

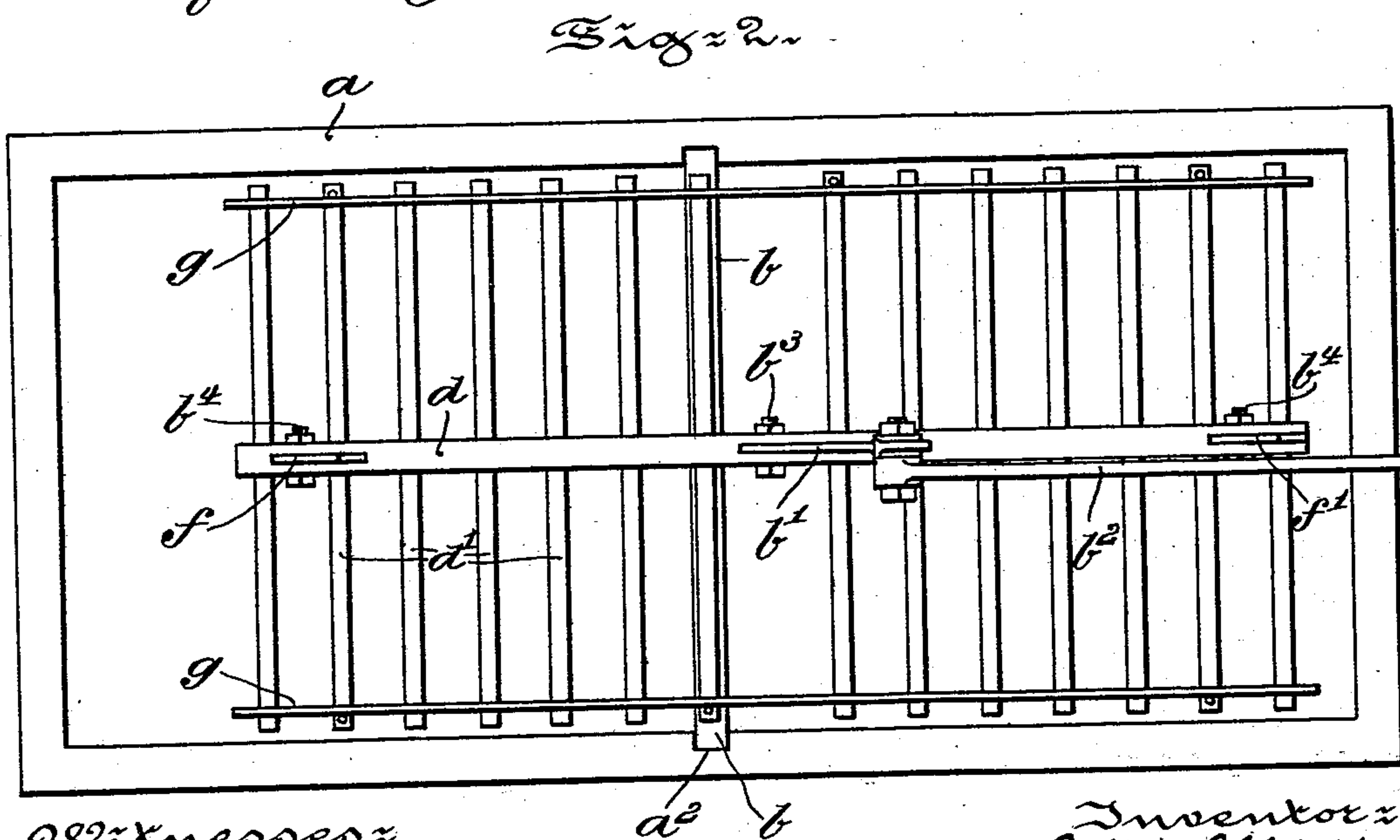
