

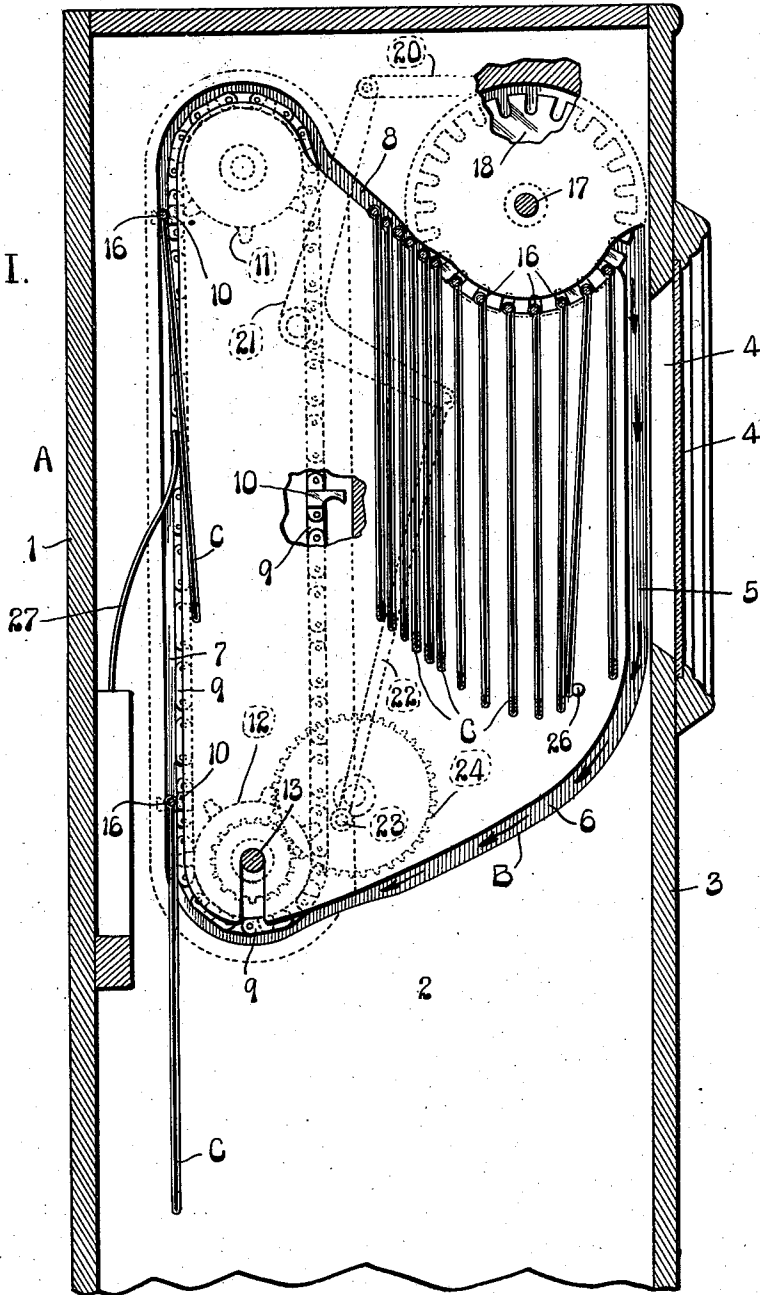
C. C. BISHOP.
 REPEATING SIGN APPARATUS.
 APPLICATION FILED APR. 8, 1911.

1,010,219.

Patented Nov. 28, 1911.

3 SHEETS—SHEET 1.

Fig. I.



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3 SHEETS—SHEET 2.

