J. W. MARTIN & J. A. WALLACE.

FILLING AND DUMPING DEVICE.

APPLICATION FILED MAR. 9, 1909.

995,546.

Patented June 20, 1911.

3 SHEETS—SHEET 1.

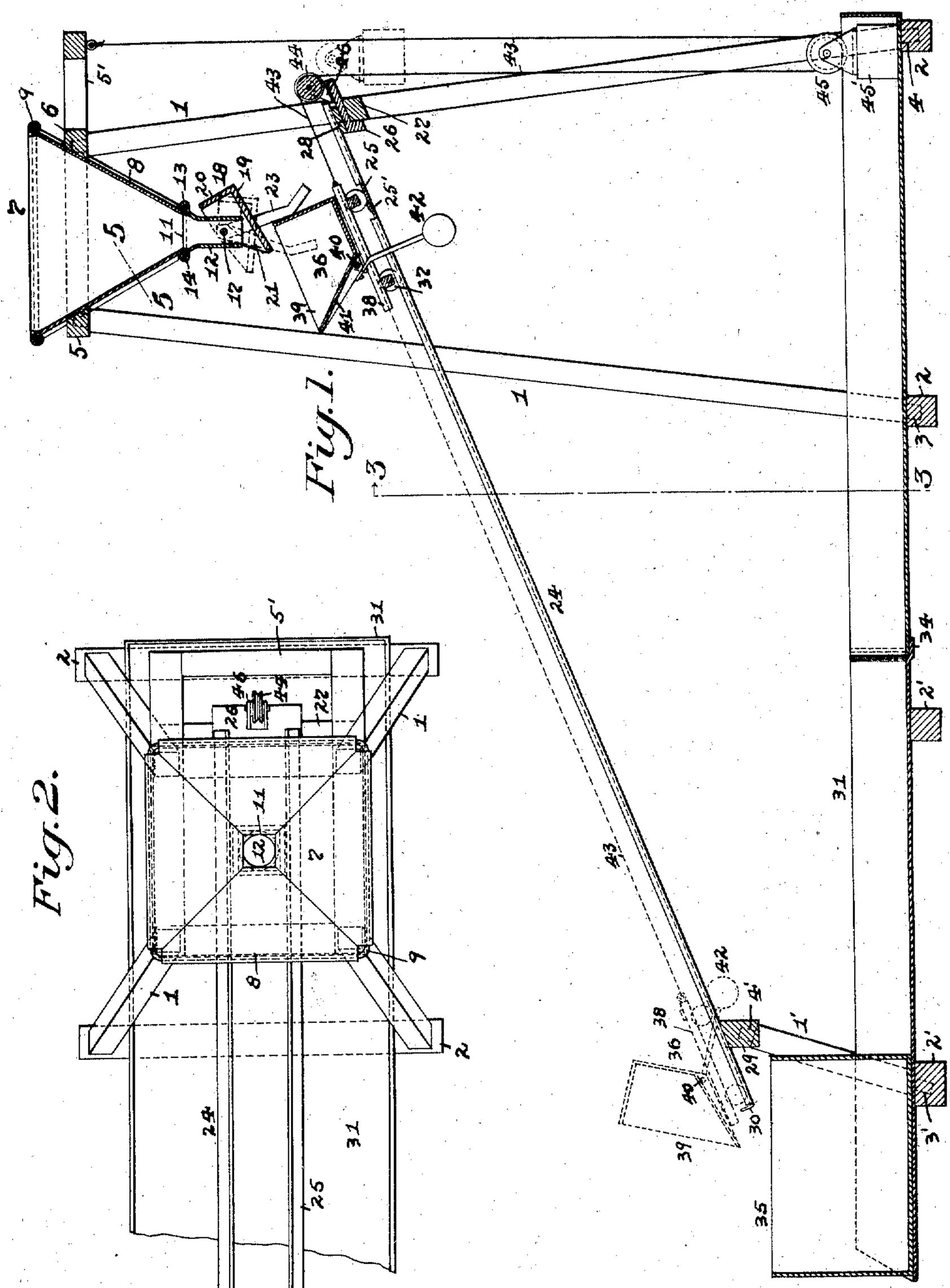

Fig. 1.

Fig. 2.

WITNESSES

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Fig. 7.