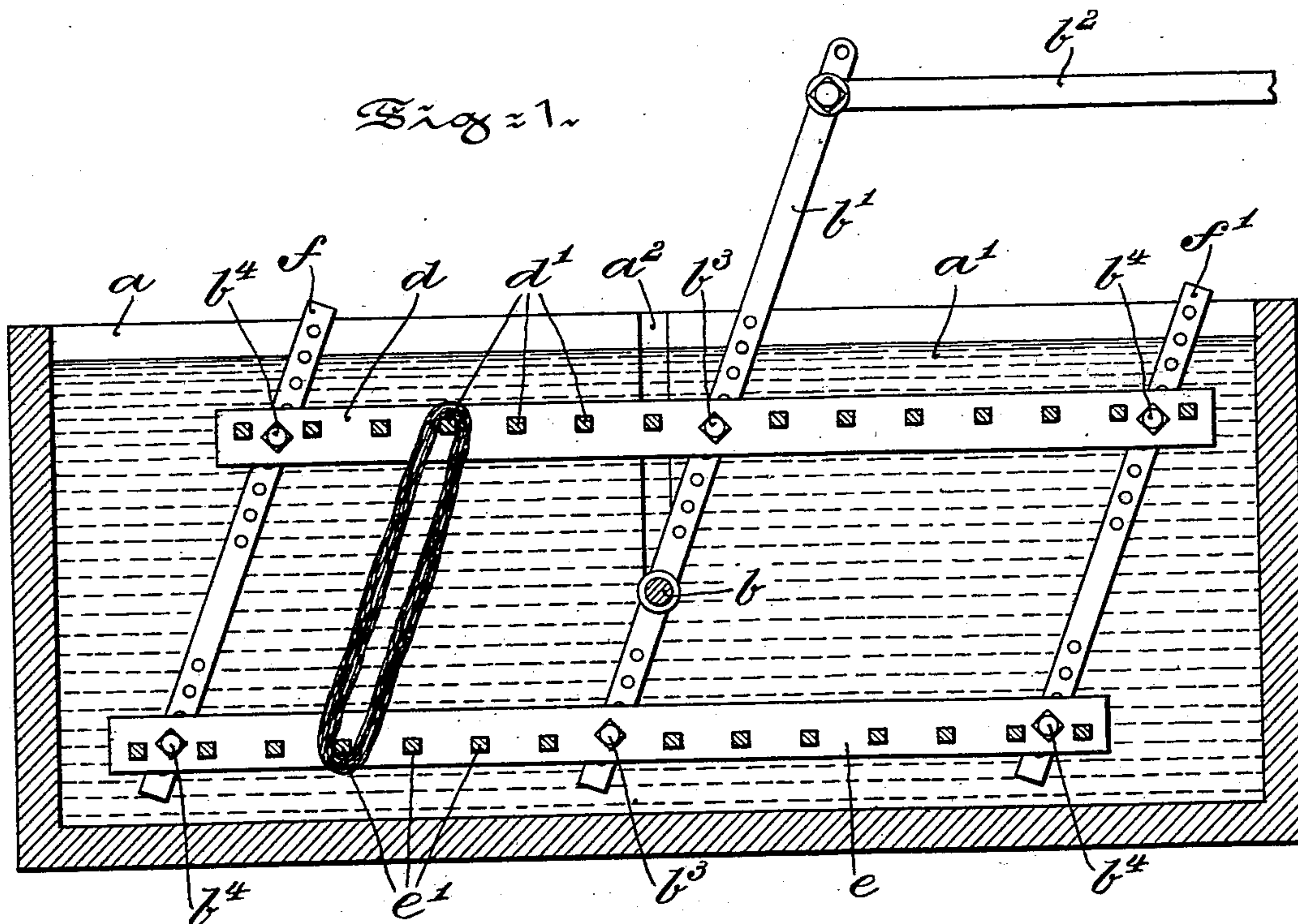
No. 751,154.

