

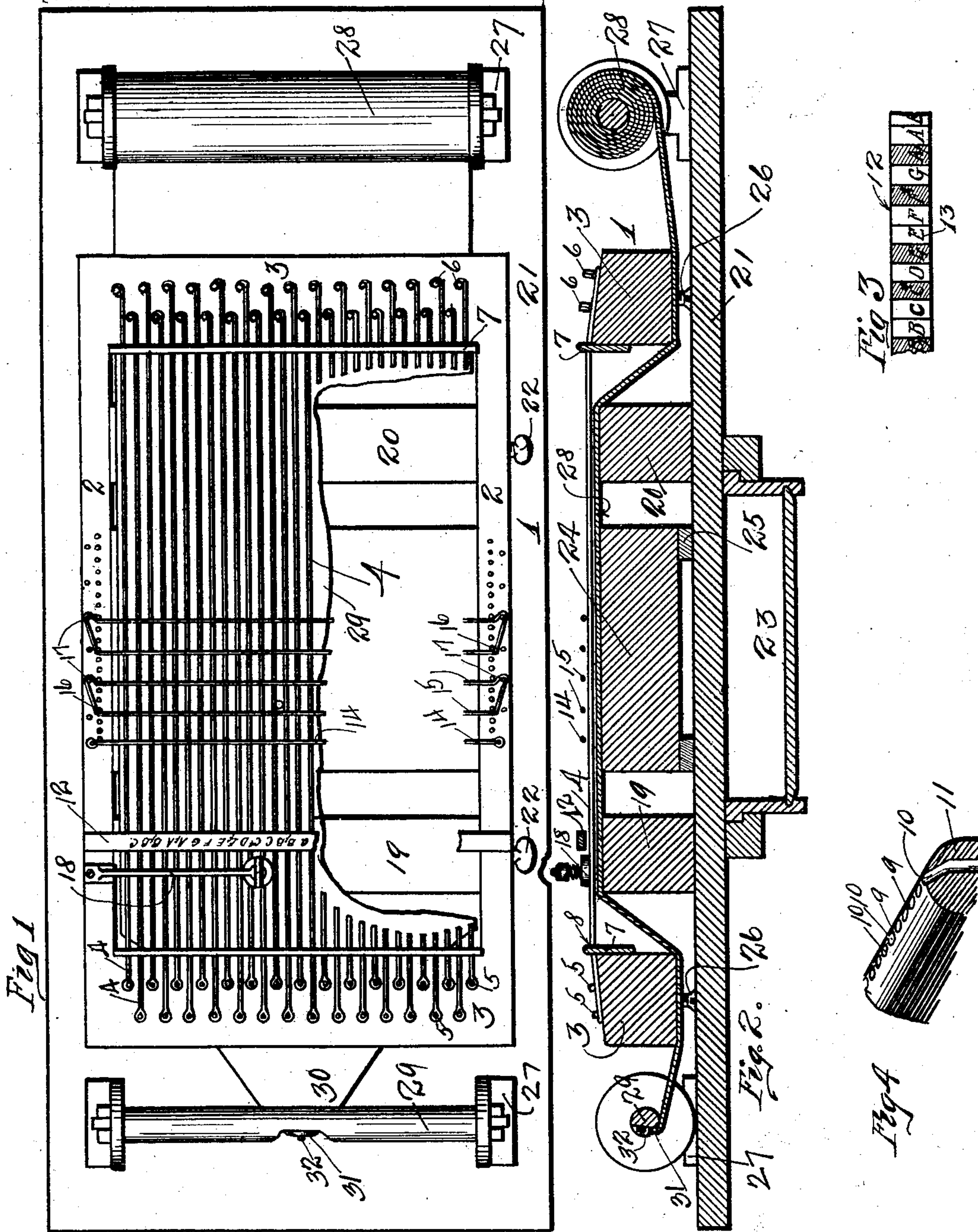
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A. S. SEVILLE.  
PERFORATION SPACING DEVICE FOR AUTOMATIC PIANO PLAYER  
TUNE SHEETS.

APPLICATION FILED AUG. 14, 1902.

NO MODEL.



Witnesses

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# UNITED STATES PATENT OFFICE.

ALGERNON S. SEVILLE, OF MEMPHIS, TENNESSEE.

PERFORATION-SPACING DEVICE FOR AUTOMATIC-PIANO-PLAYER TUNE-SHEETS.

SPECIFICATION forming part of Letters Patent No. 720,075, dated February 10, 1903.

Application filed August 14, 1902. Serial No. 119,645. (No model.)

*To all whom it may concern:*

Be it known that I, ALGERNON S. SEVILLE, a citizen of the United States, residing at Memphis, Shelby county, State of Tennessee, have invented certain new and useful Improvements in Perforation-Spacing Devices for Automatic-Piano-Player Tune-Sheets, of which the following is a specification.

