(No Model.) 2 Sheets—Sheet 1.

W. H. PIERCE.

STATION INDICATOR.

No. 354,929. Patented Dec. 28, 1886.

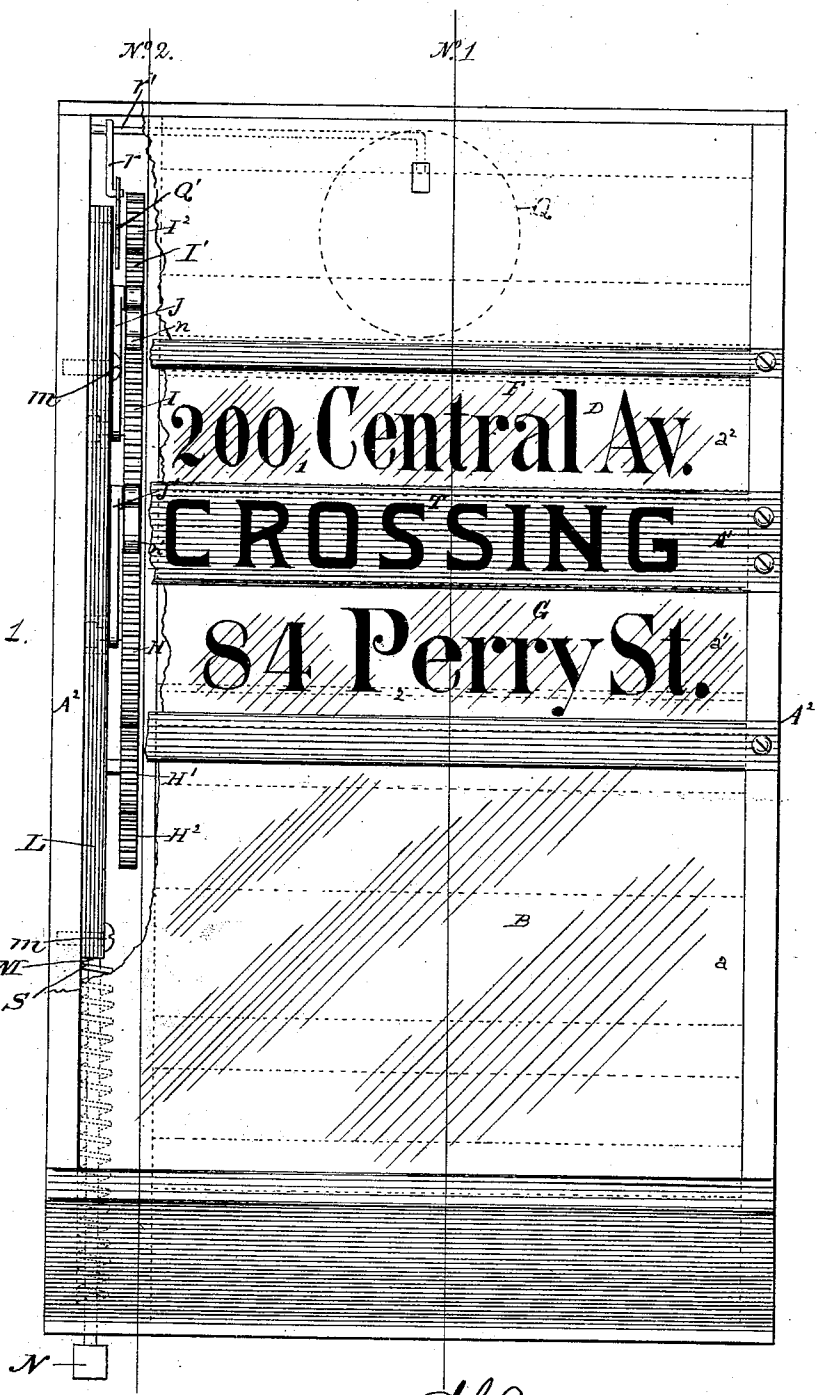


Fig. 1.

