No. 773,748. PATENTED NOV. 1, 1904.

A. JOISTEN.

PLATEN PRINTING PRESS.

APPLICATION FILED SEPT. 17, 1902.

NO MODEL. 5 SHEETS—SHEET 1.

Fig. 1

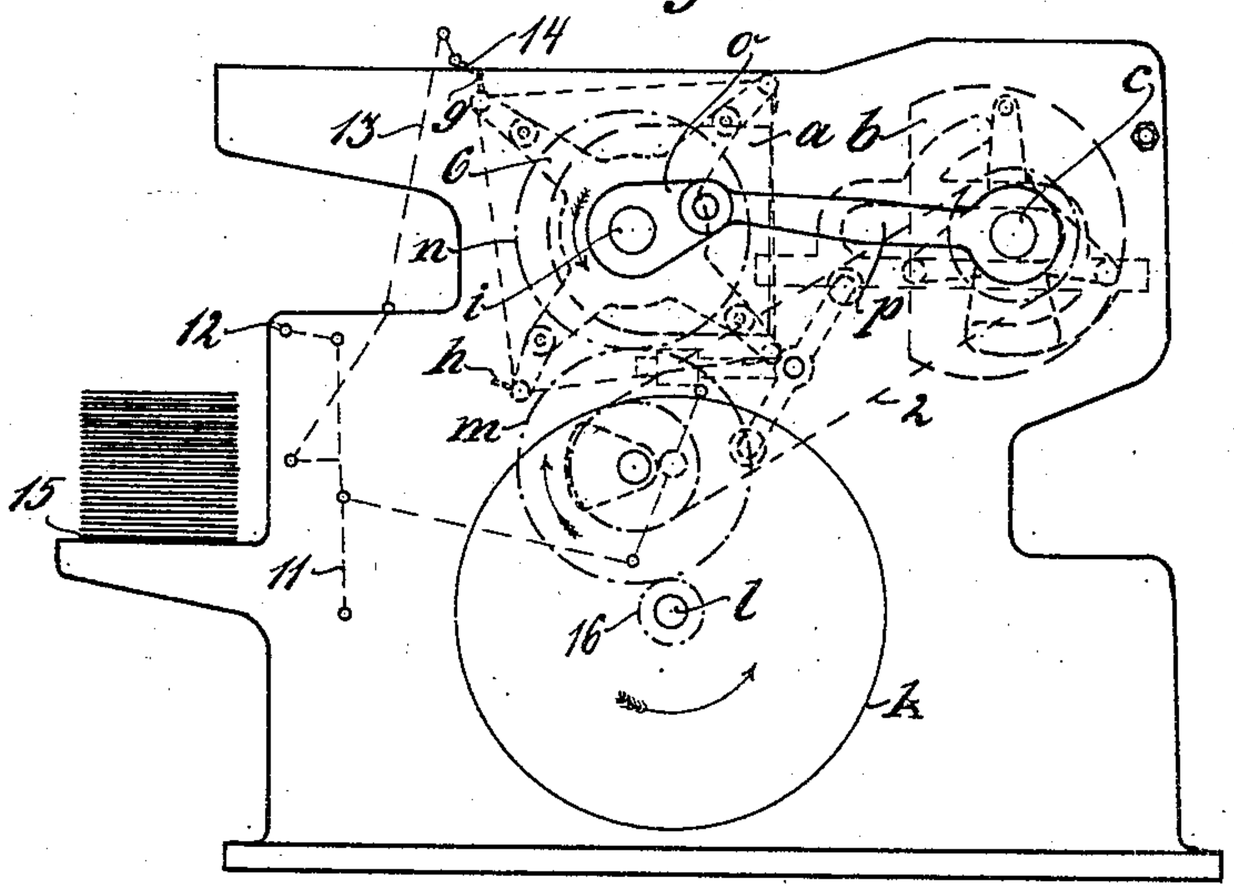


Fig. 4

