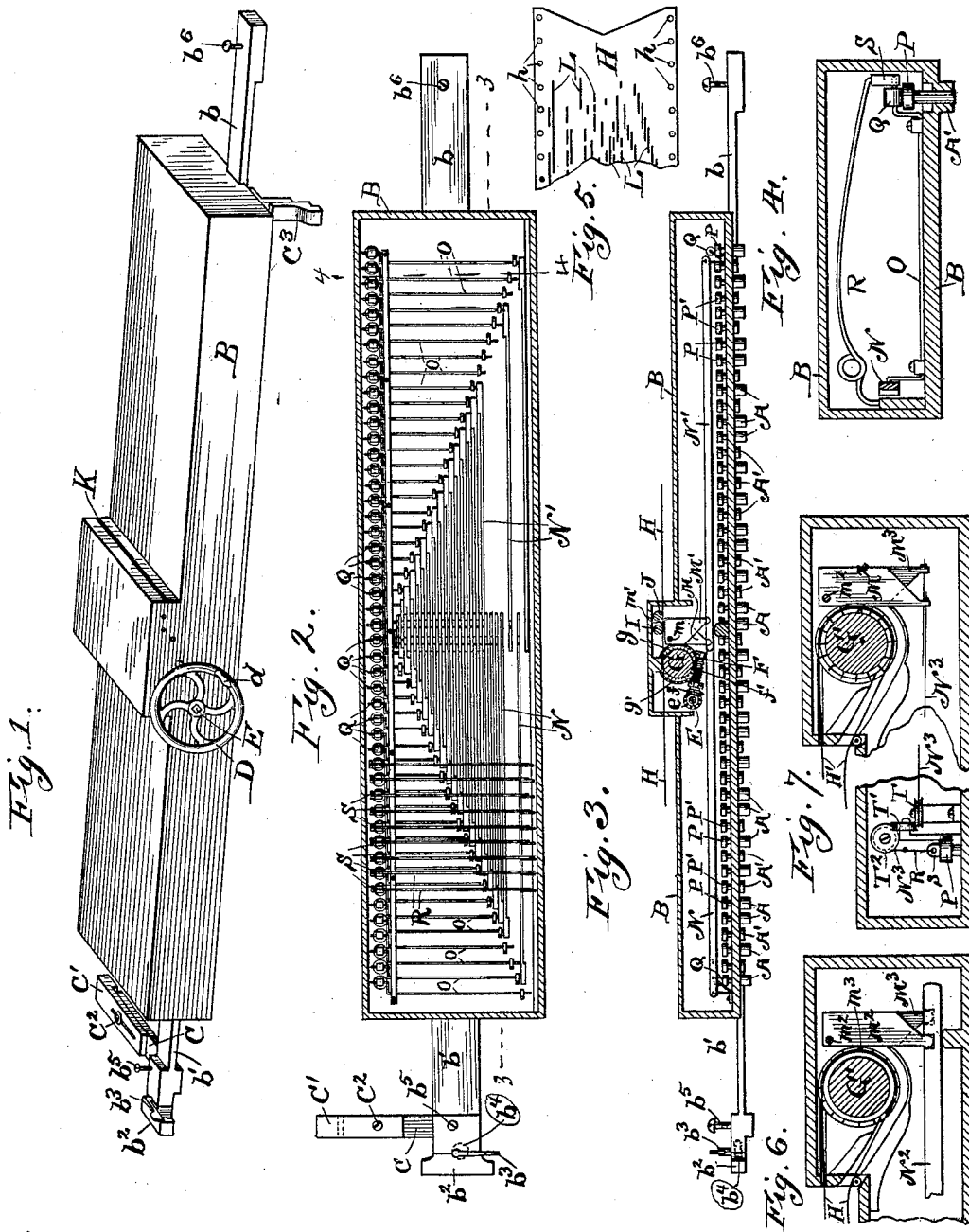


J. A. BRODIN.
AUTOMATIC ORGAN PLAYER.

No. 523,829.

Patented July 31, 1894.



