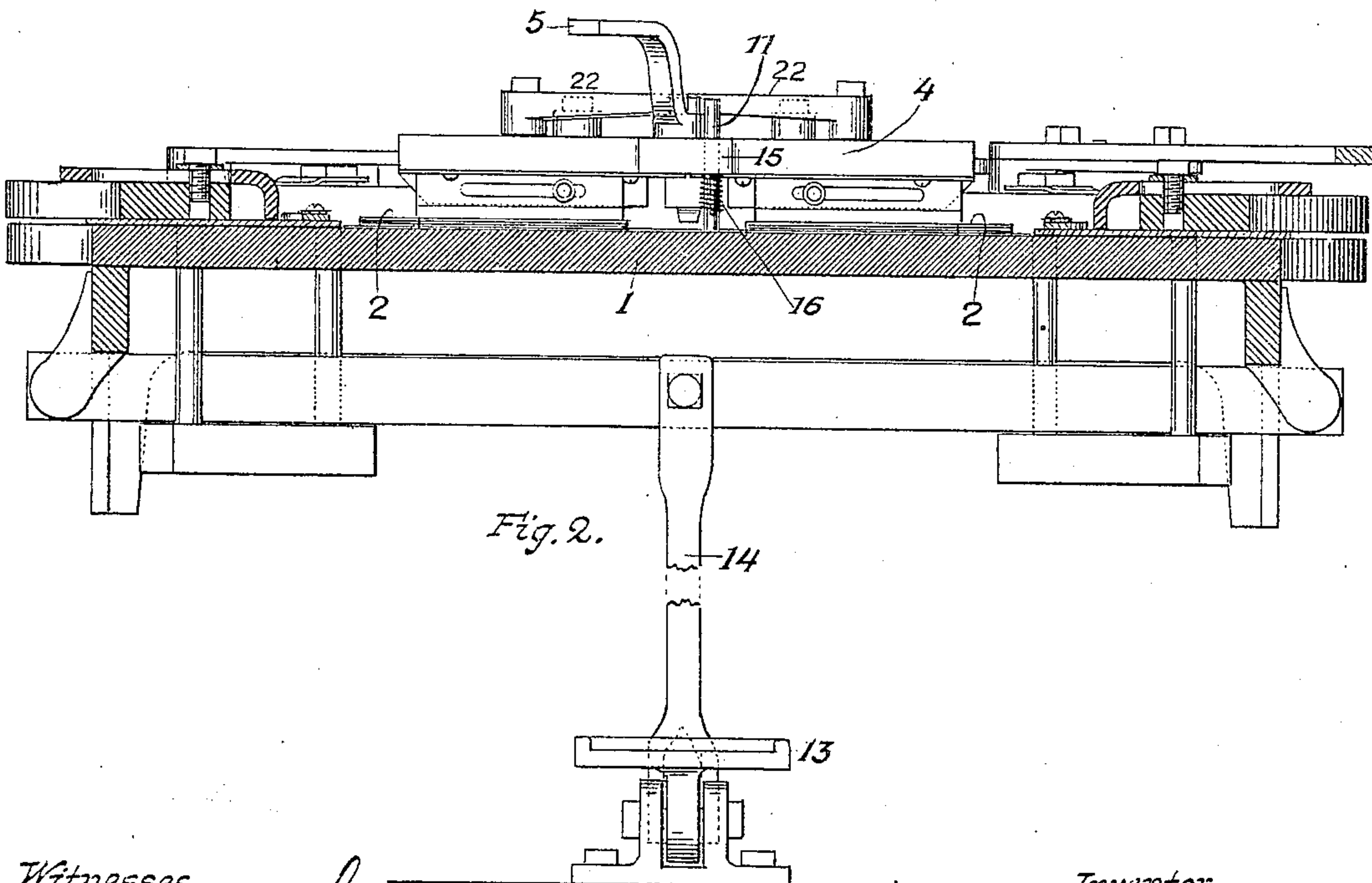