Witnesses: Thomas Pierce
Joseph Pierce

W. H. Pierce
Inventor.

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

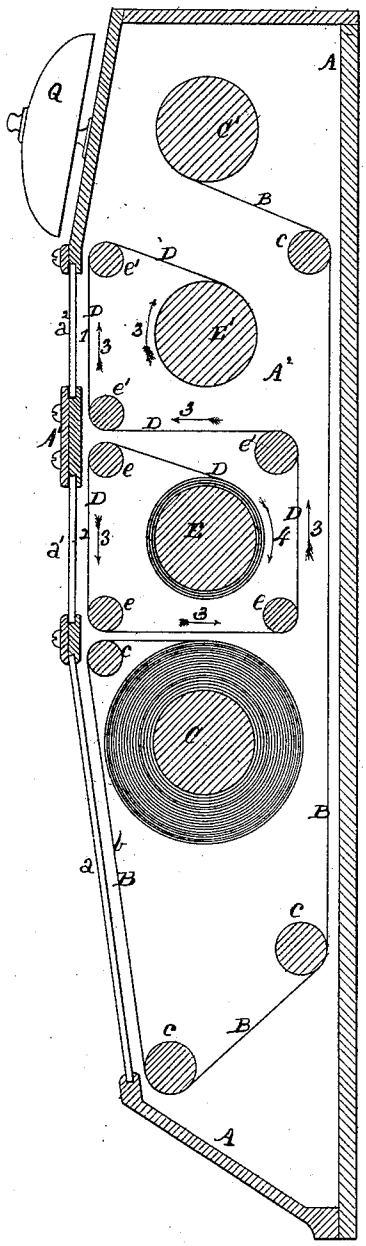


Fig. 3.

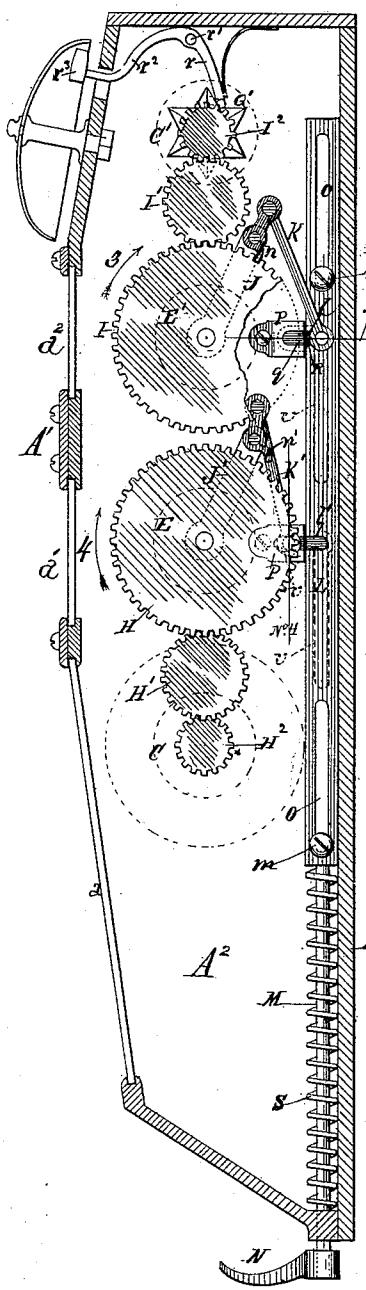


Fig. 5.

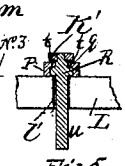
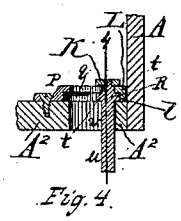


Fig. 4.



Witnesses: Thomas Pierce
Joseph Pierce

W. H. Pierce. Inventor.

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UNITED STATES PATENT OFFICE.

WILLIAM H. PIERCE, OF ALBANY, NEW YORK.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 354,929, dated December 28, 1886.

Application filed November 10, 1884. Serial No. 147,590. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. PIERCE, a citizen of the United States, and a resident of the city and county of Albany, State of New York, have invented certain new and useful Improvements in Station-Indicators, of which the following is a specification.

My invention relates to an automatic duplex indicator for the display of advertisements, printed on one web, simultaneously to the display of names of stations, streets, places, or any other matter on both sides of another web, and mechanism for operating said webs simultaneously, all of which will be hereinafter particularly described, and specifically set forth in the claims.