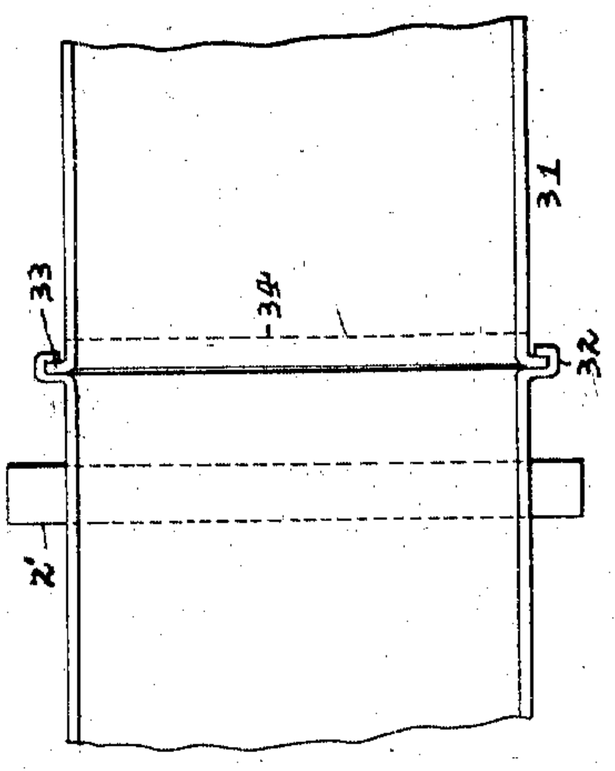


Fig. 6.

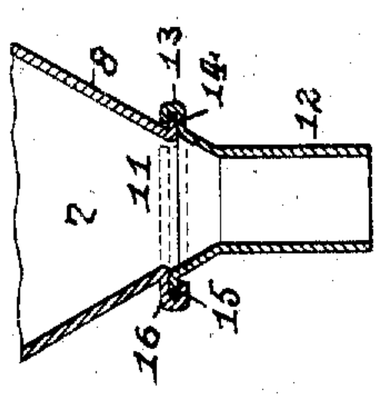


Fig. 5.

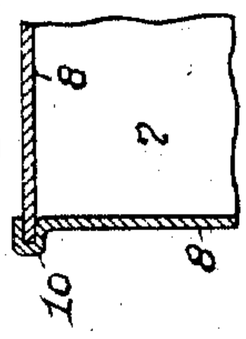


Fig. 4.