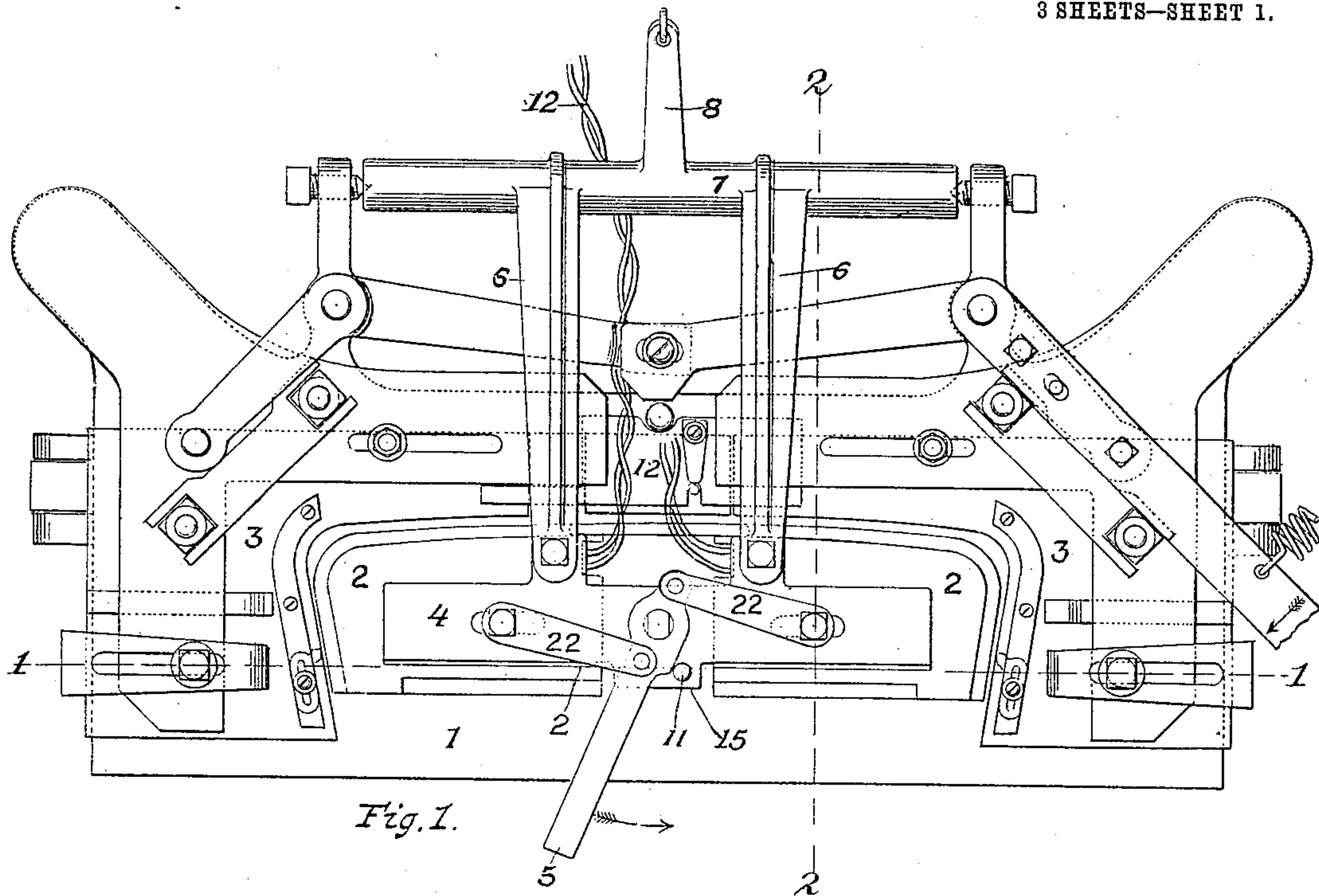