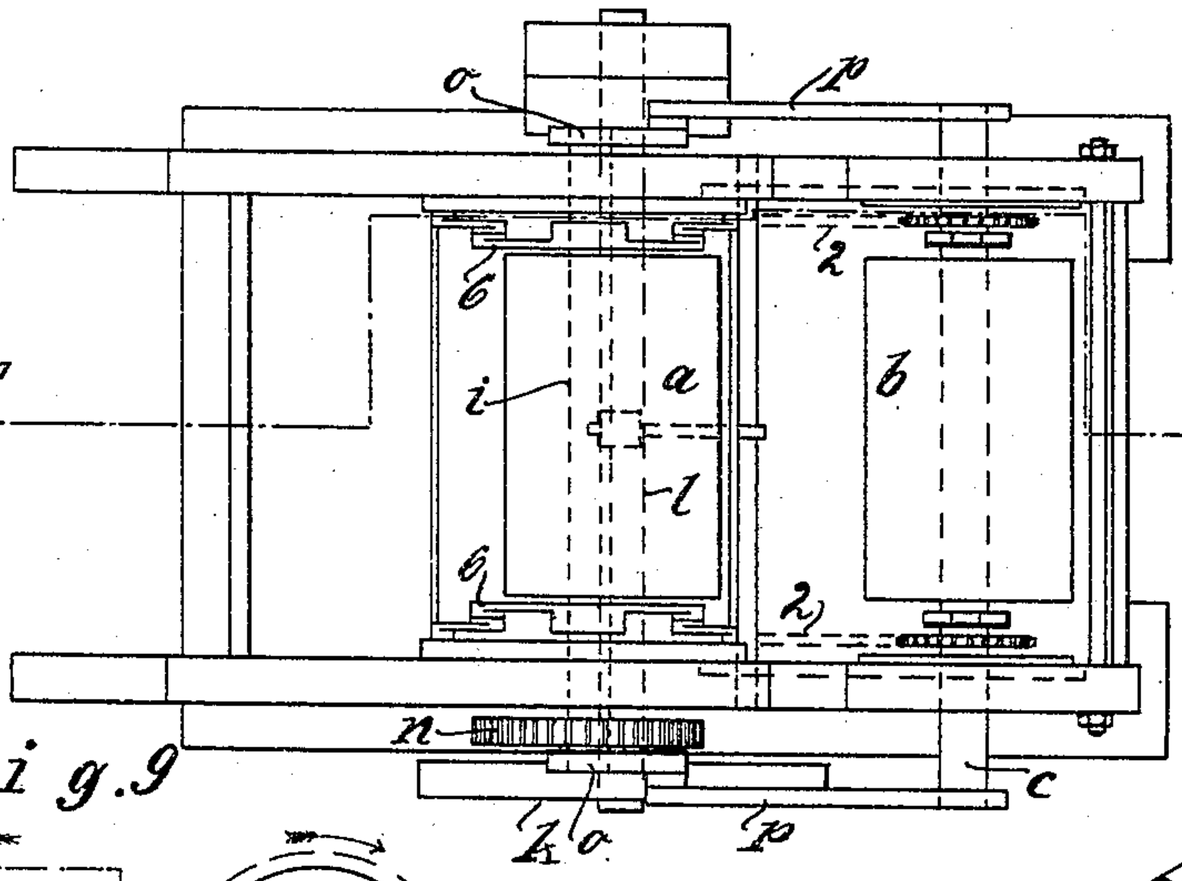


Fig. 8

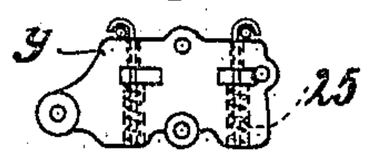


Fig. 9

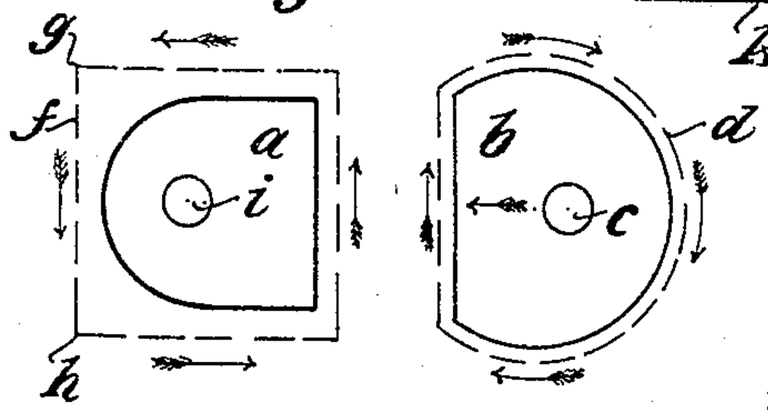
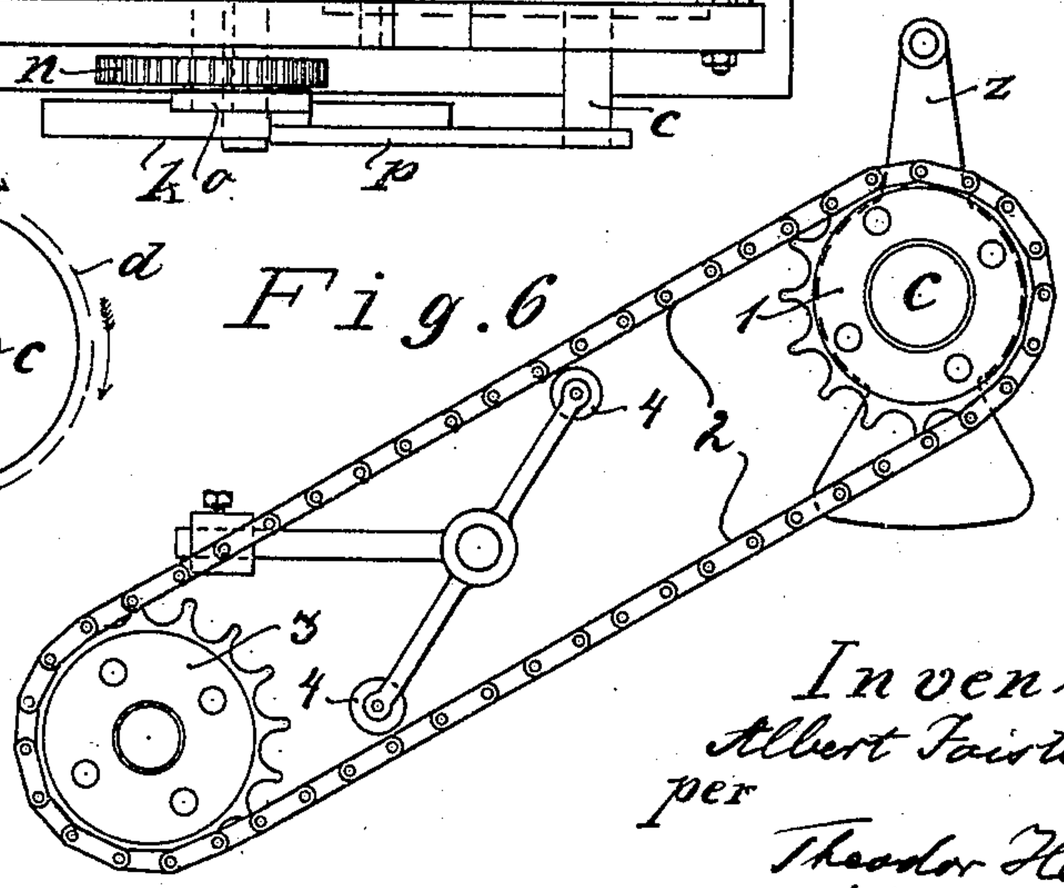


Fig. 6



Witnesses
Jean Hoyer
Elsbeth Nussbaum.

