

No. 701,360.

Patented June 3, 1902.

A. KOCHS.
PAPER BOX MACHINE.

(Application filed Sept. 18, 1901.)

(No Model.)

2 Sheets—Sheet 1.

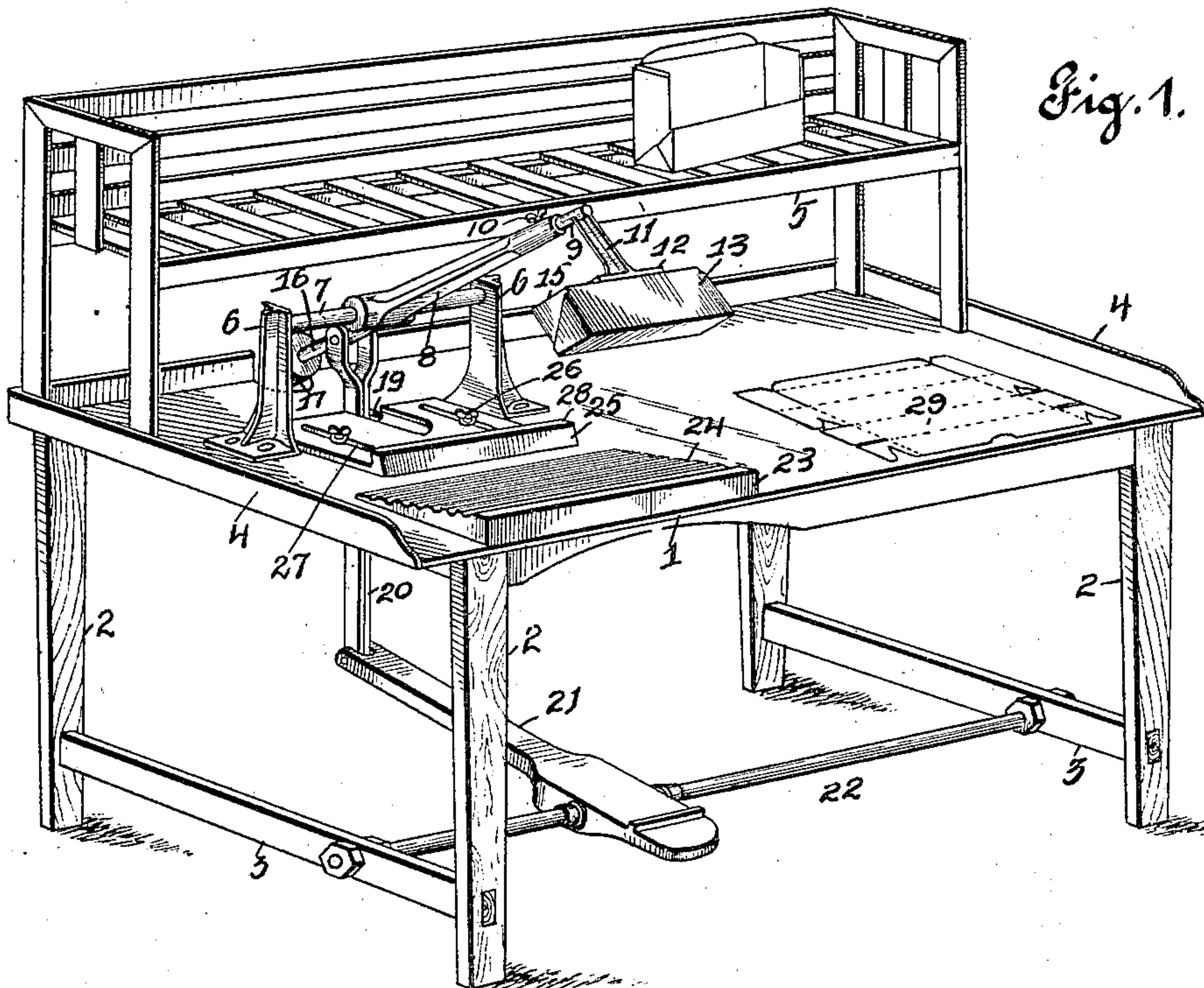


Fig. 1.

