

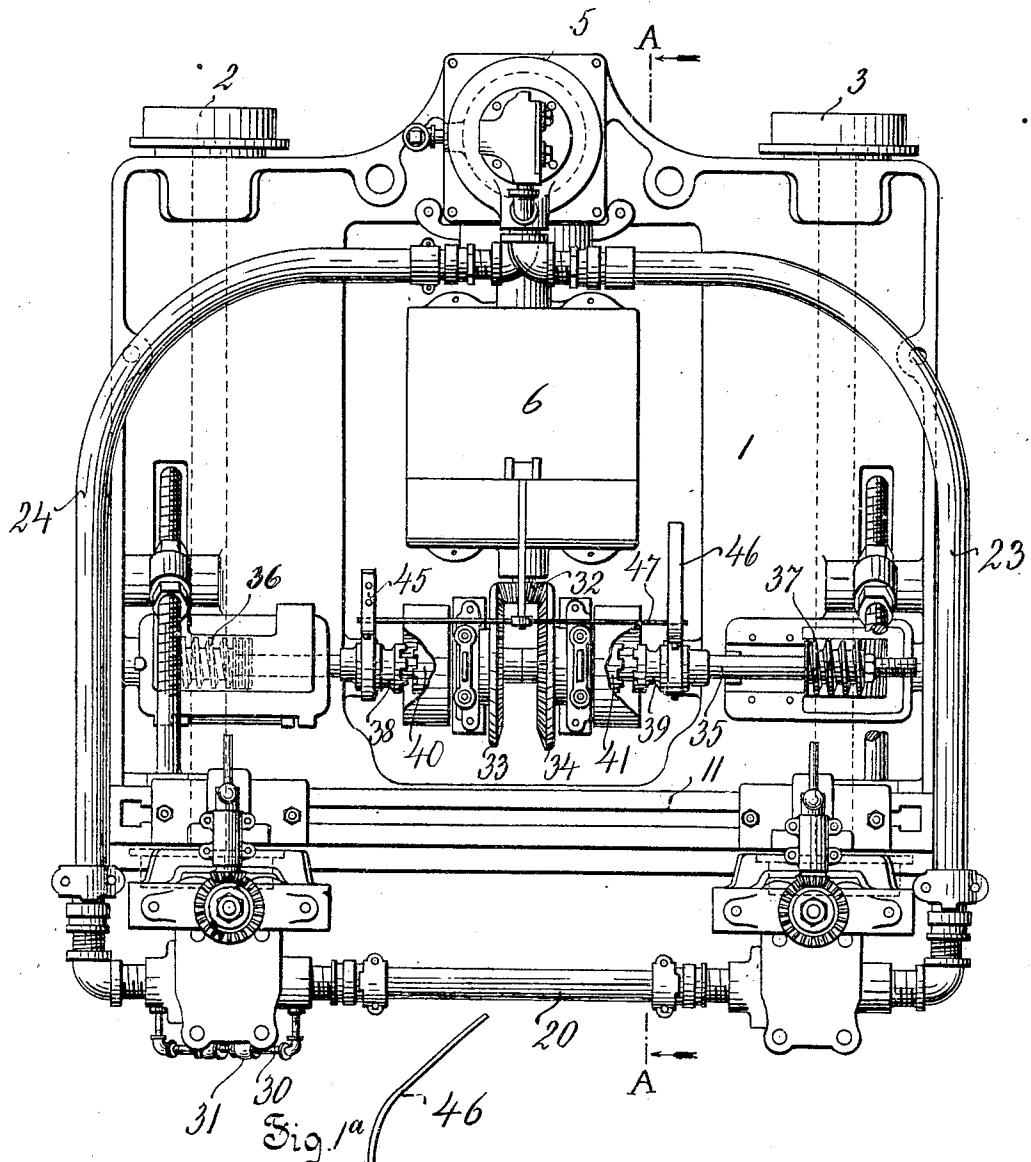
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ELECTROPNEUMATIC TRACK CHANNELER.
APPLICATION FILED MAR. 22, 1907.

962,755.

Patented June 28, 1910.

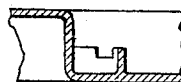
4 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
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Henry Thiney.

Fig. 1^b.