PATENTED FEB. 2, 1904.

R. ELLIOTT.
YARN DYEING MACHINE.
APPLICATION FILED OCT. 5, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
Jas. C. Wolensmith.
Wilhelm Vogt

Inventor:
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Attorney

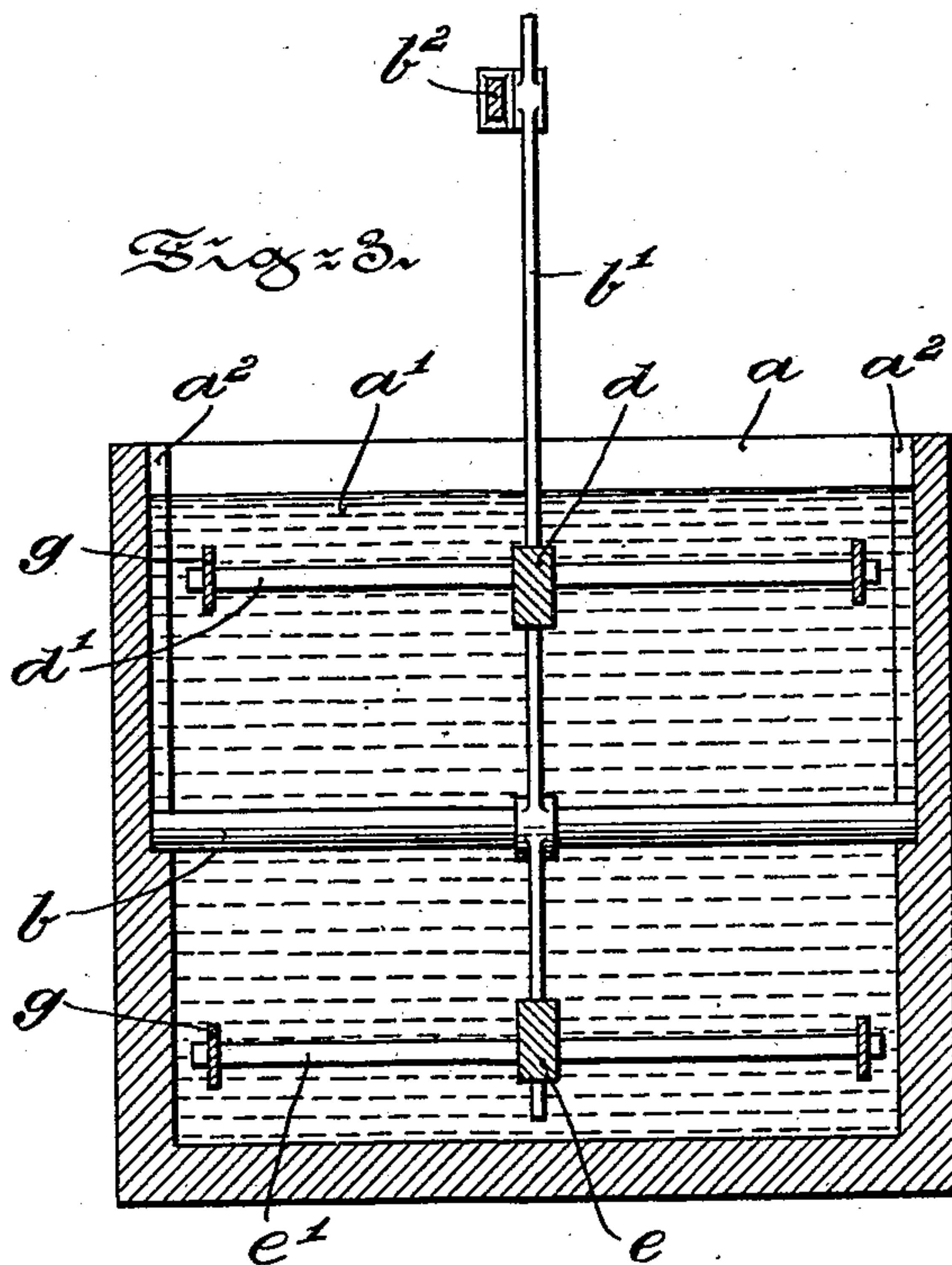
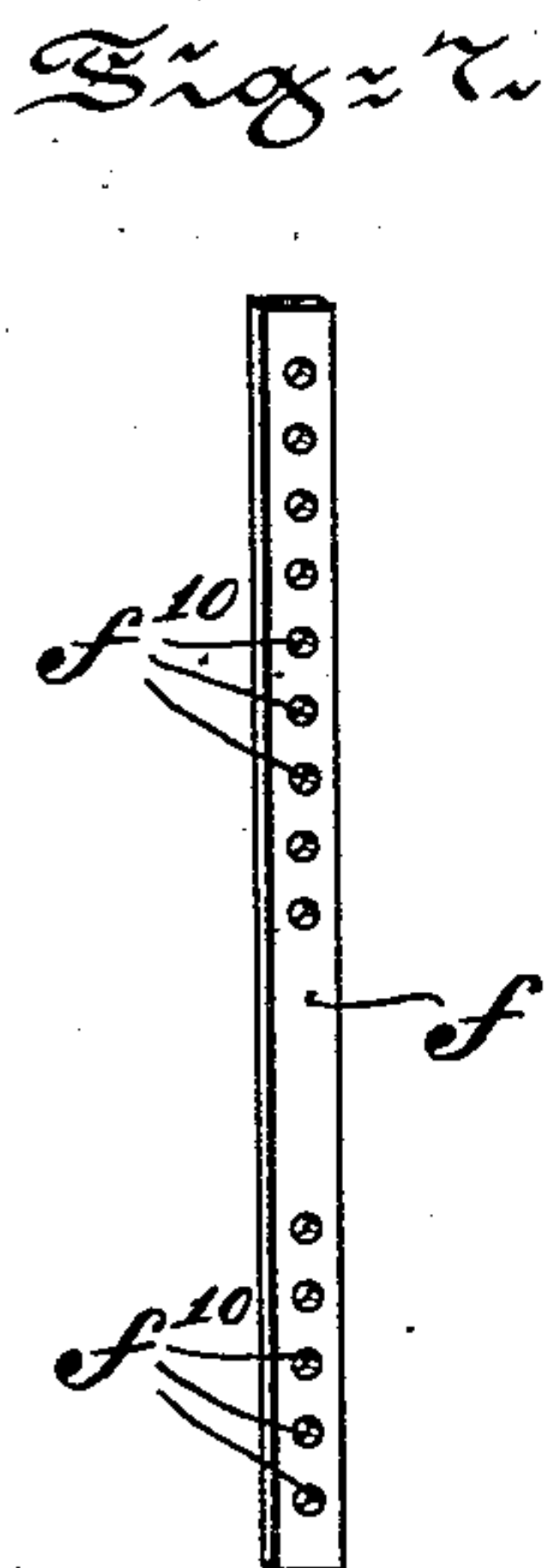
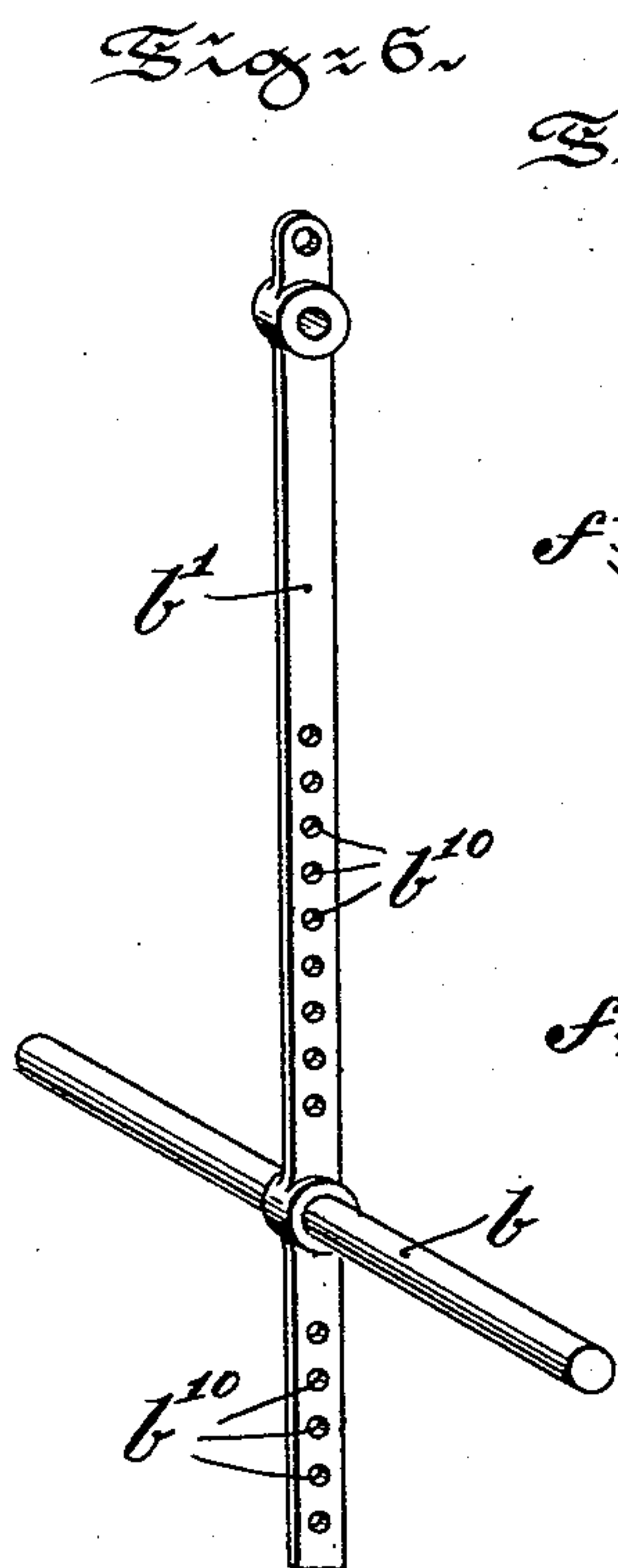
