would interfere with the feeding forward of the paper. In making such perforated music sheets it is most essential that the same shall be of absolutely uniform width and that the positions of the several note slots relative to the side edges of the sheet shall always be and remain constant. For example, the note-slot representing the middle C should throughout every part of the length of the sheet be precisely the same distance from one side edge of the sheet. This is absolutely necessary in order to insure proper tracking, as the tracking would be imperfect if the note-slot or perforation corresponding to any one note would be a greater or less distance from one and the same side edge of the sheet at one part of the length of the sheet than at another.

The object of my invention is to provide a new and improved perforating machine which in the act of making perforations, simultaneously, trims the side edges of the sheet of paper so the relation once established in the machine for the distance from the side edge of the sheet to the nearest perforation will always be maintained throughout the entire length of the sheets made on this machine until, of course, the dies and punches are changed for another class of music sheet.

In the accompanying drawings in which like letters of reference indicate like parts

in all the figures: Figure 1 is a front elevation of my improved machine for perforating music sheets. Fig. 2 is a vertical sectional view on the line $x-x$ of Fig. 1, parts being broken away and others shown diagrammatically.

The perforating machine is constructed with the usual frame 1 in which the main shaft 2 is journaled which has two cam disks 3 having cam tracks 4 in which the pins 5 travel which project laterally from upwardly projecting arms 6 of the punch head 7 which is thus reciprocated and moved up and down once for each rotation of the main shaft 2. The cam track is shaped so that the punch head remains depressed for a moment and then immediately rises. The punch head is provided with a slide 8 for each punch which slides are controlled by means of the master-sheet mechanisms, not shown, and forming no part of this invention. The punches 9 are mounted in the punch guide 10 directly over the die-plate 11 detachably secured in a die-support 12. Each slide 8 is provided in the well known manner with a recess 13 in the bottom edge directly over the corresponding punch 9 and when this slide is held in such position that the recess 13 is directly over the punch, the punch will not be forced down when the punch head descends but when through the master-sheet a slide 8 is so moved that the solid portion of the slide is over the punch it follows that the punch will be depressed and forced through the paper resting upon the die when the punch head is forced down. In case the punch becomes dulled it can easily be removed and replaced by a new punch. In case the die-plate becomes dulled it can be taken out and sharpened or replaced by a new die-plate. Such machines as I have so far described are old and well known but I have deemed it advisable to describe it.

To the front of the punch head I bolt near each end a bracket 14 having downwardly extending arms in front of the punch guide 10 and movable with the punch head vertical relatively to said fixed punch guide. To the inner face of the downwardly projecting arm 15 of each bracket 14 I bolt or otherwise secure detachably a blade 16 having its bottom edge inclined downward and outward from the inner toward the outer edge so that this bottom beveled edge 17 of the cutting blade 16 forms a shearing

edge or a knife that will make a shearing cut. A blade consisting of a flat steel plate 18 is held in a recess in the upper surface of the plate 19 bolted to bracket 20 on the front of the die-support 12. This blade 19 is held in place by means of screws 21 and can be readily removed whenever necessary for sharpening and readily replaced entirely independent and without in any way affecting the die. Likewise the shearing blade 16 can be detached and removed and sharpened without in any way affecting or disturbing the punches or the punch head or punch guide. The end edge of each blade 18 forms a cutting and shearing edge which in conjunction with the beveled edge 17 of the blade 16 forms a cutting or shearing device for cutting the paper. The distance between the cutting edges of the blade 16 on opposite sides of the machine must be precisely equal to the width of the complete and finished sheet or strip of paper; that is the perforated note sheet as a complete article. The paper strip 22 is fed in the direction of the arrow Y of Fig. 2 by a suitable paper feeding device shown at 23 and this paper feeding device feeds the paper through the machine at a step of from $1/32$ nd to $1/20$ th of an inch for each stroke of the punch head and it therefore follows that for each downward stroke of the punch head a shearing cut will be made on each side edge of the note sheet equal in length to $1/32$ nd to $1/20$ th of an inch and these cuts are made simultaneously with the perforations made by the punches while the note sheet is at rest, as the feeding mechanism does not operate to feed the paper during the time that the punches of the above described mechanism moves downward and upward again. Immediately after the punches have been forced through the paper and the trimming blades have made their cut, the paper sheets are fed forward by the paper feeding mechanism by means of the intermittent gear controlling it. The trimming blades thus act to cut at each turn of the main shaft, and the sheets being fed forward in intermittent steps, a clear cut edge is produced. The punches act only when one or more pre-determined note-openings occur in the pattern sheet and are "selected" by the mechanism provided therefor. Thus it will be seen that the edge-shearing and note perforating are independent and when there are no note openings to select in the pattern the edges of the paper are trimmed by the cutting blades the same as when there are note openings in the pattern sheet. The trimming and shearing plates are made independent of the punches and die so that they

can be adjusted and sharpened independently. Although the shearing plates do not cut the paper in actual alinement with the row of punches but at a short distance to the rear of the punches still this distance is so small and insignificant that the relative position of the rows of perforations or slots produced by the punches relative to the side edges of the sheet is always maintained.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a music sheet perforating machine, the combination with a die having a straight row of die apertures, punches for said die apertures, a reciprocating punch operating means, and means for bringing each punch selectively into operative connection with the punch operating means and a reciprocating paper shearing device at each end of the punch holding means, and a cooperating cutter at each end of the die support, substantially as set forth, and for the purpose of trimming the side edges of the sheet of paper being perforated by successive and continuous shearing cuts made for each and every reciprocation of the punch holding means.

2. In a music sheet perforating machine, the combination with a die having a series of apertures, of reciprocating punch operating means, punches in the same, means for selectively bringing any punch into operative connection with the reciprocating punch operating means, brackets attached to the reciprocating punch operating means, a shearing blade secured to each bracket, and a fixed blade to operate with each shearing blade, for the purpose of trimming a part of the edges of the sheet for each reciprocation of the punch operating means, substantially as set forth.

3. In a music sheet perforating machine, the combination with a die support punch and reciprocating punch operating means, of brackets on the reciprocating punch operating means, shearing blades held detachably on said brackets, a recessed blade support on the die support, blades held in the recesses of said recessed blade supports the outer end of said blades being located and fixed to cooperate with the shearing blades on the reciprocating punch operating means, substantially as set forth.

Signed at New York city in the county of New York and State of New York this 27th day of April, A. D. 1910.

PHILIP JACOB MEAHL.

Witnesses:

OSCAR F. GUNZ,
ROSE G. BREEN.