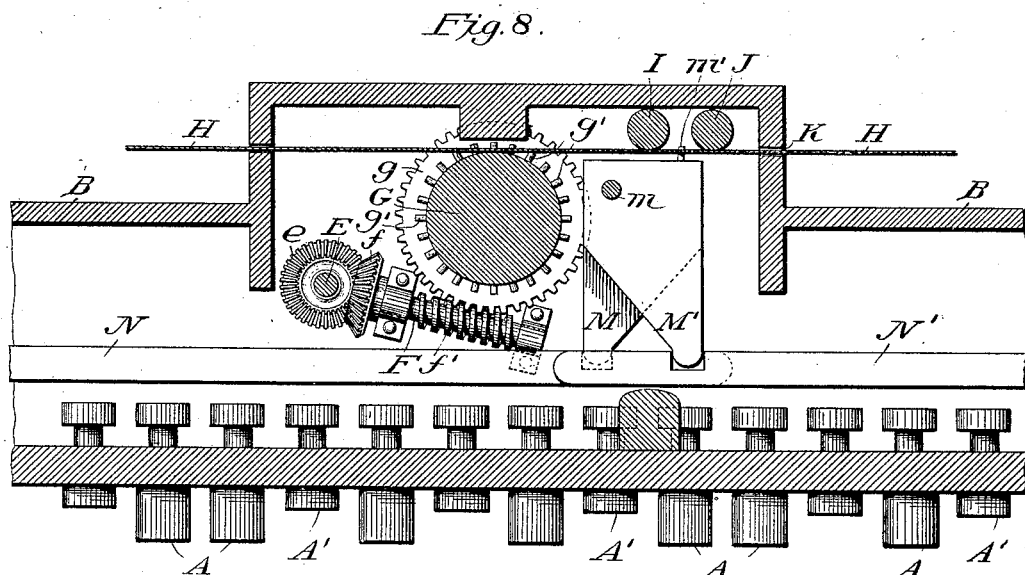
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UNITED STATES PATENT OFFICE.

JOHN AUGUST BRODIN, OF CHICAGO, ILLINOIS.

AUTOMATIC ORGAN-PLAYER.

SPECIFICATION forming part of Letters Patent No. 523,829, dated July 31, 1894.

Application filed November 27, 1893. Serial No. 492,068. (No model.)

To all whom it may concern:

Be it known that I, JOHN AUGUST BRODIN, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Organ-Players, of which the following, when taken in connection with the drawings accompanying and forming a part hereof, is a full and complete description, sufficient to enable those skilled in the art to understand, make, and use the same.

The object of the invention embodied in the device described, illustrated and claimed herein is to obtain an automatic organ player which may be attached to an ordinary organ or piano and by means of which the key board of the organ or piano can be actuated by the actuating of the crank of the device, (whether by the hand or by a motor) and further to obtain an organ or piano player of the kind named which shall be simple in construction, not liable to get out of order, and of comparatively small cost in the making thereof.

In the drawings referred to as forming a part of this specification Figure 1 is a perspective view of an automatic organ player embodying my invention; Fig. 2 a horizontal sectional view thereof with some of the parts (which are multiples of the parts remaining) removed to afford a better view and understanding of the construction of the device; Fig. 3 a longitudinal sectional view on line 3—3 of Fig. 2; Fig. 4 a sectional view on line 4—4 of Fig. 2 and Fig. 5 a plan view of a portion of a perforated sheet (preferably of metal) which is designed to be run through the organ player, when in use, and to determine which ones of the notes of the instrument to which the device is attached shall be played. Fig. 6 is a longitudinal sectional view of one end of an automatic organ player constituting a modification of the device illustrated in Figs. 1 to 4 all inclusive; and Fig. 7 a longitudinal sectional view of another modification thereof. Fig. 8 is an enlarged detail figure showing the gearing and levers contained in the central part of Fig. 3.

A given letter of reference indicates the same part of the device throughout the sev-

eral figures of the drawings where more than one view thereof is given.

A, A', are tubes in the bottom of case B of the device. Case B is placed over the key board of an organ or piano so that the tubes A shall come over the white keys thereof and tubes A' over the black keys. Case B is maintained in position over such key board by means of arm *b*, and arm *b'* having the cam locking part *b*² actuated by handle *b*³.

*b*⁴ is the cam in part *b'* and *b*⁵ is a screw in part *b'* and *b*⁶ a like screw in part *b*.

C is a projecting arm secured to arm *b'* and C' is a movable arm adapted to be clamped to arm C by screw C². Arms C C' constitute an adjusting mechanism for the end of case B adjacent thereto; and C³ is a projection extending from case B adapted to form the adjusting device for the end of case B adjacent thereto.

D is a crank wheel having crank *d* thereon secured to rotatable shaft E and by means of which such shaft can be turned.

e is a beveled gear wheel secured on rotatable shaft E and intermeshing with beveled gear wheel *f* secured on rotatable shaft F. *f'* is a worm or screw on shaft F intermeshing with worm gear *g* on roller G.

g' g' are pins on roller G adapted to intermesh with holes *h h* on perforated sheet H.

I, J are rollers rotatably mounted on frame B; and against which the perforated sheet H is pressed as such sheet is forced through the device in the operation of the machine.

Before proceeding to describe the several parts by which the keys of an instrument to which the organ player is attached are operated a perforated sheet H is forced through the case of such organ player I will describe how such sheet is so forced. By placing the perforated sheet H against the roller G to the left hand side thereof as viewed in Fig. 3 and turning the crank shaft E by means of handle *d* or wheel D (as by a motor) the pins *g' g'* on the roller G will engage with holes *h h* and the perforated sheet H is forced underneath rollers I J and out of the slot K (see Fig. 1) of the case.

