(No Model.) 2 Sheets—Sheet 1.

G. E. CLEVELAND.

MACHINE FOR FINISHING GLASSWARE.

No. 589,816. Patented Sept. 14, 1897.

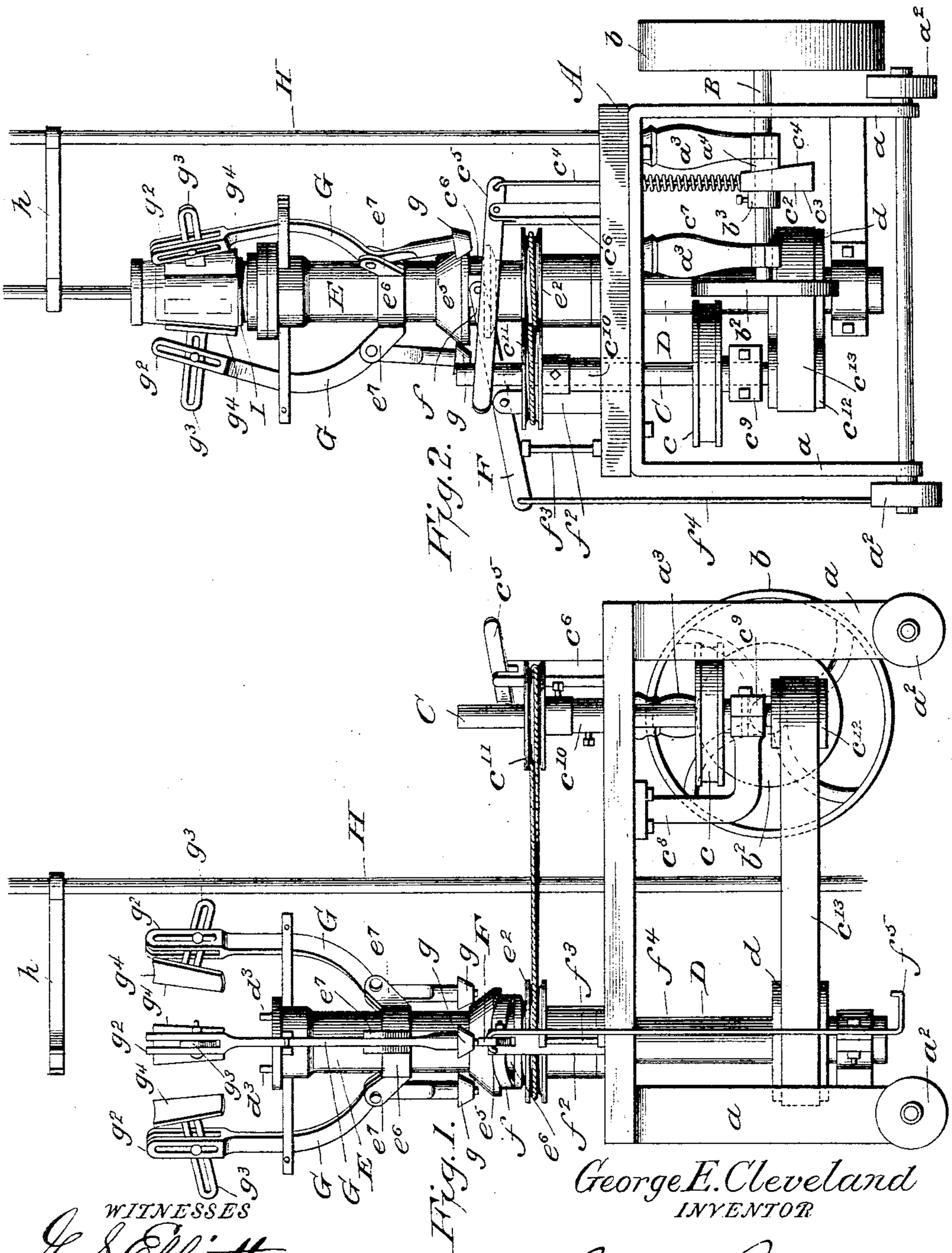

Fig. 2.

Fig. 1.

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Fig. 3.

