

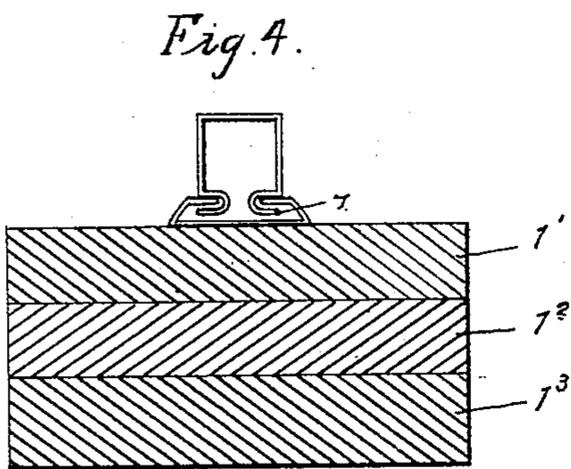
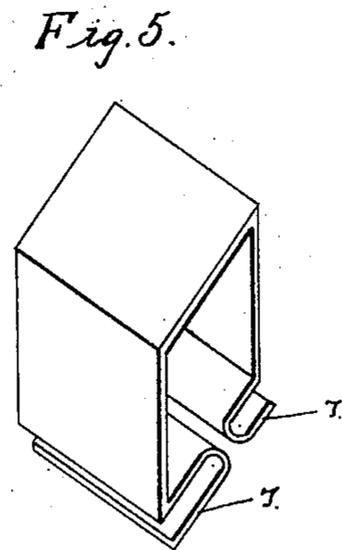
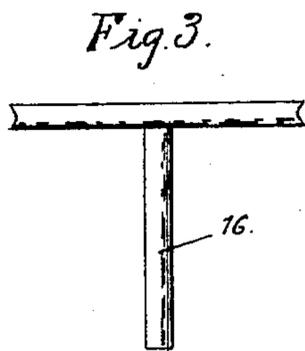
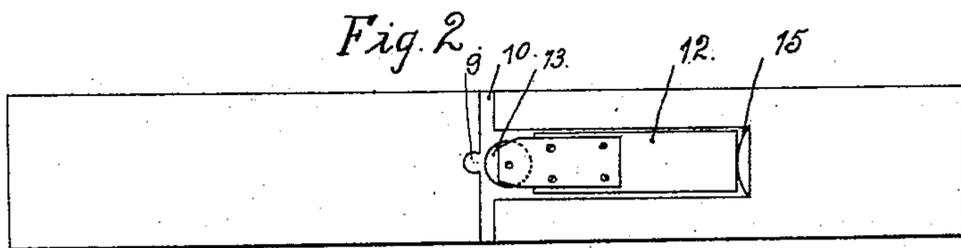
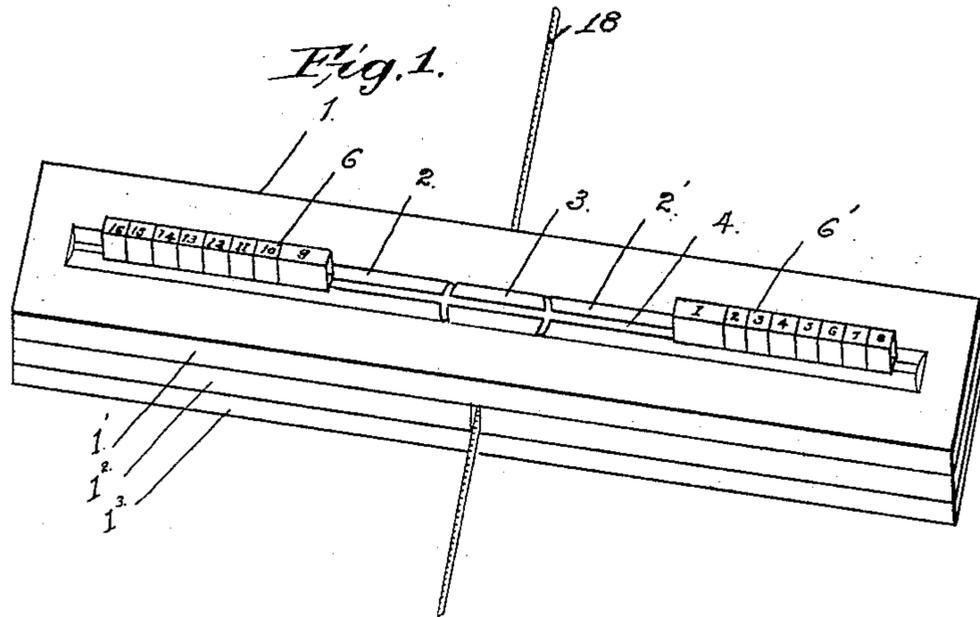
No. 750,862.

PATENTED FEB. 2, 1904.

H. KEELER.
PUZZLE.

APPLICATION FILED SEPT. 3, 1903.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

HENRY KEELER, OF ATCHISON, KANSAS.

PUZZLE.

SPECIFICATION forming part of Letters Patent No. 750,862, dated February 2, 1904.

Application filed September 3, 1903. Serial No. 171,714 (No model.)

To all whom it may concern:

Be it known that I, HENRY KEELER, a citizen of the United States, residing at Atchison, in the county of Atchison and State of Kansas, have invented certain new and useful Improvements in Puzzles; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

My invention relates to puzzles, and more particularly to that class of puzzles known as "sliding-block" puzzles, and has for its objects, first, to make a puzzle which will require for its solution a higher order of skill than puzzles of that class heretofore made; second, to provide a puzzle in which success in solution is measured by the manner of producing a prescribed result; third, to provide means to automatically indicate and register the degree of success in the solution of the puzzle, and, fourth, to provide a superior construction of sliding-block puzzles.