Inventor
Arthur H. Gibson
by attorneys
Thorn & Howard

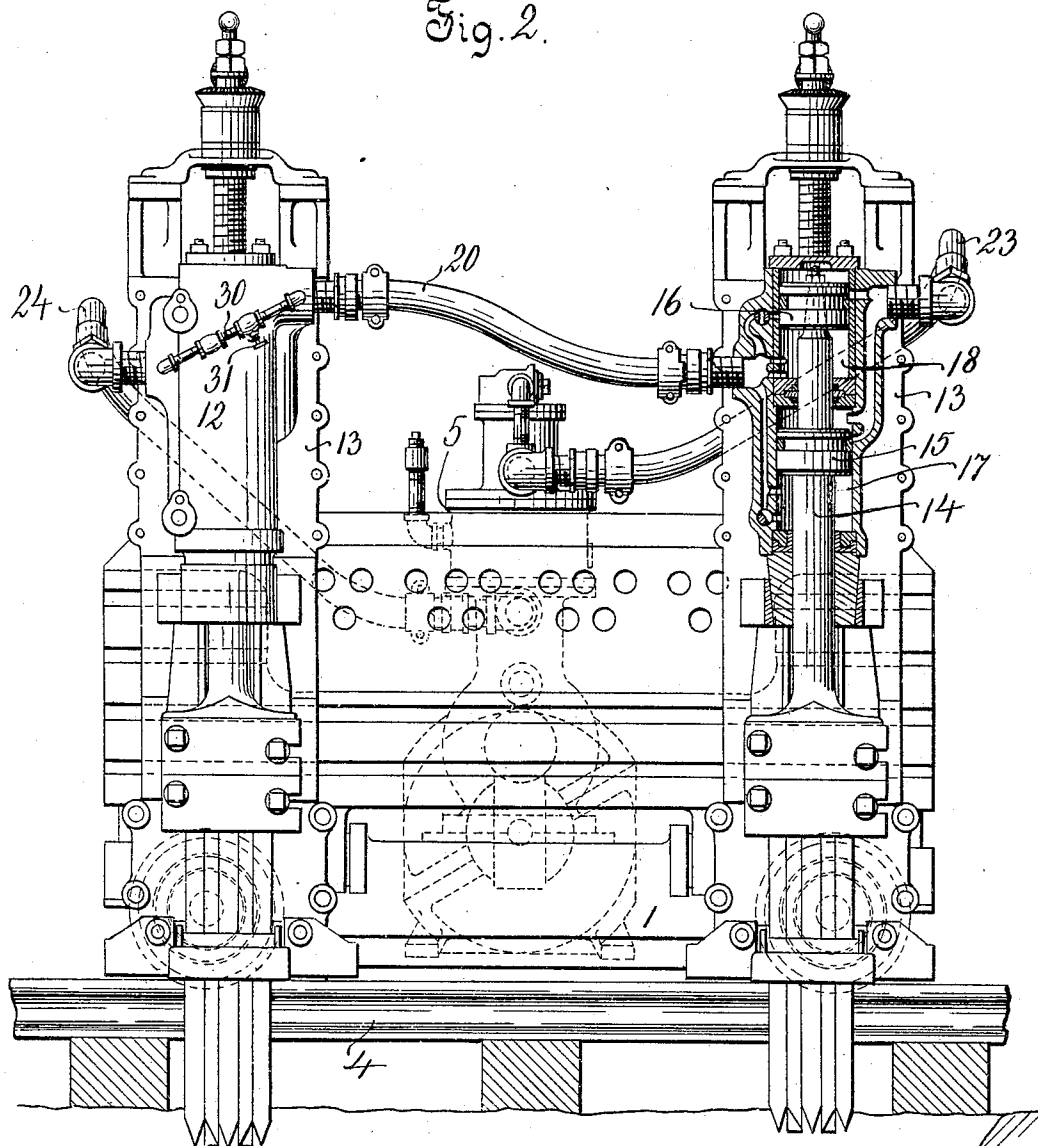
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4 SHEETS—SHEET 2.

Fig. 2.



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4 SHEETS—SHEET 4.

Fig. 4.