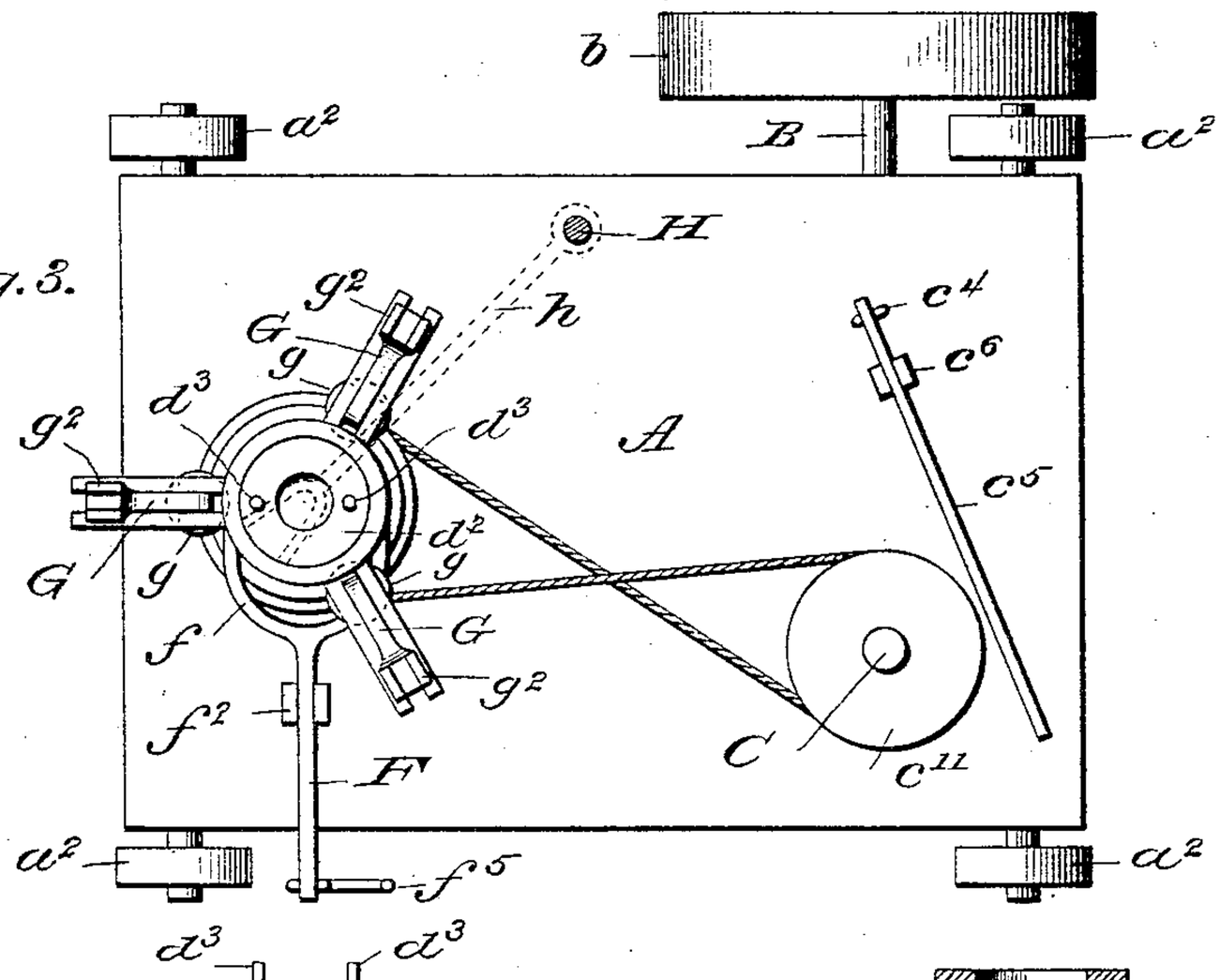
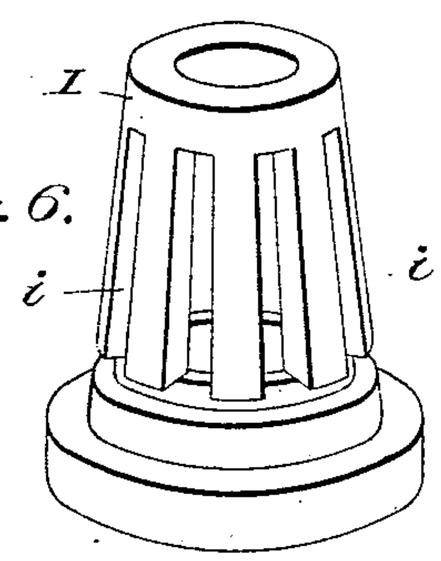


Fig. 4.