E. H. BROWN.
FOLDING MACHINE.
APPLICATION FILED SEPT. 30, 1908.

954,775.

Patented Apr. 12, 1910.

3 SHEETS—SHEET 1.



Witnesses.

Charles S. Kirk
Elisabeth L. Styginski

Inventor,

Engineer H. Brown

by

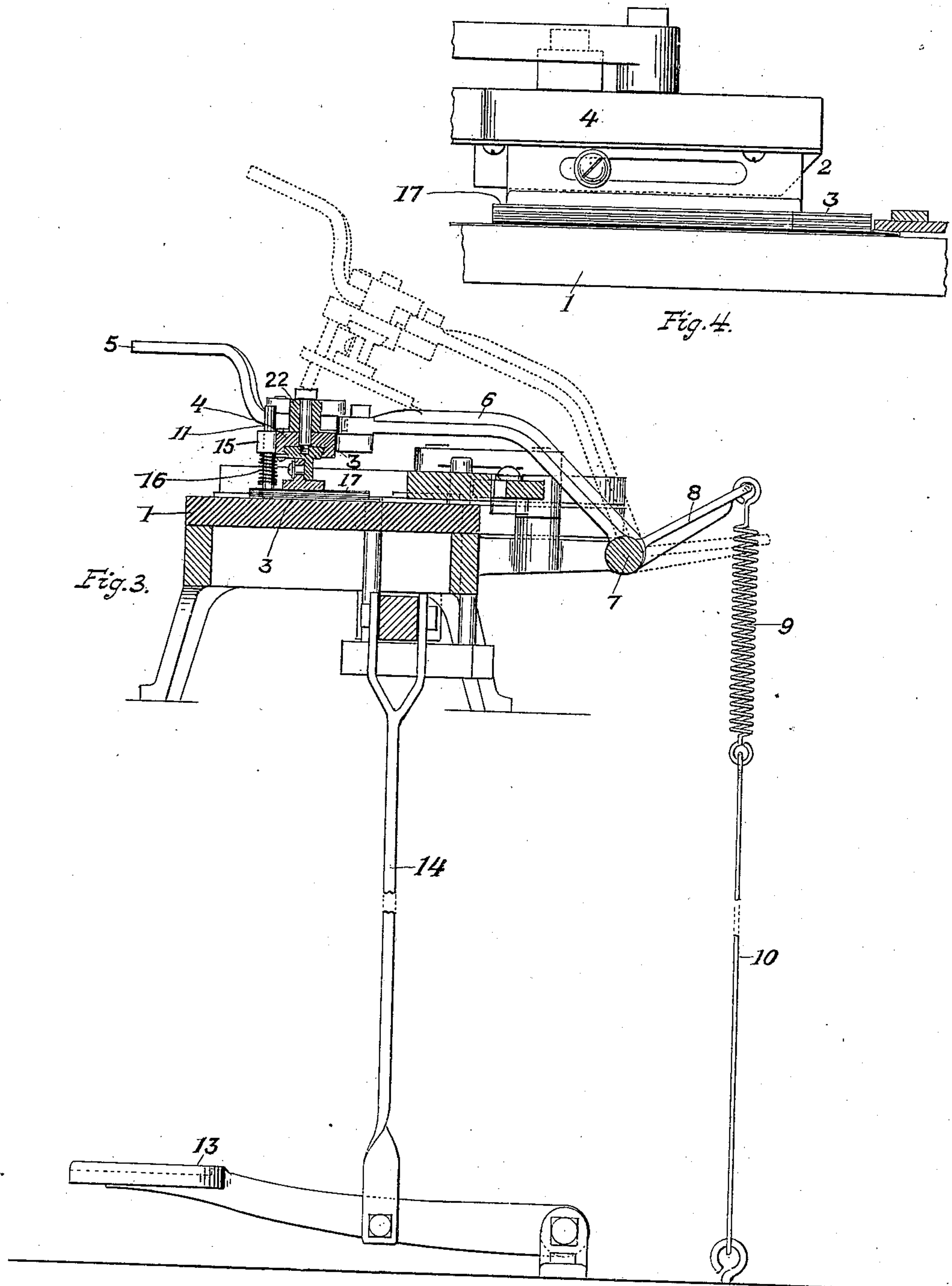
Walter E. Ward,
his Attorney.

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3 SHEETS—SHEET 2.