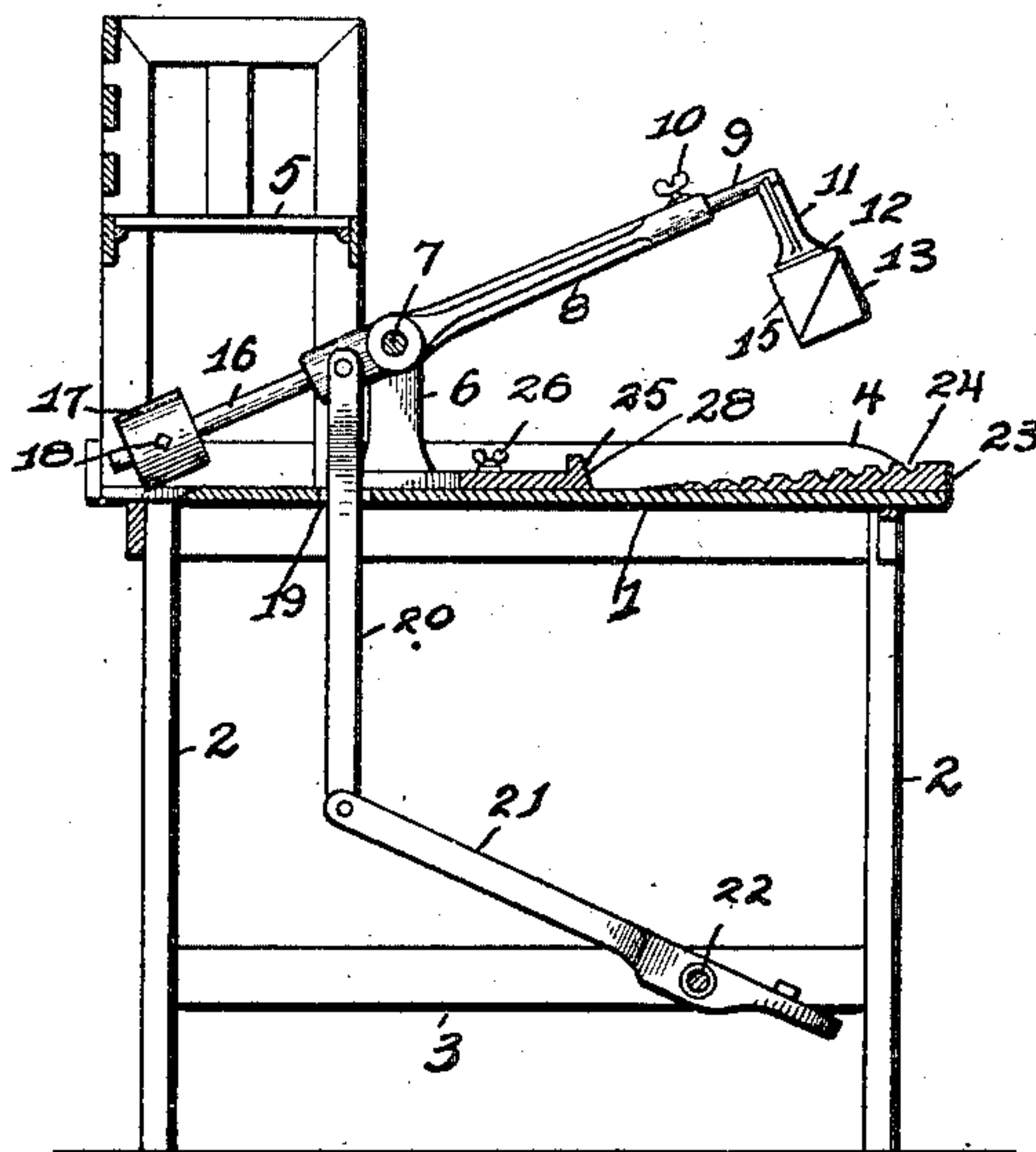


Fig. 2.

Witnesses
Alfred O. Eick
John R. Rippey

Inventor:
Albert Kochs.
by Wigdon & Longan Attys.

A. KOCHS.
PAPER BOX MACHINE.

(Application filed Sept. 16, 1901.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 3.