My invention relates to certain new and useful improvements in perforation-spacing devices for automatic-piano-player tune-sheets, and has especial reference to a spacing device to determine the locations of the perforations in tune-sheets to be used directly in mechanical music instruments, especially those designed for playing the piano, or for the stencil-sheets to be used in the manufacture of such tune-sheets.

In the drawings, Figure 1 is a plan view of my spacing device complete, showing a tune-sheet just being begun and a reel of paper in place and having the paper and spacing-wires broken away at one side to give a view of the blocks underneath. Fig. 2 is a sectional side elevation showing, however, the paper of more than normal thickness in order to illustrate it more effectually. Fig. 3 is an enlarged view of the spacing-scale. Fig. 4 is a perspective view of a portion of a tracker-board such as is used in mechanical piano-players.

Referring now to the drawings, in which like numerals indicate the same or like parts in all the views, my device consists of a frame 1, having sides 2 and ends 3, firmly braced apart by the said sides.

4 represents wires which are stretched across the frame 1 from the ends 3, being fastened at one of the said ends by hitch-pins 5 and at the other by tuning-pins 6, by means of which they can always be kept taut. These wires pass at each end through an agraffe 7, in which the holes 8 are spaced to correspond with the partitions 9 between the holes 10 in the tracker-board 11 of the "player" on which the resulting tune-sheet is to be used. If, for example, there are fifty-six keys to be operated by the piano-player, and therefore fifty-six openings 10 in the tracker-board 11, there are a corresponding number of spaces between the wires 4 and necessarily fifty-seven

wires, or one more than the number of openings.

12 is a scale, (shown in enlarged view in Fig. 3,) on which scale are marked the letters 13, in sequence corresponding with the "player's" openings, sharps and flats of course appearing as they come, regardless of the fact that they are sharps or flats. These scale-letters each come opposite a space between two of the wires. The scale is preferably augmented by making the wires immediately behind the C and G spaces, as shown in the plan, of brass and the other wires of steel. Additionally the wire behind the middle C-space is preferably a wound wire.

14 is a cross-wire permanently stretched across the board as an index or guide.

15 represents wires or elastic bands which space for the time of the sheet. These bands are held on spacing-pins 16 and hitch-pins 17 and may be moved at will to vary the time. As strung, there are four cross-bands, and they are so spaced that they occupy a distance corresponding to the distance on a tune-sheet for piano-player equal to one beat in a measure of time. Additional spacing-pins 16 are used, to which pins bands may be shifted to divide up a measure of time into three parts for waltz-music or in any way desired. They may also be moved close together for fast music or farther apart for slow, the number and spacing permitting a considerable range. If desired, also, several measures may be spaced out in succession by the use of a sufficient number of spacing-pins and two or more sets of bands.

18 is a clamp by which the paper is held during work.

19 and 20 are blocks permanently fastened to the base-board or table 21, to which blocks the frame is clamped by the set-screws 22.

23 is a drawer.

24 is a cutting-block of wood with the end grain up. This block is preferably supported on felt pads 25 to deaden the noise and may be reversed when one end is cut up and then planed when necessary. 26 represents screws for adjusting the height of the frame 1 with reference to this cutting-block.

27 is a stand holding a reel of paper 28, which paper is perforated, as will be more



fully hereinafter described, to form the "tune-sheet."

29 is a reel on which the sheet is wound as it is completed and from which it is transferred to a reel made to fit the piano-player.

In piano-players, as before stated, perforated sheets of paper called "tune-sheets" are passed over the tracker-board of the instrument, the openings serving as inlets for air to operate the piano-player, and thereby strike the piano-keys. In order to simulate more perfectly the human touch, the piano-key is held down for varying lengths of time, as is done by the hand. This is accomplished by using a continuous slot of length sufficient to give the desired length of depression. In using my spacing device I secure this result by cutting holes in the paper 28 with a round punch for a quick note and with a narrow but long punch for a prolonged one. The punches used, while necessarily made of a special size and shape, are otherwise the hollow punch of commerce and are therefore not shown. I can make use of the long punches by having elastic cross-bands which may be pushed out of the way to use a long punch and will then return to place.

