

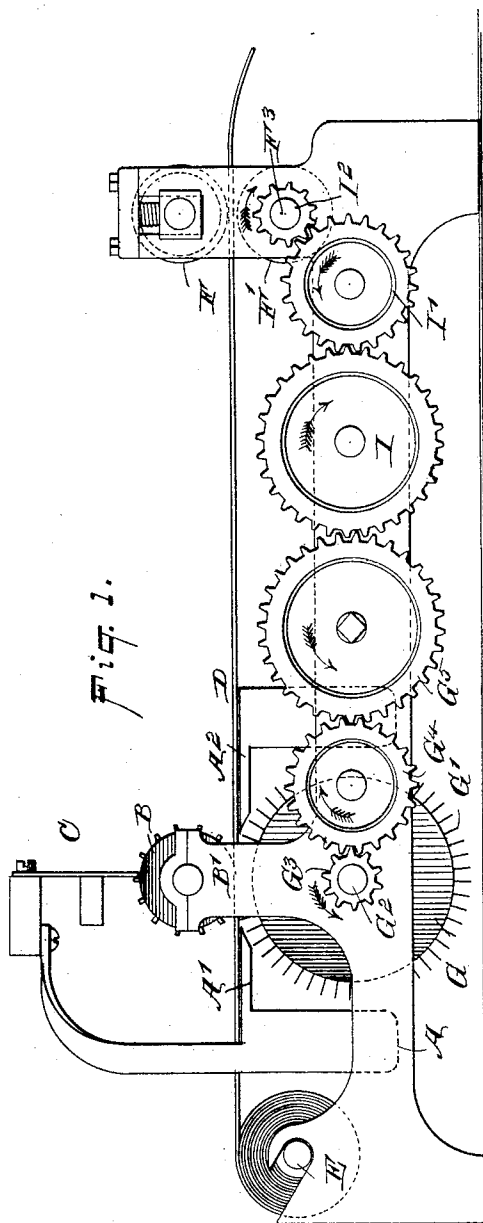
(No Model.)

2 Sheets—Sheet 1.

W. H. HOSCHKE.
AUTOMATIC MUSICAL INSTRUMENT.

No. 531,037.

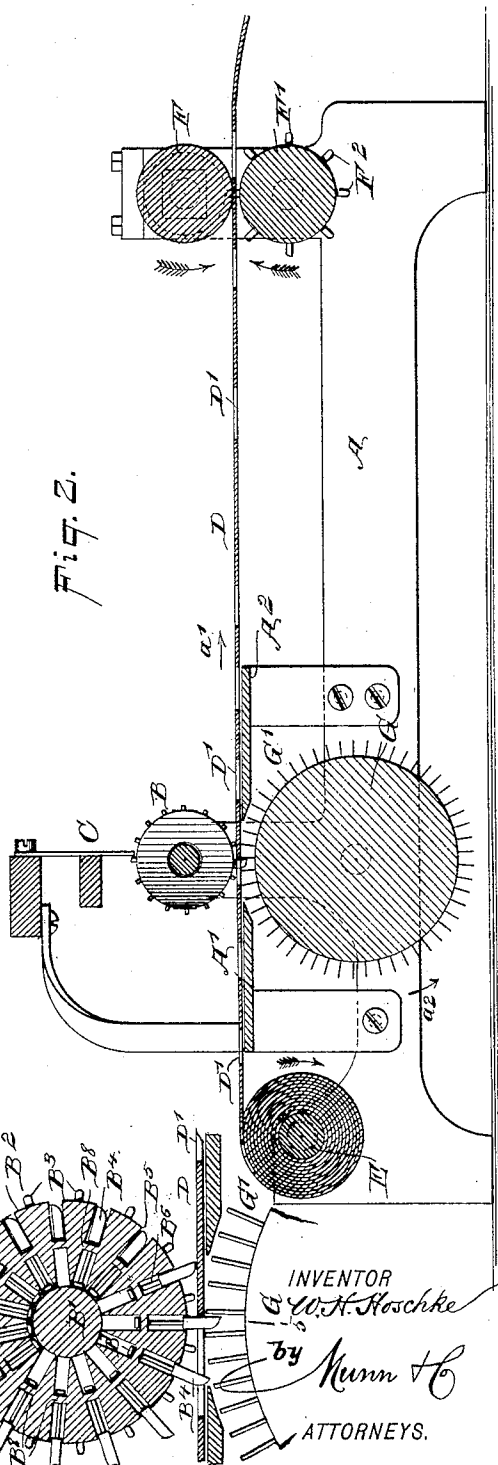
Patented Dec. 18, 1894.