Witnesses

Charles Sessink
Elisabeth L. Styring

Inventor,

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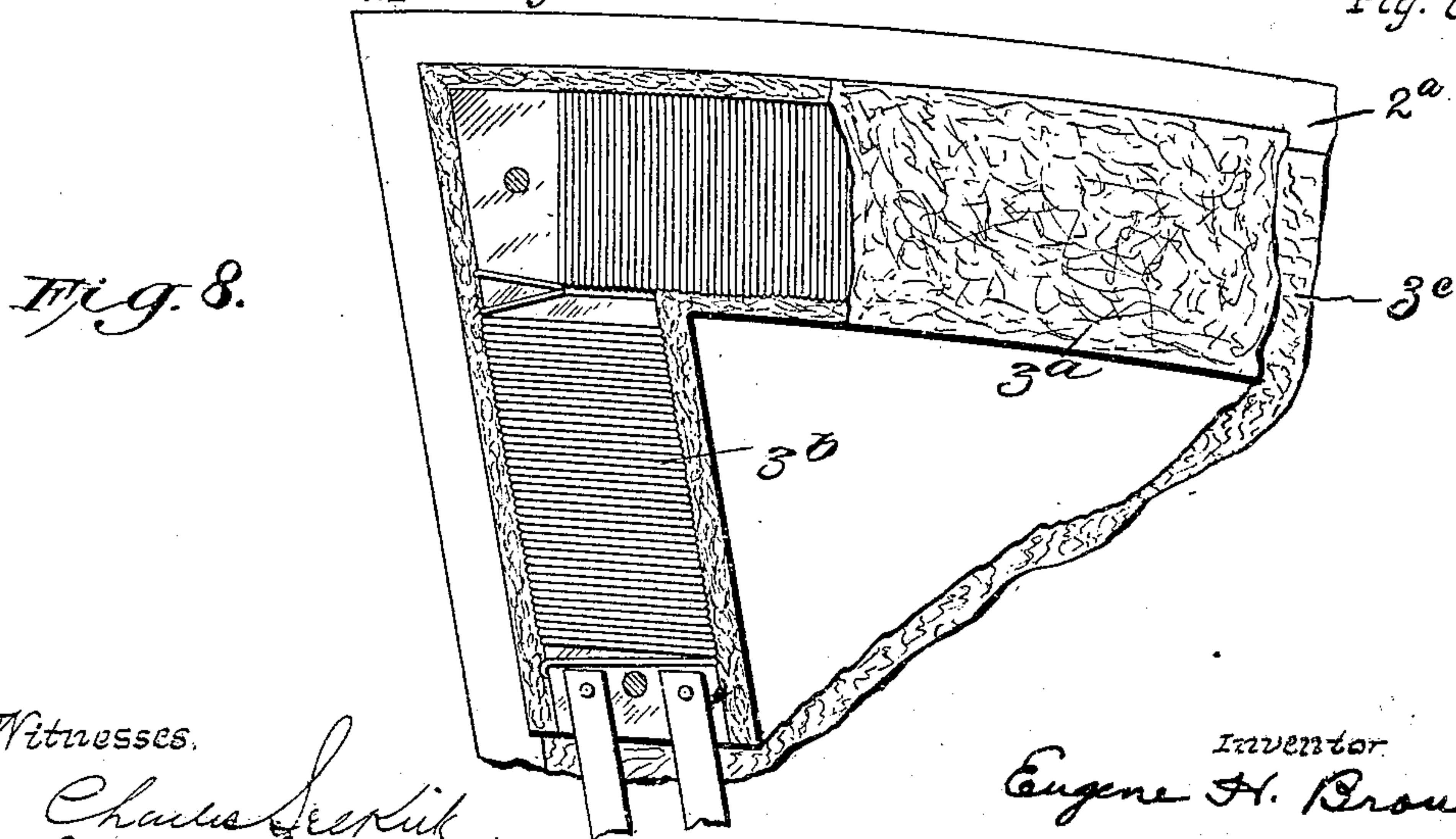