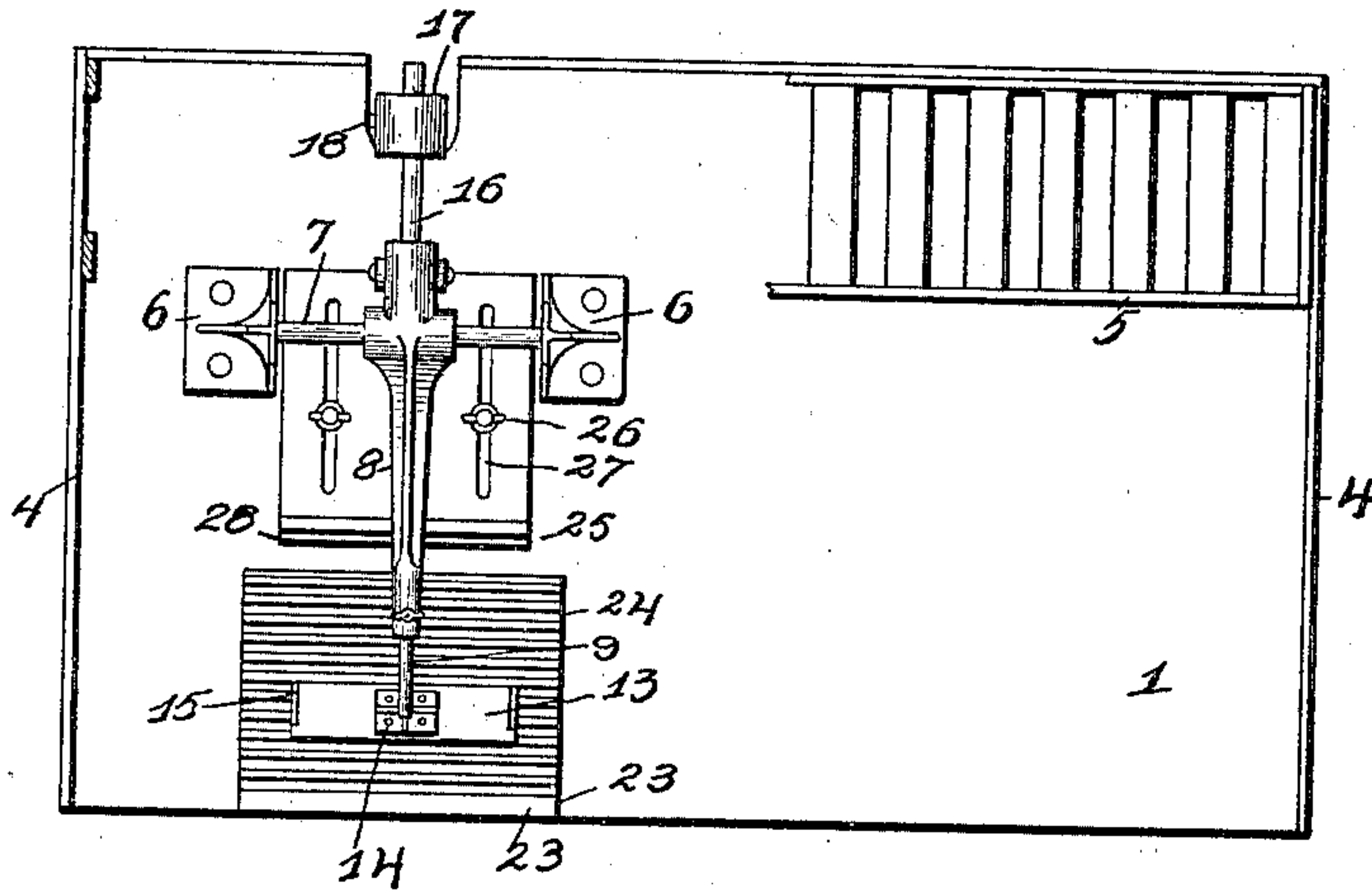