To actuate the keys of the instrument as

the perforated sheet H passes through, the perforations L, L are made in such sheet and the following described mechanism is provided: Levers M, M' are fulcrumed on rod m, and pins m' m' are secured in such levers respectively. Pins m' m' are adapted to enter that one, if any, of the holes L thereover.

N N' are longitudinally movable bars or rods attached at one end to levers M M', respectively, and at the other end to crank shafts O, O', respectively.

P P are pins extending through tubes A A' respectively and Q Q are rollers on the crank at the opposite ends of crank shafts O, O', to which the crank arm by which the longitudinally movable rods or bars N N' are respectively attached thereto, and such rollers rest on the upper face or end of the pins P P' respectively.

R R are springs secured at one end thereof respectively in case B and having heads S S at the other end thereof fitting over and pressing down upon the crank arm of crank shafts O O' respectively on which the rollers Q Q are placed, and with sufficient force to press such crank arm down together with the pin thereunder and the key of the instrument over which such pin is placed.

When a perforated sheet H is in the case B and no holes or perforations L are over the series of pins m' m' on the series of levers M M' the series of longitudinally movable levers N are pushed and series N' drawn or pulled into such position that the crank shafts O O' respectively are turned so that the rollers Q Q are raised off the pins A A' and the series of springs R R thereby retracted. When a perforation L in sheet H comes, (in the passage of such sheet H as hereinbefore described through the case B) over any one of the levers M M' and the pin m' therein, such pin may enter such perforation and the spring R pressing on the crank arm of the crank shaft O (or O' as the case may be) to which the longitudinally movable rod or bar attached at one end to lever M or M', is at the other end attached, will cause such pin m' to enter such perforation and will also press down the corresponding pin P or P' and the key thereunder of the instrument to which the device is attached.

When the device embodying my inventions is constructed as hereinbefore described and as illustrated in Figs. 1 to 4 of the drawings, the longitudinally movable bars or rods N are subject to compression by the action of the springs R R and levers M, and the longitudinally movable bars or rods N' are subject to tension by springs R and levers M'. If the material of which the longitudinally movable bars or rods are made is adapted only for tension the roller G must be placed at one end of the case B, as illustrated in Figs. 6 and 7 and the respective levers M M'

and bars or rods N N' arranged substantially in such figures.

In the modification illustrated in Fig. 6 the levers M², M² correspond with the levers M M' in the construction illustrated in Figs. 1 to 4, and the levers N² to the levers N N'. Levers M² M² are fulcrumed on rod m² and have projections m² thereon adapted to enter the perforations in the sheet H. In this modification I have shown the roller G' constructed so that the perforated sheet H extends partially around it, though it will be readily understood that rollers G I and J and levers M M', are substituted therefor.

In the modification illustrated in Fig. 7 I have shown roller G', levers M² M² fulcrumed on rod m², and a string connection N³. Where the string N³ is used as a substitute for rod or bar N, N' or N², the crank shaft O may be omitted and the string attached directly to the spring R by properly disposing guiding pulleys, or their equivalents, for such string, and T T' T² are pulleys (see Fig. 7) over which such string N³ extends to spring R.

Owing principally to the fact, that, a string connection N³ whether constructed of hemp, cat-gut or wire is subject to much greater change in length from tension and difference in temperature than is a rod constructed of wood, I prefer the rod or bar connection N N' and N² to the string connection N³.

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

1. The combination of a rotatable cylinder, means for rotating the cylinder, a perforated sheet adapted to be connected to the rotatable cylinder and forced through the device by the rotation thereof, a series of levers fulcrumed in the device, abutments on such levers, respectively, adapted to intermesh with the perforations in the perforated sheet corresponding therewith, a series of longitudinally movable pins adapted to engage with respective keys of the instrument to which the device is attached, a series of crank shafts the crank at one end whereof is connected to the series of longitudinally movable pins, and a series of longitudinally movable connections attached at one end to the fulcrumed levers and at the other end to the crank at the other end of the crank shaft named; and a series of springs tending to yieldingly hold the series of longitudinally movable pins in an extended position; substantially as described.

2. The combination of a rotatable cylinder, means for rotating the cylinder, a perforated sheet adapted to be connected to the rotatable cylinder and forced through the device by the rotation thereof, a series of levers fulcrumed in the device, abutments on such levers, respectively, adapted to intermesh with the perforations in the perforated sheet corresponding therewith, a series of longitudinally mov-

able pins adapted to engage with respective keys of the instrument to which the device is attached, a series of springs tending to yieldingly hold the series of longitudinally movable pins in an extended position, a series of longitudinally movable connections connected respectively at one end thereof to the fulcrumed levers, and connections between such longitudinally movable connections and the longitudinally movable pins; substantially as described.

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