The objects of my invention are, first, to provide a web or a strip of fabric with drums and supporting-rollers so arranged that matter printed on both sides of the web can at will be moved so as to display the printed matters on both its sides simultaneously and in situations neighboring each other; second, to combine with this web having printed matters to be displayed a second web which will have printed matter on one side only, and mechanism which will operate both webs to display simultaneously matter printed on the one side of the one web and the matter printed on the opposite sides of the other web; and third, to combine with the two webs mechanism which can be operated at will to move both webs simultaneously and cause the matters printed on both sides of one of the webs to be carried beneath glass plates to be viewed, while the matter printed on but one side of the other web is also carried beneath another glass to be viewed, and simultaneously to carry the printed matter on both webs out from view beneath said plates; and, further, to provide specific mechanism by means of which the two webs will be simultaneously moved in either direction at the will of the operator. I attain these objects by the means shown in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an elevation of my improved indicator. Fig. 2 is a sectional view taken at line 1 in Fig. 1. Fig. 3 is a sectional view taken at line 2 in Fig. 1. Fig. 4 is a sectional view taken at line 3 in Fig. 3. Fig. 5 is a sectional view taken at line 4 in Figs. 3 and 4.

The same letters of reference refer to like parts throughout the several views.

A A is the case containing the working mechanism, which case may be made of wood or metal, or both combined. The face of this case is composed principally of glass plates a, a', and a^2, in which the two latter (a' and a^2) are separated by bar A'. The transparent plate a covers over the business advertising web and plates a' and a^2 cover over the street or station advertising web, and permit the printed matters on the respective webs to be readily viewed from the outside.

B is the advertising-web; C and C' are drums or rollers connected each with an end of said web.

c c are rollers which support web B and hold the unwound portions of the same arranged and stretched within the chamber of the case, so as to present an advertisement portion, b, of the web to view beneath transparent plate a and carry said web from the lower side of the case-chamber to the upper side of the same, so as to produce therein room for admission of the second web, D, and exposure of portions of both sides of the same to view through transparent plates a' and a^2.

The web D is connected at its opposite ends to drums or rollers E E', arranged intermediately between drums C and C' of web B. With these drums E E' and their connected web D are arranged two groups of supporting-rollers, one group composed of rollers e e e and the other of e' e' e', which carry web D from one of its drums to the other in such a manner as to simultaneously expose to view, beneath plates a' and a^2, portions of both surface sides of said web, as surface-sides 1 and 2. These drums C C' of web B and E E' of web D have their journals mounted in proper bearings, which are secured, with the side pieces, A^2 A^2, of the case, on the same vertical line, as indicated in the drawings. The supporting-rollers c e e' are also provided with proper journals, on which they revolve in bearings, also secured to the side pieces, A^2 A^2, or made in the same.

The advertising-web B has printed or painted on its surface 1, at intervals apart, a series of

advertisements composed of like or different matters, as may be preferred.

The web D has printed on both its surface sides such matters as will, when taken together, advertise a particular place or station or time of arrival or departure of a car or train, or any other matters which will require to be displayed simultaneously in neighboring lines, to properly inform the public of the fact or facts advertised. In Fig. 1 this web D is shown to have printed on side surface 1 the figures and words F, and on opposite side surface, 2, the figures and words G. These two designated places (intended to illustrate one feature of my invention) are so placed in the printing thereof on the two sides of the web that they will be simultaneously brought to view, and subsequently pass from view when the web-drums E E′ are revolved so as to carry the web off from one drum to the other. When drum E′ is revolved in direction of arrow 3, web D will be wound on the same while it is being unrolled from off drum E, and side surface 1, with printed matter F, will be moved in one direction beneath glass a^2, while the opposite side surface, 2, with its printed matter G, will be moved relatively in the opposite direction beneath glass a'; but when drum E is revolved in direction of arrow 4 web D will be wound on that drum and be unrolled from drum E′, and the relative directions of movements of surfaces 1 and 2 and their printed matters F and G will be reversed from that had by the same when drum E′ is revolved in direction of arrow.

The preferred mechanism for operating drums C and C′, E and E′, are gears, though band-wheels and bands or sprocket-wheels and chains may be substituted.

