

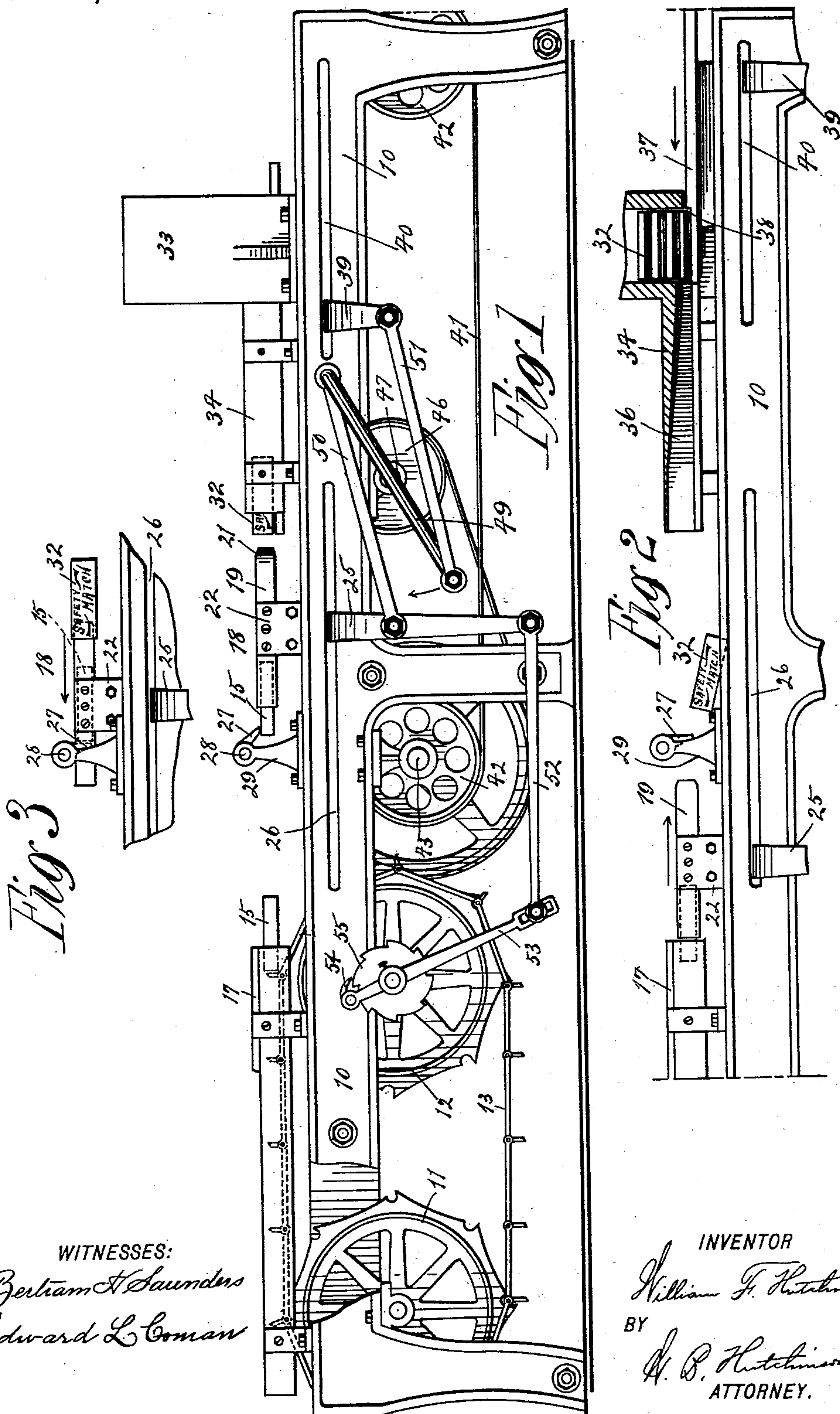
(No Model.)

3 Sheets—Sheet 1.

W. F. HUTCHINSON.
BOXING MACHINE.

No. 569,133.

Patented Oct. 6, 1896.