Inventor
Albert Joisten
per
Theodor Heise
Attorney.

No. 773,748. PATENTED NOV. 1, 1904.

A. JOISTEN.

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APPLICATION FILED SEPT. 17, 1902.

NO MODEL. 5 SHEETS—SHEET 2.

Fig. 2

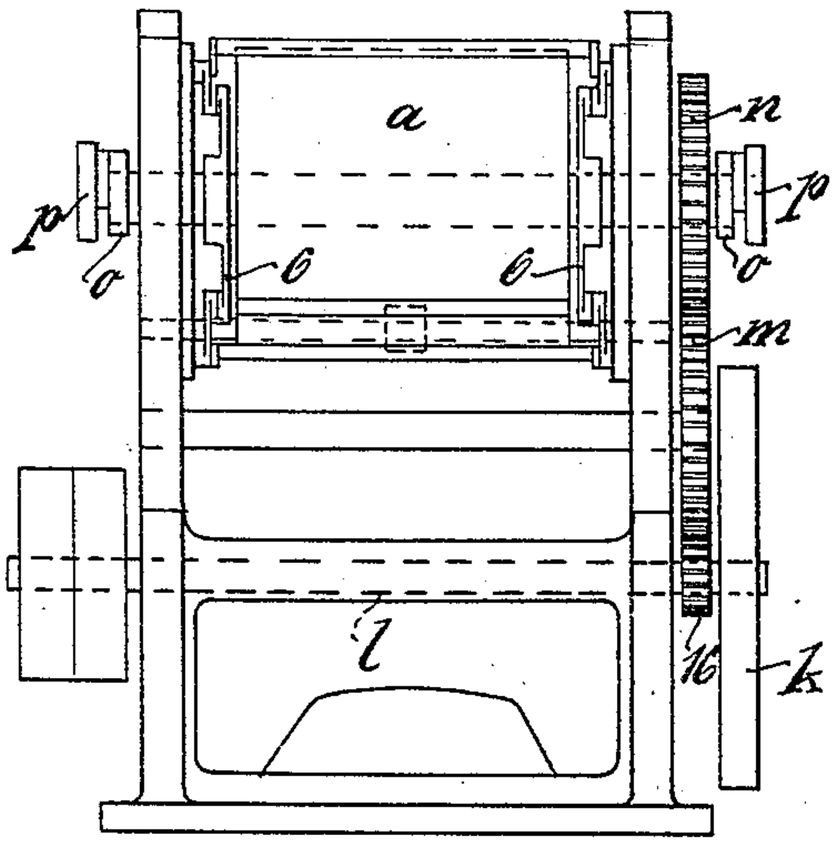


Fig. 5

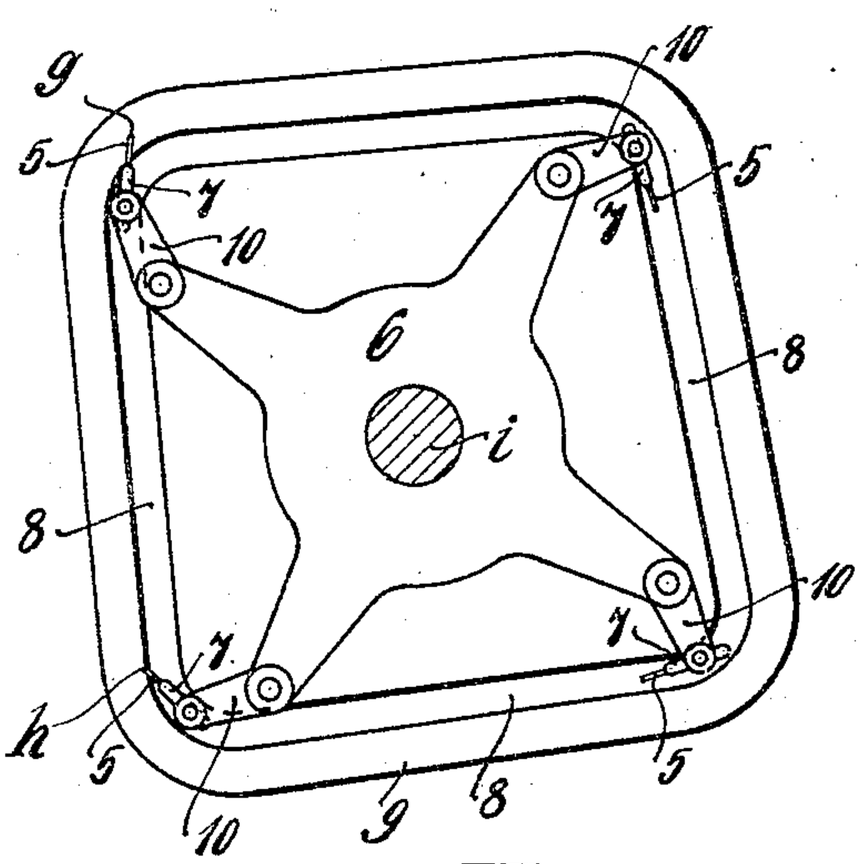