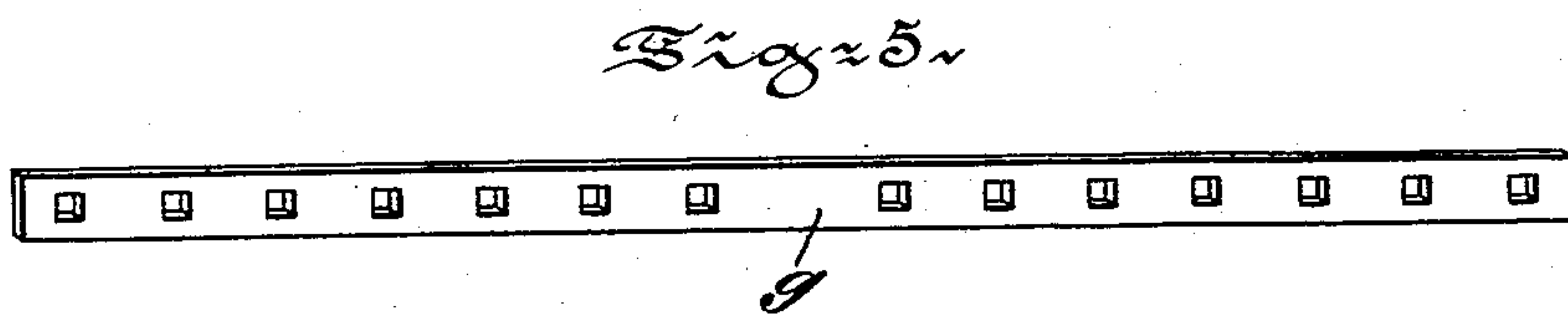
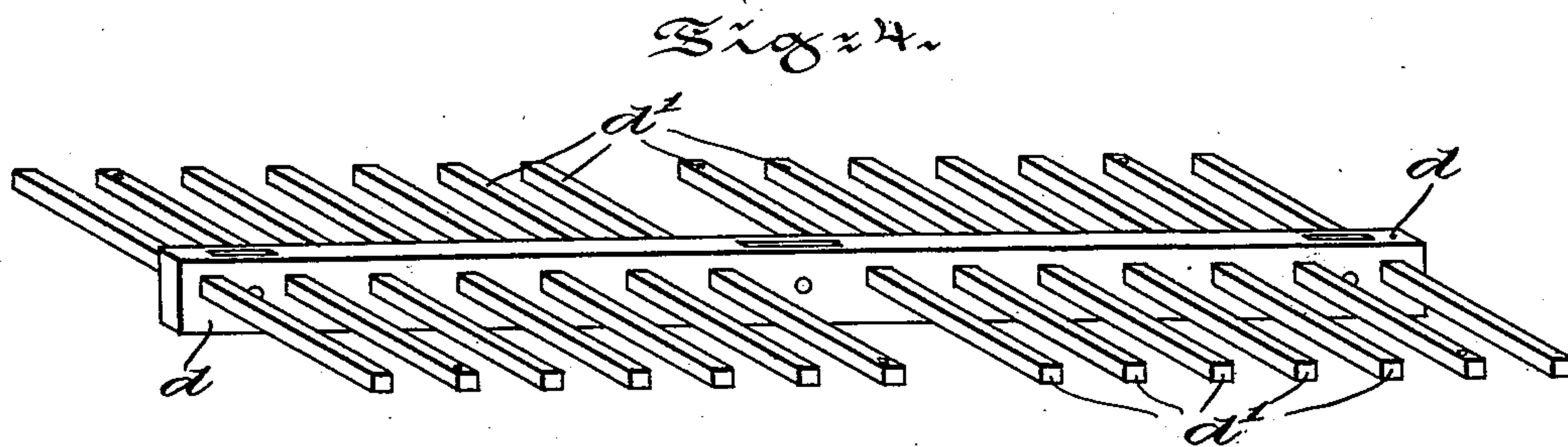
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UNITED STATES PATENT OFFICE.