The drawings show two groups of gears employed for operating drums C C′ and E E′, one group consisting of gears H, H′, and H^2, and the other group of gears I, I′, and I^2. In each of these groups of gears one of the gears operates to give motion to web B and another to web D through an intermediate gear. In one group of gears gear H is secured to the end of drum E of web D, and gear H^2 is secured to the end of drum C of web B, while in the other group gear I is secured to drum E′ of web D and gear I^2 is secured to drum C′ of web B. Intermediate gear, H′, communicates motion from gear H to gear H^2, and intermediate gear, I′, communicates motion from gear I to I^2. The gears in each of these groups when revolved do not give motion to the gears of the other group; but a drum of each of the webs when revolved by a gear will so operate with each respective web as to move the same and roll on one drum-web, D, and unroll this web from off another drum, and thereby operate to revolve the gears of the other group, as will be understood by the drawings. The drawings show that the respective gears of each group are made with different diameters, so that the smaller gear of each group will be revolved four times to one of the larger, and also show that the drums of web B are provided with the smaller gears, while the drums of web D are provided with the larger gears. In this arrangement of the respective gears with the respective drums, as shown, web B will be moved to a distance four times greater than will web D, and the former will admit a proportionally larger display of advertisement-field on its surface than will be displayed on the surfaces of the latter.

It will be understood that when drums E′ and C′ are simultaneously revolved, drum C′ will be revolved more rapidly than drum E′, for the reason that gear I^2 is speeded greater than gear I, and also that as the revolutions of these drums E′ C′ are continued the winding of webs B and D on their respective drums will cause an unrolling of said webs from their opposite end drums, C E, and the revolutions of these latter drums will cause gears H and H^2, respectively, to revolve. It should be understood that when these webs B and D are being rolled on drums C′ and E′ the length of surface wound on at each revolution will be slightly increased over that on each previous revolution, and to a distance equaling a little more than three thicknesses of the material of said webs, while the length of surface of webs on drums C E will be lessened on each revolution of said drums a little more than three times the thickness of the material; and it should be further understood that as the revolution of drums C′ E′ is continued each succeeding revolution of the same will move a length of surface corresponding with the acquired diameters of the rolls on the respective drums, and when these drums are geared to a relative speed, as of one to four, as is E′ to C′, that drum-roll on drum C′ will increase in diameter faster than that on drum E′, and that the unrolling of the respective webs from the opposite end drums will be proportionally the same in extent. When the several drums are of the same diameter, but speeded as one to four, by means of the gears, as drums E′ C′ are shown to be, the length of web B moved on drum C′ will be four times greater than that moved by drum E; therefore it should be understood that web B should have a length four times greater than web D. It is to be understood that I do not confine myself to any relative speeding of the drums, as they may be speeded as one to two, or one to three, or at any other relative speed as may be preferred and be necessary for the display of relatively different lengths of advertising-fields beneath the respective glass plates $a\ a'\ a^2$.

When drums C′ E′ have been revolved sufficiently to unroll their respective webs B and D from off drums C and E, the revolving of gears H H′ H^2 in directions of arrows 2 will cause an unrolling of the webs off from drums C′ E′, and a rolling of the same on drums C E.

If preferred, band-pulleys and bands may be substituted for the gears in the respective

groups or sprocket-wheels, and chain belts may be substituted for gearing the respective drums together.

Mechanisms are employed to actuate the gears H and I, respectively, at the will of an operator, which mechanisms are substantially duplicates of each other.

J J′ are arms loosely mounted on journals of gears H I, and extended to a distance past the circumference of these gears sufficient to receive pivoted pawls *n n′*, as shown. The long arms of these pivoted pawls *n* and *n′* are pivoted to rods K K′ respectively.

L is a reciprocating moving bar, which is properly guided by any well-known mechanism, and preferably by pins *m m* working in slots *o o* made in this bar. M is a draw-rod connected with this bar and provided with handle N, for operating the same. This bar L is supported by spring S in an elastic manner, and the spring operates to return said bar to its normal position.

Bar L has made with it notches *l l′*, and secured to the side A^2 of the case are blocks P P, provided each with a notch, *q*. These blocks P P are so arranged in relation to the notches *l l′* in bar L that when said bar is in its normal position the notches *q* in said blocks will be opposite to the notches in said bar.