Fig. 3

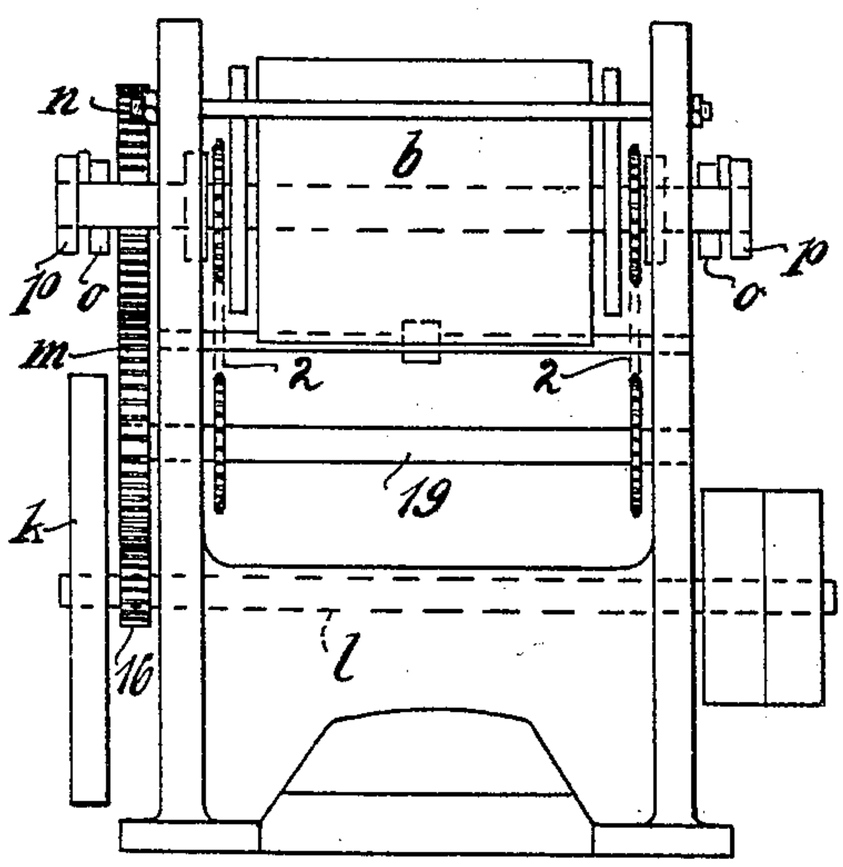
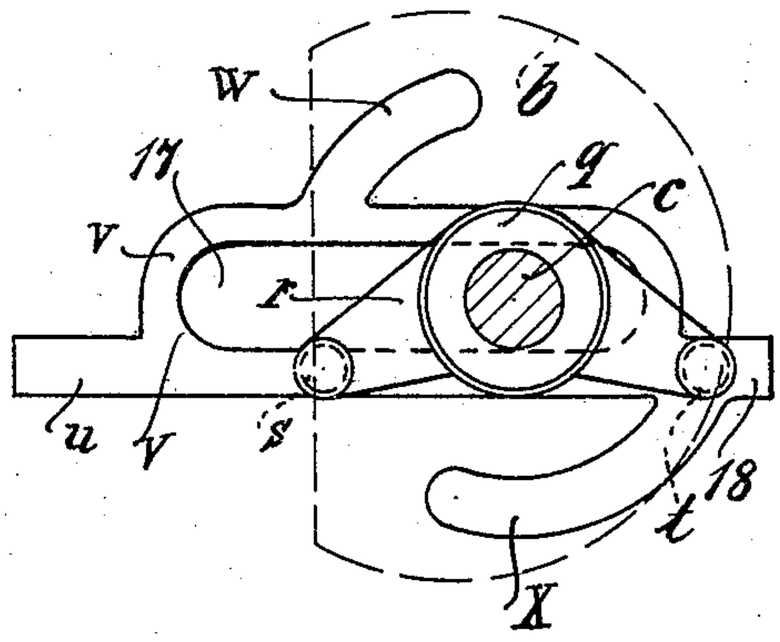


Fig. 7



Witnesses
Jean Hofer
Elisabeth Mühlhauer.

Inventor
Albert Joisten
per
Theodor Reese
Attorney.

No. 773,748. PATENTED NOV. 1, 1904.

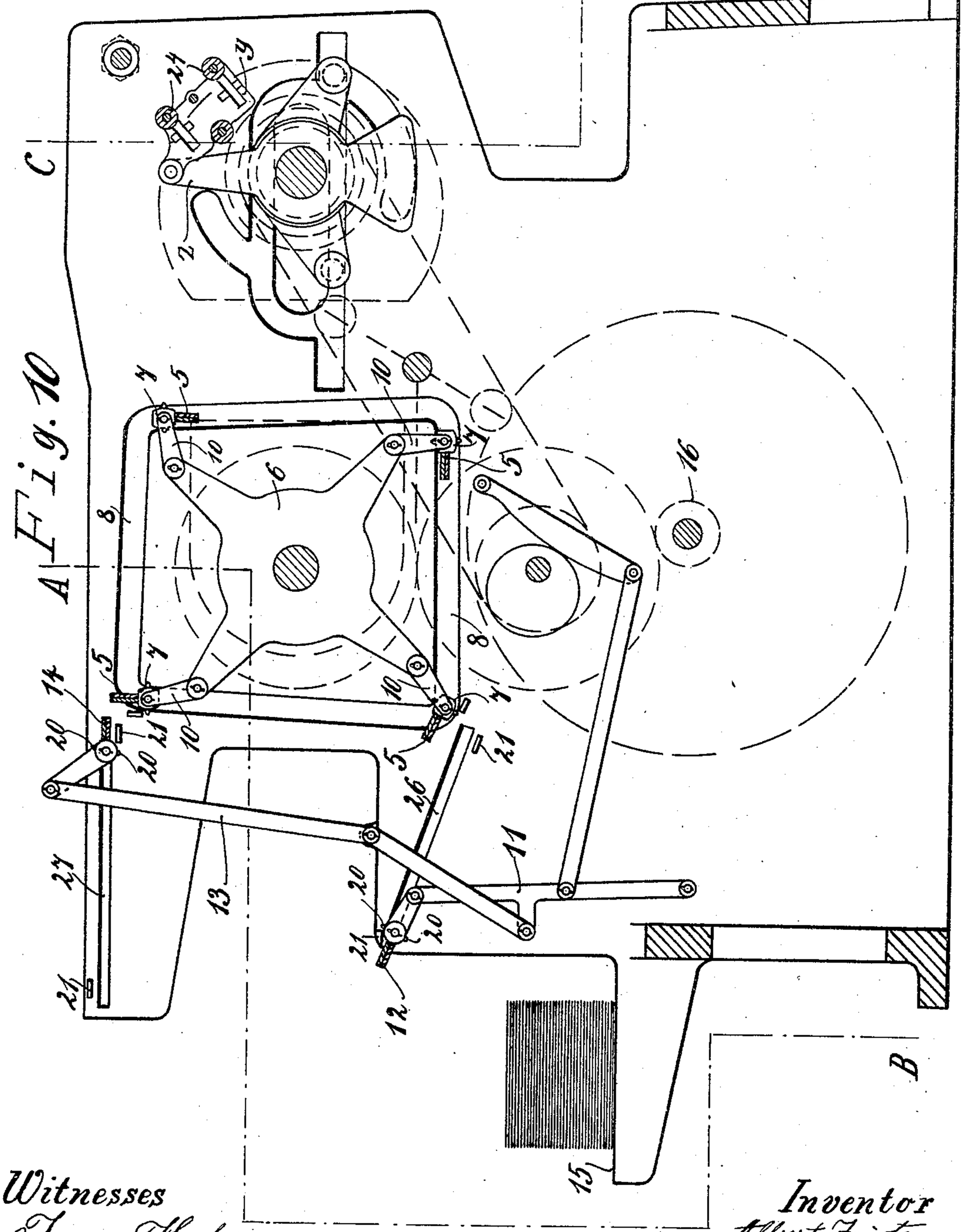
A. JOISTEN.