ROBERT ELLIOTT, OF OLNEY, PENNSYLVANIA, ASSIGNOR OF ONE-HALF
TO WILLIAM B. KEEFER, OF PHILADELPHIA, PENNSYLVANIA.

YARN-DYEING MACHINE.

SPECIFICATION forming part of Letters Patent No. 751,154, dated February 2, 1904.

Application filed October 5, 1903. Serial No. 175,840. (No model.)

To all whom it may concern:

Be it known that I, ROBERT ELLIOTT, a citizen of the United States, residing at Olney, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Yarn-Dyeing Machines, of which the following is a specification.

My invention has relation to a machine for dyeing yarn and the like, and in such connection it relates to the construction and arrangement of parts constituting such a machine.

The principal object of my invention is to provide a machine of simple construction whereby yarns or the like may be quickly and advantageously dyed; and to that end the invention consists of a vat for the reception of the dye liquor, two horizontal frames connected together in parallel relationship by links and cross-rods on each frame to carry the skeins of yarn, in combination with means for reciprocating the connected frames in the vat, whereby when one frame and its cross-rods travel in one direction the other frame with its cross-rods travel in an opposite direction in the dye liquor.

The nature and scope of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a longitudinal sectional view of a yarn-dyeing machine embodying main features of my invention. Fig. 2 is a top or plan view of the same. Fig. 3 is a cross-sectional view of Fig. 1. Fig. 4 is a perspective view of one of the frames and its cross-rods. Fig. 5 is a similar view of a locking-bar arranged to be removably secured to the ends of the cross-rods of a frame to lock the skeins on said cross-rods. Fig. 6 is a similar view of the lever and shaft for oscillating the frames, and Fig. 7 is a similar view of one of the links connecting the frames in parallel relationship.