R R are sliding pieces, each made with a length equal to the depth of the notches in bar L, and with a width corresponding with the width of the same, so that when said pieces are slid into said notches they will nicely fit and fill the same and will pass blocks P when bar L is drawn down. These pieces R also so nicely fit and fill the notches *q* of blocks P that bar L can be moved in either direction without engaging with said pieces. Flanges *t* hold these sliding pieces from shifting laterally. Rods K K′ are each pivoted to one of these sliding pieces. These sliding pieces are each provided with a stem, *u*, for convenience of the operator for moving said sliding pieces readily into notches *l l′* of bar L, or out from the same, as may be required, for properly operating this indicator. Suitable slots, *v*, are made in the side piece, A^2, of the case at points opposite these sliding pieces R R, through which their stems *u* can project and be freely moved by the operator in directions transverse to the direction of movement of bar L, for carrying said sliding pieces into the notches *q* of blocks P from notches *l* in bar L, or the reverse, as required. These slots *v* in the side of the case are also made to extend downward parallel with the line of direction of movement of bar L to a suitable distance, so as to permit the bar with either stem *u* (of the respective sliding pieces) projecting outward to be freely moved the distance required for operating, through the mechanism provided, the gears J J′.

Bar A′ is for the separation of the printed matter F on surface 1 of web D from the printed matter G on surface 2 of same web, and also for displaying some printed matter T, which will connect with both the displayed matter F and G, so that the three displayed matters will together compose the whole matter to be advertised. The same matter, F, may occur at intervals on surface 1 of web D, while the same matter, G, on surface 2 may occur but once and be succeeded by several other different matters, G—as, for instance, figures and words "100 Knox St.," or "124, Putnam St.," or other different matter.

When this device is used on a street-car and the car is to run through but one street—as, say "Central Ave."—there will be printed on surface 1 of web D the words "Central Ave." the same number of times as that street is crossed by another street, and these words "Central Ave." will in each case be preceded by figures indicating the house-numbers at the street crossed; and on surface two there will be printed at proper and corresponding intervals the numbers and streets crossed. It is evident that any other matters may be displayed from the opposite sides of web D in the same manner and with substantially a similar result.

As before stated, web B is intended to have printed on one of its sides, at proper intervals apart, advertising-matter, which may be various or duplicates, as may be preferred, which matters will be displayed beneath glass *a* successively, accordingly as the device is operated.

To operate this device, (the webs B and D having been rolled on drums C and E, respectively,) the operator will, through the finger-stems *u* of sliding pieces R, move the upper sliding piece into notch *l* of bar L, and the lower sliding piece out from notch *l′*, and by pulling down on rod M will move bar L downward and carry with it the upper sliding piece, R, when rod K will be drawn down and pull arm J forwardly and downwardly, with pawl *n* engaging with gear I, so as to revolve said gear and its drum E′ to a distance sufficient to move surfaces 1 and 2 in opposite directions to carry from view matters F and G and bring into view similar matters intended to succeed those previously displayed. A similar operation will cause a display of the next succeeding matter. These operations will be repeated until the whole of web D will be unrolled from off drum E and on drum E′. At the same time web D is being moved gear I will operate, through gear I′, the small gear I^2, and cause the latter to revolve drum C′ and roll on web B as it is unrolled from off drum C, and this movement of web B will be in times corresponding with that of web D and effect a carrying from view of each individual advertisement, and bringing in display a similar or other advertisement simultaneously with that effected by the shorter distances of movement of web D. When these two webs have been fully rolled on their respective drums C′ and E′, the operator will move the upper sliding piece R out from notch *l* in bar L, and move lower sliding piece R

into notch l', when each downward pull on bar L will effect, through rod K', arm J', and pawl n', a partial revolution of gear H, and, through its drum E and gears H' H^2 and drum C, operate to unroll webs B and D off from drums E' and C' and on drums E and C simultaneously, but in reverse directions of movements from that had when gear E' was operated with, and in these successive operations the respective webs will be successively displayed simultaneously.

If preferred, the respective webs B and D may be sectional in width--that is, they may be each composed of two or more strips which in the aggregate will have the necessary width. This may be advantageous in some cases in printing the strips. In some cases, where the material of the webs is thin or semi-transparent, I form the web of two or more plies of material suitably secured together so as to practically form a single web, and thereby the letters or figures printed on the two sides of this class of web will be prevented from showing through, so as to be viewed from the side opposite that the figures or letters are made on, as would be with a web of a single thickness of thin material.

