

No. 667,397.

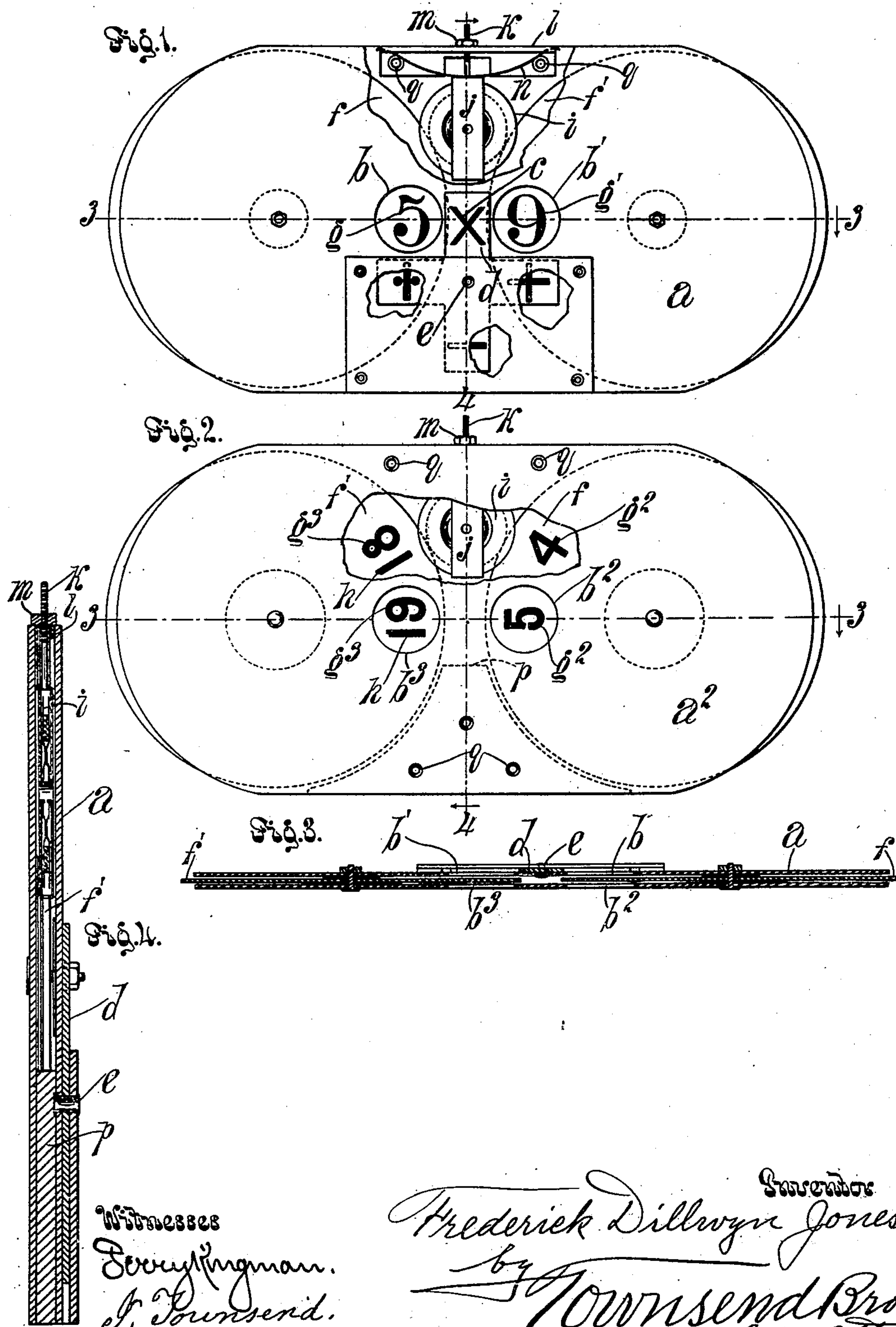
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F. D. JONES.

EDUCATIONAL APPLIANCE AND NUMBER WHEEL.

(Application filed Feb. 12, 1900.)

(No Model.)



UNITED STATES PATENT OFFICE.

FREDERICK D. JONES, OF LOS ANGELES, CALIFORNIA.

EDUCATIONAL APPLIANCE AND NUMBER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 667,397, dated February 5, 1901.

Application filed February 12, 1900. Serial No. 4,981. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK DILLWYN JONES, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Educational Appliance and Number-Wheel, of which the following is a specification.