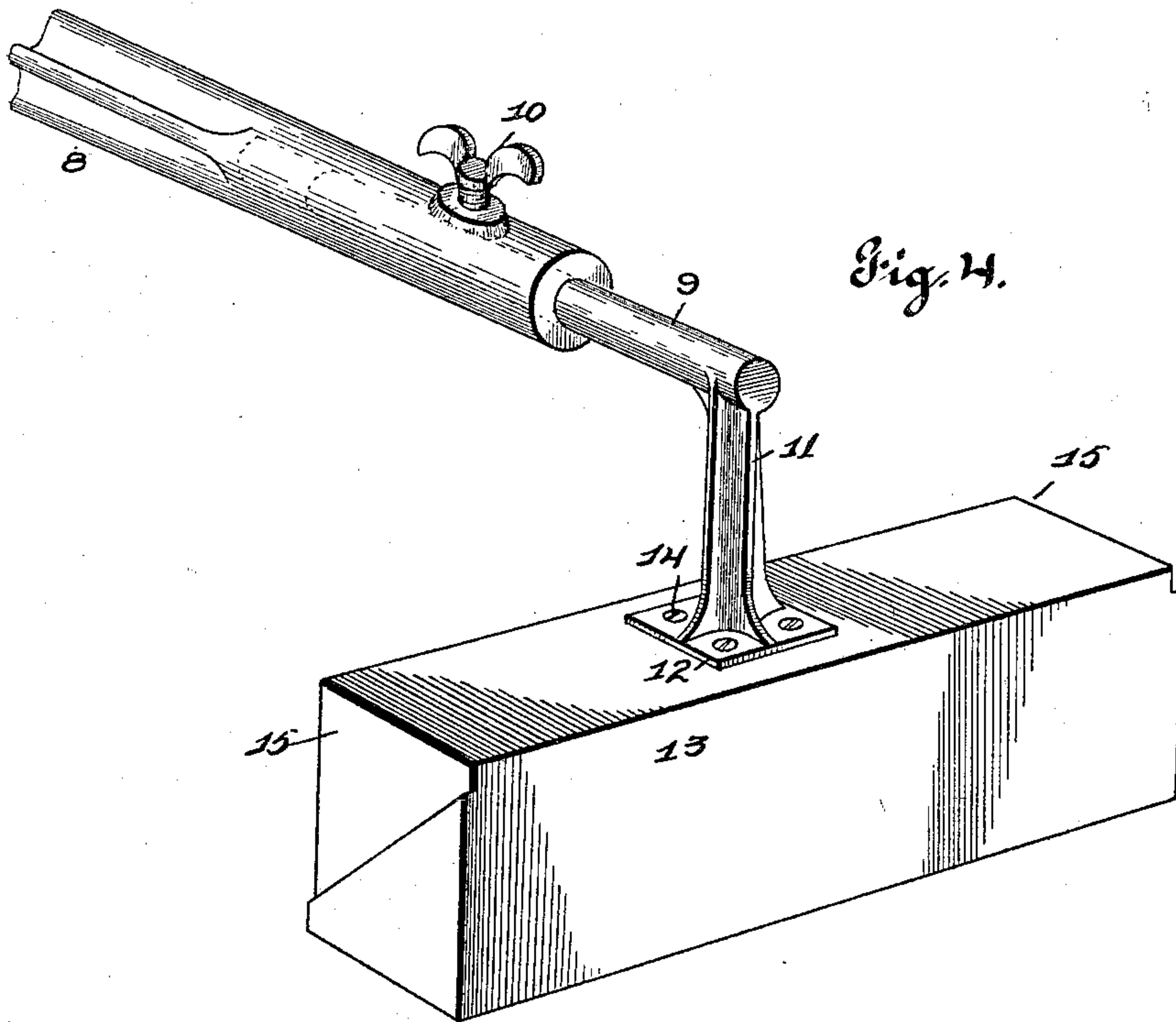