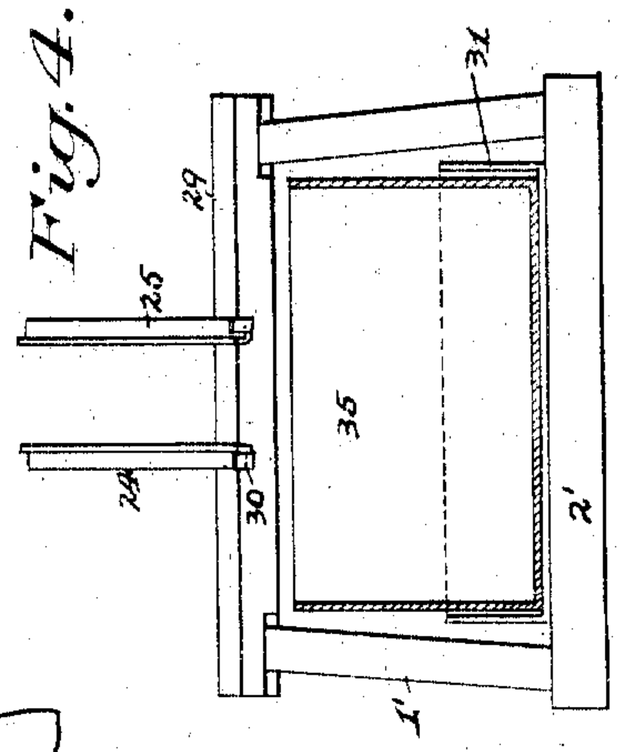
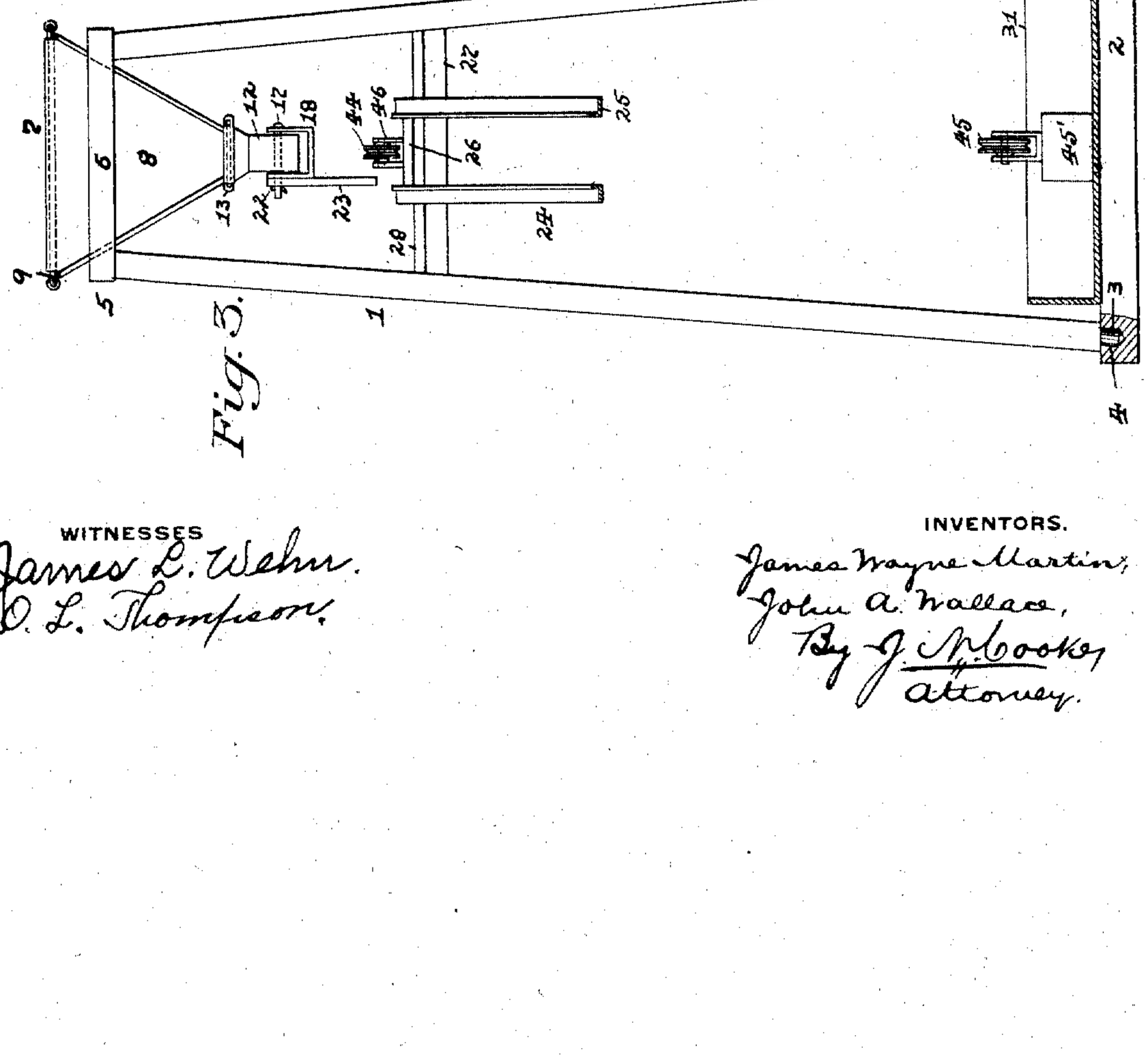


Fig. 3.