PLATEN PRINTING PRESS.

APPLICATION FILED SEPT. 17, 1902.

NO MODEL. 5 SHEETS—SHEET 3.

Fig. 10



Witnesses
Jean Hofer
Elsbeth Hohnhaus.

Inventor
Albert Joisten
per
Theodor Heise
Attorney.

No. 773,748. PATENTED NOV. 1, 1904.

A. JOISTEN.

PLATEN PRINTING PRESS.

APPLICATION FILED SEPT. 17, 1902.

NO MODEL. 5 SHEETS—SHEET 4.

Fig. 14

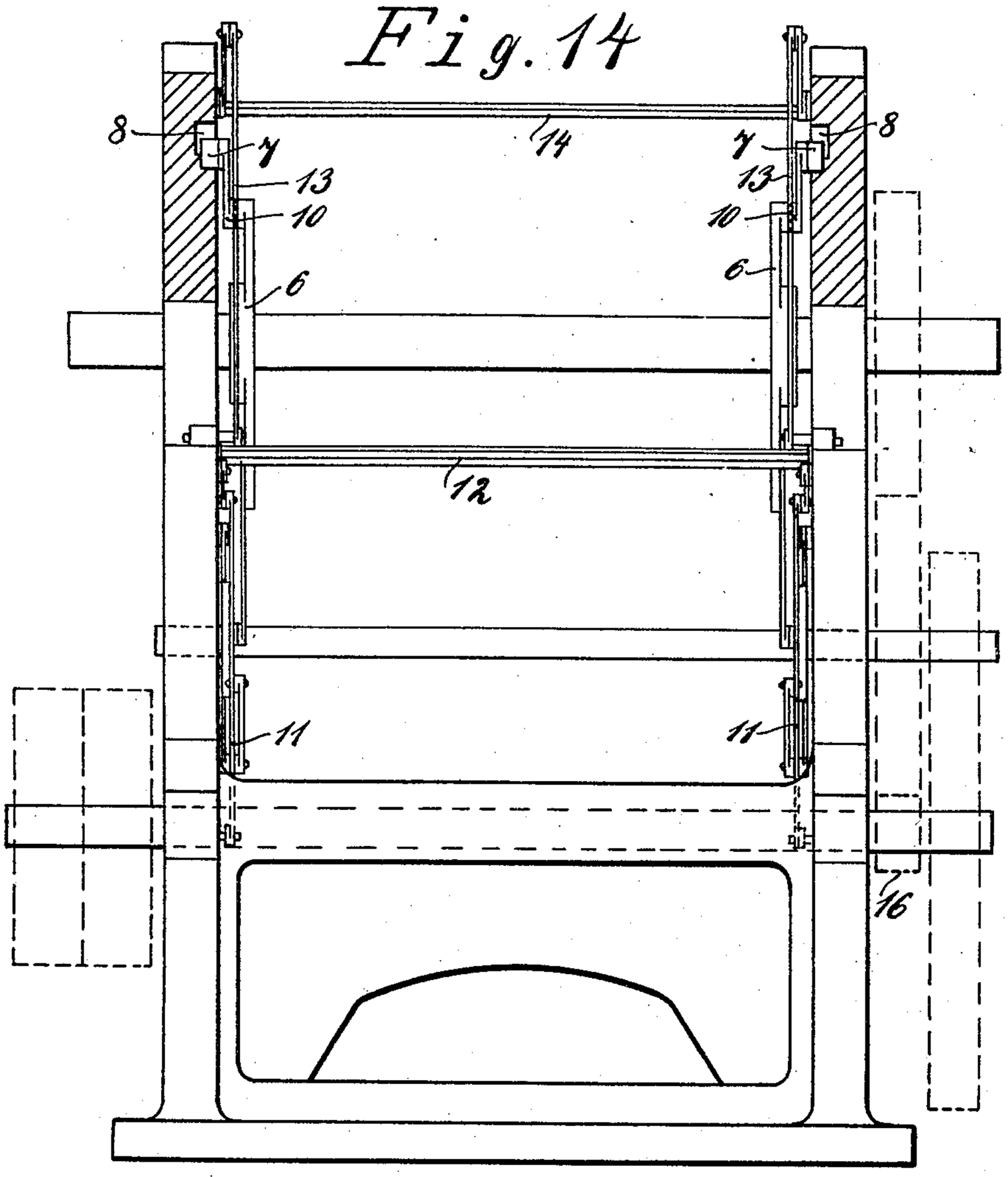
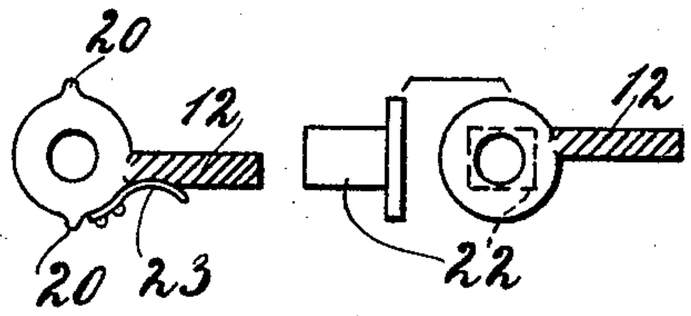