The bar L may be operated by a bell-crank and proper connections, if preferred, and in some cases be operated by clock-work, or any other well-known motor, as when the movements of the web are to be effected independently of an operator.

In some cases the glass plates a, a', and a^2 may be omitted, when the apertures shown to be covered with said plates will serve as viewing-apertures, through which the printed matters on the respective webs may be viewed.

Q is an alarm-bell. Secured to the shaft of drum C' is tripping-cam Q', which operates arm r, secured to shaft r'. With this shaft is fixed arm r^2, having hammer r^3 on its outer end, which hammer operates to strike bell Q when drum C' is revolved. This bell may be arranged at the face side of the case, as shown, or on the top side of the case, or at any other place in relation to the same, as may be preferred.

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

1. In an indicator for display of printed matters for public advertisement of facts, the combination, with web D, having printed on its opposite surface sides, 1 and 2, matters F and G at suitable intervals, of the group of rollers e e e and drum E and group of rollers e' e' e' and drum E', all arranged substantially as described, whereby matters printed on both sides of the web are displayed at the same time in the same direction, and suitable mechanism under control of the operator for operating said drums alternately, substantially as and for the purposes set forth.

2. The combination, with a case provided with apertures covered with glass plates, and web D, connected at its opposite ends with drums E E', and having matters F and G printed on its opposite side surfaces, 1 and 2, at proper intervals, of rollers e and e', arranged in groups and in relation to each other and to the apertures and web and its drums, as described, whereby the matters F and G will be simultaneously displayed beneath the glass plates when the web is moved, substantially as and for the purposes set forth.

3. The combination, with a case provided with viewing-apertures, of web D, having printed matters F and G at intervals on its respective opposite side surfaces, 1 and 2, and having its opposite ends connected with drums E E', respectively, and rollers e e', arranged in groups in relation to each other and to the said apertures, drums, and web, as above described, and mechanisms, substantially as described, which are adapted to revolve the respective drums alternately for rolling said web on each, respectively, while it is being unrolled from the other, substantially as and for the purposes set forth.

4. The combination, with a case provided with viewing-apertures, which are separated by bar A', bearing printed matter T, of web D, having on its opposite sides at intervals printed matters F and G, and connected at its opposite ends with drums E E', the web being supported between said drums by rollers e e', arranged in groups, as described, of web B, having matters printed on one side at proper intervals and connected at its opposite ends with drums and supported by rollers c, arranged in relation to said web and its drums C C', as above described, and mechanisms, constructed substantially as described, to move both webs simultaneously and to given distances beneath said viewing-apertures, substantially as and for the purposes set forth.

5. The combination, with drums E E' C C', of the respective webs B and D, and the guides for said webs, of gears I, I', and I^2, reciprocating bar L, rod K, and pivoted arm J, connected with said rod and having pawl n, for operation with gear I, all substantially as and for the purposes set forth.

6. The combination, with webs B and D, having printed matters, as above described, and their respective connected drums C C' E E', rollers c and e e', arranged in relation to said webs and drums, as above described, of the groups of gears H H' H^2 and I I' I^2, reciprocating bar L, provided with notches l l', and sliding pieces R R, adapted to be moved alternately into and out from said notches, and connected, respectively, with arms J J', carrying pawls for engagement with the respective gears H and I, substantially as and for the purposes set forth.

7. The combination, with gears H and I and arms J J', carrying pawls n n', respectively, of the reciprocating bar L, properly guided and supported by spring S, and provided with notches l l', and sliding pieces R R, which are

connected, respectively, with arms J J′ by connecting-rods K K′, substantially as and for the purposes set forth.

8. The combination, with reciprocating bar L, provided with notches *l l′*, pieces P P, secured to the case and provided with notches corresponding with the notches in the reciprocating bar, of movable pieces R R, adapted each to be moved alternately into and from the notches in said bar and said pieces P P, for alternately connecting and disconnecting rods K K′ with said reciprocating bar, substantially as and for the purposes set forth.

WILLIAM H. PIERCE.

Witnesses:
FRANK SELKIRK,
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