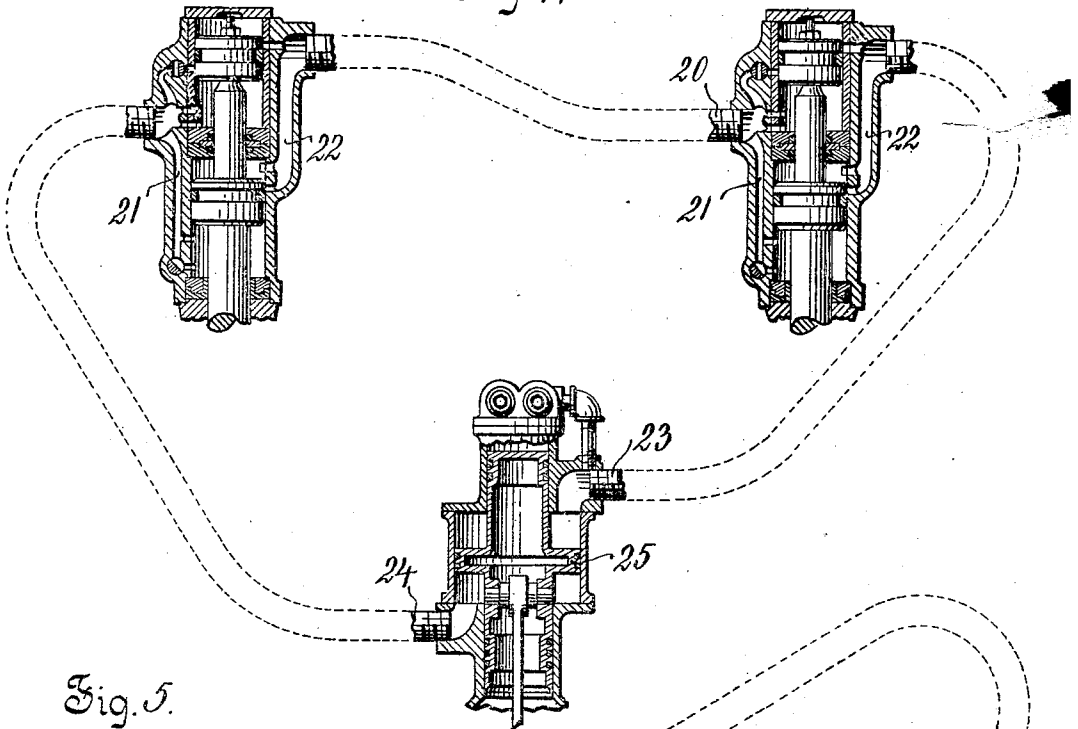
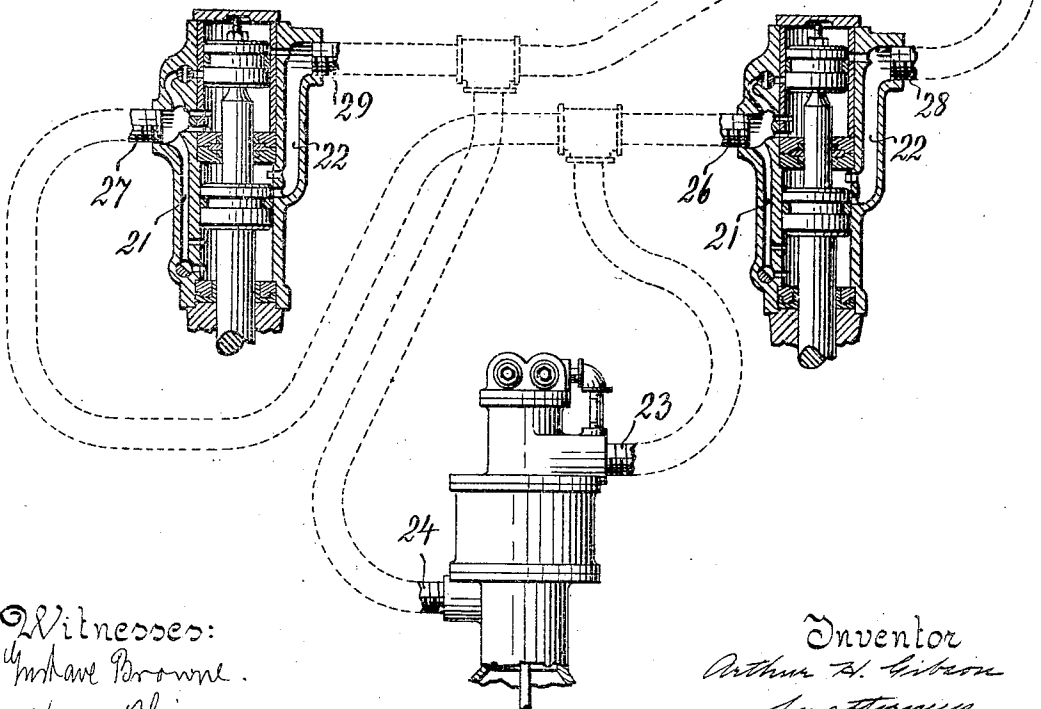


Fig. 5.