The object of this invention is to provide improved means whereby a teacher can give pupils rapid drill in number-work.

By my invention I provide a very complete, simple, convenient, and compact mechanical device which is devoid of all expensive mechanism and is principally made of cardboard and is in the nature of a card, so that the teacher can hold it in her hands before the class as readily as she could hold an ordinary card for primary teaching and can while thus holding the card work the mechanical combinations with great ease and precision for primary teaching and drillwork, the rear of the card being arranged to show what processes are exhibited on the front side, and when through with the work the appliance can be laid on the table the same as an ordinary card and occupies but little more space than a card of like area and is but little thicker than five layers of cardboard.

The accompanying drawings illustrate my invention.

Figure 1 is a front elevation of my invention with the parts in position for drilling pupils in multiplication. Portions are broken away to expose interior construction. Fig. 2 is a like view of the rear side of the appliance. Fig. 3 is a section on line 3 3, Figs. 1 and 2. Fig. 4 is a vertical mid-section on line 4 4, Figs. 1, 2, and 3.

a indicates a stationary card-like member, the same being a plate provided with two adjacent sight-openings b b' . The plate a is provided with an arithmetical sign or character c between the two sight-openings b and b' . This arithmetical sign may be printed on or otherwise fixed to the plate; but for the purpose of rapidly changing from addition to multiplication or other arithmetical process the arithmetical signs of addition, subtraction, multiplication, and division are preferably mounted upon a wheel d , which is piv-

oted by a pivot e to the plate a . The wheel d is preferably in the form of a cross, as shown, the arms of which cross may be respectively made to stand in the space between the sight-openings b b' without intercepting the view.

f f' indicate two circular disks arranged to revolve behind the sight-openings b and b' , respectively. These disks are provided with characters, as illustrated by the characters g g' , to be exhibited through the respective sight-openings b b' on opposite sides of the said sign c . The disks may be free to revolve independently, or they may be connected together by any suitable means to synchronously revolve behind the sight-openings, to thus bring a change of characters into view at both sight-openings simultaneously if it is desired to so operate the appliance.

i indicates a transmission-wheel arranged to be brought into engagement with and withdrawn from engagement with the peripheries of the disks f f' to operatively connect and disconnect the disks, so that when the wheel i is in engagement with the peripheries of the disks f f' and one of said disks is revolved the other disk will revolve at a corresponding speed.

j indicates a carrier for the connecting-wheel i . This carrier is shown provided with a screw-stem k , which extends through a plate l , fixed to the member a .

m indicates a nut by which the screw can be moved up to withdraw the wheel i from contact with the disks f and f' .

n indicates a spring to normally hold the wheel i in engagement with the disks f and f' .

Each of the disks f f' is provided on its opposite sides with numerals engaged in circles. Like numerals are opposite each other on the opposite sides of the disks. The numeral "5" which appears in the sight-opening b is opposite the numeral "5" which appears through the opening b^2 in the rear stationary member or plate a^2 , which corresponds to the front card-like member or plate a . It is to be understood that all of the characters indicated by the character g^2 correspond to like characters g on the disk f , while the characters g^3 on the disk f' are opposite like characters g' on the disk f' . By preference one of

the disks is provided upon its rear side with a character h in "10's" place alongside the character g^3 , which corresponds to the characters g' on the front side of the disk f' —that is to say, opposite the numeral "9," which appears in Fig. 1, is the number "19," which appears in Fig. 2. By arranging like numerals oppositely on each disk like numerals will be exhibited through both sight-openings for each disk—that is to say, the numeral "5" is exhibited on each side of the appliance in both views, Figs. 1 and 2, so that the teacher by inspecting the back of the device will know what numeral is shown in front. The purpose of adding a character, as at h , in the "10's" place, so that opposite the numeral "9" the numeral "19" will appear, is to give a greater variety of exercises for the pupil. The numerals may be placed in any desired position. In Fig. 1 the numerals are shown placed with their height substantially parallel with the periphery of the disk, so that when brought to view in the sight-openings on opposite sides of the sign c they will be upright. In Fig. 2 the numerals on the back of disk f are shown with their tops presented toward the periphery of the disk, while the numerals on the back of the disk f' are arranged to present their tops toward the center of the disk, so that the appliance may be held upright with the disk f below the bottom of the disk f' , whereby the character g^2 will be brought upright underneath the upright character g^3 to indicate to the pupil the subtraction of the lesser number from the greater number. At the same time the characters g and g' at the opposite side of the disk will indicate to the teacher what numerals appear on the other side of the appliance, and vice versa when the other side is presented to the pupil.