Fig. 11



Witnesses
Jean Hofer
Elsbeth Hohenhaus.

Inventor
Albert Joisten
per
Theodor Heise
Attorney.

No. 773,748. PATENTED NOV. 1, 1904.

A. JOISTEN.

PLATEN PRINTING PRESS.

APPLICATION FILED SEPT. 17, 1902.

NO MODEL. 5 SHEETS—SHEET 5.

Fig. 15

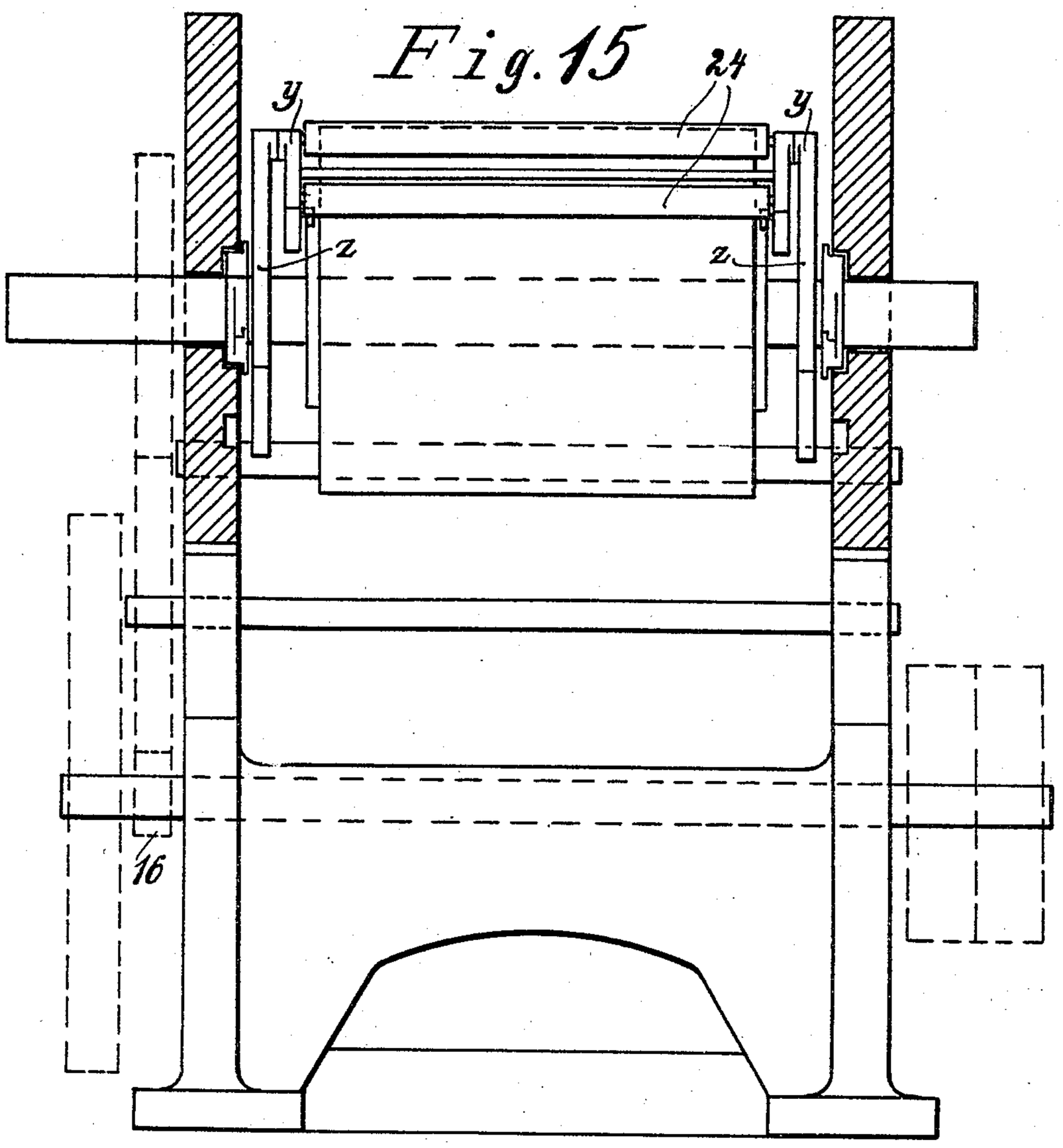


Fig. 12

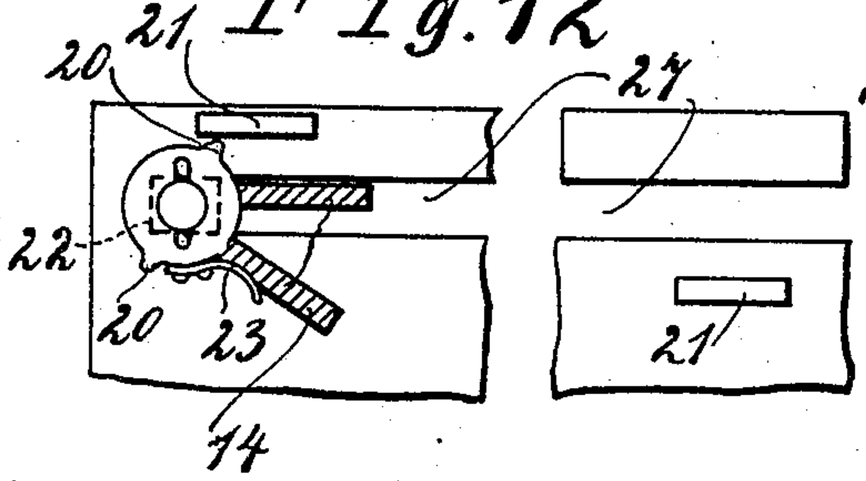
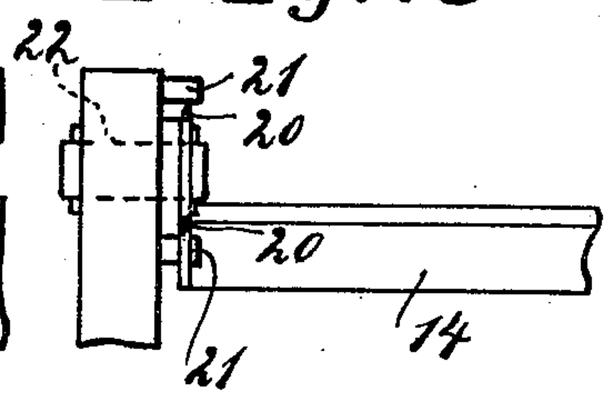


Fig. 13



Witnesses
Jean Hofer
Elsbeth Mohrhauer.

Inventor
Albert Joisten
per
Theodor Heise
Attorney.

No. 773,748. Patented November 1, 1904.

UNITED STATES PATENT OFFICE.

ALBERT JOISTEN, OF DÜSSELDORF, GERMANY.

PLATEN PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 773,748, dated November 1, 1904.

Application filed September 17, 1902. Serial No. 123,783. (No model.)

To all whom it may concern:

Be it known that I, ALBERT JOISTEN, a subject of the King of Prussia, German Emperor, residing at Düsseldorf-on-the-Rhine, in the Province of the Rhine, Kingdom of Prussia, German Empire, have invented a new and useful Improvement in Platen Printing-Presses, of which the following is a specification.

This invention relates to a platen printing-press in which the platen and the bed have a vertical position, the latter being adapted to move to and fro in such a way that its vertical position is ever maintained.

In the accompanying drawings, Figure 1 is a side elevation of the press. Fig. 2 is a rear view. Fig. 3 is a front view. Fig. 4 is a top view of the press. Fig. 5 is, on larger scale, an elevation of the chief part of the device for carrying the paper. Fig. 6 shows the mechanism for rotating the inking device. Fig. 7 shows the mechanism for guiding the bed when moved to and fro and when tilted for preparing the form. Fig. 8 is a view of the holder for the inking-rollers. Fig. 9 is a diagram for illustrating the different motions of the bed, of the inking device, and of the paper-carrier. Fig. 10 is, on a larger scale, a vertical section according to line E F of Fig. 4, distinctly showing the essential parts of the gripper-actuating mechanism, the paper feeding and delivery device, and the inking mechanism. Figs. 11, 12, and 13 show the construction of the grippers. Fig. 14 is a section on line A B of Fig. 10. Fig. 15 is a section on line C D of same figure.