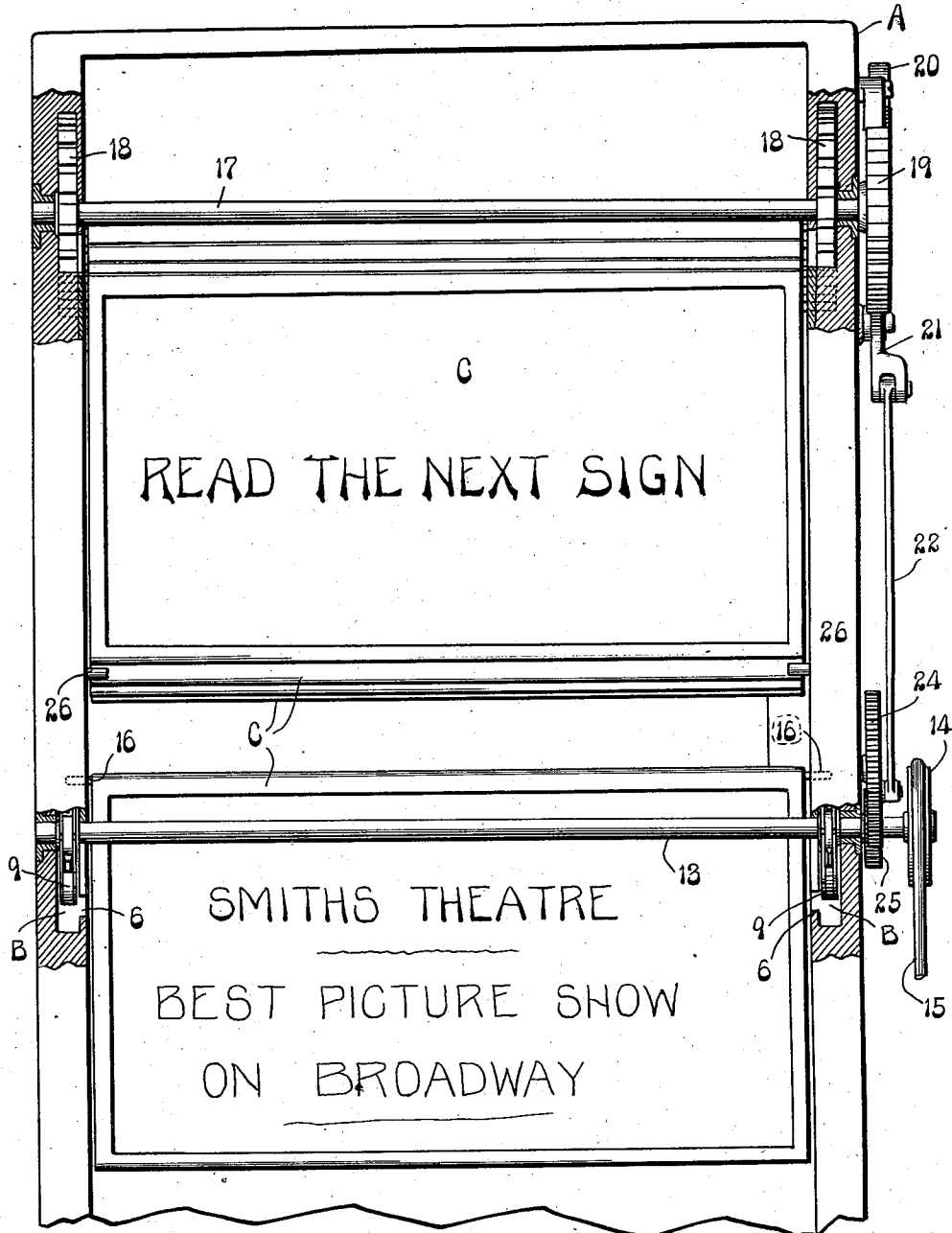


Fig. II.

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3 SHEETS-SHEET 3.

Fig. III.