Fig. 5.

Fig. 6.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR FINISHING GLASSWARE.

SPECIFICATION forming part of Letters Patent No. 589,816, dated September 14, 1897.

Application filed February 27, 1897. Serial No. 625,310. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. CLEVELAND, a citizen of the United States of America, residing at Freedom, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Finishing Glassware; and I do hereby 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 letters of reference marked thereon, which form a part of this specification.

This invention relates to machines for finishing glassware.

The object is in a ready, efficient, cheap, expeditious, and comparatively inexpensive manner with one machine and at one operation mechanically to form and finish articles of glassware, such as pressed glass of cylindrical form, including stem-ware, and also many kinds of blown articles, such as the necks of bottles, the ends of candy and other jars, &c., to the exact shape required and in a uniform and perfect style, and this without the employment of a high order of skilled labor and with a less number of workmen than has usually heretofore been employed; furthermore, to overcome any tendency of heating on the part of the plug or former while in use, thereby obviating the necessity of its removal for purposes of cooling by immersion in water after each article is finished, as has heretofore been necessary with machines of other makes, and, finally, to provide buffers or finishers of such character as will readily be conformable or adjustable to articles of different shapes.

With these objects in view the invention consists in the novel construction and combination of parts of a glassware-finishing machine, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like letters of reference indicate corresponding parts, I have illustrated one form of embodiment of my invention, although it is to be understood that, if preferred, other forms of embodiment thereof may be employed without departing from the spirit of the same, and in the drawings—

Figure 1 is a view in side elevation, the buffer-carrying arms being shown open and the mechanism for actuating them in dropped position. Fig. 2 is a view in front elevation, the buffer-carrying arms being shown closed and the mechanism for actuating them raised. Fig. 3 is a view in plan showing more clearly the mechanism for operating the buffers. Fig. 4 is a view, partly in vertical section, showing more particularly the disposition of the shafts for driving the buffers and the former or plug. Fig. 5 is a view in vertical section of the former. Fig. 6 is a perspective detail view of the same.

Referring to the drawings, A designates the table of the machine, which is supported upon legs a, having casters or rollers a^2. Depending from the under side of this table are two hangers a^3, in which is journaled a shaft B, carrying at one end a drive-pulley b and at the opposite end a friction-pulley b^2. The shaft B is adapted for lateral movement in its bearings to bring the pulley b^2 into engagement with a similar pulley c on a vertical shaft C, the function of which will appear farther on. In order to accomplish this lateral movement, I provide in this instance an inclined-faced shifting-block c^2, the straight face c^3 of which works against a collar b^3, rigid with the shaft B and the inclined face c^4 against a like face of a block a^4 on one of the hangers a^3, as already shown in Fig. 2.

The block c^2 has connected with it one end of a rod c^4, the other end of which connects with a lever c^5, pivotally supported on a standard c^6 on the table, the function of this lever being to lift the block c^2 and thereby shift the shaft B laterally. In order to keep the wheel b^2 normally out of engagement with the wheel c, a spring c^7 is provided on the rod c^4, the function of this spring being to hold the block depressed at all times except when raised by the lever c^5.

The shaft C is supported at its lower portion by a bracket c^8, secured to the under side of the table and provided with a suitable journal-box c^9 for the shaft, the upper portion of the shaft being extended above the table and held from vertical movement by a collar c^{10}, above which is mounted a sheave c^{11}, also rigid with the shaft. Mounted on this shaft below the friction-wheel c is a pulley c^{12}, which transmits power through the medium

of a belt c^{13} to a pulley d on a vertical shaft D, constituting the former or plug-operating shaft. This shaft is hollow and projects above the table and terminates at its upper end in a head d^2, carrying pins d^3 for engaging suitable openings in the former provided for the purpose, as will appear farther on.