In using my spacing device I place a reel of paper 28 in position at the right-hand end of same, as shown in the views, and after pointing the end 30 of the sheet attach a paster 31, which is formed to engage a hook 32 on the reel 29. I then slip the end 30 under the end 3 of the frame 1 and pass it up over the blocks 19, 20, and 24 and thence under the opposite end 3 and catch it on the reel 29, on which it is given one or two turns to give it a hold. The frame 1 may of course be removed, if desired, to place the sheet in position, and this method is to be preferred in most cases. I then set the clamp 18 to hold the paper firmly and having adjusted the cross-bands to the desired time select the desired punch and placing it between the wires at the proper note and against the first cross-band make a hole in the paper. If several notes are to be struck at once, they are cut by the same cross-band, while succeeding notes come against the second and succeeding cross-bands. When one or more measures have been cut, the clamp is loosened and the sheet moved forward until the last note cut comes against the index-wire, when the sheet will be in place for another measure or measures to be cut, and so on till the sheet is completed. It is then ready for immediate use and is reeled correctly for insertion at once in the player.

If so desired, of course quite a number of sheets may be cut at once, or a stencil-sheet may be cut for use in reproducing other sheets. If a hole is cut erroneously, it may be closed with a small sticker and if necessary a new hole cut through same in a slightly different position. This gives an added advantage in that the stencil-sheet or a thinner sheet cut at the same time may be played in

a normal piano-player and any error of notes or rendition be corrected before the stencil is used.

While I have used the term "piano-player" I desire it distinctly understood that this term is used generically to cover all mechanical music-playing instruments employing a tune-sheet of the type mentioned herein.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a spacing device, the combination with a suitable frame and fixed longitudinal partitions of elastic cross-partitions substantially as and for the purposes set forth.

2. In a tune-sheet-spacing device, the combination with a suitable frame, and longitudinal wires stretched to form fixed partitions of adjustable cross-partitions substantially as and for the purposes set forth.

3. In a tune-sheet-spacing device the combination with a suitable frame, and longitudinal wires forming fixed partitions of elastic cross-partitions substantially as and for the purposes set forth.

4. In a tune-sheet-spacing device the combination with a suitable frame, and longitudinal wires forming fixed partitions of adjustable elastic cross-partitions substantially as and for the purposes set forth.

5. In a tune-sheet-spacing device, the combination with a frame, and fixed longitudinal partitions of adjustable elastic cross-partitions substantially as and for the purposes set forth.

6. In a tune-sheet-spacing device the combination with a frame, a cutting-block a paper-clamp and fixed longitudinal partitions of elastic cross-partitions, and a fixed index substantially as and for the purposes set forth.

7. In a tune-sheet-spacing device, the combination with a base-board, fixed blocks fastened thereto, a cutting-block resting thereon and a movable frame carrying spacing devices and clamps for fastening said frame to said fixed blocks substantially as and for the purposes set forth.

8. In a tune-sheet-spacing device, the combination with a base-board, reel-supports at the ends of said board fixed blocks fastened to said board, a cutting-block resting on said board, a movable frame carrying suitable spacing devices, clamps for holding said frame and means of adjusting the height of said frame, substantially as shown and described.

9. In a tune-sheet-spacing device, the combination with a base-board, reel-supports at the ends of said board, fixed blocks fastened to said board, a cutting-block, a movable frame longitudinal spacing-wires strung on said frame, elastic cross-partitions, means of adjusting the height of said frame, clamps to hold said frame and a paper-clamp, substantially as and for the purposes set forth.

10. In a tune-sheet-spacing device, the combination with a set of fixed partitions, and an index-scale for same, of movable elastic cross-



partitions, substantially as shown and described.

11. In a tune-sheet-spacing device, the combination with longitudinal partitions and an index-scale for same, of movable elastic cross-partitions, substantially as shown and described.

12. In a tune-sheet-spacing device, the combination with longitudinal partitions, and an index-scale for same, of movable cross-partitions, substantially as shown and described.

13. In a tune-sheet-spacing device, the combination with fixed partitions, a fixed cross-partition or index, and movable cross-partitions, substantially as shown and described.

14. In a spacing device, the combination with a base, reels mounted on said base and a cutting-block resting on said base, of a frame carrying fixed longitudinal partitions and movable cross-partitions substantially as shown and described.

15. In a spacing device, the combination with a base, reels mounted on said base and a cutting-block, of a frame carrying longitudinal partitions, and movable cross-partitions, substantially as shown and described.

16. In a spacing device, the combination with a base, reels mounted on said base, and a cutting-block resting on said base, of a frame carrying fixed longitudinal partitions, a scale for said longitudinal partitions and movable cross-partitions, substantially as shown and described.

17. In a spacing device, the combination with a base, reels mounted on said base, and a cutting-block resting on said base, of a frame carrying fixed longitudinal partitions, a scale for said longitudinal partitions, a fixed cross-partition and movable cross-partitions, substantially as shown and described.

18. In a spacing device, the combination with a frame wires stretched longitudinally of said frame, a fixed index and adjustable elastic cross-partitions, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALGERNON S. SEVILLE.

Witnesses:

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J. H. DUNLAP.