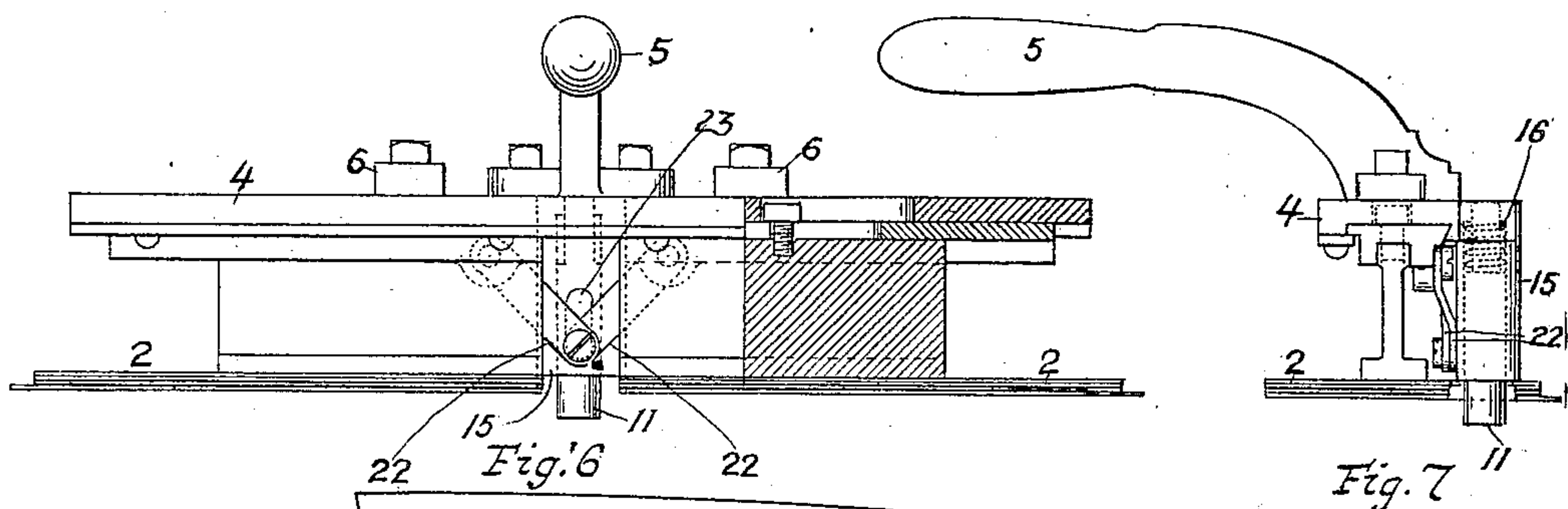
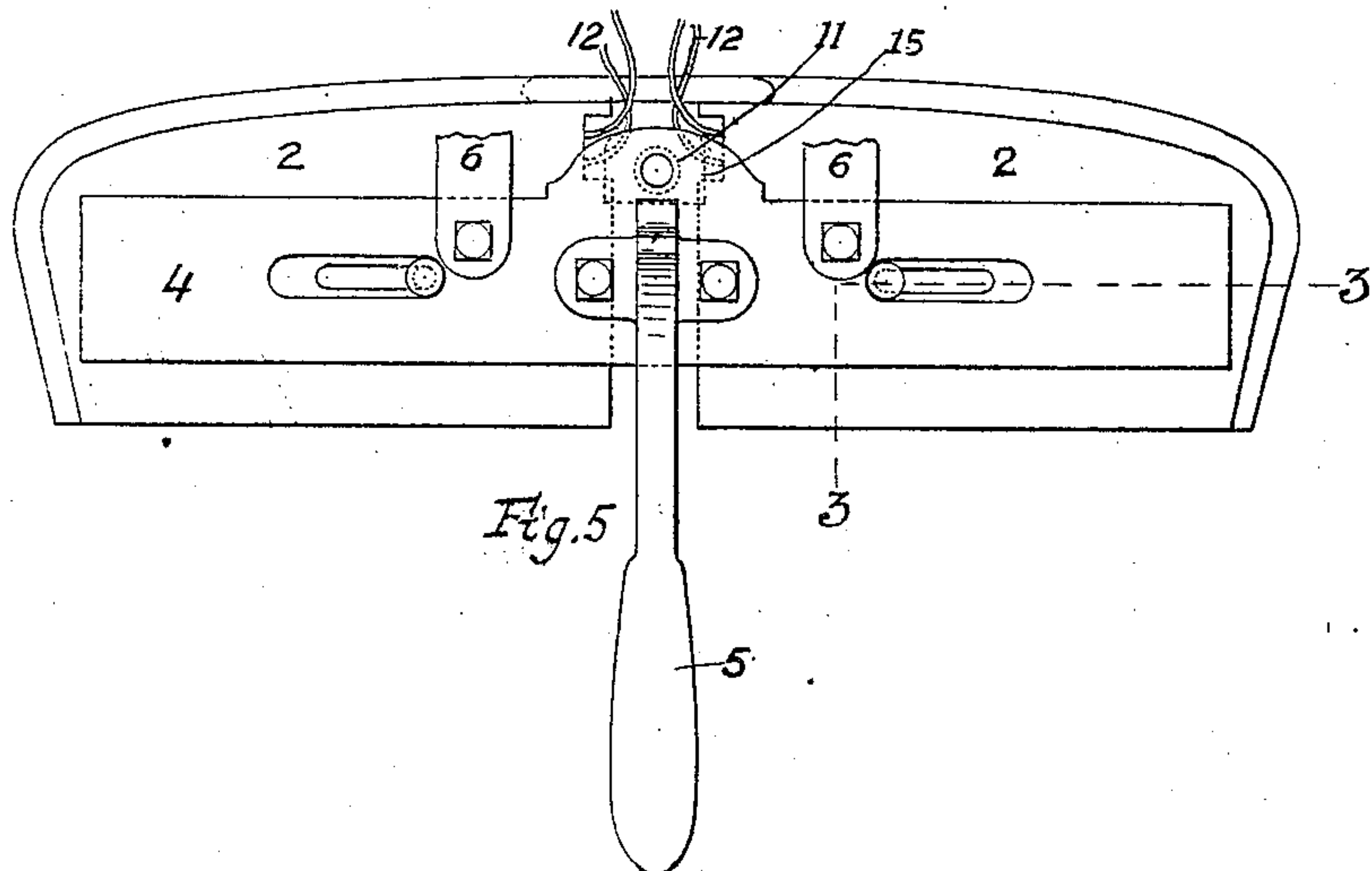
by Walter E. Ward
his Attorney