WITNESSES:

Bertram H Saunders
 Edward L Coman

INVENTOR

INVENTOR
William F. Hutchinson

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A. B. Hutchinson
ATTORNEY.

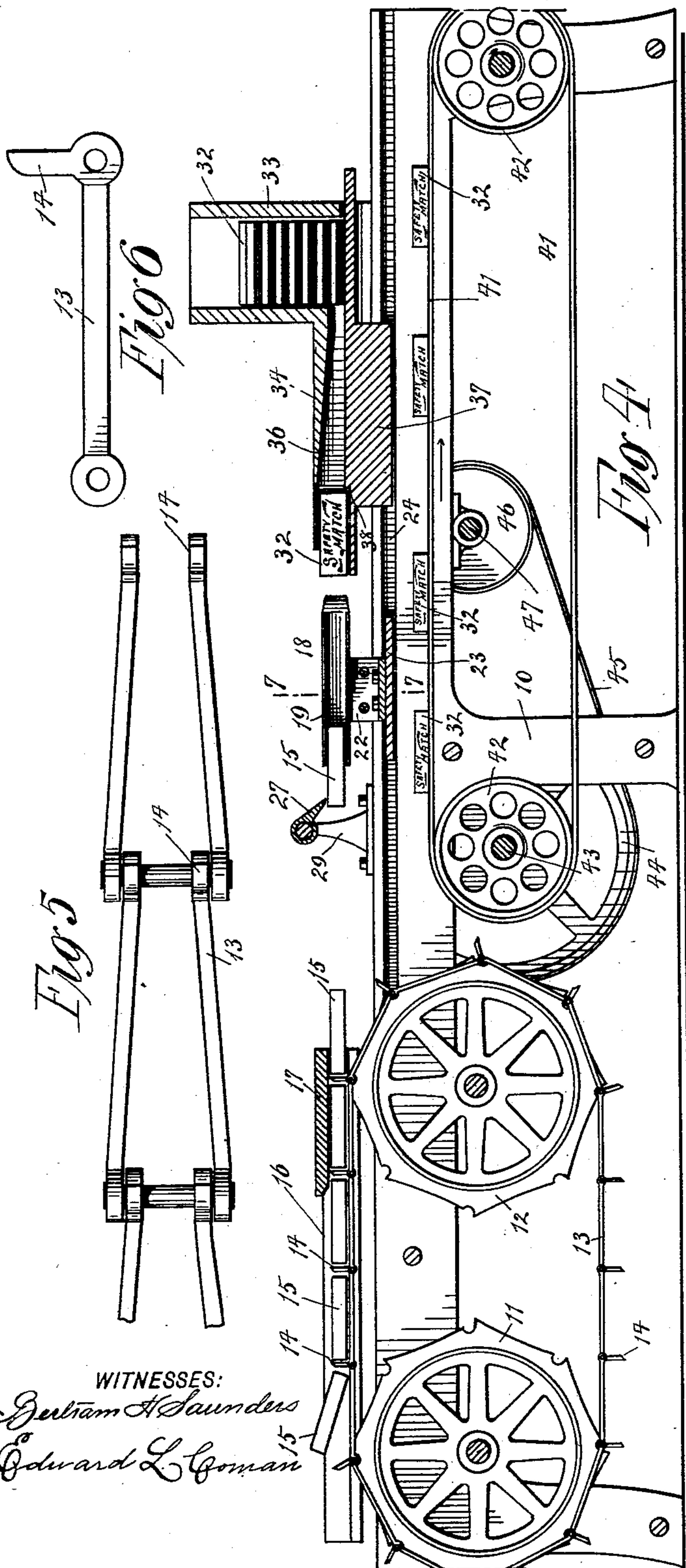
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