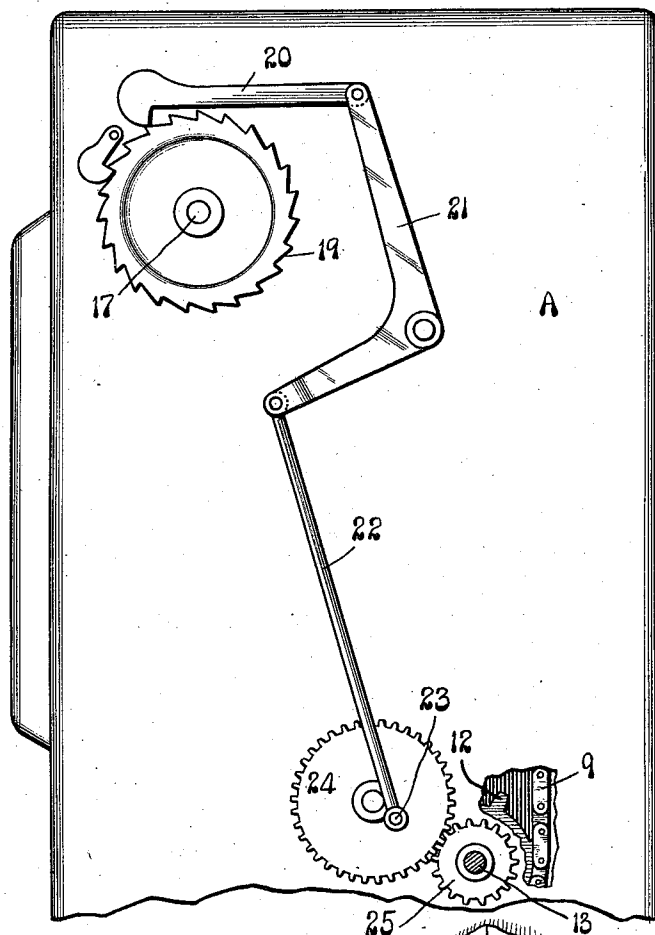
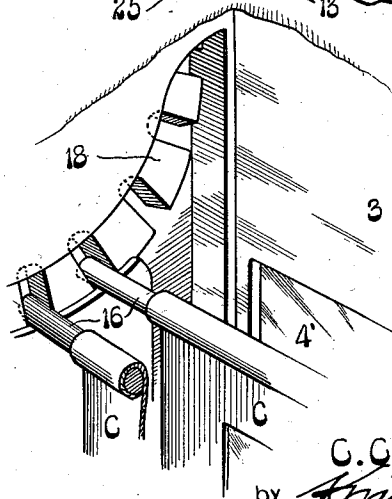


Fig. IV.



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UNITED STATES PATENT OFFICE.

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REPEATING SIGN APPARATUS.

1,010,219.

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To all whom it may concern:

Be it known that I, CHARLES C. BISHOP, a citizen of the United States of America, and a resident of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Repeating Sign Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to an apparatus for displaying signs and by which the signs may be rapidly displayed in rotation, and it has for its object the production of a simple apparatus of this kind that is not liable to interruption in the sign displaying actions, but by which the signs are always positively and accurately brought to view point and disposed of quickly after each display thereof to give place to the next succeeding sign to be brought to view.

Figure I is a vertical cross section through my sign apparatus. Fig. II is a front elevation of the apparatus, with the front wall removed. Fig. III is a side elevation showing the means for actuating the sign feeding wheels. Fig. IV is a perspective view of fragments of the front wall, one of the sign feeding wheels, and two of the signs engaged by the feeding wheel shown.

In the accompanying drawings:—A designates the casing of my sign apparatus, comprising a back wall 1, side walls 2, and a front wall 3, the latter of which is provided with a sight opening 4, preferably closed by a transparent plate 4' through which the signs brought into positions opposite the sight opening may be observed.

B designates runways in the side walls of the casing A and which are composed of vertical front portions 5 located adjacent to the sight opening 4, and forming unobstructed passageways, downwardly and rearwardly extending inclined portions 6 in a lower plane than the sight opening, vertical rear portions 7 leading from the portions 6 toward the top of the casing, and forwardly and downwardly inclined portions 8 in a higher plane than the sight opening and leading from the upper ends of the portions 7 toward the front vertical portions 5.