I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an isometric view of my device. Fig. 2 is a top plan view of the middle section of my device, showing the means for operating the indicator. Fig. 3 is a detail side view of the turn-table and the shaft on which it rotates. Fig. 4 is a cross-section on the line $x x$, Fig. 1. Fig. 5 is a detail view of the sliding block used in my device.

In the drawings like reference-numerals refer to like parts throughout the several views.

The base 1, upon which my puzzle is mounted, is most conveniently made in three sections 1¹ 1² 1³. On the top of section 1¹ is a hollow sectional track 2 2' 3, of sheet metal or other suitable material, having a longitudinal slot 4 in the top thereof.

6 6' are two series of sliding blocks of uniform length, except that one block in each series is twice as long as either of the others, and the number of blocks in each series is eight or some other even number. The num-

bers marked upon the sliding blocks in the drawings are constituent parts of the blocks and are not to be treated as reference-numbers in connection with this specification. These blocks are provided with flanges 7 to prevent them from being raised out of the slot 4, which is made too narrow to permit the blocks to be turned therein. The blocks are so marked as to indicate to which series they respectively belong and to indicate their proper order therein. The length of section 3 of the track should be twice the length of one of the longer blocks in the series 6 6'. There projects rigidly and perpendicularly from the center of the bottom of section 3 of the track a shaft 16, which passes through a perforation 9 in sections 1¹ 1² of the base 1 and into a socket or collar in section 1³. Near the center of sections 1² of the base and cutting one side of perforation 9 is a lateral slot 10. On one side of and opening from slot 10 is a recess in which is seated a pulley-block 12, carrying a pulley 13. The outer end of pulley-block 12 rests against a spring 15, the pressure of which presses the pulley-block toward the shaft 16 and causes the pulley 13 to impinge against the shaft 16. The indicator 18 is a flat, thin, and somewhat rigid strip of metal or other material, marked with serial numbers in the manner of a carpenter's rule, except that the intervals between numbers are each equal to one-half of the circumference of the shaft 16. This indicator is of any desired length and is adapted to be loosely mounted in the slot 10 and easily forced between the shaft 16 and the pulley 13.

In the operation of my puzzle the sliding blocks are placed in the slot in the track, as shown in Fig. 1, one series of blocks being on each of the end sections of the track and in serial order. One end of the indicator is then inserted in the lateral slot and forced between the shaft and the pulley far enough so that when the shaft turns the indicator will be propelled along the slot, whereby the serial numbers on the indicator will be successively displayed at one end of the lateral slot.

The gist of my puzzle is apparent by treating the sectional track 2 2' 3 as a railroad-track, the middle section as a turn-table, and the two series of sliding blocks as two trains

of cars approaching each other, with the turn-
table between them, the problem to be solved
being to demonstrate how to pass the trains
past each other by means of the turn-table in
5 such manner that after the passage the cars
in each train will be in the exact order and
with the same end of each car in front as be-
fore the passage and to accomplish this with
the least possible number of half-revolutions
10 of the turn-table. The liability to make an
unnecessarily large number of half-revolu-
tions is largely increased by having an even
number of blocks in each series and by hav-
ing one block in each series of double length,
15 for the reason that if all the blocks were of
uniform length and there were an even num-
ber of them in each series, or if one block in
each series were double length, with an odd
number in each series, it is obvious that in
20 getting one series past the other the turn-
table can at every turn be occupied by two
blocks (or one double-length block) from each
series, and there need be no turn which will
not pass the turn-table full of blocks. All of
25 the blocks will then be in two, one, four, three
order, and to turn them back right end first
only two blocks can be turned at one time.
Hence it will require twice as many turns of
the turn-table to turn them around as it took
30 to pass them, and the operator has no choice
nor chance for skill, whereas if the blocks
are as described the turn-table cannot be kept
fully occupied even in getting the blocks past
each other, because the aggregate of the
35 lengths of the blocks is not divisible by the
length of the turn-table, and the two double-
length blocks have such effect that in getting
the blocks past each other they are thrown
into such order that they cannot be turned
40 back right end first without sometimes hav-
ing the turn-table occupied by only one or

two blocks. A large number of complica-
tions in this respect can be produced by dif-
ferent ways of passing the blocks. In order
that the indicator may correctly indicate the 45
number of half-revolutions, the turn-table
should be rotated in one direction only. When
a record is not desired or when the puzzle is
not in use, the indicator may be pulled entirely
out of the slot and laid aside. 50

I do not limit myself to the exact details of
structure herein shown and described, inas-
much as the same may be varied without de-
parting from the spirit of my invention.

What I claim as new therein, and desire to 55
secure by Letters Patent, is—

1. In a puzzle, the combination with a base
1, of a sectional track comprising end sections
2 2' secured to said base and a middle section
3 rotatably mounted on said base, and two se- 60
ries of blocks adapted to slide on said track,
each of said series of blocks containing an even
number of blocks and having one block in
each of said series of double the length of the
other blocks. 65

2. In a puzzle, the combination of a base,
a track mounted on said base having a rotat-
ing middle section, a shaft projecting from the
bottom of said middle section, a lateral slot in
said middle section, a recess opening from said 70
slot, a pulley-block seated in said recess, a
pulley mounted on the inner end of said block,
a spring at the outer end of said block, and
an indicator passing through said slot; all sub-
stantially as hereinbefore described. 75

In testimony whereof I affix my signature in
presence of two witnesses.

HENRY KEELER.

Witnesses:

FREDERICK J. CHASE,
M. F. McCULLOCH.