WITNESSES:

William Goebel
Thos. H. Howard

Fig. 2.



INVENTOR

W. H. Hoschke

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Kunn & Co

ATTORNEYS.

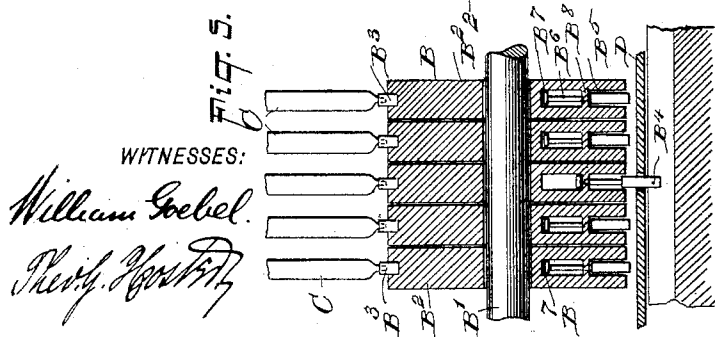
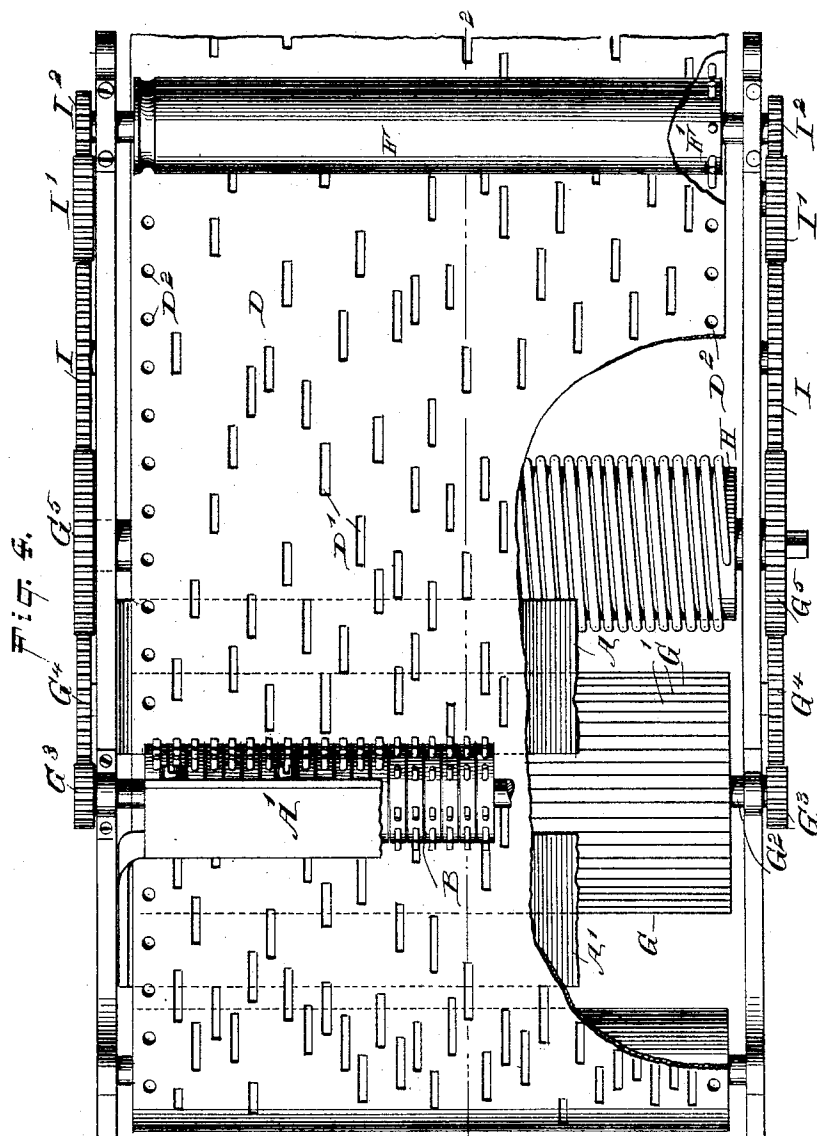
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UNITED STATES PATENT OFFICE.