9 designates endless conveyers, preferably in the form of chains. These conveyers are operable in lines with the portions 6, 7, and 8 of the runways B and each conveyer is

provided at intervals with fingers 10 adapted to engage the signs to be hereinafter mentioned for the purpose of carrying these signs upwardly at the rear of the sign apparatus, in order that they may be enabled to approach the front of the apparatus and be brought to view through the medium of mechanism to be described. The conveyers 9 operate at the top of the apparatus upon idlers 11 and at the bottom of the runways B upon drive wheels 12. The drive wheels 12 are fixed to a drive shaft 13 to which power may be communicated in any suitable manner, the said shaft being shown in Fig. II of the drawings as being equipped with a belt wheel 14 on which a power belt 15 operates.

C designates the signs utilized in my sign apparatus, and which may be of any suitable construction. The signs shown in the drawings comprise rectangular frames with sign sheets mounted therein, but such structure of the signs is unimportant in so far as my present invention is concerned. Each sign plate is provided at its top edge with hanger rods 16 that are operable in the runways B in the side walls of the casing A to direct the movement of the sign in the apparatus and which are adapted to be engaged by the conveyers 9 for the elevation of the signs to the upper portions of the runways, and also adapted to be engaged by the sign feeding members to be next explained.

17 designates a feed wheel shaft extending transversely of my sign apparatus above and back of the sight opening 4. This feed wheel shaft has fixed to it a pair of toothed or notched feed wheels 18 that operate into the top and forwardly extending portions 8 of the runways B and into the notches in which the hanger rods 16 of the sign C are adapted to enter after they have moved forwardly and downwardly in the runway portions 8.

The feed wheel shaft 17 and the feed wheels thereon are coöperable with the sign conveyers 9, and this coöperation is preferably secured by the mechanism shown in the drawings, comprising the following elements: The feed wheel shaft extends to the exterior of the casing A at one side of the casing and has fixed to it a ratchet wheel 19 adapted to have intermittent movement imparted to it by a pawl 20. The pawl 20 is pivoted to one arm of the bell crank lever

21, and said bell crank lever has pivoted to its other arm a connecting rod 22. The connecting rod 22 is fitted to a crank pin 23 carried by a spur wheel 24 that is operable by a pinion 25 fixed to the drive shaft 13. It will be readily understood that during the rotation of the drive shaft 13, the spur wheel 24 is rotated and upon each complete rotation thereof, there is such movement imparted to the connecting rod 22 and bell crank lever 21 as to cause the pawl 20 to move the ratchet wheel 19 a distance corresponding to the length of one of its teeth, this movement being sufficient to cause the teeth of the notched feed wheels 18 to carry a sign exposed to view toward the front of the apparatus sufficiently to provide for its hanger rod being moved out of the top portions 8 of the runways B into the vertical front portions 5 of said runways to descend by gravity in the last named portions, and into the runway portions 6 and downwardly and rearwardly therein ready to be again picked up by the elevating conveyers 9. The movement of the feed wheels referred to also advances the next succeeding signs and carries the next foremost sign into observation position back of the sight opening previously occupied by that which has just been moved from view and which, like the preceding sign, will remain in view for a fixed period, pending the next operation of the ratchet wheel 19 by the pawl 20.