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3 SHEETS—SHEET 3.



Witnesses.

Charles Seckis
Elisabeth L. Styrang

Inventor.

Eugene H. Brown

By *Walter E. Ward*
Attorney.

UNITED STATES PATENT OFFICE.

EUGENE H. BROWN, OF TROY, NEW YORK.

FOLDING-MACHINE.

954,775.

Specification of Letters Patent.

Patented Apr. 12, 1910.

Application filed September 30, 1908. Serial No. 455,498.

To all whom it may concern:

Be it known that I, EUGENE H. BROWN, a citizen of the United States, residing at Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Folding-Machines, of which the following is a specification.

My invention relates to folding machines, and the objects of my invention are to construct a machine for folding collar and cuff blanks in which the die will be heated independently from the other parts of the machine and the edges of the goods will be folded and pressed over the heated die before the die is removed from the folds. I accomplish these objects by means of the mechanism illustrated in the accompanying drawings in which:

Figure 1 is a plan view of my machine. Fig. 2 is a longitudinal section on line 1—1, Fig. 1. Fig. 3 is a transverse section on line 2—2, Fig. 1. Fig. 4 is an enlarged detail view of one end of the die showing the cloth inserted and an edge turned over the edge of the die by the forward movement of one of the folder plates. Fig. 5 is a top plan view showing a modified form of the method of collapsing the die. Fig. 6 is a front elevation of the same partly in section on line 3—3, of Fig. 5. Fig. 7 is an end elevation of the same. Fig. 8 is a fragmentary view of the die showing the resistance coils and insulation and the asbestos cloth under the die-plate.