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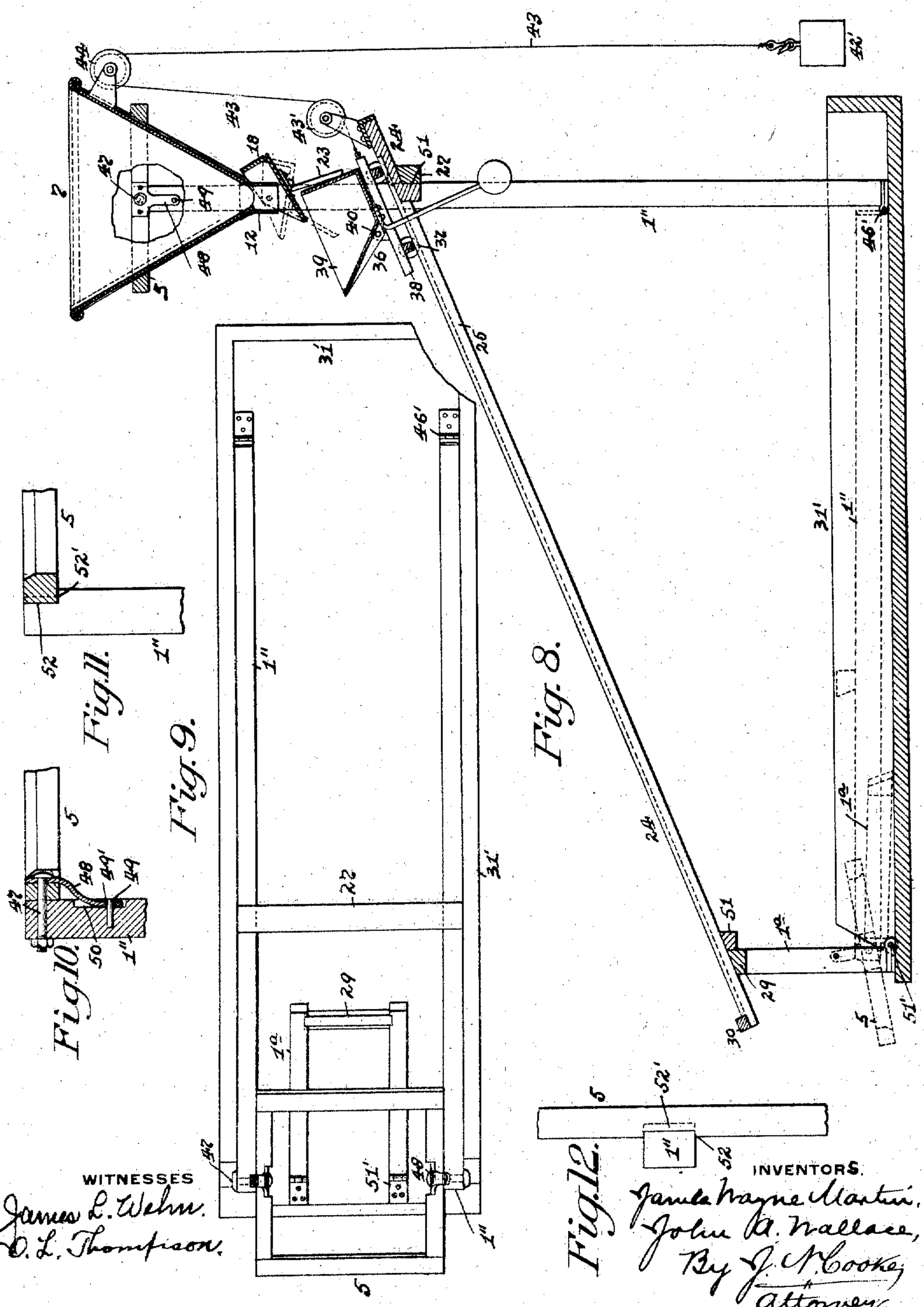

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UNITED STATES PATENT OFFICE.

JAMES WAYNE MARTIN AND JOHN A. WALLACE, OF DARLINGTON TOWNSHIP, BEAVER COUNTY, PENNSYLVANIA.

FILLING AND DUMPING DEVICE.

995,546. Specification of Letters Patent. Patented June 20, 1911.

Application filed March 9, 1909. Serial No. 482,228.

To all whom it may concern:

Be it known that we, JAMES WAYNE MARTIN and JOHN A. WALLACE, residents of Darlington township, in the county of Beaver and State of Pennsylvania, have invented a new and useful Improvement in Filling and Dumping Devices; and we do hereby declare the following to be a full, clear, and exact description thereof.

Our invention relates to a device for filling and dumping cars, and has special reference to such a device for use in connection with cars traveling on inclined tracks.