Referring to the drawings, *a* represents the vat or tank wherein the dye liquor *a'* is contained. The sides of this vat *a* are by preference channeled or recessed, as at *a²*, to receive and support a shaft *b*, which is adapted

to rock in the sides of the vat. The shaft *b* is rigidly secured to a lever-arm *b'*, arranged to be reciprocated by a connecting-rod *b²*. When so reciprocated, the lever-arm *b'* rocks in the vat *a* with the shaft *b* as a fulcrum. Connected with the lever-arm *b'* by preferably an adjustable and removable connection are two horizontal frames *d* and *e*, of which the upper frame *d* is arranged within the vat above the fulcral shaft *b* and the other, *e*, is arranged near the base of the vat *a* below said shaft *b*. Two links *f* and *f'* connect the respective ends of the two frames *d* and *e* to maintain said frame in parallel relationship. The connection between each frame *d* and *e* and the lever-arm *b'* is a pivotal connection, a bolt *b³* serving by preference as such a connection, and in a similar manner the connection between each frame *d* or *e* and the end links *f* or *f'* is a pivotal connection, the bolt *b⁴* serving by preference as such a connection. The lever-arm *b'* and the end links *f* and *f'* have a series of holes or openings *b¹⁰* or *f¹⁰*, respectively, serving with the bolts *b³* or *b⁴* as a means of adjustment to vary the distance between the frames *d* and *e*. This adjustment permits of the dyeing of skeins *A* of varying lengths. Each frame *d* or *e* carries a series of cross-rods *d'* or *e'*, on which, as clearly indicated in Fig. 1, the skeins *A* are supported. End bars *g* serve when slipped over the cross-rods *d'* and *e'* to lock the skeins *A* upon the cross-rods *d'* and *e'*, as clearly shown in Fig. 2.

In operation the parallel frames with their cross-rods are first lifted out of the vat *a* and the end bars *g* removed from the cross-rods *d'* and *e'*. The skeins *A* are then placed on the cross-rods and supported between the same. The end bars *g* are then replaced and the frames then placed in the vat. The lever-arm *b'* is now reciprocated, and the frames *d* and *e* are thereby reciprocated in the vat, traveling in opposite directions in the dye liquor. Each skein *A* is thus carried through the dye liquor with a rocking motion, traveling parallel with the end links and lever-arm *b'* in either an inclined or vertical position in the vat. The skeins are thus not only recipro-

cated, but oscillated, so as to be thoroughly immersed in the dye liquor, and parts of the skeins A which rest upon the rods d' and e' are turned, so as to permit the dye liquor to readily permeate these portions of the skein.

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

1. In a machine of the character described,
10 a vat for the reception of dye liquor combined with two frames arranged to reciprocate in opposite directions in said vat, and means for maintaining said frames in parallel relationship during their reciprocatory movements.
- 15 2. In a machine of the character described, a vat for the reception of the dye liquor, a lever having a fulcrum within the vat, an upper frame provided with cross-rods pivotally connected with said lever above its fulcrum, a
20 lower frame provided with cross-rods pivotally connected to the lever below the fulcrum, and links pivotally connecting the ends of the frames to each other to maintain said frames in parallel relationship.
- 25 3. In a machine of the character described,

a vat for the reception of the dye liquor, a lever having a fulcrum within the vat, an upper frame provided with cross-rods and pivotally connected with said lever above its fulcrum, a lower frame provided with cross-rods and pivotally connected with the lever below the fulcrum, links pivotally connecting the ends of the respective frames together, and means for adjusting the frames on the lever and links toward or away from each other.

4. In a machine of the character described, a vat for the reception of dye liquor, two frames adapted to permit of the suspending of skeins of yarn in said vat and means adapted to permit of the reciprocation of said frames in opposite directions, maintained in parallel relationship to each other.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

ROBERT ELLIOTT.

Witnesses:

J. WALTER DOUGLASS,
THOMAS M. SMITH.