Fig. 4.



Witnesses

Alfred A. Eicher
John R. Rippey

Inventor

Albert Kochs.
by Higdon & Longan Attys.

UNITED STATES PATENT OFFICE.

ALBERT KOCHS, OF ST. LOUIS, MISSOURI.

PAPER-BOX MACHINE.

SPECIFICATION forming part of Letters Patent No. 701,360, dated June 3, 1902.

Application filed September 16, 1901. Serial No. 75,541. (No model.)

To all whom it may concern:

Be it known that I, ALBERT KOCHS, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Machines for Making Paper Boxes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to machines for making paper boxes; and it consists of the novel construction, combination, and arrangement of parts hereinafter shown, described, and claimed.

One object of this invention is to provide an improved machine to be used in forming boxes out of paper blanks and consisting, preferably, of a table having an inclined support for receiving the blanks and an arm pivotally supported above or adjacent to the said support and carrying a "former," which can be adjusted in different positions or may be removed and another former connected to the arm, thereby rendering the machine capable of forming boxes of different shapes and sizes.

Another object is to provide in this machine an adjustable gage, preferably held in position on the table by thumb-screws and adapted to serve as a gage or stop for the box-blanks, so that the latter may readily and without delay be placed in the required position upon the support under the former. There are other objects and advantages involving various details of construction, all of which will clearly appear from the following description.

My invention consists of a table, bearing-blocks or standards mounted upon the table, a shaft mounted in the bearing-blocks, an arm or lever pivotally mounted upon the shaft, the front end of said arm being tubular, a rod slidably and adjustably mounted in said tubular end, a former-block attached to the forward end of the adjustable rod, a counterbalancing-weight attached to the rear end of said arm to counterbalance the former-block, a connecting-rod pivotally connected to the rear end of said arm and extending downwardly through the table-top, a foot-lever connected to the lower end of said connecting-rod, an inclined form-support mounted upon the table in position to be engaged by the former-block, the upper face of said support being corrugated, and a gage or stop adjustably mounted upon

the table between said bearing-blocks and back of said form-support.

Figure 1 is a perspective view showing one form of my invention. Fig. 2 is a cross-section. Fig. 3 is a plan view. Fig. 4 is a perspective view of the former and a part of the arm which supports it.

In the form shown my invention consists of a table comprising a top 1, supported at the required height and in any preferred manner, as by the legs or supports 2, which latter are strengthened by means of the braces or cross-pieces 3. The top 1 is preferably a continuous flat surface and may have attached thereto the vertical side pieces 4, which may be of assistance in holding the objects upon the table. At the rear side of the table may be located a rack 5, supported a suitable distance above the top of the table and adapted to receive the finished boxes after they have been removed from the former. Near one end of the table are secured the standards 6, preferably of metal, and carrying near their upper ends a rod 7, upon which the former-carrying arm is mounted. The said arm is indicated by 8 and is preferably of metal and extends forwardly over the inclined support, to which I will hereinafter refer. The front end of the said arm 8 is hollow or tubular and is intended to receive the end of the rod 9, which supports the former. As shown in Fig. 4, the said rod 9 extends into the hollow portion of the arm 8 and is held by means of a set-screw 10. It is intended that the former be adjusted in different positions, and this is done by releasing the pressure of the set-screw 10 on the rod 9, and thereby permitting the said rod to be moved to the required position. It is convenient to adjust the position of the former-block upon the form-support 23 by manipulating the set-screw 10. The front end of the rod 9 is extended downwardly, as indicated by 11, and the lower end of the extension 11 is provided with an integral or rigid plate 12, to which the former-block 13 may be attached by means of the screws 14. The said block 13 is preferably of wood, conforming in shape to the form of box in the construction of which it is to be used. The upper rear corners of the said block are recessed or cut away, as indicated at 15. The purpose of this construction is to permit the end flaps to be pressed

inward, and thereby facilitate the interlocking of the said flaps in the construction of the box. The arm 8 is extended to the rear of the rod 7, as indicated by 16, and a counter-
 5 balance-weight 17 is carried by the said extension 16 and may be adjusted thereon to overcome the weight of the former-block 13. The said weight 17 is held upon the extension 16 by means of the set-screw 18, the inner end
 10 of which engages with the extension 16 in the usual manner. An opening 19 is formed in the top 1, and an arm 20 extends through said opening and is pivoted at its upper end to an arm 8 at the rear side of the rod 7. The lower
 15 end of the arm 20 is pivoted to a treadle or foot-lever 21, which is carried by a rod 22, supported by the cross-pieces 3 or some other portion of the table-frame. Upon the front
 20 side of the table is secured an inclined support 23, the same being located immediately under the former 13, and a series of grooves 24 is formed longitudinally in the said support.

The upper face of the form-support 23 is
 25 inclined backwardly and downwardly, because it is found that it is more convenient for the operator, the degree of the inclination depending upon the height of the table relative to the height of the operator. It will
 30 also be noticed that the inclination of the form-support will allow the forms to slide backwardly against the gage 25. The corrugations or grooves 24 are a great convenience to the operator, because they provide spaces
 35 for inserting the fingers under the forms when the forms are resting upon the form-support. If the form-support was larger than the forms and the table smooth, it would be difficult for the operator to get hold of the
 40 edges of the form as required to fold it.