The object of our invention is to provide a cheap, simple and efficient device for filling and dumping cars, whereby the cars can be automatically filled and dumped, and after such filling the material will be automatically shut off until another car is in position to be filled.

Our invention consists, generally stated, in the novel arrangement, construction and combination of parts, as hereinafter more specifically set forth and described and particularly pointed out in the claims.

To enable others skilled in the art to which our invention appertains to construct and use our improved device for filling and dumping cars, we will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a vertical central section of our improved device for filling and dumping cars. Fig. 2 is a top plan view of one end of the same. Fig. 3 is a vertical cross-section on the line 3—3 Fig. 1 looking in the direction of the arrow. Fig. 4 is a view looking at one end of the same and partly in section. Fig. 5 is an enlarged cross-section on the line 5—5 Fig. 1. Fig. 6 is an enlarged vertical section of the hopper and chute. Fig. 7 is an enlarged top view of a portion of the pan employed. Fig. 8 shows a vertical central section of another form of our invention. Fig. 9 is a top plan view of the same showing the device in its collapsed position. Fig. 10 is a detail view showing the attachment between the posts and hopper supporting frame in Fig. 1. Figs. 11 and 12 are detail views showing another form of the post and frame attachment.

Like symbols of reference herein indicate like features in each of the figures of the drawings.

As illustrated in Figs. 1, 2 and 3 of the drawings, the device is shown as applied to a mechanical toy, in which the four standards or posts 1 extend up from two of the base beams 2, to which they are removably connected by means of the lower contracted ends or pin portions 3 on said posts fitting in holes or sockets 4 in said beams, and a frame 5 is connected in like manner to the upper ends of said posts through the cross-portions 6 on said frame. Removably fitting within and between the cross-portion 6 on the frame 5 is the hopper 7, preferably formed of sheet metal, which has its four sides 8 hinged or pivoted at their upper ends around a wire rod 9, and such sides are connected to each other by a tongue and groove joint 10, as shown in Fig. 5, and are adapted to extend toward each other at their lower ends to form the contracted opening 11 at such ends. Connected to the opening 11 is the chute 12 preferably formed of sheet metal, which is provided with the grooved portion 13 on three of its upper sides for fitting around a tongue portion 14 on three of the hopper sides 8, and with a tongue portion 15 on one of its sides for fitting within a groove portion 16 on the other hopper side 8.

Pivoted to two sides of the chute 12 by a pin 17 is the shutter 18, which is provided with the bottom 19, rear end 20 and sides 21, and such pin passes through the sides 21 of said shutter and is held in place by a cotter 22 passing through one end of said pin for removing the same and said shutter. Fitting between one side 21 of the shutter 18 and the cotter 22 is an arm 23 which is removably secured to the pin 17 and extends below the bottom 19 of said shutter.

Between the posts 1 is the track 24, which is formed of the two rails 25, preferably formed of metal, and supported at one end on a platform 26 by a cross-beam 27 between the rear posts 1, and such ends are connected together by the plate 28 between the same. The front ends of the rails 25 are connected together by the beam 29 extending under and between the same, and such ends are supported by the posts 1′, which are removably connected to said beam and to the outer

one of the other two base beams 2′ by means of the contracted ends or pin portions 3′ on said posts fitting in the holes or sockets 4′ in said beam 29 and beams 2′. An abutment or stop 30 is formed on the outer ends of the rails 25 and preferably extends across and between the same.

Resting upon the base beams 2 and 2′ and between the posts 1 and 1′ is the pan 31, preferably formed of sheet metal and in two sections, which are removably connected together at their inner or adjoining ends by means of the grooved portions 32 on the sides of the front or forward section fitting around flanges 33 on the sides of the back or rearward section, and a flange 34 on the bottom of the forward section fits under the bottom of the rearward section. The outer end of the forward section of the pan 31 is open, and a tank or receptacle 35, preferably formed of sheet metal rests upon said end and under the front ends of the rails 25.

A car 36 is adapted to travel along the rails 25 of the track 24 through the wheels 37 mounted on the frame 38 of said car and engaging with said rails, and the body 39 of said car is pivoted at its lower front end to said frame, as at 40. This body 39 is preferably formed of sheet metal and its front end is formed on an incline extending outward from the bottom thereof, as at 41, and secured to said front end is a weighted arm 42 for extending through and below the frame 38 and rails 25.