Surrounding that portion of the shaft D above the table is a sleeve or collar E, the upper end of which incloses the head d^2 of the shaft D, the lower portion of the sleeve being enlarged, as at e, for the double purpose of providing a seat for a sheave e^2, rigid with the sleeve and driven through a cross-belt or rope from the sheave c^{11} in the direction opposite the shaft D and for affording space to form a cone-shaped recess e^3, adapted to fit and work upon a cone-shaped bearing e^4, secured on the table. On the sleeve above the sheave e^2 is loosely mounted a collar e^5, constituting a clutch, the upper portion of which is cone-shaped for the purpose of closing or causing the buffers to approach the former, as will presently appear. The collar e^5 below the cone portion is provided with a circumferential groove in which work the ends of a yoke f, carried by a lever F, pivotally mounted on a standard f^2 on the table, a stop f^3, in the nature of an upright, being provided to limit the downward movement of the said lever. This lever is operated by a rod f^4, having a stirrup f^5, as shown in Fig 1.

Rigidly secured to the sleeve E is a collar e^6, having in this instance three bifurcated limbs e^7, between which are pivotally mounted the buffer-carrying arms G. These are each bent to the appropriate shape and provided with a cone-shaped roller g at the lower end and with oppositely-slotted limbs g^2 at the upper end, between which are pivoted slotted arms g^3, carrying the buffers g^4, the function of the slots in the limbs g^2 and arms g^3 being to permit of adjustment of the buffers to conform to the shape of the article to be finished. These buffers are forced toward the former by means of the cam on the collar e^5 being brought into contact with the rollers g, as will be obvious. As usual, there is also provided a post H, having an arm h, bifurcated at its free end to constitute a guide for the punty-stem, and as this is well understood further description is deemed unnecessary.

The plug or former I, which constitutes one of the salient features of this invention and is to correspond in shape to the opposing faces of the buffers, may be made of wood, metal, or of any composition suited to the purpose, and of any size and in any shape desired or necessary for the article to be finished. In construction it differs from any former now in use and is provided with openings or slits i of any shape, extending from the exterior to the interior or hollow thereof. It is also provided in its base with openings i^2 to engage the pins d^3 of the shaft D. The object of making the former hollow is to secure a circulation of air through the shaft D and its application to the inside of the article being finished, which air will give the ware a better polish than can be secured by any proceeding in vogue, and also reduces the time necessary for finishing, at the same time keeping the former cool while in use.

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

1. In a glass-finishing machine, the combination with a hollow shaft and sleeve therefor, means for rotating the shaft and sleeve in opposite directions, a hollow former carried by the hollow shaft and buffers carried by the sleeve, substantially as shown.

2. In a glass-finishing machine, the combination with a rotatable shaft, a former mounted thereon, a sleeve mounted on the shaft, means for rotating the sleeve and buffers carried by the sleeve, for the purpose set forth.

3. In a glass-finishing machine the combination of a rotatable shaft and former carried thereby, of a sleeve mounted on the shaft, arms pivotally attached to the sleeve, said arms carrying buffers and a slide for engagement with the lower ends of the arms to move the buffers toward the former, substantially as shown.

4. The combination with a hollow shaft, and a hollow former having air-ducts, of buffers movable to and from the former, and mechanism for rotating the former and buffers in opposite directions.

5. The combination with a former-supporting shaft, and mechanism for driving the same, of a sleeve inclosing the upper portion of the shaft and movable thereon, a sheave rigid with the sleeve, buffer-carrying arms supported from the sleeve, and means for opening and closing the arms.

6. The combination with a former-supporting-shaft and mechanism for driving the same, of a sleeve inclosing the upper portion of the shaft and movable thereon, a sheave rigid with the sleeve, buffer-carrying arms supported from the sleeve and having their lower ends provided with cone-shaped rollers, and a cone-faced collar on the sleeve for closing the arms.

7. The combination of two shafts constituting respectively the former and buffer driving shafts, of a main driven shaft carrying a pulley and a friction-wheel adapted to drive a similar wheel on the buffer-driving shaft, mechanism for shifting these two wheels into and out of engagement with each other, and belts driven by the buffer-driving shaft to drive buffers and the former in opposite directions.

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

GEORGE E. CLEVELAND.

Witnesses:

JAMES MAUD,

AUGUST BLATT.