WILLIAM H. HOSCHKE, OF BROOKLYN, NEW YORK.

AUTOMATIC MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 531,037, dated December 18, 1894.

Application filed April 7, 1894. Serial No. 506,694. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. HOSCHKE, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Automatic Musical Instrument, of which the following is a full, clear, and exact description.

The invention relates to musical instruments in which a traveling perforated sheet actuates the star wheel or other picking mechanism adapted to engage and sound the comb.

The object of the invention is to provide a new and improved automatic musical instrument, which is comparatively simple and durable in construction, and arranged in such a manner as to prevent tearing or otherwise injuring the traveling sheet and to permit of reusing the sheets without danger of changing the tunes.

The invention consists of certain parts and details, and combinations of the same, as will be hereinafter described and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improvement. Fig. 2 is a sectional side elevation of the same, on the line 2—2 of Fig. 4. Fig. 3 is an enlarged sectional side elevation of the star wheel, comb, traveling sheet, and mechanism for driving the star wheel. Fig. 4 is a plan view of the improvement, with parts broken out; and Fig. 5 is a transverse section of part of the improvement, on the line 5—5 of Fig. 3.

The improved musical instrument is provided with a suitably constructed frame A, on which is journaled the star wheel or other picking device B, adapted to sound the comb C, supported in any suitable manner from the said frame A.

Under the star wheel B, or other picking device, passes the traveling sheet D, preferably made of paper, and provided with the usual longitudinally arranged slits or slots D', the said sheet unwinding from a roll E journaled in one end of the frame A, as plainly shown in the drawings. A forward traveling motion in the direction of the arrow a' is given to the said traveling sheet D, by two rollers F and F', between which passes the said traveling sheet, one of the rollers being provided

with pins F² engaging apertures D² arranged near the edges of the sheet D, as is plainly shown in Fig. 4. One of the rollers, preferably the lower one F', is driven from a suitable spring or other motor as hereinafter more fully described, while the top roller F is preferably journaled in spring-pressed bearings so as to securely hold the said roller in contact with the sheet D, to properly propel the same forward. The star wheel B or other picking device is not driven from the sheet D, as in musical instruments heretofore constructed, but it is driven by a special and independent mechanism arranged below the sheet D, and preferably made in the shape of a transverse cylinder G, having a series of transversely extending blades G' running the entire length of the cylinder, and adapted to engage and actuate projecting plungers from the star wheel B, as hereinafter more fully described. It will be seen that the cylinder G, forms with the star wheel B, a passage for the traveling sheet D, and the latter controls gravity plungers in the said star wheel, so that the said gravity plungers at the proper time can pass through the perforations D', to be engaged by the blades G' of the revolving cylinder G to be propelled to sound the comb, as hereinafter more fully described. The cylinder G rotates in the direction of the arrow a^2 , and is driven at a fairly high rate of speed from a spring motor H, located in the frame A, and of any approved construction. The connection between this motor H and the cylinder G is by gear wheels, and for this purpose the ends of the shaft G³ of the said cylinder G, carry pinions G³ in mesh with intermediate gear wheels G⁴, in mesh with gear wheels G⁵ secured on the driven shaft of the motor H, so that the motion of the latter is transmitted by the said gear wheels to the cylinder G. The motor H also preferably drives the roller F', and for this purpose the gear wheels G⁵ mesh into intermediate gear wheels I, in mesh with a second intermediate gear wheel I', in mesh with the gear wheel I² on each end of the shaft F³ for the roller F'.

The star wheel or other picking device B is preferably of the construction shown in detail in Figs. 3 and 5, and is provided with a transversely-extending shaft B', on which is mounted to rotate loosely a series of disks or wheels B², one for each prong of the comb C. Each disk B² carries in its periphery a series

of picking pins B^3 , adapted to successively sound the corresponding prong of the comb C as the said disk is rotated.