The rear of the car frame 38 has one end of a rope or cord 43 connected thereto, which extends over a pulley 44 mounted in a bearing 46 on the platform 26, around a weighted pulley 45, and is connected at its other end to the rearwardly projecting portion 5′ on the upper frame 5.

The use and operation of our improved filling and dumping device is as follows—When the parts are assembled together, as shown in Fig. 1 and when used as a toy, sand or other suitable material is placed in the hopper 7 so that it will pass through the chute 12 from said hopper and into the car 36 under the chute, which car is so positioned for loading under said chute that its back or rear wheels 37 will rest in a depressed portion 25′ in the rails 25 and in front of said wheels. When a sufficient amount of the material has passed into the car 36 to counter-balance the weighted pulley 45, the said car will pass by its back wheels 37 over the raised portions 25′ in the rails 25 and from under the chute 12, so that said car with its load will then pass down the track 24. After the loaded car 36 has thus passed from under the shutter 18 and the chute 12, such shutter being pivoted on such chute and its rear end 20 being heavier than its forward end, this movement of the car will act to throw or tilt said shutter to its normal position, as indicated by dotted lines in Fig. 1, and thereby shut off the material passing through said chute from the hopper 7 by the packing of such material in the space between the bottom 9 of the shutter and the lower end of said chute. The car 36 will thus continue to travel down the track 24 and will raise the weighted pulley 45 through the cord 43 passing around said pulley and the pulley 44 and such cord being connected to said car and the frame portion 5′; and when the said car has reached the lower end of said track the weighted arm 42 on such car will come in contact with the beam 29 which will act to throw the material in the car forward, which will act to tilt the car body 39 forward on its pivot, as shown by dotted lines in Fig. 1, and dump the material from said body into the tank 35. The car 36 will be held in place on the track 24 by the stop 30 on said track for engaging with the wheels 37 on said car, and after being thus emptied the car 36 will be drawn back or up the said track by the lowering of the weighted pulley 45, and the weighted arm 42 will return the empty body 39 onto the car frame 38. When the car 36 has thus been drawn up the track 24 and reaches a position under the chute 12, so that its back wheels 37 have passed into the depressed portions 25′, the weight 45′ on the pulley 45 will rest on the bottom of the pan 3, and the rear end 20 of the car body 39 will engage with the arm 23 which is suitably secured to the shutter 18 and on the pivot pin 17, in the said chute for shutter 18, which will tilt the said shutter to the inclined position shown in full lines Fig. 1 to open the said chute for again filling the car with material from the hopper 7, by such material passing from the hopper 7 down through said chute and out the open end of said shutter into the car to fill the same. After being thus filled the car 36 can travel down the track 24 and such material dumped therefrom as before described. These operations of filling the car 39 and dumping the same are continuously carried out as long as the material is contained in the hopper 7, which material can be fed thereto or a certain amount used and when said hopper is empty and the tank 35 filled, the said tank can be lifted from the pan 31 and the material dumped back into the said hopper. It will thus be seen that in the form just described our improved device for filling and dumping cars is so arranged that the parts of the same can be easily and quickly set up for operating and taking down for packing or storing, as the posts for supporting the hopper frame and track are removably connected thereto and to the base beams under the pan, and such pan has two of the base beams under the two sections of the same, and such sections are

easily assembled or taken apart by their tongue and groove and flange joints. The hopper being formed of connected plates can be rapidly assembled and taken apart, so that when all the parts are separated from each other and packed together they will form a compact device for shipping or transporting.

