(No Model.) 2 Sheets—Sheet 1.

J. CORBETT.

CREASING AND FOLDING MACHINE.

No. 472,253. Patented Apr. 5, 1892.

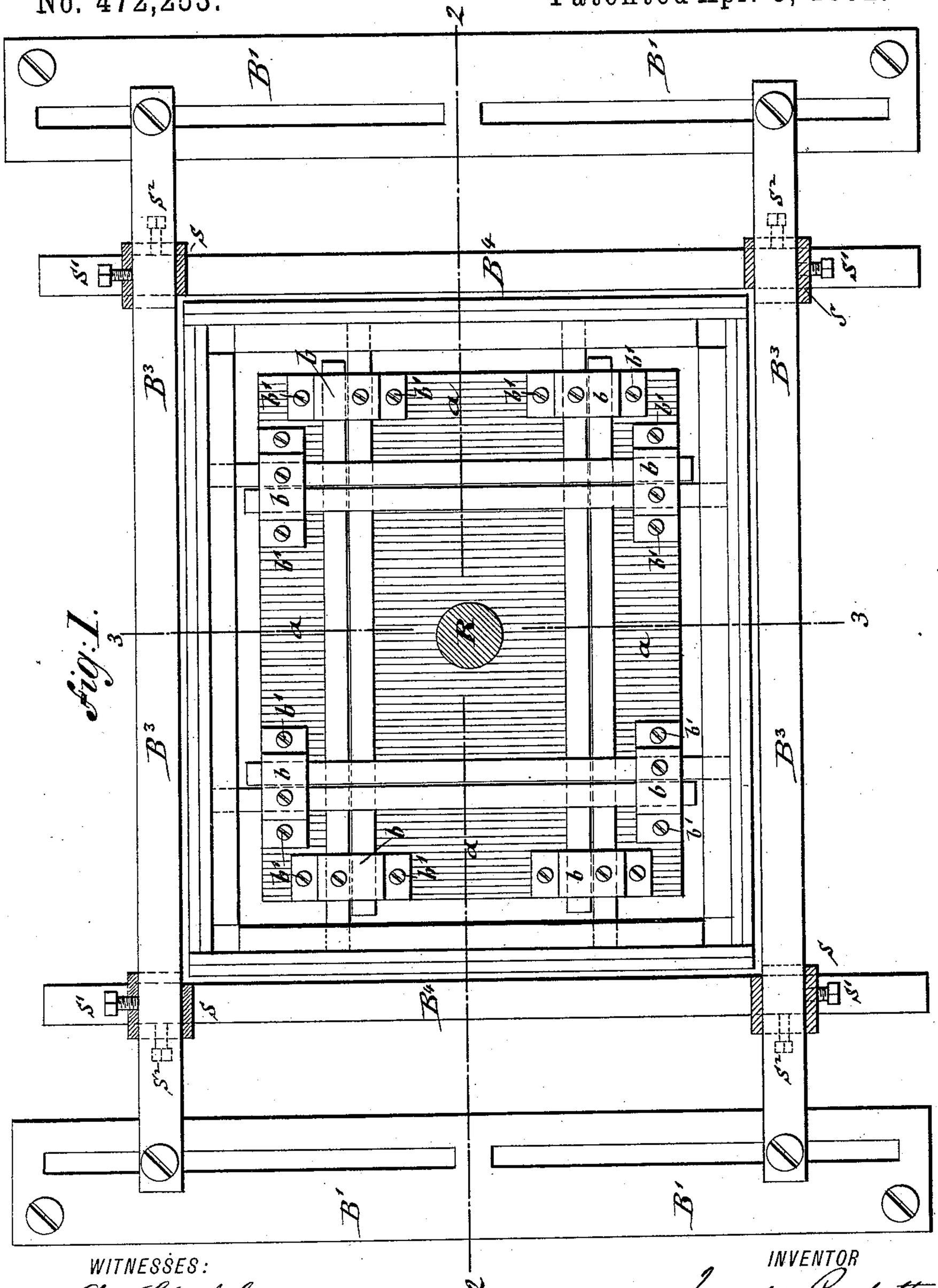

Fig. 1.