Between the picking pins B^3 are arranged gravity plungers B^4 , fitted to slide in recesses B^5 in the said disk, the recesses being preferably located midway between adjacent picking pins B^3 , as will be readily understood by reference to Fig. 3. The plungers B^4 are adapted to slide outward and downward when nearing a lowermost position, so as to pass onto the top of the traveling sheet D, and to drop through an opening D' in the said sheet in case such opening passes under the corresponding disk B^2 . Each plunger B^4 is provided with an inner reduced end B^6 , formed with a head B^7 , and fitted to slide in a partition B^8 arranged in the corresponding recess B^5 , so that the outward sliding movement of the corresponding plunger is limited by this head B^7 resting against the said partition. As the disk B^2 is revolved, the plunger before passing into an uppermost position, slides inward by its own gravity, so that its outer end is completely within the recess B^5 , and consequently the plunger is not liable to strike and sound the corresponding prong of the comb C. If desired, the plungers and picking pins may be arranged out of peripheral alignment so that the plungers pass to one side of the prong of the comb, while the prong is in the path of the picking pins only. The outer end of each plunger is rounded off so that a flat side is presented to the blades G' of the revolving cylinder G, while the oppositely arranged rounded off side is presented to the rear end of the corresponding slot D' , to permit the sheet D to readily push the pin slightly upward on the forward motion of the sheet and without turning the disk in the wrong direction, it being understood that the said disk turns in the direction of the arrow a^3 , by the action of the said revolving cylinder G.

In order to properly guide the sheet D, I provide tables A' and A^2 , over which passes the sheet on opposite sides of the cylinder G, to properly hold the sheet in a horizontal position during its passage between the picking device B and the cylinder G.

The operation is as follows: When the motor H is set in motion, then a rotary motion is given to the cylinder G in the direction of the arrow a^2 , and motion is given to the cylinder F' , so as to propel the sheet D forward in the direction of the arrow a' . As the sheet D moves forward, the plungers B^4 standing in a lowermost position, travel on the sheet D, to finally drop through a corresponding slot or opening D' , to project a sufficient distance below the sheet to be engaged by one of the blades G' of the revolving cylinder G. As the blade G' takes hold of this projecting plunger B^4 , it imparts a turning motion to the disk B^2 of this plunger, so that the corresponding uppermost picking pin B^3 engages and picks or sounds the corresponding prong of the comb C. By the time the blade G' mov-

ing the corresponding plunger B^4 leaves the latter, then the disk has been sufficiently turned to properly sound the corresponding prong of the comb, and also to move the plunger into such position that its rounded off side is in alignment with the end of the slot D' , so as to be readily pushed inward by the traveling sheet D, without danger of moving the disk B^2 in the inverse direction of the arrow a^3 . This action takes place for all lower plungers engaged by corresponding slots or openings D' , so that according to the arrangement of slots the comb C is sounded to produce the desired tone, it being, however, expressly understood that the star wheel or picking device B is not driven from the traveling sheet D, but from an independent power such as the cylinder G. It will be further understood that as the traveling sheet D controls the sliding downward motion of the plungers B^4 , but does not actuate the same to turn the disks, it will be readily seen that the sheet is not liable to be torn or otherwise injured, as its functions are very light.

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

1. An automatic musical instrument, provided with a rotatable part, having pins for sounding the teeth of the comb, and outwardly movable plungers, and a driving mechanism adapted to engage the said plungers to turn the said rotatable part and sound the teeth of the comb, substantially as described.

2. An automatic musical instrument, provided with a star wheel, having picking pins and gravity plungers, and a revolving wheel having projections adapted to engage the protruding ends of the plungers to turn the star wheel and sound the corresponding tooth of the comb, substantially as described.

3. An automatic musical instrument, comprising a star cylinder having rotatable disks, each having picking pins and gravity plungers, a traveling sheet having slots for the passage of the said gravity plungers, and a revolving cylinder having blades adapted to engage the projecting ends of the plungers extending below the said traveling sheet, substantially as shown and described.

4. An automatic musical instrument, comprising a star cylinder having rotatable disks, each having picking pins and gravity plungers, a traveling sheet having slots for the passage of the said gravity plungers, a revolving cylinder having blades adapted to engage the projecting ends of the plungers extending below the said traveling sheet, and a motor for imparting a rotary motion to the said cylinder, the said motor also imparting motion to the said traveling sheet, substantially as shown and described.

WILLIAM H. HOSCHKE.

Witnesses:

THEO. G. HOSTER,
C. SEDGWICK.