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UNITED STATES PATENT OFFICE.

ARTHUR HENRY GIBSON, OF EASTON, PENNSYLVANIA, ASSIGNOR TO INGERSOLL-RAND COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

ELECTROPNEUMATIC TRACK-CHANNELER.

962,755.

Specification of Letters Patent. Patented June 28, 1910.

Application filed March 22, 1907. Serial No. 363,895.

To all whom it may concern:

Be it known that I, ARTHUR H. GIBSON, a subject of the King of Great Britain, and resident of Easton, in the county of Northampton and State of Pennsylvania, have invented a new and useful Improvement in Electropneumatic Track - Channelers, of which the following is a specification.

My invention consists broadly in the provision of a common fluid presser for operating a plurality of tools by reciprocating columns of air.

I have shown my invention as applied to a track channeling machine in which the tool cylinders are connected to the presser cylinder and to each other so that the operation of the presser will cause the simultaneous reciprocation of the tool pistons.

The present invention discloses a device of the above character in which the connections are so arranged that the operation of the presser will cause the simultaneous movement of the tools in the same direction.

In the accompanying drawings, Figure 1 is a top plan view of a track channeling machine having an electric motor driven presser and two tools mounted thereon, certain of the parts being broken away to more clearly show the parts beneath the same. Figs. 1^a and 1^b are detail sections showing the manner of mounting the clutch operating levers. Fig. 2 is a side view of the channeling machine, one of the tool cylinders being shown in longitudinal central section. Fig. 3 is a section taken generally in the plane of the line A—A of Fig. 1, the lower portion of the presser being broken away to more clearly show the crank shaft thereof. Fig. 3^a is an enlarged detail section of one of the clutches for connecting and disconnecting the motor and truck driving means. Fig. 4 is a diagrammatic view showing the presser and tool cylinders in longitudinal central section and the arrangement of the passages between the three cylinders, as shown in Figs. 1, 2 and 3, and Fig. 5 is a similar view showing a different arrangement of the passages for producing the same result.

The truck which carries the parts is denoted by 1 and it is provided with the usual pairs of traction wheels 2, 3. This truck is fitted to travel along a track 4 laid in posi-

tion to bring the channeler into proper relation to its work. An air presser is mounted on the truck 1, the cylinder of the said presser being denoted by 5. This presser is shown as being driven from an electric motor 6 carried on the truck. The crank shaft 7 of the presser is driven from the shaft 8 of the motor through gears 9, 10. The swinging back frame of the truck is denoted by 11. A plurality of tools, in the present instance two, are carried by the swinging back frame. The tool cylinders are denoted by 12 and their shells by 13. The tool cylinders are herein shown as of the tandem multiple chamber type. The piston heads of each tool piston 14 are denoted by 15, 16, and are fitted to reciprocate in the front and rear cylinder chambers 17, 18.

In the accompanying drawings I have shown two methods of connecting the tool cylinders to each other and to the presser for causing the presser to drive the tool pistons simultaneously in the same direction by the reciprocating columns of air.

In the form shown in Figs. 1 to 4 inclusive, a flexible tube 20 connects the passage 21 in one tool cylinder which leads to the ports at the forward ends of the piston chambers, with the passage 22 in the other tool cylinder which leads to the ports at the rear ends of the piston chambers. A flexible tube 23 leads from the outer end of the presser piston chamber to the passage 22 in one tool cylinder and a flexible tube 24 leads from the inner end of the said presser piston chamber to the passage 21 in the other tool cylinder. In this arrangement as the presser piston 25 is moved outwardly, the columns of air in the several tubes 23, 20, 24, are moved in a direction to drive the tool pistons forwardly and as the presser piston is moved inwardly, the columns of air in the said flexible tubes will be moved in a direction to drive the tool pistons rearwardly.

In the form shown in Fig. 5, the flexible tube 23 which leads from the outer end of the presser piston chamber is connected through branch tubes 26, 27, with the passages 21 in both of the tool cylinders. In this form also the flexible tube 24 which leads from the inner end of the presser piston chamber is connected through branch tubes 28, 29, with the passages 22 in both

of the tool cylinders. In this form as the presser piston moves outwardly, the columns of air will be moved in a direction to drive the tool pistons rearwardly and as the
 5 presser piston moves inwardly, it will move the columns of air in a direction to drive the tool pistons forwardly.