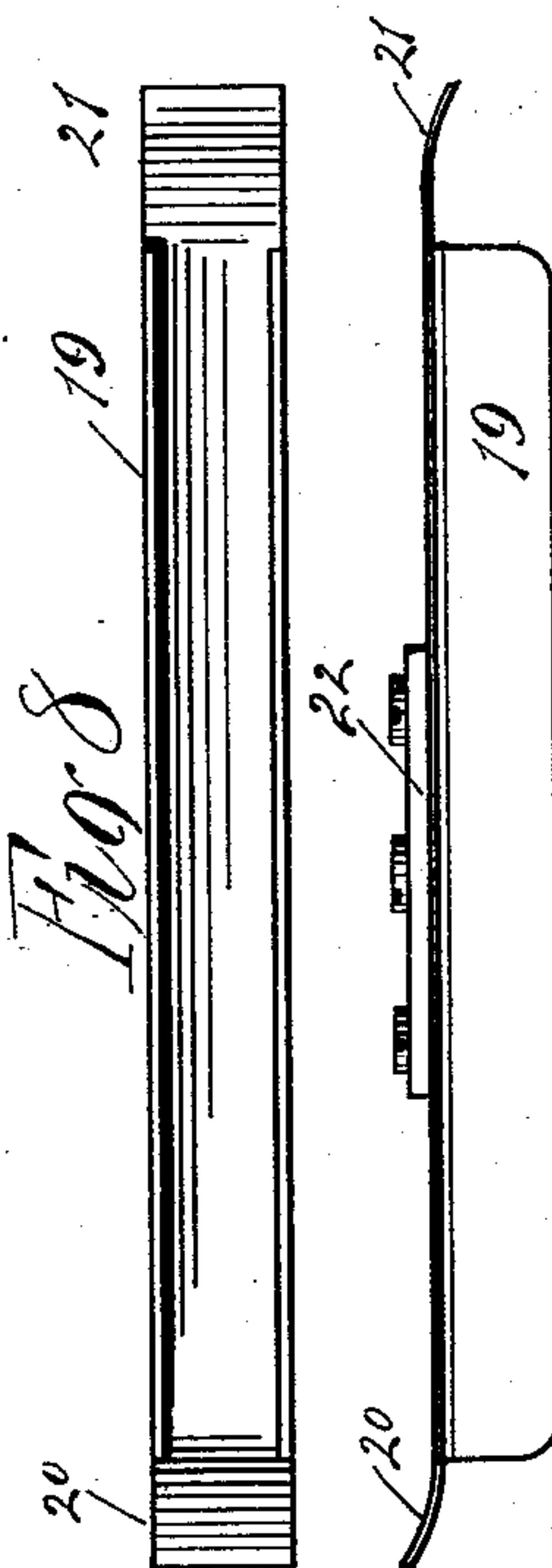
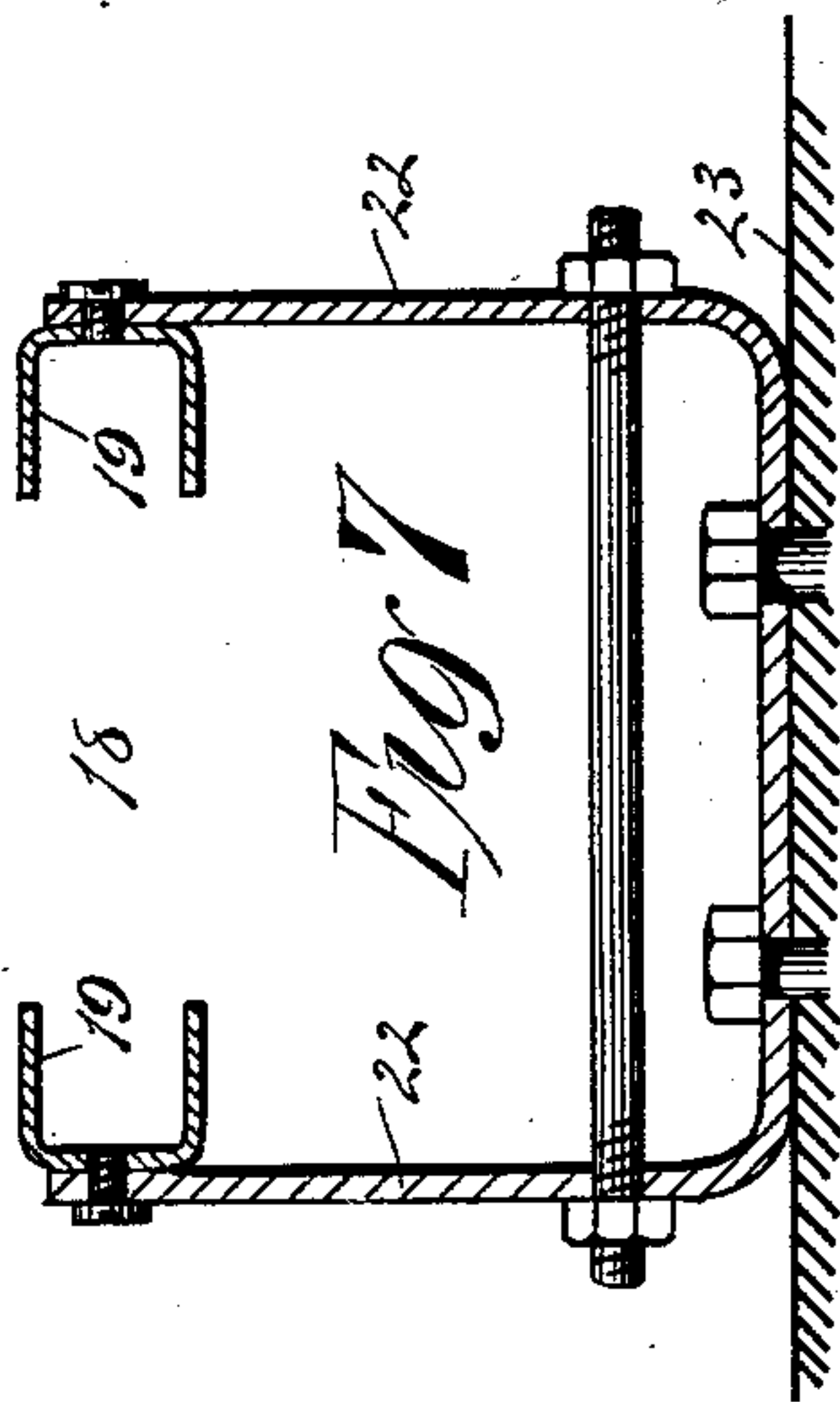
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WITNESSES:

William H. Saunders
Edward L. Goman



INVENTOR
William F. Hutchinson
BY
W. B. Hutchinson
ATTORNEY.

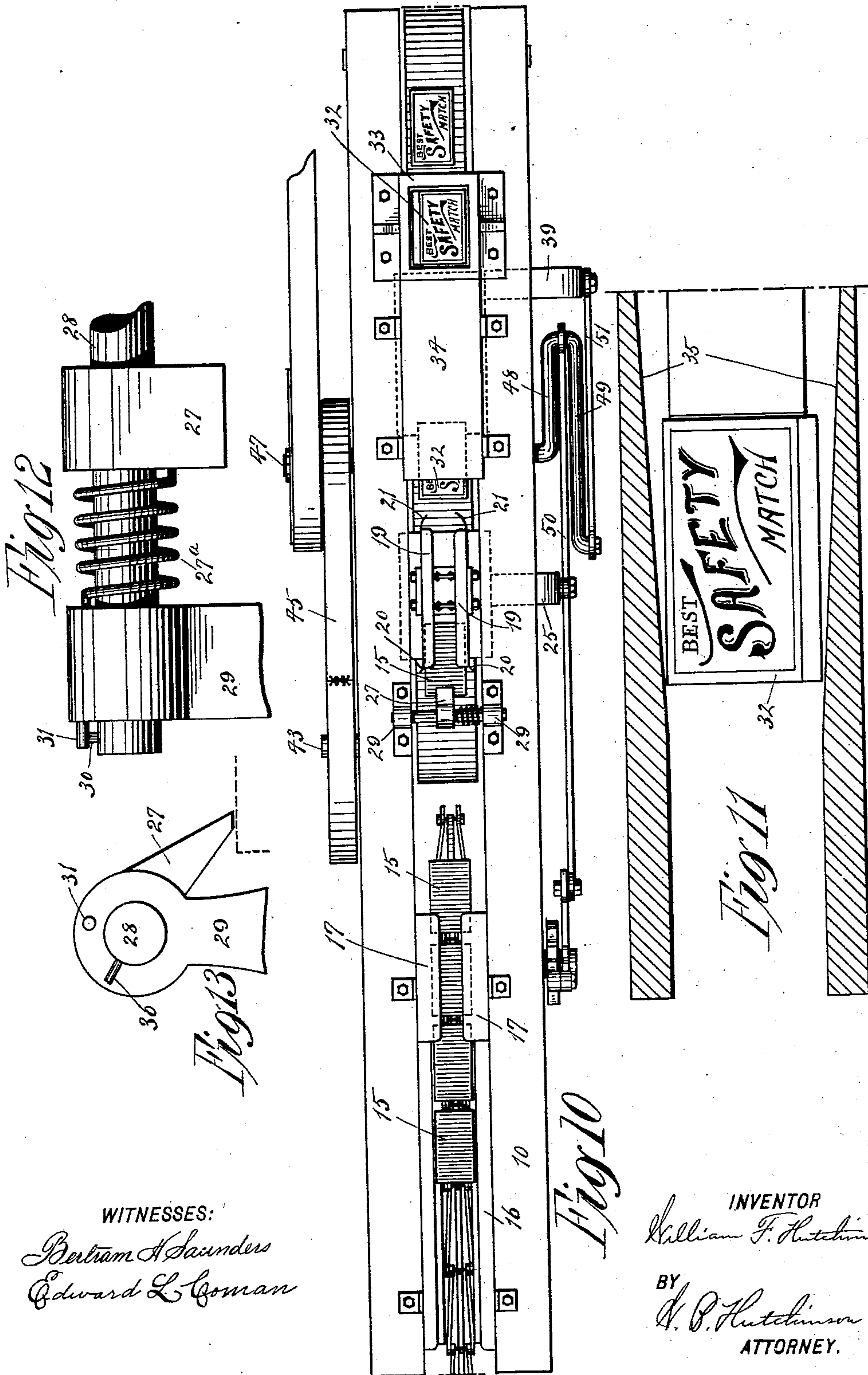
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William F. Hutchinson

BY

A. P. Hutchinson
ATTORNEY.

UNITED STATES PATENT OFFICE.

WILLIAM F. HUTCHINSON, OF NEW YORK, N. Y.

BOXING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 569,133, dated October 6, 1896.

Application filed October 25, 1895. Serial No. 566,817. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. HUTCHINSON, of New York, in the county and State of New York, have invented certain new and useful Improvements in Boxing-Machines, of which the following is a full, clear, and exact description.

My invention relates to improvements in boxing-machines, and especially to machines which are adapted for use in placing filled match-trays in their appropriate shucks, although the machine may be used for placing together the shucks and trays without regard to the character of the material held in the latter.

The object of my invention is to produce a comparatively simple machine which enables the shucks to be held in mass at one end of the machine, the filled trays to be fed upon the machine at another point, and the two parts readily and automatically assembled, each shuck being placed over its corresponding tray.

A further object of my invention is to produce means for automatically discharging the assembled shucks and tray in such a manner that the completed and filled boxes may be conveniently packed.

To these ends my invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken side elevation of the machine embodying my invention. Fig. 2 is a broken side elevation with the shuck-shaping spout in longitudinal section, the view showing the tray-holder in the act of receiving a tray. Fig. 3 is a detail side elevation showing the mechanism in position to insert a tray in its shuck. Fig. 4 is a longitudinal section of the machine, showing a tray held in its holder with its abutment-pawl riding on it and with the holder ready to receive the shuck for the tray. Fig. 5 is a broken detail plan of the tray-carrying chain. Fig. 6 is a side elevation of one of the chain-links. Fig. 7 is an enlarged detail section on the line 7 7 of

Fig. 4, and shows the construction of the tray-holder. Fig. 8 is an inside elevation of one holding-arm of the tray-holder. Fig. 9 is a detail plan view of one of said arms. Fig. 10 is a plan view of the machine. Fig. 11 is an enlarged sectional plan of the shuck-shaping spout. Fig. 12 is an enlarged detail view of the tray-abutment pawl and its support, and Fig. 13 is a side elevation of the said pawl and support.