The invention will be more readily understood by first describing the diagram of Fig. 9. In this figure, *a* is the platen, which does not move during the period of printing. *b* is the form-bed of nearly cylindrical shape, which during the printing period moves to and fro in a horizontal direction in such a way that the form attached to the vertical flat surface of the bed is pressed against the likewise vertical flat side of the platen *a* at the end of its forward stroke. By this means the printing operation requires a very simple and short movement only, so that the quickness of printing and the efficacy of the machine are increased. The inking device is arranged in such a manner that the inking-rollers roll along the nearly cylindrical surface of the bed *b*, thus using the said surface, in a certain sense, as a distributing-disk. Then the inking-rollers strike along the flat surface of the bed *b*—*i. e.*, along that part to which the printing-form is attached—in order to leave the color on this form. In Fig. 9 the way of the inking-rollers is marked by the dotted line *d*, and the direction of this walk is indicated by arrows accompanying line *d*. The described manner of conducting the inking-rollers around the form-bed is already known; but new is the manner of rotating the whole inking device by means of a chain provided with tension-rollers, as later will be seen. For carrying the paper to the printing-spot grippers are provided, which move around the platen *a*, as indicated in Fig. 9 by dotted line *f* and accompanying arrows. The single sheets which are to be printed are guided to the grippers at *h* and they are delivered at *g*. Means are provided for always securing the proper positions of the sheets, especially for inducing them vertically to hang in the grippers when the latter are in front of the flat side of platen *a*. By hand the bed *b* can be turned round axis *c*, and the platen *a* can be turned round axis *i* in such a way that the flat surfaces assume horizontal positions for preparing the printing-form and the platen, respectively. It must, however, be pointed out that during the printing period the flat parts of the bed and of the platen, respectively, have always a vertical position.