Similar numerals refer to similar parts throughout the several views.

The reference character 1 designates the bed-plate of the machine. The blanks to be folded are placed upon this bed-plate.

2 is the die which is of the size and shape of the collar and cuff intended to be made and designed to press upon the goods lying upon the bed-plate of the machine.

3, 3 are folder-plates designed to fold the goods over the edges of the die in the usual manner. The die 2 is of the collapsible type as shown and described in United States Letters Patent No. 678,094 issued to me July 9, 1901 and No. 870,343 issued to me Nov. 5, 1907.

The die 2 is attached to the die head 4 and is operated by the handle 5. The die-head is pivoted by the arm 6 to the rear portion of the machine at 7 and has an auxiliary arm 8 extending backward from the point

where it is pivoted to the machine at 7. To this auxiliary arm 8 is attached the spring 9 which is anchored to the floor or to some substantial part of the machine by the rod 10 in such a position that the spring 9 will hold the die head up in a raised position as shown by the dotted lines in Fig. 3 when not in use, so that the die will be free from the bed-plate of the machine when not engaged in pressing the goods upon the bed-plate.

As before stated, the die is of the collapsible type and is operated by the handle 5. The die is expanded in position to press the goods on the bed-plate by pushing the handle to one side as shown in Fig. 1. The handle is then brought downward and the die pressed upon the goods lying upon the bed-plate of the machine. The folder-plates are then moved inwardly folding the edges of the goods over the edges of the die. In order to have a smooth and uniform fold the goods are pressed over the die and the folder-plates removed after the pressing takes place. The die head is then raised, and the die is collapsed by moving the handle 5 in the opposite direction. In order to prevent the collapsing of the die before the pressing is completed I provide the pin 11 extending downwardly from the die-head of the machine and so located as to be by the side of the handle 5 when the die is upon the goods, as shown in Figs. 1 and 3. The pin 11 is mounted slidably in the bearing or sleeve 15 which is attached to or forms a part of the die-head. When the die-head is raised as shown by the dotted line, Fig. 3, the spring 16 holds the pin 11 down as shown by the dotted lines so that the upper end of the pin does not come in contact with the handle 5, but when the die is expanded and the die-head pressed downward so that the die rests upon the goods upon the bed-plate of the machine the lower end of the pin 11 will rest upon the bed-plate of the machine and the pin be pushed upward through the bearing 15 so that the upper end of the pin will come next to the handle 5 in such a position that the handle 5 cannot be moved sideways to collapse the die, and the spring 16 will be compressed by the operator pressing the die-head downward as shown in Fig. 3. After the folding and pressing has taken place and the folder plates withdrawn from over the die the die head is then raised by the spring 9 to the position shown by the dot-

ted lines of Fig. 3. As the die-head is raised from the bed-plate the spring 16 moves the pin 11 downward so that the upper end of the pin is no longer in contact with the handle 5 and the operator then moves the handle 5 sidewise and collapses the die withdrawing it from the fold of the goods and allows the goods which have thus been folded and pressed to be removed without disturbing the folds.

In order to make a successful fold it is necessary to apply heat to the portion of the goods being folded. I accomplish this by applying the heat directly to the die within the fold. This had heretofore been considered impossible and I believe I am the first one ever to have accomplished it.

12, 12 are wires conducting electricity from without to the die so that the die is constantly heated, the wire being flexible allows the die head to be raised and lowered and the die to be collapsed and expanded without interfering with the heating process. Only the edges of the collar and cuff blanks are folded and they are folded over the edge of the die-plate 2^a which is thin steel.

Over the upper surface of the die-plate 2^a far enough from the edges not to interfere with the folding of the goods, I place plates of steel 17 to reinforce and strengthen the die-plate 2^a and within this reinforcement between the outside plate 17 and the die-plate I place resistance coils 3^b to which the wires 12, 12 conduct the electricity. These resistance coils are covered with insulation substance as mica or asbestos 3^a so as to insulate the coils from the other parts of the die and distribute the heat directly to the die-plate itself. Upon the bottom surface of the die which comes in contact with the goods being pressed, except the edges of the die-plate over which the edges of the goods are folded, I place asbestos cloth 3^c to protect that portion of the goods not being folded and at the same time reserve the heat generated by the electricity for the edges of the die where the folding takes place.