It is desirable to prevent the signs back of that which is brought to a position of exposure through the sight opening from swaying and striking the exposed sign, to the detriment of the proper exposure thereof; and to prevent the swaying referred to, I interpose in the path of travel of the signs stops 26 that are adapted to be engaged by the signs, as seen most clearly in Fig. 1. These stops project from the side walls of the casing A and are so positioned at the lower ends of the signs coming into contact therewith just back of the sign that is exposed to view that the unexposed signs are prevented from swinging toward and away from the exposed sign. As the upper portions 8 of the runways B extend upwardly and forwardly, it is obvious that the signs are conducted over these stops when they are advanced toward the sight opening in the casing. It is also desirable to prevent the signs from swinging backwardly while they are being elevated by the conveyers 9 so that each ascending sign must necessarily pass back of the one being elevated above it. I, therefore, locate within the casing of the apparatus at the rear portion thereof a guide finger 27, see Fig. 1, against which the signs ride, as they are moved upwardly by the conveyers 9.

I claim:—

1. A repeating sign apparatus comprising

a casing having a front wall provided with a sight opening, side walls each having a runway formed with a vertical front portion adjacent to the sight opening down which the signs are dropped after exposure, a downwardly and rearwardly extending inclined portion in a lower plane than the sight opening, a vertical rear portion leading from the inclined portion toward the top of the casing and a forwardly and downwardly inclined portion in a higher plane than the sight opening and leading from the upper end of the rear portion toward the front portion, idlers within the rear portions of the tops of the runways, a drive shaft within the rear portions of the bottoms of the runways, drive wheels fixed to the drive shaft, conveyer chains having lifting fingers and traveling on the idlers and on the drive wheels, a feed wheel shaft over the front portions of the tops of the runways, toothed feed wheels fixed to the feed wheel shaft and working in the front portions of the tops of the runways, a pinion fixed to the drive shaft, a spur wheel having a crank-pin and meshed by the pinion, a ratchet wheel fixed to the feed wheel shaft, a bell crank lever, a connecting rod fitted at one end to the crank-pin and at the other end to an arm of the bell crank lever, and a pawl engaging the ratchet wheel and pivoted to the other arm of the bell crank lever.

2. A repeating sign apparatus comprising a casing having a front wall provided with a sight opening, side walls each having a runway formed with a vertical front portion, adjacent to the sight opening, down which the signs are dropped after exposure, a downwardly and rearwardly extending inclined portion in a lower plane than the sight opening, a vertical rear portion leading from the inclined portion toward the top of the casing and a forwardly and downwardly inclined portion in a higher plane than the sight opening and leading from the upper end of the rear portion toward the front portion, idlers within the rear portions of the tops of the runways, a drive shaft within the rear portions of the bottoms of the runways, drive wheels fixed to the drive shaft, conveyer chains having lifting fingers and traveling on the idlers and on the drive wheels, a feed wheel shaft over the front portions of the tops of the runways, toothed feed wheels fixed to the feed wheel shaft and working in the front portions of the tops of the runways, means for operating the drive shaft and feed wheel shaft in unison, and stops secured to the sides of the casing in the path of the lower ends of the sign over which the signs are lifted by the feed wheels.

3. A repeating sign apparatus comprising a casing having a front wall provided with a sight opening, side walls each having a

runway formed with a vertical front portion, adjacent to the sight opening, down which the signs are dropped after exposure, a downwardly and rearwardly extending inclined portion in a lower plane than the 5 sight opening, a vertical rear portion leading from the inclined portion toward the top of the casing and a forwardly and downwardly inclined portion in a higher 10 plane than the sight opening and leading from the upper end of the rear portion toward the front portion, idlers within the rear portions of the tops of the runways, a drive shaft, within the rear portions of 15 the bottoms of the runways, drive wheels fixed to the drive shaft, conveyer chains hav-

ing lifting fingers and traveling on the idlers and on the drive wheels, a feed wheel shaft over the front portions of the tops of the runways, toothed feed wheels fixed to 20 the feed wheel shaft and working in the front portions of the tops of the runways, means for operating the drive shaft and feed wheel shaft in unison and a guide finger at the back of the casing for pressing each sign 25 inwardly as they are carried upwardly by the fingers of the conveyer chain.

CHARLES C. BISHOP.

In the presence of—

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."