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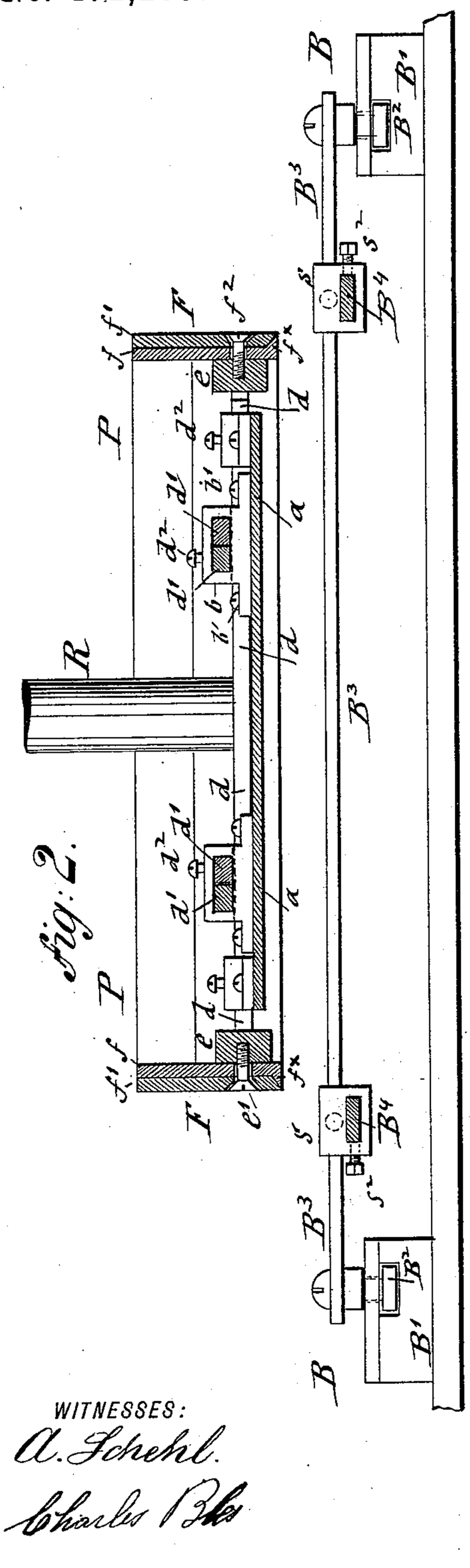

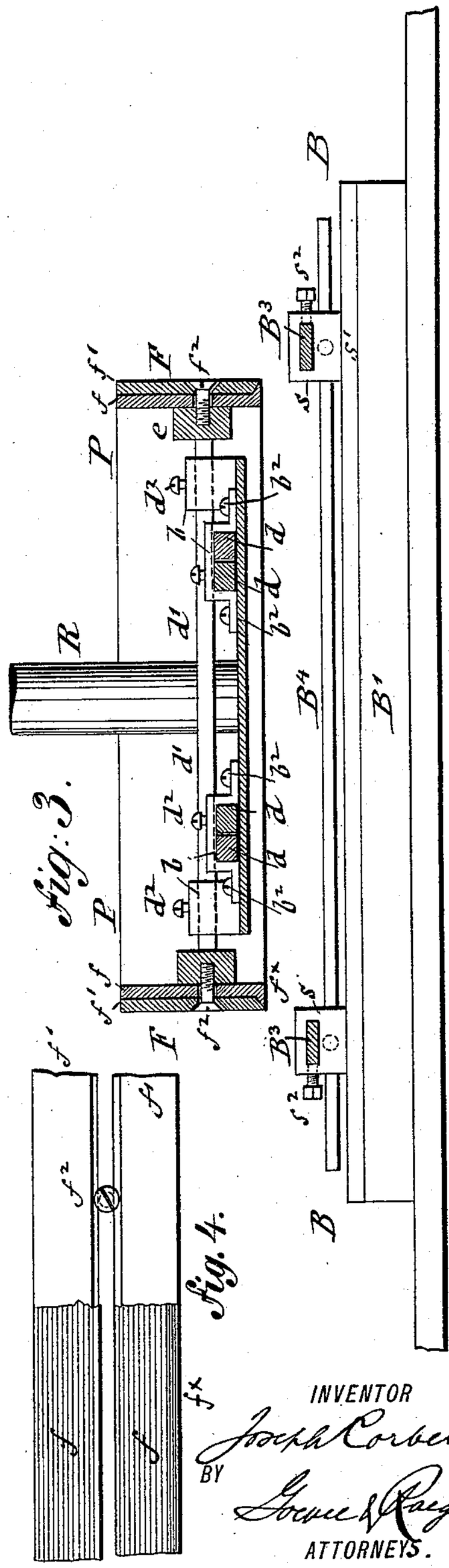

WITNESSES:

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UNITED STATES PATENT OFFICE.

JOSEPH CORBETT, OF NEW YORK, N. Y., ASSIGNOR TO THOMAS F. SHAW, OF SAME PLACE.

CREASING AND FOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 472,253, dated April 5, 1892.