The machine is provided with a suitable frame 10, near one end of which are journaled sprocket-wheels 11 and 12, these being on the same horizontal plane and carrying a chain 13, the links of which have outward-turned bends 14 at one end, and the distance between these projecting bends or lugs is just sufficient to accommodate a tray 15, as shown clearly in Fig. 4.

The trays 15, which are to be inserted in shucks or wrappers, are fed in any suitable manner upon the upper side of the chain-belt 13 and pass between parallel guides 16, which are bridged over above the sprocket-wheel 12, so as to form a guide for a tray 15, which can thus be held so as to project from the guide 17, as shown in Fig. 4, this projecting end being adapted to enter the tray-holder 18, which slides back and forth on the machine, as hereinafter described.

The tray-holder 18 has opposite holding-arms 19, which are parallel with each other and which are U-shaped in cross-section, as shown clearly in Fig. 7, so that each arm is adapted to receive one edge of a tray. The rear ends of these arms terminate in projecting or spreading ends 20, so that a tray can readily enter them, and the opposite ends of the arms terminate in inturned projections or tongues 21, which permit a wrapper to be pushed easily onto the holder; but the ends are sufficiently springy and have enough outward tension to prevent the wrapper from being too easily slipped off.

The arms 18 are supported on a suitable bracket 22, which is fastened to a slide-plate 23, moving in grooves 24 (see Fig. 4) on the inner sides of the frame 10, and the slide-plate is moved by an arm 25, which slides in the slot 26 (see Fig. 1) in the machine-frame, the outer end of the arm hanging down at the

side of the machine to connect with actuating mechanism, which will be hereinafter described.

The holder is alternately moved backward and forward, and when it moves back it receives a tray 15 from the guide 17 and then moves forward beneath a pawl 27, which rides over the tray 15 and between the arms 19 and eventually falls behind the tray, so as to push the tray out of the holder as the latter is forced back, which operation will be fully described later.

The pawl 27 is hung on a rod 28, which is supported in brackets 29, and the pawl is normally moved downward by a spring 27^a, (see Fig. 12,) although it would probably move by gravity. The pawl is prevented from turning back too far by a pin 30, which is secured to the rod 28, and engages a pin or stud 31 on one of the brackets 29, as shown in Figs. 12 and 13.

The shucks 32 are placed one above the other in a hopper 33 at the rear end of the machine, and this hopper has at the bottom a shaping-spout 34, which extends toward the holder 18 and lies parallel with the bed of the machine. The shucks, as is well known, are generally flattened out when they are made, so that they are delivered in a flattened shape into the hopper; but in order that they may be straightened up into a relative rectangular shape the spout 34 has side walls 35, which converge toward the holder 18, while the upper wall 36 of the spout rises as it approaches the holder. Consequently, as a wrapper is carried out through the spout 34 it is gradually squeezed into shape. The shucks are carried out through the spout one by one by means of a reciprocating carriage 37, which slides beneath the spout and hopper, and which has at its inner end a ledge 38 of a size to receive a shuck. It will be seen, then, that when the carriage moves outward the ledge 38 is brought beneath the hopper 33 and the bottom shuck drops a little and is engaged by the ledge, so that the return movement of the carriage takes the shuck back through the spout and delivers it upon the holding-arms 19, as will more clearly appear below.

The operation of the essential parts of the machine, which have been described above, is as follows: Trays 15 are fed forward on the chain belt 13, and the first tray projects from the guide 17. At this point the holder 18 moves backward and the said tray is caught by the arms 19 of the holder, while at the same instant the carriage 37 moves outward at the opposite end of the machine and receives a shuck 32. The carriage 37 and holder 18 then approach each other, the tray 15 being carried beneath the pawl 27 and the shuck 32 being pushed on over the holding-arms 19, as shown clearly in Fig. 3. The carriage 37 and holder 18 again separate to receive a new wrapper and tray, and on the reverse movement of the holder 18 the pawl 27,

which has dropped behind the tray 15, causes the said tray to be pushed into the wrapper, and when the wrapper is struck by the pawl the tray is pushed home and both wrapper and tray are carried from the holder 18 and dropped below.