25 indicates a gage or stop which rests upon the flat upper surface of the top 1 and is restrained against movement by means of the set-screws 26, which extend through the slots
 45 27 into the top 1 of the table. It will thus be seen that by releasing the set-screws 26 the gage may be moved into different positions. The forward edge of the said gage is provided with an integral flange 28, forming a broad
 50 surface for receiving the edge of the box-blank.

Having set forth the various details of construction of my improved machine, I will now describe its operation. As shown, the top 1
 55 of the table is preferably of such length that the blanks may be placed thereon at one end, conveniently located as to the operator. The said blanks are indicated by 29 and, as shown, are mounted upon the right-hand end
 60 of the table, so that they may readily be moved one at a time and placed upon the inclined support 23 under the former. The gage or stop 25 is adjusted into the required position, as above described, by operating
 65 the set-screws 26, and the blanks are placed upon the stop 23 in such position that the portions which form the bottom of the completed

box will be immediately below the former 13. The operator then lowers the front end of the foot-lever 21, which raises the arm 20 and operates the arm 8 upon the rod 7. This brings
 70 the former 13 downward upon the blank, the said former pressing it firmly against the support 23 and resting, as stated, upon that portion of the blank which forms the bottom of
 75 the completed box. The operator then by use of his fingers raises the end flaps of the box-blank and by his thumbs at the same time turns the front side of the box upward against the said former. At the same time
 80 the rear side of the box-blank is raised and the end flaps are interlocked, which places the box in condition to receive its intended contents.

I desire to state that I have only described
 85 the formation of one form of box, the blank for which is shown upon the table in Fig. 1. This is the usual form of box-blank used in the construction of paper boxes for storing biscuits, crackers, and the like and is perfectly familiar to those skilled in this art, and for that reason I have given no detailed description of the box-blank further than to describe the manner in which it is assembled
 90 into a completed box by use of my machine. After the box has been assembled around the former as described the operator releases the pressure from the front end of the lever 21 and permits the weight 17 to descend, and thereby raise the former, the operator at the
 100 same time holding the box, so that the former will be separated therefrom. The support 23, it will be seen, is inclined toward the rear edge, which renders it very convenient to the operator, a portion of whose body is necessarily above the upper surface of the table.

The grooves 24 may be termed "finger-grooves," in which the fingers and thumb of the operator can be more readily passed under the box-blank to fold it around the former.
 110 It will be seen that the support 23 has an area substantially equal to that of the box-blank; but it is not necessary that it be of so large a size, and it may be reduced, if preferred, to an area equal to that of the bottom of the completed box, since it is only necessary that the former hold that portion of the box on the support. If, however, the support is to be of large size, it is desirable that the finger-grooves 24 be provided, within which the
 120 fingers of the operator may be more readily passed under the edges of the box-blank without obstruction.

I claim—

1. In a machine for making paper boxes, a
 125 table; a form-support mounted upon the table; a "former-block" pivotally mounted in position to engage the form-support, the ends of said block being recessed to receive the ends of the form as they are folded around the
 130 block; and means for operating the "former-block;" substantially as specified.

2. In a machine for making paper boxes, a table; bearing-blocks mounted upon the ta-

ble; a gage adjustably mounted upon the table
between the bearing-blocks; a form-support
movably mounted upon the table in front of
the gage, the upper surface of said form-sup-
5 port being corrugated and inclined back-
wardly; a shaft mounted in the bearing-
blocks; an arm pivotally mounted upon the
shaft; a former-block adjustably attached to
the front end of said arm; a foot-lever under
10 the table; and a connection between the foot-
lever and the said arm to operate the former-
block, substantially as specified.

3. In a machine for making paper boxes, a
table; bearing-blocks mounted upon the ta-
15 ble; an adjustable gage mounted upon the
table between the bearing-blocks; a former-
block pivotally mounted in said bearing-
blocks in position to engage the form-support,

the ends of said block being recessed to re-
ceive the ends of the form as they are folded 20
around the block; a form-support mounted
upon the table in front of the gage, and in
position to be engaged by the former-block,
the upper surface of said form-support being
corrugated and inclined backwardly; a foot- 25
lever mounted under the table; and a connec-
tion between the foot-lever and the former-
block for operating the former-block, substan-
tially as specified.

In testimony whereof I affix my signature 30
in presence of two witnesses.

ALBERT KOCHS.

Witnesses:

ALFRED A. EICKS,
JOHN D. RIPPEY.