In both of these forms it will be seen that the operation of the presser piston will drive
 10 both of the tool pistons simultaneously in the same direction.

The flexible connections between the tool cylinders and presser cylinder permit the adjustment of the tools along the swinging back frame and also the adjustment of the
 15 swinging back frame into the desired position.

In the form shown in Figs. 1 to 4 inclusive, I provide means for raising the air
 20 pressure in the flexible tube 20 which connects the tool cylinders, which means comprises a branch pipe 30 on one of these tool cylinders. This branch pipe 30 is provided with a manually controlled valve 31 arranged to open and close communication between the tube 24 and the tube 20.
 25

The means which I have shown for controlling the driving of the truck along the track in either direction from the motor 6, is constructed, arranged and operated as follows. The shaft 8 of the electric motor is provided with a pinion 32 which is arranged to drive two bevel gears 33, 34, in opposite directions, which bevel gears are
 35 loosely mounted on a horizontal drive shaft 35 having worm gear connections 36, 37, with the axles of the pair of traction wheels 2, 3. The bevel gears 33, 34, form part of two friction clutches the sliding members
 40 38, 39, of which are keyed to rotate with the shaft 35 and arranged to be interlocked with the friction members 40, 41, of the said gears. Each of these friction members is arranged as shown in Fig. 3^a which illustrates the clutch 38, 40, in which the member
 45 40 normally rotates with its gear 33 by being frictionally clamped between a flange 42 of the gear 33 and a spring pressed ring 43 secured to the interior of a cylindrical casing
 50 44. These two movable clutch members have operating levers 45, 46, connected by a rod 47, so that they are moved simultaneously. When the levers 45 and 46 are in their intermediate position, both of the clutches are
 55 disengaged and the truck will remain at rest. When the levers are moved to connect the clutch members 38, 40, the truck will be driven in one direction and when they are moved to connect the clutch members 39, 41,

the truck will be moved in the opposite direction along its track. 60

It will be seen that the invention herein described permits of the use of a common presser for driving a plurality of tools thus permitting the more rapid cutting of a
 65 channel as the truck is moved along its track. The flexible connections between the several cylinders permit of the ready adjustment of the tool cylinders without interfering with the operation of the machine. 70

While I have shown this invention as applied to a channeling machine, I do not wish to limit myself to such application, but contemplate its use wherever it is feasible to drive a plurality of tools from a common
 75 presser by reciprocating columns of air or other fluid.

What I claim is:

1. A double acting fluid presser, a plurality of tools, their pistons, conduits connecting opposite sides of the different tool
 80 pistons with opposite sides of the presser piston and conduits connecting opposite sides of the different tool pistons with each other whereby the tools are driven simultaneously in the same direction by the operation
 85 of the presser.

2. In a channeling machine, a movable truck, truck driving means, a double acting fluid presser mounted on the truck, tool
 90 pistons, a plurality of tools also mounted on the truck, tubes connecting opposite sides of the different tool pistons with opposite sides of the presser piston and also connecting
 95 opposite sides of the different tool pistons with each other, whereby the tools are driven simultaneously in the same direction by the operation of the presser.

3. In a channeling machine, a movable truck, truck driving means, a double acting
 100 fluid presser mounted on the truck, a plurality of tools adjustably mounted on the truck, tool pistons and flexible tubes connecting opposite sides of the different tool
 105 pistons with opposite sides of the presser piston and also opposite sides of the different tool pistons with each other whereby the tools are driven simultaneously in the same direction by the operation of the presser.

In testimony, that I claim the foregoing
 110 as my invention, I have signed my name in presence of two witnesses, this nineteenth day of March—1907.

ARTHUR HENRY GIBSON.

Witnesses:

CHAS. B. BRUNNER,
 A. GIES.

It is hereby certified that in Letters Patent No. 962,755, granted June 28, 1910, upon the application of Arthur Henry Gibson, of Easton, Pennsylvania, for an improvement in "Electropneumatic Track-Channelers" errors appear in the printed specification requiring correction as follows: In the specification and claims the word "presser" wherever occurring should read *pressor*; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 6th day of September, A. D., 1910.

[SEAL.]

F. A. TENNANT,
Acting Commissioner of Patents.