It will be understood that a diversity of mechanism may be employed for actuating the above-described parts in the manner indicated, but I have shown means for carrying through the above operations.

The filled wrappers, as discharged from the holder 18, are caught on an endless belt 41, which is carried by pulleys 42, (see Fig. 3,) and the inner pulley 42 is carried by a shaft 43, which is driven by a pulley 44 and belt 45, the latter being in turn driven by a pulley 46 on the driving-shaft 47, and this may be driven in any convenient way. The driving-shaft 47 has at one end a crank 48, (see Fig. 10,) which at its outer end is doubled and returned upon itself to form the crank-arm 49, which is longer than the crank 48, and which thus forms a double crank. The crank 48 connects by a pitman 50 with the arm 25, above referred to, while the free end of the arm 49 connects by a pitman 51 with an arm 39, which slides in a slot 40 and carries the carriage 37. The arm 25 connects by a pitman 52 with a lever 53, which is hung on the shaft of the sprocket-wheel 12, and a pawl 54 on this lever engages a ratchet-wheel 55 on the sprocket-wheel 12, and so at each stroke of the holder 18 the arm 25, actuating the lever 53, causes the pawl 54 to turn the ratchet-wheel the distance of one tooth, which is timed to carry forward the chain 13 the length of the tray 15.

It will be seen from the above that at each revolution of the driving-shaft the pitmen 50 and 51 will be moved so as to impart the necessary to-and-fro movement to the holder 18 and the carriage 37, and that the right movement will be given to the feeding mechanism by means of the ratchet connection described, so that the whole operation will be automatically and properly timed.

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

1. A boxing-machine, comprising a reciprocating tray-carrying holder, means for delivering a tray to the holder at one end of its stroke, means for delivering a shuck upon the holder at the opposite end of its stroke, and mechanism to force the tray into the shuck and remove the latter, substantially as described.

2. A boxing-machine, comprising a tray-carrying holder and shuck-carriage movable back and forth in relation to each other, the tray-holder being adapted to receive a shuck at one end, and the carriage being arranged to deliver the shuck upon the holder, and mechanism to force the tray into the shuck and remove the latter, substantially as described.

3. A boxing-machine, comprising a tray-carrying holder and shuck-carriage movable back and forth in relation to each other, the holder being adapted to receive a tray at one
5 end of its stroke, and the carriage being arranged to deliver a shuck upon the holder on the return stroke of the latter, and automatic feeding devices to supply the holder with trays and the shuck-carriage with shucks,
10 substantially as described.

4. The combination with a tray-holder having one end shaped to engage a shuck, of the shuck-carriage, means for delivering shucks to the carriage, and the shaping-spout having
15 inclined side and top walls, substantially as described.

5. The combination with the hopper having a discharge-spout with inclined walls, of the shuck-carriage reciprocating beneath the
20 spout and hopper, and mechanism for entering a tray in the shuck as it leaves the spout, substantially as described.

6. In a boxing-machine, the combination of the reciprocating tray-holder, means for delivering a shuck over the holder at one end
25 of its stroke, and the swinging abutment-pawl hanging above the holder and in the path of

the shuck and tray carried thereby, the pawl being free to swing in one direction and serving as a rigid abutment in the opposite direction whereby it pushes the tray and wrapper from the tray-holder, substantially as described. 30

7. The combination with the shuck-hopper and the shuck-carriage reciprocating beneath
35 the hopper and arranged to discharge shucks therefrom, of a shaping-guide operating by external pressure on the shucks to open them, and mechanism for entering the trays in the shucks as the shucks are discharged, substantially as described. 40

8. The combination with the reciprocating tray-holder and mechanism for placing the tray in the shuck, of a guide and feed mechanism to feed trays to the tray-holder, said
45 guide and feed mechanism comprising a traveling chain with abutments thereon, mechanism for imparting an intermittent movement to the chain, and a bridge extending across the chain top, substantially as described.

WILLIAM F. HUTCHINSON.

Witnesses:

WILLIAM D. PECK,

WARREN B. HUTCHINSON.