After having thus described the diagram of Fig. 9 reference is had to the other figures.

l is the main driving-shaft, which is provided with a fly-wheel *k*. Upon the shaft *l* a toothed wheel 16 is secured, which engages with another toothed wheel, *m*. The latter engages with a toothed wheel *n*, secured to the axle *i*. To the ends of the said axle *i* cranks *o o* are rigidly attached, which are connected with the ends of the axle *c* by means of the rods *p p*, respectively. On each side of the bed *b* the axle *c* is provided with a roller *p*, carrying, by means of the piece *r*, two smaller

rollers *s* and *t*. This construction is distinctly illustrated by Fig. 7. During the printing period the axle *c* moves to and fro within the slots 17, provided in the side parts of the main frame. Each slot 17 is surrounded by a recess *v*, having straight prolongations *u* 18 and curved prolongations *w x*. The said recess *v*, in connection with the straight prolongations *u* and 18, serves for guiding the rollers *q*, *s*, and *t*, thus preventing the bed *b* from tilting during its horizontal movement. If the bed *b* is to be turned by hand for preparing the form, the rollers *s* and *t* are induced to enter the curved prolongations *w* and *x* of recess *v*, so that they strike against the ends of such prolongations and keep the tilted bed in its position.

The journals of the inking-rollers 24 are after a well-known fashion supported in small frames *y*, Figs. 8, 10, and 15, which by means of springs 25, Fig. 8, keep the inking-rollers in contact with the surface of the bed *b* even when the rollers move along the flat part of the bed.

All parts which are not of importance in this invention are left out in the drawings in order to better show the essential parts. The said small frames *y* are hinged to levers *z*, which are fastened to chain-wheels 1, Figs. 6, 10, and 15, adapted loosely to move on the axle *c* of bed *b*. By means of the chains 2 the said chain-wheels 1 are connected with chain-wheels 3, which are secured to the shaft 19 of the toothed wheel *m*. The latter is, as mentioned above, operated from the main shaft *l* by means of the toothed wheel 16. Tension-rollers 4 serve for maintaining the gearing of the chains 2 with the chain-wheels 1 and 3 when the distance between the said chain-wheels diminishes in suit of the bed *b*, moving toward the platen *a*.

For feeding and delivering the paper to be printed four grippers 5 of some well-known construction are provided; but I prefer to construct the grippers as illustrated in Fig. 11, where the parts of which each gripper is composed are distinctly shown. The mode of employment of such grippers can be seen from Figs. 12 and 13, though the said figures do not relate to one of the grippers 5, but to a gripper 14, mentioned more below. In order to induce the grippers *s* to walk, as shown in Fig. 9 by the dotted line *f* on each side of the platen *a*, the axle *i* is provided with a star 6, having four arrows, to the outer ends of which the grippers are hinged by means of short levers 10, Figs. 5, 10, and 14. The grippers are supplied with guiding-pieces 7, adapted to move with a certain play in a slot 8, provided in the side parts of the main frame of the machine. This slot 8 has nearly the shape of a square with round corners. It will be seen that on operating the stars 6 the grippers 5 revolve around the platen *a* in the required sense and that they have a vertical position when the impression is made, while at *h* and *g* the grippers have appropriate positions for taking and delivering the sheets, respectively.

The means for opening the grippers, as well as the means for conducting the sheets from the on-laying place to *h* and from *g* to the taking-off place, are of no importance for this invention. It may, however, be said that oscillating levers 11 and 13, with grippers 12 and 14, respectively, are designed to perform the said operations and that the stock of the sheets to be printed rests on a table 15.

The mechanism for oscillating the levers 11 and 12 and for actuating the grippers 12 and 14 is shown in Fig. 10 and will be understood by itself. The square ends 22, Fig. 11, of the gripper-hinges are guided in slots 26 and 27, respectively, and the grippers will open as soon as one of the noses 20 strikes against the corresponding projection 21, fixed to the main frame of the machine. Each gripper is provided with a spring 23 for shutting the gripper when the noses 20 are removed from the projections 21. The grippers 5 are actuated in a similar way.

What I claim as my invention, and desire to secure by Letters Patent of the United States of America, is—

1. In a platen printing-press the combination of a platen *a* with vertical face, a form-bed *b* having a vertical part for carrying the form, means for horizontally moving the bed *b* to and fro, an axle *c* adapted loosely to turn within the bed *b*, levers *z* secured to the axle *c*, an inking device hinged to the levers *z*, chain-wheels 1 rigidly attached to the levers *z*, chain-wheels 3 secured to an axle 19, chains 2 connecting the wheels 1 and 2, respectively, tension-rollers 4 operating against the chains 2, the frame of the machine, and means for feeding the paper as well as for taking it off, as and for the purpose set forth.

2. In a platen printing-press the combination of a platen *a*, having a vertical face, an axle *i* adapted loosely to move within the platen *a*, stars 6 secured to the axle *i*, grippers 5, guiding-pieces 7, levers 10 for hinging the guiding-pieces 7 to the arms of the stars 6, respectively, guiding-slots 8 provided in the frame of the machine and having nearly the shape of a square, the frame of the machine, means for conducting the paper to the grippers 5, means for taking the paper from the grippers 5, a form-bed *b*, means for producing the printing pressure, and means for inking, as and for the purpose set forth.

3. In a platen printing-press, the combination of a frame having slots in its sides, said slots being surrounded by a recess, said recess having straight prolongations at each end and curved extensions on the top and bottom,

an axle mounted in the slots, a bed loose on the axle, rollers carried by the axle, said rollers being adapted to ride in the recess, and its prolongations, means for moving the bed to and fro, a platen having its face vertically disposed during the printing operation, means for inking and feeding means operated in conjunction with the platen.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT JOISTEN.

Witnesses:
CARL SCHMITT,
GENTER GINNHOLZ.