In Figs. 8 to 12 our improved device for filling and dumping cars is shown in another form for being collapsed or folded when used as a toy, which consists in employing only two posts for supporting the frame 5 and hopper 7 instead of four and these posts 1″ are hinged at their lower ends, as at 46 to the bottom of a single section pan 31′, which is preferably formed of wood. The frame 5 carries the hopper 7 within the same and is loosely connected to the posts 1″ by means of a bolt 47 passing through said posts and frame, and a spring catch 48 fits loosely around said bolt and is adapted to engage with said parts through fitting by a hole 49′ therein over a pin 49 on said posts and within a seat 50 therein. The cord 43 in this case passes around a pulley 44 on the hopper 7 instead of being attached to the frame 5 and around the pulley 43′ to be attached to the car body 39 at one end. The pulley 43′ is mounted on the rails of the rear end of the track 24 instead of on the platform 26 on the posts 1, and the other end of the cord 43 after passing around the pulley 43′ is connected to a weight 42′. The dumping end of the track 24 is supported by the posts 1ª which are hinged at 51′ at their lower ends to the bottom of the pan 31′, and such track is held in position between and on the posts 1″ and 1ª by the blocks 51 on the bottom of said track coming in contact with and engaging with the rear of the cross-beams 27 and 29 on said posts. When thus assembled this form of the device just described is operated in the same manner as the form previously described and can be used without a tank, if desired, for catching the dumpings from the car, if desired, as in the case when used as a toy at the seashore or in other sandy places or in connection with a sand pile, and in which case the material can be placed within the hopper in any suitable manner.

In collapsing or folding, the hopper 7 is removed from the frame 5 and the cord 43 is disconnected from said hopper and car 36, so that the car can be then removed, the track 25 is removed from the posts 1″ and 1″, which will permit the said posts to be folded down into the pan 31′, as shown in Fig. 9 and by dotted lines in Fig. 8, and the catch 48 removed from the pin 49 on the posts 1″ to permit the frame 5 to be turned on the bolt 47 acting as a hinge and be folded into said pan, as shown in said figures. After these parts are thus collapsed the hopper 7, car 25, cord 43 and pulley 45, with the track 25 can be placed within the pan 31′ and against the folded parts therein and thereby enable a small and compact form for the same in shipping or packing. If desired, the frame 5 and posts 1″ can be attached or connected together by the said frame fitting within a slot 52 in the said posts, as shown in Figs. 11, and 12 and resting upon a shoulder 52′ formed at the bottom of said slots.

Various other modifications and changes in the use, design and construction of our improved filling and dumping device may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

It will thus be seen that our improved filling and dumping device when used as a toy can be packed or stored in a very small space for shipping or handling and the parts being capable of separation, some of which being also formed in sections, will enable their being assembled or taken apart rapidly and conveniently at all times by a child, and when in use will form an automatic working device for use as an amusement. The parts are strong and durable, are not liable to get out of order, and when set up in position will form a rigid and securely connected device in all its connections and operations. When used as a device the toy occupies very little room when set up in position and can be used in connection with various kinds of materials that are available. The device, as a toy, can be made knock-down, portable, foldable or collapsible as desired and forms a neat and finished article of amusement for children in the home, yard, seashore or other desirable places without liability of injury to anyone using the same.

It will be evident that our improved filling and dumping device can be used for a variety of other purposes other than that as a mechanical toy, and in a practical manner for the handling of various materials such as coal, sand, grain, etc., in which case the device can be used as an automatic apparatus in the filling of cars and dumping of the same into railroad cars or other receptacles for the purpose of shipment. In such uses, the device can be applied to different appliances for different materials and will enable the handling of the same without the employment of manual labor. It will also be obvious that in such uses the various parts of the device can be supported and connected together in a rigid and secure manner and will not require much attention while operating in the handling of various materials. When used for practical purposes, such as at mines, tipples, etc., it can easily be connected to the appliances at such places without interfering with any of the devices commonly used and will form

a distinct adjunct to the same, and if necessary the shutter can be operated by hand.

What we claim as our invention and desire to secure by Letters Patent is—

1. A filling and dumping device comprising a hopper, a track, a car on said track provided with a pivoted body, means engaged by the car to open said hopper and load said car, means for causing the car to ascend the track, and means pendent on said car body adapted to be engaged by said track to tilt said body for dumping the same.

2. A filling and dumping device comprising a hopper, a track, a car on said track provided with a pivoted body, means engaged by the car to open said hopper and load said car, means for causing the car to ascend the track, and a weighted arm depending from said car body and adapted to be engaged by said track to tilt said body for dumping the same.

In testimony whereof, we, the said JAMES WAYNE MARTIN and JOHN A. WALLACE, have hereunto set our hands.

JAMES WAYNE MARTIN.
JOHN A. WALLACE.

Witnesses:
S. E. MAXWELL,
MARY HARVEY.