Application filed June 27, 1891. Serial No. 397,684. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH CORBETT, a citizen of the United States, residing at New York city, county of New York, and State of New York, have invented certain new and useful Improvements in Creasing and Folding Machines, of which the following is a specification.

In the creasing-machines, as well as in the creasing and folding machines, heretofore in use the blank from which the envelope or other article is folded is first creased by means of a male and female die, or, as they are called in this class of machines, by a "plunger" and "box," which serve for the purpose of creasing and bending the flaps at right angles to the body of the blank, which flaps are then folded down on the body by suitable folding devices. For the different sizes of the envelopes or other articles different sizes of plungers and boxes were required, while for extra sizes of the same special plungers and boxes had to be made for the purpose of producing the required size. This is often inconvenient, and when only a small quantity of envelopes or other articles of extra size are required connected with considerable expense and trouble.

The object of this invention is to furnish an improved plunger and box for creasing or creasing and folding machines by which the blanks are creased preparatory to folding and which can be adjusted to any desired size within certain dimensions, so that any required size of envelope or other article can be quickly and conveniently manufactured, and thereby the creasing and folding devices are adapted to the different requirements of the trade.

The invention consists of a creasing device in which the plunger and box are adjustable in longitudinal as well as in lateral direction, the plunger being composed of an exterior frame the sides of which are formed of two plates, which are adjustable on the side bars of an inner frame by suitable guide devices. The side bars of the inner frame are provided with fixed longitudinal and transverse extension-rods, which are guided in suitable keepers of a central plate or web, to which the plunger-rod is attached. The keepers are provided with suitable fastening devices for rigidly securing said extension-rods when they are adjusted. The box is constructed of stationary parallel rails having guideways, longitudinal bars provided with fixed slide-pieces that are guided in said ways of said rails, transverse bars guided in keepers of the longitudinal bars, and fastening devices for adjusting the transverse bars on the longitudinal bars according to the size of the article to be produced.

In the accompanying drawings, Figure 1 represents a plan, partly in horizontal section, of my improved plunger and box for creasing or creasing and folding machines. Fig. 2 is a vertical longitudinal section on line 2 2, Fig. 1. Fig. 3 is a vertical transverse section of the same on line 3 3, Fig. 1; and Fig. 4 is a detail of the outer frame of the plunger, showing the adjustable plates of the same.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, P represents the plunger, and B the box of my improved creasing device. The plunger P is composed of a central plate *a*, an inner frame *d*, and an outer frame F. The central plate *a* is made of oblong shape and the size of which corresponds to the smallest size of the envelope or other article to be creased by the plunger and box. The central plate *a* is rigidly attached to the plunger-rod R, which is connected with the operating parts of the creasing or creasing and folding machines. To the central plate *a* are applied keepers *b b* by means of screws *b' b'* or other fastening devices, two of said keepers being arranged at each side of the central plate *a*. Each keeper *b* serves for guiding two longitudinal or two transverse extension-rods *d d'*, which are attached, respectively, at opposite ends to the side bars of the inner frame *e* of the plunger P. The longitudinal extension-rods *d* are arranged below the level of the transverse extension-rods *d'*, as shown clearly in Figs. 2 and 3 of the drawings. The extension-rods *d d'* are preferably made of rectangular cross-section, the keepers being shaped to correspond thereto. One set of the longitudinal extension-rods *d* is applied to one side bar of the interior frame *e*, while the

second set of the longitudinal extension-rods *d* is applied to the other side bar of the same. In the same manner one set of the transverse extension-rods *d'* is rigidly attached to the third side bar of the interior frame *e*, while the other set to the fourth side bar of said frame, so that on adjusting the side bars of the interior frame *e* in outward direction the extension-rods *d d'* readily follow the same, and permit thereby the extension of the plunger to any desired size, as far as permitted by the length of the longitudinal and transverse extension-rods *d d'*. When the proper adjustment of the extension-rods is made, they are firmly secured in position by means of set-screws d^2 or other fastening devices, which pass through the keepers *b* and keep the extension-rods in position. The side bars of the interior frame *e* are not connected at the ends, but are provided with headed screws *e'*, on the shanks and heads of which the inner and outer plates *f f'* of the exterior frame F are guided by means of slots f^2 or other suitable guide devices, as shown in Figs. 2, 3, and 4. The inner plates *f* are provided at their lower edge with an outwardly-beveled flange $f^\times$, which fits snugly to the lower beveled edge of the outer plates *f'*, as shown clearly in Figs. 2 and 3. This arrangement furnishes a creasing edge around the entire outer edge of the exterior frame F of the plunger P to whatever size the inner and outer plates of the frame F are adjusted. Consequently the exterior frame F of the plunger may be adjusted to as great a size as permitted by the extension-rods, while still preserving the edge required for creasing the blank, which edge is formed by the lower edges of the inner or the outer plate at the portions where the plates *f* and *f'* do not overlap, while at the overlapping portions both edges together form the creasing edge.