In practice the nut m may be screwed to withdraw the wheel i and hold it out of contact with the disks $f f'$, so that either of the disks may be rotated independently of the other, and the teacher may then bring any of the arithmetical signs which are upon the wheel d into the space between the sight-openings $b b'$ and may then turn either wheel while the other remains stationary in order to change the combination of the numerals seen through the openings. By this method the combinations of all of the numerals on the face of one of the disks with any numeral on the face of the other disk can be rapidly made, and the combination can be changed as frequently as desired by rotating the other disk independently.

If it is desired to give the pupil more difficult exercise, the nut m may be screwed to allow the spring n to force the wheel i into contact with the disks $f f'$, so that when one of the disks is rotated the other will be rotated likewise.

When connected by the wheel i , the rotation of the one disk will cause the other disk to rotate synchronously with it, thus bring-

ing successively into view different combinations of the characters on the two disks until the disks has been turned around completely. The combinations may be changed quickly by holding one of the disks and slipping the other disk around until another character is brought into view through the sight-opening. Then the two disks may be rotated synchronously, as before.

p indicates a block which, together with plate l , holds the two stationary plates or members $f f'$ at a suitable distance apart.

q indicates rivets extending through the plates and blocks to hold the parts together.

b^3 indicates the sight-openings for the characters h and g^3 .

The friction-wheel i , which connects the disks $f f'$, is preferably a grooved wheel, thus to insure proper contact of the parts for the operation of the device.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. An educational appliance comprising two stationary card-like members arranged with a space between them and respectively provided with two adjacent sight-openings, the sight-openings of one member registering with those of the other member; and two disks arranged between the stationary members and provided on both sides with characters to be exhibited through the respective sight-openings; like characters being opposite each other on the opposite faces of the disks, respectively.

2. An educational appliance comprising a stationary member provided with two adjacent sight-openings; two disks arranged to revolve behind the sight-openings respectively and provided with characters to be exhibited through the respective sight-openings; and a wheel on the front of the stationary member provided with characters to be respectively brought between the sight-openings.

3. In an educational appliance, the combination of a stationary member provided with two sight-openings; two circular disks arranged behind the stationary member and respectively provided with characters arranged in a circle; and an adjustable friction-wheel to simultaneously engage the circular disks.

4. In an educational appliance, the combination of two stationary card-like members, each provided with two correspondingly-arranged sight-openings; and two rotary disks mounted to rotate between the stationary members and respectively provided on each side with characters arranged in a circle to be exhibited through the respective sight-openings; like characters being opposite each other on the disks, respectively.

5. An educational appliance comprising a plate provided with two adjacent sight-openings; two circular disks pivoted to the plate and provided with characters circularly arranged to be exhibited through the sight-openings respectively; and a wheel to simul-

taneously engage the peripheries of said disks whereby the rotation of one of the disks will be communicated to the other disk.

5 6. An educational appliance comprising a plate provided with two adjacent sight-openings; two circular disks pivoted to the plate and provided with characters circularly arranged to be exhibited through the sight-openings respectively; a wheel to simultaneously engage the peripheries of said disks whereby the rotation of one of the disks will be communicated to the other disk; and means for adjusting the wheel into and out of engagement with the peripheries of the disks.

15 7. An educational appliance comprising a plate provided with two adjacent sight-openings; two circular disks pivoted to the plate and provided with characters circularly arranged to be exhibited through the sight-openings respectively; a wheel to simultaneously engage the peripheries of said disks whereby the rotation of one of the disks will be communicated to the other disk; means

for adjusting the wheel into and out of engagement with the peripheries of the disks; a carrier to which the wheel is journaled and which carrier is provided with a screw-stem; a nut carried by the plate to adjust the screw to carry the wheel away from the peripheries of the disks; and a spring arranged to throw the carrier toward the disks to cause the wheels to simultaneously engage the disks.

8. An educational appliance comprising a plate provided with two adjacent sight-openings; and a wheel in the form of a cross pivoted to said plate to bring its arms into the space between the sight-openings and provided on said arms with arithmetical signs substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, at Los Angeles, California, this 6th day of February, 1900.

FREDERICK D. JONES.

Witnesses:

JAMES R. TOWNSEND,
JULIA TOWNSEND.