When the edges of the goods are folded over the edges of the die as above described they are pressed over the die by any well known means, as by the foot pedal 13 connected by the rod 14 and intermediate levers to the folder-plates so that when the folder-plates are moved inward over the die, pressure upon the foot pedal 13 presses the folder-plates downward upon the goods upon the die and this presses the goods over the die between the folder-plates and the bed-plate of the machine.

Instead of the die being collapsed as previously described and as shown in my prior patents above referred to the die may be divided into two parts and mounted slidably

upon the die head as shown in Fig. 6. In this case I attach the handle 5 rigidly to the die-head and instead of attaching the arms 22 to the handle 5 as shown in Fig. 1 I attach the arms 22 to the pin 11 which is slidably mounted in the sleeve 15 and bears against the spring 16. When the die-head is brought down the pin 11 pressing against the bed-plate of the machine moves upward in the sleeve 15, compressing the spring 16 as above described, and as the pin moves upward it moves the lower ends of the arms 22 upward and this slides each section of the die outwardly. As the die-head is raised from the bed-plate the spring 16 presses downward the pin 11 and contracts the die, both sections sliding toward each other and the goods are released as above described. Constructed in this way it is not necessary to heat the bed-plate of the machine or the folder-plates of the machine and very much less electricity is required for heating the die which is thin and small, than heating the folder-plates and the bed-plate. At the same time the die is heated at the essential parts within the fold of the goods and a constant and uniform heat maintained at the essential points and smooth and successful folds are obtained with the least expenditure of heat and consequently with less expense in operating the machine.

What I claim as my invention and desire to secure by Letters Patent is:

1. A folding machine consisting of a bed-plate, a die composed of a thin metallic die-plate reinforced with steel plates upon the upper surface thereof except sufficient space at the edges of the die-plate for the edges of the goods to be folded over it, an electric unit between said reinforcing plates and the surface of the die-plate, said die adapted to be heated by said electric unit independently of the other parts of the machine, folder-plates adapted to move inwardly and fold the goods over the edges of said die upon the bed-plate of the machine, and means for pressing the goods over the die between the folder-plates and the bed-plate of the machine.

2. In a machine for folding collar and cuff blanks, a bed-plate, a die head having a collapsible die adapted to rest upon the goods on said bed-plate, folder-plates adapted to fold the goods over the edges of the die, means for pressing the folder-plates downward upon the goods while folded over said die, a handle attached to the die-head of the machine, a pin attached to the die-head of the machine near the handle of the die, whereby the collapsing of the die will be prevented while the die rests upon the bed-plate of the machine and means for heating the die by an electric current, whereby the die will be heated independently

from the other parts of the machine substantially as described for the purposes set forth.

3. In a machine for folding collar and
5 cuff blanks, a bed-plate, a die adapted to rest
upon the goods on said bed-plate, said die
being in two sections, each section slidably
mounted in a die-head, a die-head carrying
said die, folder-plates adapted to fold the
10 goods over the edges of the die, means for
pressing the folder-plates downward over
the goods when folded over said die, a pin
slidably attached to said die-head, two arms,
one pivotally connecting one section of the
15 die with said pin and the other pivotally connecting
the other section of said die with
said pin, the lower end of said pin extending
below the lower surface of said die-head and

adapted to rest upon the bed-plate of the
machine when the die is pressing the goods 20
upon said bed-plate, a spring adapted to
press said pin downwardly when said die-
head is raised from the bed-plate, whereby
upon pressing said die upon said bed-plate
said pin will expand said die and raising 25
said die-head from said bed-plate said
spring, by moving said pin downwardly,
will contract said die substantially as de-
scribed and for the purposes set forth.

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

EUGENE H. BROWN.

Witnesses:

ELIZABETH L. STYRING,
ANNA E. HODGKIN.