The box B is constructed of fixed parallel rails B', which are provided with suitable ways in which the slide-pieces B^2 of the longitudinal bars B^3 are guided. The longitudinal bars B^3 are firmly secured to the slide-pieces by means of screws or other suitable fastening devices.

On the longitudinal bars B^3 of the box B are arranged sleeves *s*, which are provided with transverse slots for the transverse bars B^4, which are arranged below the longitudinal bars B^3 and guided in the slots of the sleeves *s*, as shown in Fig. 1. The sleeves *s* of the longitudinal bar B^3 are provided with set-screws *s'* in line with the transverse bars B^4, and the sleeves of the transverse bars B^4 with set-screws s^2 in line with the longitudinal bars B^3, so as to adjust the longitudinal and transverse bars B^3 B^4 on each other and then secure the same firmly in position, so that the box B can be adjusted to exactly the same size as the outer edge of the plunger P, due allowance being made for the thickness of the material from which the envelope or other article is made, so that the flaps which are bent up from the body of the blank by the edges of the plunger and box find sufficient space between the plunger and the box B. By means of the adjustment of the longitudinal and transverse bars of the box B the same can be adjusted to correspond to the different sizes to which the plunger is adjusted, so that any required size of envelope or other article within certain limits can be readily produced by the plunger and box as soon as the required adjustment as to the length and width of the article is set off in the plunger and box.

The advantages of my improved plunger and box for creasing or creasing and folding machines are that on one of said machines any desired size of blank can be creased and bent, the smallest being that corresponding to the central plate or web of the plunger, while the largest size corresponds to the largest length to which the extension rods and bars of the plunger and box may be extended. The creasing or creasing and folding machine is thereby enabled to crease and bend any desired size of blank whether a larger or smaller number has to be worked, without necessitating any extra expense for making special plungers and boxes for the required size, so that thereby the scope of such creasing or creasing and folding machines is greatly enlarged, as one and the same machine can supply any desired size of article, which is a great convenience to manufacturers of envelopes and similar articles.

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

1. The combination, in a creasing or creasing and folding machine, of a box formed of longitudinal and transverse bars connected at right angles with each other, with a plunger composed of a central plate or web, longitudinal and transverse extension-rods guided on said web, an interior frame supported on said rods, and an exterior extension-frame supported on the interior frame, substantially as set forth.

2. The combination, in a creasing or creasing and folding machine, of a box formed of stationary guide-bars, longitudinal bars guided in ways of the stationary bars, and transverse bars supported in sleeves of the longitudinal bars, with a plunger composed of a central plate or web, longitudinal and transverse extension-rods guided on said web, an interior frame supported by said rods, and an exterior extension-frame supported on the interior frame, substantially as set forth.

3. A plunger for creasing or creasing and folding machines, composed of a central plate or web, extension-rods guided on said web, an interior frame supported on said rods, and an extension-frame supported by the interior frame, substantially as set forth.

4. A plunger for creasing or creasing and folding machines, composed of a central plate or web, longitudinal and transverse extension-rods guided on said web, an interior frame

supported on said rods, and an exterior extension-frame supported on the interior frame, substantially as set forth.

5. A plunger for a creasing or creasing and folding machine, composed of a central plate or web, an interior frame provided with extension-rods guided on said plate, means for clamping said extension-rods to said plate, and an exterior frame the sides of which are formed of two plates which are adjustable on the interior frame, substantially as set forth.

6. A plunger for creasing or creasing and folding machines, composed of a central plate or web provided with keepers, an inner frame provided with longitudinal and transverse extension-rods attached to the side bars of the inner frame, means for securing said extension-rods to said keepers, and an exterior frame formed of inner and outer plates which are connected to the side bars of the inner frame, the inner plates being provided with inclined bottom flanges which slide along the beveled bottom edges of the outer plates, substantially as set forth.

7. A box for creasing or creasing and folding machines, composed of stationary parallel bars, longitudinal bars guided in ways of the stationary bars, and transverse bars guided in sleeves on the longitudinal bars, substantially as set forth.

8. A box for creasing or creasing and folding machines, composed of stationary parallel bars having guideways, longitudinal bars having slide-pieces guided in said ways, sleeves on the longitudinal bars, transverse bars guided in the sleeves on the longitudinal bars, and means for clamping the longitudinal bars to the stationary bars and the transverse bars to the sleeves of the longitudinal bars, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JOSEPH CORBETT.

Witnesses:
PAUL GOEPEL,
A. M. BAKER.